

# Introduction

## 1.1 Introduction

This Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) for the Canyon Creek Suite of Rehabilitation Sites: Trinity River Mile 73 to 78 addresses the environmental issues, alternatives, and impacts associated with the proposed modification of the banks of the Trinity River at four specific sites between Junction City and Helena (Proposed Action). Such channel rehabilitation measures are required for the restoration of Trinity River mainstem fisheries. These measures are specifically designed to benefit anadromous fish and their habitat by developing a properly functioning and diverse floodplain and main river channel habitat. These sites are associated with alluvial features along a 5-mile reach of the Trinity River upstream of the North Fork Trinity River and downstream of the community of Junction City, Trinity County, California.

The U.S. Bureau of Reclamation (Reclamation) and the North Coast Regional Water Quality Control Board (Regional Water Board) prepared this EA/DEIR in cooperation with the U.S. Bureau of Land Management (BLM) and the USDA Forest Service (USFS). This document meets the legal requirements of 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, the federal lead agency for NEPA and federal Endangered Species Act (ESA) requirements, will be responsible for construction of the Proposed Action. The Proposed Action is Reclamation's proposal prior to public input, and Alternative 1 has been developed in response to initial public input in a manner that potentially reduces one or more significant impacts identified in the *CEQA Guidelines*. However, a decision concerning which alternative to implement will not be made until all public comments on this document have been reviewed. The action selected may incorporate elements of either the Proposed Action or Alternative 1 in accordance with the requirements of NEPA and CEQA. The Regional Water Board will function as the state lead agency under CEQA.

Because of its extensive experience and land holdings along the Trinity River below Lewiston, and within the Canyon Creek Suite Project area, the BLM will perform the duties of a NEPA cooperating agency for the project. As a cooperating agency, BLM assisted in the preparation of this EA/DEIR. As the manager of the Wild and Scenic Corridor established for the designated reach of the Trinity River, BLM analyzed potential impacts to the Outstandingly Remarkable Values (ORVs) for which the Trinity River was designated under the federal Wild and Scenic River Act. The USFS also owns land within the project area, specifically, the Elkhorn Site; therefore, it will act as a cooperating agency pursuant to NEPA.

This document discloses relevant information to all interested parties and invites these parties to play a role in both the decision-making process and the implementation of the decision. This EA/DEIR also provides federal, state, and local decision makers with detailed information concerning the potentially

significant environmental, social, economic, cultural, and other impacts associated with the Proposed Action and the alternatives considered in this document.

The Record of Decision (ROD) for the Trinity River Mainstem Fishery Restoration Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR), dated December 19, 2000, directed Department of the Interior (DOI) agencies to implement the Preferred Alternative identified 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, a series of legal challenges occurred 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 because of the litigation in federal court. 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 Action under both NEPA and CEQA.

Copies of all of the above-referenced documents, as well as the December 19, 2000 ROD, and the documents that, taken 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

The decision to prepare a stand-alone EIR in the absence of a certified EIR for the Trinity River Mainstem Fishery Restoration Program is consistent with the *CEQA Guidelines*. Consistent with the ROD, Reclamation, in cooperation with other federal agencies, is required to proceed with all of the measures outlined in the FEIS. The Regional Water Board considers that there is a need for the Proposed Action based on this federal policy and the Regional Water Board’s role in satisfying state and local requirements under CEQA. The Regional Water Board’s role in facilitating the Proposed Action is to ensure that state and local permitting requirements are satisfied and that the EIR portion of this NEPA/CEQA document is legally adequate for use by the Regional Water Board and the other state and local agencies responsible for CEQA compliance. Notably, the Regional Water Board lacks the power or authority to alter the overall Flow Decision and the subsequent decision to facilitate mechanical channel rehabilitation projects to accommodate federal agencies acting pursuant to the December 2000 ROD.

## **1.2 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 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). 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.

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 (TRFES) and to develop recommendations “regarding permanent instream fishery flow requirements, Trinity River Division 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 Hoopa Valley Tribe (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 fact that the EIR portion of the FEIS/EIR for the Trinity River Mainstem Fishery Restoration Program was never certified precludes the ability to use it as a “first tier” CEQA document. For this reason, this EIR is 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.

In conjunction with the planning and implementation of the Canyon Creek and Hocker Flat Rehabilitation Projects, the TRRP has issued a Notice of Preparation for the Indian Creek Channel Rehabilitation Project. This project is intended to provide juvenile fish habitat in the Indian Creek reach (Trinity River Mile 93.7 to 96.5), while reducing flow impacts during ROD flows. Meanwhile, design options and

implementation of other proposed Trinity River restoration components, including coarse sediment/spawning gravel supplementation, infrastructure improvement projects to protect private and public property from damage by ROD flows, and watershed improvement projects are proceeding. Since these projects may occur simultaneously, the members of the Trinity Management Council (TMC) in conjunction with the Regional Water Board are making a concerted effort to ensure that the models, data, assumptions, and analyses for these projects are fully coordinated.

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

Trinity County, with grant funding provided by CDFG and the State Water Board, has inventoried all county road crossings of fish-bearing streams in the Trinity River basin and is currently implementing the highest ranked migration barrier removal projects. Trinity County has also completed a sediment source inventory on county roads and is prioritizing and implementing projects to reduce road-related sediment sources. The BLM has completed a similar inventory of its roads in the Trinity River watershed. As needed, road rehabilitation projects will occur based on these inventories. Currently, the USFS is planning and/or implementing timber management, fuels reduction, and watershed improvement projects in the Weaver Creek and Rush Creek watersheds. NEPA and CEQA review is being provided on a project-by-project basis by the appropriate agencies. State, regional, or local entities could be the CEQA lead agency for those projects. In general, the USFS acts as the NEPA lead agency for projects on National Forest lands, and BLM acts as NEPA lead agency for projects on BLM lands.

### **1.3 Trinity River Restoration Program**

The purpose of the TRRP is to restore anadromous fish populations of the Trinity River. The ROD (U.S. Department of Interior 2000) outlined six specific and integral components of the TRRP:

- implementation of a variable annual flow regime according to recommendations provided in the Trinity River Flow Evaluation Study (TRFES);
- mechanical channel rehabilitation;
- fine and coarse sediment management;
- watershed restoration;
- infrastructure improvement; and
- adaptive environmental assessment and management.

The Proposed Action will be the second project developed under the mechanical channel rehabilitation component.

The strategy of the TRRP is to create a smaller, dynamic alluvial channel which 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 power and flood control objectives of the TRD are maintained.

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, such as the Trinity River. The TRRP office has been established in Weaverville, California, to ensure that these components are implemented in a coordinated fashion in conjunction with the numerous stakeholders involved. Specific 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 Action has been developed in a manner compatible with the AEAM Program elements. These elements include:

- 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;
- re-evaluate objectives, refine hypotheses, improve models, and improve management; and
- continually self-examine AEAM science and management via external peer review.

To date, the TRRP has prioritized several groups of rehabilitation projects that could be implemented in the next several years to meet ROD requirements for mechanical channel rehabilitation and that are consistent with the overall goals and objectives. Planning efforts have been initiated for the two reaches upstream of Douglas City. These sites are identified as Indian Creek and the Lewiston/Dark Gulch reaches. The Lewiston/Dark Gulch reach extends from Lewiston Dam, downstream to Bucktail Bridge. The TRRP staff is involved in the planning and development of these Trinity River mainstem projects, with support from members of the TMC.

### 1.3.1 CHANNEL REHABILITATION ACTIVITIES

Mechanical rehabilitation activities were proposed for the mainstem Trinity River from Lewiston Dam to the North Fork Trinity River confluence. The overall 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/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 TRD.

The FEIS identified 44 potential channel rehabilitation sites and three potential side-channel sites for consideration by the TRRP. Site selection was based on identifying locations where channel morphology,

sediment supply, and high-flow hydraulics would encourage a dynamic alluvial channel. The ability to access and conduct rehabilitation activities on private property was also considered in the selection process. The site boundaries developed for the project encompass portions of four of the sites identified in the FEIS (41, 43, 44, and 45) and expands on the original Pear Tree Gulch site, which was constructed as a test bank feathering project in 1993. A systematic detailed evaluation of the river identified 104 specific restoration sites (alpha descriptor) that offered rehabilitation opportunities. Eleven of these sites are included within the site boundaries used to define the Proposed Action. These sites are CN, CO, CP, CS, CT-R, CT-L, CU-R, CU-L, CV, CW, and CX.

## **1.4 Type of Environmental Document**

This document is designed to comply with both NEPA and CEQA. The NEPA and CEQA laws require that governmental agencies evaluate the environmental impacts of their Proposed Actions before making formal commitments to carry them out and that the public be involved in the evaluations. NEPA is a federal law that applies to federal agencies, whereas CEQA is a California law that applies to state and local agencies. For this project, NEPA requires preparation of an EA and CEQA requires preparation of an EIR. By preparing a single document that complies with both statutes, the involved agencies have been able to avoid unnecessary duplication of effort.

The *CEQA Guidelines* identify several types of EIRs, each applicable to different project circumstances. This EIR has been prepared to function as a project EIR, pursuant to Public Resources Code Section 21156. A project EIR evaluates the environmental impacts of a specific project (*CEQA Guidelines*, Section 15161). This type of EIR focuses 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). For the reasons set forth previously, the “tiering” process is unavailable for the Proposed Action for purposes of CEQA, although it is available for purposes of NEPA.

## **1.5 Similarities and Differences between NEPA and CEQA**

Although there are similarities between CEQA and NEPA, the two acts are not identical. For example, NEPA is a procedural law requiring agencies to evaluate a range of reasonable alternatives, disclose potential impacts, and identify feasible mitigation. CEQA, in contrast, is partly “substantive” in that it requires an agency to adopt “feasible” mitigation measures for any “significant effect on the environment.” In an EIS (a NEPA document), as opposed to an EIR (a CEQA document), reasonable alternatives must be rigorously and objectively evaluated at a greater level of detail. The threshold for preparing an EIR 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. This document is an example of an EA/EIR. It has been prepared because the Regional Water Board, as the CEQA lead agency, determined that the level of controversy surrounding the Proposed Action is sufficient to trigger the need to prepare an EIR under the low-threshold CEQA standard. The federal lead agency, however, does not believe that an EIS is required under the higher NEPA threshold. Even so, the EA shares many attributes of an EIS, particularly the detailed analysis of alternatives.

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 EA/EIR 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 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 & 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.

CEQA requires that this EA/DEIR propose mitigation measures for each significant impact of the Proposed Action subject to the approval of an agency governed by California law, even when the mitigation measure cannot be adopted by the “lead agency” (Regional Water Board for this project), but can only be imposed by another responsible agency.

CEQA and NEPA sometimes use different terms for similar concepts. For example, CEQA uses the term “proposed project” while NEPA uses the term “Proposed Action.” For readability, this document uses “Proposed Action,” except when the context requires CEQA terminology.

### 1.5.1 NEPA/CEQA PROCESS

This EA/DEIR has been prepared so that Reclamation, as the lead agency under NEPA, and the Regional Water Board, as the lead agency under CEQA, may respectively meet the requirements of each act. This document is intended to function as a joint environmental document in accordance with 40 Code of Federal Regulations (CFR) Part 1506.2 of the federal Council on Environmental Quality NEPA Regulations and Section 15170 of the *CEQA Guidelines*. The EA/DEIR provides a description of the conceptual design alternatives of the Proposed Action, as well as a comprehensive environmental analysis of the site-specific impacts associated with project implementation.

The EA/DEIR is being circulated to responsible public resource agencies, permitting agencies, trustee agencies, the State Clearinghouse, and interested stakeholders. Written and oral comments received in response to the EA/DEIR will be addressed in a final document that is anticipated to be a Finding of No Significant Impacts/Final Environmental Impact Report (FONSI/FEIR).

CEQA requires preparation of an EIR when the lead agency makes a determination that there is substantial evidence that the Proposed Action may have a significant effect on the environment. The Regional Water Board determined that an EIR should be prepared for this project because preliminary analysis by Regional Water Board staff identified the possibility of potentially significant environmental impacts as well as the potential for significant controversy, as defined in the *CEQA Guidelines* (California Code of Regulations [CCR] Title 14, Section 15000 et seq.).

Regional Water Board staff will review the oral and written comments on the EA/DEIR and respond to them in the final document. Staff will then make a recommendation to the Regional Water Board on whether to certify the final EIR portion of the EA/EIR under CEQA. If the Regional Water Board chooses to certify the EIR, it must first adopt “CEQA Findings” addressing whether each potentially significant impact of the Proposed Action has been mitigated either through mitigation measures or through provisions in the alternatives (*CEQA Guidelines*, Section 15091, subdivision (a)). If, after adopting such findings, the Regional Water Board is still faced with unmitigated significant impacts or does not have control over the mitigation measures necessary to mitigate certain impacts, it must also adopt a “statement of overriding considerations” before it can approve the proposed project. That statement must set forth the economic, social, or other benefits of the project that it believes outweigh its unmitigable significant environmental impacts (*CEQA Guidelines*, Section 15093).

CEQA requires that, in order to commence the 30-day statute of limitations for any legal challenge to an EIR, the lead agency file a Notice of Determination (NOD) with the County Clerk in the county where the project will occur and with the State Office of Planning and Research (when State agency approvals are required) which informs the public which project from the EIR has been adopted. Filing of the NOD will complete the environmental review process for the CEQA lead agency. The Regional Water Board will then forward this documentation to the NEPA lead agency, along with its recommendation regarding the preferred alternative.

The EA portion of this document has been prepared under NEPA in order to determine whether the Proposed Action will constitute a major federal action that would significantly affect the human environment. If the analysis provided in the EA supports the finding that the Proposed Action would have no significant adverse effect on the environment, a FONSI will be prepared. However, if the EA finds that the Proposed Action would result in a significant effect on the environment, an EIS will be required. At present, Reclamation, based on the analysis set forth in this document, believes that a FONSI will be appropriate and that an EIS will not be required. That determination is subject to change, however, after receipt and consideration of comments provided during the public comment period. In other words, the appropriateness of a FONSI cannot be definitively determined absent a review of information generated through public review. The NEPA process will be complete with the federal lead agency’s adoption of a FONSI, unless, through public review or the receipt of other information not presently available, the NEPA lead agency decides that preparation of an EIS is required. A draft FONSI is included in the front of this EA/DEIR.

### 1.5.2 MITIGATION AND MONITORING PROGRAM

There are no NEPA statutes or regulations that explicitly require that all significant project impacts be avoided or mitigated to a less-than-significant level, or that any adopted mitigation measures developed as part of an EA be “monitored” to ensure that they are carried out. California Public Resources Code section 21081.6(a), subdivision (a), however, requires lead agencies under CEQA to “adopt a reporting and mitigation monitoring program which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment.”



Throughout this EA/DEIR, mitigation measures are clearly identified and presented in language that will facilitate establishment of a monitoring and reporting program. Any mitigation measures adopted by the Regional Water Board as 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 A and the Final MMRP will be included as an appendix to the EA/Final EIR (FEIR). The approval of such a program will be part of any action taken by the Regional Water Board with respect to the Proposed Action. When other state, regional, or local agencies subject to CEQA approve portions of the Proposed Action under their jurisdiction or regulatory power, these “responsible agencies” will be required to adopt their own MMRPs (*CEQA Guidelines*, Section 15097, subd. (d)).

## **1.6 Scoping and Public Involvement**

The Regional Water Board initiated the public scoping process by forwarding a Notice of Preparation (NOP) of an EIR to the State Clearinghouse on October 7, 2005. The NOP and agency comments on the NOP are included in this document as Appendix B.

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 Action. The public scoping period was October 7, 2005, through November 7, 2005, and scoping comments were received through November 7, 2005.

Reclamation and the Regional Water Board held a joint NEPA/CEQA scoping meeting on October 20, 2005, in Junction City, California. During this meeting, members of the public were asked what issues they felt should be addressed in this EA/DEIR. 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 this EA/DEIR. The scoping and public involvement process is also described in Appendix B.

The scoping process determined that the Proposed Action could lead to significant impacts on specific natural resources and on the human environment. Based on the comments received during the scoping process, the issues addressed in this EA/DEIR include the following:

- land use;
- geology, fluvial geomorphology, and soils;
- water resources;
- water quality;
- fishery resources;
- vegetation, wildlife, and wetlands;
- recreation;
- socioeconomics, population, and housing;
- tribal trust;
- cultural resources;

- air quality;
- environmental justice;
- aesthetics;
- hazardous materials;
- noise;
- public services and utilities/energy;
- transportation and traffic circulation;
- construction-related impacts; and
- cumulative impacts.

These issues were used to develop the descriptions of the resource areas and the associated impact analysis presented in Chapters 3 and 4.

### 1.6.1 AREAS OF POTENTIAL CONTROVERSY

The following issues associated with the Proposed Action are anticipated to be controversial, based on comments received during the public scoping process:

- ownership and placement of excavated material;
- impacts to special-status species, including anadromous salmonids;
- potential trespassing on private lands;
- potential spread of non-native invasive vegetation and techniques for non-native vegetation control;
- long-term ability of project areas to be maintained by flow;
- temporary access during construction;
- short-term construction impacts; and
- potential effects to Wild and Scenic River ORVs.

### 1.6.2 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 EA/DEIR. Publication of this EA/DEIR initiates the beginning of a 45-day public review period. The Regional Water Board will determine the need for a public hearing based on the number and nature of comments received during the public comment period. If a hearing is held, public comment on the EA/DEIR will be accepted orally at the meeting. However, to ensure proper interpretation of remarks, written comments are highly encouraged. Notice of the time and location of the public hearing(s), if required, will be published by the Regional Water Board prior to the actual hearing date. All written comments and questions regarding the EA/DEIR 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  
 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. The EA/DEIR will be sent to the State Clearinghouse and will be available online at the TRRP website:

<http://www.trrp.net/RestorationProgram/MechChannel.htm#ccc> and at the Mid-Pacific Region Bureau of Reclamation regional home page for programs and projects: Trinity River Mechanical Rehabilitation <<http://www.usbr.gov/mp/>>. Copies of the EA/DEIR 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

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

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

Shasta-Trinity National Forest  
 3644 Avtech Parkway  
 Redding, California 96002

Trinity County Planning Department  
 190 Glen Road  
 Weaverville, California 96093

Bureau of Land Management, Redding  
 355 Hemsted Drive  
 Redding, California 96002

## **1.7 Purpose and Need for the Action**

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 (proposed project) (40 C.F.R. Section 1508.9, subd. (a)). Similarly, CEQA requires that an EIR include a statement of the objectives to be achieved by a proposed project (*CEQA Guidelines*, Section 15124, subd. (b)). The objectives are intended to help the implementing agency develop a reasonable range of alternatives and aid decision makers in preparing findings, or, if necessary, a statement of overriding considerations.

### **1.7.1 PURPOSE AND NEED STATEMENT**

The purpose of the Proposed Action is to implement a suite of channel and riparian rehabilitation measures to provide needed juvenile fish habitat on the mainstem Trinity River between Junction City

and Helena, California. The ROD identified 47 discrete mechanical channel rehabilitation sites (including three side-channels) on the mainstem Trinity River between Lewiston and Helena. 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;
- 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 where adequate maintenance flows are likely to occur independent of future TRD flows.

The need for the Proposed Action 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 AEAM Program.
- 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.

The approach and methods incorporated into the Proposed Action utilized information gained by constructing the Hocker Flat Rehabilitation Project. On-going monitoring at Hocker Flat will continue to be incorporated into the AEAM Program for future restoration and rehabilitation efforts.

### 1.7.2 GOALS AND OBJECTIVES OF THE PROPOSED ACTION

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 EA/DEIR. The following goals and objectives support the Proposed Action and provide 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 Action 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;
- expand the understanding of the role that tributaries such as Canyon Creek play in terms of accretion flow relative to mainstem flows;
- provide safe and reasonable access to the site 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 site;
- integrate known fluvial and ecological theories and relationships with the site's measured physical and biological attributes and evaluate the response over a definitive time frame;
- avoid in-stream work to reduce construction-related impacts, maximize the river's ability to rehabilitate itself during high flows, and reduce implementation cost and complexity; and
- 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).

The following objectives apply to the responsible and trustee agencies for the Proposed Action, including the Regional Water Board, the State Lands Commission (SLC), CDFG, and the HVT:

- 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, and native plant 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.

## **1.8 General Setting and Location**

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 (Figure 1.1).

The Canyon Creek Suite of Rehabilitation Sites (project) is located on a reach of the Trinity River, beginning approximately 1 mile (at RM 78) below Junction City, a small community in Trinity County, California, and continuing in a downstream direction to RM 73, about a mile upstream of the confluence of the North Fork and mainstem Trinity rivers. The project includes four discrete sites, Conner Creek,

Valdor Gulch, Elkhorn, and Pear Tree Gulch, and includes work along approximately 3.4 miles of the Trinity River. To facilitate the engineering and environmental compliance efforts, the boundary for each site encompasses lands on either side of the Trinity River, although the width varies with location. The following section provides geographic information for each site. Figure 1.2 depicts the general location of these sites, relative to other geographic points of interest.

### CONNER CREEK

The Conner Creek site begins at River Mile 77.5 and extends 0.8 mile downstream along the Trinity River. It is found on the *Dedrick, California* 7.5-minute United States Geological Survey (USGS) quadrangle map, Township 34 North, Range 11 West, Sections 1, 35 and 36, MDBM, 040° 45' 15" North latitude by 123° 04' 00" West longitude.

### VALDOR GULCH

The Valdor Gulch site begins at River Mile 75.9 and extends 1.3 miles downstream along the Trinity River. It is found on the *Dedrick, California* 7.5-minute USGS quadrangle map, Township 34 North, Range 11 West, Sections 27 and 35, MDBM, 040° 45' 53" North latitude by 123° 05' 35" West longitude.

### ELKHORN

The Elkhorn site begins at River Mile 74.4 and extends 0.8 mile downstream along the Trinity River. It is found on the *Dedrick, California* 7.5-minute USGS quadrangle map, Township 34 North, Range 11 West, Sections 27 and 28, MDBM, 040° 45' 53" North latitude by 123° 06' 08" West longitude.

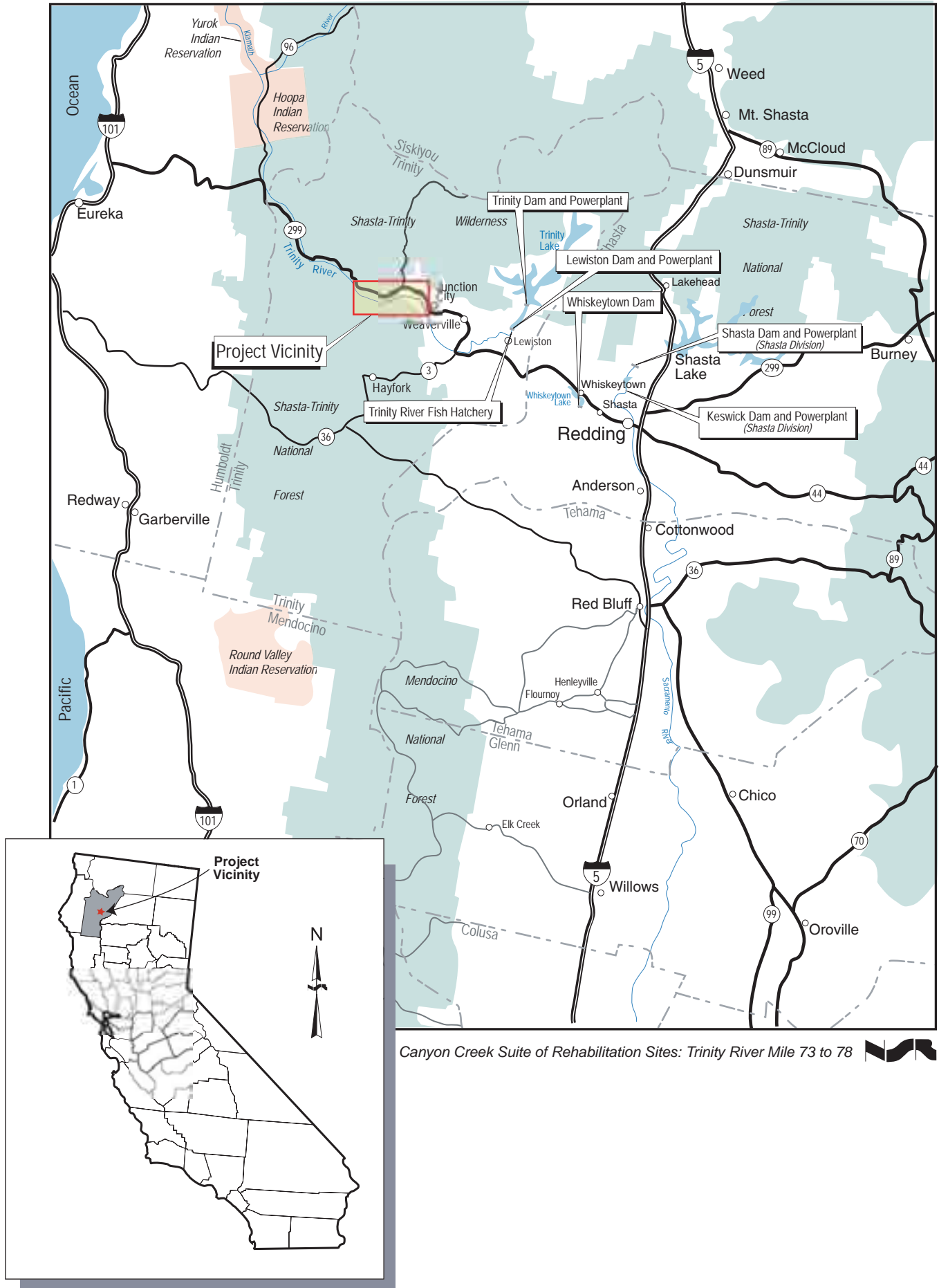
### PEAR TREE GULCH

The Pear Tree Gulch site begins at River Mile 73.4 and extends 0.5 mile downstream along the Trinity River. It is found on the *Dedrick, California* 7.5-minute USGS quadrangle map, Township 34 North, Range 11 West, Section 28, MDBM, 040° 45' 57" North latitude by 123° 06' 57" West longitude.

The TRRP staff, in conjunction with interdisciplinary review from the TMC technical staff, defined these sites based on the type of rehabilitation activities that could be applied. These activities include removal of the riparian berms, rehabilitation of floodplain features, construction of off-channel habitat for aquatic- and riparian-dependent species, and rehabilitation of upland habitat.

## **1.9 Description of the Proposed Action**

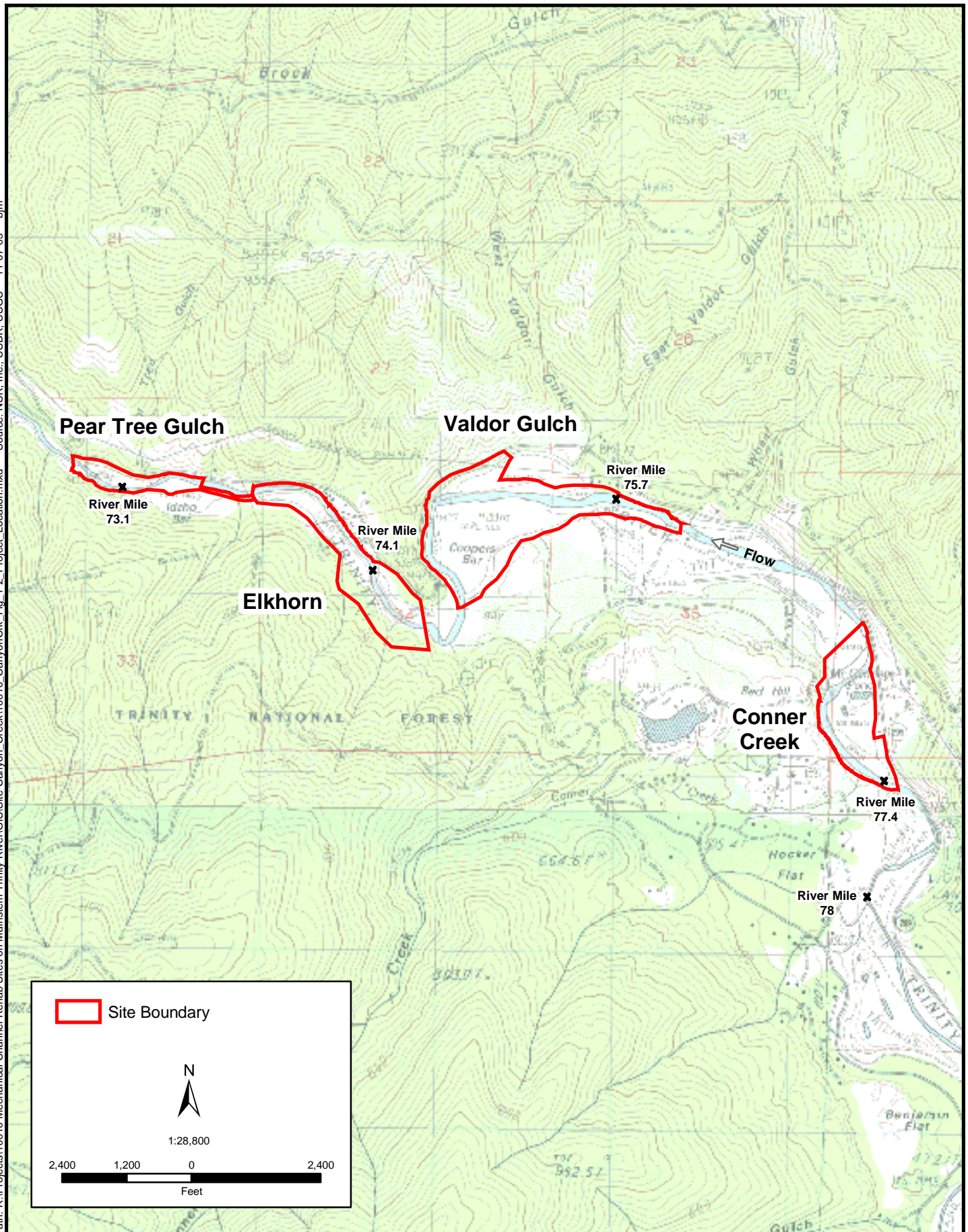
Initially, 44 potential channel rehabilitation sites and three potential side channel sites between Lewiston Dam and the North Fork Trinity River were identified (FEIS/EIR, U.S. Fish and Wildlife Service et al. 2000). Subsequently, in a detailed review of potential river rehabilitation areas, a total of 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,



**Figure 1.1. Project Vicinity**



Path: R:\Projects\10010 Mechanical Channel Rehab Sites on Mainstem Trinity River\GIS\Site-Canyon\_Creek\10010\_CanyonCk\_Fig 1-2\_Project\_Location.mxd Source: NSR, Inc.; USBR; USGS 11-07-05 bjm



**Figure 1.2**  
**Project Location**



and engineering and economic feasibility were also considered in the site selection process. Below Hocker Flat, 13 discrete sites were identified during the detailed review. Of these, 10 sites are incorporated into the segments included in the Proposed Action.

In general, the approach to the channel rehabilitation effort is to selectively remove fossilized riparian berms that developed after the TRD was completed as a result of the loss of scour associated with peak flows. Along with berm removal, physical alteration of other alluvial features (i.e., floodplains) and removing riparian vegetation at strategic locations would 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, the entire site 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 identifies 38 discrete activity areas within the boundaries of the four sites (Conner Creek, 8 activity areas; Valdor Gulch, 12; Elkhorn, 10; and Pear Tree Gulch, 8). The type, extent, and level of activity in each area may be different, depending on the alternative. These areas were defined by the 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); and staging/use areas/roads are included in areas characterized with a C. The locations of, and additional information on, these areas is provided in Chapter 2.

The activities included in the Proposed Action emphasize selective removal of fossilized riparian berms and reconnecting the river's floodplain with the river at intermediate flows (between 450 and 6,600 cfs). Removing the berms and vegetation at strategic locations will promote the river processes necessary for the restoration and maintenance of Trinity River alternate bars, thereby enhancing salmonid rearing habitat.

The TRRP has developed a number of programmatic objectives for channel rehabilitation projects. These objectives are described in Chapter 2. The programmatic objectives were used to identify a number of specific activities that could be applied at one or more sites. Each activity area was established to meet a suite of specific objectives in conformance with the overall goals and objectives outlined for the TRRP. Ultimately, the goal of these channel rehabilitation efforts is to provide suitable rearing habitat for anadromous salmonids and to reestablish geomorphic processes associated with an alluvial river (alternate point bars).

The Proposed Action includes 11 rehabilitation activities that may be common to one or more rehabilitation sites. Each rehabilitation activity is identified with an alpha code for reference throughout the EA/DEIR. Defined rehabilitation activities are shown in Table 1-1.

