REQUEST FOR BIDS

WEST WEAVER CREEK SALMONID HABITAT/ CHANNEL AND FLOODPLAIN REHABILITATION PROJECT

Published by the Authority of
Trinity County Resource Conservation District

P.O. BOX 1450 • 30 Horseshoe Lane • Weaverville, CA 96093 • 530-623-6004 • www.tcrcd.net

May 10, 2017

REQUEST FOR BIDS

WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT

Bid Packet Table of Contents

West Weaver Creek Salmonid Habitat/ Channel and Floodplain Rehabilitation Project Overview

1. Introduction

The Trinity County Resource Conservation District (TCRCD/RCD), in collaboration with the US Forest Service and private land owners, is rehabilitating a portion of West Weaver Creek severely impacted by past mining practices and wildfires. This work will be known as the West Weaver Creek Salmonid Habitat and/or Channel and Floodplain Rehabilitation Project (Project). The purpose of the Project is to restore channel and floodplain connectivity and improve salmonid habitat along with natural creek function.

The TCRCD proposes to implement channel and floodplain rehabilitation on a degraded reach of West Weaver Creek, near Weaverville, Trinity County, California. West Weaver Creek, a headwater tributary to the Trinity River, has good water quality making it ideal for supporting coho salmon and steelhead. Located in the Weaverville Community Forest, the Project allows local stewardship of important natural resources and strengthens development of community- based conservation. The Project reach lies in the portion of the watershed severely impacted by historic hydraulic mining and recent wildfires, has poor salmonid habitat, and supplies fine sediment to the downstream Trinity River.

The goals of the Project are to improve fish passage through the Project reach, improve instream conditions for spawning and summer/winter rearing for coho salmon and steelhead within the Project reach, and promote fine sediment deposition in the overbank areas, thus improving conditions for the establishment of riparian species and reducing downstream sediment input to the Trinity River.

Broad support of this Project includes private property owners, and input from multiple agencies through the permitting and planning process. Participating agencies include: the US Forest Service, US Army Corps of Engineers, California Department of Fish and Wildlife (CDFW), US Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), North Coast Regional Water Quality Control Board (NCRWQCB), North Coast Resource Partnership, California Department of Water Resources, and Trinity River Restoration Program.

The purpose of this request for bids is to select a contractor to implement designs developed with input from participating agencies and prepared by Environmental Science Associates (ESA), based on the West Weaver Creek Assessment and Action Planning (2012) document created by ESA for RCD.

Implementation of this Project is funded through a generous grant from the California Department of Water Resources through the North Coast Resource Partnership and Trinity River Restoration Program.

Contracting Entity: The RCD is the contracting entity and project manager on behalf of the land manager, US Forest Service, and landowners Aaron and Amy King. The RCD is a non-regulatory public benefit district whose mission is to help people protect, conserve, and restore natural resources through information, education, and technical assistance programs. The RCD is a special district of the state under Division 9 of the Public Resources Code.

Notice of Grant Funding: Bidders are notified that this Project is a grant-funded by California Department of Water Resources (DWR)/North Coast Resource Partnership Proposition 84 and Trinity River Restoration Program.

2. Location

The Project site is approximately 1.5 miles west of Weaverville, California below Highway 299. Access to the site for construction purposes will be through private property off of Oregon Street. Project site is located at latitude 40° 44’ 19” N and longitude 122° 58’ 03” W at RM 2.0 between the Grub Gulch confluence and the Highway 299 culvert.

3. Plans and Work Sites

The submission of a bid shall constitute certification by the bidder that they have:

A. Visited the Project site to familiarize themselves with local conditions that in any manner affect cost, progress, or performance of the work;

B. Familiarized themselves with all federal, state and local laws, ordinances, rules, and regulations that in any manner affect the cost, progress, or performance of the work;

C. Thoroughly examined and understand the bid documents, exhibits, plans, specifications, and reports.

4. Scope of Work

Labor and equipment: Bids shall include costs for furnishing all labor, equipment, and materials necessary to perform all work as described in Exhibit A.

- o Subcontracts are allowable for specialized work. Subcontractors are subject to approval by the RCD, and should be identified in the Contractor Experience section, Exhibit H.
- o Labor costs (including subcontractor labor costs) shall be based on current prevailing wage rates (see section 8 below and Exhibit E).
- o Equipment costs shall include all fuel costs. Added fuel surcharges not included in the bid will not be paid.

Materials: All required materials and any associated delivery costs shall be included in the bid.

- o Please note that contractor will supply the logs and rocks required and described in the Project specifications if not using materials from the site. The contractor may use logs they have obtained from other projects or that they have purchased. Logs must meet specifications included in designs approved by the Project Engineer prior to installation.

5. Project Cost and Funding

Funding for the Project is through grants from California Department of Water Resources (DWR) North Coast Resource Partnership Proposition 84 and Trinity River Restoration Program.

The engineer's cost estimate for the Project is $ 301,000 (not including optional items).

Please note that the bid includes optional elements, which will only be contracted based on the discretion of the RCD and will be determined by available funding.

6. Documentation

Attached to this request for bids are copies of Project and contract documents, including the following:

Exhibit A: Project Plans, Technical Specifications and Relevant Documents
Exhibit B: Cost Proposal and Bid Schedule
Exhibit C: Contract Template
Exhibit D: Insurance Requirements
Exhibit E: Labor Compliance Program
Exhibit F: Billing Instructions for Contractors
Exhibit G: Fire Plan
Exhibit H: Contractor Experience, Construction Schedule and Bonds
Exhibit I: Submittal Check List
Exhibit J: Draft Permits

Additional Project specifications and information may be provided at the mandatory bid tour. Bidders are expected to thoroughly examine and understand the contents of each of these documents, which contain pertinent and specific information regarding all aspects of Project construction and administration.

7. Proposal and Work Schedule

Date of announcement	Wednesday, May 10, 2017
RSVP for Bid Tour	Wednesday, May 24, 2017
Mandatory Bid Tour	**Friday May 26, 2017 from 10 am – Noon** - Questions will ONLY be taken at the bid tour. - Only those present will receive responses. - We will be walking in a riparian area. Please dress accordingly. - A bid packet with plans must be acquired prior to the mandatory bid tour at the TCRCD office for $25. This is a non-refundable fee. Or they can be downloaded at no cost from www.tcrcd.net, or multiple electronic plan rooms as required by the California Uniform Construction Cost Accounting Commission. **Meeting location will be approx. 1.5 miles west of Weaverville off Hwy. 299. Attendees must have plans with them to participate.**
Deadline for proposal submissions	Proposals must be received by **Friday June 9, 2017, 12:00 pm.** Bid may be mailed to: Trinity County RCD, Attn: Donna Rupp PO Box 1450 Weaverville, CA 96093 Or dropped off at: 30 Horseshoe Lane, Weaverville, CA
Sealed Bid	The Bidder shall submit bid in two (2) separate envelopes, one marked COST and one marked CONTRACTOR INFO. These two (2) envelopes will then be placed into a single envelope and submitted to the address listed above. The COST envelope is to enclose the Cost Proposal and Bid Schedule (Exhibit B). It will remain sealed until opened at the June 21, 2017, 5:30 pm TCRCD Board Meeting 20 Horseshoe Ln., #2B, Weaverville. The CONTRACTOR INFO envelope is to enclose the Contractor Experience including referrals, Proposed Construction Schedule and Narrative, and Bidders Bond, (Exhibit H), and signed page E-4. Only the CONTRACTOR INFO envelope will be opened prior to the Board Meeting to confirm requirements are met and evaluate the contractor. **Award of contract will be made to the most responsible bidder, at the discretion of the TCRCD. The TCRCD is not required to accept the lowest bid. The TCRCD reserves the right to reject any and all bids.**
Notification of Award	Within 5 working days of June 21, 2017 TCRCD Board of Directors meeting.
Work Commencement Date	Work can commence on July 17, 2017, **with the following conditions:** - Permitting is complete - All work dependent on favorable weather - Contract signed and all conditions met - Biological surveys complete - Contractor shall coordinate commencement with TCRCD - No work shall begin until authorized by TCRCD
Work Completion Date	No later than October 15, 2017

8. Prevailing Wage Laws
This project is considered a public work or public improvement, and is therefore subject to Labor Compliance Program pursuant to Part 7 of Division 2 of the California Labor Code (commencing with Section 1720.) Exhibit E outlines requirements of the Labor Compliance Program.

9. Registration Pursuant to Labor Code Section 1725.5
All contractors and subcontractors who will perform any portion of the work must be currently registered and qualified to perform public work pursuant to Labor Code Section 1725.5. Bids submitted by contractors, or including subcontractors, who are not registered will be rejected.

10. Permits and Plans
The RCD will be responsible for obtaining all necessary permits. Copies of all finalized permits will be provided to the Contractor, and one copy of each permit must be kept at the job site at all times. Draft permits provided in this packet are for bid estimation and preparation. Final permits will be included as an addendum to the bid packet. Work cannot begin on the Project prior to issuance of all permits, and permit conditions may influence the Project.

The following Plans will be submitted to RCD by the successful bidder prior to the start of construction activities: Stormwater Pollution Prevention Plan (addressed in Exhibit A, Section 01800 Environmental Protection), NPDES General Permit from the State Water Resources Control Board (SWRCB) (addressed in Exhibit A, Section 01800 Environmental Protection), Safety Plan and Fire Plan (Exhibit G).

11. Inspections
All work performed on this Project shall be subject to regular inspections. The Contractor shall not cover up any work subsurface work prior to these inspections. It is the Contractor's responsibility to contact the Project Engineer and RCD Project Manager to conduct required inspections. Inspections shall occur during construction and at job completion.

12. Sensitive Areas
The Project site is an environmentally sensitive area. Contractor shall take all precautions and measures necessary to protect the environmental integrity of the site, including but not limited to the protection of all plants, animals, and aquatic life.

13. Licenses
To submit a bid on this contract, a valid Contractor's Class A or C-12 License issued by the California Contractor's State License Board is required.

14. Evaluation of Bids
The RCD will accept the proposal which is of the greatest advantage to the Project and the RCD. Bids will be evaluated in several categories: contractor experience with similar projects, cost considerations, experience working with Resource Conservation Districts, completeness of construction schedule and narrative, and references. RCD is not required to accept the low bid. RCD has the right to reject any and all proposals and add alternates.

15. Contract and Payment
A lump sum contract will be awarded to the successful bidder for all work described in Exhibit A and this bid document. The optional components will be determined prior to contract execution. Submission of invoice for lump sum payment to the Contractor may be made following completion of work and final inspection, or progress invoices may be submitted for payment in accordance with the provisions described in the attached sample contract (Exhibit C). Payment policy and instructions for vendors are attached hereto as Exhibit F.

16. Bonds
A bidders bond will be required to be submitted with bid.

Contractor shall provide a performance bond in favor of the RCD in the amount of one hundred percent (100%) of the contract price and a payment bond in favor of the RCD in the amount of one hundred percent (100%) of the contract price. Contractor will provide signed copies of the bonds before commencement of the work.

EXHIBIT A

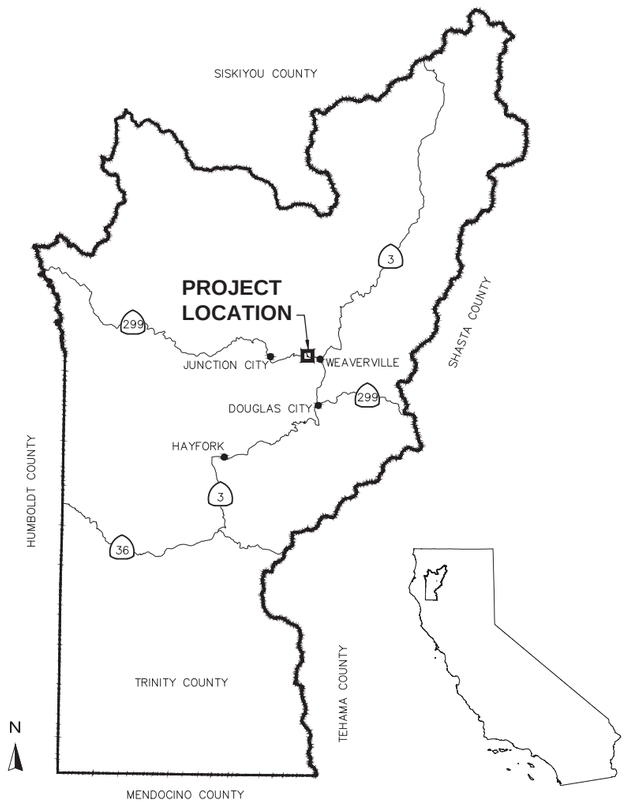
WEST WEAVER CREEK SALMONID HABITAT/ CHANNEL AND FLOODPLAIN REHABILITATION PROJECT

Project Plans, Technical Specifications and Certification

PLOT DATE: 4/25/2017 6:02 PM
LAST SAVE DATE: 4/25/2017 10:59 AM
FILE: \\SFO-FILE01\ESAPWA\DATA\PROJECTS_211XXX - 2011 PROJECTS\D211670.01 - WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_TITLESHEET.DWG

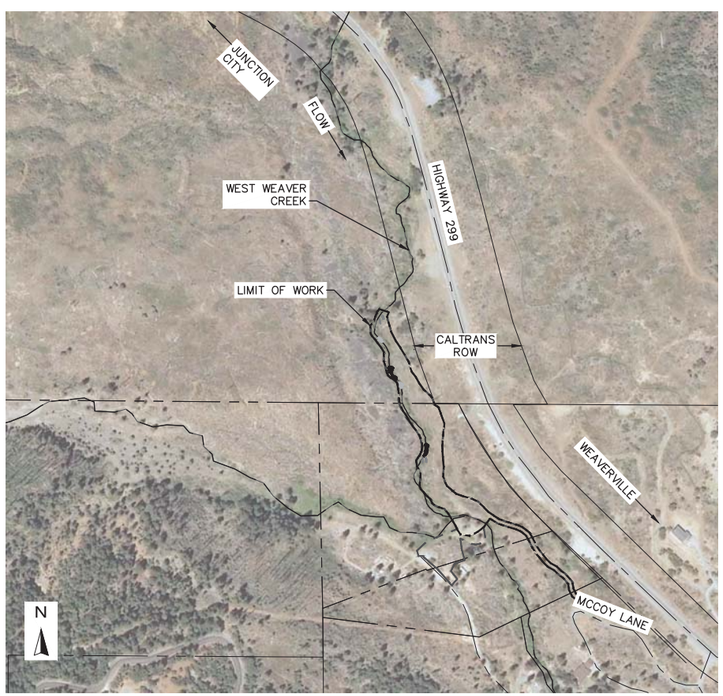
WEST WEAVER CREEK
SALMONID HABITAT REHABILITATION PROJECT
GRUB GULCH TO HIGHWAY 299
WEAVERVILLE, TRINITY COUNTY, CALIFORNIA

Trinity County Resource Conservation District
100% COMPLETE DESIGN



LOCATION MAP

SCALE: 1" = 50,000'



VICINITY MAP

SCALE:1" = 300'

SHEET INDEX

SHEET	DWG-NO	SHEET TITLE
01	G-01	TITLE SHEET
02	G-02	GENERAL NOTES, ABBREVIATIONS, & SYMBOLS
03	G-03	EXISTING CONDITIONS & SITE PLAN
04	G-04	SURVEY LAYOUT AND CONTROL
05	C-01	REHABILITATION PLAN
06	C-02	MAIN CHANNEL PROFILE
07	C-03	DETAILED GRADING PLAN UPSTREAM SECONDARY CHANNEL & RIFFLE
08	C-04	DETAILED GRADING PLAN DOWNSTREAM RIFFLE
09	C-05	DETAILED GRADING PLAN FLOODPLAIN TERRACE & FILL PLACEMENT
10	C-06	DETAILED GRADING PLAN DOWNSTREAM SECONDARY CHANNEL
11	C-07	DETAILED PLAN – BOULDER CASCADE
12	C-08	DETAILED PLAN – STEP POOL
13	C-09	DETAIL – BOULDER CASCADE
14	C-10	DETAIL – STEP POOL
15	C-11	DETAIL – SECONDARY CHANNEL STREAMBED
16	C-12	DETAIL – BOULDER CLUSTER
17	C-13	DETAILS – LARGE WOOD STRUCTURES *
18	C-14	DETAILS – MULTI-LAYER EROSION CONTROL FABRIC *
19	C-15	DETAILS – BIOTECHNICAL STRUCTURES*
20	C-16	DETAILS – ACCESS ROUTE IMPROVEMENTS

* NOTE: LARGE WOOD STRUCTURES, MULTI-LAYER EROSION CONTROL FABRIC, AND FLOW BAFFLES ARE ADDITIVE ITEMS.

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: JASON WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEWONG
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT GRUB GULCH TO HIGHWAY 299

SHEET TITLE: TITLE SHEET

PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT 30 HORSESHOE LANE WEAVERVILLE, CA 96093

PROJECT NO. D211670.01
DATE APR. 2017
SHEET NO. 01 OF 20
DWG NO. G-01

GENERAL NOTES

GENERAL

1. CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE TRINITY COUNTY RESOURCE CONSERVATION DISTRICT (TCRCD) AND ITS REPRESENTATIVES HARMLESS FROM ANY AND ALL LIABILITY, REAL AND/OR ALLEGED, IN CONJUNCTION WITH THE PERFORMANCE OF THIS PROJECT.
2. A SET OF SIGNED WORKING DRAWINGS AND A SET OF SPECIFICATIONS WILL BE KEPT ON THE JOB SITE AT ALL TIMES ON WHICH ALL CHANGES OR VARIATIONS IN THE WORK, INCLUDING ALL EXISTING UTILITIES, ARE TO BE RECORDED AND/OR CORRECTED DAILY AND SUBMITTED TO THE TCRCD WHEN THE WORK TO BE DONE IS COMPLETED.
3. CONTRACTOR SHALL CONTACT THE TCRCD TO ARRANGE A PRE-CONFERENCE FOR THE PURPOSE OF REVIEWING JOB REQUIREMENTS AND PROCEDURES.
4. ALL MATERIAL SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
5. ALL WORKMANSHIP AND MATERIALS FOR BOTH ON-SITE AND OFF-SITE IMPROVEMENTS SHALL CONFORM TO THE LATEST EDITION OF THE STATE OF CALIFORNIA STANDARD SPECIFICATIONS AND STANDARD PLANS.
6. CONTRACTOR SHALL NOTIFY THE TCRCD OR TCRCD DESIGNEE AT LEAST 72 HOURS PRIOR TO COMMENCEMENT OF ANY PART OF WORK.
7. CONTRACTOR SHALL PROVIDE AND MAINTAIN SUFFICIENT TEMPORARY BARRICADES TO PROVIDE FOR THE SAFETY OF THE STAFF AND GENERAL PUBLIC TO THE SATISFACTION OF THE TCRCD.
8. PROJECT SCOPE: TO REHABILITATE AND ENHANCE SALMONID HABITAT IN WEST WEAVER CREEK. REHABILITATION ACTIVITIES INCLUDE CONSTRUCTION OF IN-CHANNEL FEATURES (I.E., BOULDER CASCADES, POOL-RIFFLE SEQUENCES, AND STEP POOLS), CREATION OF SECONDARY CHANNELS, AND A FLOODPLAIN FEATURE. PROJECT POTENTIALLY INCLUDES ADDITIVE ITEMS: LARGE WOOD STRUCTURES, FLOW BAFFLES, AND DOUBLE LAYER EROSION CONTROL FABRIC; COORDINATE WITH OWNER'S REPRESENTATIVE.
9. THE PROJECT IS A "BALANCED" EARTHWORK PROJECT. EXCAVATED MATERIAL SHALL BE PLACED AT A DESIGNATED FILL PLACEMENT AREA AS SHOWN ON THE DRAWINGS. SELECT MATERIALS MAY BE APPLIED TO IN-CHANNEL FEATURES (SEE SPECS).
10. REFER TO SPECS AND PERMITS FOR LIMITATION ON ALLOWABLE DATES FOR CONSTRUCTIONS.

PROTECTION OF EXISTING CONDITIONS

11. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY AND ALL DAMAGES TO EXISTING VEGETATION, STRUCTURES AND UTILITIES DURING CONSTRUCTION.
12. PROTECT ALL EXISTING IMPROVEMENTS AND VEGETATION NOT SLATED FOR DEMOLITION. PLACE TEMPORARY FENCING, FLAGGING OR EQUIVALENT AT THE WATER DIVERSION, PERIMETER OF ALL VEGETATED AREAS AND/OR INDIVIDUAL TREES TO BE PRESERVED, AND ANY OTHER IMPROVEMENTS ONSITE.
13. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL REVIEW ALL TREE AND OTHER PROTECTION FENCING WITH THE OWNER'S REPRESENTATIVE, AND FIELD ADJUST THE LIMITS AS DIRECTED.

UTILITIES

14. CONTRACTOR SHALL NOTIFY ALL PUBLIC OR PRIVATE UTILITY COMPANIES 48 HOURS PRIOR TO COMMENCEMENT OF WORK ADJACENT TO EXISTING UTILITY LINES.
15. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (USA) AT 1-800-227-2600 PRIOR TO START OF ANY CONSTRUCTION.
16. LOCATIONS OF UTILITIES AND FACILITIES SHOWN ARE APPROXIMATE AND FOR GENERAL INFORMATION ONLY. CONTRACTOR SHALL POTHOLE ALL EXISTING UTILITIES AS NEEDED FOR VERIFICATION. UTILITIES MAY EXIST WHICH ARE NOT KNOWN TO THE RESTORATION ENGINEER, LANDOWNERS, OR TCRCD.
17. CONTRACTOR SHALL FIELD LOCATE ALL EXISTING UTILITIES AND PROTECT THROUGHOUT CONSTRUCTION.

ENVIRONMENTAL PROTECTION

18. CONTRACTOR SHALL CONDUCT ALL GRADING OPERATIONS IN SUCH MANNER AS TO PRECLUDE WIND BLOWN DIRT AND DUST AND RELATED DAMAGE TO NEIGHBORING PROPERTIES. SUFFICIENT WATERING TO CONTROL DUST IS REQUIRED AT ALL TIMES. CONTRACTOR SHALL ASSUME LIABILITY FOR CLAIMS RELATED TO WIND BLOWN MATERIAL. IF THE DUST CONTROL IS INADEQUATE AS DETERMINED BY THE TCRCD OR HIS DESIGNATED REPRESENTATIVE, THE CONSTRUCTION WORK SHALL BE TERMINATED UNTIL CORRECTIVE MEASURES ARE TAKEN.
19. CONTRACTOR SHALL ELIMINATE OR MINIMIZE NON-STORM DISCHARGE FROM THE CONSTRUCTION SITE TO STORM DRAINS AND OTHER WATER BODIES. ALL CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN A MANNER THAT MINIMIZES, TO THE MAXIMUM EXTENT PRACTICABLE, ANY POLLUTANTS ENTERING DIRECTLY OR INDIRECTLY INTO GROUND WATER. ALL MATERIALS THAT COULD CAUSE WATER POLLUTION (I.E., MOTOR OIL, FUELS, PAINTS, ETC.) SHALL BE STORED AND USED IN A MANNER THAT WILL NOT CAUSE ANY POLLUTION. ALL DISCARDED MATERIAL AND ANY ACCIDENTAL SPILLS SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED DISPOSAL SITE.
20. CONTRACTOR SHALL PROVIDE TO THE TCRCD ANY CHANGES PROPOSED FOR THE PROJECT'S EROSION CONTROL PLAN AND SHALL PROVIDE A SCHEDULE FOR IMPLEMENTATION OF CONTROL MEASURES. CONTRACTOR SHALL MEET WITH TCRCD STAFF PRIOR TO OCTOBER 1 TO REVIEW STATUS OF PROJECT'S EROSION CONTROL AND WATER POLLUTION MEASURES.
21. CONTRACTOR SHALL SUBMIT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) THAT COMPLIES WITH THE NEW CONSTRUCTION GENERAL STORMWATER PERMIT (2009-0009-DWQ). THE PROJECT SHOULD BE ASSUMED TO BE IN THE 'L.U.P. TYPE 3' CATEGORY. CONTRACTOR SHALL MAINTAIN A COPY OF THE SWPPP ONSITE AT ALL TIMES, AND SHALL UPDATE THE SWPPP REGULARLY AS NEEDED TO RESPOND TO SITE CONDITIONS.
22. THE CONTRACTOR SHALL IMPLEMENT AND UTILIZE BEST MANAGEMENT PRACTICES TO PREVENT EROSION, SEDIMENT AND HAZMAT RUNOFF FROM THE CONSTRUCTION SITE.
23. THE OWNER HAS OBTAINED PERMITS FROM RESOURCE AGENCIES FOR THIS PROJECT (SEE SPECS). COMPLY WITH ALL PERMIT REQUIREMENTS FOR PROTECTION OF WATER QUALITY, WILDLIFE AND VEGETATION. COOPERATE WITH THE ACTIVITIES OF THE TCRCD'S BIOLOGIST AND COMPLY WITH ALL REQUIRED NOTIFICATIONS.
24. DURING GRADING, THE OWNER SHALL PROVIDE AN ONSITE MONITOR TO MAKE SURE THE GRADING LIMITS ARE CLEAR OF LISTED AND PROTECTED WILDLIFE AS INDICATED BY THE PROJECT BIOLOGIST.
25. THIS PROJECT REQUIRES WORK IN THE ACTIVE CHANNEL, INCLUDING DEWATERING AND FLOW DIVERSION. COMPLY WITH PERMIT REQUIREMENTS FOR WILDLIFE AND WATER QUALITY PROTECTION (SEE SPECS).

CULTURAL RESOURCES

26. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY IF CULTURAL RESOURCES ARE ENCOUNTERED DURING EXCAVATION FOR ANY PHASE OF THE PROJECT, AND THAT PORTION OF WORK SHALL BE HALTED UNTIL A CULTURAL RESOURCE CONSULTANT HAS EVALUATED THE SITUATION.

TRAFFIC CONTROL

27. ALL TRAFFIC CONTROL REQUIRED FOR CONSTRUCTION ACTIVITIES SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITION OF THE CALTRANS TRAFFIC MANUAL. ANY WORK ON HIGHWAY 299 REQUIRES REVIEW AND APPROVAL OF CALTRANS. A TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO THE TCRCD FOR REVIEW AND APPROVAL AT LEAST FIVE (5) WORKING DAYS BEFORE THE SCHEDULE CLOSURE.

TOPOGRAPHIC DATA AND MAPPING

28. THE TOPOGRAPHY SHOWN IS BASED ON LIDAR SURVEY PERFORMED BY WATERSHED SCIENCES, INC. (2011).
29. THE EXISTING GRADE REFLECTS SITE CONDITIONS AT THE TIME OF THE SURVEYS. CONTRACTOR SHOULD VERIFY GRADES PRIOR TO COMMENCING WORK AND SHALL REPORT ANY DISCREPANCY BETWEEN DESIGN DRAWINGS AND FIELD CONDITIONS IMMEDIATELY TO THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL NOT COMMENCE WITH GRADING UNTIL THE DISCREPANCY IS RESOLVED.
30. HORIZONTAL CONTROL IS CALIFORNIA STATE PLANE ZONE I (NAD83) IN US FT. VERTICAL CONTROL IS NAVD88.
31. CONTRACTOR SHALL VERIFY AND CHECK EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
32. CONTRACTOR SHALL VERIFY ELEVATIONS, LOCATIONS, LEVELS DISTANCES, AND FEATURES THAT MAY AFFECT THE WORK. SHOULD EXISTING CONDITIONS DIFFER FROM THOSE SHOWN OR INDICATED, OR IF IT APPEARS THAT THESE PLANS, STANDARD SPECIFICATIONS, AND SPECIAL PROVISIONS DO NOT ADEQUATELY DETAIL THE WORK TO BE DONE, CONTRACTOR SHALL NOTIFY THE RESTORATION ENGINEER PRIOR TO CONTINUING WITH ANY RELATED WORK. NO ALLOWANCE WILL BE MADE IN HIS/HER BEHALF FOR ANY EXTRA EXPENSE RESULTING FROM FAILURE OR NEGLECT IN DETERMINING THE CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED. NOTED DIMENSION SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS.
33. PARCEL LINES ARE APPROXIMATE AND DO NOT REPRESENT LEGAL PROPERTY BOUNDARIES. PARCEL LINES ARE USED TO DELINEATE DIFFERENT PROPERTIES FOR PLANNING PURPOSES.

EARTHWORK

34. RESTORE ALL DISTURBED AREAS BY SEEDING AND APPLYING EROSION CONTROL MEASURES PER THE DRAWINGS AND SPECS. RESTORE ALL ACCESS ROUTES TO ORIGINAL GRADES AND CONDITION.
35. CONTRACTOR SHOULD ANTICIPATE ENCOUNTERING BEDROCK WITHIN THE LIMITS OF WORK. THE BEDROCK IS BELIEVED TO BE WEATHERED SUCH THAT STANDARD EXCAVATING EQUIPMENT MAY BE USED TO ACHIEVE THE LINES AND DIMENSIONS SHOWN ON THE PLANS.

LEGEND

- EXISTING GRADE (PROFILE & SECTION)
- DESIGN GRADE
- APPROX PROPERTY BOUNDARY
- MATCHLINE/SHEET OUTLINES
- LIMIT OF WORK
- LIMIT OF GRADING
- THALWEG
- CONSTRUCTION ACCESS
- APPROX TREELINE
- 4 NEW CONTOUR LINE
- 4 EXISTING CONTOUR LINE, LIDAR SURVEY
- EXISTING GROUND (SECTION)
- EXISTING BEDROCK (SECTION)
- EXCAVATION (PLAN & SECTION)
- NATIVE MATERIAL FILL (PLAN & SECTION)
- GRAVEL FILL (PLAN & SECTION)
- ROCK FILL (PLAN & SECTION)
- STAGING
- REVEGETATION ZONE
- MULTI-LAYER EROSION CONTROL FABRIC
- LIVE POLE PLANTING
- FLOW FLOW DIRECTION
- DRAINAGE DIRECTION
- DEMO TREE
- × 9.36 SPOT ELEVATION
- BENCHMARK
- CONTROL POINT
- 47 EXISTING UTILITY

ABBREVIATIONS

AB	ASPHALT BASE
APPROX	APPROXIMATE
℄	CENTERLINE
CMP	CORRUGATED METAL PIPE
DBH	DIAMETER BREAST HEIGHT
DEMO	DEMOLISH
DG	DESIGN GRADE
D/S	DOWNSTREAM
ELEV	ELEVATION
EX	EXISTING
EG	EXISTING GRADE
ESM	ENGINEERED STREAMBED MATERIAL
FL	FLOW LINE
FT	FOOT, FEET
GB	GRADE BREAK
GCS	GRADE CONTROL STRUCTURE
LIDAR	LIGHT DETECTION AND RANGING
MAX	MAXIMUM
MIN	MINIMUM
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
PIP	PROTECT IN PLACE
RC	RELATIVE COMPACTION
ROW	RIGHT OF WAY
SPECS	SPECIFICATIONS
STA	STATION
3:1	SLOPE, HORIZONTAL:VERTICAL
TBD	TO BE DETERMINED
TYP	TYPICAL
U/S	UPSTREAM
VAR	VARIES
VIF	VERIFY IN FIELD

A / C-01 — INDICATES SECTION OR DETAIL NUMBER; SHEET NUMBER ON WHICH SECTION OR DETAIL APPEARS

DEFINITIONS

RESTORATION ENGINEER: ENVIRONMENTAL SCIENCE ASSOCIATES (ESA)
550 KEARNY STREET
SUITE 800
SAN FRANCISCO, CA 94108
PH: (415) 896-5900
CONTACT: BARRY TANAKA P.E.

