

APPENDIX B

Mitigation Monitoring and Reporting Program and Project Design Features

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Bucktail Rehabilitation Project Mitigation Monitoring and Reporting Program and Project Design Features

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Bucktail Rehabilitation Project Mitigation Monitoring and Reporting Program and Project Design Features

Introduction

The first part of this document comprises the MMRP for the Trinity River Channel Rehabilitation Site: Bucktail (RM 105.45-107.0) Project (the Proposed Project). The purpose of providing the MMRP as an appendix is to facilitate its use as a stand-alone document, which clearly expresses to the reader the mitigation responsibilities of the Bureau of Reclamation (Reclamation), and Regional Water Quality Control Board – North Coast Region (Regional Water Board) in implementing the project. The mitigation measures listed herein, which are an updated version of those included within the Master EIR/Programmatic EA (North Coast Regional Water Board and Reclamation 2009), are required by law or regulation and will be adopted by the Regional Water Board when it issues its Notice of Applicability for the project. The second part of this document is comprised of project design elements that shall be implemented as part of the Proposed Project. In general, Chapter 3 mitigation measures identified in the EA/IS correspond to Chapter 4 mitigation measures in the Master EIR. The Appendix A mitigation measures in this EA/IS are meant to mitigate the same impacts as those identified in the Master EIR. Consequently, these mitigation measures are only different to the extent necessary to tailor the mitigation measures to the site specific conditions.

Mitigation is defined by the CEQA – Section 15370 as a measure which:

- Avoids the impact altogether by not taking a certain action or parts of an action;
- Minimizes impacts by limiting the degree or magnitude of the action and its implementation;
- Rectifies the impact by repairing, rehabilitating, or restoring the impacted environment;
- Reduces or eliminates the impact over time by preservation and maintenance operations during the life of the project; and
- Compensates for the impacts by replacing or providing substitute resources or environments.

The mitigation program identified in the MMRP to reduce potential project impacts consists of mitigation measures, project design elements, and construction criteria and methods. Mitigation measures provided in this MMRP have been identified in Chapter 3, Affected Environment and Environmental Consequences of the Proposed Project EA/IS, as feasible and effective in mitigating project-related environmental impacts. This MMRP includes discussion of the following: legal requirements, intent of the MMRP, development and approval process for the MMRP, the authorities and responsibilities associated with the implementation of the MMRP, a description of the mitigation summary table, project design elements, construction criteria and methods, and resolution of noncompliance complaints.

Legal Requirements

The legal basis for the development and implementation of the MMRP lies within CEQA (including the California PRC). Sections 21002 and 21002.1 of the California PRC state:

- Public agencies are not to approve projects as proposed if there are feasible alternatives or feasible mitigation measures available that would substantially lessen the significant environmental effects of such projects.
- Each public agency shall mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever it is feasible to do so.
- Section 21081.6 of the California PRC further requires that: the public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation.
- The monitoring program must be adopted when a public agency makes its findings under CEQA so that the program can be made a condition of project approval in order to mitigate significant effects on the environment. The program must be designed to ensure compliance with mitigation measures during project implementation to mitigate or avoid significant environmental effects.

Intent of the Mitigation Monitoring and Reporting Program

The MMRP is intended to satisfy the requirements of CEQA as they relate to the project. It is anticipated to be used by Reclamation and Regional Water Board staff, participating agencies, project contractors, and mitigation monitoring personnel during implementation of the project.

The primary objective of the MMRP is to ensure the effective implementation and enforcement of adopted mitigation measures and permit conditions. The MMRP will provide for monitoring of construction activities as needed, on-site identification and resolution of environmental problems, and proper reporting to lead agency staff.

Development and Approval Process

The timing elements for implementing mitigation measures and the definition of the approval process have been provided in detail through this MMRP to assist staff from Reclamation and the Regional Water Board by providing the most usable monitoring document possible.

Authorities and Responsibilities

As the Project proponent, Reclamation, functioning as the TRRP, will have the primary responsibility for the execution and proper implementation of the MRRP. The Regional Water Board may provide Reclamation with support, as warranted. Reclamation will be responsible for the following activities:

- Coordination of monitoring activities,
- Management of the preparation and filing of monitoring compliance reports, and
- Maintenance of records concerning the status of all approved mitigation measures.

Summary of Monitoring Requirements

Table A-1, which follows, summarizes the mitigation measures and associated monitoring requirements for the Proposed Project. The mitigation measures are organized by environmental issue area (i.e., Soils, Water Quality, etc.). Table A-1 is composed of the following four columns:

- **Mitigation Measure:** Lists the mitigation measures identified for each significant impact discussed in the Draft EA/IS for the project. The mitigation numbering system used in the Draft MEIR/Draft EIR is carried forward in this MMRP.
- **Timing/Implementation:** Indicates at what point in time or project phase the mitigation measure will need to be implemented.
- **Responsible Parties (tasks):** Documents which agency or entity is responsible for implementing a mitigation measures and what, if any, coordination is required (e.g., approval from Caltrans). If more than one party has responsibility under a given mitigation measure, the tasks of each individual party is identified parenthetically (e.g., “implementation” or “monitoring”).
- **Verification:** Provides spaces to be initialed and dated by the individual responsible for verifying compliance with each specific mitigation measure.

Resolution of Noncompliance Complaints

Any person or agency may file a complaint that states noncompliance with the mitigation measures that were adopted as part of the approval process for the project. The complaint shall be directed to Reclamation at the TRRP office (P.O. Box 1300, 1313 South Main Street, Weaverville, CA 96093) and to the Regional Water Board at 5550 Skylane Boulevard, Suite A, Santa Rosa, California, 95403, in written form, providing detailed information on the purported violation. Reclamation and the Regional Water Board shall conduct an investigation and determine the validity of the complaint. If noncompliance with a mitigation measure is verified, Reclamation shall take the necessary action(s) to remedy the violation. The complainant shall receive written confirmation indicating the results of the investigation or the final corrective action that was implemented in response to the specific noncompliance issue.