**TABLE 1-1.**  
REHABILITATION ACTIVITIES

Label	Activity Type
A	Recontouring
B	Feathered edge
C	Constructed floodplain (450 cfs)
D	Constructed floodplain (2,000 cfs)
E	Constructed floodplain (6,600 cfs)
F	Side channel (450 cfs)
G	Side channel (6,600 cfs)
H	Alcove (450 cfs)
I	Placement of excavated materials
J	Staging/use areas/roads
K	Revegetation

The following section provides a brief description of the riverine activities included in the Proposed Action. In addition to the riverine activities, several other activities are common to areas within each site. These activities include vegetation removal, disposal and placement of excavated material, staging, watering, and monitoring. To varying degrees, these features are related to the construction and operation of the TRD. Proximity to the river, existing topography (elevation), and the type, location, and density of riparian vegetation were used to define the riverine areas for this site.

#### Conner Creek

The Conner Creek site includes five riverine activity areas along the right side of the Trinity River. These areas are associated with the bank, side channel, floodplain, and terrace features that currently exist.

#### Valdor Gulch

The Valdor Gulch site includes nine riverine activity areas on either side of the Trinity River. These areas are associated with the bank, side channel, floodplain, and terrace features that currently exist.

#### Elkhorn

The Elkhorn site includes seven riverine activity areas on either side of the Trinity River. These areas are associated with the bank, side channel, floodplain, and terrace features that currently exist.

#### Pear Tree Gulch

The Pear Tree Gulch site includes five riverine activity areas on the right side of the Trinity River. These areas are associated with the bank, side channel, floodplain, and terrace features that currently exist.

## **1.10 Preparers of the EA/DEIR**

Since 2002, the TRRP has been involved in implementation of the ROD. Reclamation, as the NEPA lead agency, in cooperation with BLM, the USFS, and the Regional Water Board (the CEQA lead agency), continues to move forward with the measures prescribed in the ROD. Representatives of the TMC provided support to the lead and cooperating agencies throughout this process.

## **1.11 Required Permits and Approvals**

Various lead, cooperating, and responsible agencies will use the EA/DEIR for their permitting and approval processes. Additional discussion of these processes is provided in Chapter 5. Implementation of any of the action alternatives would require the following federal, state, and local permits and approvals.

### **1.11.1 FEDERAL**

#### **U.S. Army Corps of Engineers**

Section 404 of the Clean Water Act (CWA) authorizes the U.S. Army Corps of Engineers (Corps) to issue permits for the discharge of dredged or fill materials into waters of the United States, including wetlands (33 USC 1344). The Corps is authorized to issue either individual or general permits under Section 404. Under its general permit authorization, the Corps 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 Corps. For several of these nationwide permits, the Corps requires the project proponent to submit a pre-discharge notification to them requesting confirmation of project compliance with conditions of the nationwide permit. Based on a pre-application meeting with the Corps, it appears that the Proposed Action may be permitted under Nationwide Permit Number 27 (Wetland and Riparian Restoration and Creation Activities).

Reclamation submitted a wetland delineation report pursuant to Section 404 of the CWA for the project. The wetland delineation report and the Corps' field verification are contained in Appendix C.

#### **NOAA Fisheries and U.S. Fish and Wildlife Service**

Federally listed species are protected under the mandates of the Endangered Species Act (ESA) of 1973. "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. Either NOAA Fisheries (also known as the National Marine Fisheries Service) or USFWS, depending on the species, may authorize "take" that is incidental to an otherwise lawful activity. Sections 7 and 10(a) of the ESA provide a method for permitting an action that may result in an "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 for projects on federal land or involving a federal action, while Section 10(a) provides a method for permitting an incidental take resulting from a state or private action. Based on discussion with NOAA Fisheries, certain non-flow measures, including the mechanical rehabilitation projects, were considered in the October 2000 NMFS Biological Opinion issued in response to the FEIS. Furthermore, NMFS identified the mechanical

rehabilitation projects described in the ROD as reasonable and prudent measures. As required by the NMFS Biological Opinion, the following conditions will be incorporated into the Proposed Action:

- 4.a. 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 program, and dredging of sediment collection pools.
- 4.b. The USFWS and/or Reclamation shall provide for review of individual mainstem channel rehabilitation projects via the technical team (“designated team of scientists” [USFWS and Reclamation 2000], “technical modeling and analysis team” [TRMFR DEIS]) or equivalent group, and provide a written recommendation to NMFS concerning whether the projects are similar to those described in the TRMFR DEIS 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 are substantially different than described in the TRMFR DEIS and USFWS and Reclamation (2000), the technical team will recommend to NOAA Fisheries that additional ESA Section 7 consultation is appropriate.

In addition to the protection they receive under the ESA, salmon species 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. EFH refers to those waters and substrates necessary for spawning, breeding, feeding, or growth to maturity (67 FR 2343).

Reinitiating Section 7 consultation under the ESA between Reclamation and NOAA Fisheries and USFWS may be necessary if the conditions under which the Biological Opinions were prepared change significantly. An EFH consultation between Reclamation and NOAA Fisheries may be necessary if adverse effects to salmon or their habitat are identified.

## **Bureau of Land Management**

### *Wild and Scenic Rivers*

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 to preserve its free-flowing condition; anadromous and resident fisheries; and outstanding geologic, wildlife, flora and fauna, historic and cultural, visual, recreational, and water quality values. Though the Trinity River is designated specifically for its outstandingly remarkable anadromous fishery value, all recreational and free flowing characteristics are to be protected under Section 7 of the federal Wild and Scenic Rivers Act. A determination that 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 is included as Appendix D. Under an interagency agreement between the National Park Service, the BLM, and the USFS, the BLM typically has the responsibility for conducting Section 7 determinations for the Trinity River segment associated with the Proposed Action.

## **Forest Service**

As a federal Cooperating Agency under NEPA, the USFS will ensure that the activities that occur on lands managed by the USFS will be consistent with the requirements of the Land and Resource Management Plan (LRMP) for the Shasta-Trinity National Forest.

### **1.11.2 STATE OF CALIFORNIA**

#### **California Department of Transportation**

##### *Encroachment Permit*

A California Department of Transportation (Caltrans) encroachment permit will be required for placement of excavated materials within the Caltrans right-of-way along Highway 299. Caltrans rights-of way in this area typically reach 50 to 70 feet from the highway centerline. Encroachment permits may be required for materials placement at the Pear Tree Gulch and Conner Creek sites.

#### **California Department of Fish and Game**

##### *Streambed Alteration Agreement*

The Regional Water Board, as the CEQA lead agency, will not be required to obtain a Streambed Alteration Agreement from the CDFG pursuant to California Fish and Game Code Section 1602. The CDFG has determined that it does not have authority to issue lake or streambed alteration agreements on Federal projects (i.e., Canyon Creek).

##### *California Endangered Species Act Take Permit*

State-listed species are fully protected under the mandates of the California Endangered Species Act (CESA). 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 the 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 Southern Oregon/Northern California Coasts (SONCC) Evolutionarily Significant Unit (ESU) coho salmon were officially state listed as threatened on August 5, 2004.

The Regional Water Board, as the CEQA lead agency, will not be required to obtain a CESA incidental take authorization under Fish and Game Code Section 2081(b). As with the Streambed Alteration Agreement, the CDFG has determined that it does not have authority to issue a CESA incidental take authorization on Federal projects (i.e., Canyon Creek).

##### *California Wild and Scenic Rivers Act*

No permits are required under the California Wild and Scenic Rivers Act. However, compliance with laws related to the federal Wild and Scenic Rivers Act may require related permitting and consultation actions. These include the CWA Section 404 permit and CWA Section 401 Water Quality Certification.

## **North Coast Regional Water Quality Control Board**

### *Water Quality Certification/NPDES Permit*

The Regional Water Board is responsible for enforcing and protecting water resources in association with the proposed project. The Regional Water Board also controls the discharge of wastes to surface waters through the National Pollutant Discharge Elimination System (NPDES) permit process. Waste Discharge Requirements are established in NPDES permits to protect beneficial uses.

The Regional Water Board requires that a project proponent apply for and obtain a CWA Section 401 Water Quality Certification for any project that requires a CWA Section 404 permit from the Corps. Since the Proposed Action and 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 Section 401 Water Quality Certification and/or Waste Discharge Requirements (Dredge/Fill). The application will be submitted to the Regional Water Board when the pre-construction notification is sent to the Corps. The Regional Water Board is likely to impose water quality limitations and project conditions through issuance of Waste Discharge Requirements or Section 401 Certification.

A 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 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 to reduce or eliminate sediment and other pollutants in storm water as well as non-storm water discharges.

### **1.11.3 LOCAL**

The Trinity County Floodplain Management Ordinance, (Section 29.4 of the County Zoning Ordinance) requires a Floodplain Development Permit for projects that alter the Trinity River floodplain on private lands within the jurisdiction of Trinity County. The principal requirement of the permit is certification by a registered professional engineer or architect 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, the Corps, the Regional Water Board, and the Department of Water Resources (DWR) prior to any alteration or relocation of a watercourse, and the submission of evidence of such notification to the Federal Insurance Administration and the Federal Emergency Management Agency (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, such as the proposed Canyon Creek project, may require a Trinity County encroachment permit.

## **1.12 Legislative and Management History**

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

- 1855 – Klamath River Reservation established
- 1864 – Hoopa Valley Reservation established
- 1891 – Hoopa Valley Reservation boundary amendment
- 1938 – Rivers and Harbors Act authorized construction of the Central Valley Project (CVP)
- 1955 – Congress authorized the construction and operation of the TRD
- 1964 – The TRD was completed and fully operational
- 1971 – The Task Force, composed of federal, state, and local agencies and tribes, was established
- 1976 – Pacific Fishery Management Council (PFMC) established
- 1980 – USFWS prepared EIS relating impacts of TRD to Chinook salmon and steelhead declines
- 1980 – Public Law 96-335 – Trinity River Stream Rectification Act
- 1980 – Trinity River designated a California Wild and Scenic River
- 1981 – Trinity River designated a Federal Wild and Scenic River
- 1981 – Interior Secretary’s Decision to temporarily increase Trinity River instream flows; USFWS is ordered to initiate 12-year Trinity River Flow Evaluation Study.
- 1983 – USFWS prepared EIS for Trinity River Restoration
- 1984 – Trinity River Basin Fish and Wildlife Management Act (PL 98-541)
- 1984 – Trinity River Flow Evaluation study (TRFE) started
- 1988 – Yurok Reservation recognized and established
- 1988 – Reclamation and USFWS establish an office in Weaverville
- 1991 – Interior Secretary’s decision to temporarily increase Trinity River flows to 340,000 af until TRFE completed (Lujan Decision)
- 1992 – Central Valley Project Improvement Act (PL 102-575) (Sec. 3406(b)(23))
- 1992 – Trinity River Water Quality Objectives and Interim Action Plan approved as Clean Water Act standards by the EPA
- 1994 – EIS initiated for Trinity River Mainstem Fishery Restoration program
- 1995 – Reclamation/USFWS Weaverville office is closed.
- 1996 – Trinity River Basin Fish and Wildlife Management Act (PL 104-43) reauthorized and amended
- 2000 – Record of Decision for Trinity River Mainstem Fishery Restoration issued by Department of the Interior

- 2001 – Litigation on Record of Decision, filed in United States District Court for the Eastern District of California, results in issuance of preliminary injunction urging Department of the Interior to undertake preparation of Supplemental EIS, although non-flow aspects of the ROD are allowed to proceed.
- 2002 – Reclamation’s TRRP office is established in Weaverville.
- 2003 – United States District Court enters final judgment requiring Department of the Interior to prepare Supplemental EIS and invalidating certain aspects of Biological Opinions issued by NOAA Fisheries and USFWS.
- 2004 – U.S. Court of Appeals for the Ninth Circuit enters 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.

Additional details on 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. 2000) and Appendix A of the Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1 EA/DEIR (U.S. Bureau of Reclamation 2004). Both of these documents are on file at the TRRP office in Weaverville, California.

### **1.13 Indian Tribes**

Secretarial Order No. 3175 states that the DOI, “when engaged in the planning of any Proposed Action 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 EA/DEIR 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 Tsunungwe Tribe.

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

### **1.14 Integration of Related Environmental Review Requirements**

In addition to integrating the NEPA and CEQA processes, this document integrates these processes with the environmental review and consultation requirements of other relevant federal and state programs. The following section provides an overview of the principal environmental statutes that are integrated into the EA/DEIR.

#### **1.14.1 COMPLIANCE WITH SECTION 404 OF THE CLEAN WATER ACT**

Section 404 of the CWA authorizes the Corps to issue permits for the discharge of dredged or fill materials into waters of the United States, including wetlands (33 USC 1344). The Corps is authorized to



issue either individual or general permits under Section 404. Under its general permit authorization, the Corps 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 Corps. For several of these nationwide permits, the Corps requires the project proponent to submit a pre-discharge notification to the Corps requesting confirmation that the project has complied with the nationwide permit conditions. Section 401 Certification is required for any projects authorized pursuant to CWA Section 404.

#### **1.14.2 COMPLIANCE WITH SECTION 401 OF THE CLEAN WATER ACT**

Section 401 of the federal CWA requires that state water quality standards not be violated by the discharge of pollutants into waters of the United States, including wetlands (33 USC 1344). Under this section, applicants for a federal permit to conduct activities that may result in a discharge of pollutants into waters of the United States must request and obtain a certification from the state in which the discharge would originate. The Regional Water Board will use the information available in this EA/DEIR, the Section 404 application submitted to the Corps, and the Section 401 Certification application to prepare the Section 401 Certification.

#### **1.14.3 COMPLIANCE WITH THE FEDERAL ENDANGERED SPECIES ACT**

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, or result in the destruction or adverse modification of designated critical habitat for these species. For compliance with Section 7 of the ESA, Reclamation requested and received from the USFWS a list of species that are federally listed as endangered or threatened that may be present in the project area (Appendix E). Reclamation conferred with NOAA Fisheries concerning project effects to the SONCC ESU coho salmon pursuant to Section 7 of the ESA; this ESU of coho salmon is both federally and state listed as threatened. This EA/DEIR, in conjunction with the Biological Opinion that it prepared for the FEIS, will be used by NOAA Fisheries, as described in Section 1.11.1.

#### **1.14.4 COMPLIANCE WITH THE NATIONAL HISTORIC PRESERVATION ACT**

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 Californian State Historic Preservation Officer (SHPO), and the ACHP regarding implementation of the Trinity River Fishery Restoration Program (Appendix F). In addition, letters requesting information regarding possible Native American concerns along the Canyon Creek reach of the Trinity River 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.

#### **1.14.5 COMPLIANCE WITH FEDERAL WILD AND SCENIC RIVERS ACT**

Section 7(a) of the federal Wild and Scenic Rivers Act prohibits departments and agencies of the United States from assisting by loan, grant, license, or otherwise in the construction of any water resources

project that would have a direct and adverse effect on the ORVs for which the Wild and Scenic River designation was established.

While the federal Wild and Scenic Rivers Act does not prohibit development along a river corridor, it does specify guidelines for the determination of appropriate actions within the banks of a Wild and Scenic River that protect or enhance ORVs. As the designated river manager for the Trinity River between Lewiston and Helena, California, BLM must prepare a Section 7 determination for all proposed water resources projects that would affect the free-flowing characteristics of designated river reaches. This determination will ensure that the Proposed Action does not adversely affect the values for which the river was designated. This EA/DEIR provides the information necessary to support a Wild and Scenic Rivers Act Section 7 determination.

#### **1.14.6 COMPLIANCE WITH 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.

#### **1.14.7 COMPLIANCE WITH FEDERAL EXECUTIVE ORDER 11988 (FLOODPLAIN MANAGEMENT)**

Executive Order 11988 requires federal agencies to prepare floodplain assessments for proposals located within or affecting floodplains. If an agency proposes to conduct an action in a floodplain, it must consider alternatives to avoid adverse effects 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 3.4, Water Resources, and Appendix G, Floodplain Assessment, the impact analyses conclude that the Proposed Action would not constitute a significant encroachment on the base floodplain.

#### **1.14.8 COMPLIANCE WITH 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 Action on minority and low-income populations.

# Description of Proposed Action and Alternatives

This chapter describes the Proposed Action and alternatives considered for the proposed rehabilitation sites. The term Proposed Action rather than Proposed Project is used in this document for consistency; for the purposes of this document, the two terms are synonymous. This chapter includes a description of the process used by Reclamation and the Regional Water Board to identify the Proposed Action and potential alternatives to be fully analyzed in this EA/DEIR. Detailed descriptions of the No-Action Alternative, Proposed Action, and Alternative 1 are provided, along with a detailed account of design criteria, construction criteria and methodologies, and tentative construction schedules.

## 2.1 Project Overview

The lead agencies for this EA/DEIR considered three alternatives for the purpose of analysis. The No-Action Alternative is considered the environmental baseline for purposes of NEPA analysis, while the “existing environment” is considered the baseline for CEQA purposes. As a practical matter, this distinction has no real consequence as applied herein, although it sometimes does in situations where a future No-Action scenario differs significantly from actual existing conditions at the time of document preparation.

The alternatives were developed using input from the various stakeholders, particularly local residents and resource agency personnel from multiple disciplines (e.g., an interdisciplinary team (IDT) with fisheries, hydrology and wildlife expertise, etc.), reviewing preliminary engineering data, and considering various social, physical, and biological factors. Pursuant to CEQA requirements, Alternative 1 is intended to meet most of the basic project objectives (NEPA purpose and need) while substantially lessening or avoiding one or more impacts of the Proposed Action that, absent mitigation measures or project features operating as de facto mitigation, might be significant. This environmental document evaluates the alternatives, including the No-Action Alternative, the Proposed Action, and Alternative 1, at an equal level of detail. Alternatives considered but not selected for evaluation are briefly discussed at the end of this chapter.

This EA/DEIR addresses rehabilitation activities within the Canyon Creek Suite of Rehabilitation Sites. It does not address other rehabilitation sites identified in the ROD, other than those described in Chapter 4 of this document. The flow regime used to evaluate the Proposed Action and alternatives considered in this EA/DEIR are the flows authorized by the ROD, as upheld by the U.S. Court of Appeals for the Ninth District, November 5, 2004. Based on this ruling, the ROD flows are deemed to constitute the “existing [hydrological] environment” for CEQA purposes, and are considered part of both the No-Project Alternative for CEQA and the No-Action Alternative for NEPA. The hydrological environment for purposes of alternative development and impact analysis is based on delivery of ROD flows with the

addition of accretion flows to the Trinity River from tributaries between Lewiston Dam and the North Fork Trinity River, as described in Section 3.4, Water Resources.

## **2.2 Project Location**

The Trinity River originates in the rugged Salmon-Trinity Mountains of northwest California, approximately 10 miles southwest of the town of Weed, California. The river flows generally southward until Trinity and Lewiston dams impound it. From Lewiston Dam, the river flows westward for 112 miles, terminating at the Klamath River near the town of Weitchpec, California, on the Yurok Reservation. The Trinity River drains approximately 2,965 square miles and encompasses portions of Trinity and Humboldt counties and the Hoopa Valley and Yurok reservations. The Klamath River flows northwesterly for approximately 40 miles from its confluence with the Trinity River before entering the Pacific Ocean. In general, the Proposed Action focuses on a 6.3-mile reach of the mainstem Trinity River between the communities of Junction City and Helena, Trinity County, California. The vicinity of the Proposed Action is shown in Figure 1.1. The direct, indirect, and cumulative impacts assessed in this EA/DEIR all occur within the Trinity River basin.

The following discussion provides additional information on the location of each channel rehabilitation site. For the purposes of this report, each channel rehabilitation site is referred to by its name, while collectively the sites are referred to as the project area or the rehabilitation sites. The site boundaries are illustrated in Figure 1.2 in Chapter 1.

### **CONNER CREEK SITE**

The Conner Creek site begins at River Mile 77.5 and extends 0.8 mile downstream along the Trinity River. It is found on the *Dedrick, California* 7.5-minute United States Geological Survey (USGS) quadrangle map, Township 34 North, Range 11 West, Sections 1, 35, and 36, MDBM, 040° 45' 15" North latitude by 123° 04' 00" West longitude.

### **VALDOR GULCH SITE**

The Valdor Gulch site begins at River Mile 75.9 and extends 1.3 miles downstream along the Trinity River. It is found on the *Dedrick, California* 7.5-minute USGS quadrangle map, Township 34 North, Range 11 West, Sections 27 and 35, MDBM, 040° 45' 53" North latitude by 123° 05' 35" West longitude.

### **ELKHORN SITE**

The Elkhorn site begins at River Mile 74.4 and extends 0.8 mile downstream along the Trinity River. It is found on the *Dedrick, California* 7.5-minute USGS quadrangle map, Township 34 North, Range 11 West, Sections 27 and 28, MDBM, 040° 45' 53" North latitude by 123° 06' 08" West longitude.

### **PEAR TREE GULCH SITE**

The Pear Tree Gulch site begins at River Mile 73.4 and extends 0.5 mile downstream along the Trinity River. It is found on the *Dedrick, California* 7.5-minute USGS quadrangle map, Township 34 North, Range 11 West, Section 28, MDBM, 040° 45' 57" North latitude by 123° 06' 57" West longitude.

## 2.3 Development of Alternatives

This section describes the alternatives that were developed to address the purpose and need, and the goals and objectives outlined in Chapter 1. This section also describes the No-Action condition, which represents the baseline for NEPA purposes. As noted earlier, No-Action conditions and “existing conditions” (a CEQA concept) are essentially the same. To ensure that a reasonable range of alternatives is considered under NEPA and CEQA, the lead agencies developed an alternative that is responsive to the purpose and need, the goals and objectives of the Proposed Action, and public comments submitted during scoping.

The selection of potentially feasible alternatives, which will ultimately lead to a preferred alternative, was driven by a number of factors. For an alternative to be considered potentially feasible (and therefore subject to full NEPA and CEQA analysis), it must have the ability to meet most of the purposes and objectives identified for the Proposed Action. Section 2.7 provides a brief description of alternatives considered but eliminated from further evaluation.

The following criteria were applied in order to evaluate the Proposed Action’s ability to meet the purpose and need established in Chapter 1:

- **Effectiveness** – methods, materials and performance of previous Trinity River restoration projects (including the original pilot projects constructed in the 1990s and the Hocker Flat Demonstration Project), and channel rehabilitation projects in similar environments that have documented long-term successful performance under similar circumstances were considered (e.g., Clear Creek Restoration Project).
- **Implementation** – practical execution, including potential public acceptance issues, permitting, and land use issues. Constructability and 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. The impacts considered included both short-term construction-related impacts and long-term maintenance impacts associated with TRD flow releases. Aquatic habitat, jurisdictional wetlands, and conflicting land uses were considered in the type and location of proposed activities.
- **Cost** – relative comparison of cost for each alternative, including construction and revegetation costs were considered. Cost was used to identify alternatives that were significantly out of proportion with other alternatives.

The interdisciplinary team initially evaluated at least two alternatives for each site, in accordance with the criteria outlined above. This evaluation resulted in identifying one action alternative to the Proposed Action. This alternative was 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 section. Analysis of the anticipated impacts associated with each alternative is included within Chapter 3.

The initial screening process considered alternatives that met the requirements discussed in Section 1.7. These considerations included flow regimes (seasonal and inter-annual), the potential for resource impacts, and engineering limitations. This preliminary list of alternatives incorporated input provided during meetings with various landowners and interested agencies, and culminated with input received during the CEQA scoping process.

The No-Action Alternative represents ongoing activities and operations and is intended to meet the state *CEQA Guidelines*, Section 15126.6, subdivision (e)(2) as “would be reasonably expected to occur in the foreseeable future if the Proposed Action were not approved” (CELSOC 2005). As previously discussed, the No-Action (No-Project under CEQA) Alternative is based on implementation of the ROD. In particular, the hydrologic elements authorized in the ROD will be used as the existing condition (environmental baseline). The No-Action Alternative is described in Section 2.6.

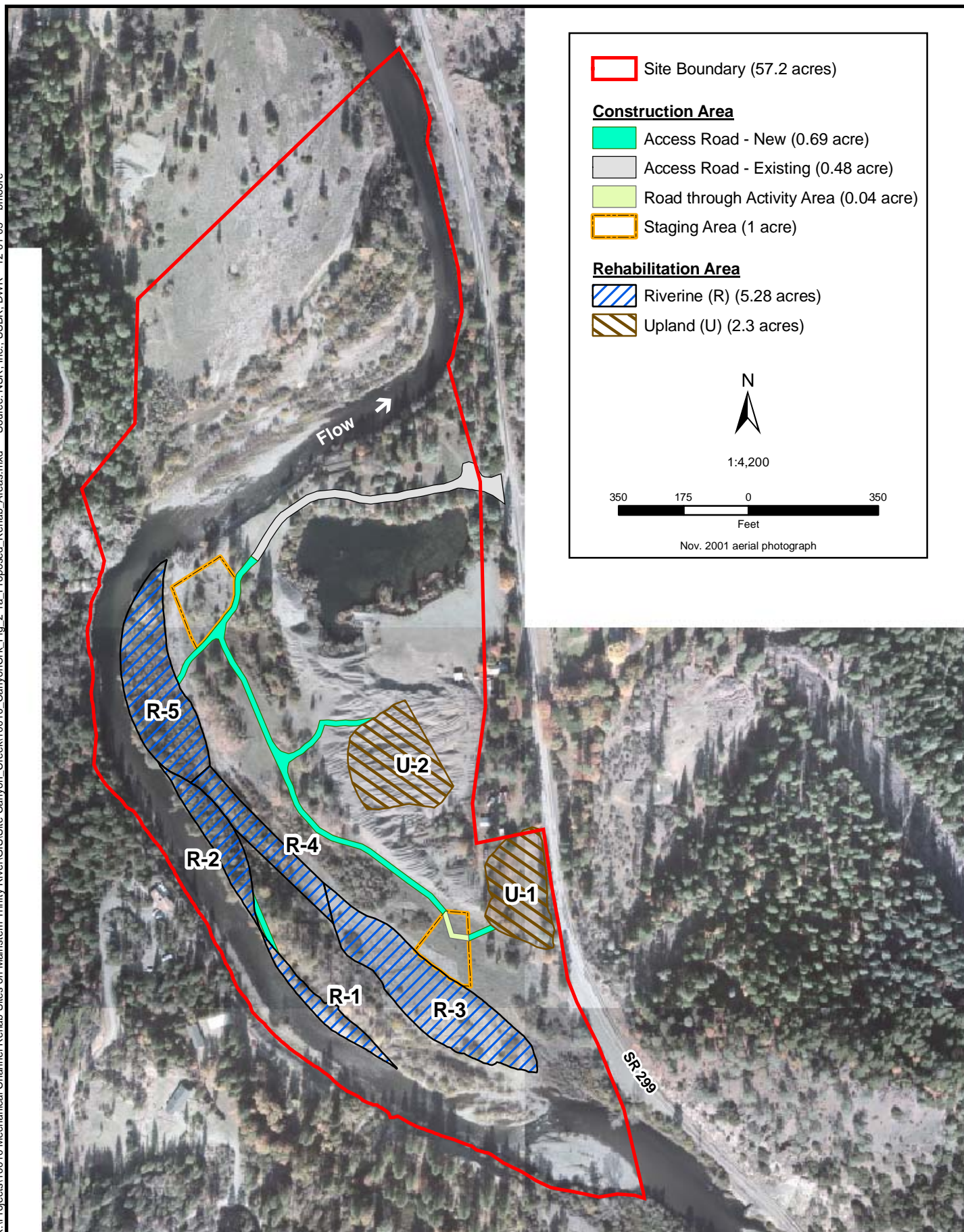
## **2.4 Project Setting**

The Canyon Creek Suite of Rehabilitation Sites encompasses 261.5 acres (Conner Creek, 57.2 acres; Valdor Gulch, 120.8 acres; Elkhorn, 62.9 acres; and Pear Tree Gulch, 20.6 acres), including lands on either side of the Trinity River. Conner Creek is located approximately 1 mile downstream from the confluence of Canyon Creek (Figure 1.2). The project location encompasses several of the sites originally identified in the ROD; however, this EA/DEIR has expanded the original site boundaries to correspond to those shown on Figures 2.1a-d. For orientation and description purposes, references to river left and river right assume an observer is looking downstream. The Trinity River essentially bisects the sites into two discrete sections, river left and river right. For readability, the EA/DEIR will use these references to river left and river right throughout the remainder of this document.

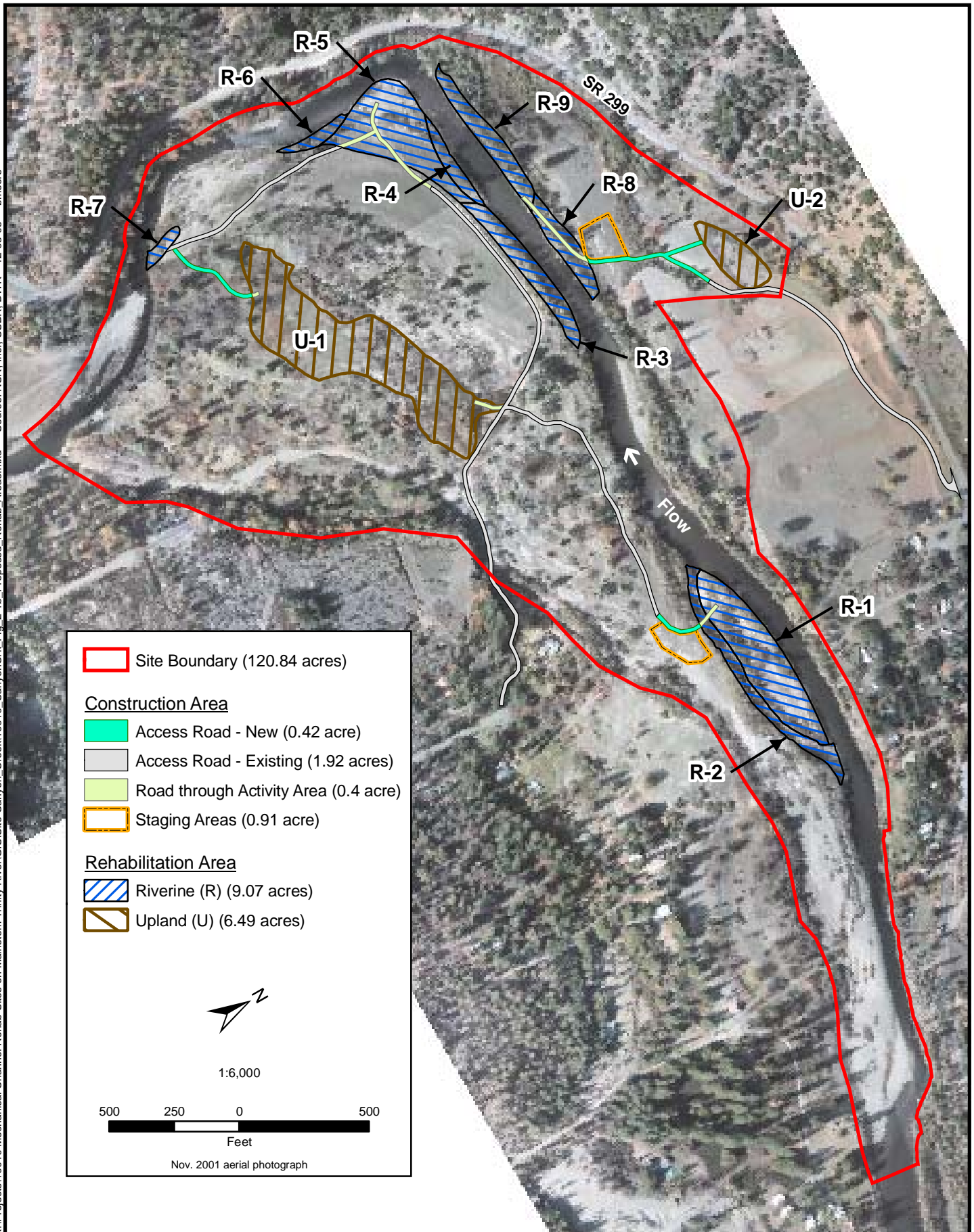
Prior to the 1930s, the Trinity River corridor in the general vicinity of the four sites was rural in character, and influenced by mining and agricultural activities dating back to the 1850s. Portions of the Conner Creek and Valdor Gulch sites were associated with the agricultural development that occurred as part of the Hocker and McGillivray ranches, respectively. These ranches were settled in conjunction with the mining activities that occurred between 1850 and 1900. The McGillivray Ranch, originally known as Cooper’s Bar, was recognized as one of the finest agricultural enterprises in Trinity County. In 1864, the ranch included 10,000 hop vines and 20,000 fruit trees (Jones 1981). In addition to his ranching efforts, Joseph McGillivray operated a toll bridge over the Trinity River as part of the road system between Junction City and Helena. Eventually, both the Hocker and McGillivray ranches were mined using large-scale bucket-line dredges.

