RECLAMATION

Managing Water in the West

Environmental Assessment

Bogus Creek Flow Meter Installation Project

Siskiyou County, California
2018-EA-012

U.S. Department of the Interior
Bureau of Reclamation
Technical Service Center
Denver, Colorado

September 2018

Mission Statements

The Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Acronyms and Abbreviations

CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
EA	Environmental Assessment
ESA	Endangered Species Act
FRGP	CDFW Fisheries Restoration Grant Program
Grant Program	2016 Klamath River Coho Restoration Grant Program
ITA	Indian Trust Asset
Klamath Project	Bureau of Reclamation Klamath Project
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFWF	National Fish and Wildlife Foundation
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
Project	Bogus Creek Flow Meter Installation Project
Reclamation	Bureau of Reclamation
SIP	State Implementation Plan
SONCC	Southern Oregon Northern California Coast
SWRCB	California State Water Resources Control Board
USC	United States Code
USFWS	United States Fish and Wildlife Service
2013 BiOp	Biological Opinions on the Effects of Proposed Klamath Project Operations from May 31, 2013, through Match 31, 2023, on Five Federally Listed Threatened and Endangered Species

Contents

Chapter 1: Introduction and Background

1.1 Introduction

This Environmental Assessment (EA) has been prepared to examine the potential direct, indirect, and cumulative impacts to the affected environment as a result of implementing the Bogus Creek Flow Meter Installation Project. The Bogus Creek Flow Meter Installation Project (Project) would be funded in the amount of $61,005.13 by the Bureau of Reclamation (Reclamation) and administered through the National Fish and Wildlife Foundation (NFWF) to Trout Unlimited. The proposed project would be performed as part of the 2016 Klamath River Coho Restoration Grant Program (Grant Program). The Grant Program was proposed by Reclamation as a conservation measure to address impacts from operation of Reclamation's Klamath Project (Klamath Project) as described in the National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) *Biological Opinions on the Effects of Proposed Klamath Project Operations from May 31, 2013 through March 31, 2023, on Five Federally Listed Threatened and Endangered Species* (2013 BiOp; NMFS and USFWS 2013).

The EA has been prepared in accordance with the National Environmental Policy Act (NEPA) (42 United States Code (USC) §4321 et seq.), the Council on Environmental Quality (CEQ) Regulations for implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations (CFR) Parts 1500-1508), and the Department of the Interior regulations for implementation of the NEPA (43 CFR Part 46). If there are no significant environmental impacts identified as a result of the analyses in this EA, a Finding of No Significant Impact can be signed to complete the NEPA compliance process.

1.2 Location

Bogus Creek is a tributary of the Klamath River in Siskiyou County, California. Bogus Creek enters the mainstem of the Klamath River approximately 2,100 feet downstream of Iron Gate Dam. The first of the three diversions on Bogus Creek is approximately 4.0 miles upstream from the confluence with the Klamath River. Summertime flows in Bogus Creek are fed by a complex series of springs that are large enough to provide a substantial cold-water baseflow. Irrigation diversions from diversions to Bogus Creek have the potential to 1) dewater approximately three miles of prime rearing fish habitat—especially during low water years, and 2) raise water temperatures above levels needed for adequate rearing of juvenile coho (*Oncorhynchus kisutch)*. Left unchecked by the water master, irrigation diversion(s) may significantly contribute to dewatering of Bogus Creek.

This Project site is upstream of the Ager-Beswick Road Bridge approximately 22 miles east of Yreka California (Appendix A). The Project site is located entirely on private land in Section 20 of Township 47N, Range 4W of the Mount Diablo Meridian, Siskiyou County, California.

1.3 Background

Bogus Creek is the uppermost continuous flowing stream that drains into the Klamath River below Iron Gate Dam (Appendix A). Bogus Creek and its tributaries are also largely spring fed and provide consistent supplies of cold water that are vital to coho populations. In addition, per the 2013 BiOp, coho salmon spawning has been observed in Bogus Creek.

Trout Unlimited, in partnership with the State of California and the Northern California Resource Center are currently implementing a project to remove or modify three concrete diversion structures that, when the flashboards are installed during irrigation season, completely block upstream and downstream movement of coho salmon and other anadromous species. The fish passage project began construction in 2017 and is expected to be completed in 2018. The structures would be replaced with engineered roughened channels that would provide reliable year-round fish passage. This project would also replace the existing, non-compliant fish screens at each of the diversions with screens that meet current California Department of Fish and Wildlife (CDFW) and National Oceanic and Atmospheric Administration (NOAA) screening criteria. The overall CDFW project has already undergone a full compliance review, been permitted, and is currently in progress.

The actions described in the above paragraph are not part of the Proposed Action analyzed within this EA This EA, however, does evaluate potential effects of Reclamation's provision of funds to Trout Unlimited for the purchase and installation of flow meters at each of the three diversions currently being addressed in the CDFW Fisheries Restoration Grant Program (FRGP).

1.4 Need for the Proposal

The purpose of this project is to purchase and install flow meters on three irrigation diversion outlet pipes to help adjacent water users more accurately monitor consumption and ensure that necessary base flows would be left in stream. The project is needed to ensure landowners divert the amount of water that their water right allows through proper metering. Without monitoring, approximately 3 miles of the stream can be nearly dewatered and/or suffer from unnaturally high stream temperatures which are detrimental to rearing coho.

1.5 Authority

Through its delegated authority under the Fish and Wildlife Coordination Act (16 USC 661 et seq.), as amended, Reclamation is authorized to provide funding assistance for the improvement of fish and wildlife habitat affected by Reclamation's water resource development.

Chapter 2: Alternatives

This EA considers two alternatives, including the No Action Alternative and the Proposed Action Alternative. The No Action Alternative reflects conditions without the Proposed Action and serves as a basis of comparison for determining potential effects to the human environment because of implementing the Proposed Action.

2.1 Alternative 1 – No Action

Under the No Action Alternative, Reclamation would not provide funding and NFWF would not administer $61,005.13 to Trout Unlimited to work under the Grant Program and the purchase and installation of flow meters on irrigation diversions from Bogus Creek would not occur. Fish passage and screening work would continue under the FRGP grant; however, irrigation withdrawals by water rights holders could not be accurately monitored. Without proper metering the landowner (water right holder) may divert more than they are permitted, leaving minimal base flows in stream. Under these conditions, approximately 3 miles of the stream may be dewatered and/or suffer from unnaturally high stream temperatures which are detrimental to rearing coho salmon.

2.2 Alternative 2 – Proposed Action

Under the Proposed Action Alternative, Reclamation would provide funding in the amount of $61,005.13 to NFWF to administer to Trout Unlimited. Reclamation would also provide NFWF and Trout Unlimited a notice to proceed with the installation of a flow meter at each of the three existing diversions on Bogus Creek. These diversions are currently being upgraded to improve fish passage and screening as part of an FRGP funded project which is fully permitted and ongoing. The Proposed Action would occur on private land located on the east side of Bogus Creek at the three existing diversions.

2.2.1 Construction Activities

Flow meters would be installed in irrigation pipes in conjunction with the FRGP funded portion of the overall project. These work sites are outside of the ordinary high water line of Bogus Creek and construction work would not impact the stream. Trout Unlimited would contract North Rivers Construction from Fort Jones, California to complete this work. North Rivers Construction is also the prime contractor on the FRGP project.

One flow meter would be installed into each of three existing diversion pipes exposed during construction of the fish passage project. Contractors would install the flow meters into the exposed top of the pipe, cut a 4- to 6-inch-diameter hole in the top of the pipe (funded by FRGP), set the flow meter in the hole, caulk, seal, and grout the meter and hole. Hand tools would be used to cut into the irrigation pipe, apply caulking, mix, and grout. All flow meter sites are on bare ground and flow meter installation work would not disturb the soil or existing vegetation.

Contractors would access each site with permission, via private ranch roads and access points previously developed for the FRGP funded passage and screening project. Contractors anticipate needing approximately one-half day to install each flow meter, accessing each site only once. Work on this project can be completed at all diversion sites as early as October 2018, but if delayed, all work would need to be completed between June and November within 5 years of approval of this EA. This work would not have an instream component and there is no restriction on the period of construction. For detailed plans, see Appendix B.

2.2.2 Integrated Best Management Practices and Mitigation Measures

- All project activities would be implemented between June 15 and November 1 (2018-2022), to minimize impact to riparian habitat adjacent to the active channel of Bogus Creek spawning/nesting habitats.

- All conditions and stipulations from any associated FRGP, Federal, State, Tribal, and local permits would be followed.

- Visual inspections in nesting areas for bald and golden eagles were conducted prior to implementation of the FRGP funded project and no nests were found. If new nests should be found, construction periods would not be permitted during nesting and breeding seasons and a buffer of 300 feet would be placed around the nest as a no-construction zone, etc.

Chapter 3: Affected Environment & Environmental Consequences

This chapter describes the affected environment and evaluates the environmental consequences that could result from the No Action and Proposed Action Alternatives. The No Action Alternative describes the conditions most likely to occur if the Proposed Action were not implemented and provides the basis for comparison to describe the environmental consequences of implementing the Action Alternative.

3.1 Resources Not Analyzed in Detail

Impacts to the following resources were considered and found to be minor or absent. Brief explanations for their elimination from further consideration are provided below.

3.1.1 Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in assets that are held in trust by the United States for Federally recognized Indian Tribes or individuals. There are no Indian reservations, Rancherias or allotments in the project area (see Appendix D). The ITA coordinator reviewed the project and determined that the nearest ITA is a public domain allotment approximately 20 miles southwest of the project site. On April 7, 2017, the ITA coordinator stated: “Based on the nature

of the planned work it does not appear to be in an area that would impact Indian hunting or fishing resources or water rights, nor are the proposed activities on actual Indian lands. It is reasonable to assume that the Proposed Action will not have any impact on ITAs."

3.1.2 Cultural Resources

Cultural Resources are prehistoric and historic-era districts, sites, buildings, structures, and objects, as well as properties of religious or cultural importance to Native Americans or other traditional communities. The National Historic Preservation Act (NHPA) is the primary legislation outlining the Federal Government's responsibilities related to cultural resources. Title 54 USC 306108, commonly known as Section 106 of the NHPA, requires Federal agencies to take into account the effects of their undertakings on significant cultural resources, which are known as historic properties. Compliance with Section 106 follows a process outlined at 36 CFR Part 800. Pursuant to 36 CFR § 800.3(a)(1), and as documented in Appendix E, Reclamation determined the Proposed Action of providing grant funding to NFWF for administration to Trout Unlimited for flow meter installation constitutes an undertaking that has no potential to cause effects on historic properties pursuant to 36 CFR § 800.3(a)(1). Reclamation has no further obligations under Section 106 of the NHPA. The Proposed Action would result in no impacts to cultural resources under NEPA.