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
3.3 Geology, Fluvial Geomorphology, and Soils			
Impact 3.3-2: Construction activities associated with the Proposed Project could result in increased erosion and short-term sedimentation of the Trinity River.			
4.3-2a Reclamation will implement the following measures during construction activities: <ul style="list-style-type: none"> • Areas where ground disturbance will occur will be identified in advance of construction and limited to only those areas that have been approved by Reclamation. • All vehicular construction traffic will be confined to the designated access routes and staging areas. • Disturbance will be limited to the minimum necessary to complete all rehabilitation activities. • All supervisory construction personnel will be informed of environmental concerns, permit conditions, and final project specifications. 		Reclamation (implementation) Regional Water Board (Storm Water Pollution Prevention Plan [SWPPP] review and approval) BLM (SWPPP review)	
4.3-2b Reclamation will prepare an erosion and sedimentation control plan (SWPPP). Measures for erosion control will be prioritized based on proximity to the river. Reclamation will provide the SWPPP for review by associated agencies (e.g., BLM, the Regional Water Board, NMFS, and CDFW) upon request. Reclamation's project manager will ensure the preparation and implementation of an erosion and sediment control plan prior to the start of construction. The following measures will be used as a guide to develop this plan: <ul style="list-style-type: none"> • Restore disturbed areas to pre-construction contours to the fullest extent feasible. • Salvage, store, and use the highest quality soil for revegetation. • Discourage noxious weed competition and control noxious weeds. • Clear or remove roots from steep slopes immediately prior to scheduled construction. • Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff. • To the fullest extent possible, cease excavation activities during significantly wet or windy weather. • Use bales, wattles, and/or silt fencing as appropriate. • Before seeding disturbed soils, work the topsoil to reduce compaction caused by construction vehicle traffic. • Rip feathered edges (and floodplain surfaces where appropriate) to approximately 18 inches deep. The furrowing of the river's edge will remove plant roots to allow mobilization of the bed, but will also intercept sediment before it reaches the waterway. • Spoil sites will be located such that they do not drain directly into a surface water feature, if possible. If a spoil site will drain into a surface water feature, catch basins will be constructed to intercept sediment before it reaches the feature. Spoil sites will be graded and vegetated to 			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
<p>reduce the potential for erosion.</p> <ul style="list-style-type: none"> Sediment control measures will be in place prior to the onset of the rainy season to ensure that surface water runoff does not occur. Project areas will be monitored and maintained in good working condition until disturbed areas have been seeded and mulched or revegetated in another fashion. If work activities take place during the rainy season, erosion control structures will be in place and operational at the end of each construction day. 			
4.5 Water Quality			
Impact 3.5-1: Construction of the proposed project could result in short-term, temporary increases in turbidity and total suspended solids levels during construction.			
<p>4.5-1a The water quality objective for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (North Coast Regional Water Quality Control Board 2011), is summarized below.</p> <ul style="list-style-type: none"> Turbidity levels will not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. Due to the nature of the proposed restoration activities and the clarity of the Trinity River during low flow conditions, the Regional Water Board has determined that an allowable zone of turbidity dilution is appropriate and necessary in order for Trinity River restoration activities to be accomplished in a meaningful, timely, and cost-effective manner that fully protects beneficial uses without resulting in a violation of the water quality objective for turbidity. Project activities that occur in areas outside of the active river channel will not increase turbidity levels by more than 20 percent above naturally occurring background levels. During in-river construction activities and until the first extended period of post-construction high flow (i.e., flows of at least 6,000 cfs inundate the project areas and floodplain for a minimum of 7 days) a zone of turbidity dilution within which higher percentages will be tolerated will be defined in discharge permits as the full width of the river channel within 500 linear feet downstream of any project activity that increases naturally occurring background levels, provided that all other required controls and appropriate BMPs for sediment and turbidity control are in place and downstream beneficial uses are also fully protected. When naturally occurring background levels are less than or equal to 20 NTUs, turbidity levels immediately downstream of the zone of turbidity dilution shall not exceed 20 NTUs. If naturally occurring background levels are greater than 20 NTUs, turbidity levels immediately downstream of the 500 linear foot zone of dilution shall not be increased by more than 20 percent above the naturally occurring background level. 			
<p>4.5-1b To ensure that turbidity levels do not exceed the thresholds described above (4.4-1a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of</p>			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
<p>project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels.</p> <ul style="list-style-type: none"> If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU. 			
<p>4.5-1c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of washed, spawning-sized gravels from a local Trinity River Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater.</p>			
<p>4.5-1d Reclamation will prepare and implement a SWPPP that describes BMPs for the project, including silt fences, sediment filters, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls will be adequate to minimize sediment inputs into the Trinity River until vegetation regrowth occurs. All required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.</p>			
<p>4.5-1e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols:</p> <ul style="list-style-type: none"> Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed as needed to reduce short-term erosion prior to the start of the rainy season. Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out. Disconnect and disperse flow paths, including roadside ditches, that might otherwise deliver fine sediment to stream channels or other water bodies. Decompact or rip floodplain areas so that surfaces are permeable and no surface water runoff occurs. 			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 3.5-2: Construction of the proposed project could result in short-term, temporary increases in turbidity and total suspended solids levels following construction.			
4.5-2a Turbidity increases associated with project activities will not exceed the water quality objectives for turbidity in the Trinity River Basin (North Coast Regional Water Quality Control Board 2011).			
<p>4.5-2b To ensure that turbidity levels do not exceed the threshold following construction, Reclamation will monitor turbidity and total suspended solids during and after representative rainfall events to determine the effect of the project on Trinity River water quality. At a minimum, field turbidity measurements will be collected whenever a visible increase in turbidity is observed.</p> <ul style="list-style-type: none"> • If increases in turbidity and total suspended solids are observed as a result of erosion from constructed features, field turbidity measurements will be collected 50 feet upstream of a point adjacent to the end of the feature and 500 feet downstream of the feature. • If the grab sample indicates that turbidity levels exceed the established thresholds identified in the Basin Plan, the Regional Water Board will be notified. The need to implement erosion control measures for turbidity that is expected to result from overland river flows (versus surface run-off) will be evaluated with Regional Water Board staff to determine if remediation measures are needed. 			
4.5-2c To reduce the potential for the access routes to continually contribute soil materials to the Trinity River following project construction, thereby increasing turbidity and total suspended solids in the river, these routes will be stabilized or decommissioned upon completion of work in those areas consistent with the requirements outlined in at the end of this appendix (Design Elements and Construction Criteria). Decommissioning is defined as removing those elements of a road that reroute hillslope drainage and present slope stability hazards.			
Impact 3.5-3: Construction of the proposed project could cause contamination of the Trinity River from hazardous materials spills.			
4.5-3a Reclamation will prepare and implement a spill prevention and containment plan in accordance with applicable federal and state requirements.			
4.5-3b Reclamation will ensure that any construction equipment that will come in contact with the Trinity River be inspected daily for leaks prior to entering the flowing channel. External oil, grease, and mud will be removed from equipment using steam cleaning. Untreated wash and rinse water will be adequately treated prior to discharge if that is the desired disposal option.			
4.5-3c Reclamation will ensure that hazardous materials, including fuels, oils, and solvents, not be stored or transferred within 150 feet of the active Trinity River channel. Areas for fuel storage, refueling,			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
and servicing will be located at least 150 feet from the active river channel or within an adequate secondary fueling containment area. Gas pumps and engines will be stored and maintained on impermeable barriers so that any leaking petroleum products are isolated from the ground. In addition, the construction contractor will be responsible for maintaining spill containment booms onsite at all times during construction operations and/or staging of equipment or fueling supplies. Fueling trucks will maintain a spill containment boom at all times.			
Impact 3.5-5: Construction and maintenance of the proposed project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan.			
Water quality Mitigation Measures 4.5-1a, 4.5-1b, 4.5-1c, 4.5-1d, 4.5-1e, 4.5-2a, 4.5-2b, 4.5-2c, 4.5-3a, 4.5-3b, and 4.5-3c described above shall be implemented to protect the beneficial uses of the Trinity River.			
3.6 Fishery Resources			
Impact 3.6-1: Implementation of the proposed project could result in effects on potential spawning and rearing habitat for anadromous fishes, including the federally and state-listed coho salmon.			
4.6-1a The proposed construction schedule avoids in-channel work during the period in which it could affect spawning spring- and fall-run Chinook salmon, coho salmon, and steelhead or their embryos once in the gravel. As directed by the 2000 Biological Opinion (National Marine Fisheries Service 2000), Reclamation will ensure that all in-channel construction activities are conducted during late-summer, low-flow conditions (e.g., July 15-September 15).		Reclamation (implementation)	
4.6-1b Alluvial material used for coarse sediment additions will be composed of washed, spawning-sized gravels (3/8- to 5-inches diameter) from a local Trinity River Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter; will be free of contaminants, such as petroleum products; and will pass Caltrans cleanliness test #227 with a value of 85 or greater.			
Impact 3.6-2: Implementation of the proposed project could result in increased erosion and sedimentation levels that could adversely affect fishes, including the federally and state-listed coho salmon.			
4.6-2a The water quality objective for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (North Coast Regional Water Quality Control Board 2011), is summarized below. <ul style="list-style-type: none"> Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. 			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
<ul style="list-style-type: none"> Due to the nature of the proposed restoration activities and the clarity of the Trinity River during low flow conditions, the Regional Water Board has determined that an allowable zone of turbidity dilution is appropriate and necessary in order for Trinity River restoration activities to be accomplished in a meaningful, timely, and cost-effective manner that fully protects beneficial uses without resulting in a violation of the water quality objective for turbidity. Project activities that occur in areas outside of the active river channel will not increase turbidity levels by more than 20 percent above naturally occurring background levels. During in-river construction activities and until the first extended period of post-construction high flow (i.e., flows of at least 6,000 cfs inundate the project areas and floodplain for a minimum of 7 days) a zone of turbidity dilution within which higher percentages will be tolerated will be defined in discharge permits as the full width of the river channel within 500 linear feet downstream of any project activity that increases naturally occurring background levels, provided that all other required controls and appropriate BMPs for sediment and turbidity control are in place and downstream beneficial uses are also fully protected. When naturally occurring background levels are less than or equal to 20 NTUs, turbidity levels immediately downstream of the zone of turbidity dilution shall not exceed 20 NTUs. If naturally occurring background levels are greater than 20 NTUs, turbidity levels immediately downstream of the 500 linear foot zone of dilution shall not be increased by more than 20 percent above the naturally occurring background level. 			
<p>4.6-2b To ensure that turbidity levels do not exceed the thresholds described above (4.6-2a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels.</p> <p>If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU.</p>			
<p>4.6-2c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of washed, spawning-sized gravels from a local Trinity River Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater.</p>			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
<p>4.6-2d Reclamation will prepare and implement a SWPPP that describes BMPs for the project, including silt fences, sediment filters, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls will be adequate to minimize sediment inputs into the Trinity River until vegetation regrowth occurs. All required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.</p>			
<p>4.6-2e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols:</p> <ul style="list-style-type: none"> • Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season. • Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out. • Disconnect and disperse flow paths, including roadside ditches, that might otherwise deliver fine sediment to stream channels. • Decomact or rip floodplain areas so that surfaces are permeable and no surface water runoff occurs. 			
<p>Impact 3.6-3: Construction activities associated with the Proposed Project could result in the accidental spill of hazardous materials that could adversely affect fishes, including the federally and state-listed coho salmon.</p>			
<p>4.6-3a Construction specifications will include the following measures to reduce potential impacts associated with accidental spills of pollutants (fuel, oil, grease, etc.) on vegetation and aquatic habitat resources within the project boundary:</p> <ul style="list-style-type: none"> • Equipment and materials will be stored away from wetland and surface water features. • Vehicles and equipment used during construction will receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Maintenance and fueling will be conducted in an area at least 150 feet away from waters of the Trinity River or within an appropriate secondary fueling containment area. Gasoline engines and pumps operated on the floodplain will be isolated from the ground by an impermeable barrier. • The contractor will develop and implement site-specific BMPs, a water pollution control plan, and emergency spill control plan. The contractor will be responsible for immediate containment and removal of any toxins released. 		Reclamation (implementation)	