These dredges severely altered the bed and banks of the Trinity River prior to the construction of the TRD and converted the fertile floodplains to large piles of tailings on either side of the river. Although dredge activity substantially modified the morphology of the channel between the valley walls, unregulated flows continued to provide the geomorphic elements necessary to maintain a meandering channel typical of a normally functioning alluvial river (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999).



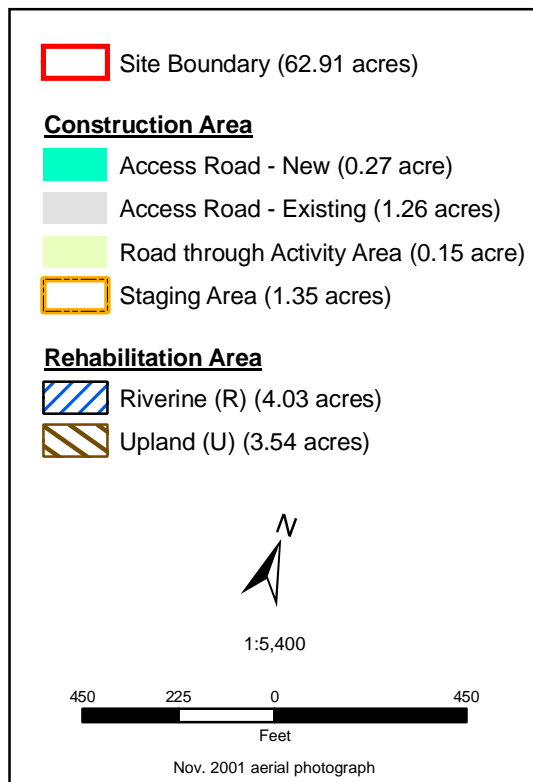


**Figure 2.1a**  
**Conner Creek - Proposed Action Rehabilitation Areas**

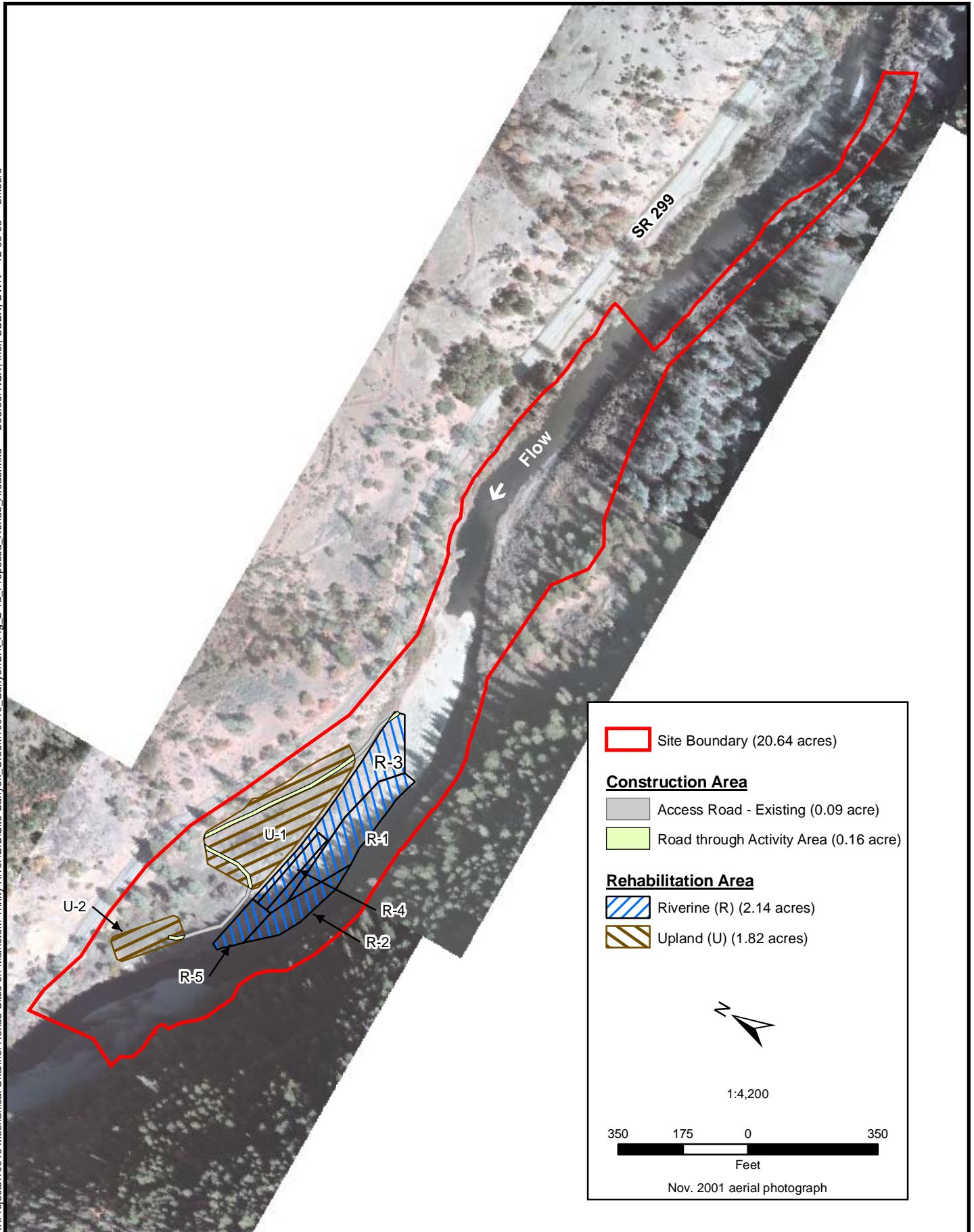


**Figure 2.1b**  
**Valdor Gulch - Proposed Action Rehabilitation Areas**





**Figure 2.1c**  
**Elkhorn - Proposed Action Rehabilitation Areas**



**Figure 2.1d**  
**Pear Tree Gulch - Proposed Action Rehabilitation Areas**

The construction and operation of the TRD resulted in a dramatic change in the flow regime of the Trinity River downstream of Lewiston Dam. One of the fundamental changes in the river between Lewiston and Helena was the formation of riparian berms along the river, which became “fossilized” over time. These berms are large deposits of fine sediment anchored by well-established riparian communities. These berms have essentially *handcuffed* the river, affecting its ability to maintain the alternate bar sequence in the affected reach. These changes are discussed in detail in the FEIS/EIR and the ROD referenced in Chapter 1.

## 2.5 Description of Project Sites

This EA/DEIR identified 38 discrete activity areas within the boundaries of the four sites (Conner Creek, 8 activity areas; Valdor Gulch, 12; Elkhorn, 10; and Pear Tree Gulch, 8). The type, extent, and level of activity within each area may be different, depending on the alternative. These areas were defined by the 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); and staging/use areas/roads are included in areas characterized with a C. Figures 2.1a-d illustrate the location of each activity area relative to the specific site boundary. Tables 2-1a-d identify the respective activity areas, describe their size (acres) and location relative to the Trinity River (river right/left), and provide a general characterization of the existing geomorphic features at each site. The areas described in the following section provide the basis for calculating the acreage of the impacts described in Chapter 3.

**TABLE 2-1a.**  
CONNER CREEK ACTIVITY AREAS

Activity Area	Area Size (acres) <sup>a</sup>	River Right/Left	Geomorphic Features
R-1	0.36	Right	Functional riparian berm, minimal floodplain
R-2	0.59	Right	Functional riparian berm
R-3	2.00	Right	Terrace, side channel
R-4	0.69	Right	Terrace
R-5	1.64	Right	Functional riparian berm, minimal floodplain
U-1	1.01	Right	Modified terrace, tailings deposits
U-2	1.29	Right	Tailings deposits
C	2.21	Right	NA

<sup>a</sup> Area calculated from project GIS  
NA = not applicable

**TABLE 2-1b.**  
VALDOR GULCH ACTIVITY AREAS

Activity Area	Area Size (acres) <sup>a</sup>	River Right/Left	Geomorphic Features
R-1	2.45	Left	Functional riparian berm, terrace
R-2	0.98	Left	Side channel
R-3	1.00	Left	Functional riparian berm
R-4	0.36	Left	Terrace
R-5	2.28	Left	Terrace, floodplain, point bar
R-6	0.25	Left	Terrace
R-7	0.18	Left	Terrace
R-8	0.67	Right	Functional riparian berm, terrace
R-9	0.90	Right	Functional riparian berm
U-1	5.67	Left	Tailings deposits
U-2	0.82	Right	Tailings deposits
C	3.64	Right/Left	NA

<sup>a</sup> Area calculated from project GIS  
NA = not applicable

**TABLE 2-1c.**  
ELKHORN ACTIVITY AREAS

Activity Area	Area Size (acres) <sup>a</sup>	River Right/Left	Geomorphic Features
R-1	0.09	Left	Terrace
R-2	0.41	Left	Terrace
R-3	0.15	Left	Terrace
R-4	0.91	Left	Terrace
R-5	1.67	Left	Terrace
R-6	0.46	Right	Functional riparian berm, terrace
R-7	0.34	Right	Terrace
U-1	3.13	Left	Terrace
U-2	0.41	Right	Terrace
C	3.03	Right/Left	NA

<sup>a</sup> Area calculated from project GIS  
NA = not applicable

**TABLE 2-1d.**  
PEAR TREE GULCH ACTIVITY AREAS

Activity Area	Area Size (acres) <sup>a</sup>	River Right/Left	Geomorphic Features
R-1	0.66	Right	Floodplain, terrace
R-2	0.33	Right	Terrace
R-3	0.77	Right	Floodplain, terrace
R-4	0.18	Right	Terrace
R-5	0.20	Right	Terrace
U-1	1.51	Right	Terrace
U-2	0.31	Right	Terrace
C	0.25	Right	NA

<sup>a</sup> Area calculated from project GIS  
NA = not applicable

The following section provides a brief discussion of each rehabilitation site in terms of location, ecological setting, and the specific objectives identified for these activity areas.

### 2.5.1 RIVERINE ACTIVITY AREAS - R

The riverine activity areas for each site were delineated through an interdisciplinary process. This process included consideration of the mechanical rehabilitation objectives outlined in the FEIS, the existing conditions at each site (biology, land ownership, engineering feasibility, and environmental constraints), and the ability to integrate the project into the overall AEAM process established by the TRRP. The functionality of the aquatic system was considered, as well as the information available on wetlands that occur within the site boundaries. The riverine activity areas discussed in this section are described in terms of existing geomorphic features and functional objectives. Figures 2.1a-d illustrate these activity areas. Removal of vegetation, and in most cases, excavation (cut) of alluvial material is incorporated into the Proposed Action and Alternative 1. This information provides the foundation for the activities described in the following sections.

The activities included in the Proposed Action and, to a lesser degree in Alternative 1, emphasize selective removal of fossilized riparian berms (berms that are anchored by extensive woody vegetation and consolidated sand deposits) and reconnecting the river's floodplain with the river at intermediate flows (between 450 and 6,600 cfs). These riparian berms developed as a result of the loss of scouring associated with peak flows after the TRD was completed. Removing the berms and vegetation at strategic locations will promote the river processes necessary for the restoration and maintenance of Trinity River alternate bars, therefore enhancing salmonid rearing habitat.

The TRRP has developed a number of programmatic objectives for channel rehabilitation projects. The following objectives are applicable to the riverine activity areas included in the action alternatives.

### Objectives for Riverine Activity Areas

- Reactivate floodplain to facilitate river-induced sinuosity that results in complexity of floodplain habitat.
- Establish conditions such that the ROD flow regime will scour the bar and prevent re-establishment of riparian vegetation below the designed floodplain elevation and riparian encroachment on the bar surface.
- Recruit riparian vegetation onto the 1.5-year recurrence interval floodplain and the upper floodplain surface that are not subject to high-flow scouring.
- Develop a point bar along the right side of the river and encourage lateral migration into the left bank at flows >6,600 cfs (1.5-year recurrence interval/bankfull discharge).
- Develop a low water alcove at base of high flow scour channel. The low water alcove will contain water all year and be maintained by the high flow channel.
- Develop a high flow scour channel which will run at flows  $\geq$ 6,600 cfs.
- Recruit riparian vegetation onto the 1.5-year recurrence interval floodplain.
- Increase the area, quality, and availability of rearing habitat for anadromous salmonids (specifically fry and juvenile life stages) over a range of flows.
- Increase structural complexity of the types of habitat available and thereby increase the range of anadromous salmonid life history stages that can be supported.
- Increase the quality and quantity of habitat for foothill yellow-legged frog (*Rana boylei*) at all life stages.

Collectively, Conner Creek, Valdor Gulch, Elkhorn, and Pear Tree Gulch are identified as the Canyon Creek Suite of Rehabilitation Sites (project). Each site includes riverine activities to varying degrees. Riverine activities can be characterized as either riverbank or floodplain in nature, based on the proximity to the Trinity River and the existing geomorphic features.

### 2.5.2 UPLAND ACTIVITY AREAS - U

The objective for all upland activity in the project area is to establish a suitable location for disposal of excavated material (i.e., sand, gravel, cobble, and cleared vegetation) and, to a reasonable extent, establish native upland vegetation. Additionally, the revegetation of these sites will include measures to inhibit the introduction and spread of noxious and invasive vegetation, notably tree of heaven (*Ailanthus altissima*), Klamath weed (*Hypericum perforatum*), and Dalmatian toadflax (*Linaria genistifolia* ssp. *dalmatica*). Specific design criteria were established for these upland areas. The criteria included placing material in locations above (outside of) the 100-year floodplain elevation to minimize impacts to Federal Emergency Management Agency (FEMA) base flood elevations (BFE), using existing topographic features to reduce observable changes (line and form of tailing piles) in material fill areas, identifying locations that would not preclude impacts to future land use activities (mining, parking), and identifying locations that provide the opportunity for reestablishing native upland vegetation.

Figures 2.1a-d illustrate the upland areas that will be available for placement of excavated materials (fill). Tables 2-1a-d provide additional information on the location and setting of these areas. These areas are associated with either alluvial terraces or constructed tailing deposits placed during the bucket-line dredge operations prior to World War II. Currently, the lack of soil development in these depositional environments inhibits recruitment and survival of native vegetation. The project will increase the overall percentage of finer grained materials in the upland fill areas, resulting in more favorable vegetation recruitment and survival. At the discretion of Reclamation, the use of specific upland activity areas may be modified to facilitate removal and transport of alluvial materials to locations authorized under the Surface Mine and Reclamation Act (SMARA).

### 2.5.3 STAGING/ACCESS AREAS/ROADS - C

The project includes one or more staging and access areas at each site, as shown in Figures 2.1a-d. Staging areas are those locations required for temporary construction activities, including storage of equipment and materials, temporary placement of topsoil, and placement of necessary sanitation facilities. At the completion of the project, specific remediation measures will be performed in accordance with realty agreements with individual landowners.

Access to activity areas will be provided through a network of routes necessary for the full range of vehicular traffic. Figures 2.1a-d illustrate the new and existing roads that will be used to access the various sites and activity areas. In cases where new roads are constructed, these roads will be constructed to the standard necessary to limit resource impacts, specifically erosion and runoff. Existing roads will be evaluated and upgraded as necessary to provide the necessary access. New roads will be decommissioned at project completion when requested by the landowners.

## 2.6 *Description of Alternatives*

This section describes the No-Action Alternative, the Proposed Action, and Alternative 1 that are subsequently analyzed in this EA/DEIR. The Proposed Action most efficiently meets defined resource objectives at each site. Alternative 1 is considered feasible and contains features that would avoid or substantially lessen at least one of the significant environmental effects of the Proposed Action. The alternatives selected for evaluation and assessed in this document represent a reasonable range of alternatives that will provide for meaningful public participation and informed decision-making.

In order to portray the type and extent of rehabilitation activities discussed in this section, a series of cross sections have been prepared for the riverine activity areas that are part of either the Proposed Action or Alternative 1. Figures 2.2a-d illustrate the relative location of the representative cross sections constructed to characterize the existing ground surface (No-Action Alternative) and provide the reader with graphic representation of the Proposed Action, and in the case of the Conner Creek and Elkhorn sites, Alternative 1. These cross sections are labeled in a manner consistent with other figures in the EA/DEIR. Figure 2.3a.1 illustrates the Conner Creek R-1 activity area; Figure 2.3b.1 illustrates the Valdor Gulch R-1 activity area; Figure 2.3c.1 illustrates the Elkhorn R-1 activity area; and Figure 2.3d.1 illustrates the Pear Tree Gulch R-1 activity area. For continuity and readability, these cross sections are included at the end of this chapter.

The cross sections of the various upland areas are shown on Figures 2.4a-d and follow the set of cross sections prepared for riverine areas. Collectively, these figures illustrate the changes in topography that would occur if the Proposed Action or Alternative 1 were implemented. To the extent feasible, all cross sections were selected to portray the maximum extent of activity (disturbance) that would occur.

### 2.6.1 REHABILITATION ACTIVITIES

The Proposed Action encompasses up to 11 activity types that may occur in one or more of the sites, depending on the specific location and objectives. The location, extent, and magnitude of these activities vary at Conner Creek and Elkhorn, as described in Alternative 1; however, the nature of the activities would essentially be the same. Several activities are common to all areas. These are vegetation removal, watering, and monitoring. A brief discussion of these activities is provided at the end of this section.

The rehabilitation activities specific to one or more activity areas are discussed in general terms and each activity is assigned a label using an alpha system, as shown in Table 2-2. These activities form the basis to compare Alternative 1 to the Proposed Action. These activities also provide the framework for the impact analysis provided in Chapter 3. For each action alternative, a table has been prepared that provides an overview of the types of activities proposed. If additional activities are required for one or more of the alternatives, these activities are incorporated in the description of the alternative.

**TABLE 2-2.**  
REHABILITATION ACTIVITIES

Label	Activity Type
A	Recontouring
B	Feathered edge
C	Constructed floodplain (450 cfs)
D	Constructed floodplain (2,000 cfs)
E	Constructed floodplain (6,600 cfs)
F	Side channel (450 cfs)
G	Side channel (6,600 cfs)
H	Alcove (450 cfs)
I	Placement of excavated materials
J	Staging/use areas/roads
K	Revegetation

The following discussion describes the types of activities included in the Proposed Action and provides a general overview of the specific elements included in each activity.



*Activity A (Recontouring)*

- Modify the ground surface to enhance existing topographical features and minimize risk of stranding of juvenile salmonids. Recontouring will not result in the need to move material from the activity area and will result in a balanced cut and fill (no net excavation or fill). Recontouring will be accomplished using heavy equipment (i.e., excavator, bulldozer, scraper dump trucks).

*Activity B (Feathered Edge – Riparian Berm Removal)*

- Strip earthen materials from areas to be excavated and slope riverbank back at a 10:1 slope from the low-flow water's edge. Excavation will be accomplished using heavy equipment (i.e., excavator, bulldozer, scraper dump trucks). Estimated depth of excavation is not expected to exceed 6 feet.

*Activities C, D, and E (Floodplain Construction – 450 cfs; 2,000 cfs; 6,600 cfs)*

- Floodplain activities are those that lower the floodplain or the river's edge to be in communication with the river at prescribed flows. These activities include lowering of historic floodplains (which are now terraces above the river) so that they are frequently inundated again. Vegetation will be cleared and earth excavated to meet design elevations for periodic inundation (e.g., low-flow bench; 2,000 cfs bench; and 1.5-year flow [approximately 6,600 cfs] bench). For the Canyon Creek project, floodplains are designed to ensure submergence by 6 inches of water at river flows of 6,600 cfs.
- Low flow benches will be constructed during summer base flow conditions (approximately 450 cfs) so that inundation will occur starting at approximately 6,600 cfs. Low-flow benches will provide slow water habitat at river base flows and may encourage river migration during high flows.
- The 2,000 cfs bench will be excavated to provide 6 inches of inundation during river flows of 2,000 cfs. These areas will provide important rearing and slow-water habitat during outmigration of salmonids. They will also provide low points that may allow the river to move (meander) and thereby provide the historical habitat variability required to support rapid growth of native fishes.
- The 1.5-year recurrence flow below Canyon Creek is approximately 6,600 cfs. Consequently, the 1.5-year constructed floodplains are designed to be 6 inches deep at 6,600 cfs. These areas may be revegetated with a diverse assemblage of native vegetation, or they will be revegetated in a patchy mosaic as topographical diversity and vegetation cover develop over time.

*Activities F and G (Side channels – 450 cfs; 6,600 cfs)*

- Modifications to existing topographic features (side channels) will reconnect the Trinity River with its floodplain at targeted flows. Side channels constructed for 450 cfs flows will provide off-channel, low-velocity habitat for a variety of aquatic organisms, including juvenile salmonids. Side channels constructed to convey flow at 6,600 cfs will provide similar benefits to aquatic organisms, but will be limited by the frequency and duration of these flows.
- Side channels will be constructed to leave a small berm at the upstream and downstream ends to minimize impacts to water quality. These small berms will be removed during subsequent high flows.

***Activity H (Alcove – 450 cfs)***

- Excavate to design elevations at the downstream end of high-flow channels. These areas will be continuously inundated (approximately 1–2 feet deep at low-water construction). Constructed alcoves will provide year-round juvenile fish habitat and will be maintained as associated high-flow channels route water through them. Alcoves may function at flows greater than 450 cfs to varying degrees, depending on local hydraulic conditions.

***Activity I (Placement of Excavated Materials)***

- Excavated materials will be moved (often out of the 100-year floodplain) so that there will be no increase in the elevation of the 100-year flood (BFE). Spoiled materials will be carefully spread in uniform layers. Earthen materials will be spread to reasonably even and uniform surfaces that blend with the natural terrain. Revegetation may occur within rehabilitation or spoiling areas, as needed.
- Specific to the Pear Tree Gulch site, excavated materials will be placed in lifts to facilitate a future improved river access point to BLM public lands. Placement will occur in accordance with requirements of the Caltrans encroachment permit adjacent to HWY 299.
- Vegetative materials will be stockpiled, chipped and stockpiled or spread, or burned.

***Activity J (Staging/Use Areas/Roads)***

- Transport excavated material in order to retain as much fine-grained material as possible for capping of the stockpile area.
- Apply water for construction purposes, including dust abatement, as directed by the Contracting Officer.

***Activity K (Revegetation)***

The physical rehabilitation when combined with active revegetation and natural regeneration will help promote self-maintaining riparian vegetation, off-channel pocket wetland complexes and structurally diverse upland ecotones.

The revegetation efforts at these proposed bank rehabilitation sites will use a combination of active (planting) and passive (natural plant regeneration) vegetation restoration. This combination will help to create, maintain, enhance, or restore the structural and functional integrity of aquatic, riparian, and associated upland systems needed to perpetually support populations of anadromous fish and native wildlife at both site and landscape levels. The following considerations will be incorporated into the final revegetation plan.

- Floodplain areas above the 1.5-year recurrence flow may be planted with a native assemblage of riparian vegetation in order to meet landowner, permitting, fish or wildlife needs, including planting to limit or prohibit reintroduction of noxious and invasive plant species. Revegetation plans will be finalized as landowner agreements, permits, and project conditions are accessed during construction.

- Conditions will be developed which encourage natural revegetation as riparian functions are restored. Natural vegetation, in combination with replanting, will minimize short-term losses in riparian vegetation and its associated habitat.
- Planting will occur during wet conditions (fall/winter).

### *Common Activities*

There are three activities that are common to all activity areas: vegetation removal, water use, and monitoring. The locations and magnitude of these activities will be specific for each activity within the four sites.

#### *Vegetation Removal*

- Clear rights-of-way for work areas and those required to access work areas using a combination of manual labor and heavy equipment (i.e., chainsaw, excavator, and bulldozer).
- Remove the majority of stumps, roots, and vegetative matter to reduce opportunity for re-colonization of riparian vegetation. Some large woody debris (LWD) may be left in the floodplain to serve as habitat for juvenile salmonids.
- Cleared and grubbed vegetation may be disposed of by burying within spoils areas, chipping, hauling offsite, burning, or other appropriate methods.
- Preserve and protect vegetation designated for preservation within clearing limits and vegetation outside clearing limits.
- Mechanically remove submerged roots from river fringe areas by using ripping bars set to about 16 inches deep or with excavator bucket. Equipment bodies (tires, tracks) will remain outside of the river when removing submerged roots.

#### *Water Use*

- Apply water for dust abatement, as directed by the Contracting Officer. Dust abatement water will be obtained from on-site seep wells or the Trinity River. When drafting from the Trinity River, pump intakes will be in conformance with criteria established by NOAA Fisheries and CDFG to prevent impacts to aquatic organisms. Make-up water pumped from the river will pass through a screen at the inlet with maximum 1/4-inch openings and a maximum intake velocity of 0.8 feet per second.
- In the event irrigation is necessary for revegetation efforts, the primary water source would be the Trinity River. Pump intakes will be in conformance with criteria established by NOAA Fisheries and CDFG to prevent impacts to aquatic organisms. Make-up water pumped from the river will pass through a screen at the inlet with maximum 1/4-inch openings and a maximum intake velocity of 0.8 feet per second.

#### *Monitoring*

- Physical habitat will be surveyed to quantify physical changes over time.
- Floodplain water velocities will be measured to determine habitat suitability for juvenile fishes.
- Newly created floodplains will be monitored to determine the extent of their use by fish and amphibians (e.g., yellow-legged frogs) during inundation.

### 2.6.2 NO-ACTION ALTERNATIVE

Under the No-Action (No-Project) Alternative, Reclamation and the Regional Water Board would not proceed with the Proposed Action, although other activities authorized in the ROD for the FEIS will be implemented. The No-Action Alternative reflects the existing condition within the four site boundaries established for the Proposed Action. Section 2.4 describes the setting and characterizes the existing geomorphic features that will remain under the No-Action Alternative.

Under the No-Action Alternative, the mechanical channel rehabilitation measures described in the FEIS would not occur. No activities would be conducted at Conner Creek, Valdor Gulch, Elkhorn, or Pear Tree Gulch, other than those authorized under the ROD (flow measures).

### 2.6.3 PROPOSED ACTION

The Proposed Action would include activities at all four sites. These activities are eventually expected to 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. 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. The tires of machinery will not enter the river below the river's edge under the Proposed Action. Some vegetation removal or excavation below the water line (e.g., within 8 feet of the water's edge) will likely be required to ensure efficient removal of established riparian vegetation. Figures 2.2a-d illustrate activities proposed under the Proposed Action.

Under the Proposed Action, activities within riverine areas would result in the excavation of approximately 91,500 cubic yards of material. The upland rehabilitation activity areas are large enough to accommodate this amount of material; however, the contractor will have the option to remove materials from the river right sites at Conner Creek, Valdor Gulch, and Elkhorn. Removal of materials to an off-site location would be accomplished in compliance with federal, state, and local requirements.

The premise of the Proposed Action is that it would use the suite of rehabilitation activities to modify the type and/or character of aquatic, riparian, and upland habitat in a manner that incorporates an understanding of the functional relationships and natural processes of an alluvial river. The modifications proposed are designed to enable the river to move in the direction of an alluvial river, but rely on the river itself to modify its own form and function over time.

The lead agencies acknowledge that projects of this nature have a high degree of uncertainty in terms of the type and degree of change that may occur. The inherent variability in the flow regime would control the rate and magnitude of change. Activities A through E are intended to increase the potential that the river will 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 (i.e.,

berm removal, floodplain excavation), the Proposed Action 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 3.3 of this document.

Activities F, G, and H are intended to create off-channel habitat that would provide velocity refuge for fish during various flow regimes. The side channels and alcoves would also add additional complexity to the riverine environment. All of these activities are consistent with the Healthy River attributes outlined in the FEIS.

Activities I through K are associated with the transfer, placement, and stabilization of material excavated from the riverine areas. Activity M, Monitoring, is a required element of the Proposed Action and responds to the TRRP program management objectives, as well as the elements of the MMRP required pursuant to the *CEQA Guidelines*.

Table 2-3 summarizes the type of activities that would occur at each site as part of the Proposed Action. Representative cross sections that illustrate each riverine activity area have been prepared (Figures 2.3a.1 through 2-3d.5). The cross sections prepared for upland activity areas are presented in Figures 2.4a-d. These figures are located at the end of this chapter.

**Table 2.3.**  
SUMMARY OF PROPOSED ACTION – ACTIVITY AREAS

Site	Activity Area	Impact Area (acres) <sup>a</sup>	Volume (cubic yards) <sup>b</sup>	Potential Activity
Conner Creek	R-1	0.36	500	A
	R-2	0.59	3,000	C, K
	R-3	2.00	10,400	G, K
	R-4	0.69	0	A
	R-5	1.64	6,000	B, E, K
	<b>R-Subtotal</b>	<b>5.28</b>	<b>19,900</b>	
	U-1	1.01	8,300	I, K
	U-2	1.29	11,600	I, K
	<b>U-Subtotal</b>	<b>2.30</b>	<b>19,900</b>	
	C	2.21	NA	J
Valdor Gulch	R1	2.45	11,500	B, E, K
	R2	0.98	2,500	F
	R3	1.00	2,000	B
	R4	0.36	2,500	D
	R5	2.28	9,100	B, E, K
	R6	0.25	1,500	D, K
	R7	0.18	1,400	Vegetation Removal
	R8	0.67	3,500	E, K
	R9	0.90	4,900	B

**Table 2.3.**  
SUMMARY OF PROPOSED ACTION – ACTIVITY AREAS

Site	Activity Area	Impact Area (acres) <sup>a</sup>	Volume (cubic yards) <sup>b</sup>	Potential Activity
Valdor Gulch	<b>R-Subtotal</b>	<b>9.07</b>	<b>38,900</b>	
	U1	5.67	30,500	I, L
	U2	0.82	8,400	I, K
	<b>U-Subtotal</b>	<b>6.49</b>	<b>38,900</b>	
	C	3.64	NA	J
Elkhorn	R-1	0.09	660	Vegetation Removal, H
	R-2	0.41	1,370	G
	R-3	0.15	0	Vegetation Removal
	R-4	0.91	4,500	E
	R-5	1.67	15,000	B, E
	R-6	0.46	920	E, K
	R-7	0.34	0	Vegetation Removal, A
	<b>R-Subtotal</b>	<b>4.03</b>	<b>22,450</b>	
	U-1	3.13	21,530	I, K
	U-2	0.41	920	I, K
	<b>U-Subtotal</b>	<b>3.54</b>	<b>22,450</b>	
	C	3.03	NA	J
Pear Tree Gulch	R-1	0.66	0	Vegetation Removal
	R-2	0.33	6,000	B
	R-3	0.77	3,000	E, K
	R-4	0.18	200	G
	R-5	0.20	700	H
	<b>R-Subtotal</b>	<b>2.14</b>	<b>9,900</b>	
	U-1	1.51	9,900	I, K
	U-2	0.31	0	NA
	<b>U-Subtotal</b>	<b>1.82</b>	<b>9,900</b>	
	C	0.25	NA	J

<sup>a</sup> Area calculated from project GIS

<sup>b</sup> Provided by TRRP

As stated previously, revegetation will occur in accordance with Reclamation objectives and land owner requirements above the 1.5-year recurrence flow elevation. Natural vegetation, in combination with planting, will minimize any short-term losses in riparian vegetation and its associated habitat. The actual amount of revegetation included in the Proposed Action will be determined upon completion of final grading activities. As proposed, revegetation activities will be restricted to those floodplain and side-channel features that would become minimally inundated at flows  $\leq 6,600$  cfs (1.5-year return interval flood). As appropriate, all activities will include specific measures intended to limit or prohibit reintroduction of noxious and invasive plant species. The spread of noxious, invasive, and exotic plant

species in the rehabilitation sites will be controlled by implementing excavation and disposal activities in a manner that maximizes control of seed and root-sprout sources and reduces the potential for non-native plant infestation (e.g., burial).

### *Design Elements*

The following design elements are common to the Proposed Action and Alternative 1. These elements are not described again for Alternative 1.

### *Hydraulics*

The Proposed Action would occur in part of an area that FEMA has designated as Special Hazard Zone A. Based on this information, Reclamation established a design criterion stating that not only would the County's floodplain ordinance be followed, but also implementation of either action alternative would not increase the flood risk for the community. This criterion resulted in a stipulation that excavated material would be strategically placed to ensure that flood elevations would not increase in areas where private property or public infrastructure would be adversely affected.