PROPERTY OWNERS: U.S. FOREST SERVICE, AARON AND AMY KING

PROJECT OWNER/LANDOWNER COORDINATOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT (TCRCD)
30 HORSESHOE LANE
WEAVERVILLE, CA 96093
PH: (530) 623-6004
CONTACT: DONNA RUPP

THE OWNER-DESIGNATED LANDOWNER COORDINATOR WILL COORDINATE AS NEEDED BETWEEN THE PROPERTY OWNERS, TCRCD, RESTORATION ENGINEER, AND CONTRACTOR.

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: JASON WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEVERING
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER — BARRY TANAKA — C 82243 — CIVIL — STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT GRUB GULCH TO HIGHWAY 299

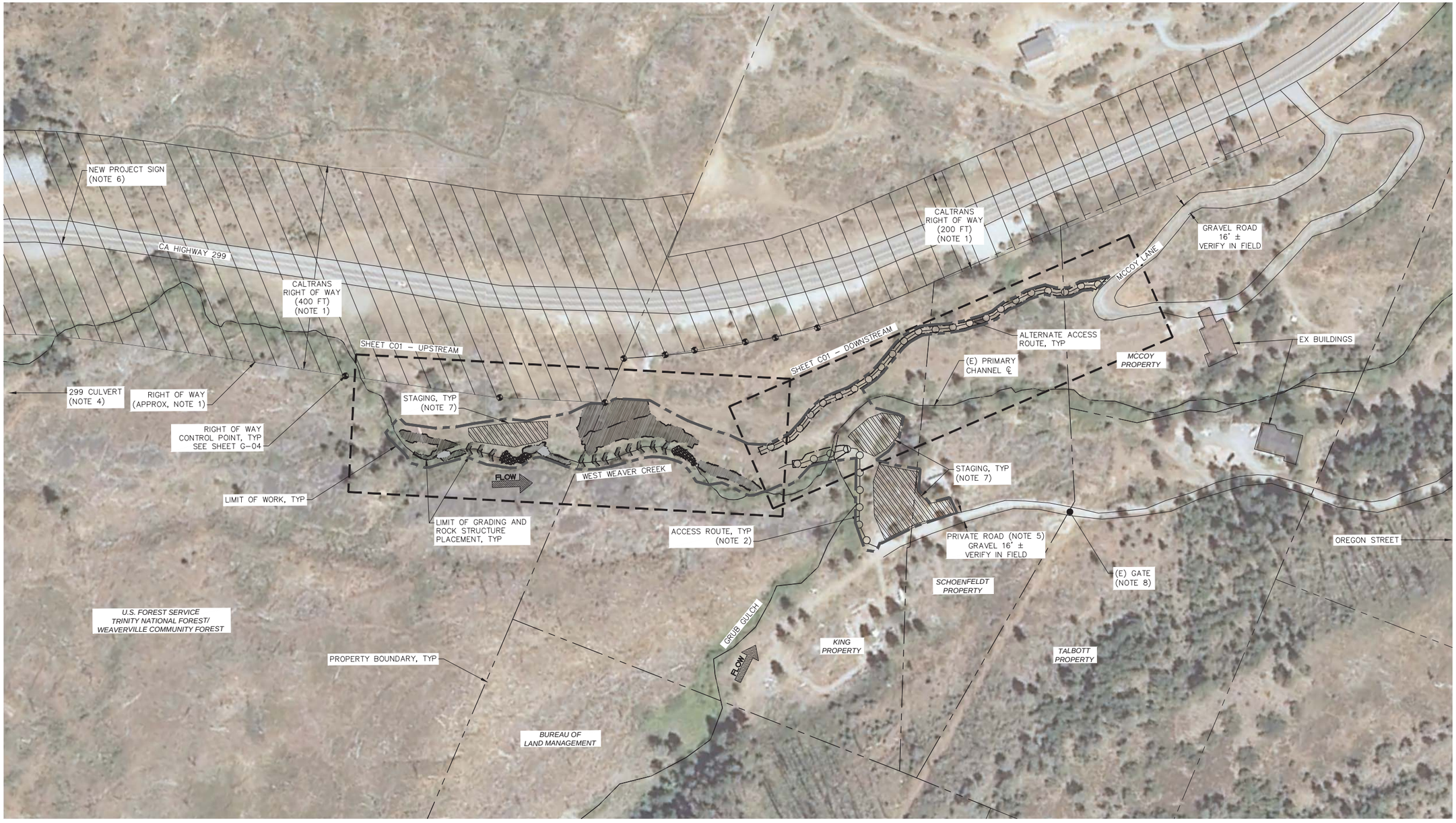
SHEET TITLE: GENERAL NOTES, ABBREVIATIONS, & SYMBOLS

PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT 30 HORSESHOE LANE WEAVERVILLE, CA 96093

PROJECT NO. D211670.01
DATE APR. 2017
SHEET NO. 02 OF 20
DWG NO. G-02

PLOT DATE: 4/25/2017 6:08 PM
LAST SAVE DATE: 4/25/2017 2:51 PM
FILE \\SFO-FILE01\ESAPWA\DATA\PROJECTS_211XXX - 2011 PROJECTS\D211670.01 - WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_GENERALNOTESABBVASYMB.DWG



N

0 50 100 200

SCALE (FEET)

EXISTING CONDITIONS & SITE PLAN

PLAN VIEW SCALE: 1" = 100'

NOTES:

1. NO WORK TO OCCUR WITHIN CALTRANS RIGHT OF WAY. COORDINATION WITH CALTRANS WILL BE REQUIRED TO CONFIRM WORK PLANNED ADJACENT TO RIGHT OF WAY. CONTROL POINTS INDICATED ARE APPROXIMATE, SEE SHEET G–04 FOR COORDINATES; CONTRACTOR TO VERIFY WITH CALTRANS.
2. ACCESS ROAD AND WORK TO OCCUR ON PRIVATE PROPERTY WITH WRITTEN APPROVAL FROM LANDOWNER. THE LANDOWNER COORDINATOR WILL PROVIDE THIS APPROVAL PRIOR TO MOBILIZATION.
3. THE AERIAL PHOTOGRAPH IS SHOWN FOR REFERENCE ONLY AND REFLECTS CONDITIONS AT THE TIME OF THE PHOTOGRAPH (THE NATIONAL AGRICULTURE IMAGERY PROGRAM, 2010).
4. WEST WEAVER CREEK FLOWS THROUGH THE HIGHWAY 299 CULVERT APPROX. 400 FEET UPSTREAM OF THE PROJECT LIMITS.
5. THE PRIVATE ROAD INTERSECTS WITH OREGON STREET APPROX. 1000 FEET SOUTH OF PROJECT LIMITS.
6. PLACE PROJECT SIGN PER DIRECTION OF TCRCD STAFF. SIGN TO BE WEATHERPROOF, 4'X8' IN AREA, SUPPORTED BY BREAKAWAY 4"X4" POSTS, AND LOWEST EDGE OF SIGN TO BE 3' 6" ABOVE GRADE. CONFORM TO CALTRANS STANDARDS FOR TEMPORARY SIGNAGE. SIGN SHALL STAY IN PLACE FOR DURATION OF PROJECT; COORDINATE WITH OWNER'S REPRESENTATIVE REGARDING SIGN REMOVAL DURING DEMOBILIZATION.
7. CONTRACTOR SHALL COORDINATE WITH LANDOWNER TO DELINEATE STAGING AREA.
8.
9. GATED ACCESS TO PROJECT SITE. CLOSE GATE AFTER EVERY ENTRY AND EXIT.

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

ESA
Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: JASON WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEVERING
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT GRUB GULCH TO HIGHWAY 299

SHEET TITLE: EXISTING CONDITIONS & SITE PLAN

PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT 30 HORSESHOE LANE WEAVERVILLE, CA 96093

Trinity County Resource Conservation District

PROJECT NO. D211670.01
DATE APR. 2017
SHEET NO. 03 OF 20
DWG NO. G-03

PLOT DATE: 4/26/2017 5:05 PM
LAST SAVE DATE: 4/25/2017 11:14 AM
FILE \\SFO-FILE01\ESAPWA\DATA\PROJECTS_211XXX – 2011 PROJECTS\D211670.01 – WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_EXISTCOND&SITEPLAN.DWG

PROJECT CONTROL POINTS (NOTE 2)

POINT	EASTING (FT)	NORTHING (FT)	ELEVATION (FT, NAVD)	DESCRIPTION
CP1	6293718.06	2154101.27	2367.23	1/2" REBAR WITH CAP
CP2	6293684.35	2153910.74	2341.13	1/2" REBAR WITH CAP
CP3	6293638.91	2154221.66	2359.90	1/2" REBAR WITH CAP
CP4	6293690.51	2153914.41	2344.00	NAIL AND SHINER

STEP POOLS (NOTE 4)

POINT	STATION	EASTING (FT)	NORTHING (FT)	STEP CREST ELEVATION (FT)	LOW FLOW NOTCH ORIENTATION
SP-01	5+50	6293613.689	2153695.443	2295.8	CENTER
SP-02	5+75	6293607.708	2153718.696	2296.8	RIGHT
SP-03	6+00	6293595.289	2153740.057	2297.8	LEFT
SP-04	6+25	6293583.029	2153759.089	2298.8	CENTER
SP-05	6+50	6293567.321	2153775.68	2299.8	RIGHT
SP-06	6+75	6293548.544	2153794.253	2300.8	LEFT
SP-07	7+00	6293536.079	2153812.823	2301.8	CENTER
SP-08	7+25	6293528.287	2153837.051	2302.8	RIGHT
SP-09	9+15	6293470.761	2154003.599	2308.8	CENTER
SP-10	9+40	6293470.278	2154026.799	2309.8	RIGHT
SP-11	9+65	6293464.964	2154047.905	2310.8	LEFT

MAIN CHANNEL ALIGNMENT

POINT	STATION	EASTING (FT)	NORTHING (FT)
MC-0	0+00	6293847.6	2153365.8
MC-1	1+00	6293754.6	2153393.2
MC-2	2+00	6293660.0	2153401.5
MC-3	3+00	6293611.0	2153478.3
MC-4	4+00	6293572.1	2153560.3
MC-5	5+00	6293616.6	2153647.6
MC-6	6+00	6293595.3	2153740.1
MC-7	7+00	6293535.4	2153813.3
MC-8	8+00	6293520.8	2153909.0
MC-9	9+00	6293472.4	2153988.1
MC-10	10+00	6293446.1	2154077.3
MC-11	11+00	6293421.8	2154161.6
MC-12	12+00	6293484.6	2154232.8

SECONDARY CHANNEL ALIGNMENT

POINT	STATION	EASTING (FT)	NORTHING (FT)
SC-1	0+07	6293609.3	2153492.8
SC-2	0+19	6293611.3	2153504.4
SC-3	0+43	6293613.8	2153528.9
SC-4	0+66	6293614.5	2153551.9
SC-5	0+85	6293613.6	2153570.5
SC-6	1+10	6293611.6	2153595.5
SC-7	1+35	6293608.9	2153619.7
SC-8	0+12	6293456.8	2154077.5
SC-9	0+23	6293457.6	2154087.9
SC-10	0+40	6293457.9	2154105.2
SC-11	1+00	6293442.4	2154162.8
SC-12	1+18	6293438.3	2154180.5

RIGHT OF WAY (NOTE 3)

POINT	EASTING (FT)	NORTHING (FT)
ROW-1	6293947.7	2153508.0
ROW-2	6293898.2	2153576.4
ROW-3	6293867.8	2153627.8
ROW-4	6293814.5	2153713.4
ROW-5	6293784.1	2153762.8
ROW-6	6293746.1	2153835.1
ROW-7	6293652.3	2153835.8
ROW-8	6293581.9	2154030.1
ROW-9	6293504.8	2154325.3

FLOW BAFFLES

POINT	EASTING (FT)	NORTHING (FT)
FB-1	6293642.1	2153651.7
FB-2	6293627.0	2153720.9
FB-4	6293599.9	2153778.7
FB-3	6293557.0	2153827.9

LARGE WOOD STRUCTURES (NOTE 5)

POINT	STATION	CHANNEL	EASTING (FT)	NORTHING (FT)
LWS-1	0+20	2° D/S	6293608.0	2153505.8
LWS-2	0+68	2° D/S	6293617.6	2153553.6
LWS-3	1+14	2° D/S	6293608.4	2153598.8
LWS-4	7+77	MAIN	6293518.9	2153885.6
LWS-5	8+18	MAIN	6293508.6	2153926.8
LWS-6	0+29	2° U/S	6293462.2	2154094.3
LWS-7	10+49	MAIN	6293418.9	2154115.2
LWS-8	1+03	2° U/S	6293437.5	2154165.1

BOULDER SILLS

POINT	STATION	EASTING (FT)	NORTHING (FT)	ELEVATION (FT)
BS-1	0+14	6293610.6	2153500.2	2286.8
BS-2	0+61	6293614.4	2153546.9	2288.8
BS-3	1+07	6293611.9	2153592.7	2291.0
BS-4	0+78	6293448.1	2154141.5	2314.0

BOULDER CASCADE

POINT	STATION	EASTING (FT)	NORTHING (FT)	PRIMARY FLOW STONE TOP ELEVATION (FT)
BC-1	4+75	6293604.2	2153626.6	2291.0
BC-2	4+79	6293613.2	2153626.1	2291.3
BC-3	4+87	6293610.5	2153636.4	2291.8
BC-4	4+96	6293620.9	2153641.1	2292.2
BC-5	5+03	6293615.7	2153650.6	2292.7
BC-6	5+11	6293624.0	2153657.8	2293.2
BC-7	5+19	6293614.7	2153666.5	2293.7
BC-8	8+39	6293498.1	2153940.1	2304.1
BC-9	8+44	6293490.4	2153936.6	2304.3
BC-10	8+54	6293490.4	2153948.1	2304.7
BC-11	8+61	6293479.6	2153948.1	2305.1
BC-12	8+68	6293484.0	2153959.3	2305.7
BC-13	8+76	6293472.7	2153963.2	2306.2
BC-14	8+82	6293484.1	2153972.6	2306.6

SHEET NOTES

1. AN AUTOCAD LAYOUT PLAN AND THE UNDERLYING TOPOGRAPHIC SURVEY BASE MAP WILL BE FURNISHED PRIOR TO CONSTRUCTION FOR LOCATION OF ALL PROPOSED IMPROVEMENTS. IT IS THE CONTRACTORS RESPONSIBILITY TO ESTABLISH HORIZONTAL AND VERTICAL CONTROL BASED ON THE SUPPLIED AUTOCAD FILES AND FEATURES SHOWN ON THE SURVEY, TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL FIELD STAKE THE MAJOR IMPROVEMENTS, SHOWING BOTH HORIZONTAL AND VERTICAL LOCATION, FOR REVIEW AND APPROVAL BY OWNERS REPRESENTATIVE.
2. CONTRACTOR TO RECOVER AND VERIFY CONTROL POINTS.
3. RIGHT OF WAY CONTROL POINTS INDICATED ARE APPROXIMATE. CONTRACTOR TO VERIFY AND COORDINATE WITH CATRANS.
4. FOR STEP POOL DETAILS, SEE SHEET C-08 AND C-10.
5. FOR LARGE WOOD STRUCTURES DETAILS, SEE SHEET C-13.

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: LAURA WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: LAURA WHITE, ROCHO BROWN, BARRY TANAKA, PHILIP LUEDDING
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT GRUB GULCH TO HIGHWAY 299

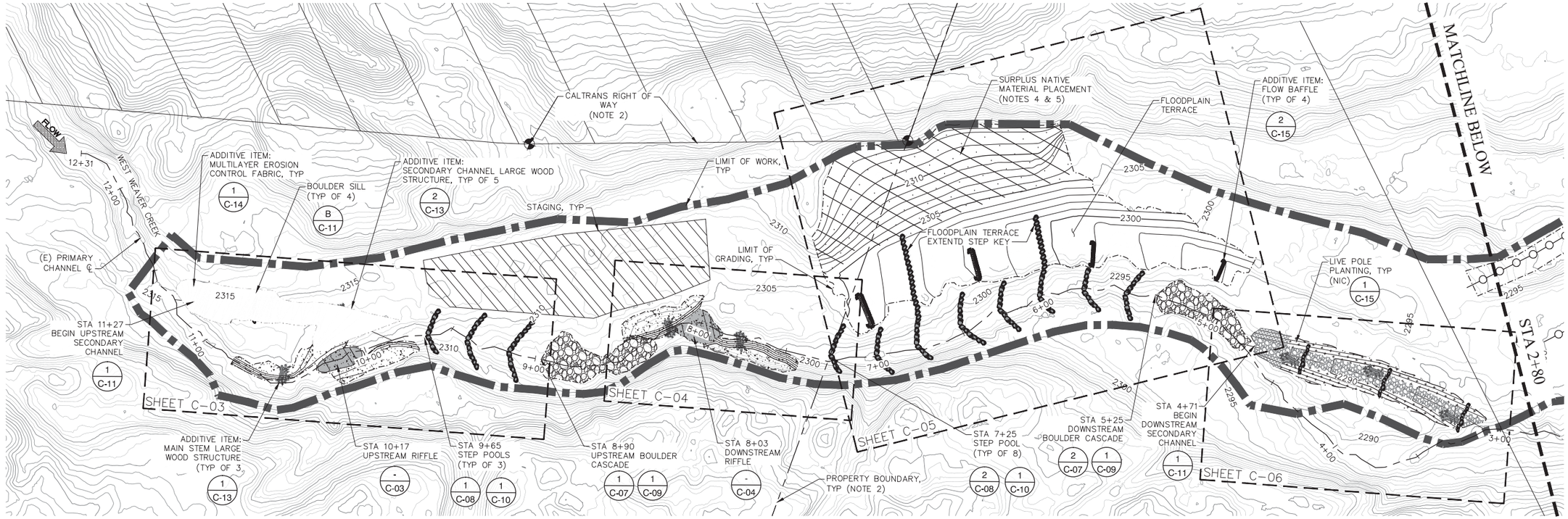
SHEET TITLE: SURVEY LAYOUT AND CONTROL

PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT
30 HORSESHOE LANE
WEAVERVILLE, CA 96093

PROJECT NO. D211670.01
DATE APR. 2017
SHEET NO. 04 OF 20
DWG NO. G-04

PLOT DATE: 4/25/2017 6:20 PM
LAST SAVE DATE: 4/25/2017 11:38 AM
FILE: \\SFO-FILE01\ESA\PWA\DATA\PROJECTS_211XXX - 2011 PROJECTS\D211670.01 - WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_SURVEYLAYOUT&CONTROL.DWG



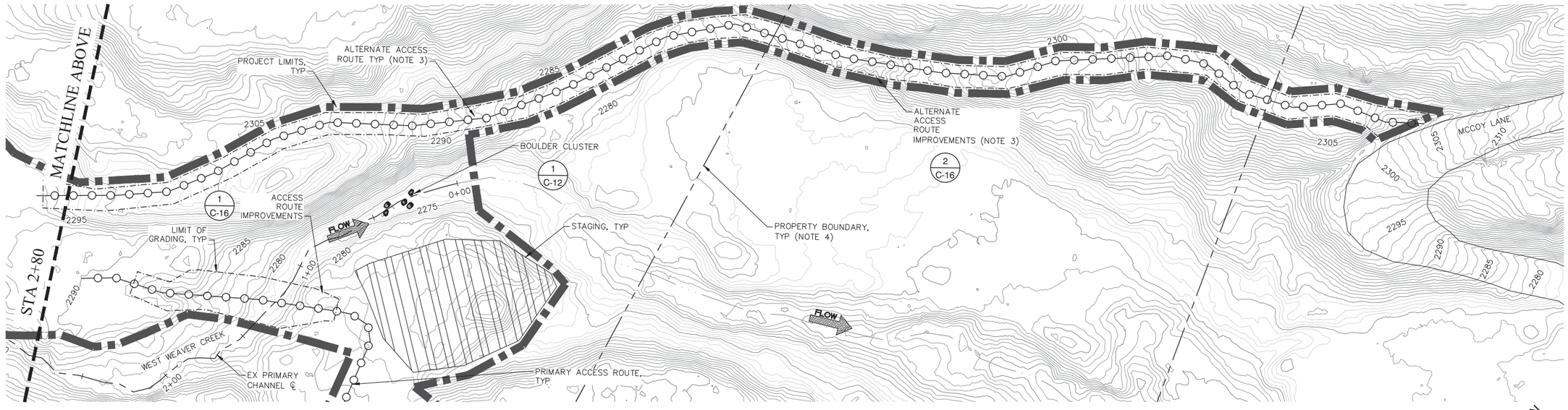
N

0 15 30 60
SCALE (FEET)

REHABILITATION PLAN - UPSTREAM

PLAN VIEW

SCALE: 1" = 30'



N

0 15 30 60
SCALE (FEET)

REHABILITATION PLAN - DOWNSTREAM

PLAN VIEW

SCALE: 1" = 30'

NOTES

1. SEE SHT C-02 FOR PROFILE.
2. PROPERTY AND RIGHT OF WAY LINES SHOWN ARE APPROXIMATE, PROPERTY LINES BASED ONLY ON PARCEL LINES, AND DO NOT REPRESENT LEGAL PROPERTY BOUNDARIES. CALTRANS RIGHT OF WAY POINTS (SEE G-03 AND G-04) AND LINES SHOWN ARE NOT SURVEYED; CONTRACTOR TO VERIFY CALTRANS RIGHT OF WAY. NO WORK TO OCCUR WITHIN RIGHT OF WAY. THESE BOUNDARIES ARE SHOWN FOR LANDOWNER COORDINATION PURPOSES.
3. CONTRACTOR TO ANTICIPATE UTILIZATION OF PRIMARY ACCESS ROUTE. ALTERNATE ACCESS ROUTE MAY BE UTILIZED AT DIRECTION OF OWNER'S REPRESENTATIVE.
4. PLACE EXCAVATED MATERIAL FROM GRADING FEATURES AT THIS LOCATION. EXCAVATED MATERIAL THAT MEETS ESM SPECIFICATION MAY BE USED FOR THE MAIN AND SECONDARY IN-CHANNEL STREAM BED ELEMENTS.
5. CONTOURS SHOWN INDICATE MAXIMUM ALLOWABLE MATERIAL PLACEMENT. FINAL GRADES MAY BE LOWER DUE TO LOSSES OR USE OF NATIVE MATERIAL IN THE CHANNEL.

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEBORG
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT GRUB GULCH TO HIGHWAY 299

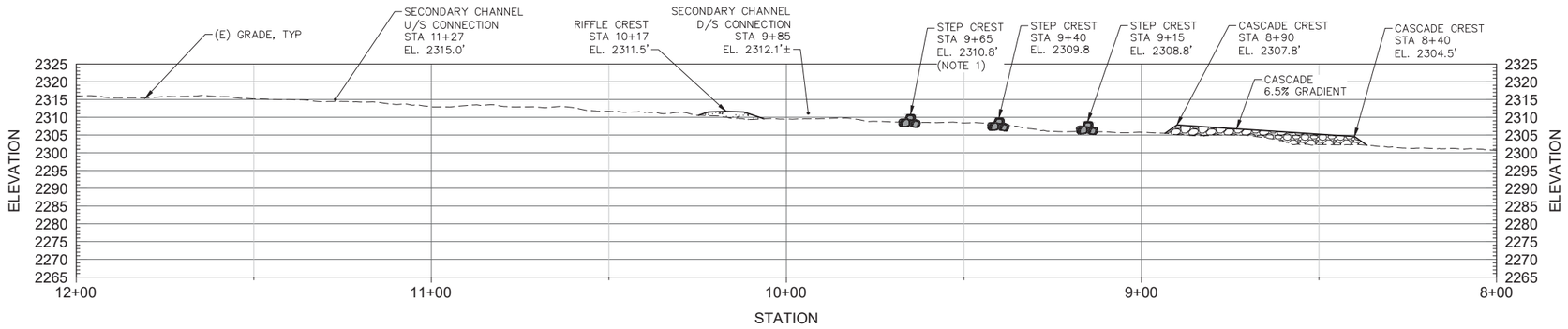
SHEET TITLE: REHABILITATION PLAN

PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT 30 HORSESHOE LANE WEAVERVILLE, CA 96093

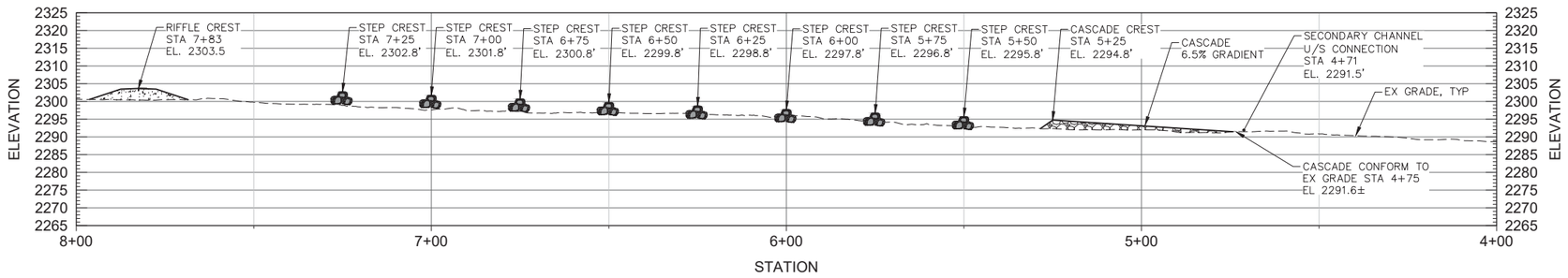
PROJECT NO. D211670.01
DATE APR. 2017
SHEET NO. 05 OF 20
DWG NO. C-01

PLOT DATE: 4/25/2017 6:30 PM
LAST SAVE DATE: 4/25/2017 11:37 AM
FILE: K:\PROJECTS_211XXX - 2011 PROJECTS\D211670.01 - WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_REHABILITATIONPLAN.DWG



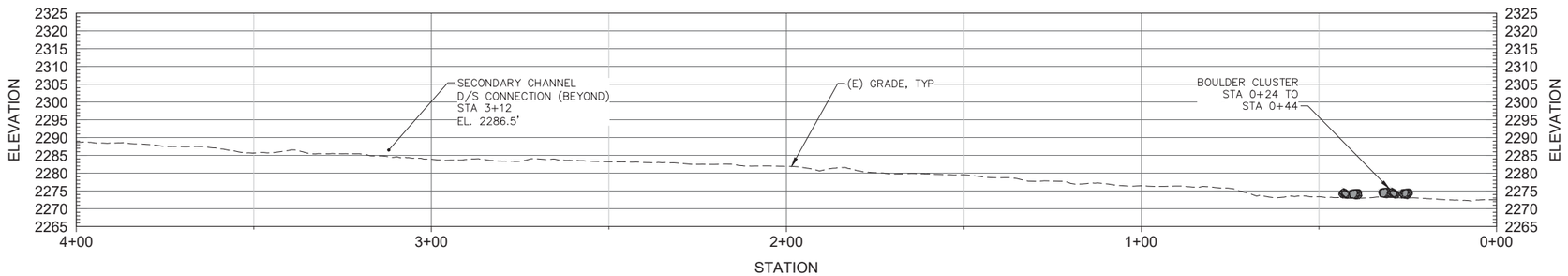
MAIN CHANNEL - STA 8+00 TO 12+00

PROFILE SCALE: 1" = 20'



MAIN CHANNEL - STA 4+00 TO 8+00

PROFILE SCALE: 1" = 20'



MAIN CHANNEL - STA 0+00 TO 4+00

PROFILE SCALE: 1" = 20'

NOTES

1. EXISTING GRADE AND CONTROLLING DESIGN ELEVATIONS BASED ON 2011 SURVEY. FIELD VERIFY THALWEG PRIOR TO CONSTRUCTION.
2. CONSULT RESTORATION ENGINEER IF EX GRADE VARIES FROM ELEVATION SHOWN. DESIGN ADJUSTMENTS MAY BE REQUIRED.