3.1.3 Environmental Justice Sites

Executive Order 12898 requires each Federal agency to identify and address disproportionately high and adverse human health or environmental effects, including social and economic effects of its programs, policies, and activities on minority populations and low-income populations. Reclamation has not identified adverse human health or environmental effects on any population as a result of implementing the Proposed Action. Since there would be no permanent impact to any populations, there would be no adverse human health or environmental effects to minority or low-income populations as a result of the Proposed Action.

3.1.4 Recreation

The entire project lies on private lands and is not subject to public recreational use.

3.1.5 Noise

The proposed project area is currently experiencing traffic and construction noise associated with the FRGP funded screening and passage project; thus, the additional noise associated with the Proposed Action's related construction is expected to have only temporary and minor impacts that are concurrent with other construction activities. Noise impacts created using heavy motorized equipment would be minimized by limiting construction activities from 7:00 a.m. to 7:00 p.m. Work hours outside this period would need approval in advance by Reclamation, and, upon approval, Trout Unlimited would be required to contact adjacent landowners, if applicable, prior to work commencing. There would not be any long-term increases to the ambient noise levels from the implementation of the Proposed Action.

3.1.6 Socioeconomics

The Proposed Action would create a relatively small and short-term demand for construction related products and services creating short-term jobs and supporting local vendors. The services of North Rivers Construction which is a local contractor from Fort Jones, California, would be

employed. The economic impacts associated with this relatively small-scale project would be temporary and insignificant as only a total of 1.5 days of work is estimated.

3.2 Resources Analyzed in Detail

This EA analyzes the affected environment of the Proposed Action and the No Action Alternative to determine the potential impacts and cumulative effects to the following environmental resources.

3.2.1 Water Resources

3.2.1.1 Affected Environment

The water resources potentially affected would be surface waters of Bogus Creek and its immediate riparian area. Bogus Creek is located on the east side of the Shasta Valley and flows north from its headwater springs in the Cascade Mountains. Spring fed base flows are augmented by rainfall in the winter and snowmelt in the spring. Bogus Creek eventually flows into the Klamath River, just downstream of Iron Gate Dam. Bogus Creek is a steep gravel bed/step pool creek. A small riparian buffer borders the creek and the adjacent floodplain has been developed for agricultural use.

3.2.1.2 Environmental Consequences

No Action—Under the No Action Alternative, Reclamation would not provide funding and NFWF would not administer $61,005.13 under the Grant Program to Trout Unlimited to purchase and install flow meters on irrigation diversions along Bogus Creek. Fish passage and screening work would continue under the FRGP grant; however, the landowner would be unable to accurately monitor their irrigation withdrawals. Without proper metering, the landowner may divert more water than allowed, leaving minimal base flows in stream. Under these conditions approximately 3 miles of the stream could be dewatered and/or suffer from unnaturally high stream temperatures which are detrimental to rearing coho.

Proposed Action—The analysis of effects on water resources associated with the Proposed Action was based on potential impacts to surface water quality and quantity. Under the Proposed Action Alternative, Reclamation would provide funding in the amount of $61,005.13 to NFWF to administer to Trout Unlimited and provide a notice to proceed for installing flow meters at each of the three existing diversions on Bogus Creek. The Proposed Action includes activities that would only occur within the riparian area of Bogus Creek outside of the active stream channel above the ordinary high water line. The proposed project would take place outside of the active Bogus Creek stream channel and would be isolated from the stream. As such no impacts to waters of the United States are expected as a result of this project. All required Clean Water Act (CWA) and State permits were obtained under the FRGP.

- For this project, Grant Program funds would be used for the installation of flow meters onto new pipe that was previously installed with the FRGP funds, which involved the use of a tracked excavator to expose existing pipe and the cutting of a 6-inch hole in the pipe.

- Work included in this project includes the installation and caulk sealing of the flow meter onto the pipe.

- The installation of flow meters at each diversion would help ensure that the water users do not divert more water than allowed and may result in increased instream flows.

- Temporary water quality and stream temperature changes due to flow meter installation activities are not anticipated.

- Meter installation would utilize hand tools to complete the work. A half day of work for each metered pipe installation is estimated for a total of 1.5 days of work.

As noted previously, the larger fish passage and screening project was funded under the CDFW FRGP program. A Section 404 CWA permit (Regional General Permit 12) was issued to CDFW on August 1, 2016, File No 2003-279220 by the U.S. Army Corps of Engineers (Corps or Corps of Engineers) San Francisco District. The CDFW FRGP obtained a programmatic water quality certification pursuant to Section 401 of the CWA from the California State Water Resources Control Board (SWRCB) September 9, 2015, under which the Bogus Creek Fish Passage Implementation Project is covered (SWRCB File SB15002IN; Project ID# 724551). Since the FRGP project was permitted for the entire project, including installation of the new irrigation pipes where the meters will be installed, the 401 Certification for the FRGP project covers this activity.

Trout Unlimited shall follow the conditions and requirements listed under these programmatic agreements. Trout Unlimited shall obtain any other required water resource related permits prior to implementation of project activities, if necessary.

Installation of the flow meters in the irrigation pipes will not have any direct physical impact to adjacent floodplains or surrounding areas; however, when properly utilized the water user should be able to more accurately measure their diversions. Remaining water would provide base flows in Bogus Creek which may have a secondary benefit of keeping water levels higher, temperatures cooler, and ensuring better floodplain connection during irrigation season.

In summary, the flow meters should help prevent water users from over-diverting water and the project may result in a net benefit to wetland function by improving water recharge, connectivity, by not drying out the channel, and biological resources by better meeting base flow requirements. The water use logs generated by the flow meters would be submitted to the State and if they show overuse, the State can force the water users to use less water.

3.2.2 Biological Resources

3.2.2.1 Affected Environment

The Endangered Species Act (ESA) lists threatened and endangered species that may occur within or near this project area. These species are shown in Appendix C. The list in Appendix C was generated by accessing and querying the USFWS database for endangered, threatened, or candidate species that are located within Siskiyou County (USFWS 2018).

3.2.2.2 Environmental Consequences

No Action—Under the No Action Alternative, Reclamation would not provide funding and NFWF would not administer $61,005.13 to Trout Unlimited to work under their Klamath River Coho Restoration grant and would not execute the purchase and installation of flow meters on irrigation diversions from Bogus Creek. The landowner would be unable to accurately monitor their irrigation withdrawals. Without proper metering the landowner may divert more water than allowed, leaving minimal base flows in stream. Under these conditions approximately three miles of the stream may potentially be dewatered and/or suffer from unnaturally high stream temperatures which are detrimental to rearing coho. There would be no change to the proposed site environment, and, consequently, there would be no change or potential benefits related to biological resources from current conditions under the No Action Alternative.

Proposed Action—The potential impacts to all species included in Appendix C that may result from the Proposed Action, have been considered. It was determined that no terrestrial species would be impacted by project implementation. All areas within the project area have been previously disturbed and while several listed threatened or endangered species occur in Siskiyou County, only the listed threatened Southern Oregon Northern California Coast (SONCC) coho salmon may be present seasonally in the proposed project area (NMFS 2018). None of the other species are anticipated to be present due to the lack of suitable habitat, edaphic conditions, and/or because the current range for these species is outside the project area. The SONCC coho are covered under formal ESA consultations documented in the 2013 BiOp under the Restoration Activities Structural Placement section. No additional ESA consultation is needed for this project; however, consistent with the 2013 BiOp, implementation of such activities would be implemented during low flow periods between June 15 and November 1.

Because installation of the flow meters would be limited to the pipe and use of hand tools it would not have any significant impact to species, their habitat—including Essential Fish Habitat NMFS 2012b), or natural resources. Use of the flow meters to monitor water usage (as mandated by California Law) may help ensure that the landowners do not divert more water from Bogus Creek than their water right allows, and may result in leaving adequate base flow to support rearing coho.

Beneficial Effects to Coho Salmon—Upon installation of the flow meters it is anticipated that the water users would be less likely to overdraw the stream and more water would be left instream which would minimize increases in stream temperature due to irrigation activities thereby benefitting coho salmon as well as other fish.

Overall, no impacts to ESA-listed species is expected, and, over the long term, the project is expected to result in beneficial effects to coho salmon.

Impacts to Migratory Birds and their Nesting—Due to the limited duration and minimal disturbance associated with flow meter installation, which includes no disturbance of trees or vegetation, impacts to migratory birds is not anticipated.

3.2.3 Air Quality

Section 176 (c) of the Clean Air Act (CAA) (42 USC 7506 (c)) requires that any entity of the Federal Government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan (SIP) required under Section 110 (a) of the CAA (42 USC 7401 (a)) before the action is otherwise approved. In this context, conformity means that such Federal actions must be consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) and achieving expeditious attainment of those standards. Each Federal agency must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements would, in fact, conform to the applicable SIP before the action is taken.

On November 30, 1993, the Environmental Protection Agency promulgated final general conformity regulations at 40 CFR 93 Subpart B for all Federal activities except those covered under transportation conformity. The general conformity regulations apply to a proposed Federal action in a non-attainment or maintenance area if the total direct and indirect emissions of the relevant criteria pollutant(s) and precursor pollutant(s) caused by the Proposed Action equal or exceed certain threshold amounts, thus requiring the Federal agency to make a determination of general conformity.

3.2.3.1 Affected Environment

The Proposed Action is in Siskiyou County, California, within Bogus Creek. The NAAQS and California Ambient Air Quality Standards (CAAQS) have been established for the following criteria pollutants: carbon monoxide, ozone, sulfur dioxide, nitrogen dioxide, particulate matter, and lead. The CAAQS has also set standards for hydrogen sulfide, sulfates, and visibility reducing particles.

Areas are classified under the CAA as either "attainment" or "non-attainment" areas for each criteria pollutant based on whether the NAAQS have been achieved. Attainment relative to California standards is determined by the California Air Resources Board (CARB). After querying the CARB database, it was determined that Siskiyou County is currently designated as attainment for all pollutants except for carbon monoxide, hydrogen sulfide, and visibility reducing particles for which is unclassified (CARB 2018).