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 by more than one foot above the current FEMA estimated 100-year flow*. Evaluation of these alternatives required comparing estimated seasonal base flows and estimated return-period flows. The Corps Hydraulic Engineering Center River Analysis System (HEC-RAS) hydraulic model was developed and used by the design team and calibrated with known water-surface elevations (WSEs) and flows at various points along the project reach for the design flow of 6,600 cfs. Table 2-4 lists the components of the flow regime, the seasonal or other periodic return intervals, and the flow rates that were used to evaluate the action alternatives.

The HEC-RAS model was developed and calibrated to match measured WSEs in the Trinity River within and adjacent to the site boundaries for the design flow. Since no WSEs are known for the 100-year flow, the predicted WSEs are based on the output of the model using carefully selected Manning's "n" values that reflect the overbank conditions at each site. The model incorporates empirical data from surveyed cross-sections, including bathymetric and overbank/floodplain topography in the general vicinity of the rehabilitation sites. To obtain WSEs for design flows, the model was calibrated using surveyed water-surface elevations and known flows (from gage data). The model was determined to be adequate/very accurate for the level of evaluation and design required at this site.

**TABLE 2-4.**  
ESTIMATED FLOWS CONDITIONS USED FOR ALTERNATIVE DESIGNS

Flow Description	Flow Event	Flow Rate (cfs)
Summer base flow <sup>a</sup> (July 22 to October 15 of each year)	Q <sub>s</sub>	450
1.5-year return interval design flow	Q <sub>1.5</sub>	6,600
Estimated 100-year flow – Conner Creek	Q <sub>100</sub>	60,000

**TABLE 2-4.**  
ESTIMATED FLOWS CONDITIONS USED FOR ALTERNATIVE DESIGNS

Flow Description	Flow Event	Flow Rate (cfs)
Estimated 100-year flow – Valdor Gulch	Q <sub>100</sub>	60,500
Estimated 100-year flow – Elkhorn	Q <sub>100</sub>	61,000
Estimated 100-year flow – Pear Tree Gulch	Q <sub>100</sub>	61,500

<sup>a</sup> Baseflow defined as cfs from TRD release and accretion flow.  
Q = return interval

There are two significant flow conditions that were important to the design of the action alternatives: the summertime low-flow condition of about 450 cfs, which is the release from Lewiston Dam, and the 1.5-year event (bankfull) flow of 6,600 cfs. The 6,600 cfs 1.5-year event is based on the ROD flow release and estimates developed by McBain and Trush, as described in Appendix H. This flow information provided the basis for the designs incorporated into the action alternatives. Based on the information provided in Appendix H, the lead agencies determined that the 6,600 cfs design flow would be appropriate for these alternatives. The 450 cfs flow was used to define the elevation boundary that will be used to define the river's edge and the boundary beyond which equipment will not move.

A fundamental design criterion is to inundate the constructed floodplain surface with water to a depth of 0.5 feet under the 1.5-year flow. In addition, the floodplain surface was designed to ensure adequate sloping of the bank toward the river to ensure drainage and minimize the opportunity for stranding juvenile salmonids.

The HEC-RAS hydraulic model was developed to calculate the required floodplain elevation and was calibrated for the existing conditions. The calibration was based on water-surface profiles surveyed at low flow, and water profiles and points surveyed at different flows, ranging up through the 6,600 cfs level. After the model was properly calibrated, floodplain elevations were assumed for the activity areas, and the design topography was substituted for the existing ground. The cross-sections at the end of this chapter illustrate this to varying degrees. Additional HEC-RAS runs were used to determine if the floodplain designs provided for inundation (0.5 feet of water on average). If not, the floodplain slope was changed to match the slope of the water surface in the channel, and the elevation was moved up or down so that the floodplains were properly inundated.

### *Roadway Approaches*

The project is in close proximity to State Route (SR) 299. SR 299 parallels the right side of the Trinity River between Junction City and Helena. Access to activity areas on the left side of the river requires use of County and private roads.

### *Conner Creek*

The Conner Creek site boundary includes areas on either side of the Trinity River. The primary access is provided on the right side of the river at the downstream end of the site from SR 299. This site requires access through private property, subject to conditional authorization. Parking is available on the west side of the highway across from Power House Road. If necessary, access to the left side of the river is



provided via SR 299 to Dutch Creek Road to Red Hill Road (requires permission from private landowners). Existing and proposed access roads are illustrated on Figure 2.1a.

#### Valdor Gulch

The Valdor Gulch site boundary includes areas on either side of the Trinity River. Activity areas within this site require primary access from both sides of the river. The left side of the river requires crossing the river via Dutch Creek Road and traveling downstream on Red Hill Road. Red Hill Road terminates at a community-use area owned by members of the Cooper's Bar Home Owners Association. Access to the right side of the river is provided via a turnoff from SR 299 at the business identified as Big Foot Campground. Existing and proposed access roads are illustrated on Figure 2.1b.

#### Elkhorn

Access to the right bank would require roadway access from SR 299. Of special note is the angle of the access road to the right bank relative to SR 299. The angle of the departure from SR 299 makes it necessary that vehicles with a large turning radius be traveling in the eastbound direction on SR 299 to enter the site. For this same reason, vehicles with a large turning radius leaving the site will have to exit traveling westbound on SR 299. Two-way traffic control on SR 299 will be required when large vehicles exit the site.

The Proposed Action for the left bank would require roadway access from Trinity County Road 313, Red Hill Road, Wintu Pass, and Chimariko Road. Of special note is that Chimariko Road is a private road and may need to be improved to accommodate large vehicles.

#### Pear Tree Gulch

Access to Pear Tree Gulch requires roadway access from SR 299. Of special note is the angle of the access road to Pear Tree Gulch relative to SR 299. The angle of the departure from SR 299 makes it necessary that vehicles be traveling in the eastbound direction on SR 299 to enter the site. For this same reason, vehicles leaving the site will have to exit traveling west on SR 299. Two-way traffic control on SR 299 will be required when large vehicles exit the site.

#### *Drainage*

As appropriate, temporary bridges or culverts would be constructed at stream crossings or cross-drainage channels to allow for unimpeded surface drainage.

#### *Rights-of-Way/Easements*

Prior to construction, formal realty agreements will be acquired between Reclamation, federal land managers (BLM and USFS), and private landowners whose property will be affected. These agreements will clarify terms and conditions under which contractor(s) will work when on private property. In addition, these agreements will compensate landowners, based on fair market value of identified construction easements, and will hold property owners harmless during construction activities.

### *Utilities*

Various utility corridors provide electrical and telephone service to the local community. These corridors essentially parallel the Trinity River/SR 299 corridor. Power poles and utility lines were taken into consideration, particularly on the right side of Valdor Gulch downstream of the Big Foot Campground. Additional information on utilities is provided in Section 3.17.

### *Construction Criteria and Methods*

#### *Construction Process Overview*

The following provides a general overview of the construction process for the action alternatives. A detailed list of equipment that may be used is provided in Section 3.16, 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 will allow completion of nesting by avian species. Alternatively, vegetation may be removed prior to the nesting season for special-status avian species.
- Excavation would begin on the floodplain to bring it down to grade.
- When specified, riparian berms may be excavated last so that finer grained material in the berm can be used to cap spoils areas.
- All riparian areas (e.g., floodplains and feathered edges) are expected to be ripped to a depth of approximately 18 inches. The furrows developed by this ripping will ensure that storm water runoff is maintained on site so that there is little or no construction-related turbidity. This action would effectively control release of storm water from the site and eliminate the need for use of post-construction sediment-control measures (e.g., silt fences, berms).
- Feathered edges would be constructed after or in conjunction with berm removal. The timing for constructing the feathered edges could 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 could be excavated, the feathered edge would be built first to ensure that it is built during the lowest possible flow. Alcoves and side channels would be constructed from the existing grade, down slope. A limited amount of material may be left in place (unexcavated) to ensure no in-channel activity occurs. The openings for these features will rely on flow events to reconnect to the river.
- Final grading would occur as necessary for all activity areas.
- Demobilization of construction equipment and site clean up would be accomplished prior to acceptance by the Contracting Officer.
- Revegetation would occur during wet conditions (fall/winter) and will generally occur only at or above the 1.5 year recurrence flow elevation.

### *In-River Construction*

Heavy equipment will be used to grub tree and shrub roots from the edge of the river. As necessary, work may occur below the river's low-water edge but machinery (i.e., tires/treads) will not enter the water.

### *Traffic Control/Detour*

Short-term traffic control is expected and will be in conformance with the requirements established by the respective jurisdictional authority in conjunction with mobilization/demobilization of heavy equipment or wide-load vehicles. These requirements include:

- Meeting requirements established by jurisdictional authority for use of existing roadways and haul routes, including seasonal or other limitations or restrictions, payment of excess size and weight fees, and posting of bonds conditioned upon repair of damage.
- Constructing temporary roadways for access from public thoroughfares to serve construction areas. The roadways shall be of a width and load-bearing capacity to provide unimpeded traffic for construction purposes.

### *Contractor Staging and Storage Areas*

Staging areas and storage facilities for the Proposed Action are shown on Figures 2.1a-d and listed in Table 2-3. These areas would be used throughout the duration of the project activities. Some short-term staging and equipment storage/parking is anticipated in the activity areas as the project is implemented.

Table 2-5 and Figure 2.5a and Figure 2.5c illustrate these areas for Alternative 1.

### *Air Pollution and Dust Control*

Efforts will be made to minimize air pollution. Reclamation specifications require that the contractor comply with all applicable air pollution control rules, regulations, ordinances, and statutes. Contract documents will 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 NOAA Fisheries and CDFG to prevent impacts to aquatic organisms. Make-up water pumped from the river will pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 feet per second.

In the event that vegetation is disposed of by burning, Reclamation will conform to the requirements of federal, state and local agencies in terms of timing and location.

### *Water Pollution Prevention*

The contractor shall implement water pollution control measures that conform to applicable and appropriate permits. The contractor will be required 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 are listed below:

- The contractor shall exercise every reasonable precaution to protect the Trinity River from being polluted by fuels, oils, bitumen, calcium chloride, 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.

- 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 Contract Officer.
- Ripping of all riparian areas is expected to stop delivery of storm water to the river. As necessary, the contractor shall provide temporary water pollution control measures, including, but not limited to, dikes, basins, ditches, and applying mulch and seed, which may become necessary because of the contractor's operations.
- Before starting any work on the project, the contractor shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The objectives of the SWPPP are to 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. The SWPPP shall show the schedule for the erosion control work included in the contract and for all water pollution control measures that the contractor 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. The contractor shall not perform any clearing and grubbing or earthwork on the project prior to implementing the SWPPP.
- Water containing mud or silt from aggregate washing or other operations shall be treated by filtration, or retention in a settling pond, or ponds, to prevent wash water from entering live streams.
- Oily or greasy substances originating from the contractor's operations shall not be allowed to enter or be placed where they could enter soil, surface water, or groundwater.

#### *Tentative Schedule*

Total construction time for all sites is anticipated to be approximately 120 days, between August 1 and December 20, 2006. Revegetation would take place in the wet season following construction (fall/winter).

Construction associated with either action alternative will begin after environmental documentation has been adopted by Reclamation, BLM, the USFS, and the Regional Water Board. The final design, plans, contract specifications, and cost estimates; award of contract(s) for work; acquisition of ROWs; acquisition of permits; and design approvals from local, state, and federal agencies will depend on the alternative selected for implementation.

### **2.6.4 ALTERNATIVE 1**

Alternative 1 is identical to the Proposed Action at two of the sites, Valdor Gulch and Pear Tree Gulch. This alternative reflects stakeholder involvement and was developed to reduce significant impacts to private landowners at the Conner Creek and Elkhorn sites. Figure 2.5a and Figure 2.5c illustrate the relative differences between the Proposed Action and Alternative 1.

Activities included in Alternative 1 would provide substantial modification to the alluvial features at all four sites. The type and degree of modification would be reduced at the Conner Creek and Elkhorn sites.

The changes from the Proposed Action are shown in bold font in Table 2-5.

Alternative 1 would result in a reduction of the area that would be affected and the material that would be excavated from riverine areas. Exclusion of activity areas R-1 and R-2 at Conner Creek represent a reduction the area and volume that would be excavated equaling 0.95 acre and 2,600 cubic yards, respectively. The exclusion of these areas would preserve the existing morphological features and riparian vegetation that enhance the aesthetic values for adjacent landowners.

**TABLE 2-5.**  
SUMMARY OF ALTERNATIVE 1 – ACTIVITY AREAS

Site	Activity Area	Impact Area (acres) <sup>a</sup>	Volume (cubic yards) <sup>b</sup>	Potential Activity
Conner Creek	<i>R-1</i>	<i>0.0</i>	<i>0</i>	<i>NA</i>
	<i>R-2</i>	<i>0.0</i>	<i>0</i>	<i>NA</i>
	R-3	2.00	10,400	G, K
	R-4	0.69	0	A
	R-5	1.64	6,000	B, E, K
	<b>R-Subtotal</b>	<b>4.33</b>	<b>16,400</b>	
	U-1	1.01	8,300	I, K
	<i>U-2</i>	<i>1.29</i>	<i>8,100</i>	<i>I, K</i>
	<b>U-Subtotal</b>	<b>2.30</b>	<b>16,400</b>	
	C	2.21	NA	J
Valdor Gulch	R1	2.45	11,500	B, E, K
	R2	0.41	1,370	F
	R3	1.00	2,000	B
	R4	0.36	2,500	D
	R5	2.28	9,100	B, E, K
	R6	0.25	1,500	D
	R7	0.18	1,400	Vegetation Removal
	R8	0.67	3,500	E, K
	R9	0.90	4,900	B
	<b>R-Subtotal</b>	<b>8.50</b>	<b>37,770</b>	
	U1	5.67	30,500	I, K
	U2	0.82	7,270	I, K
	<b>U-Subtotal</b>	<b>6.49</b>	<b>37,770</b>	
	C	3.64	NA	J

**TABLE 2-5.**  
SUMMARY OF ALTERNATIVE 1 – ACTIVITY AREAS

Site	Activity Area	Impact Area (acres) <sup>a</sup>	Volume (cubic yards) <sup>b</sup>	Potential Activity
Elkhorn	R-1	0.09	660	H
	R-2	0.0	0	NA
	R-3	0.15	0	Vegetation Removal
	R-4	0.18	400	B
	R-5	1.55	12,000	B
	R-6	0.46	920	E, K
	R-7	0.34	0	Vegetation Removal, A
	<b>R-Subtotal</b>	<b>2.77</b>	<b>13,680</b>	
	U-1	3.13	12,760	I, K
	U-2	0.41	920	I, K
	<b>U-Subtotal</b>	<b>3.54</b>	<b>13,680</b>	
	C	3.03	NA	J
Pear Tree Gulch	R-1	0.66	0	Vegetation Removal
	R-2	0.33	6,000	B
	R-3	0.77	3,000	E, K
	R-4	0.18	200	G
	R-5	0.20	700	H
	<b>R-Subtotal</b>	<b>2.14</b>	<b>9,900</b>	
	U-1	1.51	9,900	I, K
	U-2	.31	0	NA
	<b>U-Subtotal</b>	<b>1.82</b>	<b>9,900</b>	
	C	0.25	NA	J

<sup>a</sup> Area calculated from project GIS

<sup>b</sup> Provided by TRRP

NA = not applicable

Activities at the Elkhorn site reflect acknowledgement that certain riverine processes continue to have a dynamic impact on morphology and riparian vegetation. Specifically, activity areas R-2, R-4, and R-5 reflect a lighter treatment based on observations at this site since it was included in the ROD in 2000. Essentially, the river has reestablished some amount of floodplain function, and this alternative is intended to enhance that function by removing vegetation and the small riparian berms on the right side of the river. Alternative 1 represents a reduction in the area and volume that would be excavated equaling 2.61 acres and 8,470 cubic yards at Elkhorn.

These activities are expected to enhance site-specific riverine processes and to eventually result in development of point bars and floodplain habitat that do not presently exist. Similar to the Proposed Action, the temporal and spatial changes to the form and function of the Trinity River are subject to variability in the flow regime over several years.

Creation of these features would be accomplished through the rescaling of the river channel (e.g., feathered edges, floodplains, side channels) within the riverine activity areas, although there is an expectation that natural alluvial processes may immediately affect a larger area. This rehabilitation of river function could result in the future development of a larger and more complex expanse of river and floodplain habitats. The result would be increased habitat suitability and availability for salmonids and other native fish and wildlife species.

The modification of the activities at Conner Creek and Elkhorn would result in a reduction to the total area affected equaling 3.56 acres and 11,070 cubic yards. Similarly, the upland activity areas would not be used to place these materials (79,180 cubic yards total). Overall, this alternative would result in less earthwork than the Proposed Action.

As described in Section 2.6.1, Alternative 1 would include some level of revegetation for certain activity areas. The actual amount of revegetation included in this alternative would be determined upon completion of final grading activities. As proposed, revegetation activities would be restricted to the floodplain and side channel features that would be minimally inundated at flows in excess of 6,600 cfs. As appropriate, all activities would include specific measures intended to limit or prohibit the reintroduction of noxious and invasive plant species. The spread of noxious, invasive, and exotic plant species within the rehabilitation sites will be controlled by implementing excavation and disposal activities in a manner that maximizes control of seed and root-sprout sources and reduces the potential for non-native plant infestation (e.g., burial).

### *Design Elements*

The design elements described for Alternative 1 are consistent with the description provided for the Proposed Action. No additional design elements were incorporated into Alternative 1.

## **2.7 Alternatives Considered but Eliminated from Further Evaluation**

### **2.7.1 EXPORT MATERIAL OPTIONS**

This option would involve moving the majority of excavated materials off site to reduce potential impacts to flood elevations. This option was determined to be undesirable because of the cost associated with trucking excavated material to a remote site. Additionally, potential mineral rights issues could prohibit the removal of material from certain ownership areas within the Proposed Action area.

### **2.7.2 POINT BAR CONSTRUCTION**

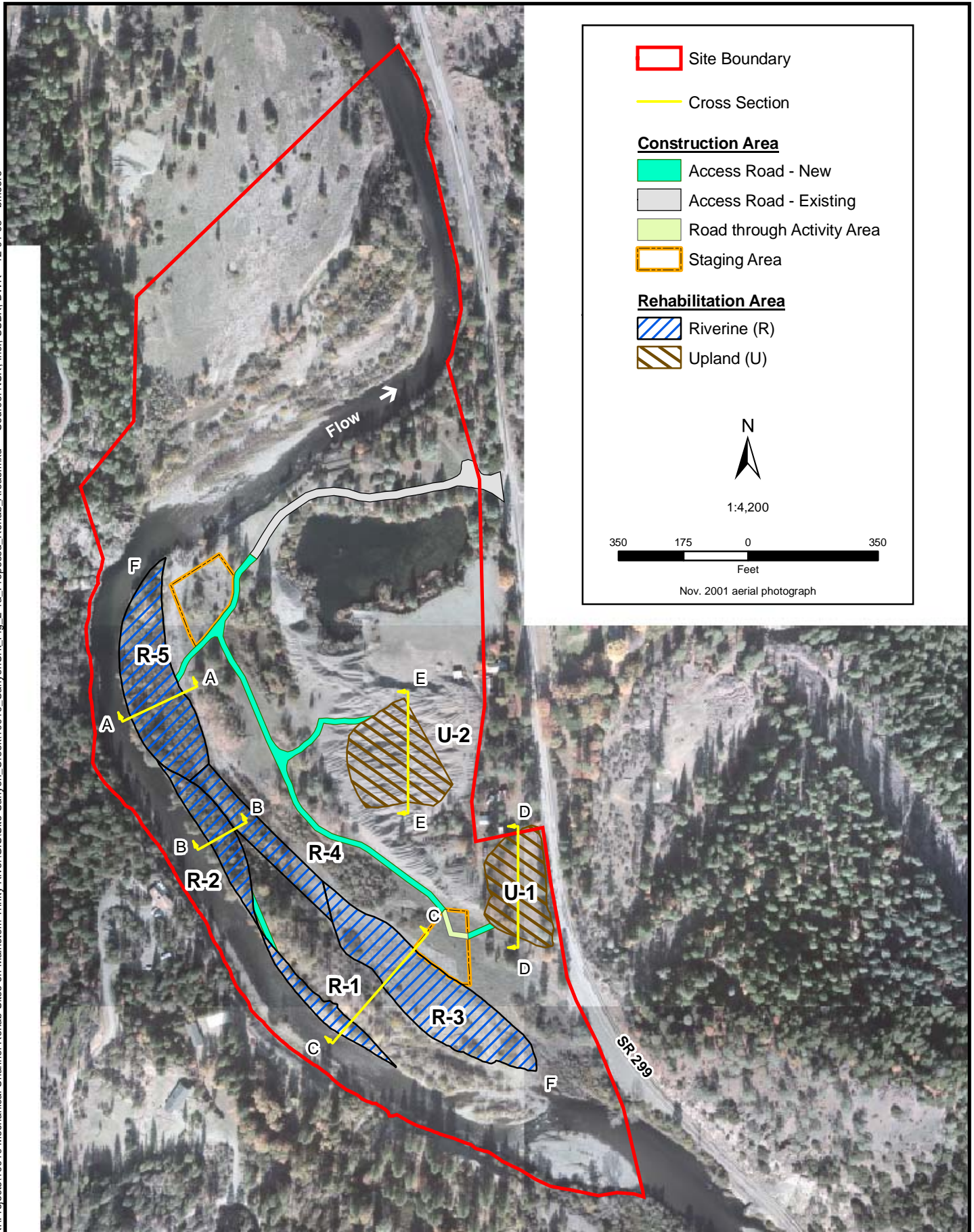
The design team considered construction of point bars through various means, including inclusion of hard points (rock piles, structures), at Valdor Gulch. Several factors made this option undesirable:

- Coarse sediment is not a limiting factor in this river reach;
- concerns that a popular fishing hole could be filled with introduced gravels; and
- a desire to restrict in-channel activities.

### **2.7.3 DEVELOP A LARGE SIDE CHANNEL AT VALDOR GULCH**

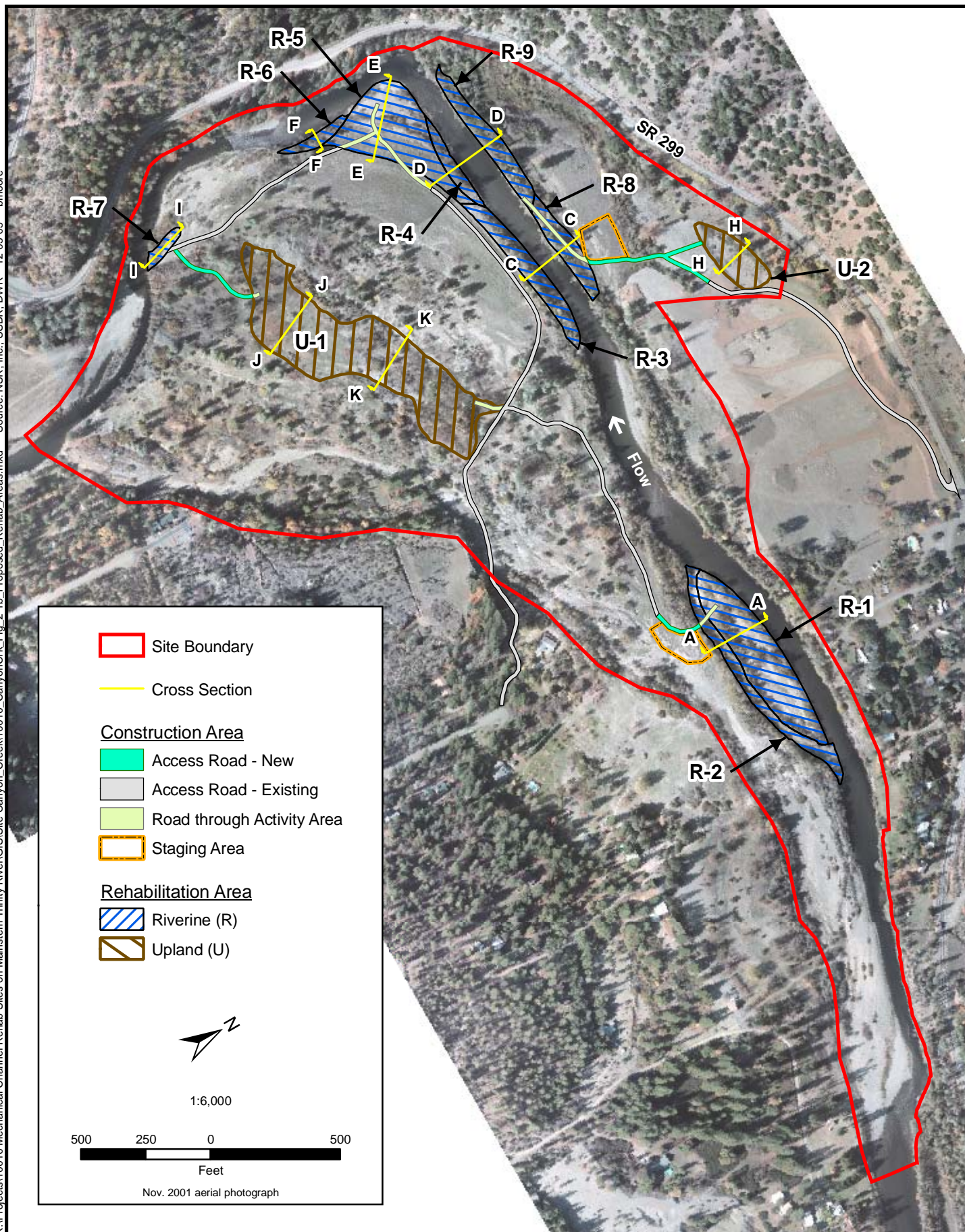
Construction of a low- or medium-flow side channel of approximately 1 mile through the Valdor Gulch site was considered, especially for the benefit of rearing salmonids (i.e., coho salmon). Erosion concerns near private wells and access issues for private landowners to their property during increased side-channel flow periods reduced the desirability of this alternative.





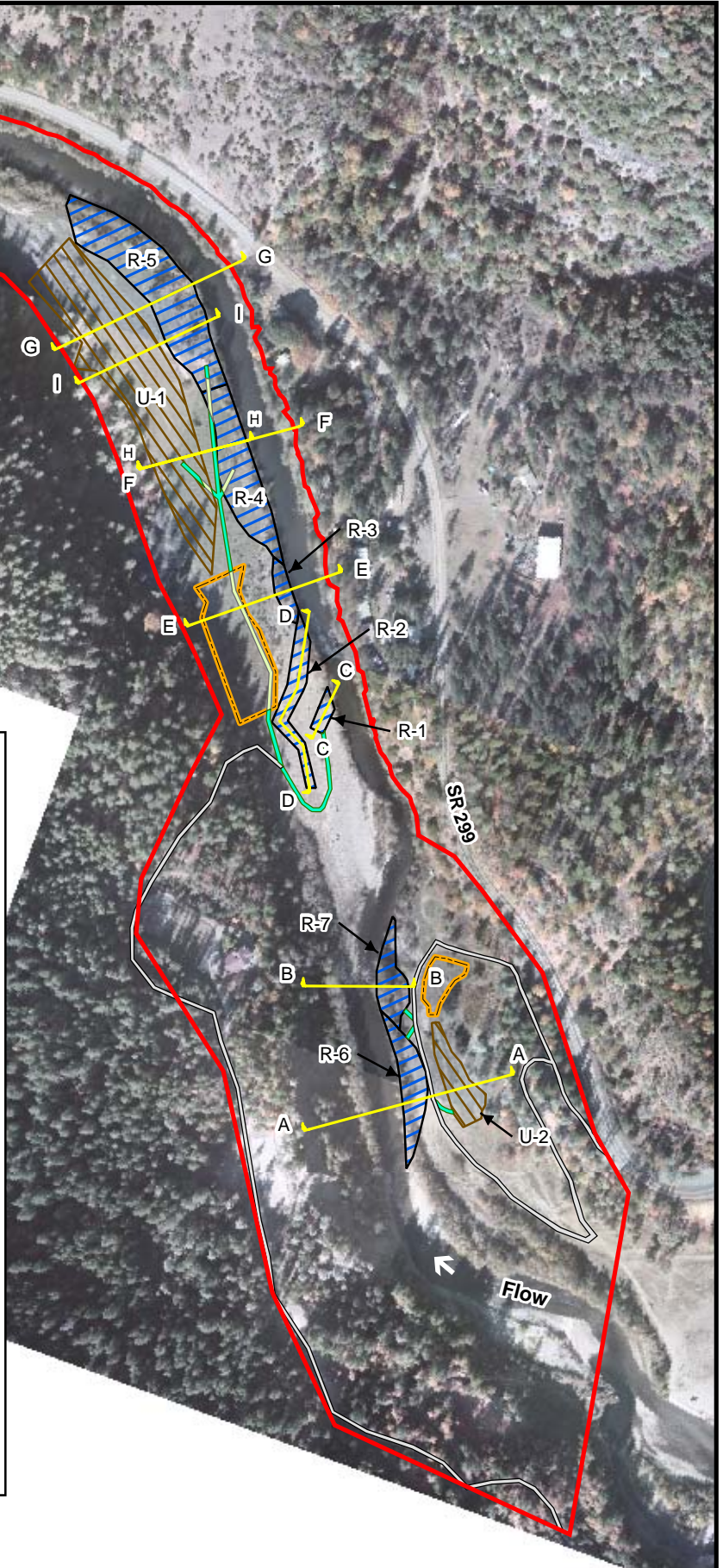
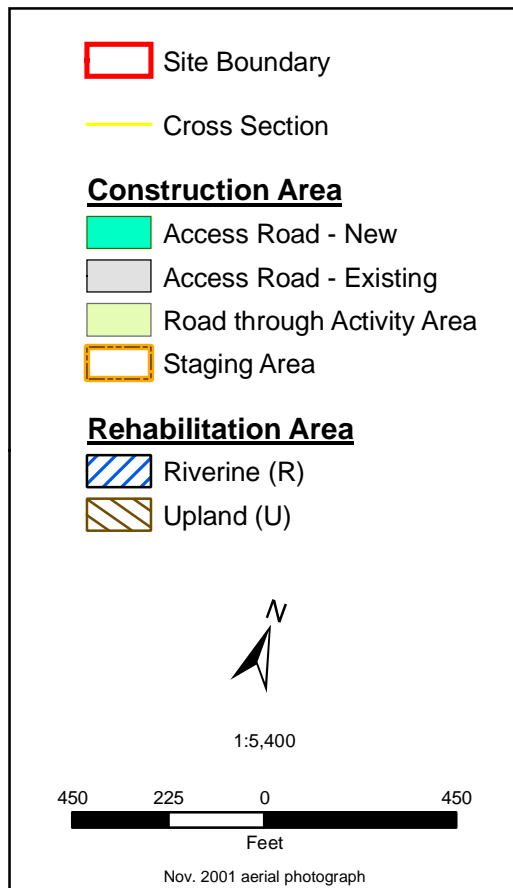
**Figure 2.2a**  
**Conner Creek - Rehabilitation Area Cross Sections**