0 10 20 40
SCALE (FEET)

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: JASON WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEWONG
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT GRUB GULCH TO HIGHWAY 299

SHEET TITLE: MAIN CHANNEL PROFILE

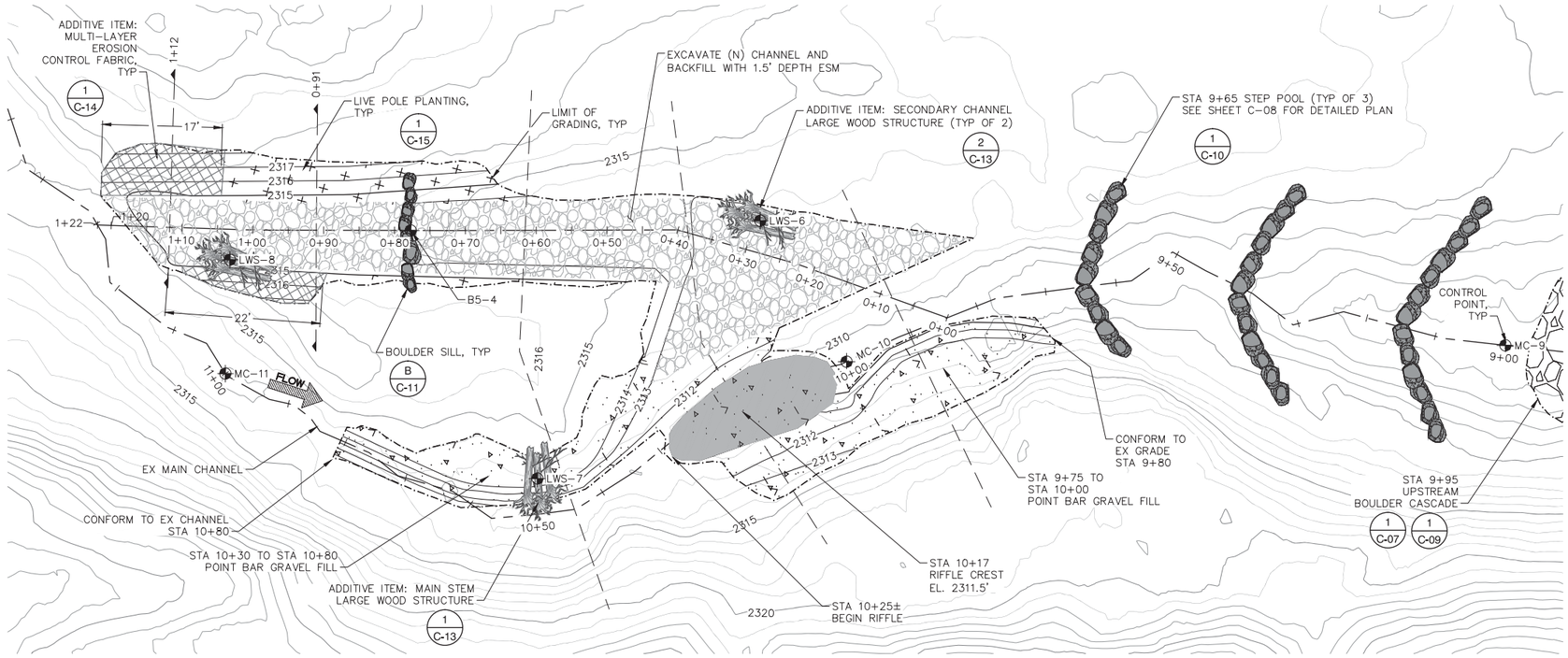
PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT 30 HORSESHOE LANE WEAVERVILLE, CA 96093

PROJECT NO. D211670.01
DATE APR. 2017
SHEET NO. 06 OF 20
DWG NO. C-02

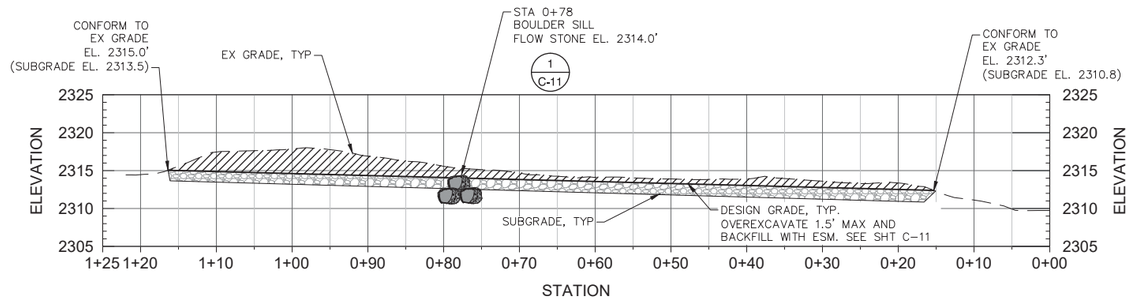
PLOT DATE: 4/25/2017 6:33 PM
LAST SAVE DATE: 4/25/2017 11:42 AM
FILE K:\PROJECTS_211XXX - 2011 PROJECTS\D211670.01 - WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_MAINCHANNELPROFILE.DWG

PLOT DATE: 4/25/2017 6:37 PM
LAST SAVE DATE: 4/25/2017 2:23 PM
FILE K:\PROJECTS_211XXX – 2011 PROJECTS\D211670.01 – WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_DETAILEDGRADINGPLANS.DWG



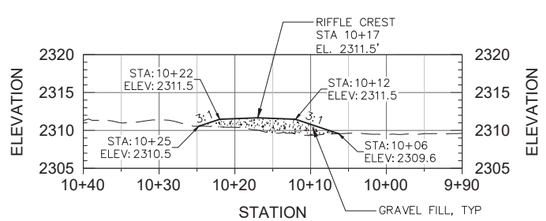
UPSTREAM SECONDARY CHANNEL AND RIFFLE

PLAN VIEW — SCALE: 1" = 10'



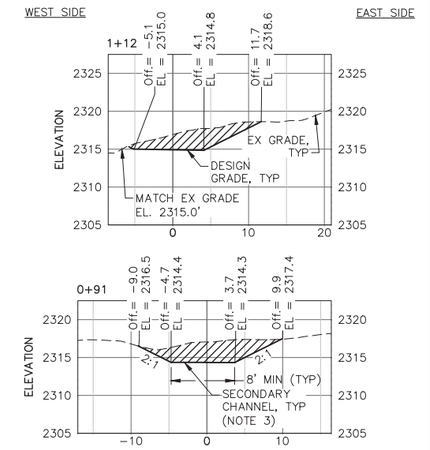
UPSTREAM SECONDARY CHANNEL

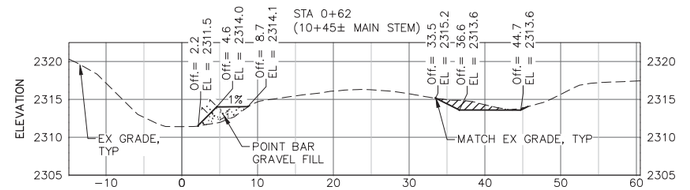
GRADING PROFILE — SCALE: 1" = 10'



UPSTREAM RIFFLE

GRADING PROFILE — SCALE: 1" = 10'





UPSTREAM SECONDARY CHANNEL

GRADING SECTIONS — SCALE: 1" = 10'

NOTES

1. SECTIONS ARE SHOWN LOOKING UPSTREAM.
2. CREST STONES ARE 0.5' ABOVE TOP OF FLOW STONES.
3. OVER–EXCAVATION AND ESM BACKFILL IN (N) SECONDARY CHANNEL NOT SHOWN IN GRADING SECTIONS. SEE SHEET C–11 FOR DETAILS.

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: KYLE WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEWING
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

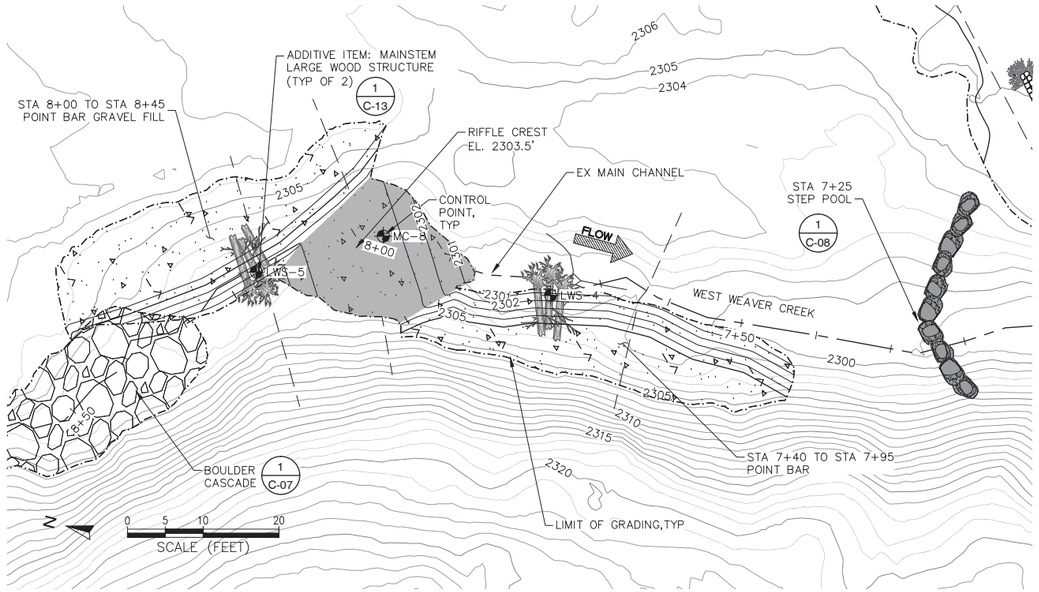
PROJECT: WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT GRUB GULCH TO HIGHWAY 299

SHEET TITLE: DETAILED GRADING PLAN UPSTREAM SECONDARY CHANNEL & RIFFLE

PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT 30 HORSESHOE LANE WEAVERVILLE, CA 96093

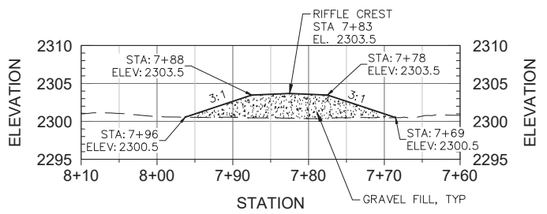
PROJECT NO. D211670.01
DATE APR. 2017
SHEET NO. 07 OF 20
DWG NO. C-03



DOWNSTREAM RIFFLE

PLAN VIEW

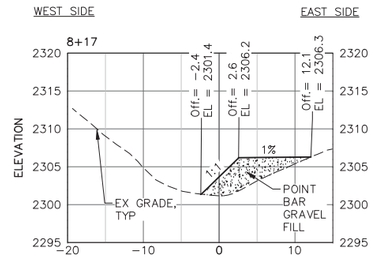
SCALE: 1" = 10'

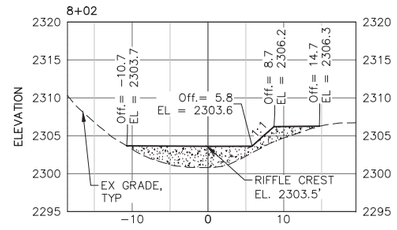


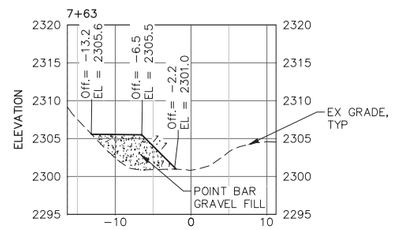
DOWNSTREAM RIFFLE

GRADING PROFILE

SCALE: 1" = 10'







DOWNSTREAM RIFFLE

GRADING SECTIONS

SCALE: 1" = 10'

NOTES

1. SECTIONS ARE SHOWN LOOKING UPSTREAM.

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: JASON WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEWONG
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT GRUB GULCH TO HIGHWAY 299

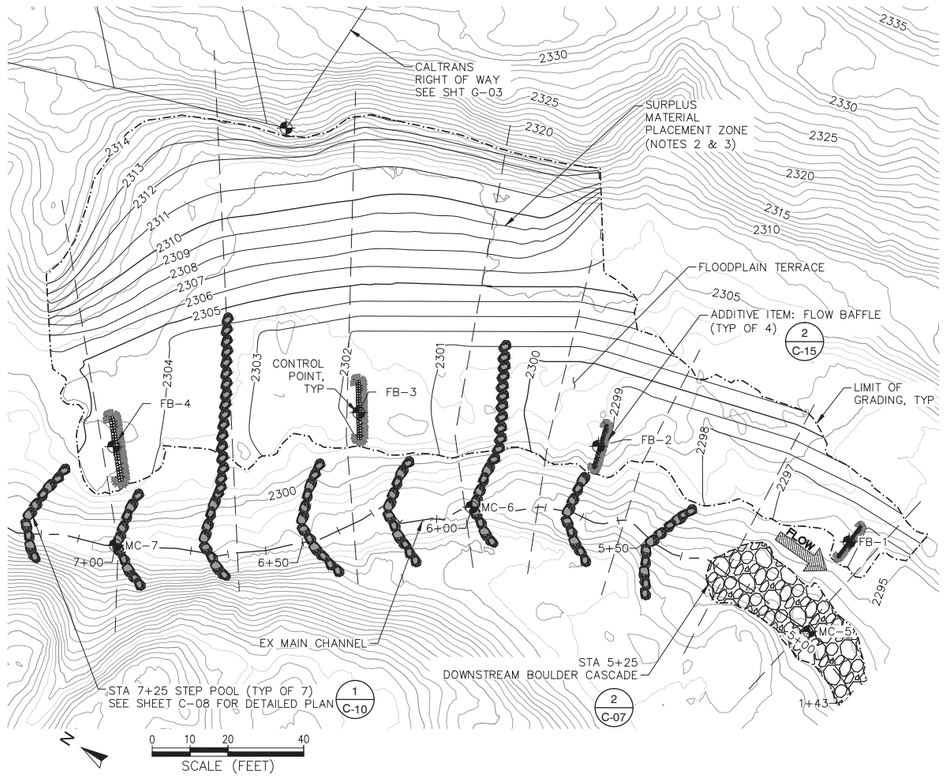
SHEET TITLE: DETAILED GRADING PLAN DOWNSTREAM RIFFLE

PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT 30 HORSESHOE LANE WEAVERVILLE, CA 96093

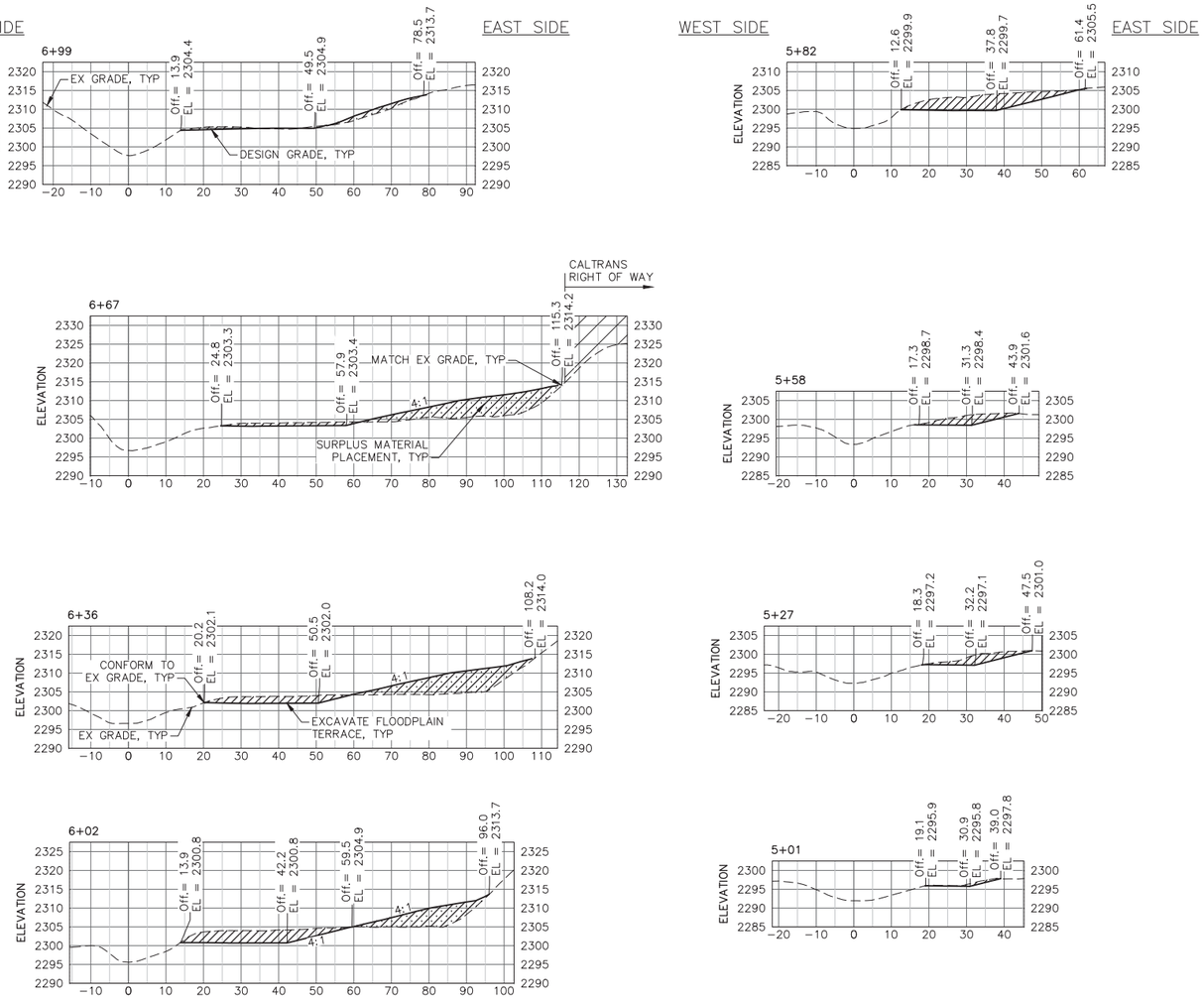
PROJECT NO. D211670.01
DATE APR. 2017
SHEET NO. 08 OF 20
DWG NO. C-04

PLOT DATE: 4/25/2017 6:38 PM
LAST SAVE DATE: 4/25/2017 2:23 PM
FILE K:\PROJECTS_211XXX – 2011 PROJECTS\D211670.01 – WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_DETAILEDGRADINGPLANS.DWG



FLOODPLAIN TERRACE & FILL PLACEMENT

PLAN VIEW — SCALE: 1" = 20'



FLOODPLAIN TERRACE & FILL PLACEMENT

GRADING SECTIONS — SCALE: 1" = 20'

NOTES

1. SECTIONS ARE SHOWN LOOKING UPSTREAM.
2. CONTOURS SHOW INDICATE DESIGN GRADE BASED ON ANTICIPATED APPROXIMATE VOLUME OF SURPLUS NATIVE MATERIAL. FINISHED GRADE SURFACE MAY DEVIATE FROM ELEVATIONS SHOWN IF MORE OR LESS MATERIAL IS GENERATED. PLACE SURPLUS MATERIAL IN 1' LIFTS, TRACK ROLL EACH LIFT WITH TRACKS PERPENDICULAR TO CONTOUR.
3. FINISHED GRADE SHALL BE SUCH THAT SMALL MOUNDS AND DEPRESSIONS REMAIN; MAXIMUM MOUND HEIGHT NOT TO EXCEED 1' ABOVE ADJACENT GRADE, AND MAXIMUM DEPRESSION DEPTH NOT TO EXCEED 1' BELOW ADJACENT GRADE. CONFIRM PLACEMENT FINISHED CONDITIONS WITH OWNER'S REPRESENTATIVE PRIOR TO COMPLETING SURPLUS NATIVE MATERIAL PLACEMENT.

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: JASON WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEWONG
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK
SALMONID HABITAT REHABILITATION PROJECT
GRUB GULCH TO HIGHWAY 299

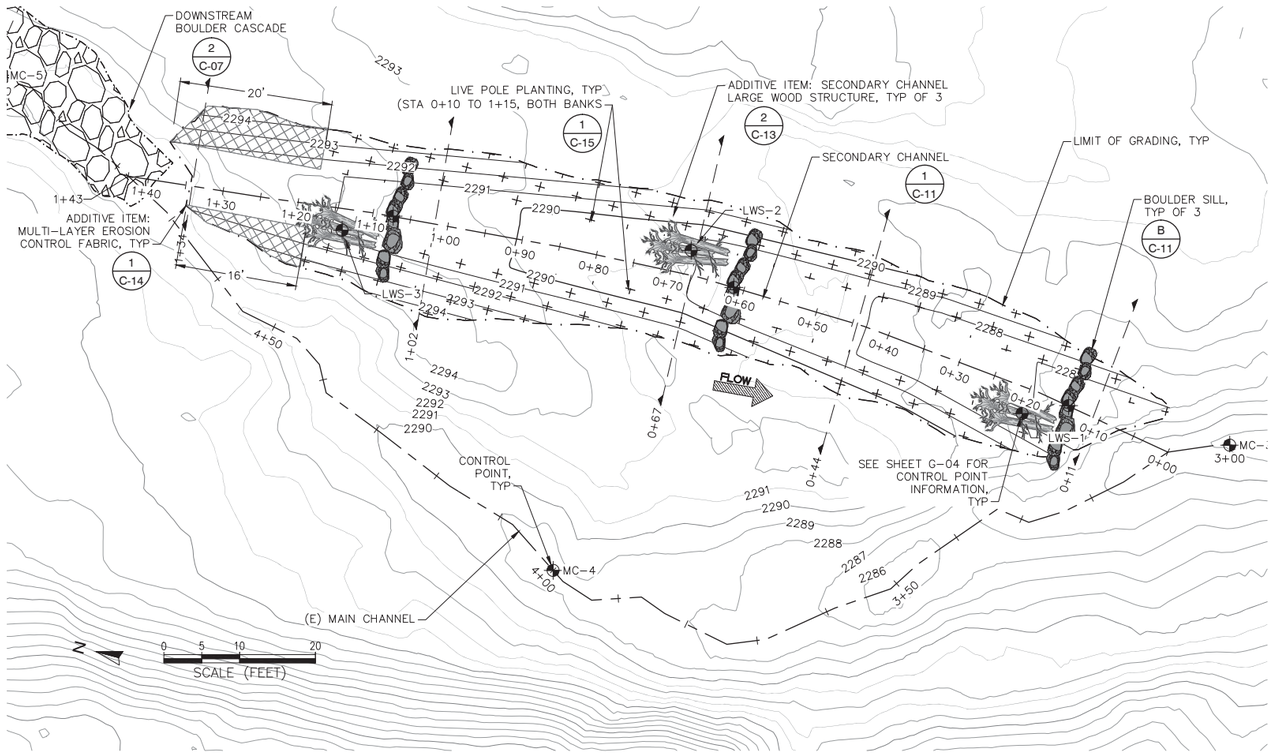
SHEET TITLE: DETAILED GRADING PLAN
FLOODPLAIN TERRACE &
FILL PLACEMENT

PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT
30 HORSESHOE LANE
WEAVERVILLE, CA 96093

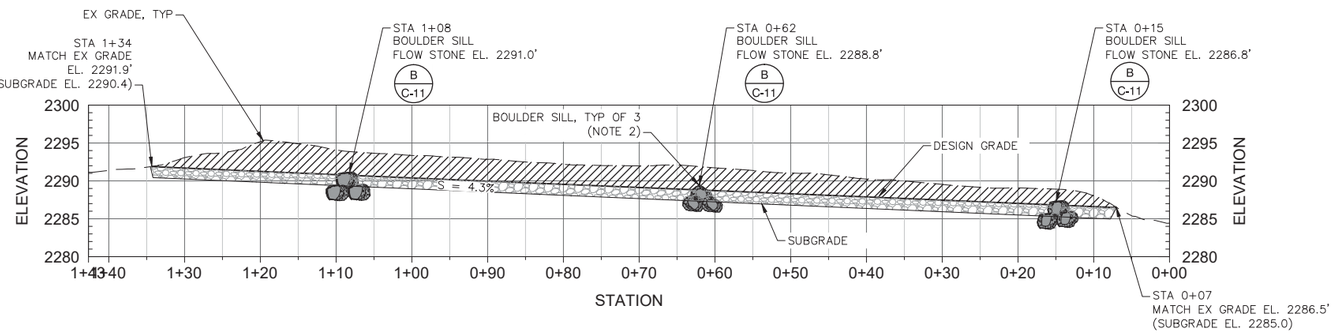
PROJECT NO. D211670.01
DATE APR. 2017
SHEET NO. 09 OF 20
DWG NO. C-05

PLOT DATE: 4/25/2017 6:38 PM
LAST SAVE DATE: 4/25/2017 2:23 PM
FILE: K:_PROJECTS_211XXX – 2011 PROJECTS\D211670.01 – WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_DETAILEDGRADINGPLANS.DWG



DOWNSTREAM SECONDARY CHANNEL

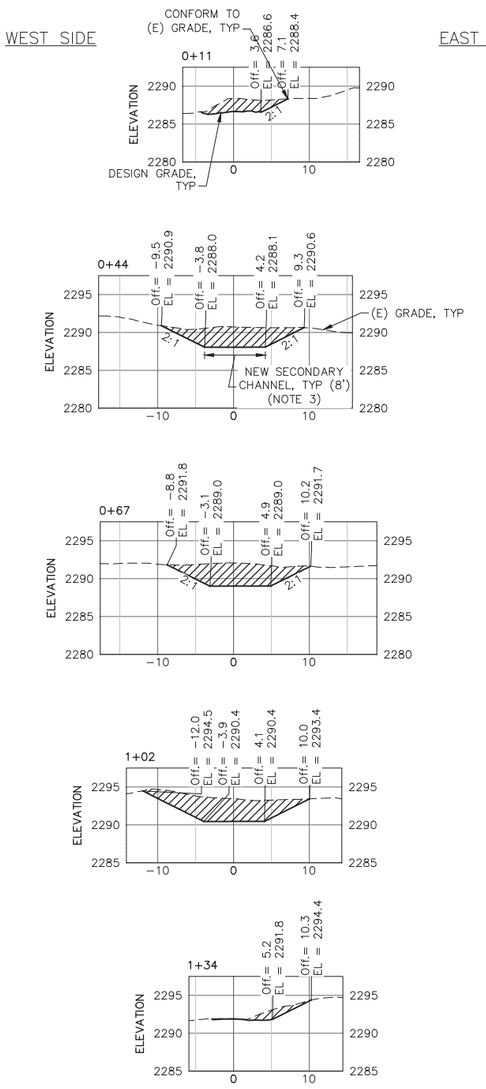
PLAN VIEW — SCALE: 1" = 10'



DOWNSTREAM SECONDARY CHANNEL

GRADING PROFILE — SCALE: 1" = 10'

WEST SIDE — EAST SIDE



DOWNSTREAM SECONDARY CHANNEL

GRADING SECTIONS — SCALE: 1" = 10'

NOTES

1. SECTIONS ARE SHOWN LOOKING UPSTREAM.
2. ELEVATION INDICATED IS FOR FLOW STONE. CREST STONES ARE 0.5' ABOVE TOP OF FLOW STONES.
3. OVER-EXCAVATION AND ESM BACKFILL IN (N) SECONDARY CHANNEL NOT SHOWN IN GRADING SECTIONS. SEE SHEET C-11 FOR DETAILS.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: JON WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEDERING
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT GRUB GULCH TO HIGHWAY 299

SHEET TITLE: DETAILED GRADING PLAN DOWNSTREAM SECONDARY CHANNEL

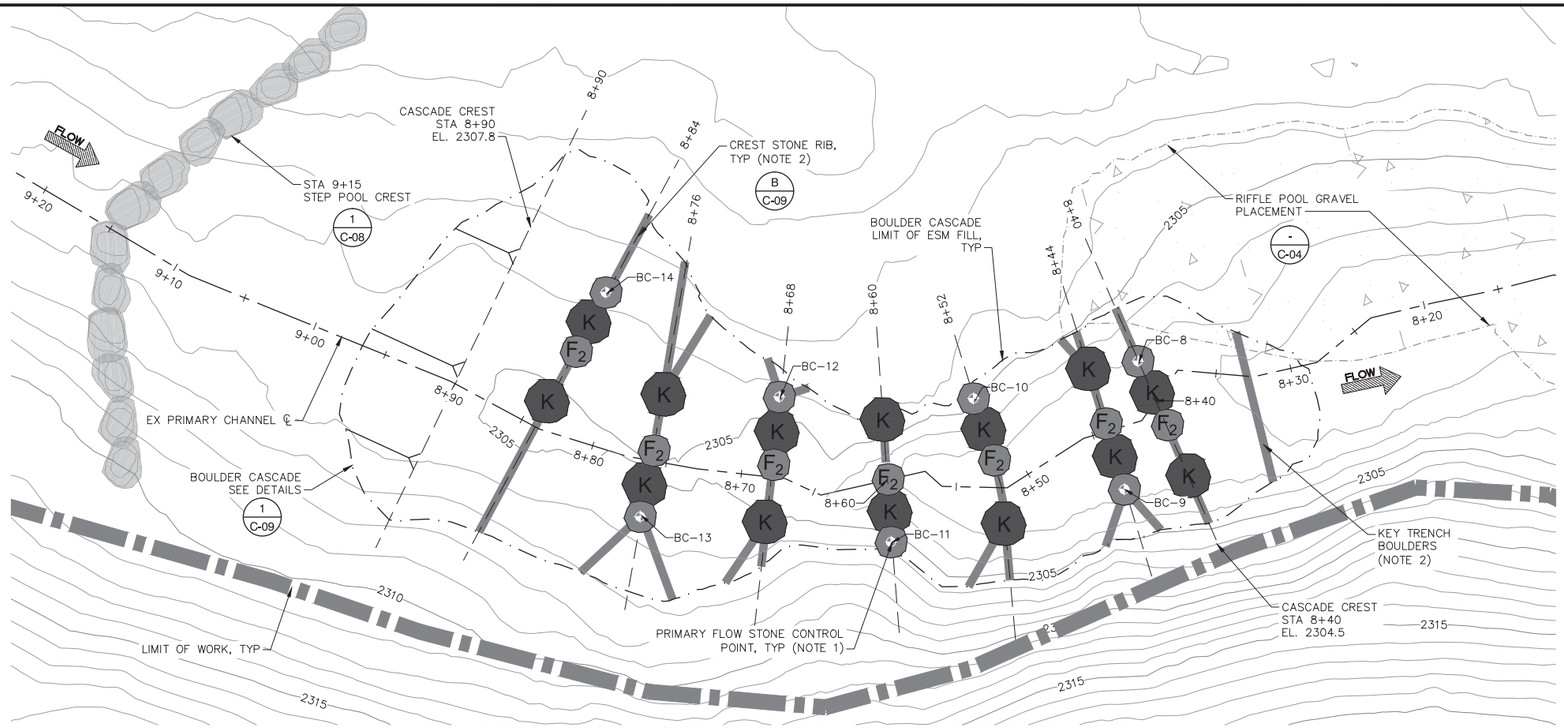
PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT 30 HORSESHOE LANE WEAVERVILLE, CA 96093

PROJECT NO. D211670.01
DATE APR. 2017
SHEET NO. 10 OF 20
DWG NO. C-06

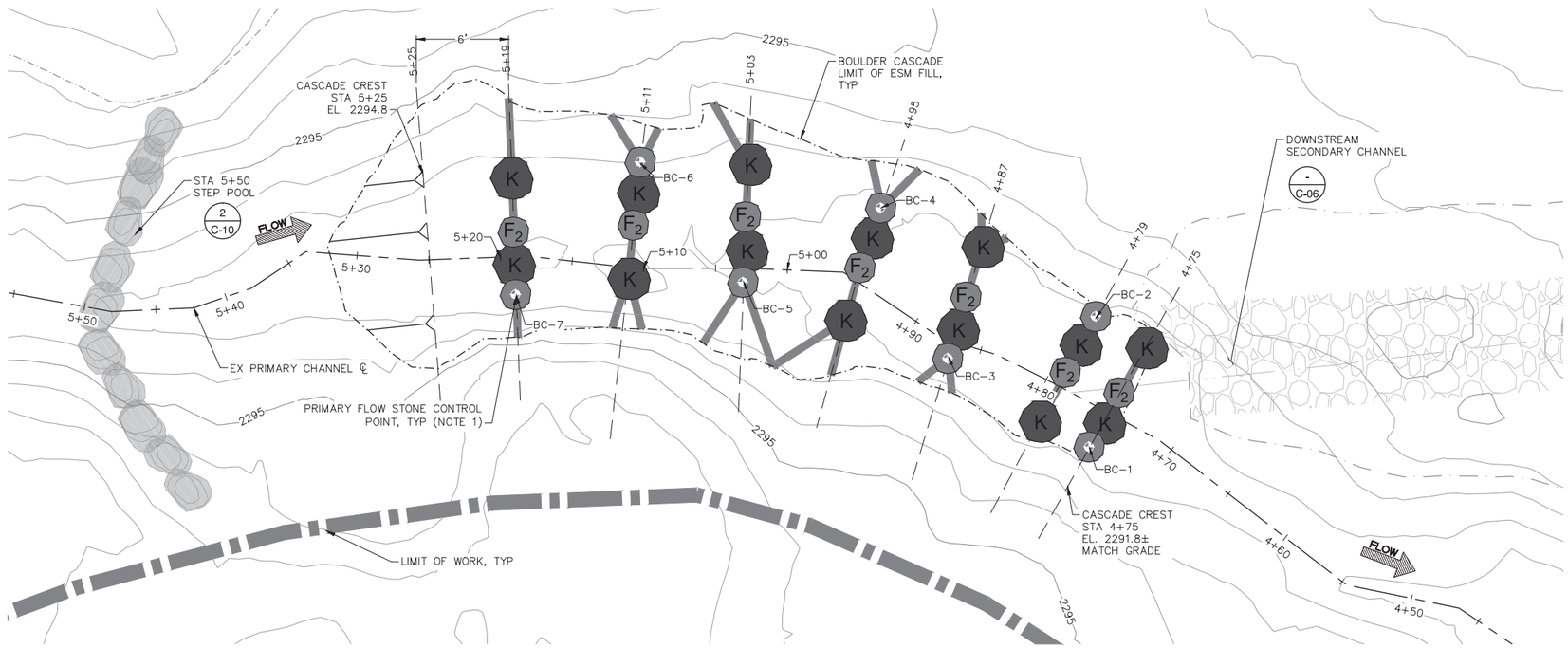
VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

PLOT DATE: 4/25/2017 6:39 PM
LAST SAVE DATE: 4/25/2017 2:23 PM
FILE K:\PROJECTS_211XXX - 2011 PROJECTS\D211670.01 - WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_DETAILEDGRADINGPLANS.DWG



1 UPSTREAM BOULDER CASCADE - STA 8+40 TO 8+90
PLAN VIEW
SCALE: 1" = 5'

N
0 2.5 5 10
SCALE (FEET)



2 DOWNSTREAM BOULDER CASCADE - STA 4+75 TO 5+25
PLAN VIEW
SCALE: 1" = 5'

N
0 2.5 5 10
SCALE (FEET)

NOTES

1. SEE SHEET G-04 FOR TABLE OF CONTROL POINTS.
2. INDIVIDUAL CREST STONE BOULDERS NOT SHOWN FOR CLARITY.
3. THIS SHEET SHOWS PLAN VIEW LAYOUT. SEE SHEET C-09 CONSTRUCTION DETAILS.