3.2.3.2 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not provide funding and NFWF would not administer $61,005.13 to Trout Unlimited to work under their Klamath River Coho Restoration grant and execute the purchase and installation of flow meters on irrigation diversions from Bogus Creek. Fish passage and screening work would continue under the FRGP grant. As a result, air quality impacts (due to the flow meter installation) would not occur as no construction would ensue.

Proposed Action

Under the Proposed Action Alternative, Reclamation would provide funding in the amount of $61,005.13 to NFWF to administer to Trout Unlimited and provide a notice to proceed for the purpose of installing flow meters at each of the three existing diversions on Bogus Creek. The

Proposed Action would not conflict with or obstruct the implementation of the air quality management plan of Siskiyou County. As only small hand tools would be used for flow meter installation, no impacts to air quality is expected. Any potential impacts from vehicle emissions occurring as result to gain site access would be immeasurable and insignificant due to the size and scope of the project and compliance with Federal, State, or local air pollution laws and regulations.

3.3 Cumulative Effects

According to the CEQ regulations for implementing the procedural provisions of the NEPA, a cumulative impact is defined as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

When evaluating the Proposed Action, no individual adverse effect was identified for any of the resources that were either analyzed or not analyzed in detail that would incrementally contribute to any cumulative effect on a particular resource within the human environment when combined with any past, present, and reasonably foreseeable future actions.

Chapter 4 Environmental Commitments

In addition to the best management practices and the mitigation measures integrated in to the Proposed Action detailed in Chapter 2.2, the following environmental commitments and permitting conditions would be implemented before, during, and after construction.

- **Environmental Permitting—**Trout Unlimited is responsible for complying with all environmental requirements associated with applicable federal, state, and local permits or approvals related to the Proposed Action. These permits and approvals may include, but are not necessarily limited to:
  - NMFS and USFWS 2013 BiOp
  - NMFS Magnuson-Stevens Act Consultation

- **Installation Period—**Installation of flow meters would take place before November 1 once funding is received.

- **Noise—**Flow meter installation would be conducted between 7:00 am to 7:00 pm.

- **Biological Resources**
  - As Proposed Action activities would take place outside of the stream channel (i.e., isolated from the stream), impacts to fish are not anticipated. Should impacts to coho salmon occur as a result of the project, Trout Unlimited, as outlined in the 2013 BiOp,

would report immediately to Reclamation the total number of coho captured, relocated, injured, or killed.
    - Any coho salmon mortalities would be retained, placed in an appropriately sized zip-lock style bag, labeled with the date and time of collection, fork length, location of capture, and shall be frozen as soon as possible. Frozen samples would be retained until specific instructions are provided by Reclamation as coordinated with the NMFS.
    - Fish relocation activities would be conducted by CDFW in coordination with NMFS and Reclamation.
  - Visual inspections of project sites would occur prior to construction activities. If bald or golden eagles or other migratory birds or their nests are present near the project area, all work would cease until the USFWS Yreka Office is notified and provides clearance to resume activities.

- **Incorporation of Best Management Practices—**Identified in Chapter 2.

Chapter 5 Consultation and Coordination

This section presents the agencies and parties that had been consulted during development of the document.

5.1 Public Involvement

Reclamation prepared a draft EA that was made available for public review from September 7, 2018 to September 14, 2018, and no comments were received. Non-substantive editorial edits were made to the draft EA and are currently reflected throughout this final version. Electronic versions of the draft EA and this final EA are located online at https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=34681. Physical copies of both versions will be made available at:

Bureau of Reclamation
Klamath Basin Area Office
6600 Washburn Way
Klamath Falls, Oregon 97603

5.2 Persons or Agencies Consulted During Development of EA

The following entities were consulted and coordinated with during the development of this EA or were previously notified and invited to comment when the FRGP was proposed.

- Trout Unlimited
- Landowner/water right holder (various email, telephone, and written communications were conducted during FRGP permitting/SHPO clearance process)

- Quartz Valley Indian Community, Karuk Tribe, Shasta Indian Nation, Shasta Nation, Klamath Tribe, Modoc Tribe of Oklahoma, and Butte Valley Indian Community – via letter dated May 21, 2015 regarding FRGP regulatory permitting
- USFWS via the 2013 BiOp
- NMFS through the 2013 BiOp and Essential Fish Habitat consultation (NMFS 2012b, NMFS 2012a, NMFS 2016)

Chapter 6 References

NMFS and USFWS. 2013. Biological Opinions on the Effects of Proposed Klamath Project Operations from May 31, 2013 through March 31, 2023, on Five Federally Listed Threatened and Endangered Species.

NMFS. 2012a. Final Biological Opinion Pertaining to the NOAA's Restoration Center's (RC) Proposed Funding and the U.S. Army Corps of Engineers Proposed permitting of restoration projects within the National Marine Fisheries Service's Northern California Office jurisdictional area (Program). Tracking Number 151422SWR2009AR00566. NMFS Southwest Region. March 21, 2012.

NMFS. 2012b. Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat consultation with U.S. Army Corps of Engineers Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat consultation with U.S. Army Corps of Engineers for CWA permitting of restoration projects within the NOAA Restoration Center's Norther California Office jurisdictional area.

NMFS. 2016. Endangered Species Act Section 7(a)(2) Biological Opinion, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Issuance of a Regional General Permit to the California Department of Fish and Wildlife for Implementation of Anadromous Fish Habitat Restoration Projects under the Fisheries Restoration Grants Program (Corps File No. 2003-279220). Santa Rosa, California. May 26, 2016.

USFWS. 2018. Information Resources: Listed, Proposed, and Candidate Species Lists. (Siskiyou County, California). Website: https://ecos.fws.gov/ipac/location.

NMFS. 2018. Southern Oregon / Northern California Coast Coho. Website: http://www.westcoast.fisheries.noaa.gov/protected_species/salmon_steelhead/salmon_and_steelhead_listings/coho/southern_oregon_northern_california_coasts_coho.html.

CARB. 2018. Area Designation Maps / State and National. Website: https://www.arb.ca.gov/desig/adm/adm.htm.

Appendices

APPENDIX A
MAPS AND AERIAL PHOTOS OF PROJECT AREA SITES

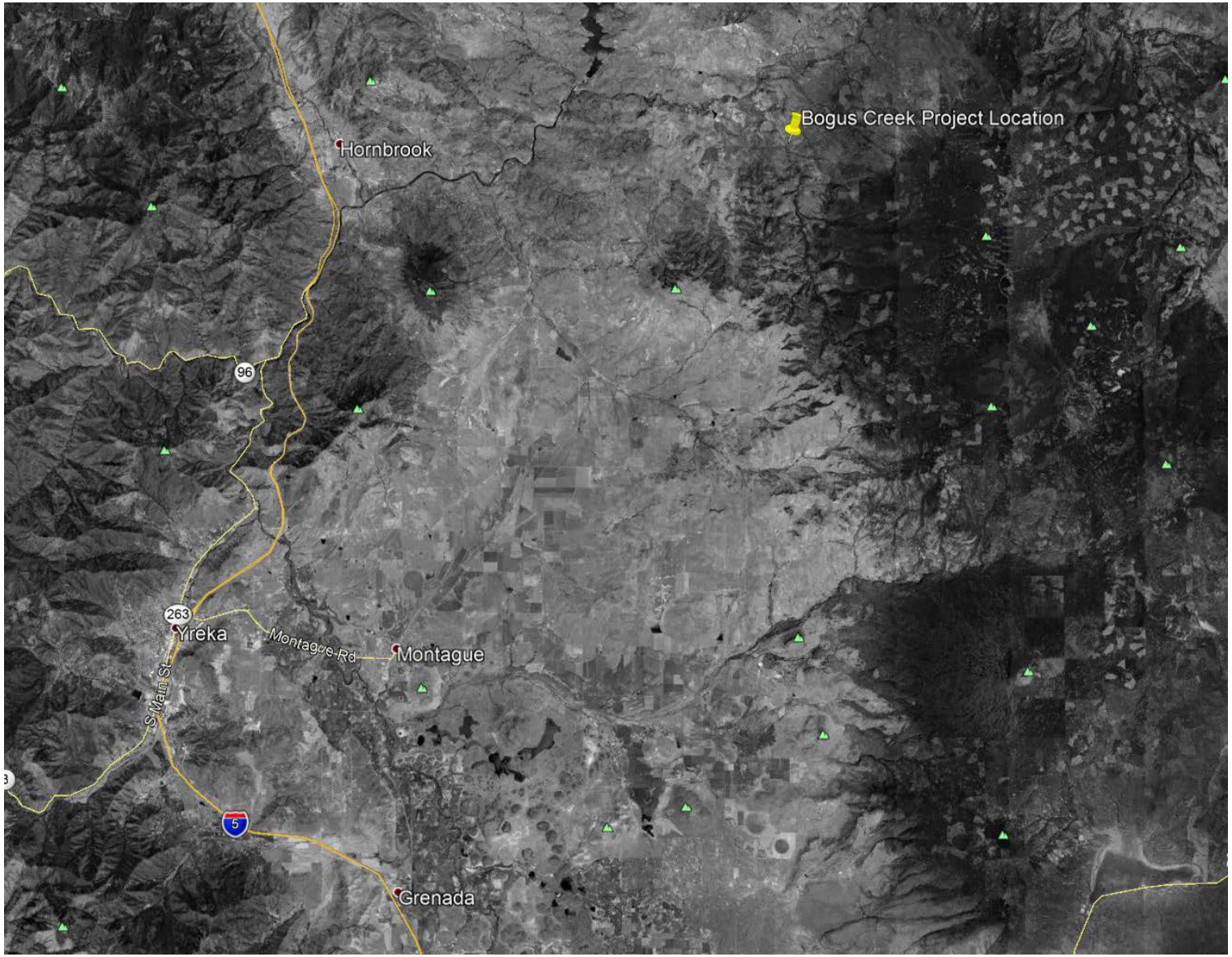

Figure A-1.—Bogus Creek Project area.