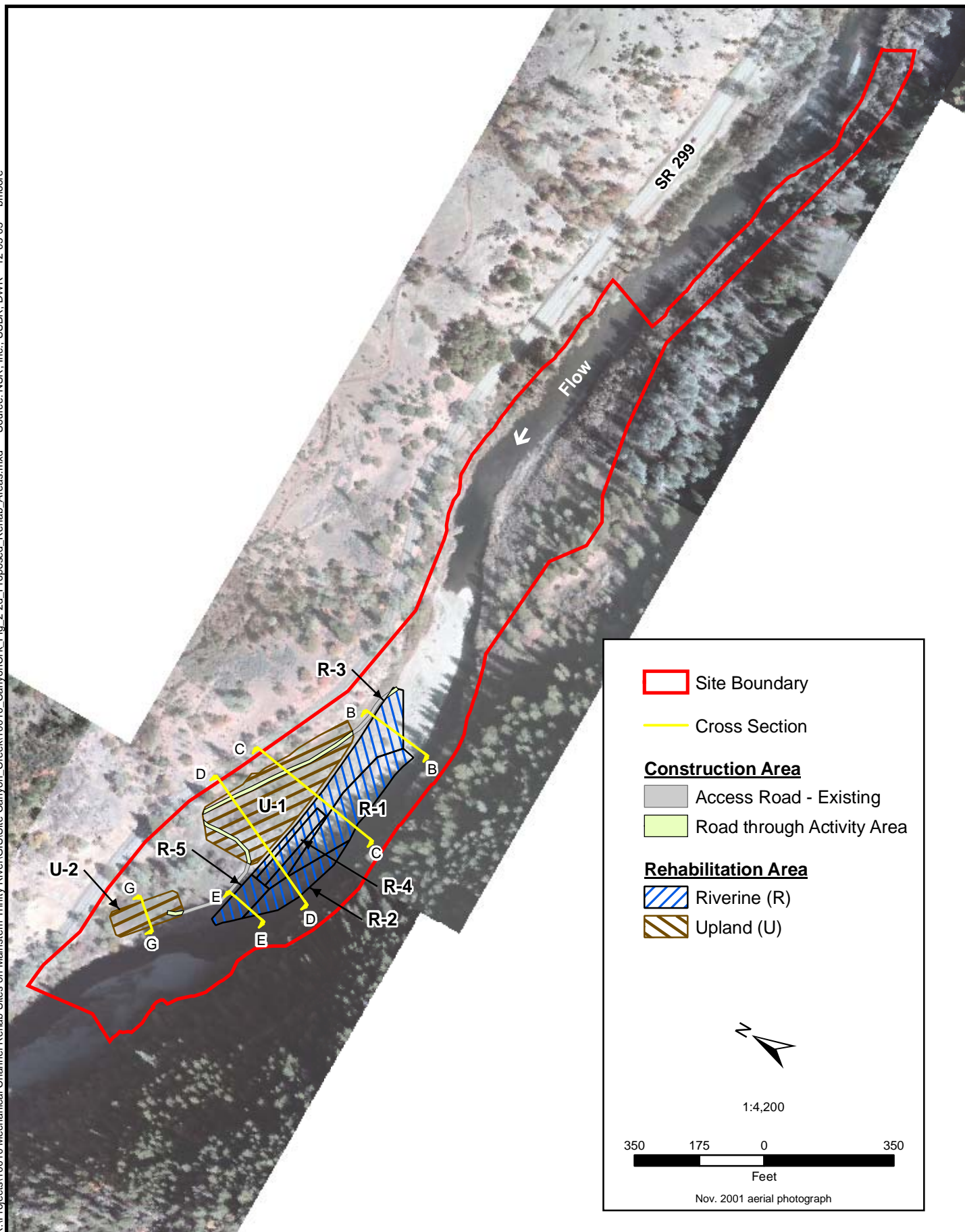
**Figure 2.2b**  
**Valdor Gulch - Rehabilitation Area Cross Sections**





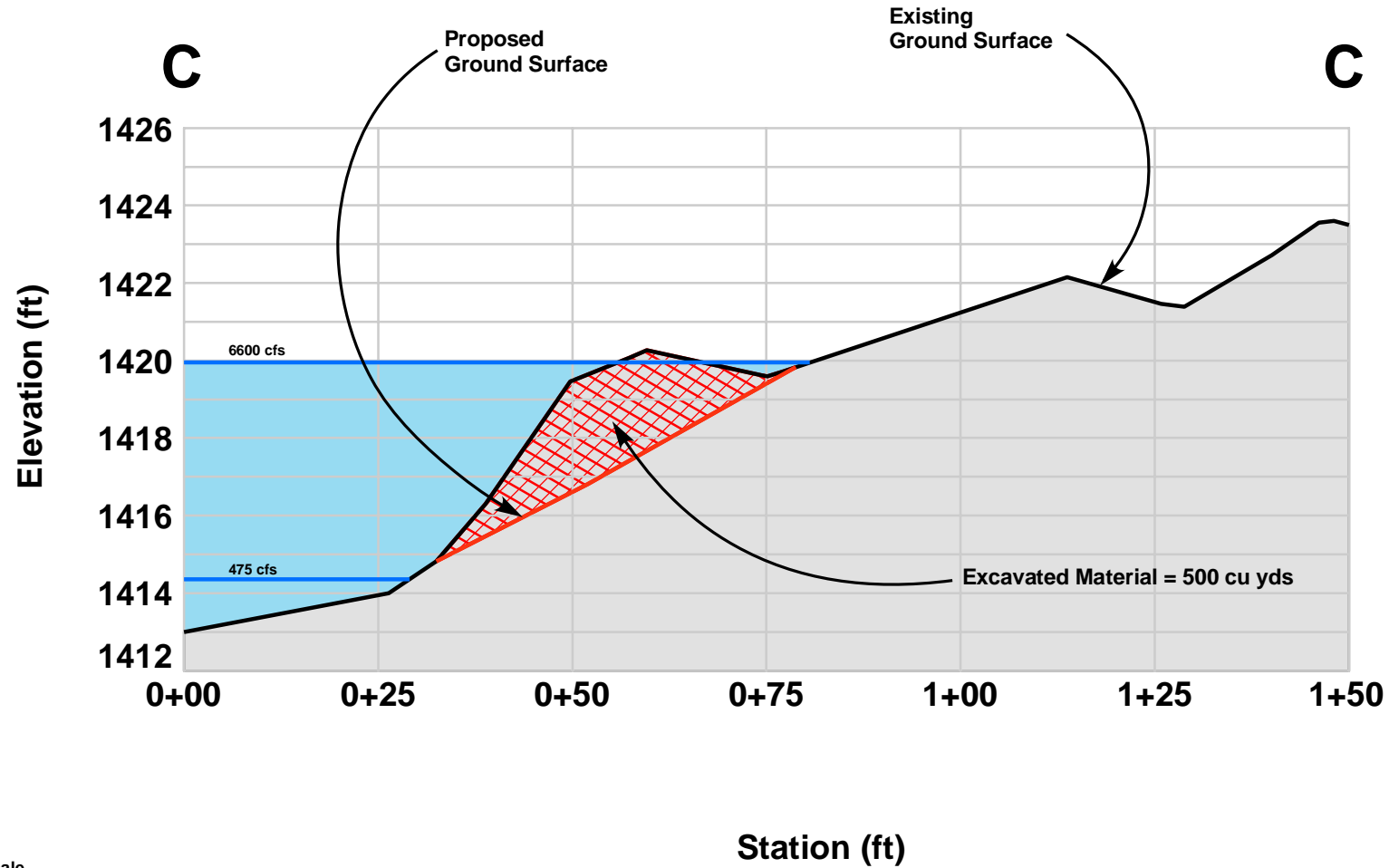
**Figure 2.2c**  
**Elkhorn - Rehabilitation Area Cross Sections**





**Figure 2.2d**  
**Pear Tree Gulch - Rehabilitation Area Cross Sections**

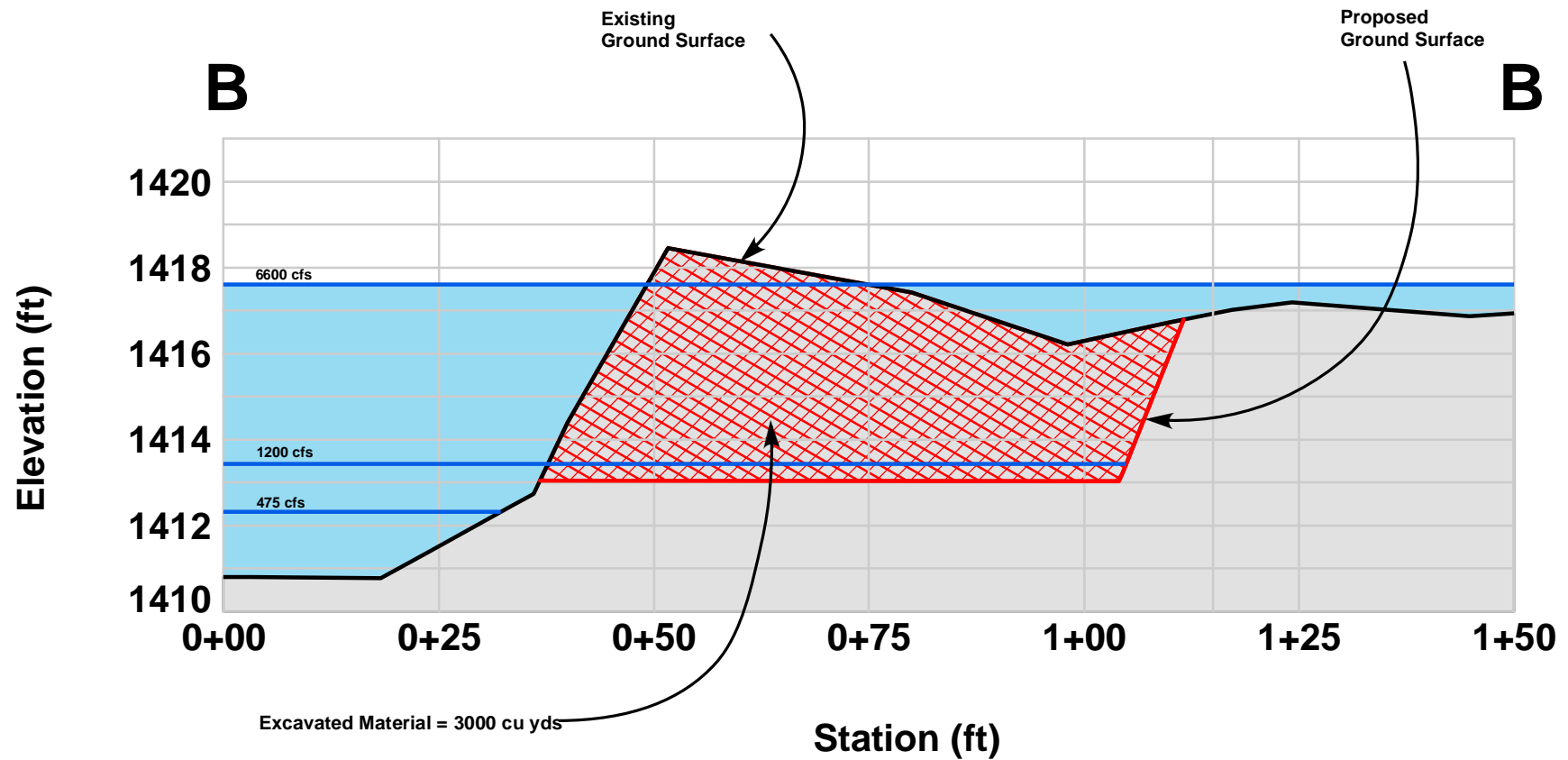
## R-1 Cross Section



Note: Not to scale  
Shown for comparative purposes

Figure 2.3a.1  
Conner Creek - R-1 Cross Section  
Profile of Proposed Rehabilitation Area

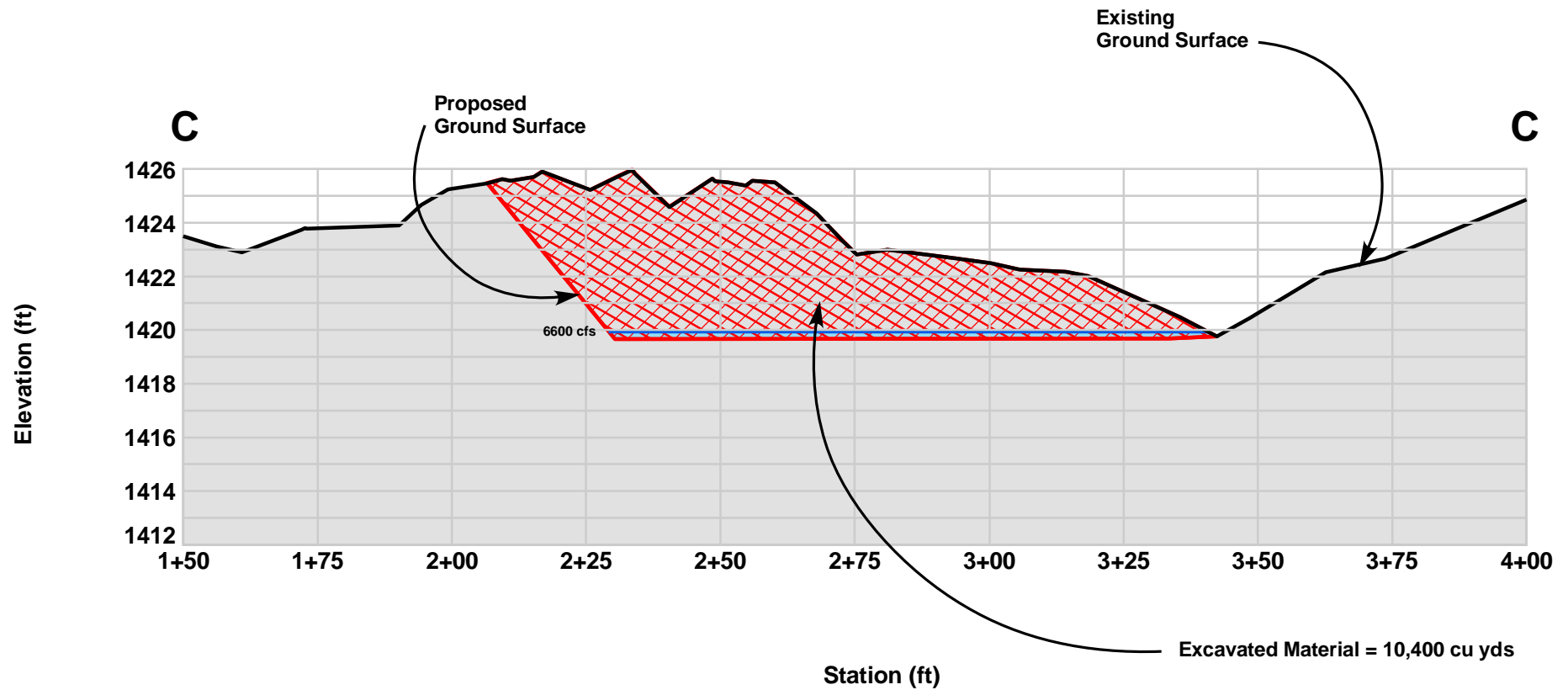
## R-2 Cross Section



Note: Not to scale  
Shown for comparative purposes

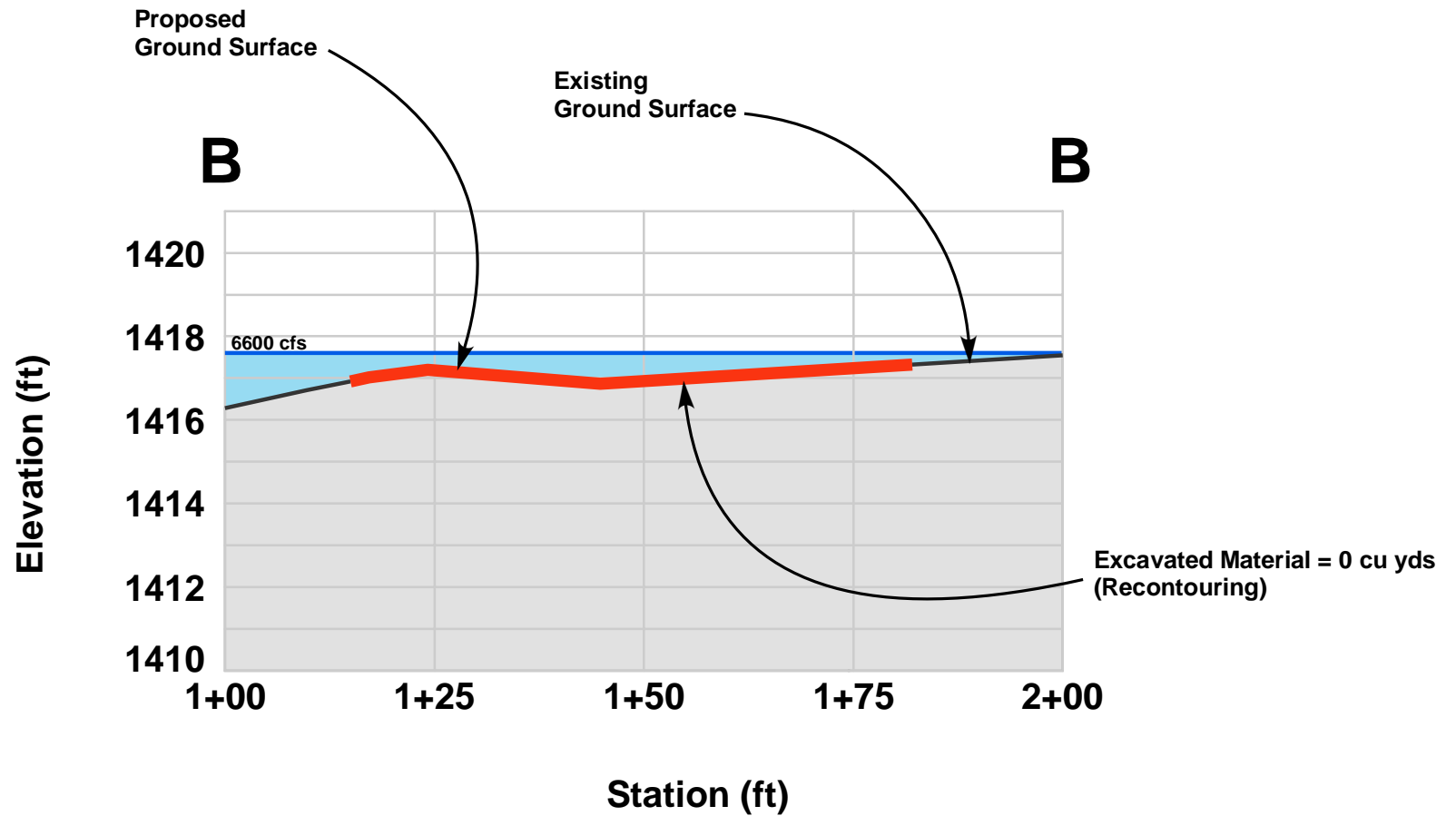
**Figure 2.3a.2**  
**Conner Creek - R-2 Cross Section**  
**Profile of Proposed Rehabilitation Area**

## R-3 Cross Section



Note: Not to scale  
Shown for comparative purposes

## R-4 Cross Section

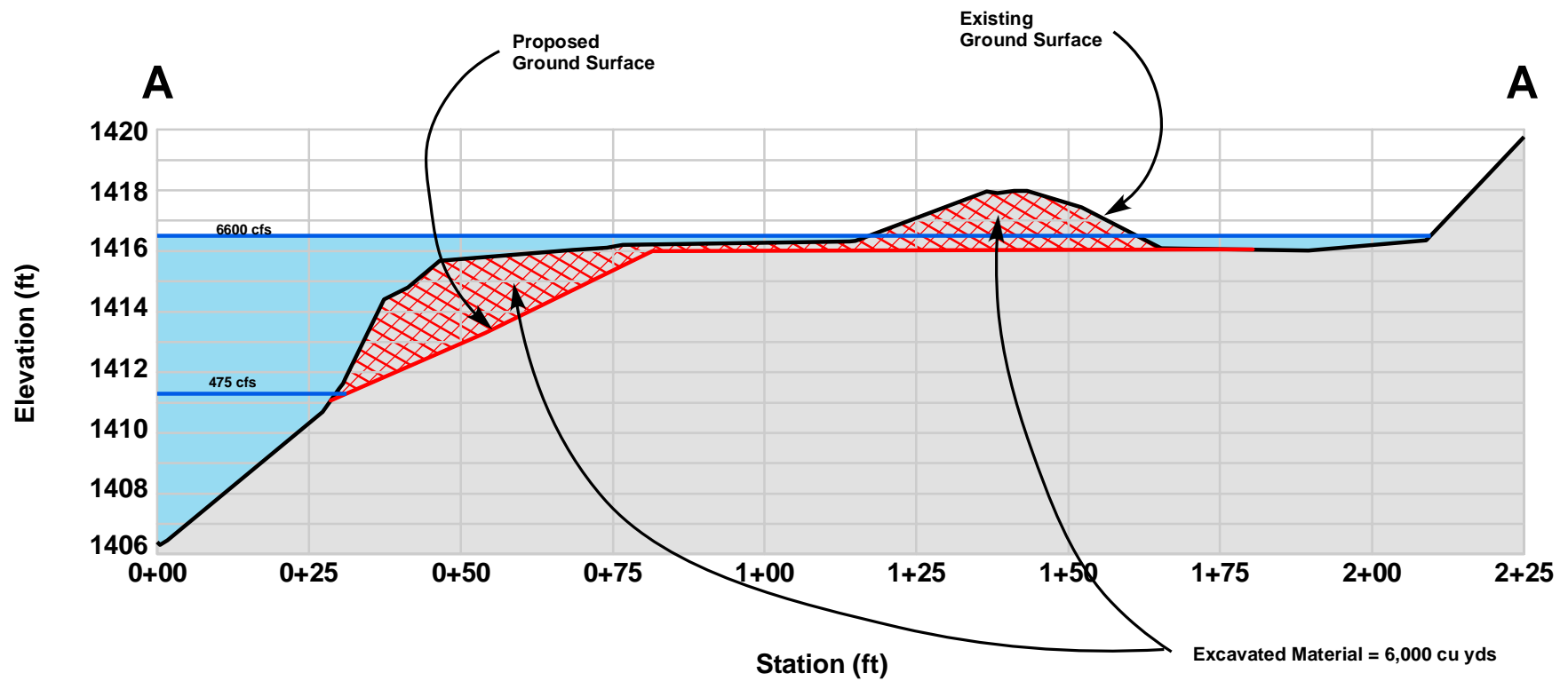


Note: Not to scale  
Shown for comparative purposes

**Figure 2.3a.4**  
**Conner Creek - R-4 Cross Section**  
**Profiles of Proposed Rehabilitation Area**

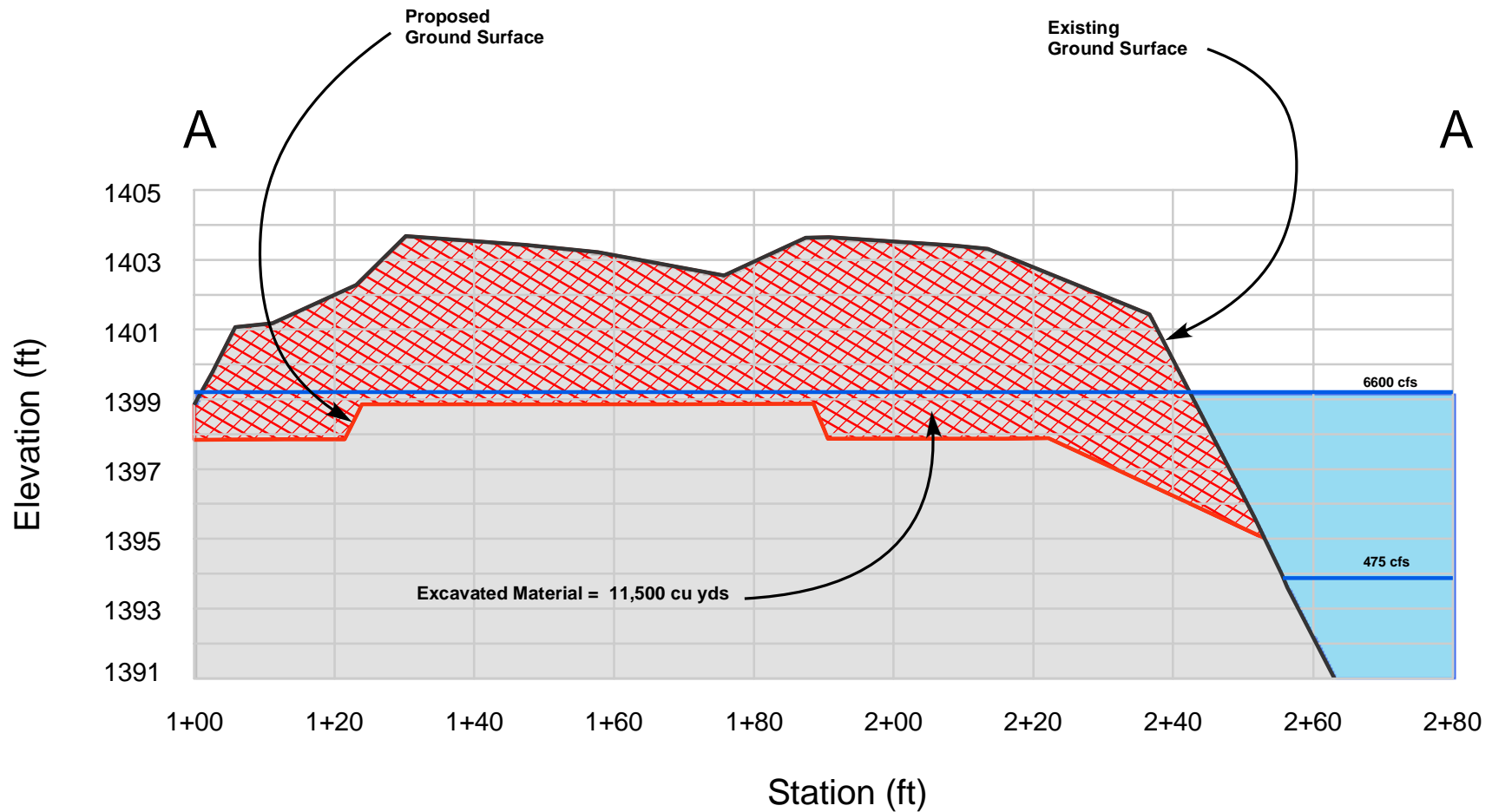


## R-5 Cross Section



Note: Not to scale  
Shown for comparative purposes

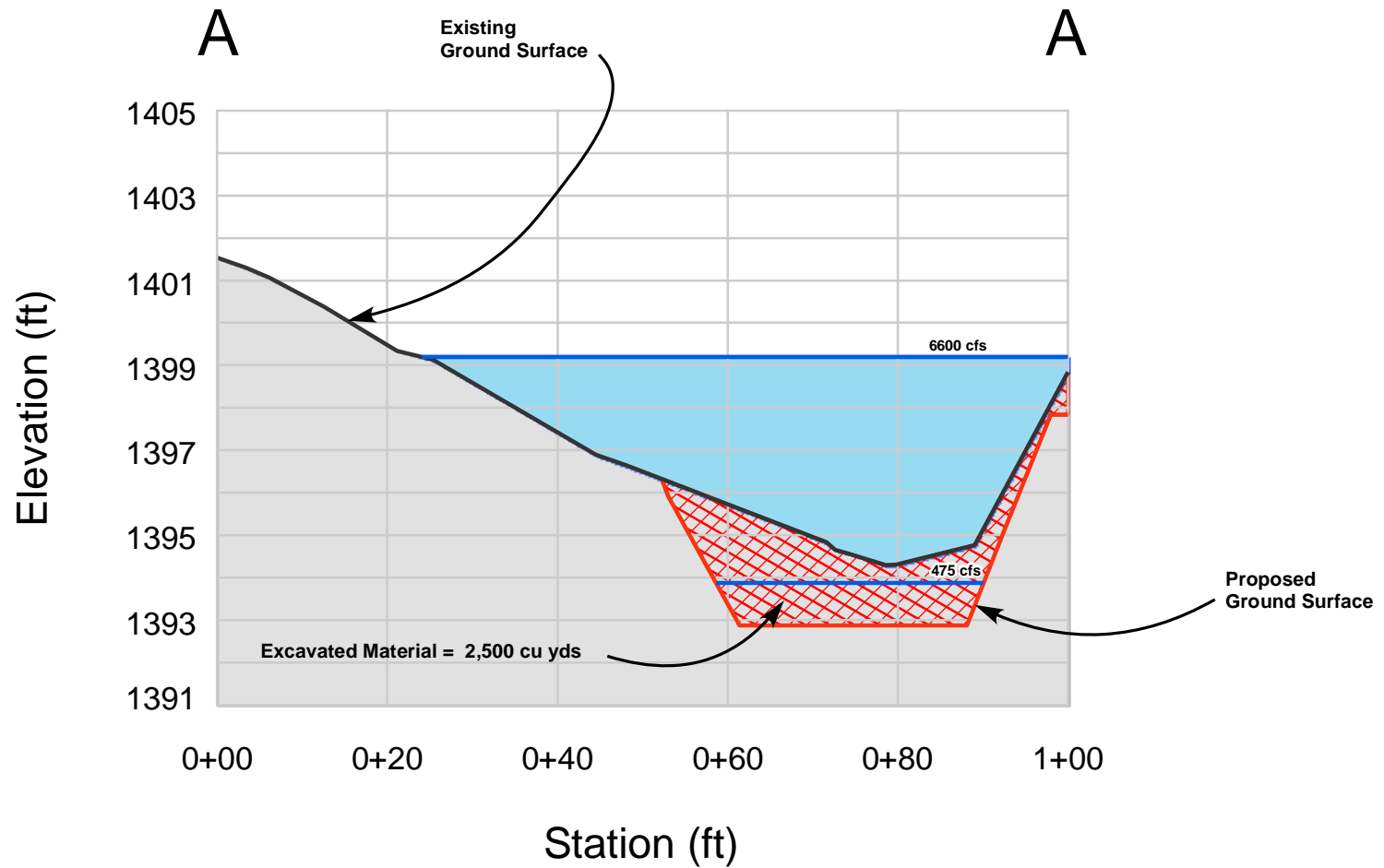
## R-1 Cross Section



Note: Not to scale  
Shown for comparative purposes

**Figure 2.3b.1**  
**Valdor Gulch - R-1 Cross Section**  
**Profile of Proposed Rehabilitation Area**

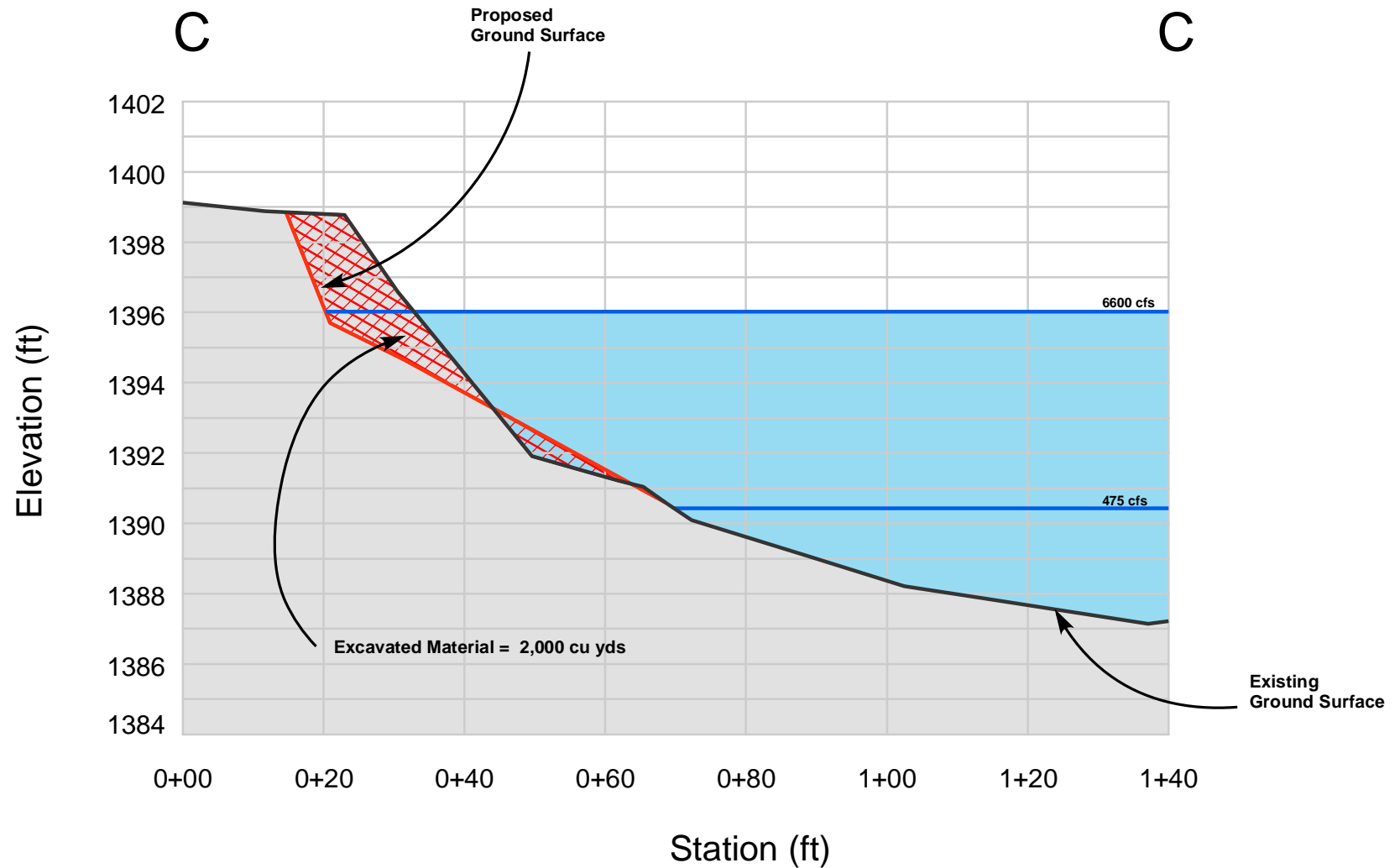
## R-2 Cross Section



Note: Not to scale  
Shown for comparative purposes

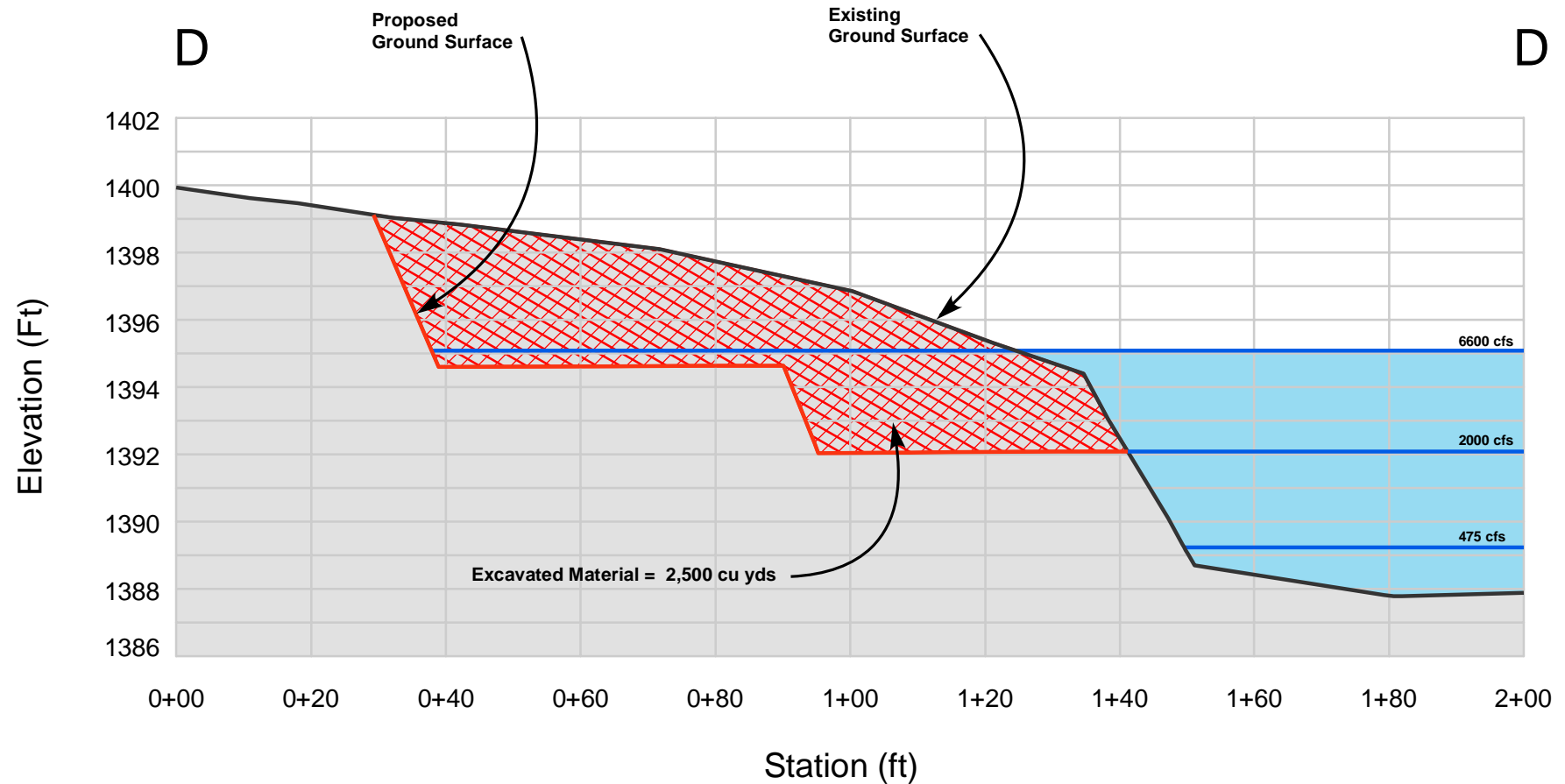
**Figure 2.3b.2**  
**Valdor Gulch - R-2 Cross Section**  
**Profile of Proposed Rehabilitation Area**