LEGEND

- K — KEY STONE, 1 TON
- — PRIMARY FLOW STONE, ½ TON
- F_2 — SECONDARY FLOW STONE, ½ TON
- — CREST STONE, ¼ TON

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: JASON WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEWONG
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

PROJECT: SALMONID HABITAT REHABILITATION PROJECT GRUB GULCH TO HIGHWAY 299
WEST WEAVER CREEK

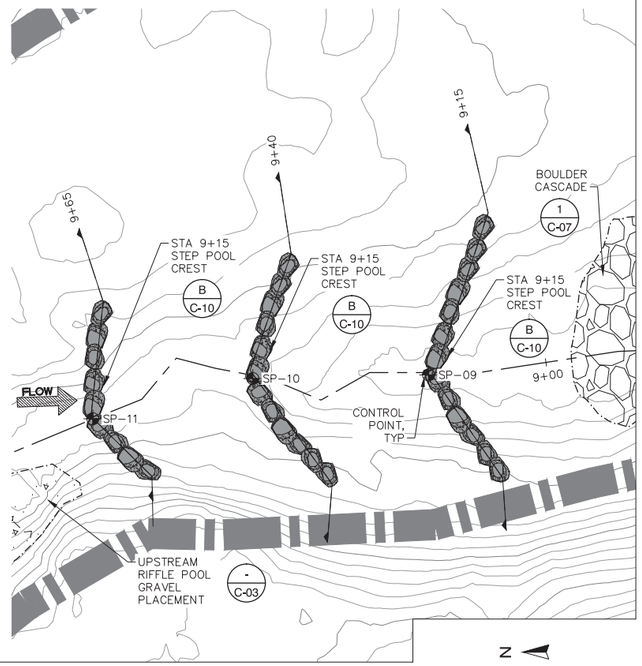
SHEET TITLE: DETAILED PLAN - BOULDER CASCADE

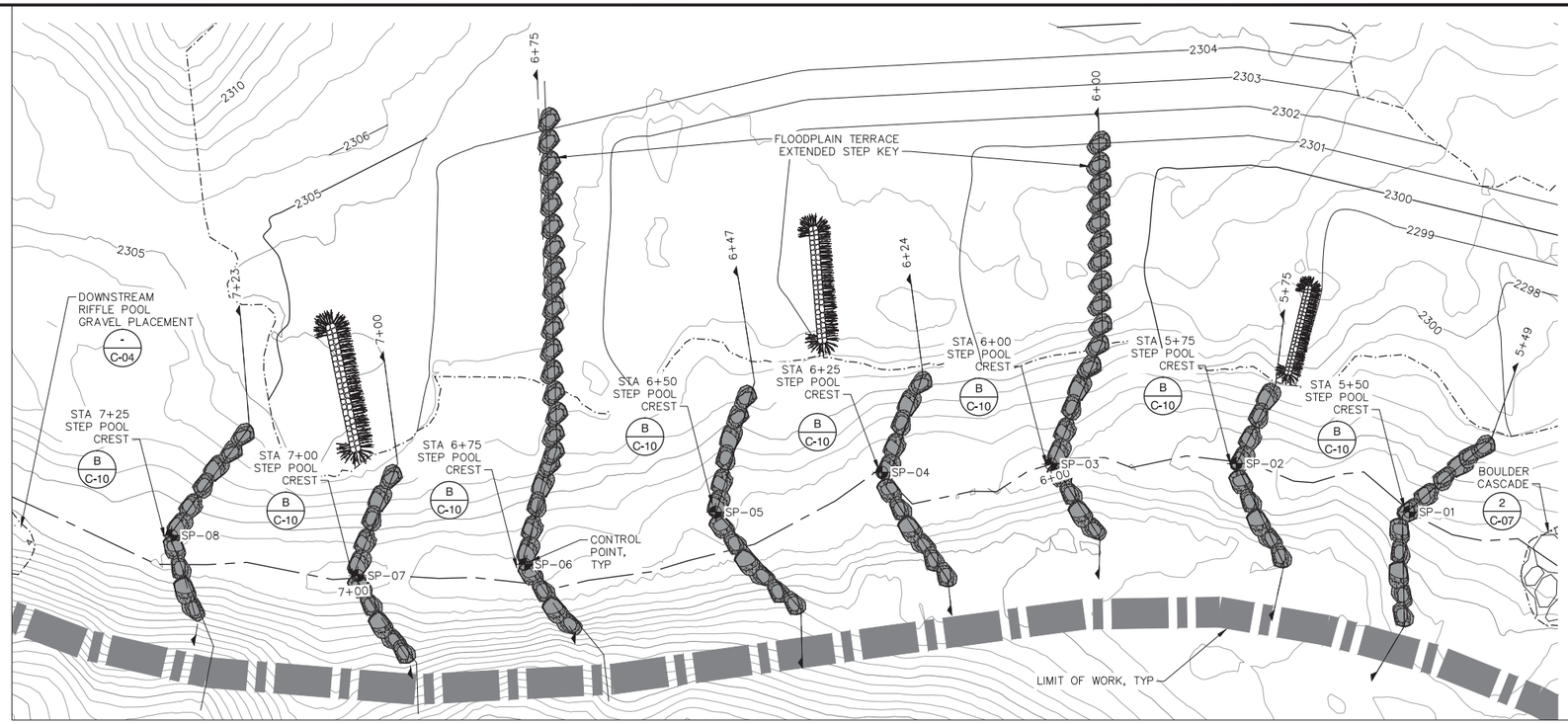
PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

PREPARED FOR:
TRINITY COUNTY RESOURCE CONSERVATION DISTRICT
30 HORSESHOE LANE
WEAVERVILLE, CA 96093

PROJECT NO. D211670.01
DATE APR. 2017
SHEET NO. 11 OF 20
DWG NO. C-07

PLOT DATE: 4/25/2017 6:42 PM
LAST SAVE DATE: 4/25/2017 3:26 PM
FILE: K:\PROJECTS_211XXX – 2011 PROJECTS\D211670.01 – WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_DETAIL_CASCADE.DWG





N

0 5 10 20
SCALE (FEET)

UPSTREAM STEP POOLS

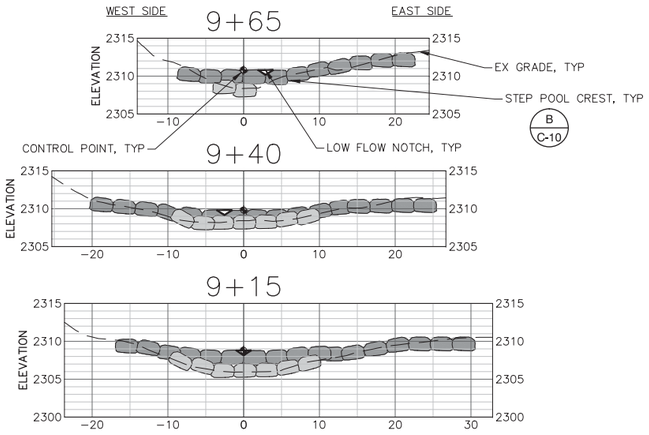
PLAN VIEW

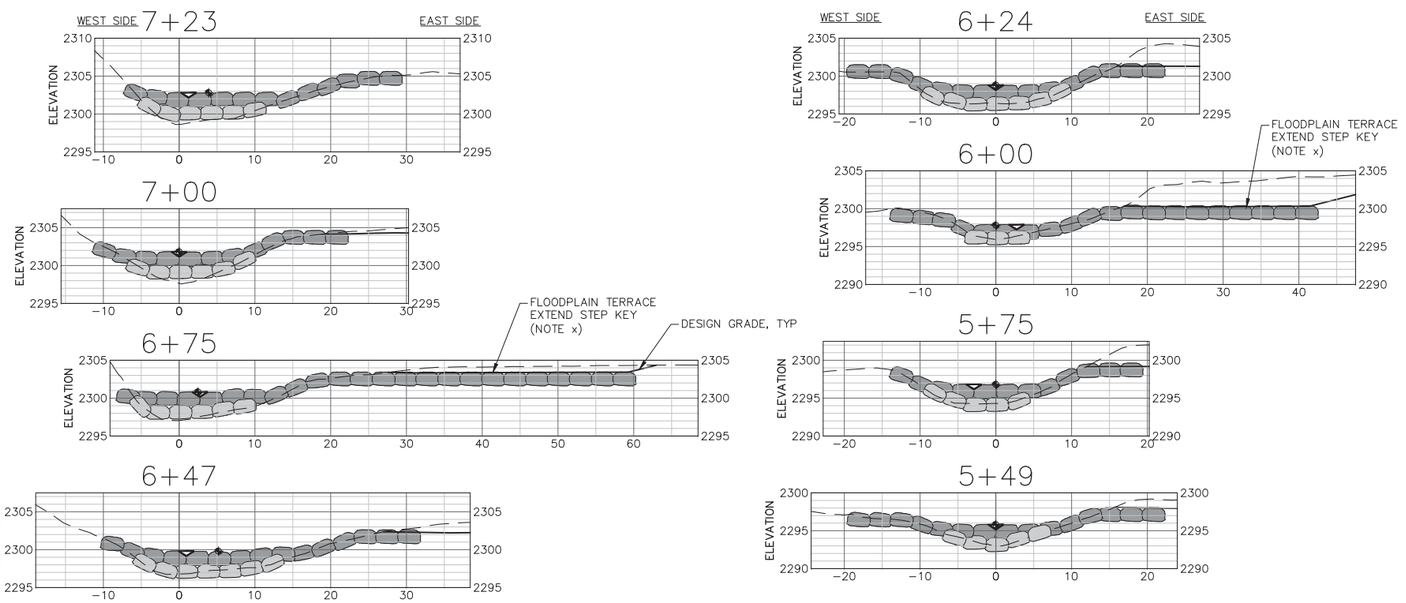
SCALE: 1" = 5'

DOWNSTREAM STEP POOLS

PLAN VIEW

SCALE: 1" = 5'





UPSTREAM STEP POOLS

SECTIONS

SCALE: 1" = 5'

DOWNSTREAM STEP POOLS

SECTIONS

SCALE: 1" = 5'

NOTES

1. SECTIONS ARE SHOWN LOOKING UPSTREAM.
2. CREST WIDTHS ASSUME BEDROCK ON WEST BANK AND NATIVE SOIL OR ALLUVIUM ON EAST BANK. IF SUBSTRATE CONDITIONS DIFFER, MODIFY PER NOTE 5 OF SHEET C-10.

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEWONG
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT GRUB GULCH TO HIGHWAY 299

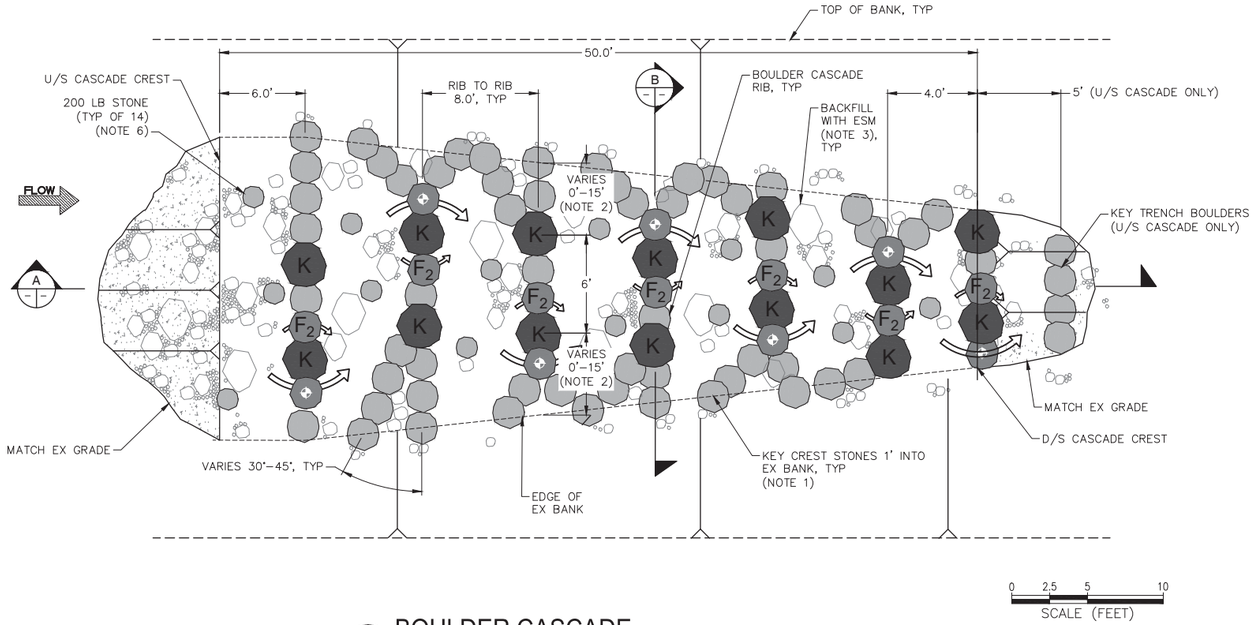
SHEET TITLE: DETAILED PLAN - STEP POOL

PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

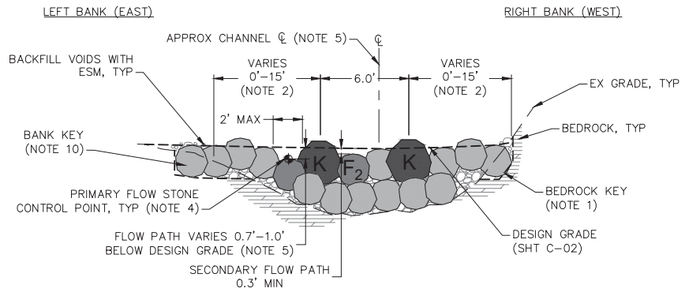
PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT 30 HORSESHOE LANE WEAVERVILLE, CA 96093

PROJECT NO. D211670.01
DATE APR. 2017
SHEET NO. 12 OF 20
DWG NO. C-08

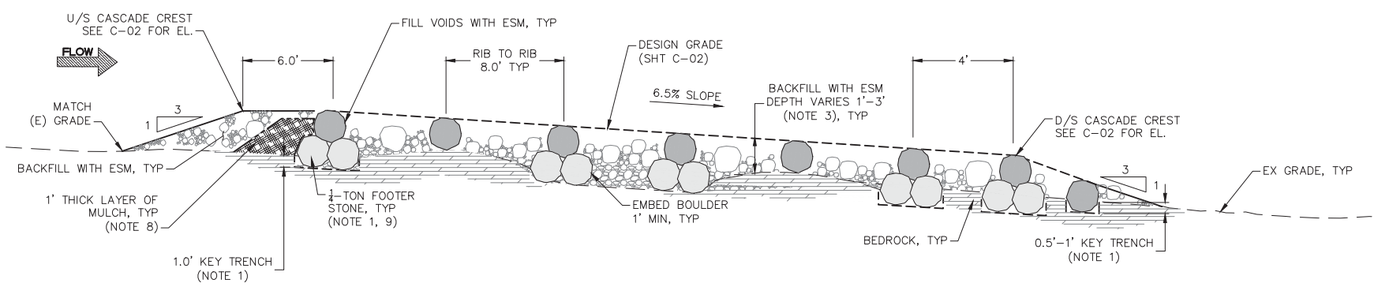
PLOT DATE: 4/25/2017 6:45 PM
LAST SAVE DATE: 4/25/2017 3:17 PM
FILE K:\PROJECTS_211XXX – 2011 PROJECTS\D211670.01 – WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_DETAIL_STEPPOOL.DWG



1 **BOUNDER CASCADE**
PLAN VIEW
SCALE: 1" = 5'



B **BOUNDER CASCADE RIB**
SECTION
SCALE: 1" = 5'



A **BOULDER CASCADE**
PROFILE
SCALE: 1" = 5'

LEGEND

	TYPE	SIZE	TOP ELEV (SEE SHT G–04)
K	KEY STONE	1–TON	FLOW ELEV + 1.5'
	PRIMARY FLOW STONE	½–TON	FLOW ELEV
F_2	SECONDARY FLOW STONE	½–TON	FLOW ELEV + 0.5'
	CREST STONE	¼–TON	0–0.5' ABOVE DESIGN GRADE
	FOOTER STONE	¼–TON	VARIES
	PRIMARY FLOW PATH		
	SECONDARY FLOW PATH		

NOTES

1. TRENCH INTO BEDROCK, AS NEEDED, TO KEY IN BOULDERS OF CASCADE RIB, ½ DIAMETER OF BOULDER (1.0' MIN).
2. RIB CREST LENGTH VARIES DEPENDING ON CHANNEL WIDTH. NUMBER OF CREST STONES VARIES TO ACHIEVE TIE–IN TO BANKS. CREST STONE LOCATIONS TO BE MODIFIED IN FIELD PER GUIDANCE FROM THE RESTORATION ENGINEER. AVOID IMPACTS TO (E) VEGETATION.
3. SHAPE ESM TO CREATE CONNECTED LOW FLOW POOLS AND PATHS BETWEEN FLOW STONES.
4. SEE SHEET G–04 FOR TABLE OF CONTROL POINTS.
5. ALTERNATE PRIMARY FLOW STONES LEFT AND RIGHT OF CHANNEL CENTER.
6. RANDOMLY PLACE PROTRUDING 200 LB BOULDERS THROUGHOUT. PLACE TWO (2) 200–LB BOULDERS PER POOL.
7. FILL CREST STONES AND VOIDES WITH CREST VOIDS USING WATER JETTING, HAND TAMPING, OR SIMILAR TO DEVELOP TIGHT SEAL.
8. PLACE BIODEGRADABLE FILTER FABRIC TO FULLY SURROUND AND ENCLOSE MULCH LAYER.
9. BEDROCK DEPTH VARIES. CREST STONES KEYED INTO BEDROCK DO NOT REQUIRE FOOTER STONES. CREST STONES SET IN ESM SHALL BE PLACED ON FOOTER STONES.
10. DEPTH, THICKNESS, AND EXTENT OF BEDROCK UNKNOWN.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: JASON WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEWONG
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT GRUB GULCH TO HIGHWAY 299

SHEET TITLE: **DETAIL - BOULDER CASCADE**

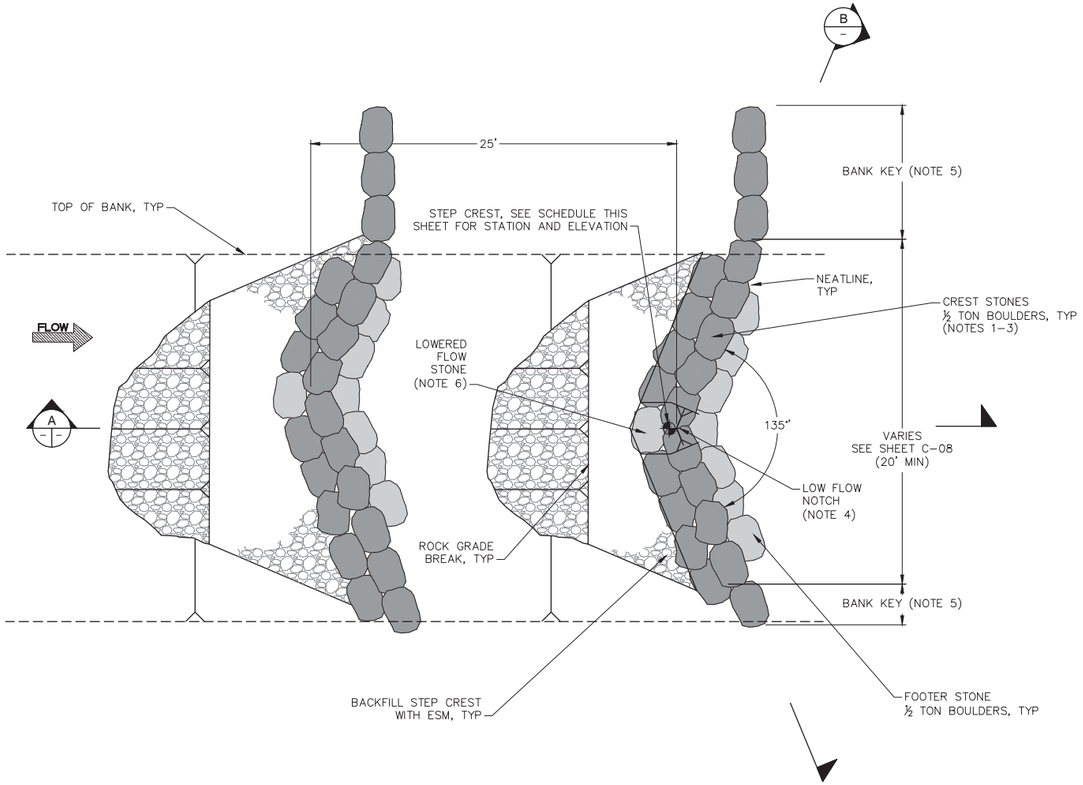
PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT
30 HORSESHOE LANE
WEAVERVILLE, CA 96093

PROJECT NO. D211670.01
DATE APR. 2017
SHEET NO. 13 OF 20
DWG NO. C-09

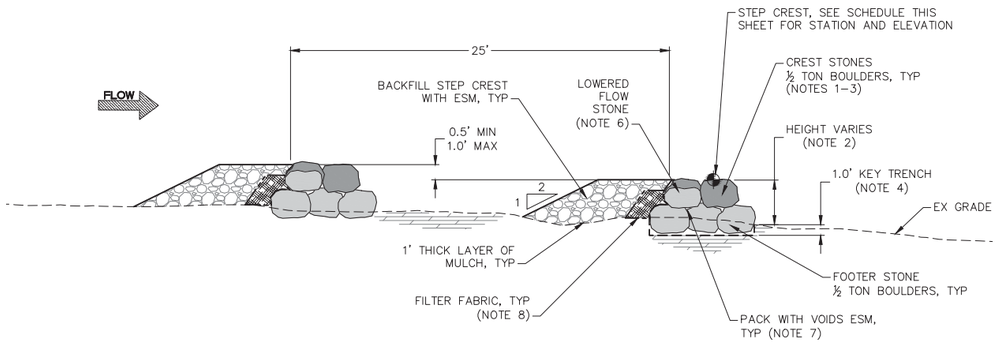
VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

PLOT DATE: 4/25/2017 6:49 PM
LAST SAVE DATE: 4/25/2017 3:26 PM
FILE K:\PROJECTS_211XXX – 2011 PROJECTS\D211670.01 – WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_DETAIL_CASCADE.DWG



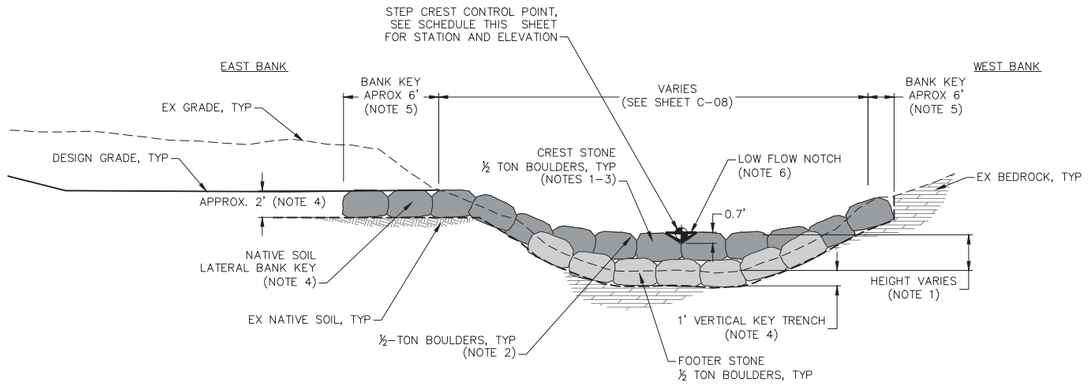
1 STEP POOL
SECTION

SCALE: 1" = 5'



A STEP POOL
PROFILE

SCALE: 1" = 5'



B STEP POOL - CREST
SECTION

SCALE: 1" = 5'

SCHEDULE OF STRUCTURE LOCATION		
STATION (FT)	STEP CREST ELEVATION (FT) (NOTE 2)	LOW FLOW NOTCH ORIENTATION
5+50	2295.8	CENTER
5+75	2296.8	RIGHT
6+00	2297.8	LEFT
6+25	2298.8	CENTER
6+50	2299.8	RIGHT
6+75	2300.8	LEFT
7+00	2301.8	CENTER
7+25	2302.8	RIGHT
9+15	2308.8	CENTER
9+40	2309.8	RIGHT
9+65	2310.8	LEFT

NOTES

1. HEIGHT OF STEP SHALL VARY TO ACHIEVE DESIRED STEP CREST ELEVATION. CONTRACTOR SHALL STAKE CREST ENDPOINTS AND ALLOW 5 WORKING DAYS FOR REVIEW AND ADJUSTMENT BY RESTORATION ENGINEER. CREST ORIENTATION AND EXTENTS MAY BE ADJUSTED TO MINIMIZE SITE DISTURBANCE.
2. BOULDERS SHALL BE ½–TON CLASS. USE LARGER BOULDERS AS NEEDED TO ACHIEVE SPECIFIED HEIGHT. INDIVIDUALLY SELECT AND PLACE BOULDERS TO MAXIMIZE STABILITY. ORIENT SO SMALLEST DIMENSION IS VERTICAL.
3. TRENCH BEDROCK AS NEEDED TO KEY BOULDERS INTO BED AND BANK. EXACT DEPTH AND EXTENT OF BEDROCK IS UNKNOWN.
4. KEY BOULDERS 1 FOOT MINIMUM INTO BEDROCK CHANNEL BED.
5. KEY BOULDERS LATERALLY INTO CHANNEL BANK 1 FOOT IF BEDROCK AND 6 FEET IF NATIVE SOIL OR ALLUVIUM.
6. LOWERED FLOW STONE SHALL BE 0.7 FEET BELOW CREST ELEVATION. STAGGER LOW FLOW NOTCH LATERALLY TO CREATE ALTERNATING FLOW PATH (SEE SCHEDULE).
7. FILL BOULDER VOIDS WITH ESM USING WATER JETTING, HAND TAMPING, OR SIMILAR METHODS TO DEVELOP TIGHT SEAL.
8. PLACE BIODEGRADABLE FILTER FABRIC TO FULLY SURROUND AND ENCLOSE MULCH LAYER.