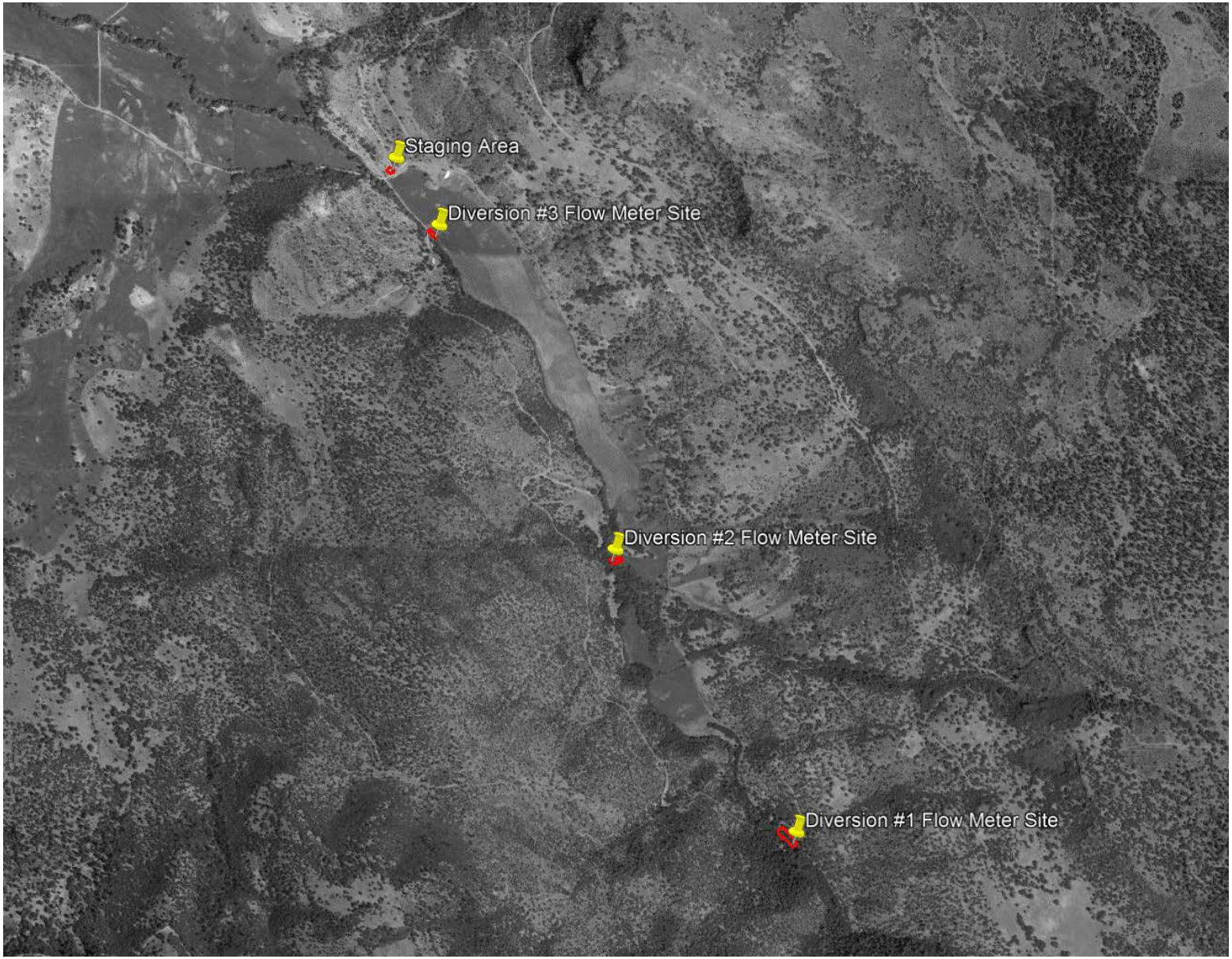

Figure A-2.—Bogus Creek flow meter area.

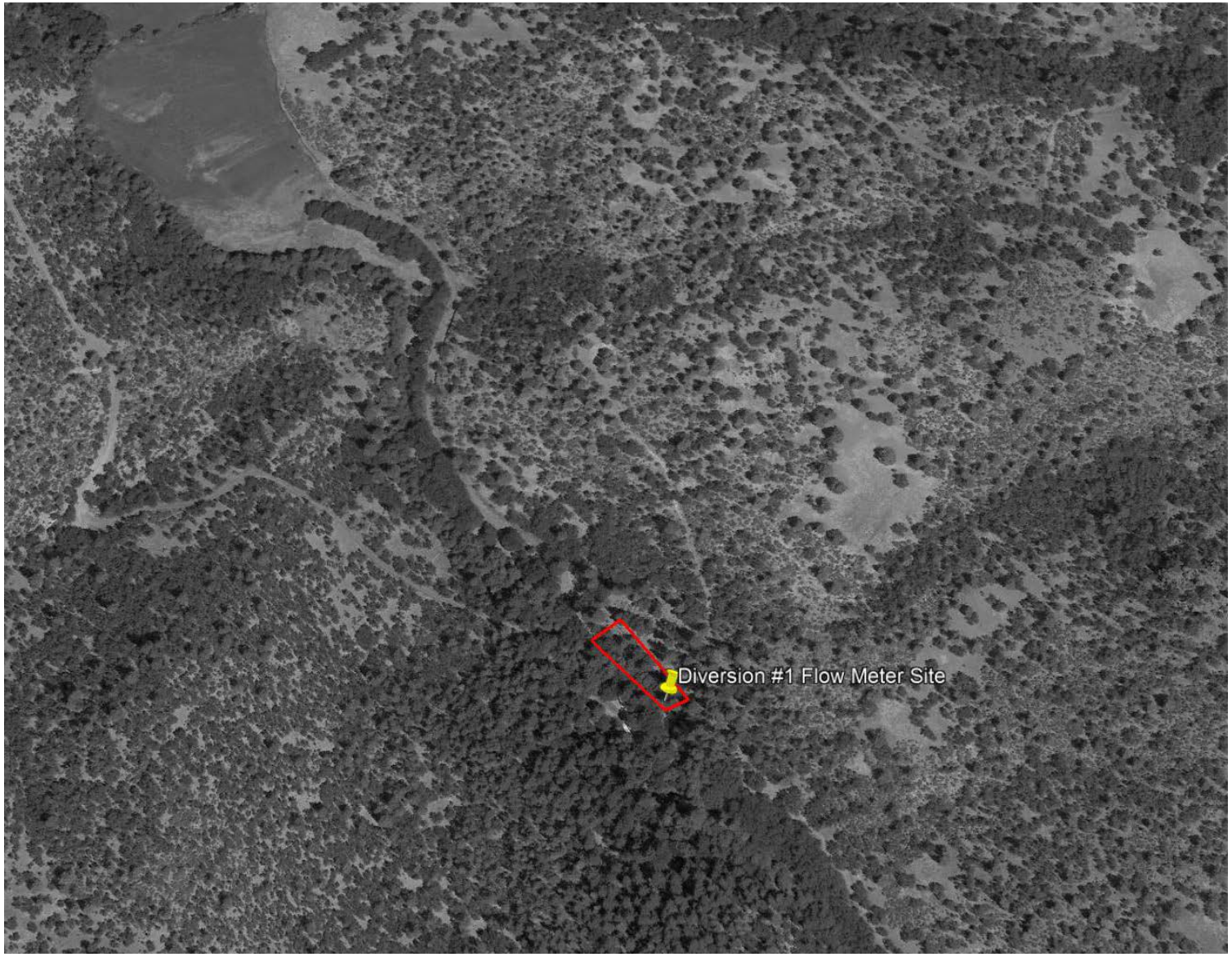

Figure A-3.—Bogus Creek flow meter Site #1.

Figure A-4.—Bogus Creek flow meter Site #2.

Figure A-5.—Bogus Creek flow meter Site #3.

APPENDIX B
ENGINEERING PLANS

SHEET INDEX

LEGEND

EXISTING TREES
EXISTING CONTOURS (MAJOR)
EXISTING CONTOURS (MINOR)
EXISTING FENCE
EXISTING EDGE OF WATER
EXISTING CONCRETE STRUCTURES
PROPOSED EARTHWORK
CONSTRUCTION BASELINE
PRESERVATION FENCE
PRESERVATION FENCE WITH SILT BARRIER
CONTROL POINT
PROPOSED VEGETATED STREAMBANK
PROPOSED ROUGHENED CHANNEL
PROPOSED FILL

Northern California Resource Center

CONSTRUCTION PLANS FOR

Bogus Creek Water Diversions Fish Passage Improvement Project Diversions 1, 2 and 3

March 2014

PROJECT ENGINEER

Larry Alexander, Executive Director
Northern California Resource Center
P.O. Box 342
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APPROVED BY:

_____ (date)

_____ (date)

_____ (date)

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LEONARD J. HOWARD
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PROFESSIONAL ENGINEER NO. # 53319
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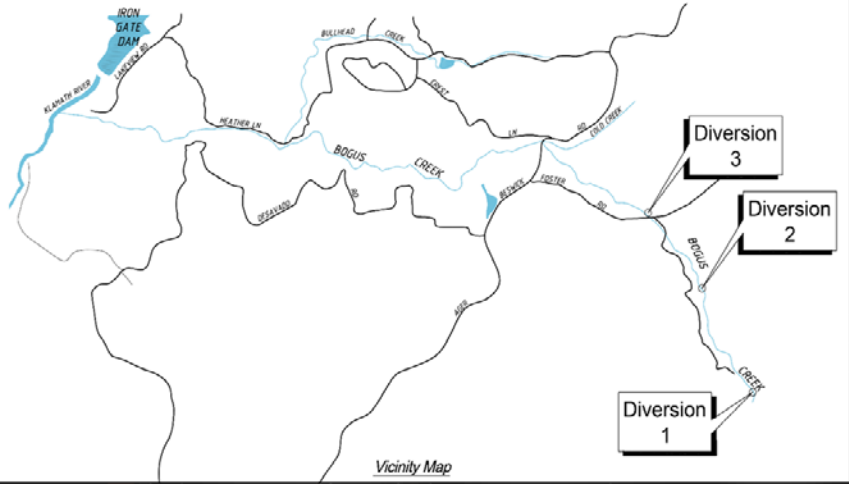
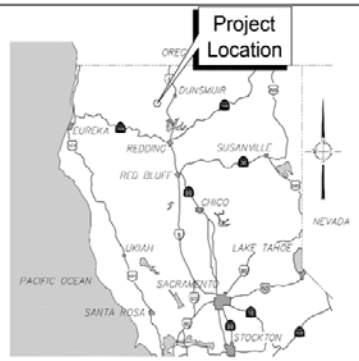
2/31/2014 (date)