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 3.6-4: Construction activities associated with the Proposed Project could result in the mortality of rearing fishes, including the federally and state-listed coho salmon.			
4.6-4a To avoid impacts to spawning and incubating salmonids, instream work will only occur between July 15 and September 15.			
4.6-4b To avoid or minimize potential injury and mortality of fish during riverine activities (e.g., addition and grading of coarse sediment), equipment will be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area.			
4.6-4c Reclamation will minimize potential injury and mortality of fish during the use of low-flow channel crossings. This will be accomplished by minimizing vehicle traffic and by operating equipment and vehicles slowly and deliberately to alert and scare adult and juvenile salmonids away from the crossing area, or by having a person wade ahead of equipment to scare fish away from the crossing area.			
4.6-4d To avoid or minimize potential injury and mortality of fish during excavation and placement of fill materials in the active low-flow channel, equipment will be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area. Reclamation will ensure that before submerging an excavator bucket or laying gravel below the water surface, the excavator bucket will be operated to "tap" the surface of the water, or a person will wade ahead of fill placement equipment to scare fish away from the work area. To avoid impacts to mobile life stages of salmonids that may be present in the water column, the first layers of clean gravel that are being placed into the wetted channel will be added slowly and deliberately to allow fish to move from the work area.			
4.6-4f Monitoring of the constructed inundation surfaces for salmon fry stranding will be performed by a qualified fishery biologist immediately after recession of flood flow events designated as a 1.5- year or less frequent event (i.e., $Q \geq 6,000$ cfs) for a period of 3 years following construction. These flows, and associated fry stranding surveys, will typically occur between January and May. If substantial stranding is observed, Reclamation will take appropriate measures to return stranded fishes to river habitats and to subsequently modify the constructed surfaces prior to the next managed flow release to reduce the likelihood of future occurrences of fry stranding.		Reclamation (implementation)	
Impact 3.6-5: Implementation of the Proposed Project would result in the permanent and temporary loss of SRA for anadromous salmonids.			
4.6-5a Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes necessary for the projects to ensure that these features avoid and/or minimize to the fullest extent impacts to riparian habitats and wetland waters. In addition, Reclamation will clearly identify, and flag in the field, biologically sensitive areas (e.g., jurisdictional waters and riparian		Reclamation (implementation)	