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: KEVIN WHITE, BARRY TANAKA
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEWING
CHECKED: JORGEN BLOMBERG
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK SALMONID HABITAT REHABILIATION PROJECT GRUB GULCH TO HIGHWAY 299

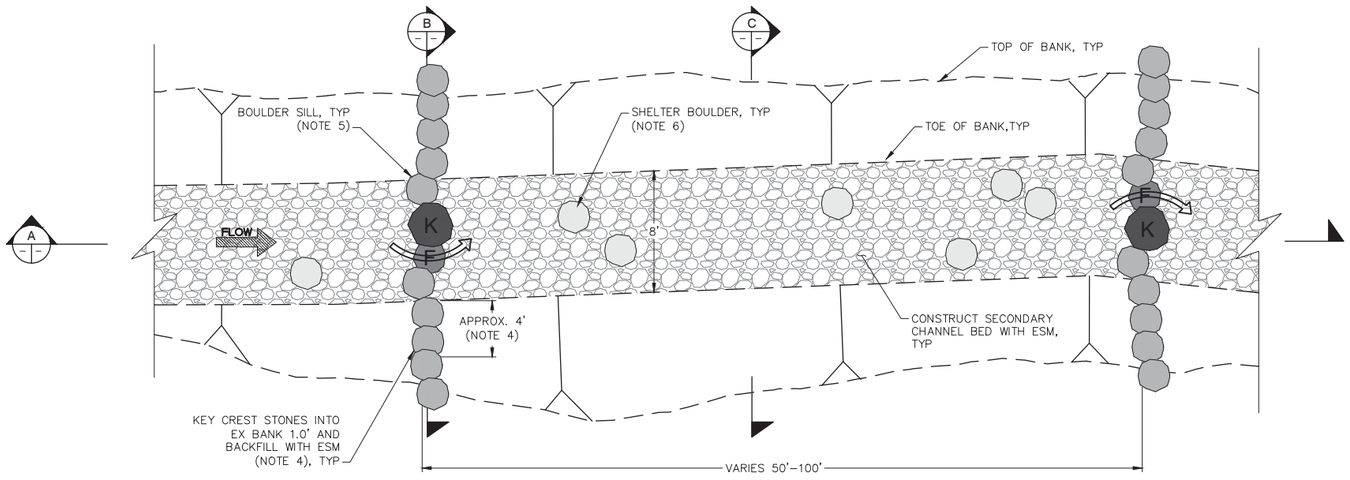
SHEET TITLE: DETAIL - STEP POOL

PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT 30 HORSESHOE LANE WEAVERVILLE, CA 96093

PROJECT NO. D211670.01
DATE APR. 2017
SHEET NO. 14 OF 20
DWG NO. C-10

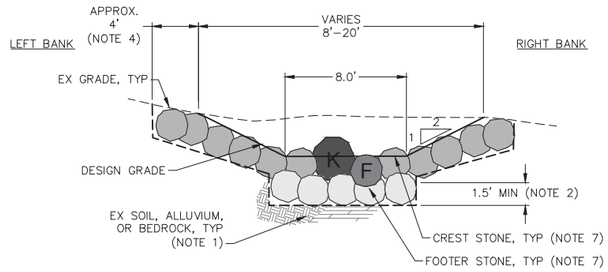
PLOT DATE: 4/25/2017 6:52 PM
LAST SAVE DATE: 4/25/2017 3:17 PM
FILE K:\PROJECTS_211XXX – 2011 PROJECTS\D211670.01 – WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_DETAIL_STEPPOOL.DWG



1 SECONDARY CHANNEL STREAMBED

PLAN VIEW

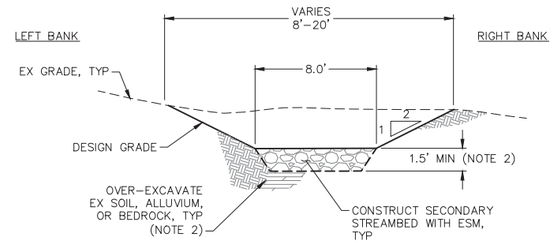
SCALE: 1" = 5'



B SECONDARY CHANNEL BOULDER SILL

TYPICAL SECTION

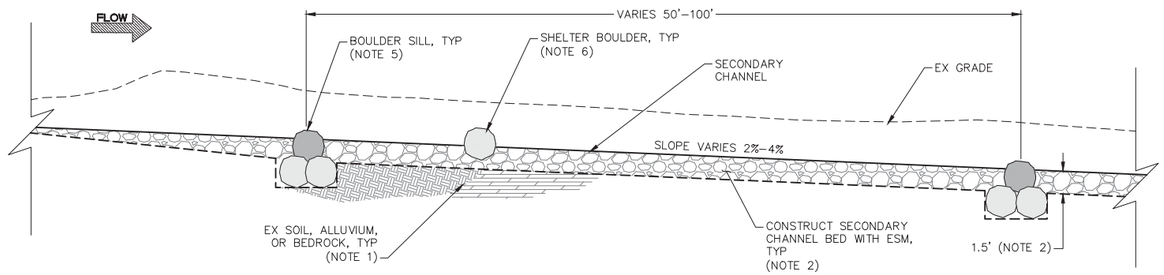
SCALE: 1" = 5'



C SECONDARY CHANNEL STREAMBED

TYPICAL SECTION

SCALE: 1" = 5'



A SECONDARY CHANNEL STREAMBED

PROFILE

SCALE: 1" = 5'

LEGEND

- K — KEY STONE, 1 TON
- F — FLOW STONE, ½–TON
- CREST STONE, ¼–TON
- FOOTER STONE, ¼–TON
- FLOW PATH

NOTES:

1. COMPOSITION OF SUBSURFACE AND DEPTH TO BEDROCK UNKNOWN.
2. ESM SHALL BE 1.5' MINIMUM, UNLESS BEDROCK ENCOUNTERED.
3. SLOPE IS 0% FROM TOP OF DOWNSTREAM BOULDER SILL CREST STONE TO BOTTOM OF OF UPSTREAM GCS CREST STONE, FOR SILL CRESTS AT 2291.0', 2288.8', AND 2286.5' (SEE SHT C–06).
4. WHERE ALLUVIAL AND SOIL BANKS EXIST KEY BOULDER SILL CREST STONES INTO BANK. LENGTH SHALL BE TWO BOULDER LENGTHS (APPROX. 4').
5. SEE DETAILED GRADING SHEETS C–03 AND C–06 FOR EXACT STATIONS AND ELEVATIONS OF BOULDER SILLS. TOP OF DOWNSTREAM CREST SHALL BE 0.3' ABOVE BOTTOM OF NEXT CREST UPSTREAM.
6. PLACE A MAX. OF 6 BOULDERS BETWEEN BOULDER SILLS RANDOMLY THROUGHOUT SECONDARY CHANNEL ESM BED.
7. TOPS OF CREST STONES 0.5' ABOVE FLOW STONES.

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: JASON WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEWONG
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT GRUB GULCH TO HIGHWAY 299

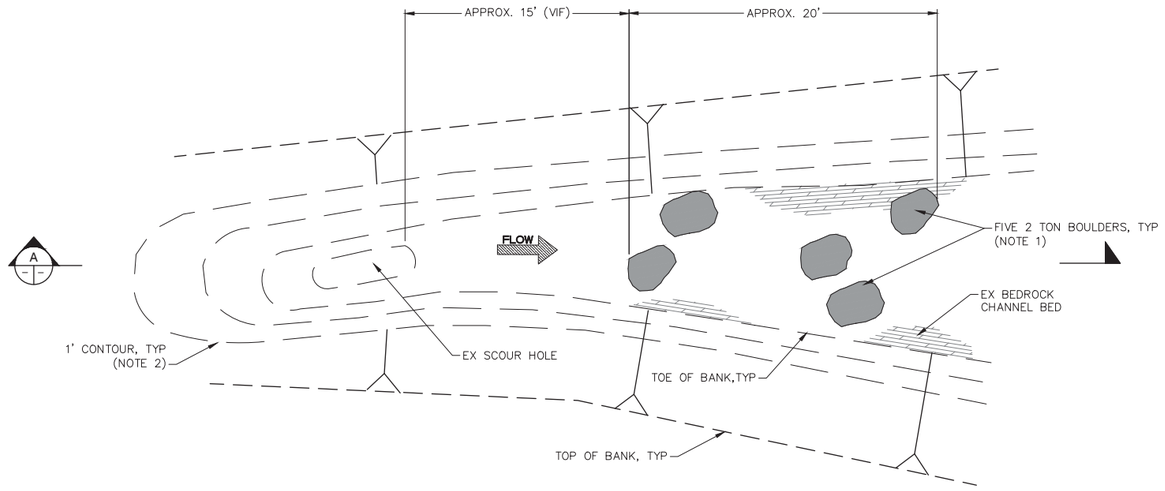
SHEET TITLE: DETAIL - SECONDARY CHANNEL STREAMBED

PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

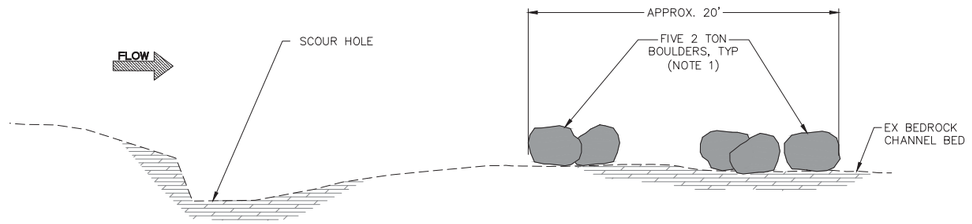
PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT 30 HORSESHOE LANE WEAVERVILLE, CA 96093

PROJECT NO. D211670.01
DATE APR. 2017
SHEET NO. 15 OF 20
DWG NO. C-11

PLOT DATE: 4/25/2017 6:53 PM
LAST SAVE DATE: 4/25/2017 3:31 PM
FILE K:\PROJECTS_211XXX – 2011 PROJECTS\D211670.01 – WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_DETAIL_SECCHBED&BLDERCLSTER.DWG



1 BOULDER CLUSTER
PLAN VIEW
SCALE: 1" = 5'



A BOULDER CLUSTER
SECTION
SCALE: 1" = 5'

NOTES:
1. DISTANCE BETWEEN BOULDERS VARIES (1' MIN – 10' MAX). PLACE BOULDERS PER GUIDANCE BY RESTORATION ENGINEER.
2. CONTOURS SHOWN ARE APPROXIMATE, VIF.
3. CONTRACTOR SHALL PLACE BOULDERS WITHOUT EQUIPMENT ENTERING CHANNEL.

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: JASON WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEWONG
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK SALMONID HABITAT REHABILIATION PROJECT GRUB GULCH TO HIGHWAY 299

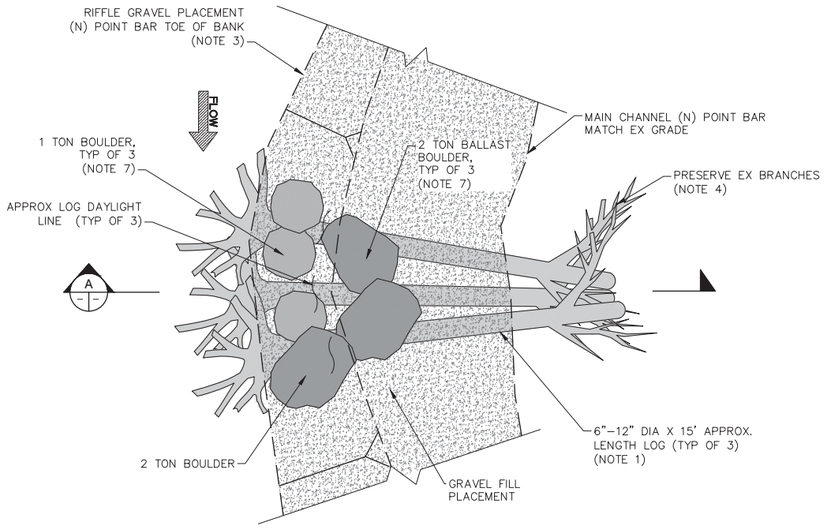
SHEET TITLE: DETAIL - BOULDER CLUSTER

PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

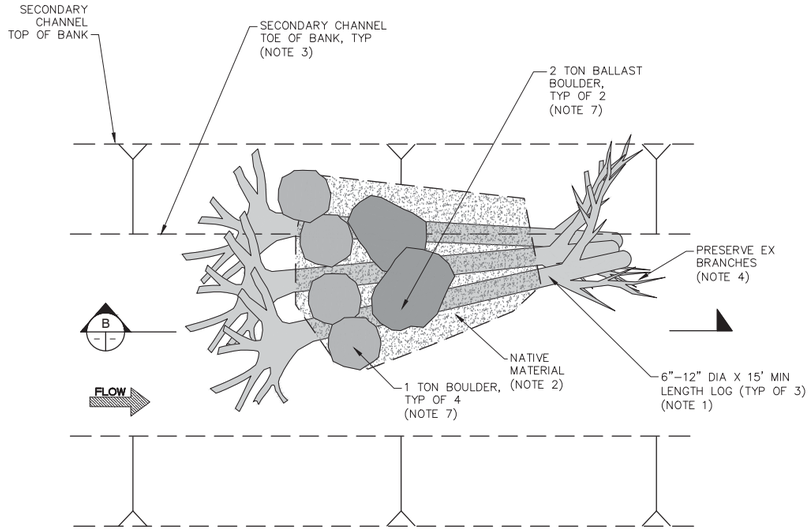
PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT
30 HORSESHOE LANE
WEAVERVILLE, CA 96093

PROJECT NO. D211670.01
DATE MAR. 2017
SHEET NO. 16 OF 20
DWG NO. C-12

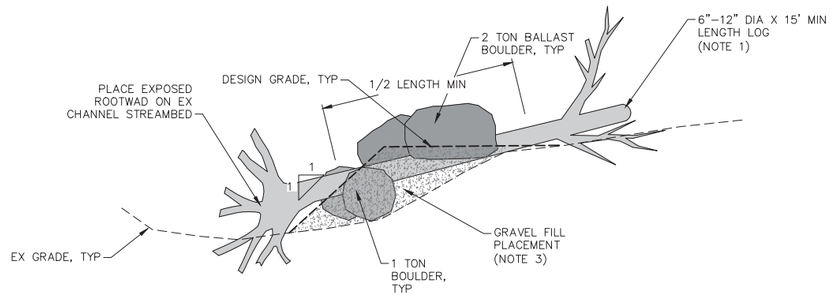
PLOT DATE: 4/25/2017 6:54 PM
LAST SAVE DATE: 4/25/2017 3:31 PM
FILE K:\PROJECTS_211XXX – 2011 PROJECTS\D211670.01 – WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_DETAIL_SECCHBEDABLDERCLSTER.DWG



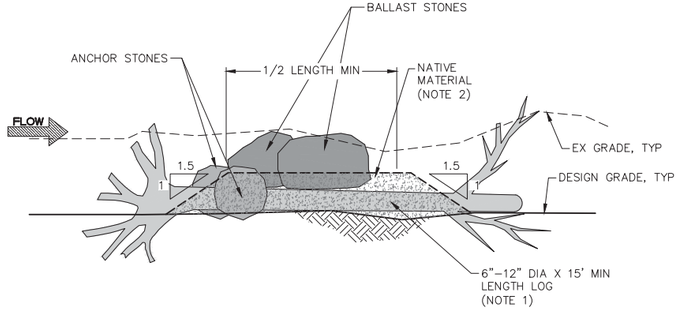
1 ADDITIVE ITEM: MAIN STEM LARGE WOOD STRUCTURE
PLAN VIEW
SCALE: 1" = 3'



2 ADDITIVE ITEM: SECONDARY CHANNEL LARGE WOOD STRUCTURE
PLAN VIEW
SCALE: 1" = 3'



A MAIN STEM LARGE WOOD STRUCTURE
SECTION VIEW
SCALE: 1" = 3'



B SECONDARY CHANNEL LARGE WOOD STRUCTURE
PROFILE VIEW
SCALE: 1" = 3'

NOTES

1. LOGS SHALL BE SALVAGED FROM TREES REMOVED WITHIN THE PROJECT SITE. DEPENDING ON SIZE AND QUANTITY OF AVAILABLE LOGS, STRUCTURE MAY CONSIST OF MORE OR LESS THAN 3 LOGS. THE FINAL LOG QUANTITY PER STRUCTURE TO BE DETERMINED BY RESTORATION ENGINEER (2 MIN, 3 MAX).
2. NATIVE MATERIAL EXCAVATED FROM THE SECONDARY CHANNEL MAY BE PLACED AROUND THE SECONDARY CHANNEL LARGE WOOD STRUCTURE BOULDERS AS LONG AS THE EXCAVATED MATERIAL MEETS SPECIFICATIONS. MINIMUM THICKNESS OF NATIVE MATERIAL SHALL BE 1.5' ABOVE HIGHEST ELEVATION OF LOG.
3. PLACE GRAVEL FILL MATERIAL OR APPROVED NATIVE MATERIAL MAY AS NEEDED TO COMPLETELY COVER AT LEAST ONE HALF OF LOG LENGTH.
4. PRESERVE AND PROTECT BRANCHES BETWEEN 10' AND 15' ABOVE THE CROWN OF THE ROOTBALL. TRIM BRANCHES TO LENGTH OF 5' MAXIMUM.
5. DO NOT OBSTRUCT MORE THAN HALF OF CHANNEL WIDTH WITH SECONDARY CHANNEL LARGE WOOD STRUCTURE.
6. CONTRACTOR TO STAKE LOCATIONS OF LARGE WOOD STRUCTURE. USE 2 STAKES PER STRUCTURE WITH STAKES INDICATING ORIENTATION OF STRUCTURE. SEE SHEET G–04 FOR CONTROL POINT COORDINATES.
7. PLACE BALLAST BOULDERS IN DIRECT CONTACT WITH LOGS. PLACE TO ADEQUATELY ANCHOR EACH LOC AND RESIST DISPLACEMENT.

SCHEDULE OF LARGE WOOD STRUCTURES			
MAIN STEM STA	SECONDARY CHANNEL STA	LWS TYPE	CONTROL PT NUMBER (NOTE 7)
---	U/S 1+00	SECONDARY CHANNEL	LWS-8
10+50	---	MAIN STEM	LWS-7
---	U/S 0+30	SECONDARY CHANNEL	LWS-6
8+20	---	MAIN STEM	LWS-5
7+75	---	MAIN STEM	LWS-4
---	D/S 1+15	SECONDARY CHANNEL	LWS-3
---	D/S 0+70	SECONDARY CHANNEL	LWS-2
---	D/S 0+15	SECONDARY CHANNEL	LWS-1

0 1.5 3 6
SCALE (FEET)

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: JASON WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEWONG
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT GRUB GULCH TO HIGHWAY 299

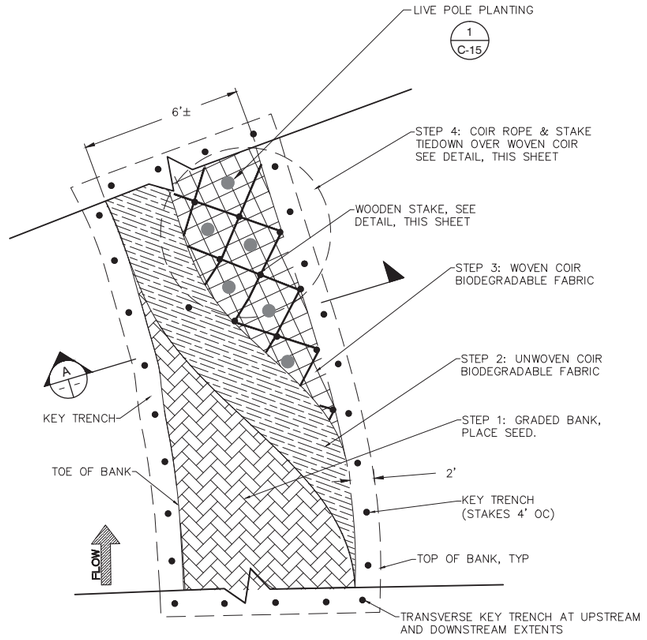
SHEET TITLE: DETAILS - LARGE WOOD STRUCTURES

PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT
30 HORSESHOE LANE
WEAVERVILLE, CA 96093

PROJECT NO. D211670.01
DATE APR. 2017
SHEET NO. 17 OF 20
DWG NO. C-13

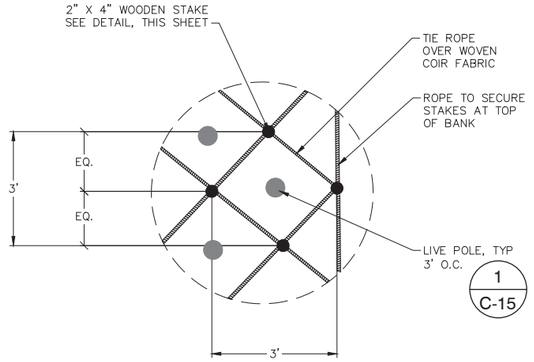
PLOT DATE: 4/25/2017 6:55 PM
LAST SAVE DATE: 4/25/2017 3:37 PM
FILE K:_PROJECTS_211XXX – 2011 PROJECTS\D211670.01 – WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_DETAIL_WOOD&BIOSTRUCTURES.DWG



1 ADDITIVE ITEM: MULTILAYER EROSION CONTROL FABRIC

PLAN VIEW

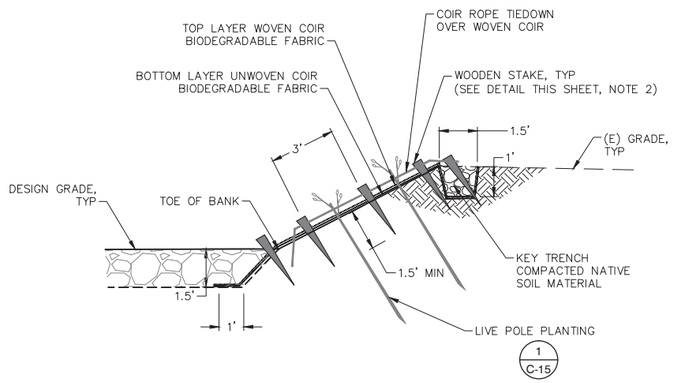
SCALE: 1" = 3'



2 TIE DOWN DETAIL

PLAN VIEW

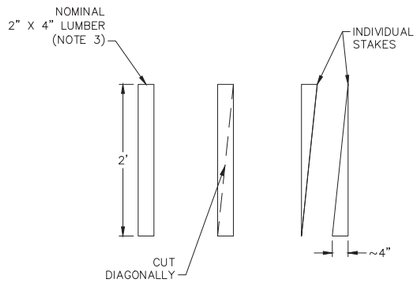
SCALE: 1" = 2'



A MULTILAYER EROSION CONTROL FABRIC

SECTION

SCALE: 1" = 3'



3 WOODEN STAKE

SCALE: 1" = 1'

NOTES

1. PUNCTURE FABRIC FOR LIVE POLE, DO NOT CUT FABRIC. DIAMETER OF PUNCTURE NOT EXCEED DIAMETER OF LIVE POLE.
2. DRIVE STAKES UNTIL ROPE IS TAUT TO ACHIEVE SUFFICIENT COMPRESSION OF THE FABRIC.
3. CONTRACTOR SHALL UTILIZE LUMBER FREE OF KNOTS AND CHECKS.

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: JASON WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEWONG
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT GRUB GULCH TO HIGHWAY 299

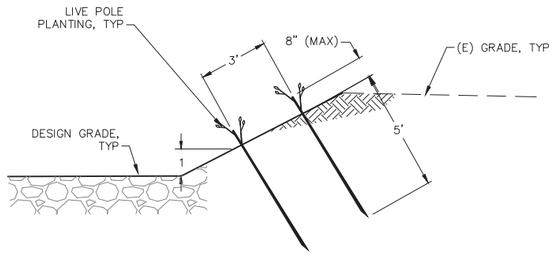
SHEET TITLE: DETAILS - MULTI-LAYER EROSION CONTROL FABRIC

PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT 30 HORSESHOE LANE WEAVERVILLE, CA 96093

PROJECT NO. D211670.01
DATE MAR. 2017
SHEET NO. 18 OF 20
DWG NO. C-14

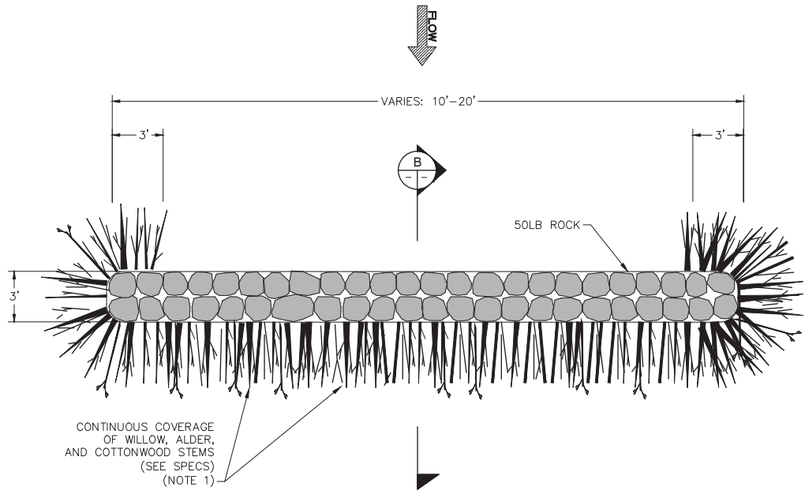
PLOT DATE: 4/25/2017 6:55 PM
LAST SAVE DATE: 4/25/2017 3:37 PM
FILE K:\PROJECTS_211XXX – 2011 PROJECTS\D211670.01 – WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_DETAIL_WOOD&BIOSTRUCTURES.DWG



1 LIVE POLE PLANTING (NIC)

PLAN VIEW

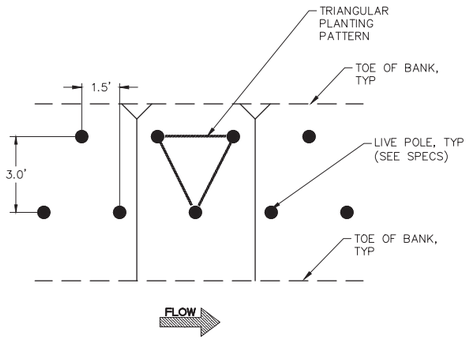
SCALE: 1" = 3'



2 ADDITIVE ITEM: FLOW BAFFLE

PLAN VIEW

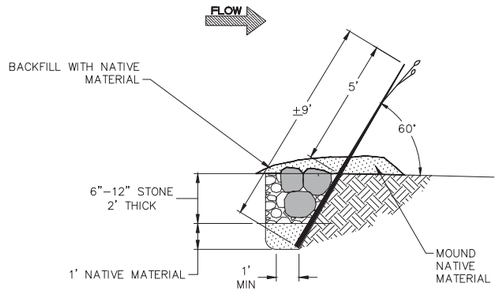
SCALE: 1" = 3'



A LIVE POLE PLANTING

SECTION

SCALE: 1" = 3'



B FLOW BAFFLE

SECTION

SCALE: 1" = 3'

NOTES

1. SALVAGED WOODY MATERIAL (ROOTBALLS AND SHRUBS) MAY BE SUBSTITUTED FOR STEMS, PER APPROVAL BY OWNER REPRESENTATIVE.
2. EXTENT OF LIVE POLE PLANTING TO BE DETERMINED BY OWNER'S REPRESENTATIVE FOLLOWING COMPLETION OF GRADING AND INSTALLATION OF MULTILAYER EROSION CONTROL FABRIC.

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

ESA
Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: JASON WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEWONG
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER BARRY TANAKA C 82243 CIVIL STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT GRUB GULCH TO HIGHWAY 299

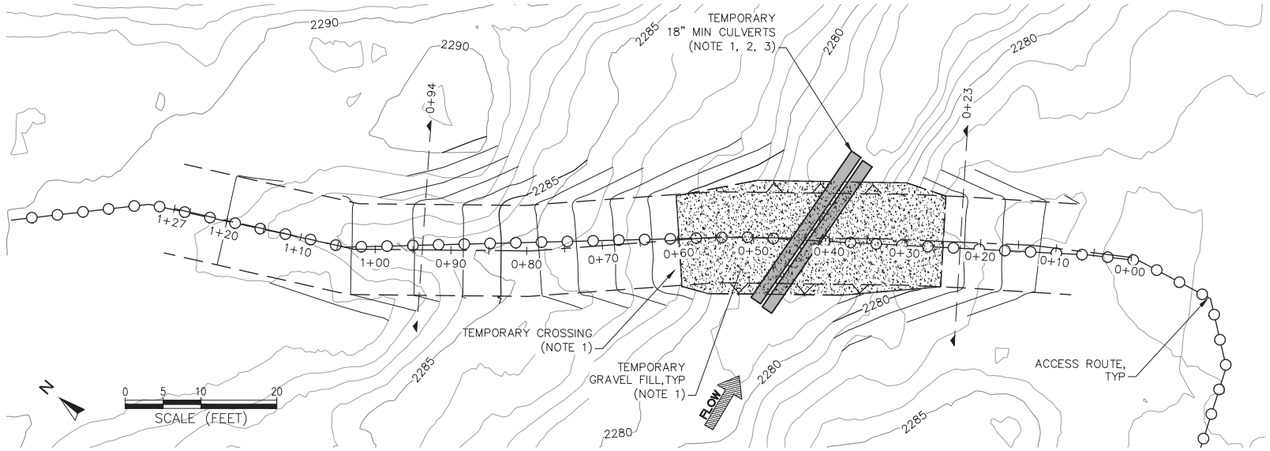
SHEET TITLE: DETAILS - BIOTECHNICAL STRUCTURES

PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

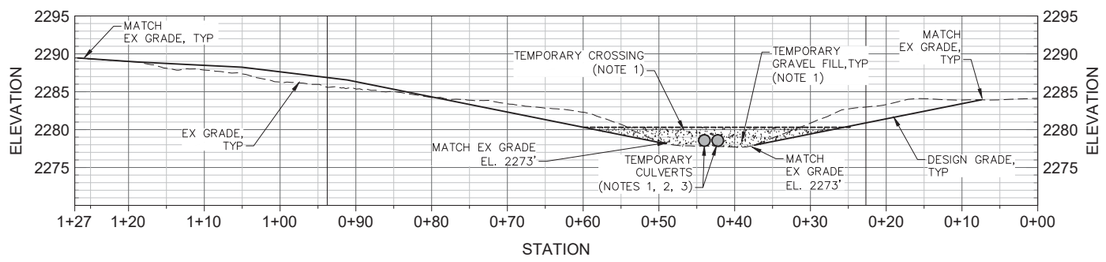
PREPARED FOR: TRINITY COUNTY RESOURCE CONSERVATION DISTRICT 30 HORSESHOE LANE WEAVERVILLE, CA 96093

PROJECT NO. D211670.01
DATE MAR. 2017
SHEET NO. 19 OF 20
DWG NO. C-15

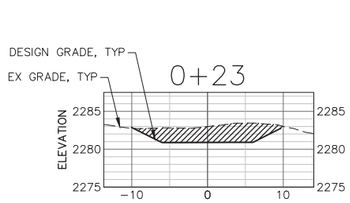
PLOT DATE: 4/25/2017 6:56 PM
LAST SAVE DATE: 4/25/2017 3:37 PM
FILE: K:\PROJECTS_211XXX – 2011 PROJECTS\D211670.01 – WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_DETAIL_WOOD&BIOSTRUCTURES.DWG

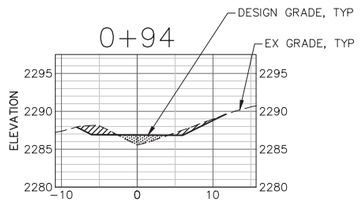


1 ACCESS ROUTE IMPROVEMENTS
PLAN VIEW — SCALE: 1" = 10'

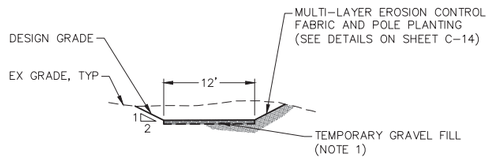


ACCESS ROUTE IMPROVEMENTS
PROFILE — SCALE: 1" = 10'





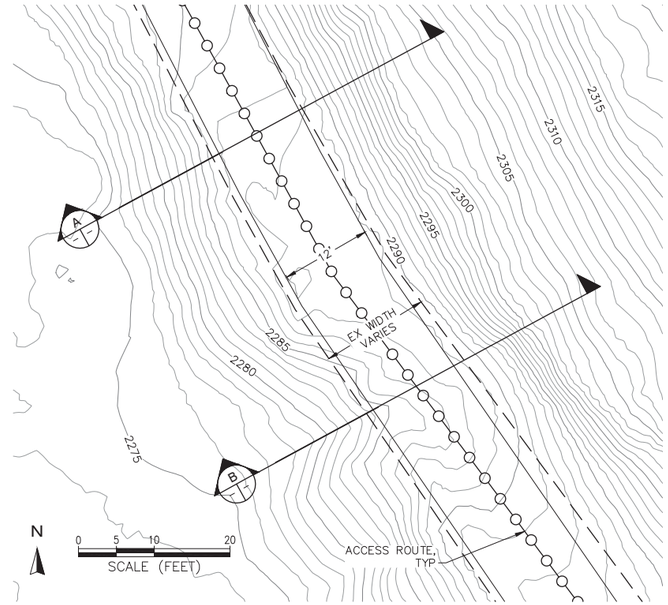
ACCESS ROUTE IMPROVEMENTS
GRADING SECTIONS — SCALE: 1" = 10'



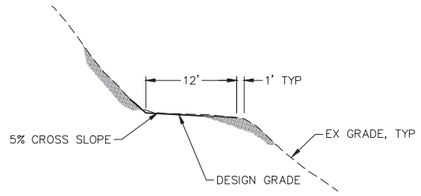
ACCESS ROUTE IMPROVEMENTS
TYPICAL SECTION — SCALE: 1" = 10'

NOTES

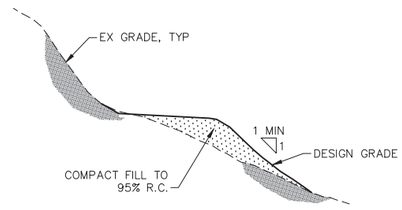
1. CONSTRUCT TEMPORARY CREEK CROSSING IN ACCORDANCE WITH SPECS AND PERMITS. GRADE CHANNEL BANKS ONLY AS SHOWN FOR CREEK ACCESS. COMPLETELY REMOVE TEMPORARY CROSSING AND ANY TEMPORARY SURFACING AT PROJECT COMPLETION. MODIFIED CHANNEL BANKS MAY REMAIN.
2. COVER CULVERTS AS APPROPRIATE FOR TRAFFIC LOADING (1' MIN)
3. CULVERTS SHALL BE TWO 18 INCH DIAMETER MINIMUM. INSTALL ADDITIONAL CAPACITY AS CONTRACTOR DEEMS NECESSARY .
4. INSTALL AND USE PRIMARY ACCESS ROUTE ONLY (DETAIL 1 THIS SHEET), UNLESS DIRECTED BY OWNERS'S REPRESENTATIVE. IF DIRECTED, USE ALTERNATIVE ROUTE (DETAIL 2 THIS SHEET)



2 ALTERNATIVE ACCESS ROUTE IMPROVEMENTS
PLAN VIEW — SCALE: 1" = 10'



A ALTERNATIVE ACCESS ROUTE IMPROVEMENTS
TYPICAL SECTION (APPROX 750 LF) — SCALE: 1" = 10'



B ALTERNATIVE ACCESS ROUTE RECONSTRUCTION
TYPICAL SECTION (APPROX 50 LF) — SCALE: 1" = 10'

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
415.896.5900 phone
415.896.0332 fax
www.esassoc.com

DRAWN: JASON WHITE, BARRY TANAKA
CHECKED: JORGEN BLOMBERG
DESIGNED: JASON WHITE, ROCKO BROWN, BARRY TANAKA, PHILIP LEWONG
APPROVED: BARRY TANAKA

REGISTERED PROFESSIONAL ENGINEER — BARRY TANAKA — C 82243 — CIVIL — STATE OF CALIFORNIA

PROJECT: WEST WEAVER CREEK
SALMONID HABITAT REHABILITATION PROJECT
GRUB GULCH TO HIGHWAY 299

SHEET TITLE: DETAILS - ACCESS ROUTE IMPROVEMENTS

PROJECT MANAGER: XXXX
REVIEWED: XXXX
APPROVED: XXXX
DATE: XXXX XXXX

PREPARED FOR:
TRINITY COUNTY RESOURCE CONSERVATION DISTRICT
30 HORSESHOE LANE
WEAVERVILLE, CA 96093

PROJECT NO. D211670.01
DATE APR. 2017
SHEET NO. 20 OF 20
DWG NO. C-16

PLOT DATE: 4/25/2017 6:59 PM
LAST SAVE DATE: 4/25/2017 3:46 PM
FILE K:\PROJECTS_211XXX - 2011 PROJECTS\D211670.01 - WESTWEAVERCREEK_REHABILITATION\09 CAD\DWGS\WWC_DETAIL_ACCESSROUTEIMPROV.DWG

West Weaver Creek Salmonid Habitat Rehabilitation Project

TECHNICAL SPECIFICATIONS

100% Final Design Submittal

Prepared for
Trinity County Resource Conservation District

May 9, 2017

Services provided pursuant to this Agreement are intended solely for the use and benefit of Trinity County Resource Conservation District. No other person or entity shall be entitled to rely on the services, opinions, recommendations, plans or specifications provided pursuant to this agreement without the express written consent of ESA, 550 Kearny Street, Suite 800, San Francisco, CA 94108.