Vicinity Map

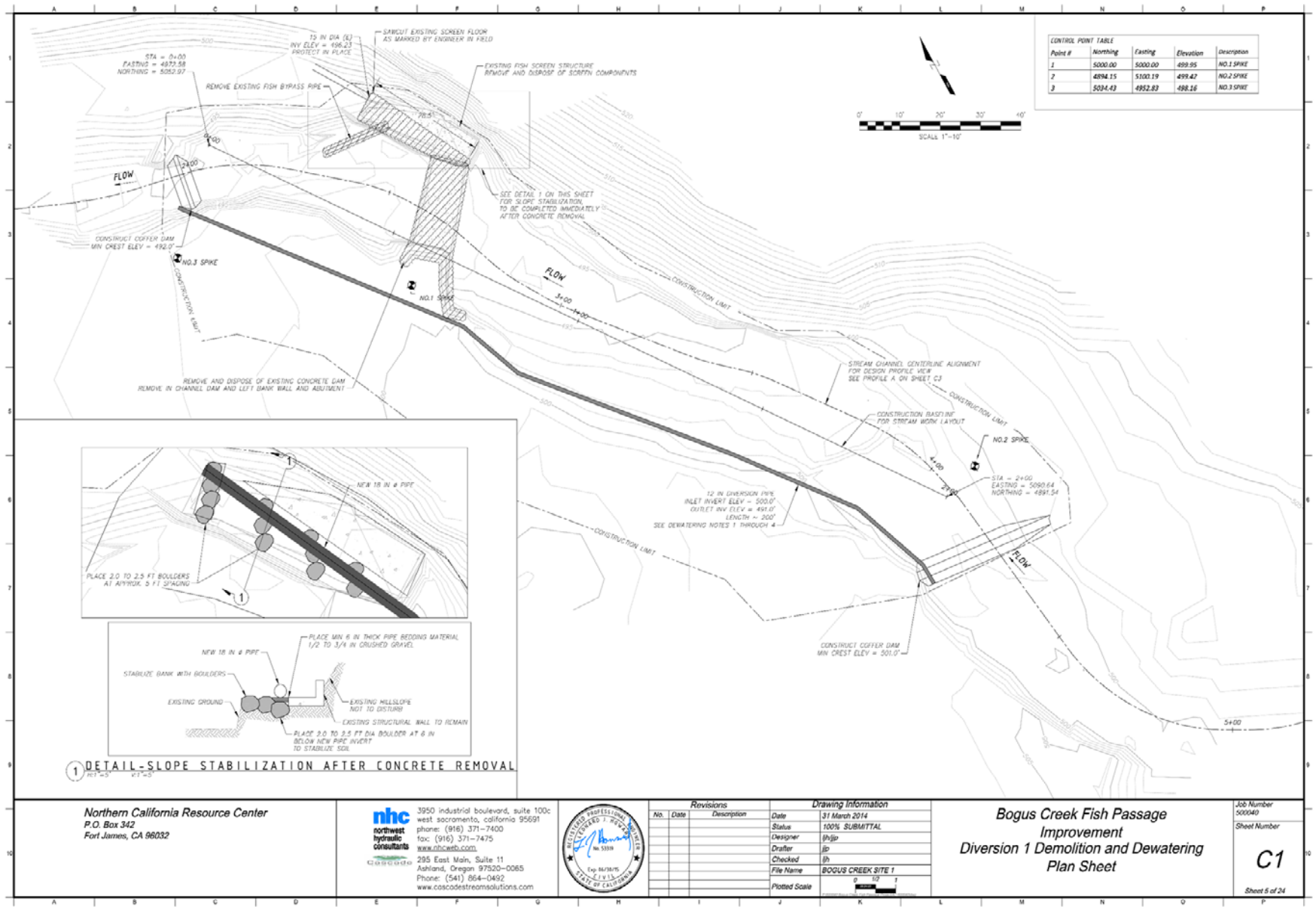


Project Location Map

Drawing Name: BOGUS CREEK SITE 1				Date: 31 March 2014
Drawing Status: 100% Submittal	Designer: lh/jp	Drafter: jp	Checked: jh	Job Number: 600040

Sheet 1 of 24

Sheet Number: G1


CONTROL POINT TABLE
Point # | Northing | Easting | Elevation | Description
1 | 5000.00 | 5000.00 | 499.95 | NO.1 SPIKE
2 | 4894.15 | 5100.19 | 499.42 | NO.2 SPIKE
3 | 5034.43 | 4952.83 | 498.16 | NO.3 SPIKE
SCALE 1"=10'
15 IN DIA (E) INV ELEV = 496.23 PROTECT IN PLACE
SAWCUT EXISTING SCREEN FLOOR AS MARKED BY ENGINEER IN FIELD
STA = 0+00 EASTING = 4972.58 NORTHING = 5052.97
REMOVE EXISTING FISH BYPASS PIPE
EXISTING FISH SCREEN STRUCTURE REMOVE AND DISPOSE OF SCRTPN COMPONENTS
SEE DETAIL 1 ON THIS SHEET FOR SLOPE STABILIZATION, TO BE COMPLETED IMMEDIATELY AFTER CONCRETE REMOVAL
FLOW
CONSTRUCT COFFER DAM MIN CREST ELEV = 492.0'
NO.3 SPIKE
NO.1 SPIKE
CONSTRUCTION LIMIT
REMOVE AND DISPOSE OF EXISTING CONCRETE DAM REMOVE IN CHANNEL DAM AND LEFT BANK WALL AND ABUTMENT
STREAM CHANNEL CENTERLINE ALIGNMENT FOR DESIGN PROFILE VIEW SEE PROFILE A ON SHEET C3
CONSTRUCTION BASELINE FOR STREAM WORK LAYOUT
NO.2 SPIKE
STA = 2+00 EASTING = 5090.64 NORTHING = 4891.54
12 IN DIVERSION PIPE INLET INVERT ELEV = 503.0' OUTLET INV ELEV = 491.0' LENGTH ~ 200'
SEE DEWATERING NOTES 1 THROUGH 4
CONSTRUCT COFFER DAM MIN CREST ELEV = 501.0'
5+00
NEW 18 IN ø PIPE
PLACE 2.0 TO 2.5 FT BOULDERS AT APPROX. 5 FT SPACING
PLACE MIN 6 IN THICK PIPE BEDDING MATERIAL 1/2 TO 3/4 IN CRUSHED GRAVEL
STABILIZE BANK WITH BOULDERS
EXISTING GROUND
EXISTING HILLSLOPE NOT TO DISTURB
EXISTING STRUCTURAL WALL TO REMAIN
PLACE 2.0 TO 2.5 FT DIA BOULDER AT 6 IN BELOW NEW PIPE INVERT TO STABILIZE SOIL
1 DETAIL - SLOPE STABILIZATION AFTER CONCRETE REMOVAL
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REGISTERED PROFESSIONAL ENGINEER RICHARD J. HOWARD No. 53519 Exp. 06/30/15 CIVIL STATE OF CALIFORNIA
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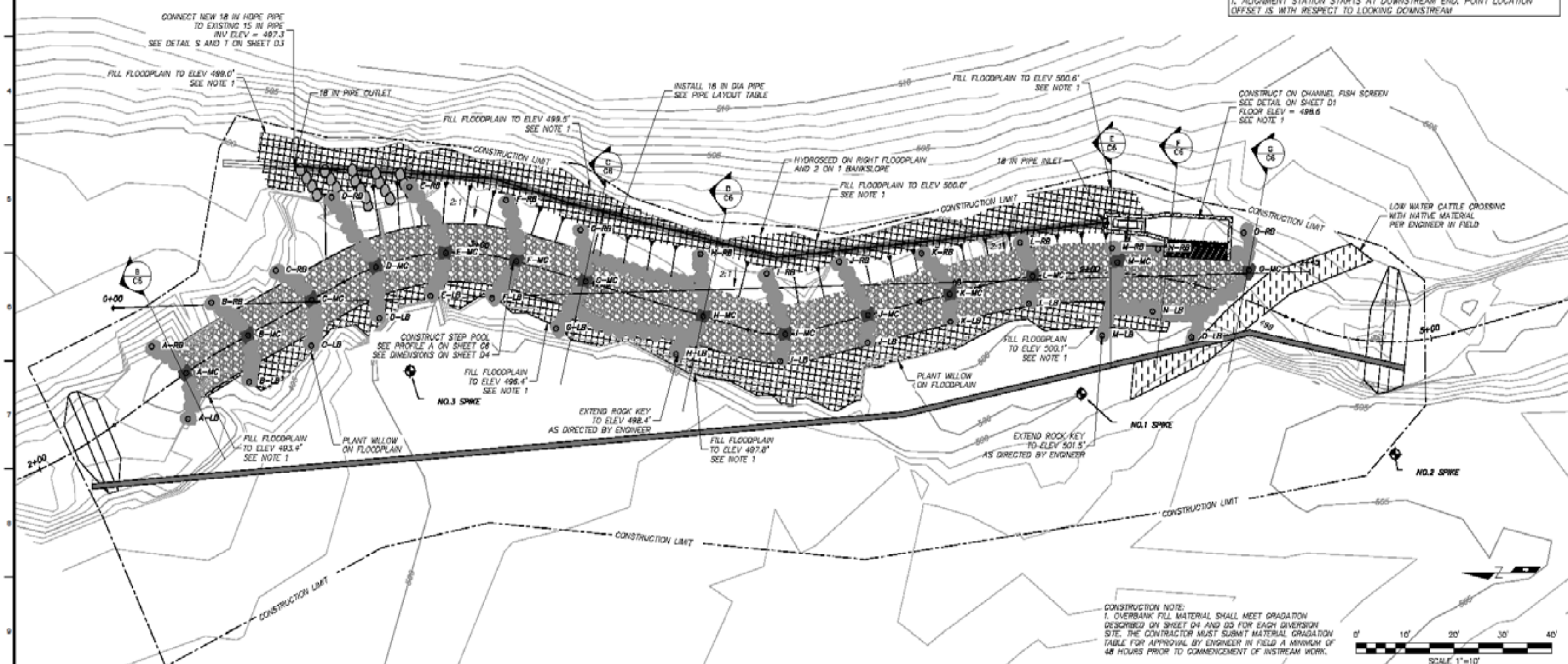
No. | Date | Description
Drawing Information
Date | 31 March 2014
Status | 100% SUBMITTAL
Designer | lh/jjp
Drafter | jjp
Checked | lh
File Name | BOGUS CREEK SITE 1
Plotted Scale | 0 1/2 1
Bogus Creek Fish Passage Improvement
Diversion 1 Demolition and Dewatering
Plan Sheet
Job Number 500040
Sheet Number
C1
Sheet 5 of 24