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
habitat) to be protected, and will provide the contractor with specific instructions to avoid any construction activity within these features. Reclamation will inspect and maintain flagged areas on a regular basis throughout the construction phase.			
4.6-5b Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net-loss of riparian habitat and jurisdictional wetlands within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.			
4.6-5c Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 5 years, the need for additional riparian habitat and wetland enhancement will be evaluated in a written report. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFW, will determine whether there is a need to further enhance or create additional areas of riparian habitat or jurisdictional wetlands within the project boundary so that there will be no net loss of riparian habitat after a 10-year monitoring period. In addition, wetlands will be redelineated 5 years post-project implementation to ensure no net loss of wetland habitat. Riparian habitat reporting 5 years after project implementation and wetland delineation 5 years after implementation will provide Reclamation with needed data in a timely fashion to take additional pro-active measures towards meeting the goals of no net loss of riparian and jurisdictional wetland habitat within rehabilitation site boundaries after 10 years.		Reclamation (implementation)	
Impact 3.6-6: Implementation of the Proposed Project would result in fish passage being temporarily impaired during the in-stream construction phase.			
4.6-6a Low water crossings will only be constructed and used between July 15 and September 15. Fill gravels used on the low-water crossings, streambeds, and stream banks will be composed of washed, spawning-sized gravels from a local Trinity Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater. Abutment and embankment materials used for bridges will be native alluvium obtained from within the boundaries of the Remaining Phase 1 or Phase 2 sites.			
4.6-6b Reclamation will construct the low-flow channel crossings to allow adequate depths and velocities for adult and juvenile salmonids to pass safely. Flows associated with storm events are not considered critical because the width and hydrologic conditions associated with low-flow channel crossings in the Trinity River are not considered to limit fish passage at elevated flows and would be comparable to hydrologic conditions in local riffle-and-run features. For Trinity River low-flow channel crossings at base flows, velocities will not exceed 2 feet per second to allow for juvenile fish passage and			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
water depths will not be less than 12 inches in two-thirds of the river channel to provide adequate depth for adult salmon and steelhead passage.			
4.6-6c The number of vehicle and equipment crossings of the Trinity River will be minimized.			
4.6-6d Reclamation will not impede the physical features or hydraulic process of the Trinity River in a fashion that would be inconsistent with the 2000 Biological Opinion (National Marine Fisheries Service 2000), or result in a temporary impairment to fish passage related to a bridge.			
3.7 Vegetation, Wildlife, and Wetlands			
Impact 3.7-1: Construction activities associated with the Proposed Project could result in the loss of jurisdictional waters including wetlands.			
4.7-1a Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes to ensure that these features avoid and/or minimize to the fullest extent impacts to jurisdictional waters. In addition, Reclamation will clearly identify, and flag in the field, biologically sensitive areas (e.g., jurisdictional waters and riparian habitat) to be protected, and will provide the contractor with specific instructions to avoid any construction activity within these features. Reclamation will inspect and maintain marked areas on a regular basis throughout the construction phase.		Reclamation (implementation)	
4.7-1b Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net loss of riparian habitat and jurisdictional wetlands both within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.			
4.7-1c Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. Monitoring and maintenance of planted vegetation will take place in the first several years after planting. After a period of 5 years, the need for additional riparian habitat and wetland enhancement will be evaluated in a written report. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFW, will determine whether there is a need to further enhance or create additional areas of riparian habitat or jurisdictional wetlands within the project boundary so that there will be no net loss of wetlands at the end of a 5 year period and no net loss of riparian habitat after a 10-year monitoring period. In addition, wetlands will be re-delineated 5 years after project implementation to ensure no net loss of wetland habitat. Riparian habitat reporting 5 years after planting and wetland delineation 5 years after project implementation will provide Reclamation with needed data in a timely			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
fashion to take additional pro-active measures towards meeting the goals of no net loss of riparian habitat and jurisdictional wetlands within boundaries established for TRRP rehabilitation sites after 10 years.			
Impact 3.7-4: Construction activities associated with the Proposed Project could result in impacts to the state-listed little willow flycatcher (<i>Empidonax traillii</i>).			
4.7-4a Prior to the start of construction, a qualified biologist will conduct a survey of the rehabilitation sites to determine whether suitable nesting habitat for the little willow flycatcher is present. If suitable habitat is present, Mitigation Measure 4.7-4b will be implemented.		Reclamation (implementation)	
4.7-4b Grading and other construction activities will be scheduled to avoid the nesting season to the extent possible. The nesting season for this species in Trinity County extends from June 1 through July 31. If construction occurs outside of the breeding season, no further mitigation is necessary. If the breeding season cannot be completely avoided, Mitigation Measures 4.7-4c and 4.7-4d will be implemented.			
4.7-4c A qualified biologist will conduct a minimum of one pre-construction survey for the little willow flycatcher within the rehabilitation sites and a 250-foot buffer around the sites. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The pre-construction survey(s) will be used to ensure that no nests of this species within or immediately adjacent to the rehabilitation site will be disturbed during project implementation. To the extent possible given timing for construction and with the contract award, pre-construction surveys will conform to methodologies identified in a Willow Fly Catcher Survey Protocol for California available online at: http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html#Birds . If an active nest is found, CDFW will be contacted prior to the start of construction to determine the appropriate mitigation measures.			
4.7-4d If vegetation is to be removed by the projects and all necessary approvals have been obtained, potential nesting substrate (e.g., shrubs and trees) that will be removed by the projects will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.			
Impact 3.7-5: Construction activities associated with the Proposed Project could result in impacts to the foothill yellow-legged frog (<i>Rana boylei</i>).			
4.7-5a If any construction in the Trinity River channel will occur prior to August 1 of any construction season, a pre-construction survey for the foothill yellow-legged frog larvae and/or eggs will be conducted by a qualified biologist. This survey will be conducted within the construction boundary no more than 2 weeks prior to the start of in-stream construction activities. If larvae or eggs are detected, the biologist will relocate them to a suitable location outside of the construction boundary.		Reclamation (implementation)	

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.7-5b In the event that a foothill yellow-legged frog is observed within the construction boundary, the contractor will temporarily halt in-stream construction activities until qualified personnel have moved the frog(s) to a safe location within suitable habitat outside of the construction limits. Planned locations for placement of transferred animals will be downstream of the construction limits and will be reported to the CDFW prior to construction.			
4.7-5c Mitigation measures identified in Section 3.5 (Water Quality) of this EA/IS for addressing erosion and sedimentation and accidental spills will be fully implemented to mitigate for potential indirect impacts to dispersal habitat for the foothill yellow-legged frog due to sedimentation and accidental spills.			
4.7-5d Mitigation measures associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a, 4.7-1b, and 4.7-1c) will be fully implemented.			
Impact 3.7-6: Construction activities associated with the Proposed Project could result in impacts to the western pond turtle (<i>Actinemys marmorata pallida</i>).			
4.7-6a A minimum of one survey for western pond turtle nests will be conducted during the nesting season (generally late June-July) prior to construction. A qualified biologist will be retained by Reclamation to conduct the survey. If a western pond turtle nest is found, the biologist will flag the site and determine whether construction activities can avoid affecting the nest. If the nest cannot be avoided, the nest will be excavated by the biologist and reburied at a suitable location outside of the construction limits.		Reclamation (implementation)	
4.7-6b Prior to construction in open water habitat, a qualified biologist will trap and move western pond turtles out of the construction area to nearby suitable habitats.			
4.7-6c During construction, in the event that a western pond turtle is observed within the construction limits, the contractor will temporarily halt construction activities until qualified personnel have moved the turtle(s) to a safe location within suitable habitat outside of the construction limits. Planned locations for placement of transferred animals will be downstream of the construction limits and will be reported to the CDFW prior to construction.			
4.7-6d Mitigation measures presented in Section 4.5 (Water Quality) for addressing erosion and sedimentation and accidental spills will be fully implemented to mitigate for the potential indirect impacts to potential dispersal habitat due to sedimentation and accidental spills.			
4.7-6e The mitigation measure associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a, 4.7-1b, and 4.7-1c) will be fully implemented.			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 3.7-7: Construction activities associated with the Proposed Project could result in impacts to nesting Vaux's swift (<i>Chaetura vauxi</i>), California yellow warbler (<i>Dendroica petechia</i>), and yellow-breasted chat (<i>Icteria virens</i>).			
4.7-7a Prior to the start of construction, a qualified biologist will conduct surveys of the rehabilitation sites to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, Mitigation Measure 4.7-7b will be implemented.		Reclamation (implementation)	
4.7-7b Grading and other construction activities will be scheduled to avoid the nesting season for these species to the extent possible. The nesting season for these species in Trinity County extends from March 15 through July 31. If construction occurs outside the breeding season, no further mitigation is necessary. If construction during the breeding season cannot be completely avoided, Mitigation Measures 4.7-7c and 4.7-7d will be implemented.			
4.7-7c A qualified biologist will conduct a minimum of one preconstruction survey for these species within the rehabilitation sites and a 250-foot buffer around the sites. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The preconstruction surveys will be used to ensure that no nests of these species within or immediately adjacent to the rehabilitation sites will be disturbed during project implementation. If an active nest is found, a qualified biologist will determine the extent of a construction-free buffer zone to be established around the nest.			
4.7-7d If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting habitat (e.g., shrubs and trees) that will be removed by the projects will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.			
Impact 3.7-8: Construction activities associated with the Proposed Project could result in impacts to bald eagle (<i>Haliaeetus leucocephalus</i>) and northern goshawk (<i>Accipiter gentilis</i>).			
Due to the removal of the bald eagle from the endangered species list, and the availability of the National Bald Eagle Management Guidelines provided by the US Fish and Wildlife Service to protect the bald eagle, additional measures are outlined below. These measures are now stricter than those outlined in the 2009 Master EIR/Programmatic EA, and provide additional protections for the bald eagle to abide by directives within the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d):			
4.7-8a Prior to the start of construction, a qualified biologist will conduct a survey of the rehabilitation sites to determine whether suitable habitat for the species is present. If suitable habitat is present, Mitigation Measure 4.7-8b will be implemented.		Reclamation (implementation)	