ESA Reference Number: 211670.01

CERTIFICATION

The specifications for West Weaver Creek Salmonid Habitat Rehabilitation have been prepared by or under the direction of the following Registered Professional, registered in the State of California, whose seal and signature appears below.

Barry Tanaka

Registered Professional Engineer

Civil #C82243

Environmental Science Associates (ESA)

TECHNICAL SPECIFICATIONS

Division 1 – General Requirements

Division 2 – Site Construction

SECTION 01100
GENERAL SUMMARY

PART 1 - GENERAL

1.01 SUMMARY OF WORK

A. The creek and floodplain rehabilitation work shall generally consist of:
   1. Installing temporary access road, including temporary creek crossing.
   2. Clearing, grubbing, and disposal of removed materials.
   3. Performing water diversion and dewatering as needed throughout construction.
   4. Earthwork, including excavation of secondary channels and floodplain area.
   5. Bank and channel grading and onsite fill placement of excess material.
   6. Installing in-channel boulder structures, including boulder cascades, sills and step pools.
   7. Gravel placement for riffle and point bar construction.
   8. Installing biotechnical bank stabilization structures, including flow baffles and multi-layer erosion control fabric (additive item).
   9. Installing large wood structures using salvaged trees slated for removal (additive item).

1.02 SCHEDULE REQUIREMENTS

A. The Contractor shall schedule and sequence the work so that all in channel earthwork and improvements do not commence prior to June 15th are completed no later than October 15th. All work outside of the creek channel shall be completed by October 31st.

B. Contractor shall not initiate any portion of the work prior to confirmation from Owner's Representative of receipt of project permits.

C. The Contractor shall also schedule and sequence the work to minimize impacts or disturbance to the adjacent landowners.

1.03 DEFINITIONS

A. Project Name: West Weaver Creek Channel and Floodplain Rehabilitation

B. Owner: Trinity County Resource Conservation District (TCRCD)

C. Owner's Representative: The Owner-designated construction manager or primary contact for the Contractor throughout construction.

D. Landowner Coordinator: The TCRCD will liaison with landowners and other project participants.

E. Restoration Engineer: Environmental Science Associates (ESA)

F. Landowners: United States Forest Service (upstream portion) and Aaron King (downstream portion).

G. Standard Specifications: shall mean the Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, latest edition.

1.04 PERMIT REQUIREMENTS

A. The Owner has obtained the following permits for this project:
   1. U.S. Army Corps of Engineers (USACE) – Nationwide 27
   2. U.S. Fish & Wildlife (USFWS) and National Marine Fisheries Service (NMFS) - Section 7 Endangered Species – informal consultation
   3. RWQCB – Section 401 Water Quality Certification
   4. CDFW Streambed Alteration Agreement (1602)
   5. NOAA Arcata Office Programmatic Biological Opinion

B. Copies of permits listed will included in a separate addendum.

C. The Contractor shall comply with all permit requirements for the project. These permits include restrictions on timing, methods, and duration of certain construction activities and protection of environmentally sensitive habitats and species. The Contractor shall notify the Owner's Representative immediately of any discrepancy between project permits and Contract Documents. The Contractor shall maintain a copy of all permits at the site throughout construction.

1.05 COORDINATION

A. The contractor shall be aware of the following work that may be performed on private properties:
   1. The landowners' ongoing operations.
   2. The Owner will complete revegetation of the site. Coordination with the Owner includes, but is not limited to irrigation mainline installation, points of connection, and restoration of erosion control activities disturbed by revegetation activities. Coordinate with Owner during clearing and grubbing to preserve willow (*Salix sp.)* stems and roots.

B. Those operations could possibly be conducted simultaneously with work under this contract. Cooperate fully with separate contractor so work on that contract may be carried out smoothly, without interfering with or delaying work under this contract.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

*** END OF SECTION ***

SECTION 01205
MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 SUMMARY

A. This section describes the Contract requirements for the measurement and payment for work performed under this Contract.

B. Payment terms, policy, and instructions are provided in Exhibit F.

C. Payment for each contract bid item includes full compensation for all labor, equipment, tools, supplies and incidentals necessary to complete the work as shown on the Drawings and as described in these specifications.

1.02 LUMP SUM BID ITEMS

A. Payment items for the work of this Contract for which contract lump sum payments will be made are listed in the Bid Schedule and described below. All costs for items of work, which are not specifically mentioned in a particular lump sum payment item, shall be included in the listed lump sum item most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

B. Before the Contractor's first progress pay request on this project, the Contractor shall provide the Owner's Representative with a Schedule of Values (Lump Sum Breakdown) for each Lump Sum bid item shown on the Bid Schedule. The Schedule of Values shall be a well-balanced, detailed breakdown of work items consisting of estimated quantities, unit prices, material, and equipment costs the Contractor allocates for the work covered under each Lump Sum bid item.

C. Such Schedule of Values shall not be unbalanced and will be subject to approval of the Owner's Representative and will be used to compute progress payments for Lump Sum bid item work. The Contractor shall provide proof of costs to justify the submitted Schedule of Values if requested by the Owner's Representative.

D. Where Contract Change Orders are issued increasing or decreasing the scope of the work and cost, the Contractor shall prepare revisions to the Schedule of Values, where necessary, for approval of the Owner's Representative. The revised Schedule of Values will be used for subsequent progress payments.

1.03 UNIT PRICE BID ITEMS

A. Items of work listed in the Bid Schedule that are Unit Price bid items shall be measured for payment as set forth in this section, under the description of each relative bid item.

B. All measurements for payment purposes shall be made by the Owner's Representative unless noted otherwise.

1.04 DESCRIPTION OF BID ITEMS

A. The Bid Schedule bid items are presented to indicate major categories of the work for purposes of comparative bid analysis, payment, breakdown for monthly progress payments, and final payment to the Contractor under the Contract. The Bid Schedule is not intended to be exclusive descriptions of work categories and the Contractor shall determine and include in its pricing all materials, labor, equipment, and operations necessary to complete each bid item of work, as shown and specified, and all costs of compliance with all applicable regulations of public agencies having jurisdiction, including, but not limited to, the health and safety requirements of the California Division of Industrial safety and the Occupational Safety and Health Administration of the U.S. Department of labor (OSHA).

B. Bid Item 1, Mobilization (Lump Sum): Payment to be made under this bid item includes, but is not limited to, all costs associated with mobilization to and demobilization from the project site, mobilization within the project site to individual work areas, temporary facilities, access roads, construction surveying, submittals, permits, site clean-up after completion and acceptance of all work, and other items relevant to this project and not specifically included in the other bid items.

C. Bid Item 2, Clearing, Grubbing and Minor Demolition (Lump Sum): Payment to be made under this bid item shall include, but is not limited to, all costs for clearing, grubbing, tree removal including trunks with intact rootwads for use in the project, tree pruning and root trimming and minor demolition, including removal of debris encountered during excavation.

D. Bid Item 3, Access Route Improvements (Lump Sum): Payment to be made under this bid item shall be for providing, maintaining, and removing Temporary Access Improvements, including the placement and removal of temporary stream crossing.

E. Bid Item 4, Erosion Control and SWPPP Compliance (Lump Sum): Payment to be made under this bid item shall be for Stormwater Pollution Protection Plan(SWPPP) preparation and regulatory compliance, and installing, inspecting, maintaining and periodically replacing as needed all construction period erosion control measures, including but not limited to, grass straw, silt fences, erosion control fabric, and wattles during construction and for installing, inspecting, and maintaining all supplemental stormwater BMPs that the Contractor deems necessary for SWPPP compliance during construction.

F. Bid Item 5, Flow Diversion and Dewatering (Lump Sum): Payment to be made under this bid item shall be for hydraulically isolating work areas from active flows, and channel dewatering and stream diversion as needed to execute the construction in accordance with applicable permitting requirements. Work includes but is not limited to furnishing and implementing the Control of Water Plan, construction cofferdams, stream diversion and dewatering pipelines or other conveyances, inlet and outlet protection, fish screening, and pumping and disposal of removed water in accordance with all permit requirements.

G. Bid Item 6. Floodplain Terrace Excavation (Lump Sum): Payment to be made under this bid item shall be for excavating the floodplain terrace to design grades (within tolerance) including, but not limited to excavation, excavation support, fine grading, dust, water and erosion control, dewatering, loading and transport to onsite fill placement location, and all incidental work.

H. Bid Items 7 and 8. Upstream and Downstream Secondary Channel Excavation (Lump Sum): Payment to be made under this bid item shall be for excavating the secondary channel to design grades (within tolerance) including, but not limited to over-excavation to subgrade, excavation, excavation support, grading, dust, water and erosion control, dewatering, loading and transport to onsite fill placement location, and all incidental work

I. Bid Item 9 Surplus Fill Placement (Lump Sum): Payment to be made under this bid item shall be for material placement, compaction and grading at the disposal location, including dust, water and erosion control, and all incidental work.

J. Bid Item 10, Secondary Channel Bed (Per ton): Payment to be made at the unit bid price per ton of imported bed material installed, complete and in-place for construction of the secondary channels, including engineered steam material (ESM), boulder sills and shelter boulders. Payment shall include, but not be limited to, supplying all materials, water diversion and sediment control, subgrade preparation, bedrock trenching, rock placement, field adjustments, backfill, and compaction, complete and in-place.

K. Bid Item 11, Large Wood Structures (Each): Payment for log structures shall be made at the unit bid price per each structure installed, complete and in-place. Payment shall include, but not be limited to, supplying and transporting all materials, water diversion and sediment control, excavation, excavation support, material staging and stockpiling, log, gravel and boulder placement, notching, field adjustments, backfill, and compaction, complete and in-place.

L. Bid Item 12, Cascade (Each): Payment for cascade structures shall be made at the unit bid price per each structure installed, complete and in-place. Payment shall include, but not be limited to, supplying all materials, site protection, excavation, bedrock trenching, material staging and stockpiling, excavation support, backfill and compaction, rock placement including fill in voids, rock keys, field adjustments and site restoration, complete and in-place.

M. Bid Item 13, Step Pool (Each): Payment for step pool structures shall be made at the unit bid price per each structure installed, complete and in-place. Payment shall include, but not be limited to, supplying all materials, site protection, excavation, material staging and stockpiling, excavation support, backfill and compaction, rock placement including fill in voids, rock keys, field adjustments and site restoration, complete and in-place.

N. Bid Item 14, Riffle and Point Bar Fill Placement (Ton): Payment for gravel placement for riffle and point bar construction shall be made at the unit bid price per ton of gravel placed. Payment shall include, but not be limited to, supplying all materials, site protection, material staging and stockpiling, subgrade preparation, excavation support, backfill and compaction, field adjustments and site restoration, complete and in-place.

O. Bid Item 15, Boulder Cluster (Lump Sum): Payment to be made under this bid item shall be for boulder cluster installed, complete and in-place. Payment shall include, but not be limited

to, supplying all materials, site protection, site access, boulder placement, field adjustments, complete and in-place.

P. Bid Item 16, Flow Baffle (Each): Payment for flow baffle structures shall be made at the unit bid price per each structure installed, complete and in-place. Payment shall include, but not be limited to, supplying all materials, excavation, backfill, willow placement, anchor rock placement and initial watering. Willows will be supplied by Owner.

Q. Bid Item 17, Multi-Layer Erosion Control Fabric (Square Yard): Payment to be made at the unit bid price per square yard for the multi-layer erosion control fabric installed, complete and in-place. Payment shall include, but not be limited to, supplying all fabric, placement and staking, trench excavation, backfill, and compaction.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

*** END OF SECTION ***

SECTION 01330
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.02 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Design Engineer's responsive action.

B. Informational Submittals: Written information that does not require Design Engineer's responsive action. Submittals may be rejected for not complying with requirements.

1.03 SUBMITTAL PROCEDURES

A. Items of work listed in the Bid Schedule that are Unit Price bid items shall be measured for payment as set forth in this section, under the description of each relative bid item.
   1. Electronic copies of CAD Drawings of the Contract Drawings will be provided by Design Engineer for Contractor's use in preparing submittals upon Contractor's request, Contractor shall compensate Design Engineer for time spent in preparing and providing CAD files.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
   3. Design Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Submittals Schedule: Comply with requirements of Construction Schedule in Bid Packet for time requirements for scheduled performance of related construction activities.

D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Design Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
   1. Initial Review: Allow 10 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Design Engineer will advise Contractor when a submittal being processed must be delayed for coordination.

2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 10 days for review of each resubmittal.

E. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Design Engineer.
3. Include the following information on label for processing and recording action taken:
   a. Project name.
   b. Date.
   c. Name and address of Design Engineer.
   d. Name and address of Contractor.
   e. Name and address of subcontractor.
   f. Name and address of supplier.
   g. Name of manufacturer.
   h. Submittal number or other unique identifier, including revision identifier. Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06100.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06100.01.A).
   i. Number and title of appropriate Specification Section.
   j. Drawing number and detail references, as appropriate.
   k. Location(s) where product is to be installed, as appropriate.
   l. Other necessary identification.

F. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

G. Additional Copies: Unless additional copies are required for final submittal, and unless Design Engineer observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.

H. Transmittal: Package each submittal individually and appropriately for transmittal and handling; submit directly to the Owner. Transmit each submittal using a transmittal form. Submittals received from sources other than Contractor will not be accepted.
1. Transmittal Form: Use AIA Document G810, CSI Form 12.1A, or other standardized form approved by the Construction Manager and Design Engineer.
2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Design Engineer on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.

I. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked "Approved", or "Approved as Noted".

J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

K. Use for Construction: Use only final submittals with mark indicating approval by Design Engineer.

PART 2 - PRODUCTS

2.01 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:
    a. Manufacturer's written recommendations.
    b. Manufacturer's product specifications.
    c. Manufacturer's installation instructions.
    d. Manufacturer's catalog cuts.
    e. Printed performance curves.
    f. Operational range diagrams.
    g. Compliance with specified referenced standards.
    h. Testing by recognized testing agency.
    i. Application of testing agency labels and seals.
    j. Notation of coordination requirements.
4. Submit Product Data before or concurrent with Samples.
5. Number of Copies: Submit seven copies of Product Data, unless otherwise indicated. Construction Manager will return two copies to Contractor. Mark up and retain one returned copy as a Project Record Document.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    a. Dimensions.
    b. Identification of products.
    c. Fabrication and installation drawings.
    d. Roughing-in and setting diagrams.
    e. Shopwork manufacturing instructions.
    f. Templates and patterns.
    g. Schedules.
    h. Design calculations.
    i. Compliance with specified standards.
    j. Notation of coordination requirements.
    k. Notation of dimensions established by field measurement.
    l. Relationship to adjoining construction clearly indicated.

m. Seal and signature of professional Design Engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
3. Number of Copies: Submit seven opaque (bond) copies of each submittal unless otherwise indicated. Construction Manager will return two copies to Contractor. Mark up and retain one returned copy as a Project Record Document.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:
   a. Generic description of Sample.
   b. Product name and name of manufacturer.
   c. Sample source.
   d. Number and title of appropriate Specification Section.
3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
   a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
   b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product or activity.
2. Number of Copies: Submit three copies of product schedule or list, unless otherwise indicated. Design Engineer will return two copies. Mark up and retain one returned copy as a Project Record Document.

F. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Refer to the Bid Document for submittals related to subcontractor qualifications. At a minimum, include the following information:
1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.
4. Number of Copies: Submit three copies of subcontractor list, unless otherwise indicated. Design Engineer will return two copies. Mark up and retain one returned copy as a Project Record Document.

2.02 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections and the Bid Document.

1. Number of Copies: Submit three copies of each submittal unless otherwise indicated. Design Engineer will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

B. Contractor's Construction Schedule: Comply with requirements specified in Bid Package, General Conditions.

C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of Design Engineers and owners, and other information specified. Refer to other

D. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

E. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

F. Product and Material Certificates: Prepare written statements on manufacturer's letterhead certifying that product or material complies with requirements in the Contract Documents.

G. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

H. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

I. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

J. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 1 Section 01770 "Closeout Procedures" - Operation and Maintenance Data.

K. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

L. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
   1. Preparation of substrates.
   2. Required substrate tolerances.
   3. Sequence of installation or erection.
   4. Required installation tolerances.
   5. Required adjustments.
   6. Recommendations for cleaning and protection.

M. Post-construction Surveys and Monitoring Points: Compile post-construction surveys and cross sections and monitoring point data in electronic format as CAD files.

PART 3 - EXECUTION

3.01 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to the Owner.
   1. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.02 DESIGN ENGINEER’S ACTION

A. General: Design Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Design Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Design Engineer will stamp each submittal with an action stamp and will mark appropriately to indicate action taken.

C. Informational Submittals: Design Engineer will review each submittal and will not return it, or will return it if it does not comply with requirements. Design Engineer will forward each submittal to appropriate party.

D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

*** END OF SECTION ***

SECTION 01450
FIELD ENGINEERING

PART 1 - GENERAL

1.01 SUMMARY OF WORK

A. This section describes the lines, grades, and survey control to be established and maintained by Contractor, and also describes requirements of the surveys to be performed by Contractor.

1.02 STAKING OUT OF WORK

A. Lines and Grades: The Contractor is responsible for providing all staking and surveying needed to achieve all lines, grades and dimensions shown on the Drawings. Contractor shall provide stakes and markers as necessary to control the work and assure construction is in conformance with the Contract Documents and as otherwise directed by the Owner's Representative. The Contractor shall anticipate the site conditions (e.g. creek flows, traffic, vandalism etc.) when developing its approach to maintaining construction staking.

B. Equipment and Personnel: Contractor's instruments and other survey equipment shall be accurate, suitable for the surveys required in accordance with recognized professional standards, and in proper condition and adjustment at all times. Surveys shall be performed under the direct supervision of a surveyor licensed in the State of California.

C. The Contractor shall use established survey benchmark and control data shown on the Drawings to layout the Work.

D. Use by Owner: Owner or Owner's Representative may, at any time, use line and grade points and markers established by Contractor. Contractor's surveys are a part of the work and may be checked by Owner or Owner's Representative, at any time. Contractor shall be responsible for any lines, grades, or measurements which do not comply with specified or proper tolerances, or which are otherwise defective, and for any resultant defects in the work. Contractor will be required to conduct resurveys or check surveys to correct errors indicated by review of the field notebooks and survey data.

E. Surveys for Layout and Performance: Contractor shall perform all surveys for layout and performance of the work, shall reduce the field notes, and make all calculations and drawings necessary to carry out such work.

F. When the Specifications or Owner's Representative require Bid Schedule items of work to be measured by surveying methods, Contractor shall perform the surveys. All such surveys, including control surveys run for establishing the measurement reference lines, shall be performed in the presence of Owner's Representative. Owner's Representative may independently reduce the field notes and calculate quantities to verify Contractor's payment request. The Owner's Representative also reserves the right to conduct an independent survey to determine quantities.

1.03 GENERAL SURVEY REQUIREMENTS

A. The Contractor shall perform post-construction surveys as required for progress payments, Acceptance of the Work and to document post-construction conditions. The Contractor also has the option to perform pre-construction surveys as described in Paragraphs 1.04 of this section.

B. The following requirements apply to surveys performed by the Contractor.

1. Licensed Surveyor: All surveys, computations and supporting drawings shall be prepared at the Contractor's expense by a Survey Contractor whose equipment and work force are independent of the Contractor's. All surveys and computations shall be performed under the supervision of a Land Surveyor registered in the State of California and actively engaged in surveying during the last three (3) years. The Land Surveyor shall provide references to confirm completion of at least three (3) similar projects in the last (3) three years. The name and State Land Surveyor's license number shall be submitted to the Owner's Representative at least five (5) calendar days prior to commencement of survey work for the Owner's Representative's approval. The Contractor shall provide a letter of certification signed by the licensed Surveyor.
2. For survey transects, elevations shall be taken at breaks in slope and at intervals not greater than ten (10) feet. Survey points shall extend at least 20 feet beyond the limits of earthwork (excavation and/or fill). Surveyed grade points shall be converted to elevations relative to North American Vertical Datum (NAVD) and to the nearest one-tenth of a foot. Survey transects shall be taken at locations that are representative of existing grade.
3. Drawings shall be prepared at a scale of 1"=20 feet on plan sheets that delineate the survey control lines. Section plots shall be prepared with a horizontal axis at a scale of 1"=10 feet with no vertical exaggeration. For pre-construction surveys, section plots shall include the design section used for quantity calculations.
4. Survey sections shall be taken at the minimum intervals as stated below. The interval between sections may be reduced if, through surveys, earthwork is consistently found to be out of compliance with design requirements.
5. Subsequent surveys shall re-occupy the same lines so the surveys and quantities can be directly compared.

C. The Owner's Representative may elect to substitute the Contractor's survey with its own survey. The Owner's Representative will select the survey that will govern at its sole discretion.

1.04 PRE-CONSTRUCTION SURVEYS

A. Prior to commencing earthwork, the Contractor has the option of performing a preconstruction topographic survey to establish existing grades at the site. If the Contractor does not perform a pre-construction survey, it agrees to waive any claims regarding the survey data provided.

B. At a minimum, the pre-construction survey shall comply with the requirements for the post-construction survey per this section.

1.05 POST-CONSTRUCTION SURVEYS

A. The Contractor shall perform post-construction surveys as needed to demonstrate design compliance and request Acceptance of Work. Post-construction surveys shall be submitted to the Owner's Representative in hard copy format (3 copies), in PDF format and electronic format CAD files.

B. Minimum requirements for post-construction surveys are as follows:
   1. Sections perpendicular to the secondary channel baseline extending 10 feet beyond the limits of work on both sides of the creek with spacing of every 25 feet.
   2. Thalweg profile of the main stem with spot elevations every 10 feet, and at each step pool crest, boulder cascade rib.
   3. 5-point minimum sections at each step pool crest, boulder cascade rib and boulder sill. (At minimum 5-points shall include at top and toe of each bank and low flow line),
   4. For each riffle and point bar, at least three sections perpendicular to the main stem baseline extending 10 feet beyond the limits of work on both sides of the creek with spacing of every 20 feet.

C. One complete set of reproducible survey drawings shall be prepared. Drawings shall be prepared at the same scale as corresponding detail sheets in the Drawings. The base sheets shall also show the control points and grade break-lines on the Drawings. The Owner's Representative will provide hard copy reproducible or electronic files of the plan sheet Drawings if requested by the Contractor. The Contractor shall also prepare cross section drawings corresponding with survey lines, to scale.

D. The Contractor shall submit three (3) hard copy sets of post-construction survey and any calculations to the Owner's Representative for review and approval, and electronic files (in PDF format and AutoCAD). The Contractor shall allow fourteen (14) calendar days for the Owner's Representative to review. The Contractor shall not consider any earthwork complete until he/she has received the Owner's Representative's written approval of the post-construction survey.

E. The Contractor may submit post-construction survey results for review and approval in phases as the work is completed. If survey results are submitted in phases, the Contractor shall compile all data, drawings and computations and make one final complete submittal to the Owner's Representative.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

*** END OF SECTION ***

SECTION 01500
TEMPORARY FACILITIES & CONTROLS

PART 1 - GENERAL

1.01 SUMMARY OF WORK

A. Section Includes: Requirements for installation, maintenance, and removal of temporary utilities, facilities, controls, and construction aids during construction.

1.02 TEMPORARY UTILITIES

A. General: Provide all necessary temporary electricity, gas, and water required during construction, including all necessary temporary meters, equipment, wiring, piping, fixtures, and connections. Remove the same prior to completion of the Project.

B. Temporary Electricity: Provide temporary electrical service for power and lighting, including the furnishing and installation of meters at an approved location. Tools, Cords, and Electrical Equipment: Conform to Underwriters Laboratories standards and Cal-OSHA and be in proper working order to preclude hazard to persons and premises.

C. Temporary Fire Protection: Comply with NFPA 241. Provide an adequate number and type of fire extinguishers at the jobsite. During the progress of any work requiring the use of welding and cutting equipment or heat-, flame-, or spark-producing devices, provide in the immediate area accessible for use an adequate number of fire extinguishers, shields, guards, or coverings placed so as to protect adjacent persons and property.

D. Temporary Water: Provide water service required for construction operations.

1.03 CONSTRUCTION FACILITIES

A. Contractor's Field Office: Provide and maintain a temporary job office on the site as the Contractor deems necessary for its own use. If Contractor provides trailer, it shall be made available for periodic use of the Owner’s Representative.

B. Temporary Storage for Tools, Materials, and Equipment: Provide temporary storage sheds or other enclosed temporary structures as required or as deemed necessary by the Contractor to protect material and equipment stored on site. Remove the same prior to completion of Project.

C. Temporary Sanitary Facilities: Provide and maintain adequate toilets, washing facilities, and drinking facilities for workers. Such items shall comply with all governing health and sanitation requirements. Remove the same upon completion of Project.

D. Contractor shall not use any existing facilities, structures, improvements or other property of the Owner without written approval from the Owner’s Representative.

1.04 TEMPORARY BARRIERS AND ENCLOSURES

A. General Protection: Provide all temporary barricades, fences, caution signs, and warning lights as required for the safety of persons and vehicles. Operate warning lights during hours from dusk to dawn each day. Take whatever care is necessary to avoid damage to adjacent buildings and property, public right-of-ways, and facilities or utilities to remain, whether on the Project or adjacent to it, and be liable for any damage thereto or interruption of service due to Contractor's operations.

B. Temporary Fences and Barricades: Provide and maintain all temporary site fences and barricades as required for the Project, and remove the same upon the completion of the Project.

1.05 SITE MAINTENANCE

A. Cleaning During Construction:
   1. Control accumulation of waste materials and rubbish; periodically dispose of legally off-site.
   2. By the close of operations each day: place all food related rubbish in a bear proof container, or store inside temporary structure until disposed of.

1.06 PROJECT IDENTIFICATION

A. Project Signs: Provide a project job sign, minimum 32 square feet in size (i.e., 4’x8’), of wood painted with lettering by a professional sign painter, to Owner’s design and colors. At a minimum, list title of Project, name of Owner and Contractor. Obtain approval for location of the sign from the Owner’s Representative before installing. Remove the sign on completion of the Project, and dispose of legally off the site. Allow no other signs to be displayed, other than those required for safety.
   1. Contractor shall conform to Caltrans standards regarding temporary signage installation.

1.07 REMOVAL

A. Remove temporary facilities, fencing, materials, equipment and services prior to Substantial Completion inspection.

B. Clean and repair damage caused by installation or use of temporary facilities. Remove temporary overhead and underground lines and installations; grade site as indicated. Restore existing facilities used during construction to specified, or to original, condition.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Temporary materials and equipment may be new or used, but shall be adequate in capacity for the required usage, shall not create unsafe conditions, and shall not violate requirements of applicable codes and standards.

B. Hazardous or Flammable Chemicals: Use and store hazardous or flammable chemical liquids or gases brought into the Project site in acceptable containers conforming to requirements of OSHA. Use such materials in a manner that will prevent their accidental spill or release. Do not discard such materials on the jobsite. Remove empty containers from premises immediately and dispose of in the proper manner.