DIVERSION 2 PIPELINE LAYOUT TABLE				
PIPE LINE STATION	EASTING	NORTHING	INVERT ELEV, FT	
0+00.0	5042.68	5161.04	497.31	PIPE OUTLET, CONNECT TO EXISTING 15" PIPE
0+40.7	5040.50	5120.43	497.62	
0+56.5	5036.00	5105.30	497.74	
1+00.6	5025.66	5062.40	498.08	
1+68.0	5032.16	4995.34	498.60	PIPE INLET, CONNECT TO FISH SCREEN

DIVERSION 2 STEP POOL BOULDER LAYOUT TABLE [1]							
	LEFT BANK (LB)		MID CHANNEL (MC)			RIGHT BANK (RB)	
STEP	STA	OFFSET	STA	OFFSET	ELEV	STA	OFFSET
A	14.8	21.3L	14.6	12.6L	492.1	7.7	7.5L
B	27.5	14.7L	27.5	5.9L	492.7	20.1	0.4R
C	40.4	8.2L	40.7	0.4R	493.3	33.5	6.1R
D	54.5	3.5L	54.0	6.2R	493.9	45.3	19.5R
E	65.0	0.4R	68.4	8.4R	494.5	61.3	21.1R
F	77.6	0.4L	82.8	6.5R	495.1	80.9	18R
G	90.5	6.4L	96.8	2.3R	495.7	96.0	12R
H	114.9	11.9L	120.7	4.9L	496.3	120.5	6.8R
I	136.2	13.8L	137.4	8.8L	496.9	133.9	2.7R
J	154.2	10.8L	154.4	5.7L	497.5	148.8	4.6R
K	171.2	7.4L	171.2	2.2L	498.2	165.7	5.7R
L	187.4	4.5L	188.3	0.7R	498.8	185.9	7.1R
M	202.2	10.8L	205.7	2.8R	499.4	204.7	5.6R
N	212.6	6.6L	0.0	0R	0.0	214.1	5.1R
O	220.5	11.6L	232.6	0.6R	499.7	231.7	7.7R

1. ALIGNMENT STATION STARTS AT DOWNSTREAM END. POINT LOCATION OFFSET IS WITH RESPECT TO LOOKING DOWNSTREAM



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Revisions		
No.	Date	Description

Drawing Information	
Date	31 March 2014
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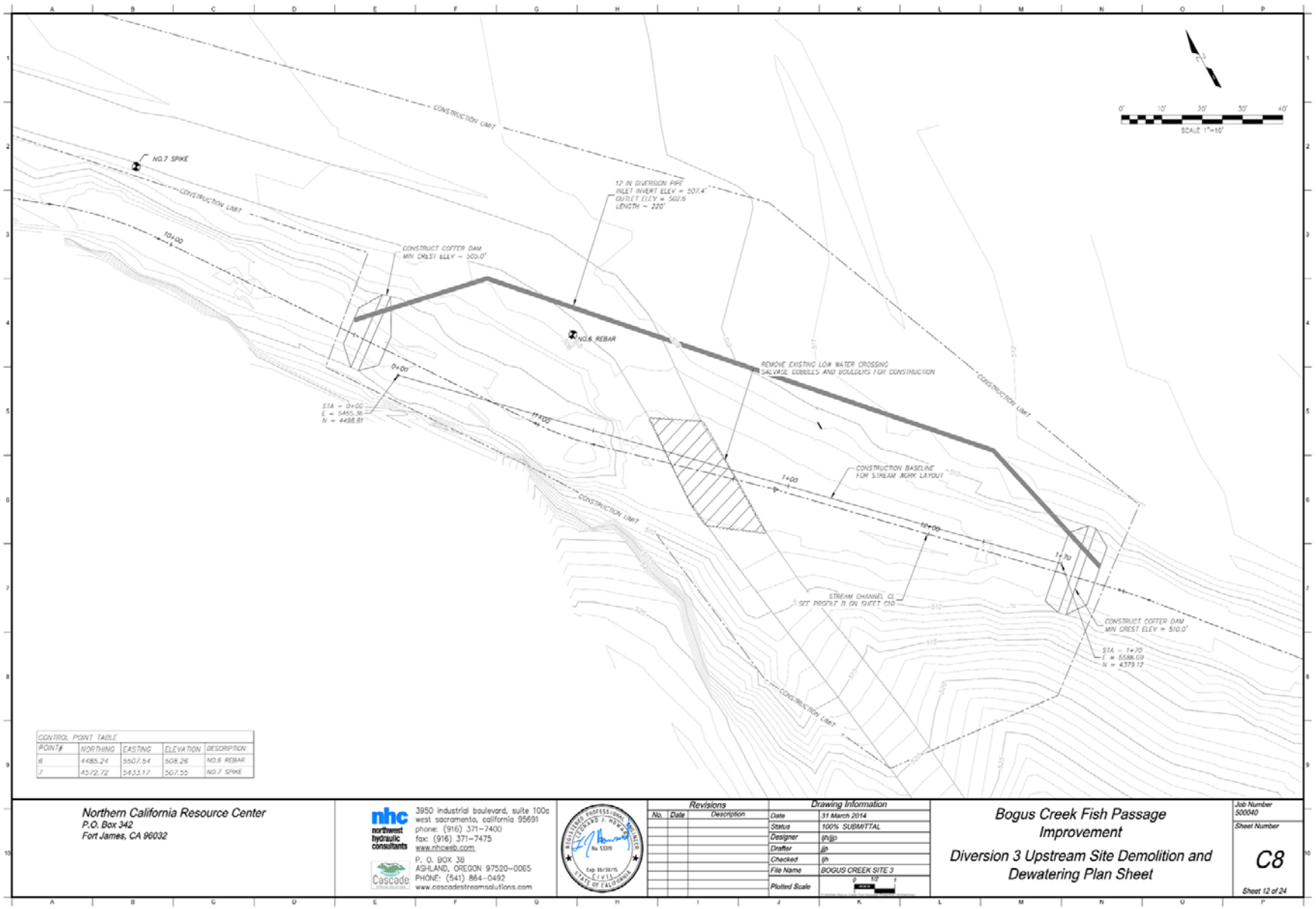
Designer	jb/jo
Drafter	jo
Checked	jb
File Name	BOGUS CREEK SITE 2
Plotted Scale	

Bogus Creek Fish Passage Improvement

Diversion 2 Step Pool Sequence and Fish Screen Plan Sheet

Job Number 500040
Sheet Number **C5**
Sheet 9 of 24


CONSTRUCTION LIMIT
NO.7 SPIKE
CONSTRUCT COFFER DAM
MIN CREST ELEV = 505.0'
12 IN DIVERSION PIPE
INLET INVERT ELEV = 507.4'
OUTLET ELEV = 502.6
LENGTH = 220'
NO.6 REBAR
REMOVE EXISTING LOW WATER CROSSING
SALVAGE COBBLES AND BOULDERS FOR CONSTRUCTION
CONSTRUCTION BASELINE
FOR STREAM WORK LAYOUT
STREAM CHANNEL CL
SEE PROFILE B ON SHEET C10
CONSTRUCT COFFER DAM
MIN CREST ELEV = 510.0'
STA = 0+00
E = 5485.36
N = 4498.81
STA = 1+70
E = 5588.09
N = 4379.12
SCALE 1"=10'
CONTROL POINT TABLE
POINT# | NORTHING | EASTING | ELEVATION | DESCRIPTION
6 | 4485.24 | 5507.54 | 508.26 | NO.6 REBAR
7 | 4572.72 | 5433.17 | 507.55 | NO.7 SPIKE
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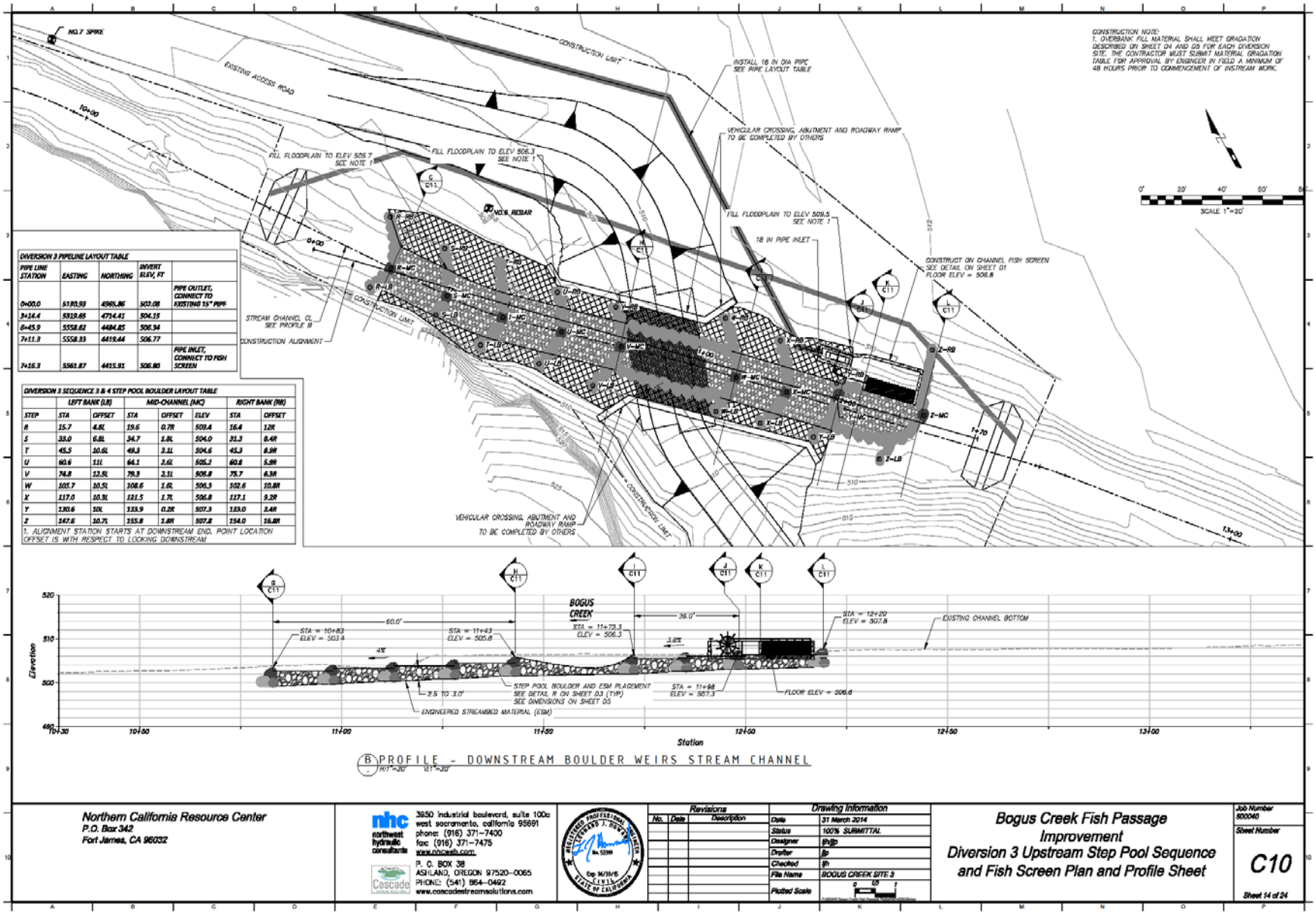
REGISTERED PROFESSIONAL ENGINEER
No. 53319
Civil
STATE OF CALIFORNIA
Exp. 06/30/15
Revisions
No. | Date | Description
Drawing Information
Date: 31 March 2014
Status: 100% SUBMITTAL
Designer: jjh/jjp
Drafter: jjp
Checked: jjh
File Name: BOGUS CREEK SITE 3
Plotted Scale
Bogus Creek Fish Passage Improvement
Diversion 3 Upstream Site Demolition and Dewatering Plan Sheet
Job Number
500040
Sheet Number
C8
Sheet 12 of 24