## R-3 Cross Section



**Figure 2.3b.3**  
**Valdor Gulch - R-3 Cross Section**  
**Profile of Proposed Rehabilitation Area**

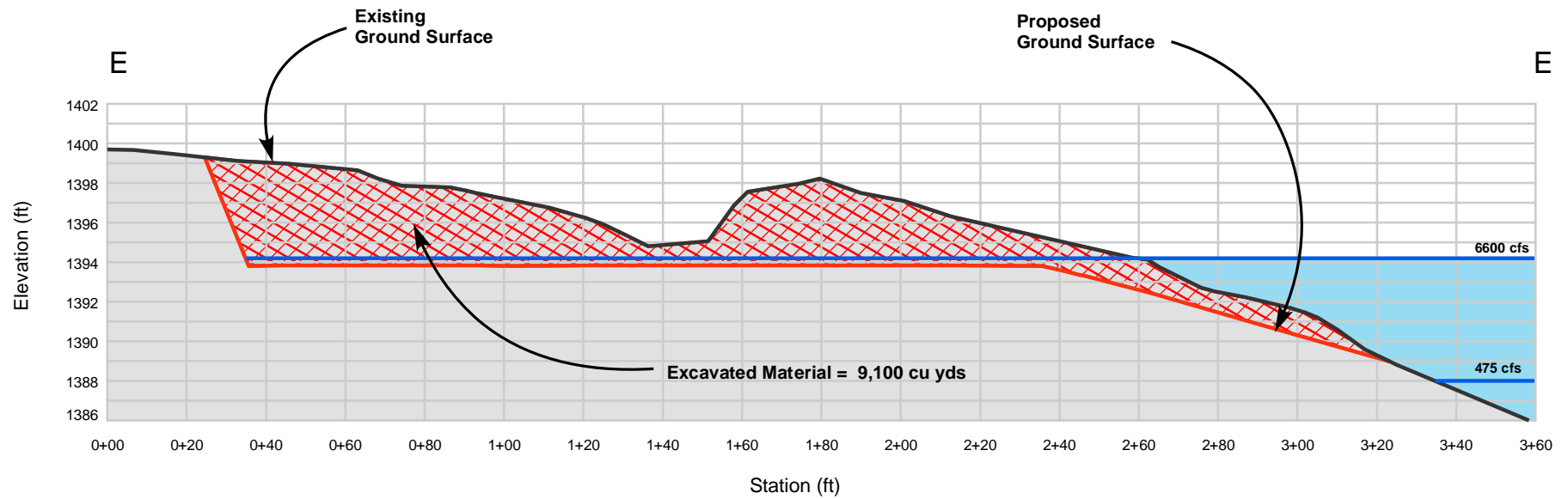
## R-4 Cross Section



Note: Not to scale  
Shown for comparative purposes

**Figure 2.3b.4**  
**Valdor Gulch - R-4 Cross Section**  
**Profile of Proposed Rehabilitation Area**

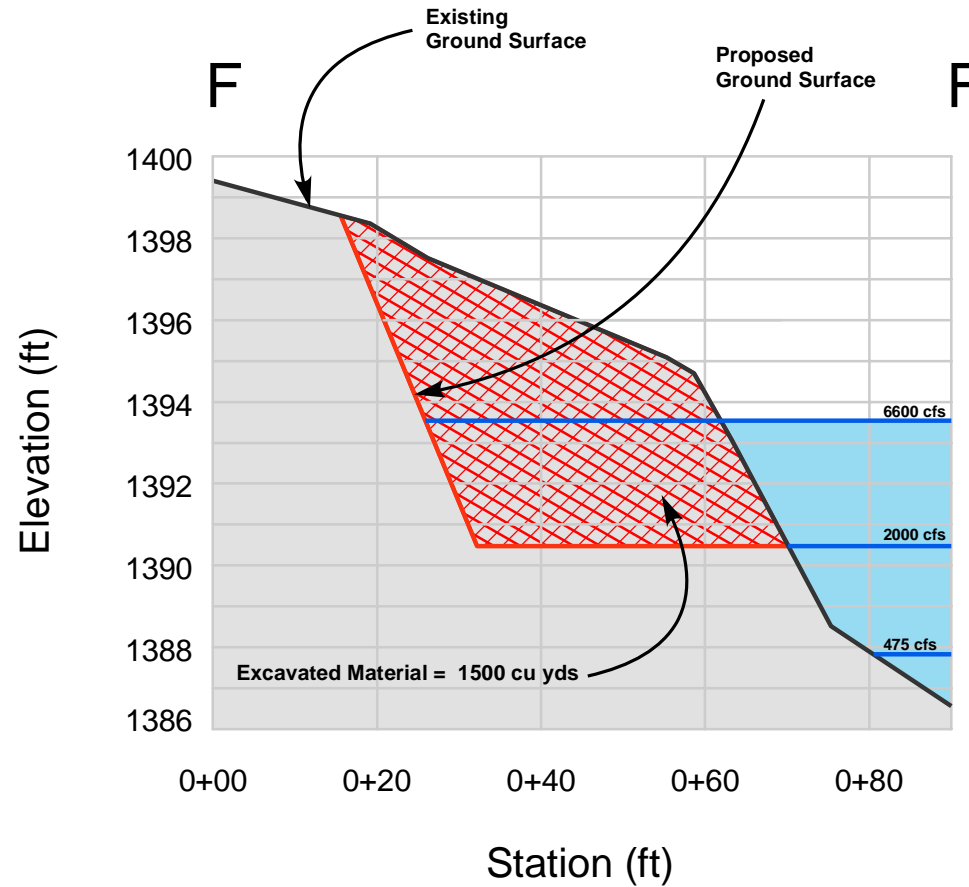
## R-5 Cross Section



Note: Not to scale  
Shown for comparative purposes

**Figure 2.3b.5**  
**Valdor Gulch - R-5 Cross Section**  
**Profile of Proposed Rehabilitation Area**

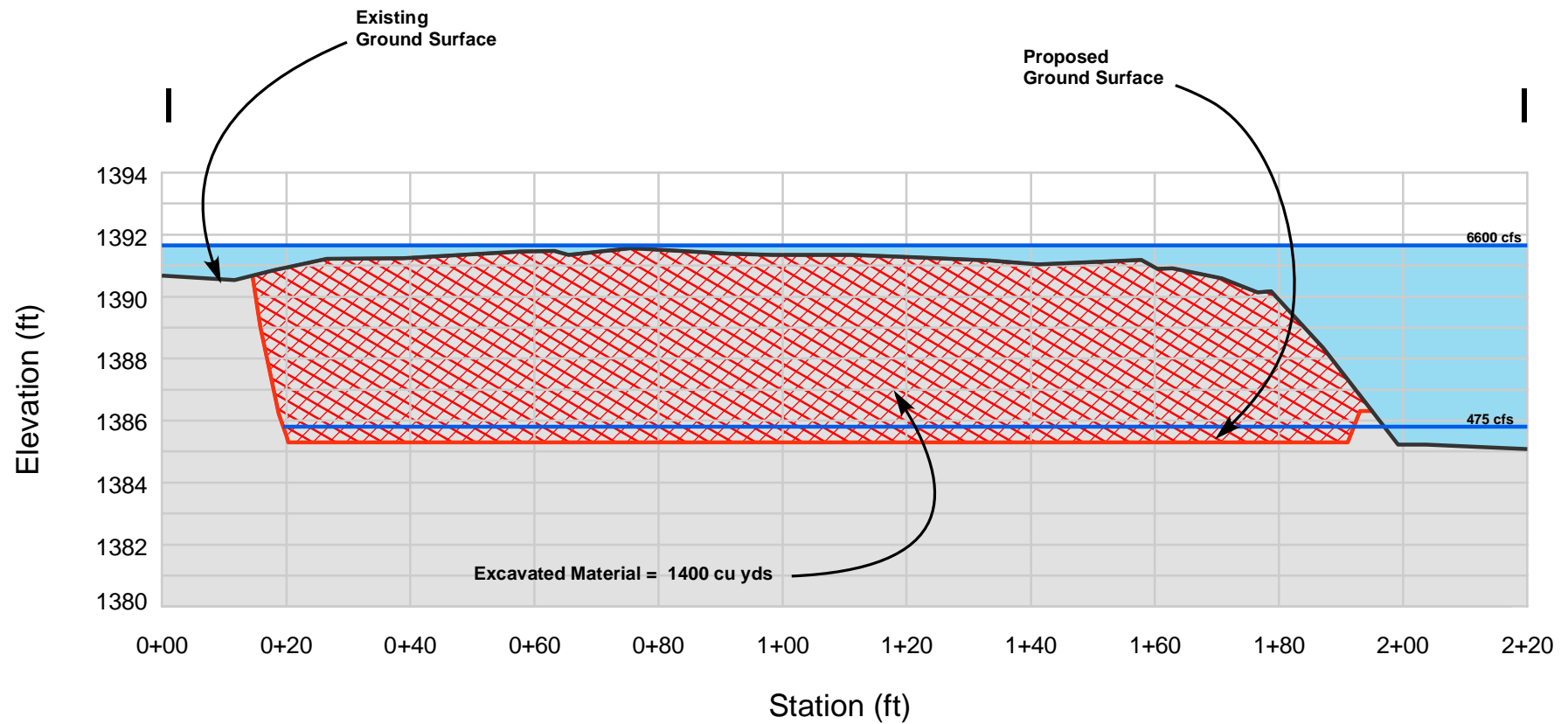
## R-6 Cross Section



Note: Not to scale  
Shown for comparative purposes

**Figure 2.3b.6**  
**Valdor Gulch - R-6 Cross Section**  
**Profile of Proposed Rehabilitation Area**

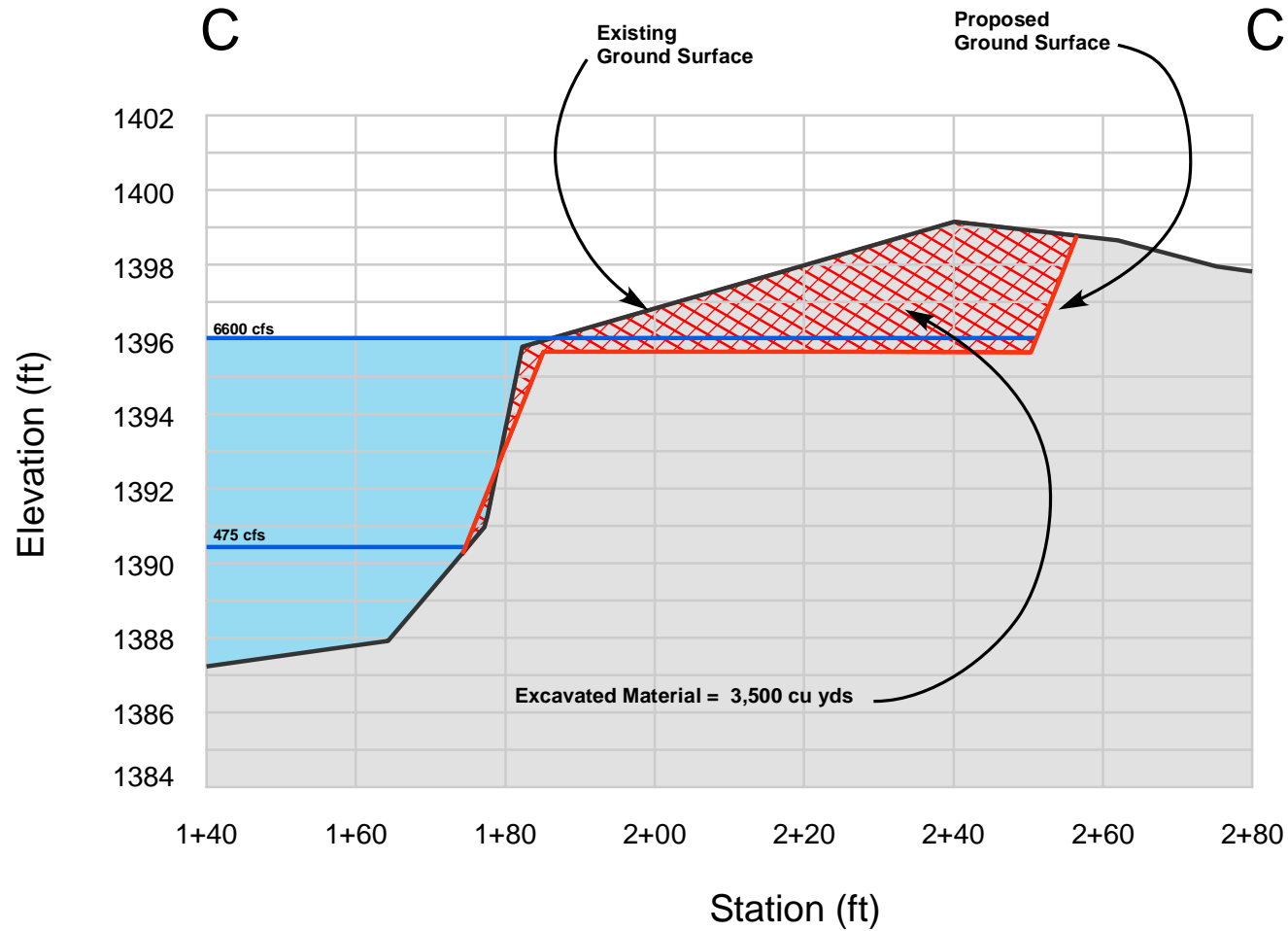
## R-7 Cross Section



Note: Not to scale  
Shown for comparative purposes



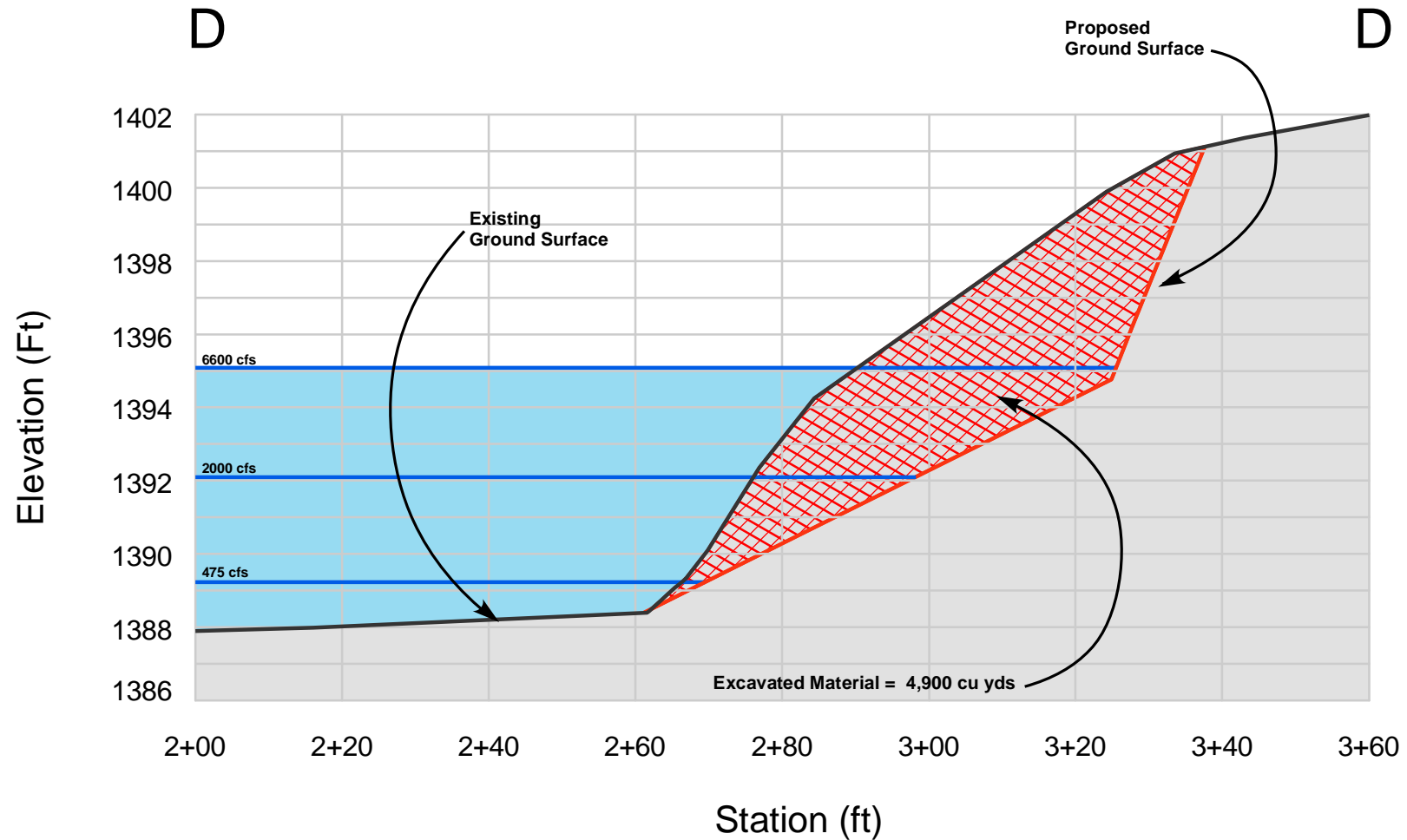
## R-8 Cross Section



Note: Not to scale  
Shown for comparative purposes

**Figure 2.3b.8**  
**Valdor Gulch - R-8 Cross Section**  
**Profile of Proposed Rehabilitation Area**

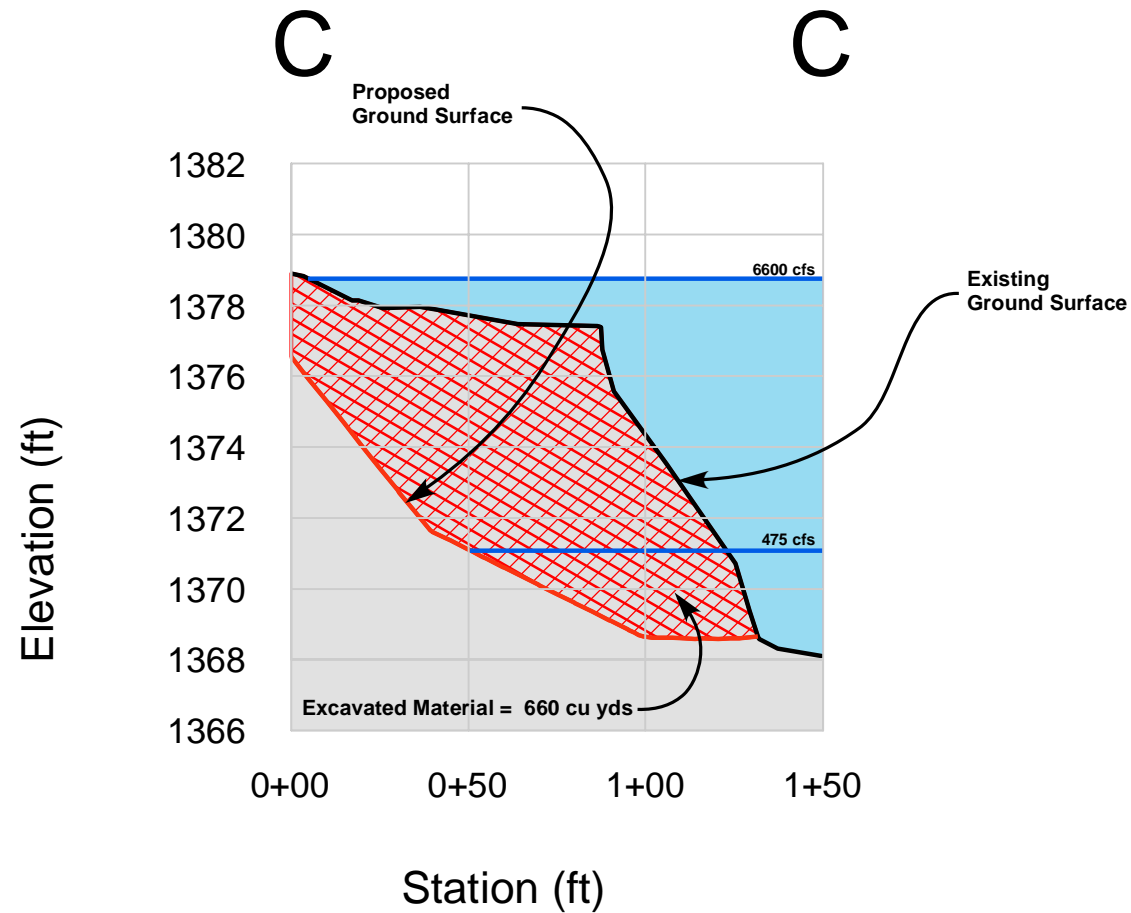
## R-9 Cross Section



Note: Not to scale  
Shown for comparative purposes

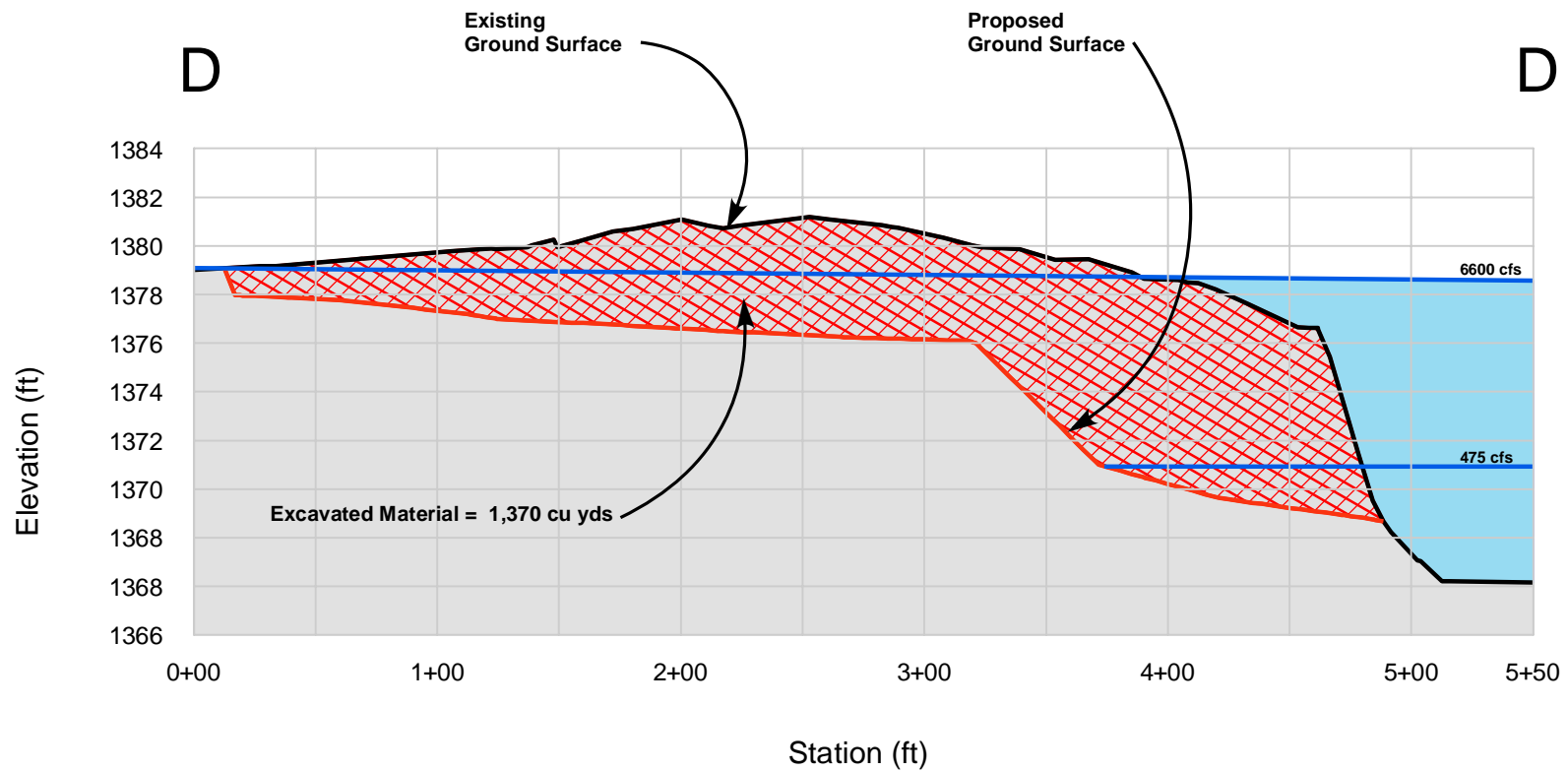
**Figure 2.3b.9**  
**Valdor Gulch - R-9 Cross Section**  
**Profile of Proposed Rehabilitation Area**