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.7-8b Construction will be scheduled to avoid the nesting season for bald eagles and northern goshawks to the extent feasible. The nesting season for most raptors in Trinity County extends from February 15 through July 31. Thus, if construction can be scheduled to occur between August 1 and February 14, the nesting season will be avoided and no impacts to nesting bald eagles and northern goshawks will be expected. If it is not possible to schedule construction during this time, mitigation measures 4.7-8c and 4.7-8d will be implemented.			
4.7-8c Pre-construction surveys for bald eagles and nesting northern goshawks will be conducted by a qualified biologist to ensure that no disturbance will occur during project implementation. These surveys will be conducted no more than 14 days prior to the initiation of construction activities. The biologist will conduct surveys immediately adjacent to the impact areas for bald eagles and northern goshawk nests. If eagles or an active nest are found within 500 feet of the construction areas to be disturbed by these activities, the biologist, in consultation with the CDFW and the National Bald Eagle Management Guidelines, will determine the extent of a construction-free buffer zone to be established.			
4.7-8d If vegetation is to be removed as part of the project and all necessary approvals have been obtained, potential nesting habitat (i.e., trees) that will be removed by the projects will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts. Directives under the Bald and Golden Eagle Management Protection Act will be adhered to.			
Impact 3.7-9: Construction activities associated with the Proposed Project could result in impacts to special status bats and the ring-tailed cat (<i>Bassariscus astutus</i>).			
4.7-9a Pre-construction surveys for roosting bats and ring-tailed cats will be conducted prior to the start of construction activities. The surveys will be conducted by a qualified biologist. No activities that will result in disturbance to active roosts of special status bats or dens of ring-tailed cats will proceed prior to completion of the surveys. If no active roosts or dens are found, no further action is needed. Because bats are known to abandon young when disturbed, if a maternity roost is located, a qualified bat biologist will determine the extent of a construction-free zone to be implemented around the roost. If a bat maternity roost or hibernaculum is present, or a ring-tailed cat den is present, Mitigation Measures 4.7-9b and/or 4.7-9c will be implemented. CDFW will also be notified of any active bat nurseries within the disturbance zones.		Reclamation (implementation)	
4.7-9b If an active maternity roost or hibernaculum is found, the projects will be redesigned to avoid the loss of the tree or structure occupied by the roost, if feasible. If the projects cannot be redesigned to avoid removal of the structure, demolition of that structure will commence before bat maternity colonies form (i.e., prior to March 1) or after young are volant (flying) (i.e., after July 31). The disturbance-free			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
buffer zones described above will be observed during the bat maternity roost season (March 1–July 31). If a non-breeding bat hibernaculum is found in a tree or structure to be razed, the individuals will be safely evicted under the direction of a qualified bat biologist, by opening the roosting area to allow air to flow through the cavity. Demolition will then follow no sooner than the following day (i.e., there will be no less than one night between initial disturbance for air flow and the demolition). This action will allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees with roosts that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during darker hours.			
4.7-9c Ring-tailed cats are fully protected species under Fish and Game Code Section 4700. Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research. If an active ring-tailed cat nest is found, the projects will be redesigned to avoid the loss of the tree occupied by the nest if feasible. If the projects cannot be redesigned to avoid removal of the occupied tree, the CDFW will be contacted for their input. If approved by CDFW, demolition of the tree will commence outside of the breeding season (February 1 to August 30). If a non-breeding den is found in a tree scheduled to be removed, prior to disturbance, the CDFW will be notified to review and approve proposed procedures to ensure that no take occurs as a result of the action. Trees with dens that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow ring-tailed cats to escape during the darker hours.			
Impact 3.7-11: Construction activities associated with the proposed project could result in impacts to BLM and USFS sensitive species.			
Mitigations measures identified previously would reduce impacts to BLM and USFS sensitive species to less than significant. Mitigation measures 4.7-4a, 4.7-4b, and 4.7-4c would reduce impacts to the little willow flycatcher to a less than significant level. Mitigation measures 4.7-5a, 4.7-5b, 4.7-5c, and 4.7-5d would reduce the impacts to the foothill yellow-legged frog to a less than significant level. Mitigation measures 4.7-6a, 4.7-6b, 4.7-6c, and 4.7-6d would reduce the impacts to the western pond turtle to a less than significant level. Mitigation measures 4.7-8a, 4.7-8b, and 4.7-8c would reduce the impacts to the northern goshawk to a less than significant level. Mitigation measures 4.7-9a and 4.7-9b would reduce impacts to special status bats and the ring-tailed cat to less than significant.		Reclamation (implementation)	
Impact 3.7-13: Implementation of the proposed project could result in the spread of non-native and invasive plant species.			
4.7-13a When using imported erosion control materials (as opposed to rock and dirt berms), use only certified weed-free materials, mulch, and seed.		Reclamation (implementation)	

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.7-13b Preclude the use of rice straw in riparian areas.			
4.7-13c Limit any import or export of fill to materials to those that are known to be weed free.			
4.7-13d Ensure all construction equipment is thoroughly washed prior to entering and leaving the worksite. Equipment will be inspected to ensure that it is free of plant parts as well as soils, mud, or other debris that may carry weed seeds.			
4.7-13e Use a mix of native grasses, forbs, and non-persistent non-native species for seeding disturbed areas that are subject to infestation by non-native and invasive plant species. Where appropriate, a heavy application of mulch will be used to discourage introduction of these species. Use of planting plugs of native grass species may also be used to accelerate occupation of disturbed sites and increase the likelihood of reestablishing a self-sustaining population of native plant species.			
4.7-13f Within the first 3 to 5 years post-project, if it is determined that the project has caused non-native invasive vegetation to out-compete desired planted or native colonizing riparian vegetation, opportunities to control these non-native species will be considered. When implementing weed control techniques, the approach will consider using all available control methods known for a weed species.			
4.7-13g Within the first 3 to 5 years post-project, if it is determined that on-site revegetation/post-project conditions do not meet landowner requirements, opportunities to revisit the site and remedy the concern will be considered.			
3.8 Recreation			
Impact 3.8-1: Construction associated with the proposed project could disrupt recreation activities such as boating, fishing, and swimming in the Trinity River.			
4.8-1a Reclamation shall provide precautionary signage to warn recreational users of the potential safety hazards associated with project construction activities. Signs and/or buoys shall be placed within and directly adjacent to the project boundaries along the Trinity River in accordance with the requirements specified in Title 14, Article 6 of the California Code of Regulations. Notification signs shall be posted at public river access areas located within the project area and managed by BLM. Additionally, public notification of proposed project construction activities and associated safety hazards shall be circulated in the local <i>Trinity Journal</i> newspaper prior to the onset of project construction.		Reclamation (implementation)	
4.8-1b Reclamation will repair and/or replace any facilities associated with the Proposed Project that are impacted by project activities. This measure includes installation of interpretive signage consistent with			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
the requirements of the BLM. Preconstruction meetings between Reclamation and landowners/land managers will identify the amount of vegetative screening to be retained at each recreation site within the project area.			
Impact 3.8-2: Construction of the proposed project could result in an increased safety risk to recreational users or resource damage to lands within the project boundaries.			
Implementation of Mitigation Measures 4.8-1a and 4.8-1b described above would make this impact less than significant.		Reclamation (implementation)	
Impact 3.8-3: Construction activities associated with the proposed project could lower the Trinity River's aesthetic values for recreationists by increasing its turbidity.			
Mitigation measures 4.5-1a, 4.5-1b, 4.5-1c, 4.5-1d, and 4.5-1e described above for impact 3.5-1 would reduce impacts to less than significant.			
3.10 Cultural Resources			
Impact 3.10-2: Implementation of the proposed project could potentially result in disturbance of undiscovered prehistoric or historic resources.			
4.10-2a Prior to initiation of construction or ground-disturbing activities, all construction workers will be alerted to the possibility of discovering cultural resources. This includes prehistoric and/or historic resources. Personnel will be instructed that upon discovery of buried cultural resources, work within 50 feet of the find will be halted and Reclamation's designated archaeologist will be consulted. Once the find has been identified, Reclamation will be responsible for developing a treatment plan for the cultural resource including an assessment of its historic properties and methods for avoiding any adverse effects, pursuant to the PA and in compliance with the NHPA.		Reclamation (implementation)	
Impact 3.10-3: Implementation of the proposed project could potentially result in disturbance of undiscovered human remains.			
4.10-3a If human remains are encountered during construction on non-federal lands, work in that area will be halted and the Trinity County Coroner's Office will be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) will be notified within 24 hours of determination, as required by PRC, Section 5097. The NAHC will notify designated Most Likely Descendants, who will provide recommendations for the treatment of the remains within 24 hours. The NAHC will mediate any disputes regarding treatment of remains. If Native American human remains and associated items are discovered on federal lands, they will be treated according to provisions set forth in the Native American Protection and Repatriation Act (25 USC 3001) as well as			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
Reclamation's Directives and Standards LND 02-01. If the find is determined to be a historical resource or a unique archaeological resource, as defined by CEQA, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or other appropriate mitigation will be made available. Work may continue on other parts of the project while mitigation for historical or unique archaeological resources takes place.			
3.11 Air Quality			
Impact 3.11-1: Construction activities associated with the proposed project could result in an increase in fugitive dust and associated particulate matter (PM ₁₀ and PM _{2.5}) levels.			
4.11-1a Reclamation will implement a dust control program to limit fugitive dust and particulate matter emissions. The dust control program will include the following elements as appropriate: <ul style="list-style-type: none"> • Inactive construction areas will be watered as needed to ensure dust control. • Pursuant to the California Vehicle Code (Section 23114), all trucks hauling soil or other loose material to and from the construction site will be covered or will maintain adequate freeboard to ensure retention of materials within the truck's bed (e.g., ensure 1-2 feet vertical distance between top of load and the trailer). • Excavation activities and other soil-disturbing activities will be conducted in phases to reduce the amount of bare soil exposed at any one time. Mulching with weed-free materials will be used to minimize soil erosion, as described in Section 3.3, Geology, Fluvial Geomorphology, and Soils, and Section 3.5, Water Quality. • Watering (using equipment and/or manually) will be conducted on all stockpiles, dirt/gravel roads, and exposed or disturbed soil surfaces, as necessary, to reduce airborne dust. • All paved access roads, parking areas, and staging areas will be swept (with water sweepers), as required by Reclamation. • Paved roads will be swept (with water sweepers) if visible soil material is carried onto adjacent private and public roads, as required by Reclamation. • All ground-disturbing activities with the potential to generate dust will be suspended when winds exceed 20 mph, as directed by the NCUAQMD. • Reclamation or its contractor will designate a person to monitor dust control and to order increased watering as necessary to prevent transport of dust offsite. This person will also respond to citizen complaints. 		Reclamation (implementation)	
Impact 3.11-2: Construction activities associated with the proposed project could result in an increase in construction vehicle exhaust emissions.			
4.11-2a Reclamation will comply with NCUAQMD Rule 104 (4.0) Particulate Matter. This compliance		Reclamation	