PART 3 - EXECUTION - NOT USED

*** END OF SECTION ***

SECTION 01800
ENVIRONMENTAL PROTECTION

PART 1 - GENERAL

1.01 SUMMARY OF WORK

A. This section describes environmental protection measures to be applied throughout the duration of the Project, including the following:
   1. Preparation and implementation of the Stormwater Pollution Prevention Plan (SWPPP)
   2. Sediment and Erosion Control during construction activities
   3. Dust Control
   4. Noise Control
   5. Wildlife Protection
   6. Cultural and Prehistoric Resources

B. General Requirements: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsurface soil contamination or pollution or other undesirable effects.

1.02 GENERAL

A. Permits obtained for this project include specific requirements for sediment, erosion, water and pollution control, and wildlife protection which shall be adhered to at all times. See Exhibit J for copies of project permits obtained by the Owner.

B. Wildfire associated construction activities is a known risk at the site. See attached exhibits in the Bid Package for best management practices to reduce fire risk.

1.03 STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. The Contractor shall develop, maintain and implement a SWPPP that describes the proposed methods of erosion and sediment control for the excavation, grading and fill placement. At a minimum, the plan shall include:
   1. Written and graphic description of SWPPP components.
   2. Monitoring and Reporting Program (M&RP)
   3. A description of actions to minimize turbidity and limit migration of sediment during work in the active channel
   4. Figures showing the design and location of the designated fueling area.
   5. A fuel and oil spill prevention plan and emergency clean-up plan.
   6. Incorporation of all permitting requirements regarding scheduling, sequencing, methods and performance standards for erosion, sediment and water pollution control.
   7. Training and monitoring procedures.

B. At a minimum, the SWPPP shall include compliance with the erosion control measures specified in these Contract Documents (shown on the Drawings and/or included in the Technical Specifications).

C. The Contractor shall select and implement additional Best Management Practices (BMPs) that are appropriate for the site and the Contractor's actual methods of construction, access and project phasing. The BMPs included in the SWPPP shall be selected in conformance with the SWRCB BMPs Construction Practice Handbook.

D. The SWPPP and the Contractor's erosion and sediment control measures shall comply with the newest SWRCB Construction Storm Water Program effective July 1, 2010. http://www.swrcb.ca.gov/water_issues/programs/stormwater/constpermits.shtml The Contractor's plan shall be prepared by a Qualified SWPPP Developer (QSD). The Contractor shall assume that the site is a Linear Underground/Overhead Project (LUP).

E. The Contractor's detailed plan shall be submitted within seven (7) working days of the Notice to Proceed. The Contractor shall revise and resubmit the SWPPP as noted by the Owner's Representative. The Contractor shall not mobilize to the site until the SWPPP has been approved in writing by the Owner's Representative.

F. The Contractor shall not deviate from the approved plan unless a revised plan has been approved in writing by the Owner's Representative. Failure to adhere to an approved plan that demonstrates conformance with the provisions of the Contract shall be cause for rejection of Contractor's request for payment until the plan has been brought into conformance.

G. The Contractor shall keep a copy of the SWPPP onsite at all times during construction. The Contractor shall regularly update the SWPPP as needed to respond to site-specific conditions.

1.04 NPDES GENERAL PERMIT COMPLIANCE

A. The Contractor shall prepare the Notice of Intent (NOI) to the State Water Resources Control Board (SWRCB) to obtain coverage under the SWRCB General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (NPDES General Permit). The Contractor shall provide the NOI and all associated documents to the Owner for submittal using the SWRCB's Storm Water Multi-Application and Report Tracking (SMARTs) system. The Contractor shall not begin any Work at the site until the NOI has been submitted.

B. Contractor shall prepare inspection reports as required by the SWRCB for review by Owner's Representative. Following favorable review by Owner's Representative, the Contractor shall submit inspection reports to the SWRCB and other agencies as required.

C. Upon Substantial Completion of the project, Contractor shall prepare and submit the Notice of Termination (NOT) and all associated documents to the Owner's Representative for submittal using the SWRCB's SMART system. Substantial Completion is defined as completion of all work, including punch list items, except erosion control maintenance.

D. For bidding purposes, the Contractor shall anticipate that at least three (3) rain events will occur during the construction period and the Contractor will be required to perform monitoring, sampling and analysis and reporting in accordance with the M&RP.

E. The Contractor may assume that compliance with the M&RP will not be required throughout the erosion control maintenance period, provided that (a) the NOT has been submitted by the Owner, and (b) the project has been accepted by the Owner's Representative as Substantially Complete per Section 01770 Closeout Procedures.

1.05 SEDIMENT AND EROSION CONTROL

A. The Contractor shall install and maintain erosion and sediment control measures as needed to mitigate the potential for sediment migration away from the work area and/or the West Weaver Creek and other open waters. The Contractor shall modify and enhance these measures to meet permitting requirements and/or as needed to mitigate sediment migration at no additional expense to the Owner.

B. Sediment curtains will be placed around the construction zone to prevent sediment disturbed during ground disturbance activities from being transported and deposited outside of the construction zone.

C. Silt fencing will be installed along the top of the creek bank below upland areas where construction occurs within 100 feet of known or potential salmonid habitat. The contractor shall endeavor to prevent movement of sediment from grading areas into the creek channel

D. Spoil sites will be located so they do not drain directly into West Weaver Creek. Spoil sites will be graded to reduce the potential for erosion.

E. To minimize risk from additional fine sediments, all trucks and equipment will be cleaned, and gravels will be processed away from flowing water.

1.06 NON-STORM WATER CONTROL

A. The Contractor shall designate one fueling and wash area within the staging areas. The Contractor shall only perform fueling, maintenance and emergency repair of vehicles and equipment within the designated fueling area or offsite.

B. The designated fueling and wash area shall be constructed to provide containment of any spills and to prevent any waste from contacting and penetrating the ground by use of methods such as berms and/or liners. The Contractor shall include details of its fueling and wash area in the SWPPP.

C. Inspect all equipment for leaks immediately prior to the start of construction, and regularly thereafter until equipment is removed from the site. Equipment repair (other than emergency repairs) shall be performed offsite.

D. Any hazardous materials and/or hazardous substances that the Contractor deems necessary for performance of the work shall be stored, used and contained within the fueling and wash area. Dispose of all contaminated water, sludge, spill residue, or other hazardous compounds offsite at a lawfully permitted or authorized facility.

E. Oil and grease used in equipment used in the channel of West Weaver Creek will be vegetable based.

F. Clean up any accidental leaks or spills immediately and remove any contaminated soils or other materials offsite. Dispose offsite in accordance with all applicable laws. The Contractor's plan and contingency measures for preventing and cleanup of accidental spills shall be detailed in the SWPPP. At a minimum, the Contractor shall maintain onsite a spill kit for emergency cleanup throughout the life of the project.

G. Immediately notify the Owner's Representative in the event of any spill or release of any chemical in any physical form on or immediately adjacent to the creek channel during construction.

H. Upon the Contractor's removal and cleanup of the designated fueling area, the Owner's Representative will sample and analyze underlying soil for petroleum hydrocarbons and/or other chemical constituents as appropriate to determine if any contamination has occurred. The Contractor shall be solely responsible for all costs incurred in removing any contamination caused by its activities. This includes, but is not limited to, contamination caused by accidental spills or leaks, wheel tracking, water runoff, water run on and erosion.

1.07 DUST CONTROL

A. During the performance of all work under the Contract Documents, the Contractor shall employ conscientious and effective means of dust control. The Contractor shall assume responsibility for all damages, delays, government-imposed penalties or fines, and claims that result from the Contractor's dust control practices. Comply with North Coast Unified Air Quality Management District (NCUAQMD) guidelines.

B. Dust control activities will primarily be associated with soil excavation, stockpiling, rock placement, backfill and compaction, hauling and transport loading operations; however, the Contractor's responsibility for dust control shall cover all the Contractor's operations and shall be continuous (even outside of business hours) throughout the duration of the project.

C. At a minimum, the Contractor shall control dust using the following methods.
   1. Limit vehicle speeds to 5 miles per hour (mph) on unpaved roads or access routes.
   2. Water all active construction areas and access routes at least three times daily during dry and dusty conditions.
   3. Water exposed soil surfaces, soil stockpiles, or other dust generation sites, at the frequency necessary to prohibit dust generation.
   4. Provide watering equipment capable of applying water to the point of dust generation.
   5. Use the minimum practicable drop heights during transport vehicle loading.
   6. Wash all equipment prior to delivery to the site, periodically during construction, and prior to leaving the site.
   7. To the extent practicable, equipment shall be selected and operated in a manner that minimizes dust generation.
   8. Maintain equipment engines in good condition and properly tuned (in accordance with manufacturer's specifications).
   9. Cover truckloads hauling earth offsite.

D. Contingency Requirements
   1. If (1) observations or measurements made by the Contractor, Owner's Representative or regulatory agencies, or (2) complaint by the adjacent residents, businesses, or patrons

indicate the need for more stringent dust control measures, the Contractor shall perform the following:
   a. Increase the dosage of dust controls.
   b. Increase the frequency of dust controls.
   c. Apply commercial dust palliatives, subject to the approval by the Owner's Representative.
2. These measures shall be performed at no additional cost to the Owner and the Contractor shall include appropriate funds in the Contractor's Bid to cover such measures.
3. If (1) sustained winds exceed 25 mph, (2) instantaneous gusts exceed 35 mph, or (3) dust from construction might obscure driver visibility on public roads, suspend all earthmoving activities.
4. If further dust control measures are needed, the Contractor will be consulted and one of the following measures may be required, at the sole discretion of the Owner's Representative. If, through no fault of the Contractor, further dust control measures are required by the Owner's Representative, a Change Order will be negotiated for the following measures.
   a. Suspension of certain of the Contractor's operations for more than 4 hours (anticipated only during abnormally high wind conditions).
   b. Use of windscreens.
   c. Enclosures of loading operations.
5. Excessive watering: Except as required by Owner's Representative, the Contractor shall not employ dust control methods which result in ponded water, erosion, or a material increase in the weight of excavated soil.

1.08 NOISE CONTROL

A. Comply with local noise ordinances. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from residences, businesses, or patrons located near the project site. See Section 02200 Mobilization for work hours.

B. Internal combustion engines shall be equipped with a muffler of a type recommended by the manufacturer. Equipment and trucks used for construction shall utilize the best available noise control techniques (e.g., engine enclosures, acoustically-attenuating shields or shrouds, intake silencers, ducts, etc.).

C. Construction workers shall wear earplugs during operation of heavy equipment.

D. Stationary noise sources and staging areas shall be located as far from sensitive receptors as possible.

E. Signs shall be posted at the construction site that include and describe permitted construction days and hours, and a day and evening contact number for the job site. A complaint and enforcement manager shall be appointed to respond to and track noise complaints.

1.09 PROTECTED SPECIES PROTECTION

A. The project site and adjacent areas contain sensitive habitat areas for protected wildlife and flora including:
   1. Southern Oregon Northern California Coast coho (*Oncorhynchus kisutch*)

2. California Coastal Chinook (*Oncorhynchus tshawytscha*)
3. Upper Klamath/Trinity River Chinook (*Oncorhynchus tshawytscha*)
4. Northern California Steelhead (*Oncorhynchus mykiss*)
5. Klamath Mountains Province Steelhead (*Oncorhynchus mykiss*)
6. Foothill Yellow-legged Frog (*Rana boylii*)
7. Western Pond Turtle (*Emys marmorata*)
8. Clustered Lady's Slipper (*Cypripedium fasciculatum*
9. Mountain Lady's-Slipper *Cypripedium montanum*)
10. Dudley's Rush (*Juncus dudleyi*)
11. English Peak Greenbrier (*Smilax jamesii*).

B. Comply with all permit requirements for wildlife protection per Section 02200 Mobilization and Exhibit J (Project Permits).

C. The Owner's Biological Monitor will perform pre-construction surveys, environmental training, monitoring, and wildlife relocation as needed and if allowed in accordance with permits. The Contractor shall cooperate with the Owner's Biological Monitor throughout construction and provide adequate notification to the Owner's Representative to allow sufficient time for required activities.

D. Prior to the start of construction, the Owner's Biological Monitor will conduct pre-construction wildlife surveys of the construction site as summarized below. The Contractor shall not start construction until the area has been cleared for wildlife by the Owner's Biological Monitor.

E.

Species	**Timing of Pre-construction surveys**
Fish (Coho Salmon)	Prior to dewatering/flow diversion
Foothill Yellow-legged Frog	14 days prior to construction
Raptors and Migratory Birds	Within 7 days prior to construction
Special-Status Plant Species	Prior to construction
Western Pond Turtle	Prior to construction

F. Fish Relocation: Prior to any flow diversion and/or dewatering of the construction area in the active channel, all native aquatic vertebrates and larger invertebrates in the construction areas will be moved by the Owner's Biological Monitor. See Section 02300 Earthwork & Rock Structures for additional requirements for dewatering, flow diversion and aquatic resource protection.

G. Contractor's Monitor: The Owner's Biological Monitor will be present at the work site until all initial work instruction has been completed. After this time, the Contractor will designate a person to monitor on-site compliance with all minimization measures that has received the proper training from the Owner's Biological Monitor.

H. The Contractor shall include in its construction schedule delay of construction activities as needed to allow the Owner's Biological Monitor to conduct initial surveys, periodic monitoring, wildlife relocation and other activities to ensure wildlife protection. Review permit requirements (Attached as Exhibit J) to determine the anticipated length and frequency of construction delays due to biological monitoring.

1.010 WILDLIFE EDUCATION TRAINING

A. The Owner's Biological Monitor will conduct education programs for all construction personnel (a) prior to initiating construction and (b) prior to initiation of water diversion and/or dewatering activities. All construction personnel and subcontractors must complete the training before they are authorized to work in the project area.

B. At a minimum, the training will include a description of each of the protected species, their importance, their habitat, a report of the occurrence within the project area, an explanation of the status of this species and its protection requirements, the conservation measures that are being implemented, and the work site boundaries within which construction may occur. A fact sheet conveying this information will be prepared for distribution to the above-mentioned people and anyone else who may enter the project site. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all the avoidance and minimization measures.

1.011 MINIMUM WILDLIFE PROTECTION MEASURES

A. At a minimum, the Contractor shall comply with the following measures for wildlife protection:
   1. Trash and waste material must be properly disposed of in trash receptacles that prevent the access or trapping of wildlife. These containers shall be available and used at all times. Trash shall be removed from the site daily.
   2. All equipment such as buckets, and open holes, trenches or items that may potentially trap wildlife must be covered by the end of each workday. If this is not possible, one or more escape ramps constructed of earth fill or wooden planks will be established in the hole.
   3. Thoroughly inspect all holes or trenches for animals before filling. If at any time wildlife is discovered trapped in a trench or pit, halt work and notify the Owner's Representative immediately.
   4. Storage of any pipes measuring four (4) inches or greater in diameter at the site will be avoided, or the ends of any such pipes will be sealed with tape as they are brought to the site.
   5. No cats or dogs or firearms (except for federal, state, or local law enforcement officers or security personnel) will be permitted onsite to avoid harassment, killing, or injuring of protected wildlife.
   6. Erosion control fabric with plastic netting may not be used.
   7. Lighting of the project site by artificial lighting during night time hours should be minimized to the maximum extent practicable.

1.012 CULTURAL AND PREHISTORIC RESOURCES

A. The Contractor shall (1) suspend work in the area and (2) notify the Owner's Representative immediately, if evidence of any of the following are items encountered during performance of the Work:
   1. Archaeological artifacts
   2. Fossils
   3. Human remains

B. Any delays in excess of 24 hours resulting from encountering cultural or prehistoric artifacts will be considered as a basis for a Change Order for contract time.

PART 2 - EXECUTION - NOT USED

*** END OF SECTION ***

SECTION 02100
MOBILIZATION

PART 1 - GENERAL

1.01 SUMMARY

A. Mobilization shall consist of the following work:
1. Mobilization of materials and equipment to the site for all phases of construction;
2. Preparation of all necessary permits, submittals, notifications and other documentation;
3. Installation of temporary access road, including temporary creek crossing
4. Demobilization of all of materials and equipment from the site;
5. Final site cleanup; and
6. Any other items required to complete the construction not otherwise measured and paid for.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.01 MOBILIZATION AND DEMOBILIZATION

A. Mobilization and demobilization shall conform to Section 9 of the latest edition of the California Department of Transportation Standard Specifications (Standard Specifications).

B. Mobilization shall also include finish work and operations (demobilization) including, but not limited to removal of personnel, equipment, supplies and incidentals from the project site and clean-up of the project site. The Contractor shall not demobilize equipment from the site until approved in writing by the Owner's Representative. The Owner's Representative will allow demobilization of equipment that the Contractor declares is no longer needed to complete a given phase of the work. Authorization to demobilize equipment does not relieve the Contractor of the responsibility to re-mobilize as needed to complete the work.

C. The Contractor's attention is directed to contract schedule and sequence requirements: Section 01100 General Summary of these specifications and as indicated on the Drawings. Mobilization shall also include preparation of all necessary permits, submittals, notifications and other documentation necessary for the performance of the work.

D. The Contractor shall clean all equipment of dirt, mud and plant material prior to entering the work area to prevent the introduction of invasive exotic species.

3.02 PERMITS OBTAINED BY THE OWNER – SEE SECTION 01100 GENERAL SUMMARY

A. The Contractor shall comply with all permit requirements for the project (Exhibit J). These permits include restrictions on timing, methods, and duration of certain construction activities. The Contractor shall notify the Owner's Representative immediately of any discrepancy between project permits and Contract Documents. The Contractor shall maintain a copy of all permits at the site throughout construction.

B. The Contractor shall obtain all other permits required for the performance of the work.

3.03 ACCESS TO PROJECT SITE

A. There are two routes for access to the project site, the Primary Access Route and Alternative Access Route, as shown on the Drawings. The Contractor shall use the Primary Access Route, unless directed to use the Alternate Route by the Owner's Representative prior to mobilization.

B. The Alternative Access Route dirt access road will require improvements prior to use to access the work area.

C. The Contractor shall not adversely impact traffic or safety on California Highway 299 and/or Oregon Street due to access to the project site without the appropriate permits and traffic control measures. All traffic control required for construction activities shall conform to the latest requirements of the Caltrans Traffic Manual and submitted to Caltrans and the Owner for its review and approval prior to implementation.

D. Access to the site via the Primary Access Route is gated. Contractor shall maintain the gate in closed position during the hours of operation, and shall lock the gate at the end of operations daily.

3.04 STAGING AREA

A. The Contractor shall limit the staging and storing of its materials and equipment to the two designated staging areas shown on the Drawings. The second, smaller staging area is located adjacent to the creek crossing at the Primary Access Route.

B. Note that the staging area on the east bank (approximately Sta 8+00 to 9+50) is within the work area. Contractor shall be aware that equipment and materials in this staging area may need to be temporarily relocated or moved to perform the work. The cost of any temporary relocation shall be included under the appropriate bid items and no additional payment will be made therefore.

C. The Contractor shall provide necessary facilities and utilities at the staging area. There is no office area or sanitary facilities available at the staging area for the Contractor's use. See Section 01500 Temporary Facilities and Controls.

D. The Contractor is responsible for site safety and security throughout construction. At a minimum, the Contractor shall delineate the staging area with temporary fencing, or similar method. Provide additional security measures (night watchmen, etc.) as needed.

E. The Contractor shall remove all equipment, facilities, waste and other items delivered to the staging area, and return the staging area to its original condition to the Owner's satisfaction upon completion of the work.

3.05 ACCESS WITHIN THE SITE

A. The Contractor shall construct and maintain temporary access roads within the limits of work.

B. Allowable access routes within the Project Site are shown on the Drawings. It is the Contractor's responsibility to determine the adequacy of the suggested route for its use. The Contractor shall obtain written approval from the Owner's Representative prior to using or constructing any temporary access roads along alternative route(s).

C. The Contractor shall perform any grading and/or fill placement needed for construction and maintenance of access routes. This includes installation and maintenance of the temporary creek channel crossing(s) at location shown on Drawings.

D. Upon project completion, the Contractor shall completely remove fill and restore temporary access routes to their original condition or to the condition indicated in the Drawings. As an exception, certain access routes may remain for future revegetation and/or maintenance access as directed by the Owner's Representative.

E. The Contractor shall design and install temporary construction access crossings of West Weaver Creek (downstream end) for use throughout construction.

F. Crossings shall be designed to prevent crossings from causing damage during creek flows. The minimum culvert size is specified. The Contractor shall increase capacity as needed to accommodate storm events, or be prepared to remove crossing as needed if rain is predicted.

G. The temporary West Weaver Creek Crossing shall allow safe vehicular traffic and be designed to not cause flooding upstream of the project area during storm events.

H. Upon project completion, the Contractor shall completely remove all placed materials and complete the earthwork and other construction in accordance with the Drawings and specifications.

I. Access routes to and within the site are utilized by landowners and adjacent property owners. Per Landowner request, maximum vehicle speeds shall be 5 miles per hour.

3.06 PROTECTION OF EXISTING FACILITIES

A. The Contractor shall protect all existing structures, pavements, utilities, trees, fences, and appurtenances within the limits of work and along access routes unless otherwise identified in the Drawings or at the direction of the Owner's Representative. The Contractor shall promptly restore, at Contractor's cost, all damage to existing improvements not scheduled for removal or modification. Damage shall be corrected to the satisfaction of the Owner's Representative.

B. Protection of Work and Property:

1. Confine the storage of materials and workmen's operations to the limits established on the Drawings and by law, permits, and/or directions of Owner's Representative. Do not unreasonably encumber the premises with materials.

2. Contractor is responsible for the protection and preservation of all materials and equipment supplied of every description (including property which may be furnished or owned by Owner or by others) while such property is located on the construction site.

3. Contractor shall promptly comply with all reasonable requests of the Owner's Representative to specially protect such property. If, as determined by Owner's Representative, such property and work are not adequately protected by Contractor, such property and work may be protected by Owner and the cost thereof may be charged to Contractor or deducted from payments then due or later becoming due.

4. Repair or replace all work performed or materials, supplies, or equipment furnished which may be damaged or lost by any cause, to the satisfaction of Owner's Representative without cost to Owner.

C. Tree and Plant Protection:

1. Do not store materials or equipment, permit burning, or operate or park equipment under the branches of any existing plant to remain except as actually required for construction in those areas.

2. Provide barricades, fences, or other barriers as necessary at the drip line to protect existing plants and trees from damage during construction. The Owner's representative shall indicate specimen trees or vegetation which requires specific protection. Refer to Section 02230 Clearing and Grubbing for additional information.

3. Notify Owner's Representative in any case where Contractor feels grading or other construction called for by Contract Documents may damage existing plants to remain.

4. If existing plants to remain are damaged during construction, Contractor shall replace such plants with others of the same species and size as those damaged, at no cost to Owner. Determination of extent of damage and value of damaged plants shall rest solely with the Owner's Representative.

3.07 EXISTING UTILITIES

A. The Contractor shall identify, locate, and protect all existing utilities within the limits of work including access routes.

B. No existing utilities and underground facilities are known to the Restoration Engineer. The Contractor shall contact the Owner and the Restoration Engineer if utilities are encountered. The Contractor shall cease all operations until the extent and nature of the utilities are determined. The Contractor shall resume operations upon receiving written notice to resume from the Owner.

C. The Contractor shall obtain best available current information on location, identification and marking of existing utilities, piping and conduits and other underground facilities before

beginning any excavation. In addition, call Underground Service Alert at 1-800-227-2600 or 811 for information at least 48 hours in advance of beginning work.

3.08 TEMPORARY STREAM CROSSING.

A. A single temporary stream crossing is allowed for transportation of materials and equipment across West Weaver Creek along the Primary Access Route. The Contractor shall field locate and stake out the location and limits of the temporary crossing for review by the Owner's Representative prior to initiating work.

B. The crossing shall consist of a minimum of two 18" culverts. In order to determine pre-construction stream bed elevations and prior to installation of the culvert(s) the Contractor shall survey a profile and three (3) cross sections at the crossing location.
   1. The cross sections shall be located at the:
      a. Upstream limit,
      b. Centerline, and
      c. Downstream limit.

C. The Contractor shall indicate original grade though the use of an easily identifiable biodegradable material (e.g., wood chip mulch, 100% biodegradable erosion control fabric, etc.). Confirm material with Owner's Representative.

D. The Contractor shall construct the crossing such that is suitable to allow safe passage of planned equipment access at this location. This includes using and appropriate culvert material, size and sufficient cover to prevent any impacts to the culvert.

E. Comply with all permit requirements for temporary creek crossing. Imported gravels and cobbles, as approved by permits, may be used to cover the culverts. All imported materials shall be removed from the site following completion of the project.

3.09 WORK HOURS

A. Standard work hours for the project are between 7 a.m. and 6 p.m., Monday through Friday. Construction work may be performed outside these hours, including weekends or holidays, provided:
   1. The Contractor gives the Owner's Representative at least seventy-two (72) hours advance notice and with approval from the Owner's Representative
   2. Work is performed and scheduled in a manner that meets all noise control requirements described in Section 01800 Environmental Protection.

B. Under emergency circumstances Contractor may access the site for removal of equipment or materials. Contractor shall contact and coordinate with Owner's Representative under such circumstances.

*** END OF SECTION ***

SECTION 02230
CLEARING, GRUBBING & MINOR DEMOLITION

PART 1 - GENERAL

1.01 DESCRIPTION

A. The work includes the following:
   1. Removal of vegetation and trees
   2. Select trimming of roots and tree limbs as needed to complete the work.
   3. Limited onsite disposal may be allowed for select items as approved by the Owner's Representative.
   4. Chipping of woody material.
   5. Minor demolition and debris removal associated with earthwork and grading.

B. The Contractor shall protect all trees and all other vegetation not slated for demolition. Prior to commencing construction, the Contractor shall install temporary fencing, or flagging at the perimeter of all vegetated areas and/or individual trees to be preserved, and any other improvements onsite. Prior to commencing work, the Contractor shall review all tree and other protection fencing with the Owner's Representative, and field adjust the limits as directed

C. The Contractor shall remove debris including timber, rock, concrete, rubble, debris, vegetative matter and other items which may exist within the limits of work.

D. Unless shown to be removed or altered, existing improvements and facilities, utilities, adjacent property, trees and plants are not to be removed and shall be protected from injury or damage per Section 02100 Mobilization.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.01 SEQUENCE

A. The Contractor shall install tree protection on trees indicated by the Owner's Representative. The Contractor shall inform the Owner's Representative at a minimum of 5 days prior to commencing clearing and grubbing.

B. Clearing and grubbing operations shall proceed in an organized manner in advance of earthwork. Clearing and grubbing shall be sequenced by area such that earthwork begins within two (2) calendar weeks of an area being cleared and grubbed. Clearing and grubbing operations shall also be sequenced to minimize dust generation and erosion at the site.

3.02 CLEARING AND GRUBBING

A. Limit clearing to two (2) feet beyond limits of earthwork.

B. Areas shall be cleared and grubbed by removing obstructions, trees, shrubs, grass, and other vegetation. Removal includes digging out stumps and obstructions and grubbing roots. Completely remove stumps, roots, obstructions, and debris extending to a depth of 6-inches below subgrade. Use only hand methods for grubbing within drip line of remaining trees.

C. The Contractor shall take care to avoid damaging any trees or native herbaceous plants designated to remain.

3.03 TREE PRUNING

A. Contractor shall obtain approval from the Owner's Representative prior to pruning any tree to remain. Only prune trees as required for performance of the work. Pruned material shall be salvaged and mulched.

B. If pruning is needed, prune trees to balance the crown, and eliminate hazards. Perform main work to reduce sail effect through thinning, reducing end weights, shortening long heavy limbs, removing deadwood, weak limbs and sucker growth. Prune limbs back to an appropriate lateral branch. Perform pruning work in a safe and proper manner, adhering to CAL-OSHA and ANSI Standards.

3.04 ROOT PRUNING

A. Do not cut tree roots greater than 2 inches in diameter and less than 12-inches below ground level without approval of the Owner's Representative.

B. Cut tree roots cleanly, as far from the trunk as possible. Root pruning shall be to a depth of 18-inches.

C. Tree root prune using a Vermeer root-cutting machine. Obtain the Owner's Representative's approval before using alternate equipment or techniques.

D. Complete tree root pruning prior to any excavation adjacent to the tree.

E. Do not expose tree roots to drying out. Cover root ends with soil or burlap and keep moist until the final backfill is completed.

3.05 TREE REMOVAL

A. The Contractor shall only remove trees located within the limits of work as shown on the Drawings. The Contractor shall mark all trees to be removed using blaze-orange marking paint or flagging for review by the Owner's Representative.

B. Prior to tree removal, the Contractor shall prepare a schedule of trees to be salvaged for log structures for approval by the Owner's Representatives. Unless specifically agreed to otherwise, the Contractor shall assume that any removed tree 6-inches in diameter (as measured at breast height) or greater may be salvaged for log structures.

C. Trees to be salvaged for log structures shall be removed in a manner that leaves the root wad intact, length of log 15 feet in length, and preserves branch structure to the extent possible. The Contractor may trim roots from root wad that are (a) less than 2 inches diameter and/or (b) more than 2.0 feet from the center of the tree trunk, as needed to facilitate removal.

D. Trees less than 6 inches in diameter may be salvaged for use in Flow Baffles. Acceptable tree species include Cottonwood (*Populus sp.*), Alder (*Alnus sp.*), and Willow (*Salix sp.*). Contractor shall remove trees with root mass intact; branches may be trimmed to 7 feet in length. Coordinate with Owner's Representative.

E. Perform tree removal work in a safe and proper manner, adhering to CAL-OSHA and ANSI Standards.

F. Stockpile salvaged trees in such a manner that the Restoration Engineer may review and select trees for use in Large Wood Structures.

3.06 CHIPPING OF WOODY MATERIAL

A. Following segregation of materials for reuse on site, the Contractor shall chip/grind all woody material generated by clearing and grubbing. Woody material is defined as material greater than 1 inch in diameter, including but not limited to removed trees that do not meet the requirements for salvage (less than 6-inch DBH) and pruned branches and/or roots.

B. Chipped/shredded woody material shall be used on site as mulch. No piece of mulch shall be greater than 4 inches in length. Stockpile mulch on site for use in structures and revegetation. Coordinate with the Owner's Representative to determine stockpile location.

3.07 MINOR DEMOLITION AND DEBRIS REMOVAL

A. This section refers only to minor demolition associated with grading and earthwork activities.

B. Remove any man-made structures deep enough to prevent interference with the work outlined within the Drawings and these specifications. Any demolition of unidentified structures, and not specified elsewhere, that are not visible on the surface by the Contractor shall be negotiated as extra work, subject to authorization by the Owner's Representative.

C. Remove incidental debris encountered during clearing and grubbing activities and segregate and dispose of debris offsite. Vegetative matter is not debris. Any debris removal that meets any one of the following criteria shall be negotiated as extra work, subject to authorization by the Owner's Representative:
   1. Debris that requires special equipment for removal.
   2. Hazardous debris that requires special offsite disposal per the direction of the Owner's Representative.

D. Except for trees, chipped mulch and any other salvaged material of value, all debris from clearing, grubbing and minor demolition are the Contractor's property. Remove all materials from site and dispose of in lawful manner.