## R-1 Cross Section



Note: Not to scale  
Shown for comparative purposes

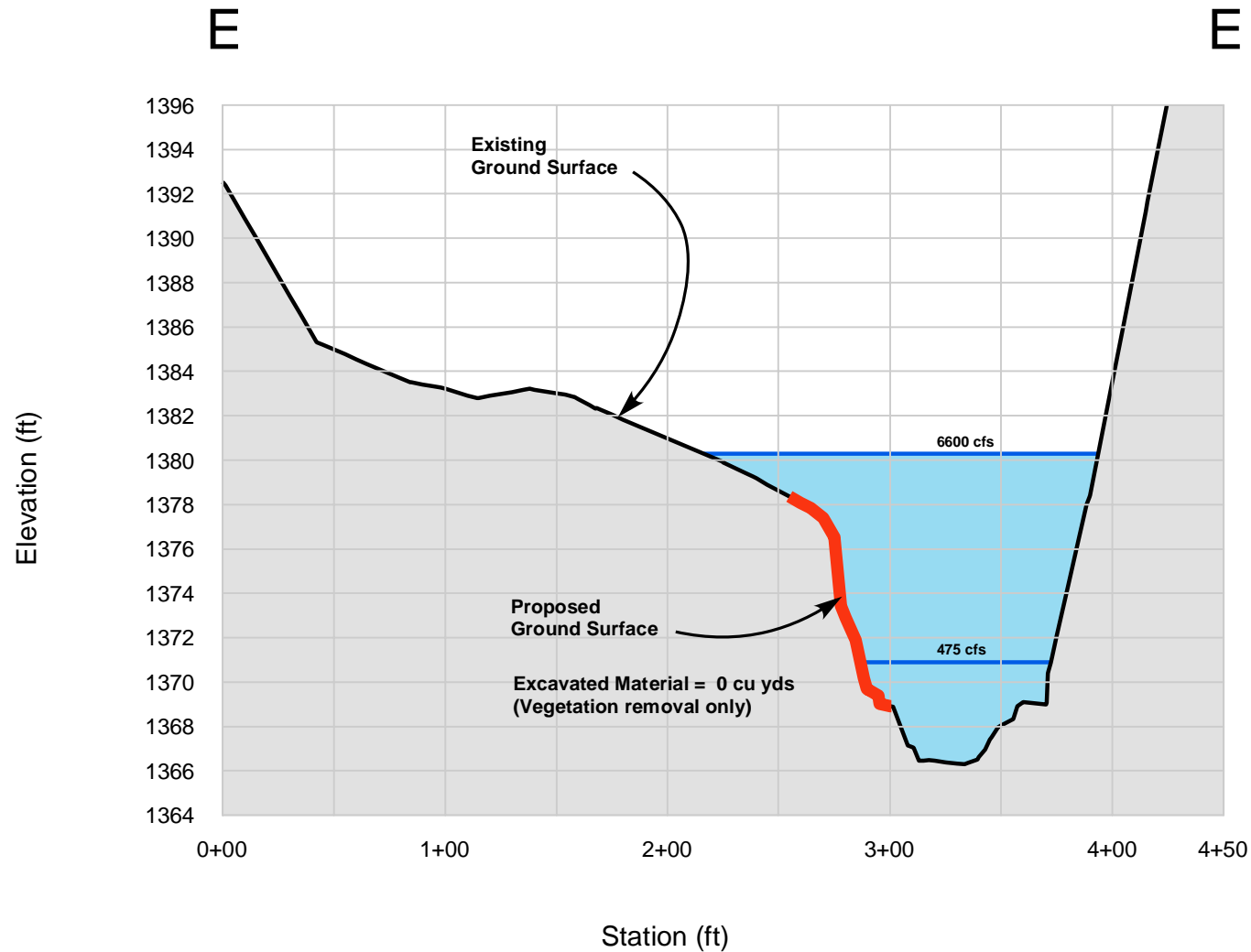
## R-2 Cross Section



Note: Not to scale  
Shown for comparative purposes

**Figure 2.3c.2**  
**Elkhorn - R-2 Cross Profile**  
**of Proposed Rehabilitation Area**

## R-3 Cross Section

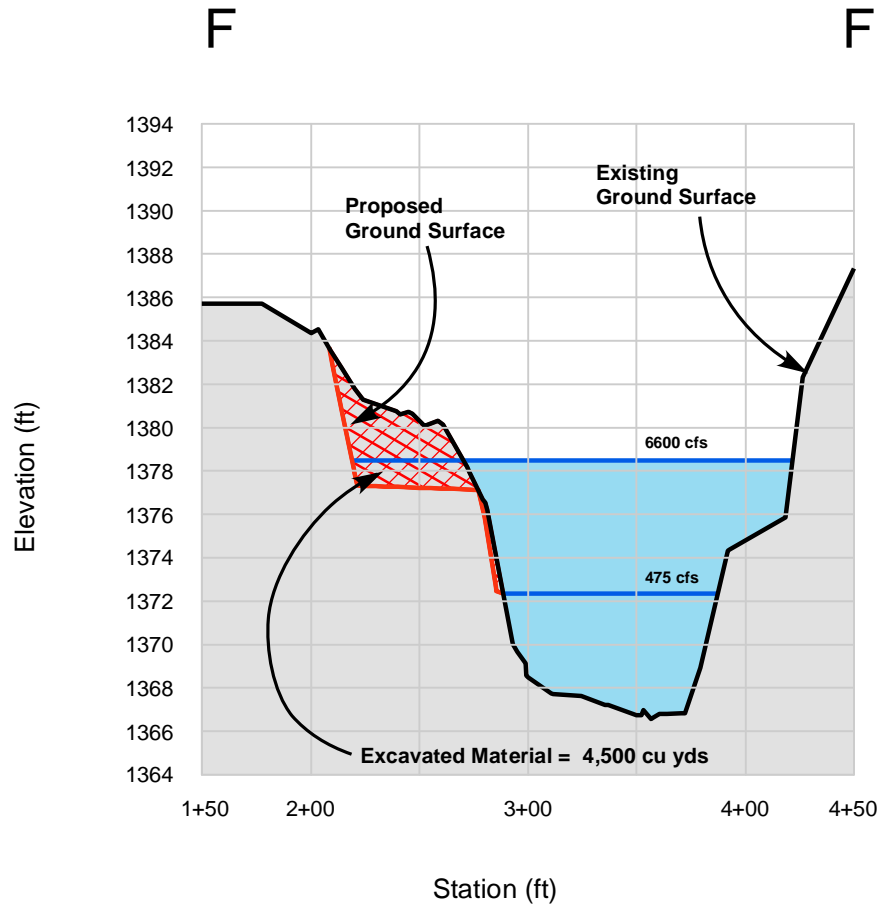


Note: Not to scale  
Shown for comparative purposes

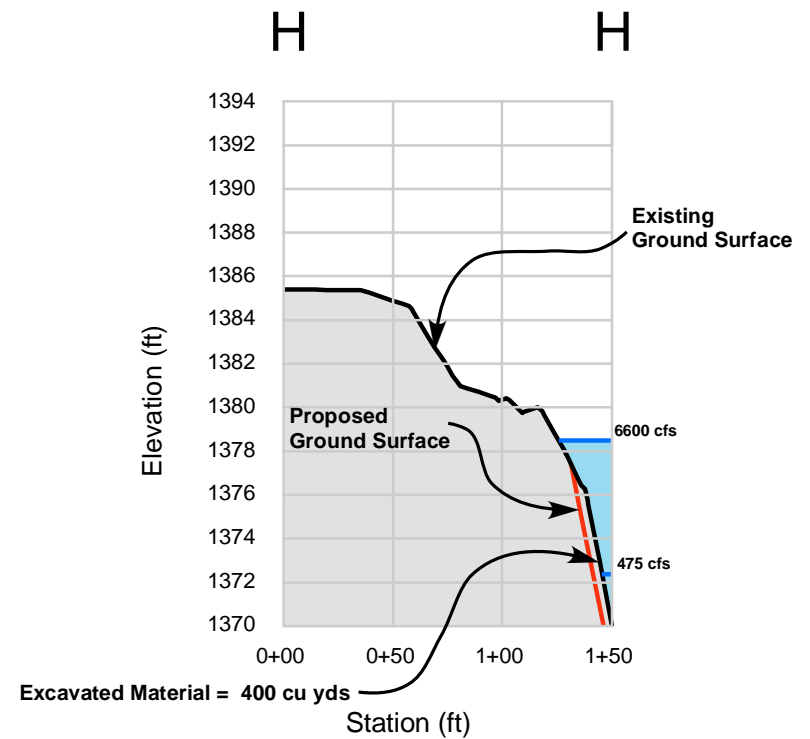
**Figure 2.3c.3**  
**Elkhorn - R-3 Cross Section**  
**Profile of Proposed Rehabilitation Area**

## R-4 Cross Section

### Proposed Action



### Alternative 1

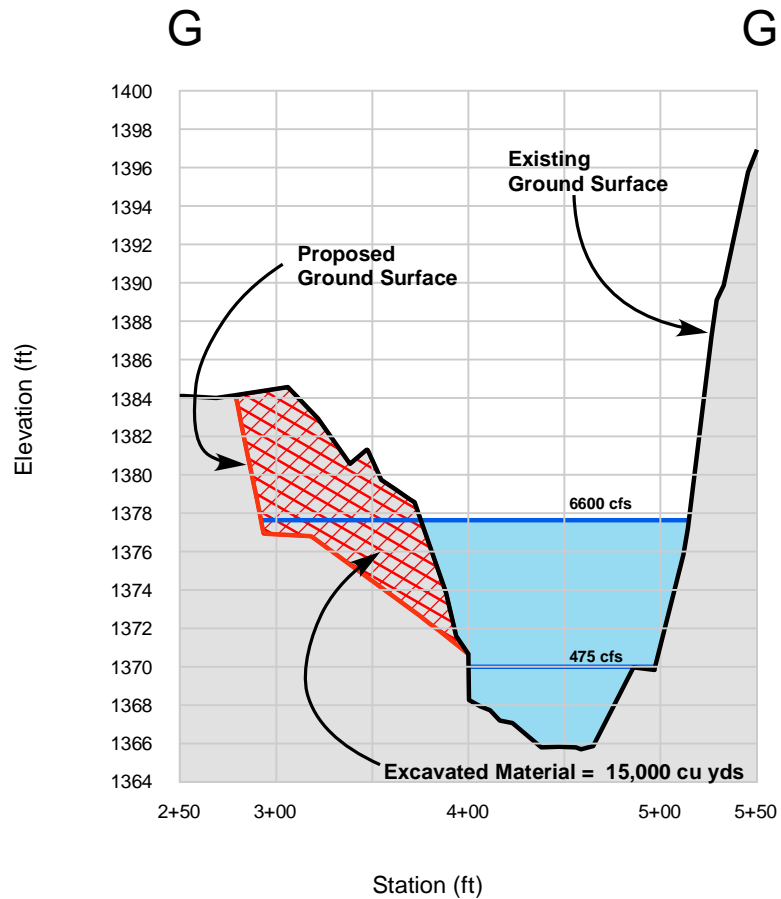


Note: Not to scale  
Shown for comparative purposes

**Figure 2.3c.4**  
**Elkhorn - R-4 Cross Section Profiles of**  
**Proposed and Alternative 1 Rehabilitation Areas**

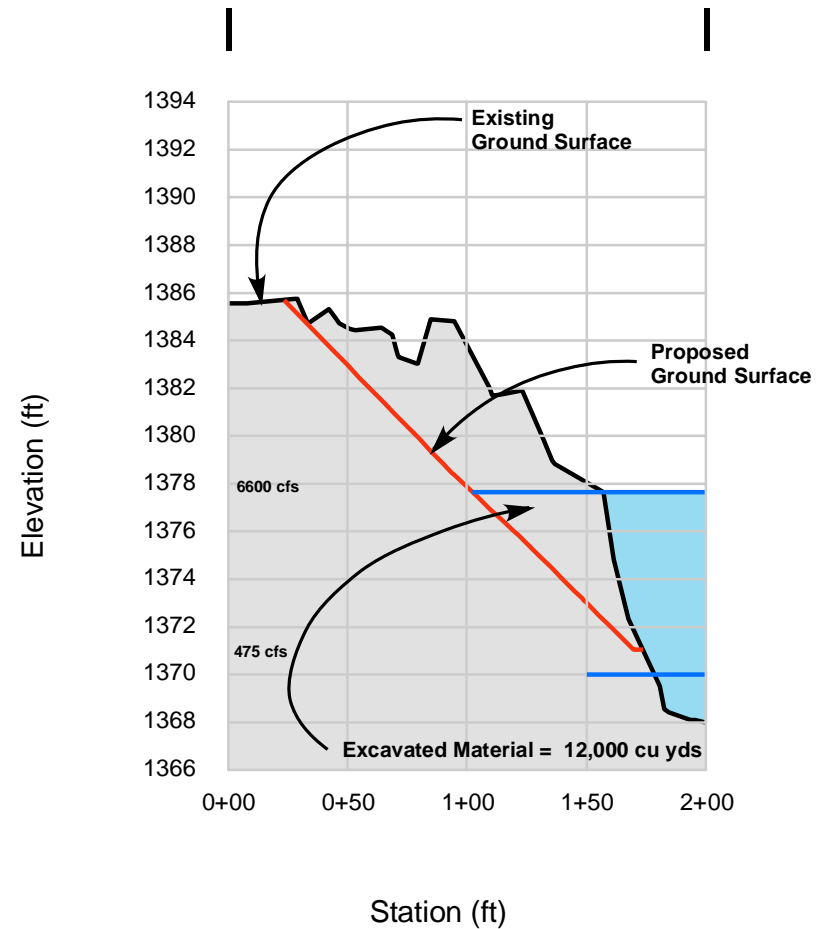
## R-5 Cross Section

### Proposed Action



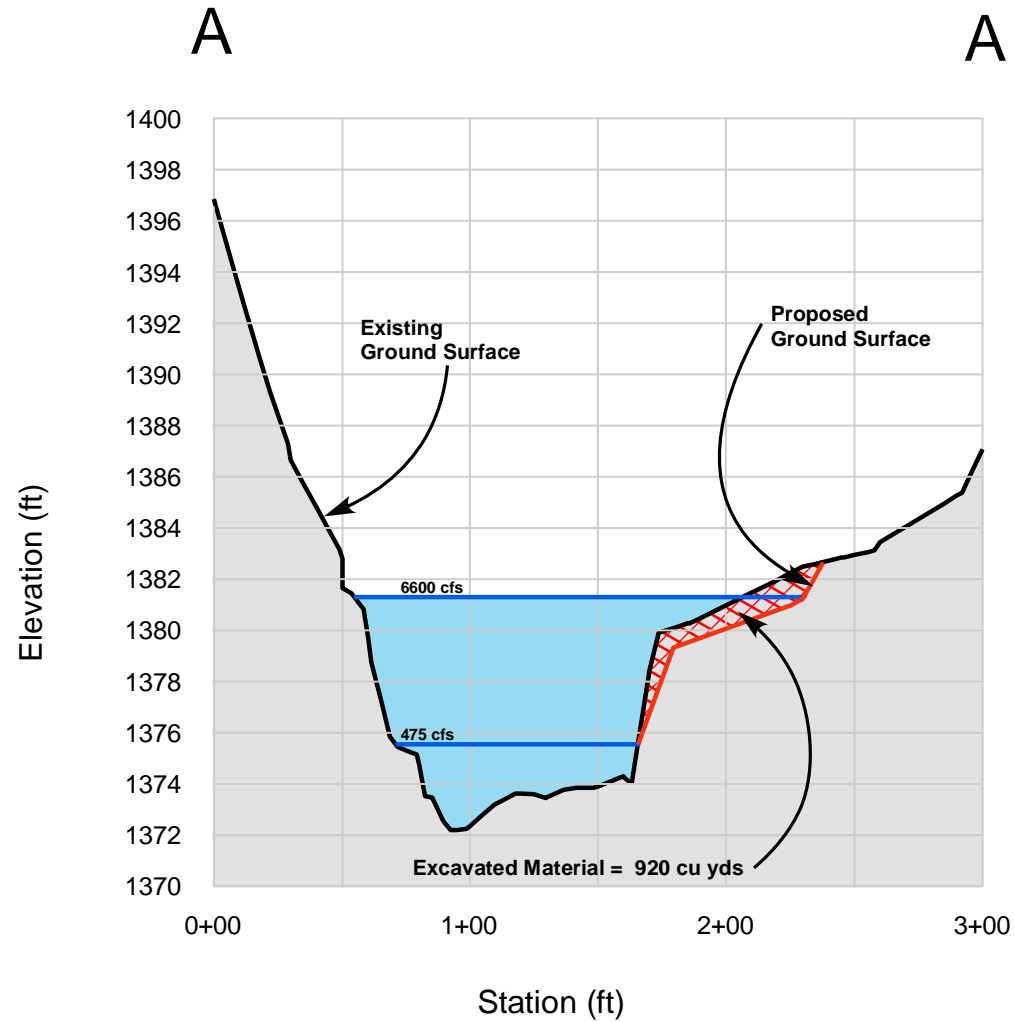
Note: Not to scale  
Shown for comparative purposes

### Alternative 1



**Figure 2.3c.5**  
**Elkhorn - R-5 Cross Section Profiles of**  
**Proposed and Alternative 1 Rehabilitation Areas**

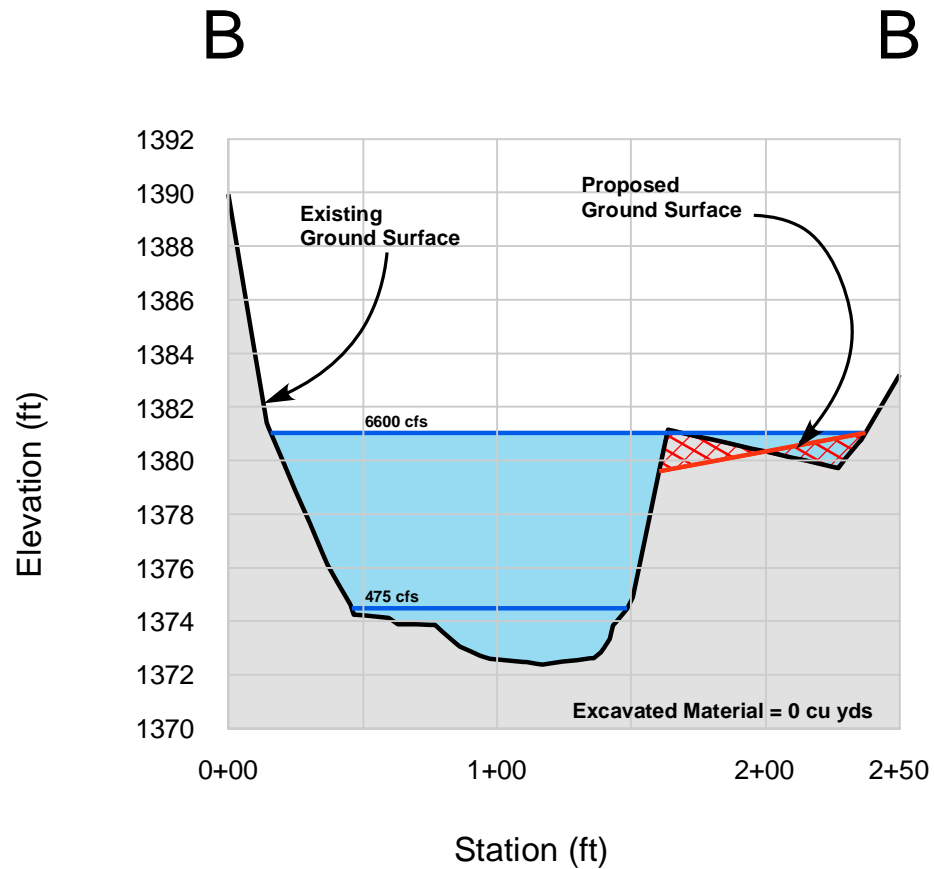
## R-6 Cross Section



Note: Not to scale  
Shown for comparative purposes

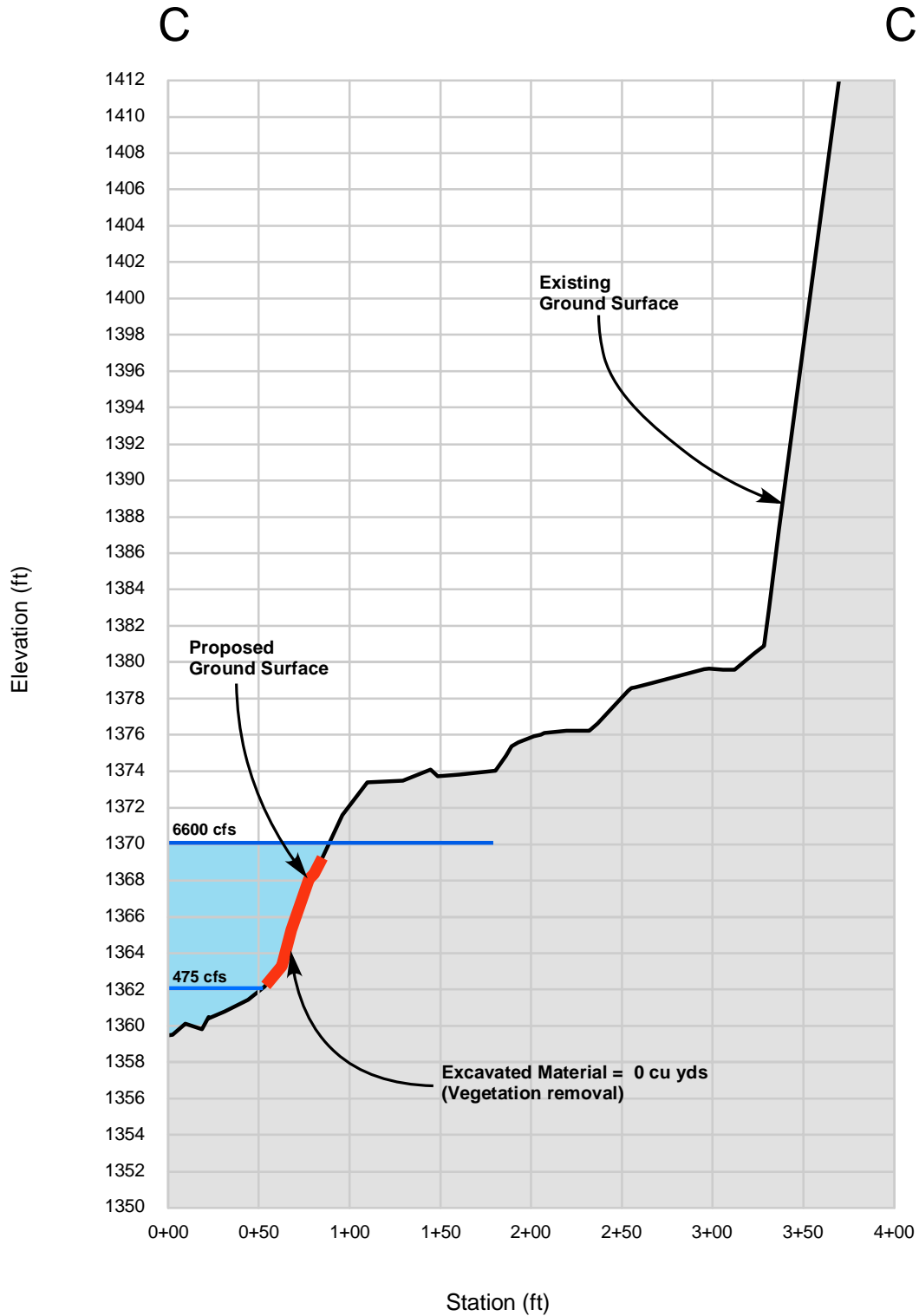


## R-7 Cross Section



Note: Not to scale  
Shown for comparative purposes

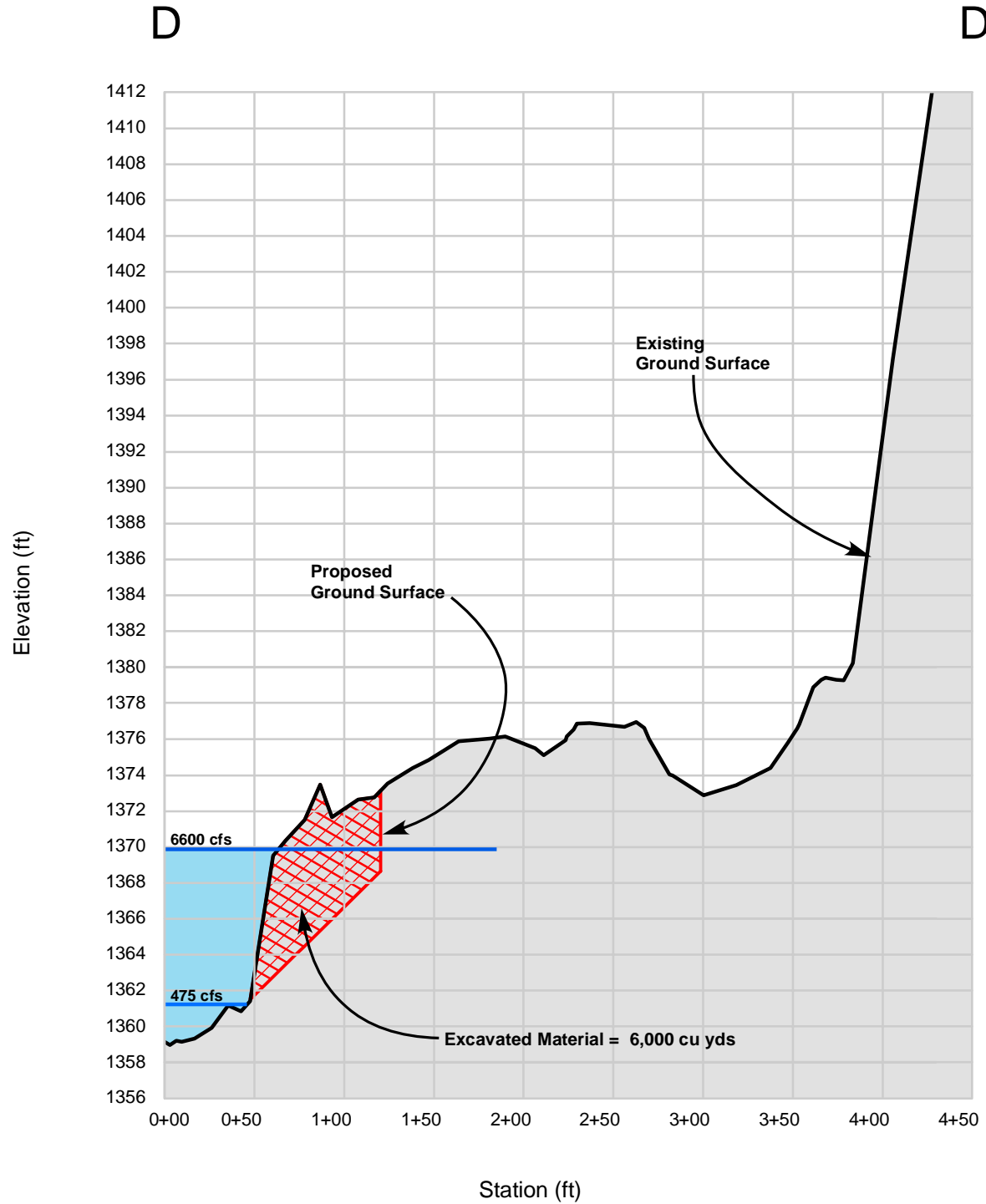
## R-1 Cross Section



**Note: Not to scale**  
**Shown for comparative purposes**

**Figure 2.3d.1**  
**Pear Tree Gulch - R-1**  
**Cross Section Profile of Proposed Rehabilitation Area**

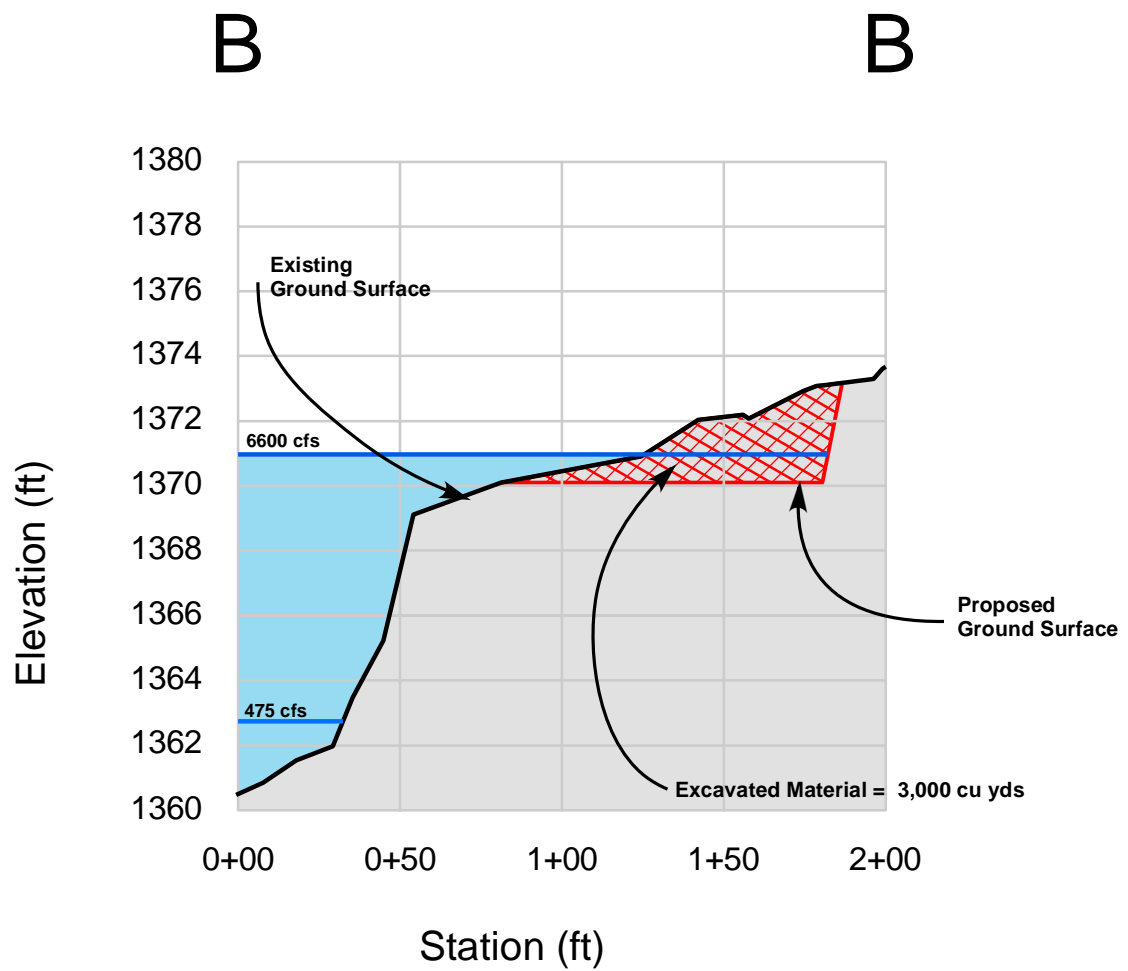
## R-2 Cross Section



**Note: Not to scale  
Shown for comparative purposes**

**Figure 2.3d.2**  
**Pear Tree Gulch - R-2**  
**Cross Section Profile of Proposed Rehabilitation Area**

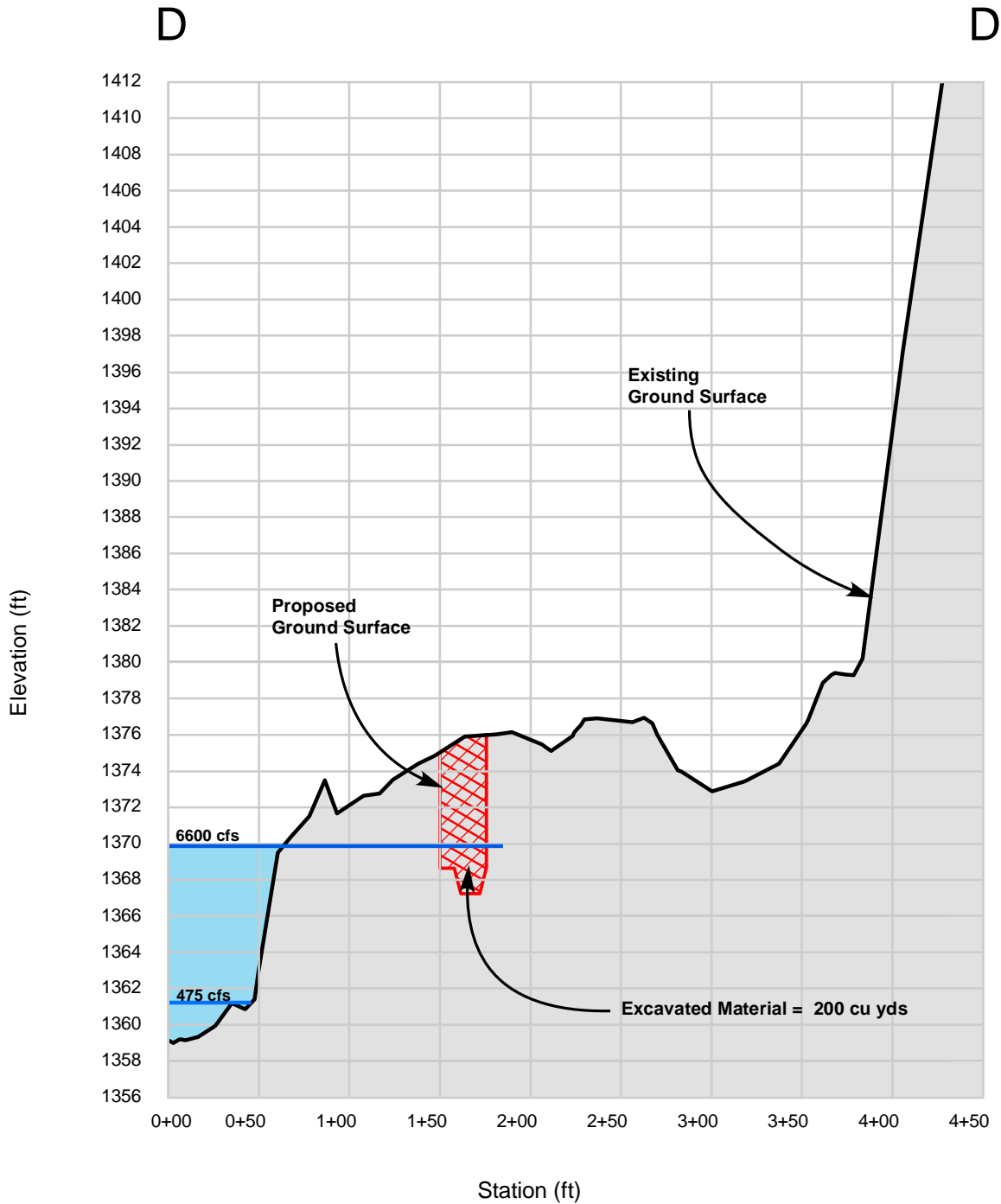
## R-3 Cross Section



Note: Not to scale  
Shown for comparative purposes

Path: R:\Projects\10010 Mechanical Channel Rehab Sites on Mainstem Trinity River\GIS\Site-Canyon\_Creek\10010\_Canyon\_Crk\_Fig\_2-3d-4\_R-4\_XS.mxd Source: NSR, Inc.; USBR 12-20-05 bmoore