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
could occur by using portable internal combustion engines registered and certified under the state portable equipment regulation (Health & Safety Code 41750 through 41755).		(implementation)	
Impact 3.11-4: Construction activities would generate short-term and localized fugitive dust, gas, and diesel emissions, and smoke that could affect adjacent residences and schools.			
4.11-5a Construction activity occurring within 300 feet of elementary schools will be limited to the period when school is not in session.		Reclamation (implementation)	
4.11-5b Construction activity occurring within 300 feet of residences will be limited to Monday through Saturday, from the hours of 9 a.m. to 5 p.m.			
4.11-5c Reclamation will notify residences within 300 feet of the site and project activity and elementary schools will be notified of construction activity located near the school prior to site construction activities.			
4.11-5d Reclamation will ensure that a notice is posted at/adjacent to the rehabilitation site, which contains a phone number for the public to contact for concerns related to air quality.			
3.12 Visual Resources			
Impact 3.12-1: Implementation of the proposed project could result in the degradation and/or obstruction of a scenic view from key observation areas.			
Implementation of mitigation measures 4.7-1a, 4.7-1b, and 4.7-1c described above for Impact 3.7-1 and mitigation measures 4.5-1a, 4.5-1b, 4.5-1c, 4.5-1d, and 4.5-1e described above for Impact 3.5-1 would reduce impacts to less than significant.		Reclamation (implementation)	
3.14 Noise			
Impact 3.14-1: Construction activities associated with the proposed project would result in noise impacts to nearby sensitive receptors.			
4.14-1a Construction activities near residential areas will be scheduled between 7:00 a.m. and 7:00 p.m., Monday through Saturday. No construction activities will be scheduled for Sundays or other hours and days established by the local jurisdiction (i.e., Trinity County). The contractor may submit a request for variances in construction activity hours, as needed.		Reclamation (implementation)	
4.14-1b Reclamation will require that all construction equipment be equipped with manufacturer's specified noise muffling devices.			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.14-1c Reclamation will require placement of all stationary noise-generating equipment as far away as feasibly possible from sensitive noise receptors or in an orientation minimizing noise impacts (e.g., behind existing barriers, storage piles, unused equipment).			
3.15 Public Services and Utilities/Energy			
Impact 3.15-3: Implementation of the proposed project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities.			
4.15-3a Reclamation will require that staging and construction work, including temporary road or bridge closures occurs in a manner that allows for access by emergency service providers.		Reclamation (implementation)	
4.15-3b Reclamation will provide 72-hour notice to the local emergency providers and affected users prior to the start of temporary closures.			
4.15-3c Reclamation will coordinate road closures occurring during the school year (mid-August through mid-June) with the appropriate school districts to avoid disruption of school attendance and student access to bus service.			
3.16 Transportation/Traffic Circulation			
Impact 3.16-2: Construction activities would generate short-term increases in vehicle trips.			
4.16-2a Reclamation will post signs during gravel haul activities notifying travelers of trucks entering the roadway. Reclamation will ensure that gravel trucks maintain a speed limit of 15 mph on residential and private roads and operate only between the hours of 7 a.m. and 7 p.m., Monday through Saturday.			
Impact 3.16-4: Construction activities would increase wear and tear on local roadways.			
4.16-4a Reclamation will perform a pre-construction survey of local federal and state roads to determine the existing roadway conditions of the construction access routes, and will consult with the relevant agencies/private parties about road conditions prior to construction activity and post construction activity. An agreement will be entered into prior to construction that will detail the pre-construction conditions and post-construction requirements for potential roadway rehabilitation.		Reclamation (implementation)	
Impact 3.16-5: Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians.			

Table A-1. Summary of Mitigation Monitoring Requirements.

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
<p>4.16-5a Reclamation will prepare and implement a traffic control plan that will include provision and maintenance of temporary access through the construction zone, reduction in speed limits through the construction zone, signage and appropriate traffic control devices, illumination during hours of darkness or limited visibility, use of safety clothing/vests to ensure visibility of construction workers by motorists, and fencing as appropriate to separate bicyclists, pedestrians, and equestrians from construction activities. Reclamation will obtain encroachment permits from the appropriate entities to work within road easements. These permits will require traffic control and signage to meet California standards.</p>		Reclamation (implementation)	

Project Design Elements

Project design elements are specific design features proposed by the project applicant and incorporated into the project to prevent the occurrence of, or reduce the significance of potential environmental effects. Because project design elements have been incorporated into the project, they do not constitute mitigation measures as defined by CEQA. However, project design elements are identified to ensure that they are included in the MMRP to be developed and implemented as part of the Proposed Project. The design elements discussed below are common to the Proposed Project. These elements are excerpted from Chapter 2 of the Draft Master EIR.