DIVERSION 3 PIPELINE LAYOUT TABLE

PIPE LINE STATION	EASTING	NORTHING	INVERT ELEV, FT	
0+00.0	6190.93	4985.86	503.08	PIPE OUTLET, CONNECT TO EXISTING 15" PIPE
3+14.4	5319.65	4714.41	504.15	
6+45.9	5558.82	4484.85	506.34	
7+11.3	5558.33	4419.44	506.77	
7+16.3	5561.87	4415.91	506.80	PIPE INLET, CONNECT TO FISH SCREEN

DIVERSION 3 SEQUENCE 3 & 4 STEP POOL BOULDER LAYOUT TABLE

	LEFT BANK (LB)		MID-CHANNEL (MC)			RIGHT BANK (RB)	
STEP	STA	OFFSET	STA	OFFSET	ELEV	STA	OFFSET
R	15.7	4.8L	19.6	0.7R	503.4	16.4	12R
S	33.0	6.8L	34.7	1.8L	504.0	31.3	8.4R
T	45.5	10.6L	49.3	3.1L	504.6	45.3	8.9R
U	60.6	11L	64.1	2.6L	505.2	60.8	5.9R
V	74.8	12.9L	79.3	2.1L	505.8	75.7	6.3R
W	105.7	10.5L	108.6	1.6L	506.3	102.6	10.8R
X	117.0	10.3L	121.5	1.7L	506.8	117.1	9.2R
Y	130.6	10L	133.9	0.2R	507.3	133.0	3.4R
Z	147.6	10.7L	155.8	1.8R	507.8	154.0	16.8R

1. ALIGNMENT STATION STARTS AT DOWNSTREAM END. POINT LOCATION OFFSET IS WITH RESPECT TO LOOKING DOWNSTREAM

B PROFILE - DOWNSTREAM BOULDER WEIRS STREAM CHANNEL

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Revisions

No.	Date	Description

Drawing Information

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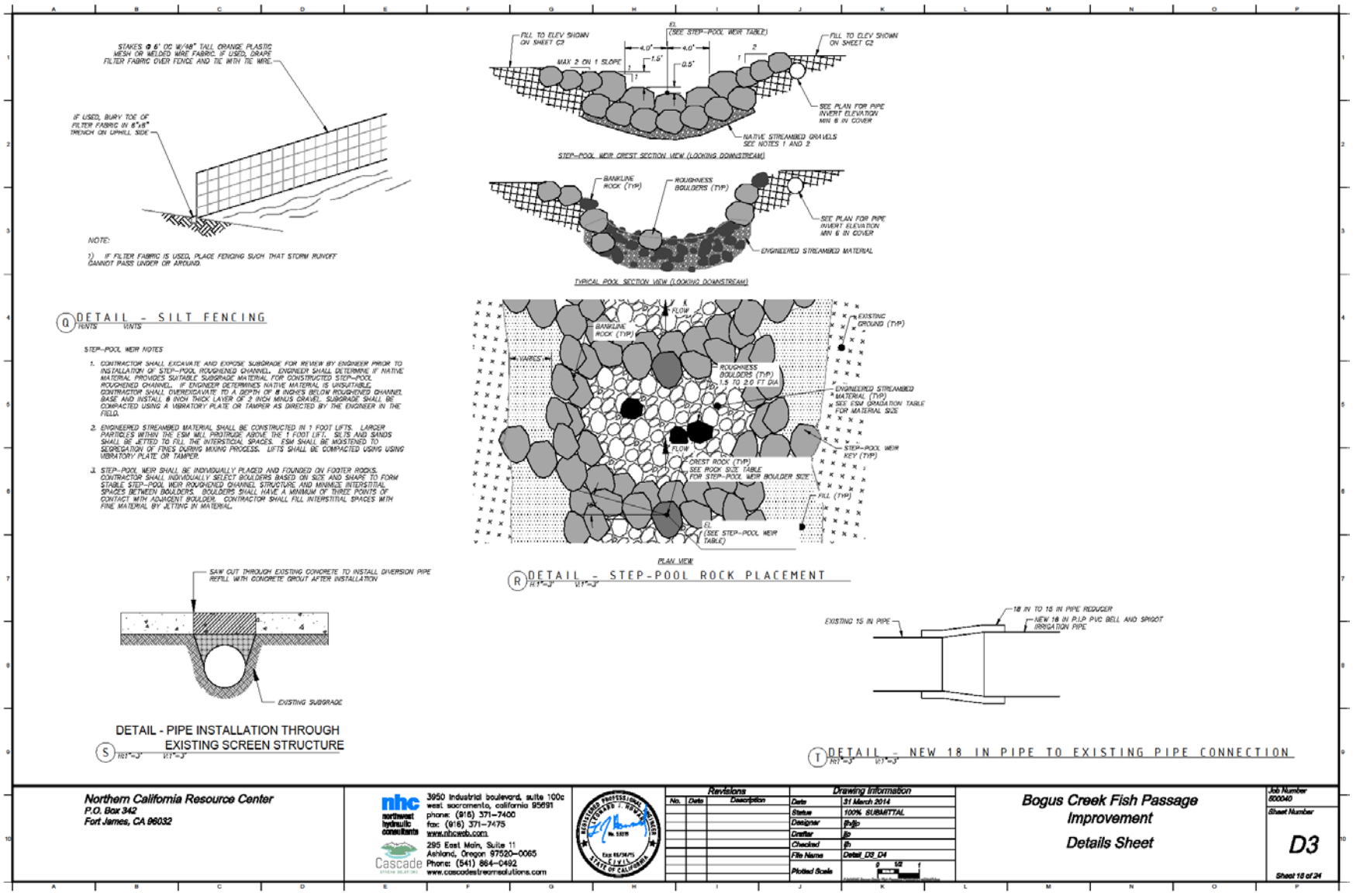
Drafter	JD
Checked	JH
File Name	BOGUS CREEK SITE 3
Plotted Scale	2 0 1

Bogus Creek Fish Passage Improvement
Diversion 3 Upstream Step Pool Sequence and Fish Screen Plan and Profile Sheet

Job Number 500040
Sheet Number C10
Sheet 14 of 24


STAKES @ 6' OC W/48" TALL ORANGE PLASTIC MESH OR WELDED WIRE FABRIC. IF USED, DRAPE FILTER FABRIC OVER FENCE AND TIE WITH TIE WIRE.
IF USED, BURY TOE OF FILTER FABRIC IN 6"x6" TRENCH ON UPHILL SIDE
NOTE:
1). IF FILTER FABRIC IS USED, PLACE FENCING SUCH THAT STORM RUNOFF CANNOT PASS UNDER OR AROUND.
Q DETAIL - SILT FENCING
STEP-POOL WEIR NOTES
1. CONTRACTOR SHALL EXCAVATE AND EXPOSE SUBGRADE FOR REVIEW BY ENGINEER PRIOR TO INSTALLATION OF STEP-POOL ROUGHENED CHANNEL. ENGINEER SHALL DETERMINE IF NATIVE MATERIAL PROVIDES SUITABLE SUBGRADE MATERIAL FOR CONSTRUCTED STEP-POOL ROUGHENED CHANNEL. IF ENGINEER DETERMINES NATIVE MATERIAL IS UNSUITABLE, CONTRACTOR SHALL OVEREXCAVATE TO A DEPTH OF 8 INCHES BELOW ROUGHENED CHANNEL BASE AND INSTALL 8 INCH THICK LAYER OF 2 INCH MINUS GRAVEL. SUBGRADE SHALL BE COMPACTED USING A VIBRATORY PLATE OR TAMPER AS DIRECTED BY THE ENGINEER IN THE FIELD.
2. ENGINEERED STREAMBED MATERIAL SHALL BE CONSTRUCTED IN 1 FOOT LIFTS. LARGER PARTICLES WITHIN THE ESM MIX PROTRUDE ABOVE THE 1 FOOT LIFT. SILTS AND SANDS SHALL BE JETTED TO FILL THE INTERSTICIAL SPACES. ESM SHALL BE MOISTENED TO SEGREGATION OF FINES DURING MIXING PROCESS. LIFTS SHALL BE COMPACTED USING USING VIBRATORY PLATE OR TAMPER.
3. STEP-POOL WEIR SHALL BE INDIVIDUALLY PLACED AND FOUNDED ON FOOTER ROCKS. CONTRACTOR SHALL INDIVIDUALLY SELECT BOULDERS BASED ON SIZE AND SHAPE TO FORM STABLE STEP-POOL WEIR ROUGHENED CHANNEL STRUCTURE AND MINIMIZE INTERSTITIAL SPACES BETWEEN BOULDERS. BOULDERS SHALL HAVE A MINIMUM OF THREE POINTS OF CONTACT WITH ADJACENT BOULDER. CONTRACTOR SHALL FILL INTERSTITIAL SPACES WITH FINE MATERIAL BY JETTING IN MATERIAL.
FILL TO ELEV SHOWN ON SHEET C2
EL (SEE STEP-POOL WEIR TABLE)
4.0'
4.0'
2
MAX 2 ON 1 SLOPE
1.5'
0.5'
SEE PLAN FOR PIPE INVERT ELEVATION MIN 6 IN COVER
NATIVE STREAMBED GRAVELS SEE NOTES 1 AND 2
STEP-POOL WEIR CREST SECTION VIEW (LOOKING DOWNSTREAM)
BANKLINE ROCK (TYP)
ROUGHNESS BOULDERS (TYP)
SEE PLAN FOR PIPE INVERT ELEVATION MIN 6 IN COVER
ENGINEERED STREAMBED MATERIAL
TYPICAL POOL SECTION VIEW (LOOKING DOWNSTREAM)
FLOW
BANKLINE ROCK (TYP)
EXISTING GROUND (TYP)
VARIES
ROUGHNESS BOULDERS (TYP) 1.5 TO 2.0 FT DIA
ENGINEERED STREAMBED MATERIAL (TYP) SEE ESM GRADATION TABLE FOR MATERIAL SIZE
STEP-POOL WEIR KEY (TYP)
FLOW
CREST ROCK (TYP)
SEE ROCK SIZE TABLE FOR STEP-POOL WEIR BOULDER SIZE
FILL (TYP)
EL (SEE STEP-POOL WEIR TABLE)
PLAN VIEW
R DETAIL - STEP-POOL ROCK PLACEMENT
SAW CUT THROUGH EXISTING CONCRETE TO INSTALL DIVERSION PIPE REFILL WITH CONCRETE GROUT AFTER INSTALLATION
EXISTING SUBGRADE
DETAIL - PIPE INSTALLATION THROUGH EXISTING SCREEN STRUCTURE
S
18 IN TO 15 IN PIPE REDUCER
EXISTING 15 IN PIPE
NEW 18 IN P.I.P PVC BELL AND SPIGOT IRRIGATION PIPE
T DETAIL - NEW 18 IN PIPE TO EXISTING PIPE CONNECTION
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File Name Detail_D3_D4
Plotted Scale 0 1/2 1
Bogus Creek Fish Passage Improvement
Details Sheet
Job Number 600040
Sheet Number D3
Sheet 18 of 24