## R-4 Cross Section

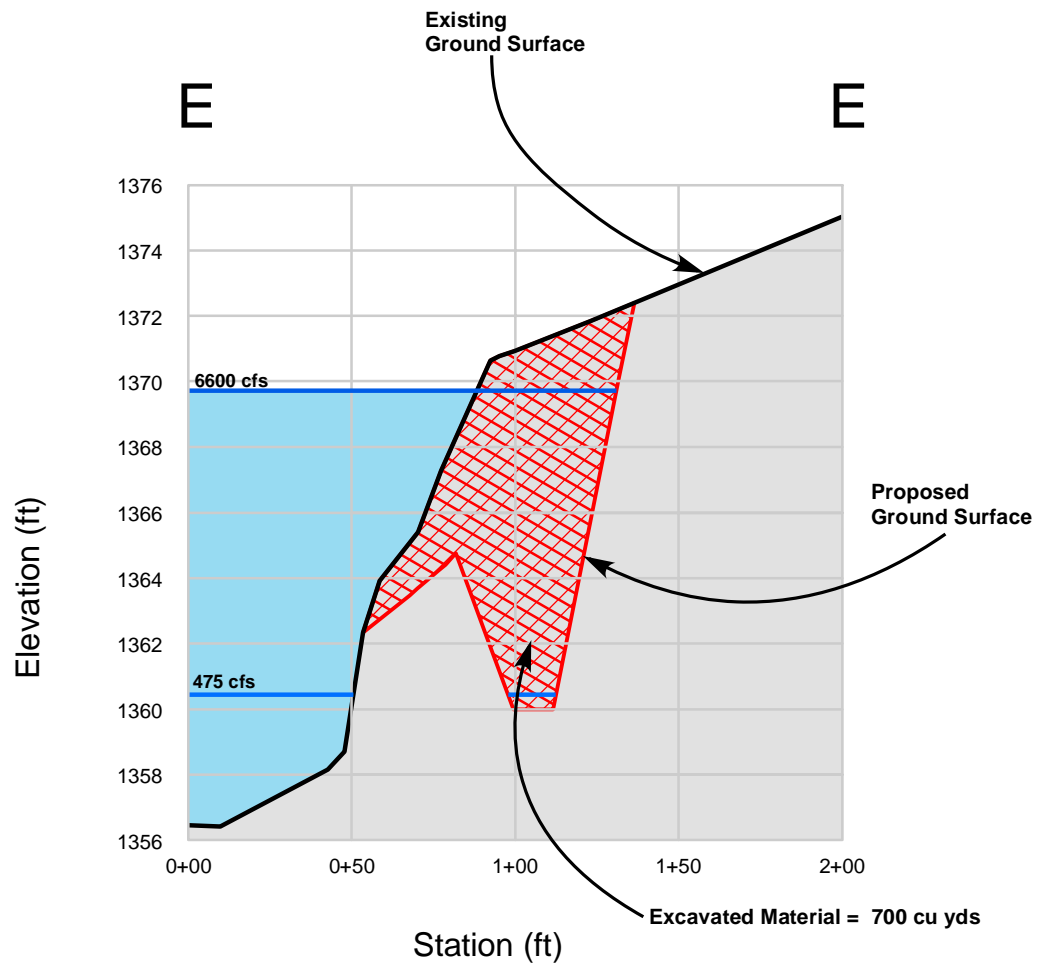


Note: Not to scale  
Shown for comparative purposes

**Figure 2.3d.4**  
**Pear Tree Gulch - R-4**  
**Cross Section Profile of Proposed Rehabilitation Area**

Path: R:\Projects\10010 Mechanical Channel Rehab Sites on Mainstem Trinity River\GIS\Site-Canyon\_Creek\10010\_Canyon\_Crk\_Fig\_2-3d-5\_R-5\_XS.mxd Source: NSR, Inc.; USBR 12-20-05 bmoore

## R-5 Cross Section

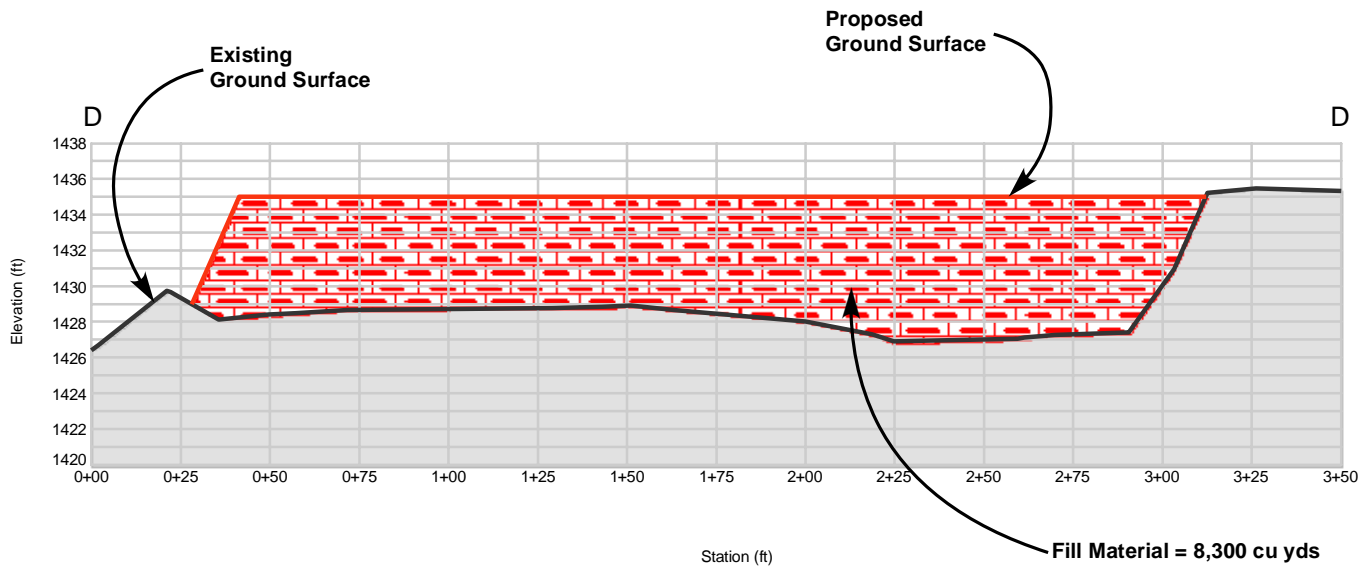


Note: Not to scale  
Shown for comparative purposes

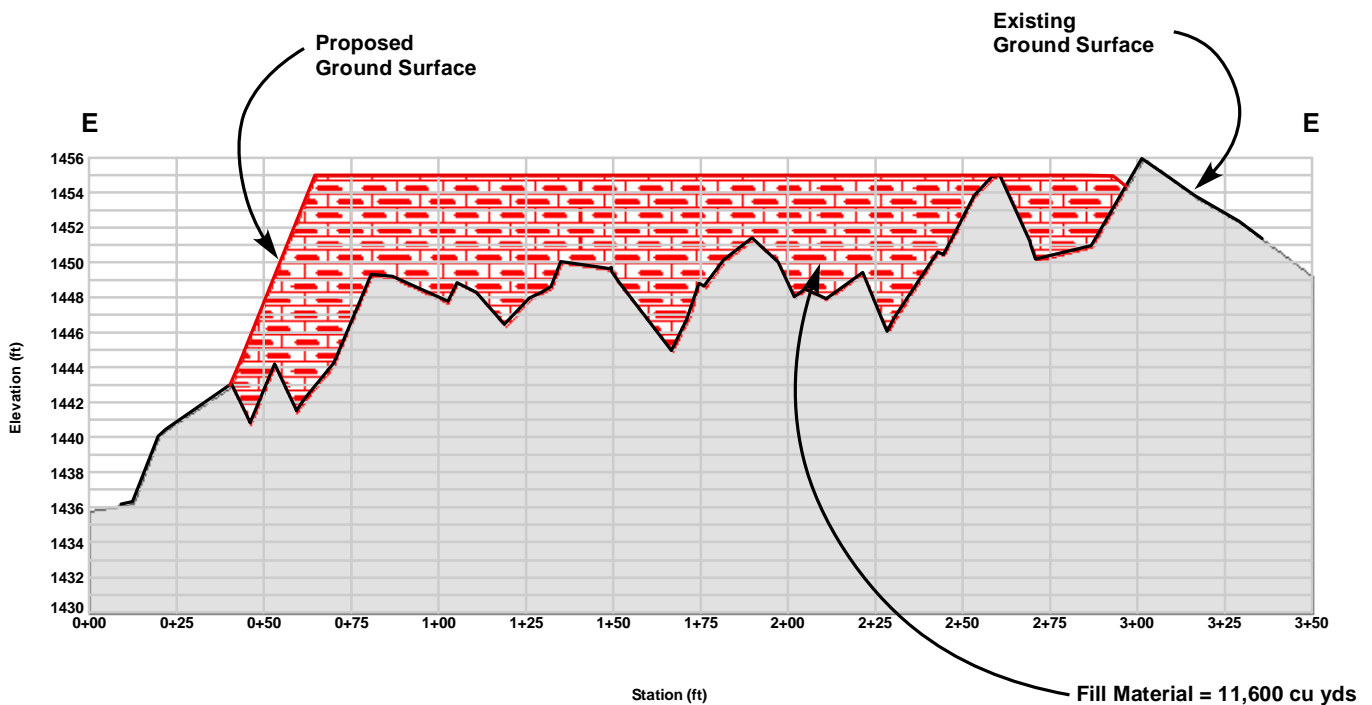
**Figure 2.3d.5**  
**Pear Tree Gulch - R-5**  
**Cross Section Profile of Proposed Rehabilitation Area**

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## U-1 Cross Section



## U-2 Cross Section

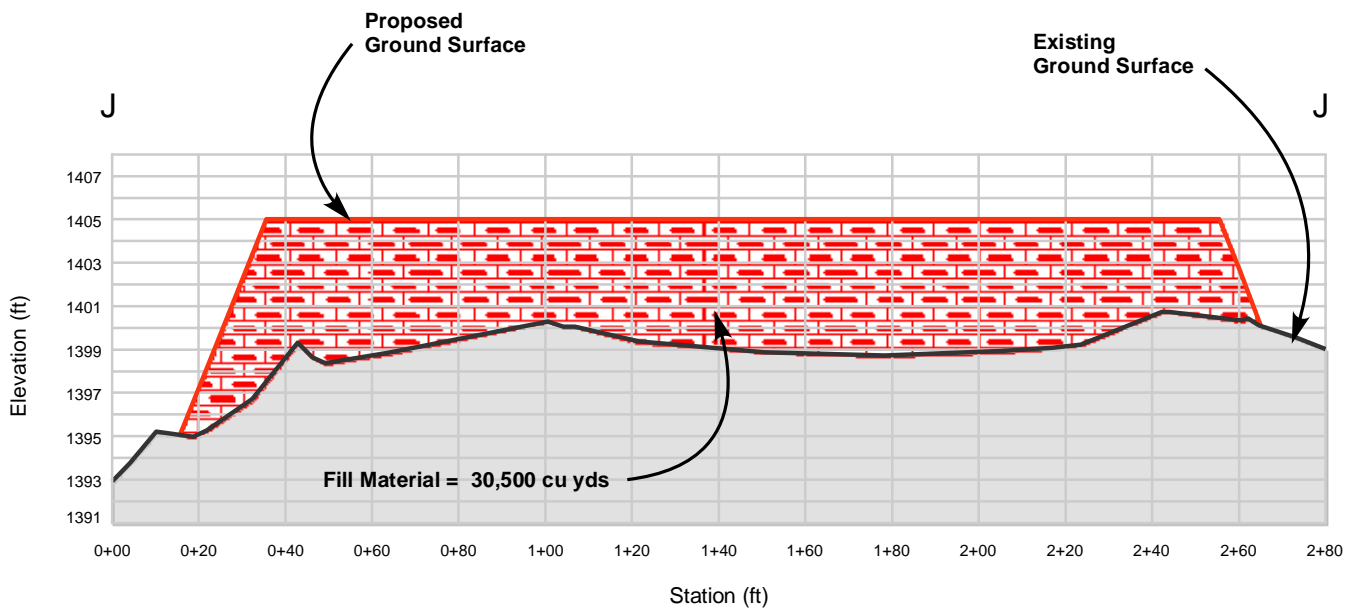


Note: Not to scale  
Shown for comparative purposes

**Figure 2.4a**  
**Conner Creek - U-1 and U-2**  
**Cross Section Profiles of Proposed Rehabilitation Area**

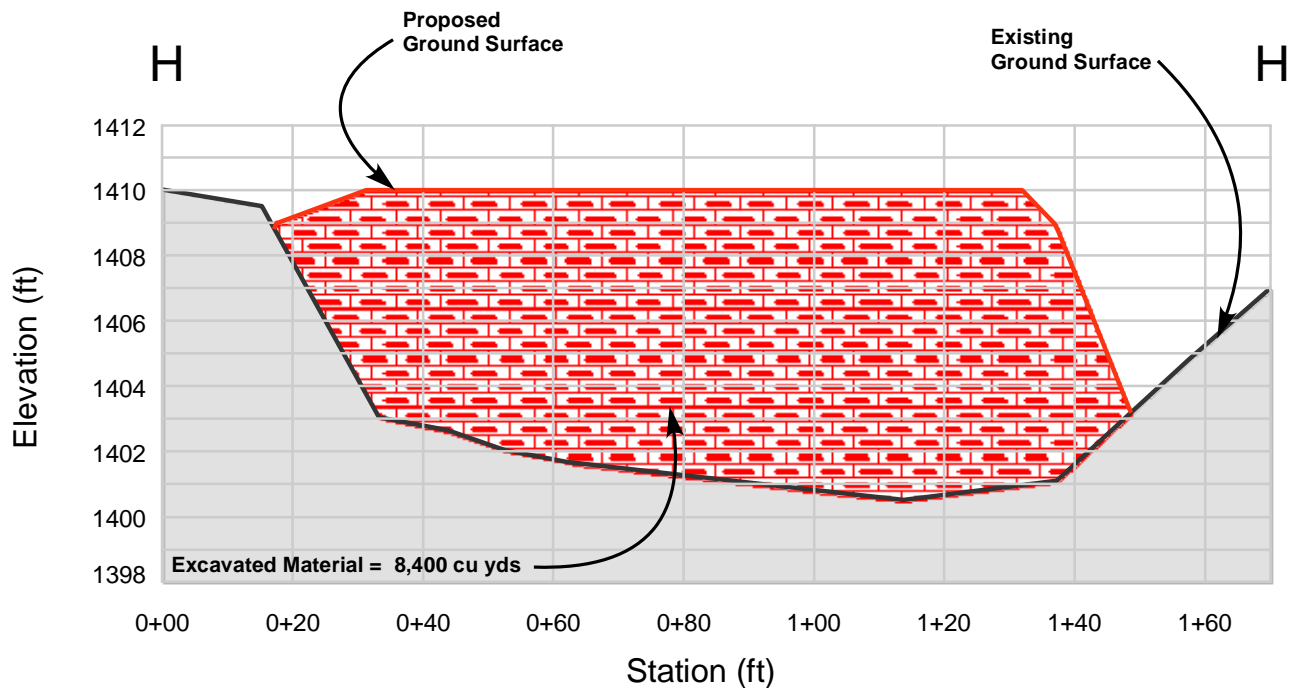
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## U-1 Cross Section



Note: Not to scale  
Shown for comparative purposes

## U-2 Cross Section



Note: Not to scale  
Shown for comparative purposes

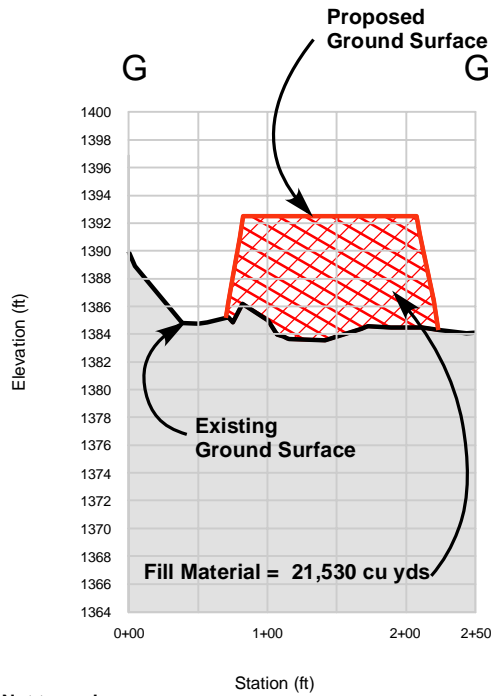
**Figure 2.4b**  
**Valdor Gulch - U-1 and U-2**  
**Cross Section Profiles of Proposed Rehabilitation Area**



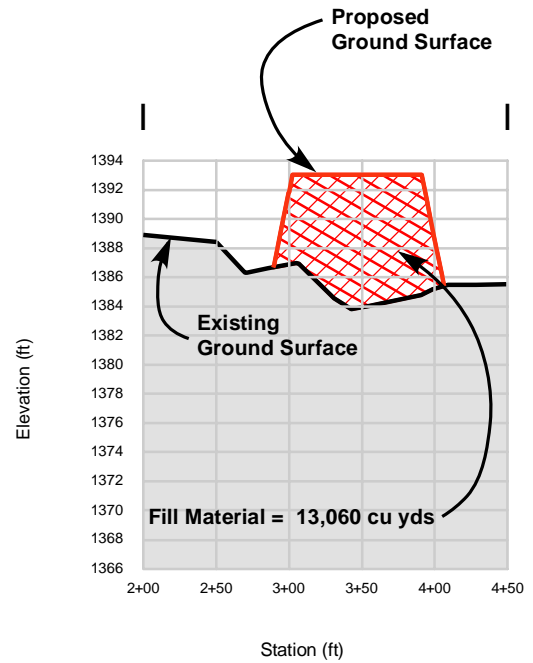
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## U-1 Cross Section

### Proposed Action

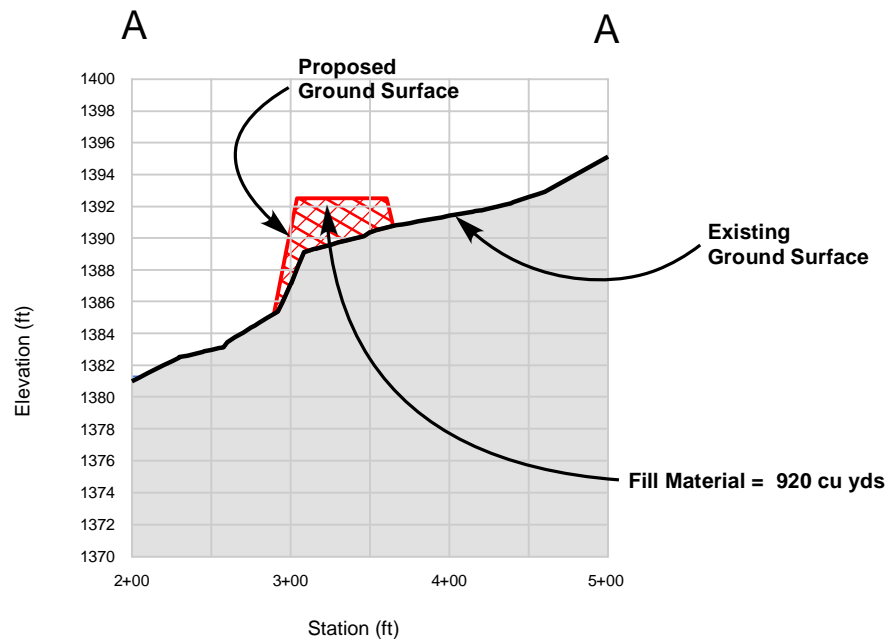


### Alternative 1



Note: Not to scale  
Shown for comparative purposes

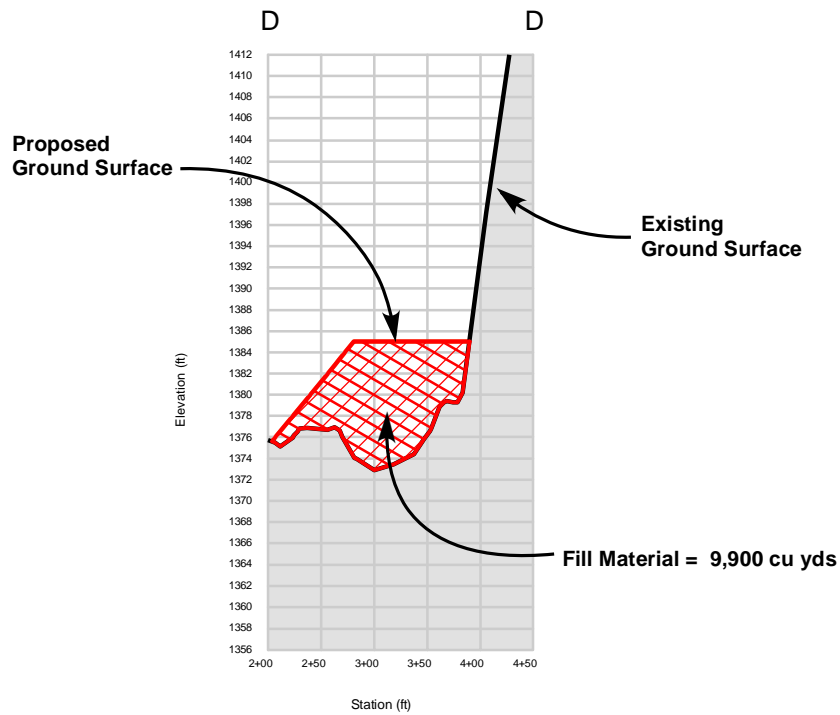
## U-2 Cross Section



Note: Not to scale  
Shown for comparative purposes

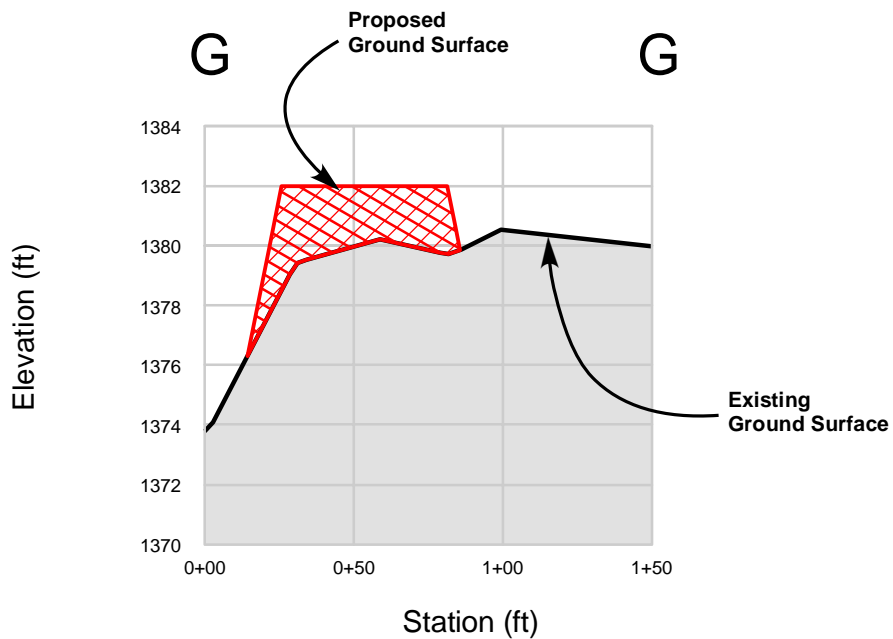
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## U-1 Cross Section

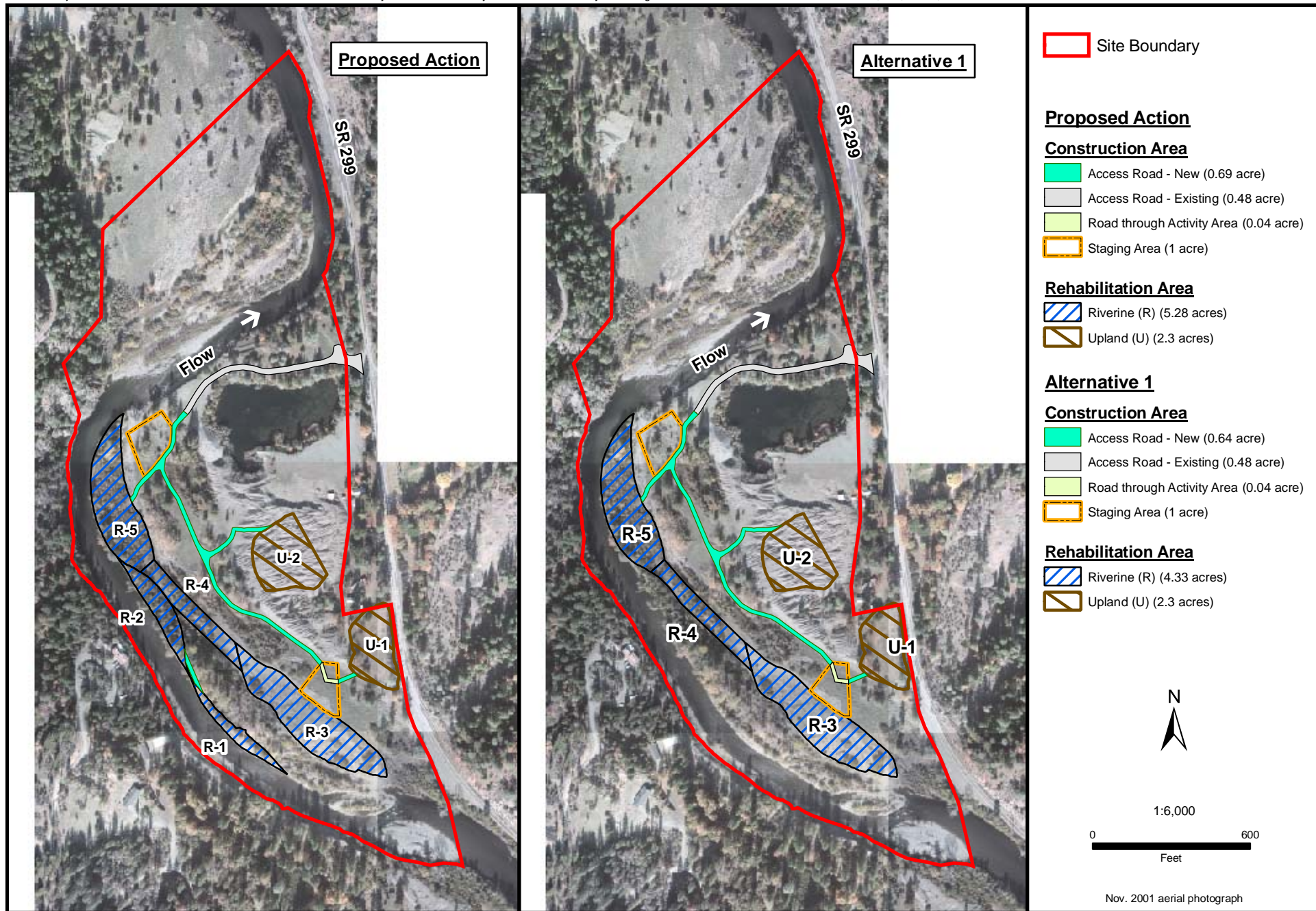


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Shown for comparative purposes

## U-2 Cross Section

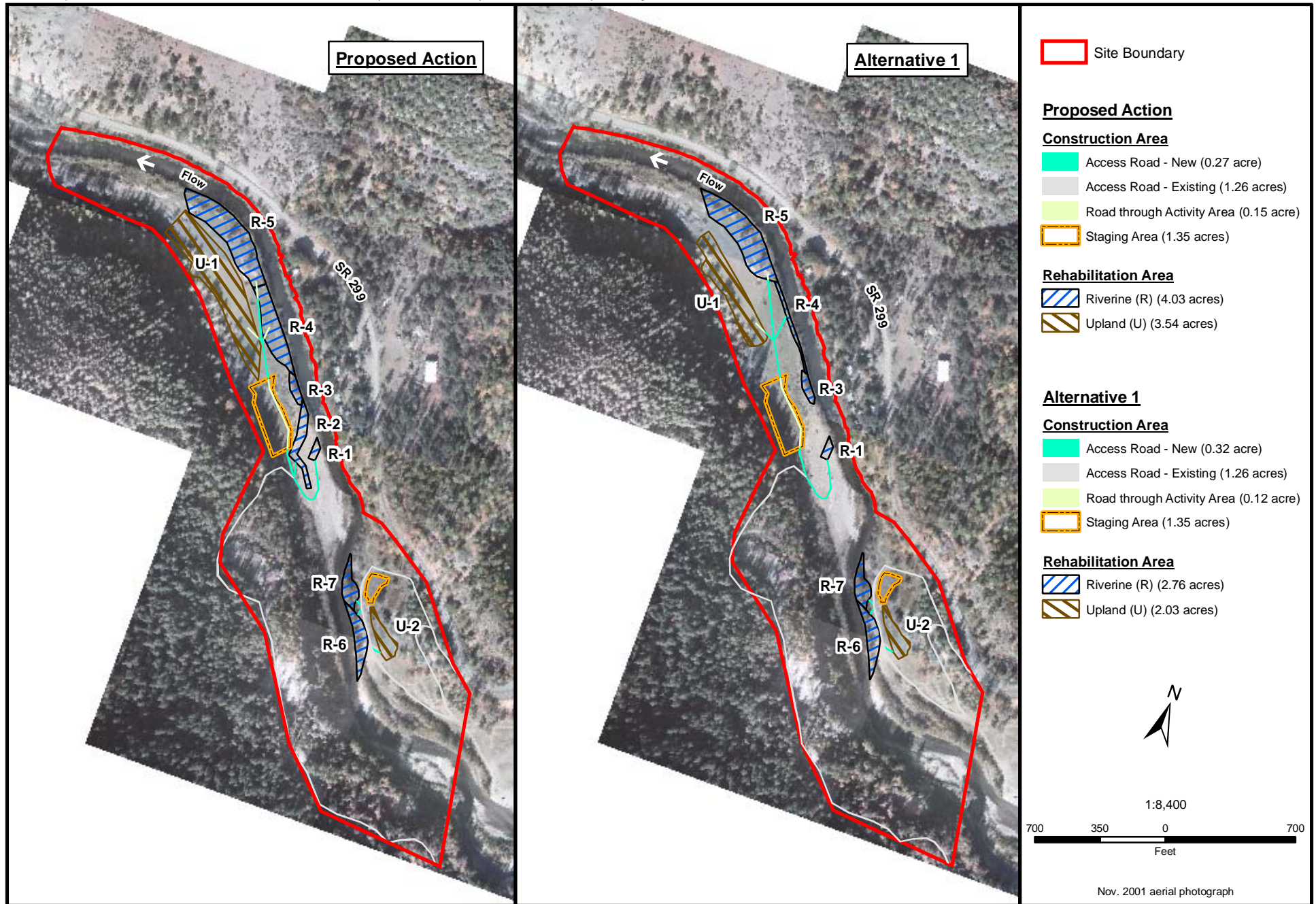


Note: Not to scale  
Shown for comparative purposes



**Figure 2.5a**  
Conner Creek - Proposed Action and Alternative 1 Rehabilitation Areas





**Figure 2.5c**  
**Elkhorn - Proposed Action and Alternative 1 Rehabilitation Areas**

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## Affected Environment and Environmental Consequences

### 3.1 Introduction

Chapter 3 describes the affected environment and the environmental consequences of implementing the various alternatives described in Chapter 2. Issues discussed include land use; geology, fluvial geomorphology and soils; water resources; water quality; fishery resources; vegetation, wildlife, and wetlands; recreation; socioeconomics, population, and housing; tribal trust; cultural resources; air quality; environmental justice; aesthetics; hazards and hazardous materials; noise; public services and utilities/energy; and transportation/traffic circulation.

Each section includes a discussion of the affected environment (California Environmental Quality Act [CEQA] existing conditions), environmental consequences (CEQA environmental impacts), methodology, significance criteria (if applicable), and mitigation measures. Some sections address issues that are required to satisfy federal law (e.g., National Environmental Policy Act [NEPA]) but are not required to comply with CEQA. Because CEQA generally does not require lead agencies to consider the purely economic or social effects of proposed projects, Sections 3.9 (Socioeconomics), 3.10 (Tribal Trust), and 3.13 (Environmental Justice) were not prepared to comply with CEQA. Individual sections in Chapter 3 are organized in the following manner.

#### 3.1.1 AFFECTED ENVIRONMENT (CEQA EXISTING CONDITIONS)

The Affected Environment sections for each of the issues discussed describe the existing regional and local conditions using the most current information available. The information in these sections is used as the environmental baseline for analyzing the significance of potential effects of the Proposed Action and the significance of the effects of project alternatives with respect to each specific resource area (See *CEQA Guidelines*, Section 15125, subd. (a)).

#### 3.1.2 ENVIRONMENTAL CONSEQUENCES (CEQA ENVIRONMENTAL IMPACTS)

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 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 are also presented in the Environmental Consequences section for each issue 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 also 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 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-Action Alternative. To enhance readability, the tables provide additional columns that describe the level of significance after mitigation.
- **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 is provided. An example of the impact analysis structure is provided below:

**Impact 3.2-1:** Construction of the proposed project could temporarily disrupt existing land uses adjacent to the project site. *No Impact for the No-Action Alternative; Significant Impact for the Proposed Action and Alternative 1.*

*No-Action Alternative*

Under the No-Action Alternative...

*Proposed Action*

Construction and maintenance of the Proposed Action...

*Alternative 1*

Land use impacts associated with Alternative 1 are similar to the Proposed Action...

- **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. 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 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-Action Alternative*

Since no significant impact was identified, no mitigation is required.

*Significance After Mitigation:* N/A.

### *Proposed Action*

**1a:** Reclamation shall clearly identify all ...

### *Alternative 1*

**1a:** Reclamation shall clearly identify all ...

*Significance After Mitigation:* Less than Significant.