Description of Common Activities and Construction Criteria and Methods

Common Activities

Vegetation Removal

Vegetation removal would involve the following:

- Remove vegetation to provide access to activity areas using a combination of manual labor and heavy equipment (i.e., chainsaw, excavator, and vegetation masticator).
- Remove stumps, roots, and vegetative matter to allow river scour on excavated floodplain surfaces. Some LWD would be retained for use in the floodplain to enhance fish habitat.
- Dispose of removed vegetation by chipping, hauling offsite, burning, burying within spoil areas, or other appropriate methods. Reclamation would continue to work with local agencies to encourage the efficient use of chipping as a priority method of disposing of vegetative waste.
- Protect vegetation designated for preservation within clearing limits. Vegetation outside the clearing limits would be preserved and protected.
- Mechanically remove submerged roots from river fringe areas with ripping bars or excavator buckets. Equipment chassis (i.e., tires, tracks) would remain outside of the wetted portion of the river channel when removing submerged roots.

Water Use

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

- Riparian water rights held by public and private landowners on the Trinity River would be used to obtain Trinity River water to support restoration. Dust abatement water would be obtained from on-site seep wells or the Trinity River. When drafting from the Trinity River, pump intakes would be in conformance with criteria established by NMFS and CDFW to prevent impacts to aquatic organisms. Make-up water pumped from the river would pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 fps.

In the event irrigation is necessary for revegetation efforts, the primary water source would be the Trinity River. Any surface water sources used for irrigation would be developed in order to comply with the water rights of land management agencies and landowners. Pump intakes would be in

conformance with criteria established by NMFS and CDFW to prevent impacts to aquatic organisms. Make-up water pumped from the river would pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 fps.

Monitoring

The ROD provided a restoration strategy for the TRRP but did not identify methods for assessing the effectiveness of the management actions in achieving TRRP goals or management targets. Instead, it directed the TRRP to organize assessments around the principles of AEAM and to use this to rigorously assess the river's response to management actions. The Integrated Assessment Plan (IAP) provides the basis for applying the AEAM principles outlined in the ROD.

These principles would be applied to quantitatively determine the overall status and trend of river system attributes relative to TRRP objectives, using appropriate data to describe each attribute, with data collected based upon scientifically defensible monitoring designs. The causal relationship between rehabilitation of the fluvial nature of the river and increasing salmonid production would be the major focal point for monitoring and modeling. The focus of the IAP is to identify key assessments that:

- Evaluate long-term progress toward achieving program goals and objectives; and
- Provide short-term feedback to improve program management actions by testing key hypotheses and reducing management uncertainties.

The IAP provides a general framework for integrating and linking assessments across monitoring domains. Integration of assessments would be essential for evaluating the TRRP's overall restoration strategy, involving coordinated actions to support multiple ecosystem processes and components. This integration allows development of coordinated sampling designs and assessments that serve multiple or complementary objectives, and is intended to improve the understanding of qualitative and quantitative functional relationships associated with the mainstem Trinity River.

The IAP framework focuses on six key elements; each of these would be integrated into the MMRP to ensure that authorized activities are consistent with the AEAM. Key elements of the IAP include:

1. Create and maintain spatially complex channel morphology.
2. Increase/improve habitats for freshwater life stages of anadromous fish to the extent necessary to meet or exceed production goals.
3. Restore and maintain natural production of anadromous fish populations.
4. Restore and sustain the natural production of anadromous fish populations downstream of Lewiston Dam to pre-dam levels to facilitate dependent tribal, commercial, and sport fisheries' full participation in the benefits of restoration via enhanced harvest opportunities.
5. Establish and maintain riparian vegetation that supports fish and wildlife.
6. Rehabilitate and protect wildlife habitats and maintain or enhance wildlife populations following implementation.

Additional information on the IAP is available on the TRRP website:

<http://www.trrp.net/science/IAP.htm>

Design Elements

Attachment 1 following the appendices in Volume IV of the Master EIR/Programmatic EA is a glossary of design and construction terms for use by the design team.

Hydraulics

The Proposed Project would occur in areas that FEMA has designated as Special Hazard Zones AE and X, as described in Section 3.2 of this document. In the Zone AE areas, Reclamation has established a design criterion stating that not only would the County's floodplain ordinance be followed, but implementation of the Proposed Project would not increase the flood risk for the community. This criterion resulted in a stipulation that coarse sediment and excavated material would be strategically placed to ensure that 100-year flood elevations would not increase over current conditions. As previously described, the site boundaries generally conform to the river corridor, bounded by prominent geographic features such as roads and fences.

The design of the activity areas was based on an understanding of the relationships between the flow regime and the hydrologic/hydraulic characteristics of the action. A fundamental constraint was *to do nothing to increase the flood risk in the general vicinity, and to not raise the water surface elevation above the current FEMA estimated 100-year base flood elevation*. Evaluation of the Proposed Project requires comparing estimated seasonal base flows and estimated return-period flows. USACE's HEC-RAS hydraulic model would be used by the design team during final design activities to predict changes in flood elevations at various points along the project reach. Table A-2 lists the components of the flow regime, the seasonal or other periodic return intervals, and the flow rates that would be used during final design to ensure that the action meets the flood constraints described above.

Table A-2. Estimated Mainstem Trinity River Flow Conditions Used for Design.

Flow Description	Flow Event	Flow Rate (Cfs)
Summer base flow ^a (July 22 to October 15 of each year)	Q _s	450
1.5-year return interval design flow	Q _{1.5}	6,000
Estimated FEMA 100-year flow below Rush Creek	Q ₁₀₀	19,300
Estimated FEMA 100-year flow below Grass Valley Creek	Q ₁₀₀	23,600

^a Base flow defined as cfs from TRD release and accretion flow

Q = flow rate; Q_{1.5} = 1.5 year return interval design flow; Q₁₀₀ = 100-year flood flow; Q_s = summer base flow

A HEC-RAS model for the Trinity River from Lewiston Dam to the North Fork Trinity River was developed by California DWR and provided to the TRRP as part of the administrative record. This model was calibrated to match measured WSEs in the Trinity River within and adjacent to the site boundaries for the design flow. Since WSEs have not been measured (validated) for the 100-year flow, the predicted WSEs are based on the output of the model using carefully selected Manning's

“n” values that reflect the overbank conditions at each site. The model incorporates empirical data from surveyed cross-sections, including bathymetric and overbank/floodplain topography in the general vicinity of the rehabilitation sites. To obtain WSEs for design flows, the model was calibrated using surveyed WSEs and known flows (from gage data). The model was determined to be accurate for the level of evaluation and design required.

There are several significant flow conditions that are important to the design of the Proposed Project. Two of the most important flow conditions are summertime low flows of about 450 cfs, which is the release from Lewiston Dam, and the 1.5-year-event (ordinary high water) flow of 6,000 cfs, as measured below Rush Creek. The design team regards the design flows portrayed in Table A-1 as the “best available information” per FEMA requirements. The FEMA Q_{100} “near Douglas City” (38,500 cfs) was established in the 1976 USACE report (USACE 1976) used by FEMA to develop the current FIRMs for the Trinity River. The 6,000 cfs 1.5-year event is based on the ROD flow release. This flow information provides the basis for the designs incorporated into the Proposed Project.

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

Roadway Approaches

As an alternative to disposing of excavated materials onsite, materials may be hauled to commercially approved off-site locations. This option would reduce the impact of spoiling excavated materials in upland habitats. Hauling a portion of excavated materials generated under the Proposed Project could require substantial truck traffic to off-site locations. The traffic would be staged over the project duration, generally between August 1 and November 15. Traffic control measures would be applied in accordance with BLM, Trinity County, and Caltrans requirements.