APPENDIX C
FEDERALLY LISTED SPECIES

Mammals		
Gray Wolf	*Canis lupus*	E
Birds		
Northern Spotted Owl	*Strix Occidentalis caurina*	T
Yellow-billed Cuckoo	*Coccyzus americanus*	T
Amphibians		
Oregon Spotted Frog	*Rana pretiosa*	T
Fishes		
Lost River Sucker	*Deltistes luxantus*	E
Shortnose Sucker	*Chasmistes brevirostris*	E
Crustaceans		
Conservancy Fairy Shrimp	*Branchinecta conservation*	E
Vernal Pool Fairy Shrimp	*Branchinecta lynchi*	T
Vernal Pool Tadpole Shrimp	*Lepidurus packardi*	E
Flowering Plants		
Applegate's Milk-vetch	*Astragalus aplegatei*	E
Gentner's Fritillary	*Fritillaria gentneri*	E
Hoover's Spurge	*Chamaesyce hooveri*	T
Slender Orcutt Grass	*Orcuttia tenuis*	T

Key: T = threatened under the ESA; E = endangered under the ESA
Source: https://ecos.fws.gov/ipac/

APPENDIX D
INDIAN TRUST ASSET
COORDINATION AND CONSULTATION

***Project Location (Township, Range, Section, e.g., T12 R5E S10, or Lat/Long cords, DD-MM-SS or decimal degrees). Include map(s)**	**GENERAL:** The project is located roughly 16 miles northeast of Montague, CA in Siskiyou County. The three project sites are located on Bogus Creek between 7 and 5 miles upstream of the confluence with the Klamath River. **PLSS:** Sections 19, 20, and 29 of T47N, R4W of Mount Diablo Meridian, Siskiyou County, California. **DIVERSION 1:** **LAT:** 41° 54' 4.27" N **LONG:** 122° 20' 0.83" W **DIVERSION 2:** **LAT:** 41° 54' 35.51" N **LONG:** 122° 20' 24.04" W **DIVERSION 3:** **LAT:** 41° 55' 1.65" N **LONG:** 122° 20' 46.45" W *See map in Exhibit B.

Kirk Young — Signature
KIRK YOUNG — Printed name of preparer
2-23-2017 — Date

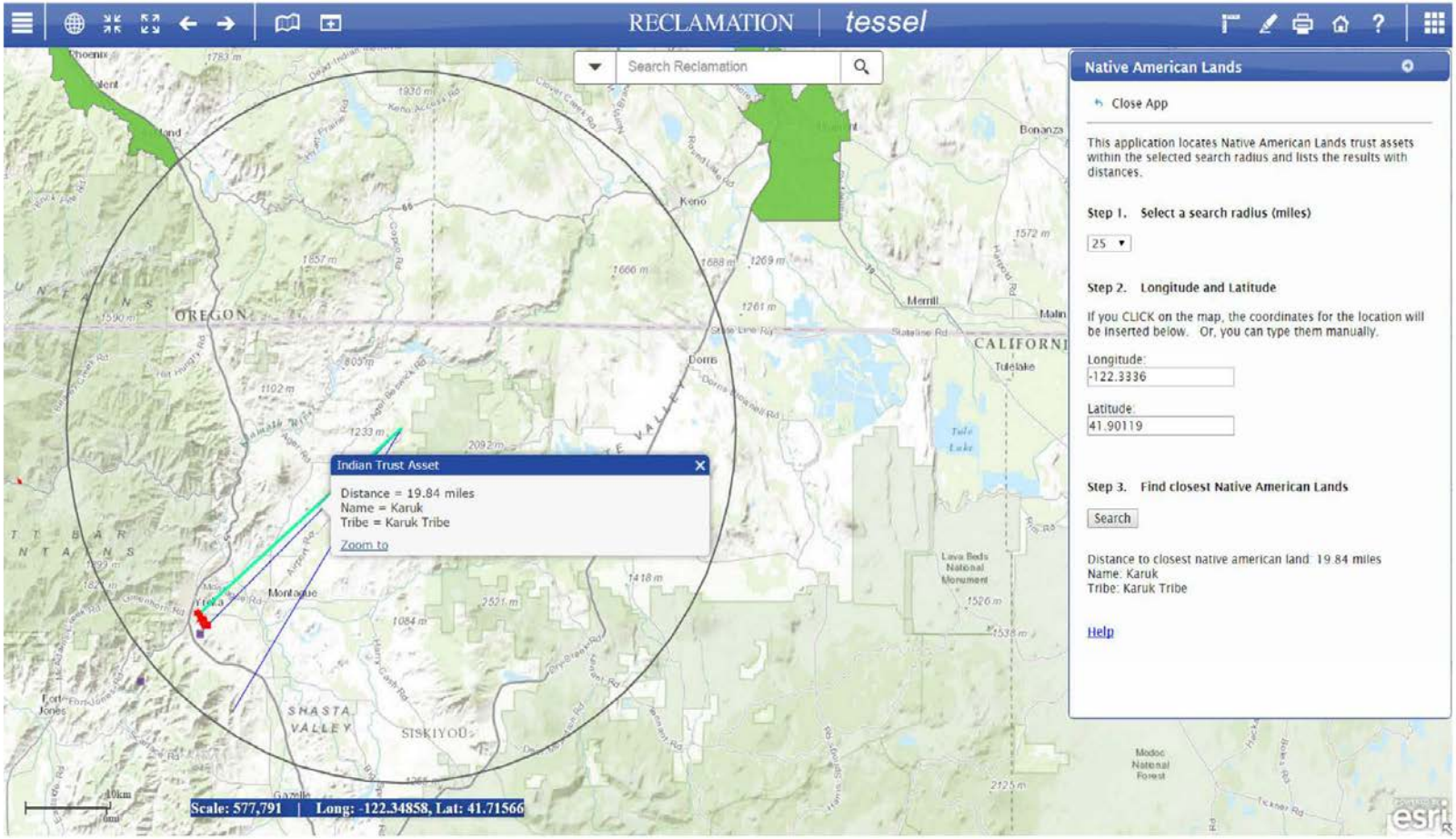
ITA Determination:

The closest ITA to the proposed **Bogus Creek Fish Passage** activity is the **Karuk Tribal Land** about **19.84** miles to the southwest of the nearest project site (see attached image in Exhibit A).

Based on the nature of the planned work it **does not** appear to be in an area that will impact Indian hunting or fishing resources or water rights nor is the proposed activity on actual Indian lands. It is reasonable to assume that the proposed action **will not** have any impacts on ITAs.

Kristen L Hatt — Signature
Kristen L Hatt — Printed name of approver
4/7/17 — Date

Exhibit A: Map of Nearest ITA to Proposed Project Sites.



APPENDIX E
CULTURAL RESOURCES COORDINATION AND CONSULTATION

CULTURAL RESOURCES COMPLIANCE
Reclamation Division of Environmental Affairs
MP-153

MP-153 Tracking Number: 17-KBAO-091

Project Name: Bogus Creek Flow Meter Installation Project

NEPA Document: 2018-EA-012

NEPA Contact: Kirk Young, Natural Resources Specialist

MP-153 Cultural Resources Reviewer: Joanne Goodsell, Archaeologist

Date: August 31, 2018

Reclamation proposes to provide funding to the National Fish and Wildlife Foundation to administer to Trout Unlimited for the installation of flow meters at three existing irrigation diversions on private land located on the east side of Bogus Creek in Siskiyou County, California. These diversions are currently being upgraded to improve fish passage and screening as part of a California Department of Fish and Wildlife Fisheries Restoration Grant Program (FRGP).

The flow meters would be installed into three existing diversion pipes exposed during construction associated with the FRGP project. Contractors would install the flow meters into the pipes by cutting a 4- to 6-inch-diameter hole in the top of the pipe, setting the flow meter in the hole, then caulking, sealing, and grouting around the meter and hole. As this work will occur during an ongoing project already under construction, Reclamation's action would result in no new ground disturbance or other construction activities that potentially could pose impacts to cultural resources.

Reclamation determined the proposed action is the type of Federal undertaking that has no potential to cause effects on historic properties, assuming such properties be present, pursuant to 36 CFR § 800.3(a)(1). As such, Reclamation has no further obligations under 54 U.S.C. § 306108, commonly known as Section 106 of the National Historic Preservation Act. The proposed action will result in no impacts to cultural resources.

This document conveys the completion of the cultural resources review and Section 106 process for this undertaking. Please retain a copy of this document with the administrative record for the proposed action. Should the proposed action change, additional review under Section 106, possibly including consultation with the State Historic Preservation Officer, may be required.