Recreation Facilities

As appropriate, recreation facilities (e.g., parking areas, access trails, picnic areas) affected by project activities would be returned to the same level of service as those offered prior to project implementation. Reclamation, in consultation with the BLM, California DWR, and CDFW, could enhance one or more of these facilities consistent with project objectives. Examples of enhancement could be updated signage, surfacing of trails or parking areas with permeable materials, improvements to fishing access locations or establishment of interpretive features intended to increase public awareness of the ongoing efforts to restore the Trinity River.

Drainage

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

Rights-of-Way/Easements

Prior to construction, formal realty agreements would be made between Reclamation; land managers for BLM, California DWR, and CDFW; and private landowners whose property would be affected. These agreements would clarify the terms and conditions under which Reclamation would work on private property. In addition, these agreements would compensate landowners, based on fair market value of identified construction easements, and would hold property owners harmless during construction activities.

Utilities

There are a number of utility features located within and/or adjacent to the site boundaries. Water intakes, power and telephone poles, and water supply lines parallel or cross the Trinity River in a number of locations. These utilities are considered in the project design to ensure that service would not be disrupted.

Construction Criteria and Methods

Construction Process Overview

- Vegetation removal would occur as necessary and in compliance with all regulatory requirements. An expected August 1 start date for clearing and grubbing of vegetation would allow completion of nesting by avian species. Alternatively, vegetation may be removed prior to the start of the nesting season, which is early March for this area.
- Where available, existing roads (activity L) would be used to access the activity areas. New access roads and haul routes (activity M) would be constructed when necessary and restored to a stable condition in accordance with landowner requirements at the completion of the project.
- Excavation would begin on the floodplain to bring it down to grade.
- When specified, finer grained materials (e.g., sand) excavated from riverine activity areas may be stockpiled for use at upland or other riverine activity areas.
- Any riverine treatment areas (e.g., constructed inundation surfaces) that have been compacted from construction activities would be ripped to a depth of approximately 18 inches. The furrows developed by this ripping would ensure that most storm water runoff is retained and filtered on-site so that there is little or no construction-related turbidity. This action would effectively control the release of storm water runoff and turbidity from the site and eliminate the need for use of post-construction sediment-control measures (e.g., silt fences, berms).
- The timing for work adjacent to the river may be affected by river flows. If for some reason the flow is low when construction starts, but it is anticipated that flows would increase before the floodplain can be excavated, excavation would occur at the lower elevations (adjacent to river) first and at the higher floodplain elevations last.
- In-channel activities would generally take place during low flows (July 15 to September 15 as allowed by the coho salmon in-river work window in NMFS' 2000 Trinity River biological

opinion) to create immediate point bars and allow mobilization of in-channel materials at high flows.

- Alcoves and side channels would be constructed from the existing grade down slope. Measures would be taken (e.g., sediment plug, sandbags) to isolate the work area from flowing water. If necessary, pumps would be used to dewater the excavation to inhibit any sediment from entering the river. Typically, reconnecting these features to the river relies on high-flow events. If necessary, the TRRP would remove materials used to isolate these side channels after they have been constructed.
- Final grading would occur as necessary for all activity areas.
- Demobilization of construction equipment and site clean-up would be accomplished consistent with Reclamation requirements.
- Revegetation would take place during wet conditions (fall/winter) and would generally occur in riparian areas to maximize use by fish and wildlife species. Projects would be designed and implemented to achieve no net loss in riparian vegetation (within the project site boundaries) from planting and natural revegetation consistent with the Draft Riparian Revegetation Plan.

In-River Construction

- Where necessary, heavy equipment would be used to grub tree and shrub roots from the edge of the river. Vegetation would often be maintained along the river's active channel to maintain the currently available low-water fish habitat. During root removal, equipment chassis would generally not enter the low-water river channel.
- In-river excavation would generally begin at the far edge of the activity area and work back toward the riverbank so that heavy equipment is on dry land or in shallow water.
- In-river materials or coffer dams may be used to temporarily redirect flow around work areas and to create platforms from which to work. In addition to providing the means for volitional fish passage (upstream and downstream), at least one navigable (by raft/boat) passage through the activity area would remain open at all times.

Traffic Control/Detour

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

- Reclamation would coordinate with jurisdictional agencies to identify specific requirements that shall be included for use of existing roadways and haul routes. Requirements may include seasonal or other limitations or restrictions, payment of excess size and weight fees, and posting of bonds conditioned upon repair of damage.
- Temporary construction access may be required; access routes shall be of a width and load-bearing capacity to provide unimpeded traffic for construction purposes.

Staging Areas

Staging areas and storage facilities for the Proposed Project are shown on Figure 3. These areas would be used throughout the duration of the project activities. Some short-term staging and equipment storage and parking would be needed in the activity areas as the project is implemented.

Air Pollution and Dust Control

Efforts would be made to minimize air pollution and reduce greenhouse gas emissions related to construction operations. Reclamation specifications require that the contractor comply with all applicable air pollution control rules, regulations, ordinances, and statutes. In addition, project contractors would be given educational material about fuel efficiency and the benefits of using vehicles powered by alternative energy sources to enhance awareness of global warming issues. Contractors would also be required to provide recycling bins for on-site waste materials.

Contract documents would also specify that the contractor would be responsible for limiting dust by watering construction site areas used by trucks and vehicles. If water is taken from the river, pump intakes would be in conformance with criteria established by NMFS and CDFW to prevent impacts to aquatic organisms. Make-up water pumped from the river would pass through a screen at the inlet with maximum 1/4-inch openings and a maximum intake velocity of 0.8 fps.

Fire Protection and Prevention

Due to the high fire hazard and history of equipment-caused fires in Trinity County, construction contractors would be required to follow applicable regulations of Public Resource Code 4428-4442 during dry periods to minimize the potential for the initiation and spread of fires from the work site.

Water Pollution Prevention

Reclamation would implement water pollution control measures that conform to applicable and appropriate permits. Reclamation would require the contractor to use extreme care to prevent construction dirt, debris, storm water run-off, and miscellaneous byproducts from entering the stream. Some key water pollution control measures that would be implemented by Reclamation are listed below:

- Every reasonable precaution would be exercised and BMPs would be implemented to protect the Trinity River from being polluted by fuels, oils, petroleum byproducts, and other harmful materials and shall conduct and schedule operations to avoid or minimize muddying and silting of the river. Care shall be exercised to preserve roadside vegetation beyond the limits of construction.
- Construction equipment would be cleaned of dirt and grease prior to any in-channel activities. All construction equipment would be inspected daily and maintained to ensure that fuel or lubricants do not contaminate the Trinity River. Spill containment kits would be onsite at all times and, where feasible, berms or other containment methods would be kept in place around the work areas when performing in-channel work.
- Water pollution control work is intended to provide prevention, control, and abatement of water pollution in the Trinity River, and would consist of constructing those facilities that

may be shown on the plans, specified herein or in the special provisions, or directed by the Contracting Officer.

- Furrowing of riparian areas that have been compacted during construction activity is expected to minimize or stop delivery of storm water runoff to the river. As necessary, Reclamation would provide temporary water pollution control measures, including, but not limited to, dikes, basins, ditches, and straw and seed application, that may become necessary as a result of the contractor's operations.
- Before starting any work on the project, Reclamation would develop an agency-approved SWPPP to effectively control water pollution during construction of the project. The SWPPP would show the schedule for the erosion control work included in the contract and for all water pollution control measures Reclamation proposes to take in connection with construction of the project to minimize the effects of the operations on adjacent streams and other bodies of water. Reclamation would not perform any clearing and grubbing or earthwork on the project until the SWPPP has been accepted by responsible agencies.
- Oily or greasy substances originating from Reclamation's operations would not be allowed to enter, or be placed where they would later enter, a live stream, soil, or groundwater.