*** END OF SECTION ***

SECTION 02300
EARTHWORK & ROCK STRUCTURES

PART 1 - GENERAL

1.01 SUMMARY

A. This section applies to all earthwork and installation of rock structures excavation, transportation, stockpiling, fill placement, compaction, and finish grading, within the grading limits shown on the Drawings and offsite disposal. Earthwork includes, but is not limited to:
   1. Grading of temporary access road, including temporary creek crossing
   2. Performing water diversion and dewatering as needed throughout construction
   3. Excavation of secondary channels and floodplain area, and channel grading
   4. Onsite fill placement of excess material
   5. Incidental grading and excavation, including bedrock trenching, to install rock and biotechnical structures
   6. Backfilling secondary channel bed with engineered steambed material (ESM)
   7. Installing in-channel boulder structures, including boulder cascades, boulder sills, step pools and boulder cluster.

B. Schedule Restrictions: All work in the active channel cannot begin prior to June 15 and must be completed, including complete removal of any flow diversion, by October 15.

1.02 QUALITY ASSURANCE

A. Reference standards: Reference to “Standard Specifications” shall mean the Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, latest edition.

B. Installer Qualifications: Rock structures shall be installed by a company and individuals experienced in installing in-channel structures and creek restoration.

1.03 SUBMITTALS

A. Refer to Section 01330 Submittal Procedures.

B. Operations Plan. The Contractor shall submit a detailed Operations Plan describing the Contractor’s proposed use of the site, including a water diversion and dewatering plan. The Contractor shall submit the Operations Plan to the Owner for review and comment. The Contractor shall have an Owner-approved plan prior to mobilizing to the site. At a minimum, the plan shall include:
   1. A list of major equipment to be used.
   2. A diagram of the site showing the Contactor’s designated staging area, including its fueling and washdown area.

3. The site diagram shall also include all haul routes (onsite and offsite) to be used throughout construction.
4. A diagram showing the sequence of work.
5. A diagram and narrative description of the work to be completed in each phase of construction.
6. A time schedule of the operations, including specific dates for work.

C. The Contractor shall not deviate from the approved Operations Plan unless a revised plan has been approved in writing by the Owner's Representative. Failure to adhere to an approved plan shall be cause for rejection of Contractor's request for payment, until the plan has been brought into conformance.

D. Water Control Plan: Prior to beginning installation, the Contractor shall submit, to the Owner's Representative for approval, a Flow Diversion and Dewatering Plan for work in the active channel. At a minimum, the plan shall indicate the Contractor's proposed methods and equipment for diverting creek flows, controlling surface water and groundwater entering the work area, and protecting water quality. The Water Control Plan shall comply with all permit requirements (Exhibit J).

E. Rock Materials: For native rock materials, the Contractor shall segregate excavated soil and rock for the products described herein for review and approval by the Owner's Representative prior to the use and installation of any rock in the rock structures.

F. Rock Materials: For imported rock materials, the Contractor shall designate in writing to the Owner's Representative the source, or sources, of rock to be incorporated into the work. Contractor shall not commence shipment of any rock without written acceptance by the Owner's Representative of the rock to be used. The contractor shall also submit certificates of compliance that indicate results of tests made by an independent testing laboratory for each proposed source (or sources) of rock. Certification by the quarry(s) producing the rock can be substituted if the certification includes prior test results certified by the quarry as representative of the rock provided for this project. Certificates are required for:
1. Gradation of each class of rock.
2. Apparent specific gravity, absorption, durability index and abrasion loss.
3. Compliance with Standard Specifications.

1.04 EARTHWORK QUANTITIES

A. Contractor is responsible for preparing all earthwork volume estimates and quantity takeoffs. The Contractor may, at its option and sole cost, elect to perform its own pre-construction topographic survey prior to construction as described in Section 01450 Field Engineering. The Contractor shall perform site investigations, estimate quantities, and include sufficient contingency in its bid to cover variations from bank cubic yards and topographic variation from available topographic survey data.

PART 2 - PRODUCTS

2.01 ROCK MATERIALS

A. Native rock material may be salvaged onsite provided it meets the requirements of these specifications. Salvaged rock shall be free of concrete rubble, asphalt or other debris. The Owner's Representative shall approve all salvaged rock to be used in the rock structures prior to use.

B. All imported rock used shall be quarry rock, angular, close grained, and hard. Rock shall be free of seams or thin layers of soft or decomposed material to the end that it will not shatter, disintegrate, break down, or open up on dumping or exposure to weather or water action. Contractor shall provide sample of proposed rock materials for approval by Owner's Representative. Rock shall meet the following requirements:

1. Apparent specific gravity - 2.65 minimum
2. Absorption - 4.2% maximum by CA 206
3. Durability index - 52 minimum by CA 229
4. No single axis may be longer than three (3) times the minimum axis

C. Rock materials shall meet the following classes of rock slope protection as specified in Section 72-2. 2 of the Standard Specifications, as specified on the Drawings:

1. 2-, 1-, ½- and ¼-ton Class
2. 200lb Stone: Light Class

D. Gravel Fill shall be imported rounded or subangular material meeting meet the following gradation:

Sieve Size	Percent Passing
6"	100
2"	25-10
No. 200	0-10

E. Engineered Streambed Material (ESM) shall be imported rounded or subangular material meeting the following gradation:

Caltrans Size Class	Percent of Total by Volume
Light Class (200 lb)	10
Backing No. 1	10
Backing No. 3	35
Class 1 Permeable Material, Type A	45

PART 3 - EXECUTION

3.01 SEQUENCE OF WORK

A. Prior to commencing earthwork, the Contractor shall stake the grading limits and centerline of the side channels for review and approval by the Owner's Representative. Adjust stakes as instructed by the Owner's Representative to meet the design intent.

B. Prior to beginning rock structures, the Contractor shall stake vertical and horizontal limits of the structures. At the time of field staking, the Contractor shall report to the Owner's

Representative the surveyed elevations of the channel thalweg at the upstream and downstream limits of each structure. The Contractor shall also stake the crest elevation at the central crest stone of each step pool crest and cascade crest for review by the Owner's Representative. The Contractor shall allow up to three working days for review and approval of field staking by the Owner's Representative. Adjust staking as directed by the Owner's Representative.

C. Contractor shall sequence installation of the rock structures with the earthwork activities to obtain a consistent channel form.

D. Excavation and fill placement shall progress in an orderly manner, with completion of contiguous areas as work progresses. Limit the area of active grading as needed for dust and erosion control.

E. Comply with all restrictions on timing and duration of earthwork activities as required by project permits.

F. See also schedule and sequence requirements listed in Section 01100 Summary.

3.02 WATER CONTROL/DIVERSION

A. The project requires extensive work in and adjacent to the existing active channel. The Contractor shall install and maintain temporary flow diversion system that:
   1. Allows flows to bypass the construction area
   2. Protects adjacent waters from turbidity and other water quality disturbances caused by construction
   3. Allows for removal of groundwater and other water entering the construction area, as the Contractor deems necessary for construction.
   4. Meets all other permit requirements, including being sufficiently protective of fish and other aquatic wildlife.

B. Prior to beginning excavation and installation of rock structures, the Contractor shall have in-place an Owner-approved Water Control Plan that meets the requirements described in this section.

C. Fish and other Aquatic Resources Relocation: Prior to any flow diversion and/or dewatering of the construction area in the active channel, all native aquatic vertebrates and larger invertebrates in the construction areas will be moved by the Owner's Biological Monitor. The Contractor shall provide the Owner's Representative with a minimum of 14 days advance notice of dewatering activities.

D. If coffer dams are required to divert flow, they shall be constructed of clean gravel or sand bags and may be sealed with sheet plastic, as allowed by project permits. Coffer dams shall be constructed starting at the upstream end to allow fish to move downstream out of the work area. The Owner's Biological Monitor shall be present during construction and removal of coffer dams or other diversion measures.

E. Any pumps used in the diversion/dewatering system shall be placed in flat areas a sufficient distance from the channel and adequately secured (by anchoring to a tree or stake or similar).

Pump intakes will be covered with 1/8-inch mesh to prevent entrainment of fish or amphibians, and shall be checked periodically for impingement of fish and amphibians.

F. The Contractor shall treat and contain removed water as needed to adequately remove suspended sediment prior to disposal. Dispose of water in an environmentally acceptable manner, in accordance with project permits, applicable law, and such that property is not damaged. At a minimum, discharge water such that erosion is minimized, and sediment is retained on site.

G. As a contingency, the Contractor shall maintain at the site sufficient backup equipment as needed to ensure that flow in the creek can be bypassed or diverted at all times. The Contractor shall have a contingency plan for possible malfunction or failure of equipment such as pumps, plugs, piping and power source.

H. All in-channel activities shall be scheduled to minimize the length of time during which the dewatering and flow diversion will be necessary, so as to minimize impacts to aquatic resources.

I. If steelhead or Coho Salmon are found at any time within the in-channel work area following dewatering activities, the Contractor shall contact the Owner's Representative immediately and all in-channel work shall be suspended until the Owner's Representative has contacted the Owner's Biological Monitor and appropriate agencies.

J. Vehicles shall not be permitted within the stream channel. Other mechanized equipment used within the stream channel shall be checked daily prior to use for leaks, and repaired as necessary. If leaks occur during work in the channel, the Contractor shall contain the spill and remove any contaminated materials as specified in the SWPPP.

K. Upon final acceptance of the rock structures and approval of the Owner's Representative, the Contractor shall completely remove the temporary diversion system and restore flows.

3.03 EXCAVATION

A. Excavate all materials to lines, grades, and slopes as shown on the Drawings to accommodate the finished contours or grades.

B. The Contractor should be aware that bedrock or fractured bedrock will be encountered during excavation activities. The Contractor shall trench bedrock as needed to key in rock structures and as shown on Drawings.

C. Blasting will not be permitted.

D. Excavation Support: Excavation shall be adequately shored, braced, sloped or otherwise supported in accordance with applicable laws, and as the Contractor deems necessary for safe and controlled performance of the earthwork activities. Shoring shall conform to the requirements of the Construction Safety orders issued by the State of California, Department of Industrial Relations, Division of Industrial Safety. The Contractor shall obtain all necessary excavation permits from the Division of Industrial Safety. The Contractor shall retain the responsibility for determination, design and installation of the sloping, shoring, bracing and other measures required for safe excavations, whether these excavations are greater or less

than five feet in depth. The Contractor shall be solely responsible for damages which may result from failure to provide adequate shoring and bracing.

3.04 SUBGRADE PREPARATION

A. The Contractor shall excavate subgrade to the lines and grades shown on the Drawings. Earthwork for rock structures shall conform to Sections 19-1 and 19-3 of the Standard Specifications. Grade tolerance in section 19-1.03 shall be 0.25 feet.

B. Subgrade preparation for each structure shall be approved by the Owner's Representative prior to placement of subsequent rock materials.

3.05 GENERAL ROCK PLACEMENT REQUIREMENTS

A. Rock structures shall be constructed in conformance with Section 72-2 Rock Slope Protection of the Standard Specifications, except Section 72-2. 3 "Placing" shall be modified as follows:

1. At structure crests, local surface irregularities of the central crest rocks shall be 0.2 feet maximum above the design elevation.
2. At all other locations, local surface irregularities shall not vary from the design elevation by more than 0.5 feet.

B. All rock 200-lb or greater shall be Method A Placement, per Section 72-2. 3 Placing of the Standard Specifications. All rock smaller than 200-lb shall be Method B Placement.

C. Filling Voids: Upon completion of each layer of rock, fill the voids of large rock with ESM or other material as specified on the Drawings. The Contractor shall endeavor to completely fill all voids and to achieve 85% compaction, using necessary methods, including vibrating and using hand tools. It may be necessary to mix water into fill material to facilitate movement into the voids. Water jetting of the fill material is permitted. Placement of fill in voids shall not interfere with the rock placement requirements, including maintaining 3-point contact. Voids shall be filled so that settlement does not occur when checked by hand tamping by the Owner's Representative. Structure sealing shall be tested and confirmed by filling pool with water and observing water levels over a 24 hour period.

3.06 FILL PLACEMENT AND COMPACTION

A. All excess excavated material shall be placed in the onsite fill placement location. Excavated fill may include weathered bedrock and other large particles.

B. Prepare the subgrade of fill locations by scarifying to a depth of 6 inches.

C. All fill shall be placed in lifts not greater than 8" in uncompacted thickness, and compacted to eighty-five percent (85%) relative compaction, unless specified otherwise on the Drawings. During all compacting operations, the Contractor shall maintain optimum moisture content such that the specified relative compaction is obtained in each lift as the lift is compacted. Maintain moisture content uniform throughout the lift. At the time of compaction the water content of the materials shall be at optimum moisture content, plus or minus 3 percentage points. Fill compaction by ponding and jetting will not be permitted.

D. The Owner's Representative has the option to perform in-place density and moisture content testing on each lift of fill. The Contractor shall cooperate with this testing by leveling small test areas. The frequency and location of testing will be determined solely by the Owner's Representative. As the Contractor nears completion of compaction of each lift, notify the Owner's Representative so that the Owner's Representative is afforded the opportunity to test each lift.

3.07 FINE GRADING

A. The Contractor shall finish grade channel banks within the grading limits to smooth slopes to the lines and grades shown on the Drawings. Backfill and compact soil around edges of new rock and biotechnical structures in order to produce smooth transitions.

B. All excavated surfaces shall be graded to drain.

3.08 TOLERANCES AND ACCEPTANCE

A. The Contractor shall endeavor to excavate and place fill to the finish grade neat lines indicated in the Drawings. A tolerance of plus or minus 3 inches (+/- 0.25 foot) vertical deviation of final grade from these neat lines will be allowed at all locations unless noted otherwise.

B. The project may not be accepted as complete if finished grade is outside the limits of these tolerances. In addition, areas of contour grading shall conform to the shapes and slopes indicated in the Drawings so that graded areas gently slope toward the creek or secondary channel. The Owner's Representative may require the Contractor to conduct additional work at its expense to complete excavation and fill to the lines and grades indicated, within these tolerances, and associated surveying to demonstrate conformance with the desired finished grades.

C. The Contractor shall perform post-construction surveys as described in Section 01450 Field Engineering. Any additional surveying required due to non-conformance shall be performed by the Contractor, at no expense to the Owner.

D. The Contractor shall furnish the use of equipment and personnel to the Owner's Representative if requested by the Owner's Representative, as may be reasonably necessary for the inspection of the work.

E. Excavation that is continuously over or under the finished grade is not allowed.

F. The Contractor shall be responsible for repair of slope failures within the project limits.

*** END OF SECTION ***

SECTION 02804
BIOTECHNICAL AND LOG STRUCTURES

PART 1 - GENERAL

1.01 SUMMARY

A. This section applies to installation of biotechnical structures including:
   1. Flow Baffles (Additive Item)
   2. Multi-Layer Erosion Control Fabric (Additive Item)
   3. Large Wood Structures (Additive Item)

B. These structures require live cuttings that require irrigation and maintenance during construction. Live cuttings to be provided by Owner.

1.02 QUALITY ASSURANCE

A. Installer Qualifications: The Contractor shall only use subcontractors and/or individuals with demonstrated experience installing in-stream biotechnical structures and harvesting live vegetation.

B. Reference standards: Reference to "Standard Specifications" shall mean the Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, latest edition.

1.03 SUBMITTALS

A. Refer to Section 01330 Submittal Procedures.

PART 2 - PRODUCTS

2.01 GENERAL

A. Live Poles, Live Stakes and Willow Stems: Species shall be Willow (*Salix sp.)* Cottonwood (*Populus sp.),* and Alder. (*Alnus* sp). Stems shall be straight.

Structure	**Diameter (inches)**	**Length (feet)**	**Branches**
Flow Baffles	½ – 1½	9	No branches
Live Stakes (driven)	1-2	4	No branches

B. Logs for Large Wood Structures: Logs salvaged from onsite tree removal activities per Section 02230. If insufficient logs are available from on-site materials, the number of log structures installed may be reduced as directed by the Owner's Representative.

C. Wooden Stakes: Wooden stakes, 24" x 2" x 4", tapered to a point, and capable of fully securing fabric to underlying soils.

D. Coir Rope: Biodegradable fiber, 1/2" diameter.

E. Flow Baffle Ballast Stone: Caltrans Facing Class (200-lb Stone per Section 02802 Rock Structures

F. Multi-Layer Erosion Control Fabric: Base layer of Unwoven Coir Biodegradable Fabric, and upper layer of Woven Coir Biodegradable Fabric.

G. Unwoven Coir Biodegradable Fabric: Erosion control blanket constructed of 100% biodegradable materials with a 100% coconut fiber matrix and a functional longevity of approximately 24 months. The coconut fibers shall be evenly distributed over the entire area of the mat. The blanket shall be covered on the top and bottom with 100% biodegradable natural organic fiber netting woven into an approximate 1/2-inch x 1-inch mesh and sewn together with biodegradable thread on 1½ inch centers. The fabric shall meet the following minimum physical properties:

Property	Test Method	Typical
Thickness	ASTM D5199/ECTC	0.26 in
Resiliency	ECTC Guidelines	85%
Mass per Unit Area	ASTM D6475	8.83 oz/yd^2
Water Absorption	ASTM D1117/ECTC	155%
Swell	ECTC Guidelines	40%
Stiffness/ Flexibility	ASTM D1388/ECTC	0.11 oz-in
Light Penetration	ECTC Guidelines	16.40%
Smolder Resistance	ECTC Guidelines	Yes
MD Tensile Strength	ASTM D5035	342 lbs/ft
MD Elongation	ASTM D5035	7.60%
TD Tensile Strength	ASTM D5035	211 lbs/ft
TD Elongation	ASTM D5035	11.10%

Manufacturer: North American Green C125BN, or equivalent.

H. Woven Coir Biodegradable Fabric: Erosion control fabric constructed of 100% biodegradable materials with a 100% coconut fiber matrix and a functional longevity of approximately 48 months. The material shall be evenly wheel spun and uniformly twisted from well-cleaned 100% biodegradable natural organic coir woven into an approximate 2-inch x 2-inch mesh. The fabric shall meet the following minimum physical properties:

Property	Test Method	Typical
Weight per Unit Area	ASTM 3776-C	11.80 oz/yd^2
Open Area	--	65%
Wide Width Tensile Strength, Dry (lb/in)	ASTM D4595	51 x 31, Warp x Fill
Wide Width Tensile Strength, Wet (lb/in)	ASTM D4595	38 x 24, Warp x Fill
Elongation at Failure, Dry (%)	ASTM D4595	35 x 30, Warp x Fill

Elongation at Failure, Wet (%)	ASTM D4595	47 x 44, Warp x Fill
Maximum Shear Stress (lb/ft^2)	--	3.1
Water Flow Velocity	--	8.0

Manufacturer: Belton Industries - Geocoir Dekowe 400, or equivalent.

2.02 LARGE WOOD STRUCTURES

A. Log Materials: Logs salvaged from onsite tree removal activities per Section 02230.
   1. Maximum dimensions: As shown on the Drawings.
   2. Species: California Black Oak (*Quercus kelloggii*), Alder (*Alnus sp*.), and Willow (*Salix sp.*) are approved species for use in the large wood structures. Alternative species to be approved by Owner's Representative prior to provision of materials.
   3. Rootwads: Rootwads shall be intact with trunk. Rootwad diameter (average, measured root-to-root endpoints) shall be 1-feet minimum, 3-feet maximum. If directed by Owner's Representative, trim rootwads as needed to meet maximum dimensions.

B. Ballast Boulders: per Section 02082 Rock Structures. Size shown on Drawings.

PART 3 - EXECUTION

3.01 CONSTRUCTION STAKING

A. The Contractor shall stake the limits of each biotechnical structure as shown on the drawings. Structure staking shall be performed after grading has been completed. The Contractor shall allow up to two (2) days for review and approval of staking by the Owner's Representative.

B. The Contractor shall adjust stakes as requested by the Owner's Representative to meet design dimensions and intent.

C. The Contractor will be responsible for establishing offset stakes and maintaining a system of control so that the Owner's Representative can verify that design intent is being met.

3.02 MULTI-LAYER EROSION CONTROL FABRIC INSTALLATION

A. Key Trench: Excavate key trench to the required dimension at the bottom and top of the installation area.

B. Transition Trench: Excavate transverse trench to the required dimension upstream and downstream extents of the installation area.

C. Fabric Unroll fabric perpendicular to the direction of flow. Overlap pieces of fabric a minimum of one (1) foot or per manufacturer's instructions, whichever is greater. Overlap pieces such that the downstream piece is always under the adjacent upstream piece

D. Unwoven Biodegradable Coir Fabric: Place a layer of unwoven biodegradable coir fabric on top of the graded slope. Extend fabric into the key trench as shown on the Drawings.

E. Woven Biodegradable Coir Fabric: Place a layer of woven biodegradable coir fabric on top of the unwoven biodegradable coir fabric.

F. Secure Fabric: Drive notched wooden stakes through coir fabric into bank in a grid pattern as shown on Drawings. Leave adequate length of stake exposed in order to secure tie rope at each stake. Connect rope to stakes at notch by tying or wrapping. Once the rope 'net' is in place and secure, tamp stakes further into bank in order to cinch and tighten net down.

G. Anchor Coir Fabrics: Carefully place native streambed cobble and gravel to backfill the key trench and transverse trench to completely anchor the coir fabric. Compact to 90% relative compaction.

H. Drive live poles per detail. Be embedded per dimension shown in detail. Cut aboveground portion of pole to either 3 growth nodes or 8", whichever is longer. Cut shall be perpendicular to the long axis of the pole.

3.03 LARGE WOOD STRUCTURE INSTALLATION

A. Log Preparation: Trees shall be harvested using methods that preserve the integrity of the bole and leave the rootwad intact. The Contractor shall take care to preserve the root net within the rootwad, including large and small roots intertwined. Branches may be removed as needed to facilitate handling and installation. This work shall be performed by a qualified contractor.

B. Log Handling: The removed tree shall not be de-barked or altered in any way, other than pruned limbs and unavoidable impact during the handling process. Care should be taken when handling the tree to minimize damage to the tree trunk, branches, and rootwad, not limited to abrasion, splitting, crushing and shearing.

C. Control of Work: The Contractor shall anticipate that each log will need to be placed individually in the presence of the Owner's Representative. The Contractor shall adjust each log as needed to obtain the proper orientation and embedment. The Contractor shall be prepared to shape rootwads order to achieve all requirements. Logs shall only be notched, trimmed or otherwise altered in the presence of the Owner's Representative.

D. Excavation: To the extent practicable, the contractor shall install logs with minimal disturbance to the subgrade. Where possible, embed logs by driving or pushing into subgrade, rather than excavating. Trenching for log installation shall conform to Section 19-1 and 19-3 of the Standard Specifications. The Contractor shall excavate only as needed to embed log members to the below grade depths indicated on the Drawings. Any overexcavation shall be backfilled and compacted to 90% relative compaction prior to any log placement.

E. Ballast Boulders: Place ballast boulders as shown on Drawings and as directed by the Owner's Representative to resist log buoyancy. The boulders shall make direct contact with the log and be placed in a manner that pins the log or results in the boulder being on top of the log.

F. Backfill: Log trenches shall be backfilled with imported gravel to the lines and dimensions shown on the Drawings. Place in 12-inch maximum lifts, fill voids with native material soil and compact to 85% relative compaction.

3.04 FLOW BAFFLE INSTALLATION

A. Trench: Excavate trench to the required dimension. Mound half of the excavated soil on the downstream side of the trench for the live stems to lean against.

B. Stem Placement: The Contractor shall remove all leaves from approximately 50% of the live stems. Lay live stems in the toe trench parallel to each other, with the cut ends in the toe trench. Stems shall be placed closely together at a minimum of ten (10) stems per linear foot, including five (5) of the de-leaved stems. Take care not to damage stem bark and branches throughout installation. Note: Contractor may utilize native plant materials, pending approval by Owner.

C. Anchor Stems: Carefully backfill toe trench with excavated native backfill material. Place 2-layers minimum of ballast rock on live stems and complete trench backfill with native backfill. Compact backfill to 85% RC using methods such as hand tamping, watering, vibratory plate, or similar.

3.05 IRRIGATION AND MAINTENANCE

A. Immediately upon installing structures, irrigate all structures containing live poles/stakes. Irrigate twice a week minimum until seasonal rains come and/or the contract is completed.

*** END OF SECTION ***

EXHIBIT B

WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT

Cost Proposal and Bid Schedule

We, the undersigned, having familiarized ourselves with all project plans and local conditions affecting the cost of work to be done, along with the cost proposal and contract documents, hereby propose to provide and furnish all labor, materials, utilities, transportation, and equipment of all types and kinds and to complete the project as specified and described in Exhibit A.

We, the undersigned, agree to perform all of the above work to its completion and to the satisfaction of the TCRCD for the rates and prices for said work as indicated below.

We, the undersigned, understand that the contract is a not to exceed lump sum contract and the paid sum will not exceed the contract amount without a change order from the TCRCD. The TCRCD will not be responsible for any loss of anticipated profits due to reductions in the size of the contract.

In the case of discrepancy between the total of the individual Item prices listed and the Grand Total set forth, the Grand Total price shall prevail and be used for comparison purposes. The TCRCD reserves the right to reject any or all bids, or to waive any irregularity in any bid.

The foregoing is being given as a basis for comparison of bids, and the TCRCD reserves the right to increase or decrease the amount of any class or portion of the work or omit portions of the work, as may be deemed necessary or advisable by the TCRCD Representative to meet existing funding.

If this proposal shall be accepted and the undersigned shall fail to contract as aforesaid and to give the two bonds in the sums determined as specified, with surety satisfactory to the TCRCD, and fail to provide certificates of insurance that may be required within eight (8) days, not including Sundays and legal holidays, after the bidder has received notice from the Project Manager that the contract has been awarded, the TCRCD may, at its option, determine that the bidder has abandoned the contract, and thereupon, this proposal and the acceptance thereof shall be null and void, and the forfeiture of such security accompanying this proposal shall operate and the same shall be the property of the TCRCD.

ANY BIDDER ATTEMPTING TO INFLUENCE TCRCD STAFF OR THE DECISION-MAKERS, OR ANY OTHER INTERFERENCE WITH OR DEVIATION IN THE BID PROCESS, MAY RESULT IN THE DISQUALIFICATION OF THE BIDDER.

West Weaver Creek Channel and Floodplain Rehabilitation
100%-Complete Design - Bid Tab
ESA
April 28, 2017

No.	Description	Quantity	Unit	Unit Cost	Total Cost
BASE BID					
GENERAL					
1	Mobilization	1	LUMP SUM	$ -	$ -
2	Clearing, Grubbing and Demolition	1	LUMP SUM	$ -	$ -
3	Access Route Improvements	1	LUMP SUM	$ -	$ -
4	Erosion Control and SWPPP Compliance	1	LUMP SUM	$ -	$ -
5	Flow Diversion & Dewatering	1	LUMP SUM	$ -	$ -
EARTHWORK					
6	Floodplain Terrace Excavation	1	LUMP SUM	$ -	$ -
7	Upstream Secondary Channel Excavation	1	LUMP SUM	$ -	$ -
8	Downstream Secondary Channel Excavation	1	LUMP SUM	$ -	$ -
9	Surplus Fill Placement	1	LUMP SUM	$ -	$ -
CHANNEL STRUCTURES					
10	Secondary Channel Bed	240	TON	$ -	$ -
11	Cascade	2	EACH	$ -	$ -
12	Step pool	11	EACH	$ -	$ -
13	Riffle and Point Bar Gravel Placement	160	TON	$ -	$ -
14	Boulder Cluster	1	LUMP SUM	$ -	$ -
SUBTOTAL (BASE BID)					
ADDITIVE BID ITEMS					
A1	Flow Baffle (TCRCD to collect poles)	4	EACH	$ -	$ -
A2	Multi-layer Erosion Control Fabric	1	LUMP SUM	$ -	$ -
A3	Large Wood Structures	8	EACH	$ -	$ -
SUBTOTAL (ADDITIVE BID ITEMS)					**$ -**
TOTAL (BASE + ADDITIVE BID ITEMS)					**$ -**

CERTIFICATION

I hereby certify that:

A. All of the statements herein made by me are made on behalf of [company name], [Director/CEO name];

B. I have thoroughly examined the plans and specifications, site location at walk through, contract documents and all other items bound herein for the West Weaver Creek Salmonid Habitat/ Channel and Floodplain Rehabilitation Project;

C. I have carefully prepared this Cost Proposal form and have checked the same in detail before submitting this bid;

D. The only persons or parties interested in this proposal as principals are those named herein;

E. This proposal is made without collusion with any other person, firm or corporation;

F. I have full authority to make such statements and to submit this bid on the Company's behalf; and

G. The statements herein are true and correct.

I hereby represent that submission of this bid proposal is a firm commitment obligating my firm to provide the services as proposed if my firm is selected.

Signature _____Date_____

By _____Title_____

BUSINESS NAME_____

CALIF. CONTRACTOR LICENSE #_____CLASSIFICATION_____

NAME OF QUALIFIER FOR LICENSE_____

FEDERAL TAXPAYER I.D. # _____

BUSINESS ADDRESS_____

CITY, STATE, ZIP_____

PHONE _____EMAIL_____

Project Representative:_____

Rep's PHONE _____EMAIL_____

EXHIBIT C

WEST WEAVER CREEK SALMONID HABITAT / CHANNEL AND FLOODPLAIN REHABILITATION PROJECT

Contract Template

TRINITY COUNTY RESOURCE CONSERVATION DISTRICT
PROFESSIONAL SERVICES AGREEMENT WITH _____[CONTRACTOR NAME]

THIS AGREEMENT ("Agreement"), made and entered into this ____ day of _____, 2017

is by and between the **TRINITY COUNTY RESOURCE CONSERVATION DISTRICT,** a subdivision of the State of California, hereinafter referred to as "**TCRCD**," and **[CONTRACTOR NAME]**, hereinafter referred to as "**CONTRACTOR**."

WITNESSETH:

WHEREAS, the RCD has received funding from the California Department of Water Resources through the North Coast Resource Partnership Program and Trinity River Restoration Program (funder) to rehabilitate salmonid habitat in West Weaver Creek; and

WHEREAS, the TCRCD complies with the requirements of the California Uniform Public Construction Cost Accounting Procedure Act; and

WHEREAS, TCRCD desires to use the professional services of CONTRACTOR; and

WHEREAS, CONTRACTOR has the professional and administrative ability to implement such services; and

WHEREAS, TCRCD and CONTRACTOR desire to set forth in writing the obligations and responsibilities of each party relating to the services.

NOW, THEREFORE, in consideration of the promises and mutual benefits which will accrue to the parties hereto in carrying out the terms of this Agreement, the parties agree as follows:

1. Scope of Services

a. CONTRACTOR will, in accordance with the terms of this Agreement, perform the services set forth in Exhibit A, ***West Weaver Creek Salmonid Habitat Rehabilitation Project- CONTRACTOR Scope of Work***, hereinafter referred to as **"PROJECT**", which is attached hereto and incorporated herein by reference.

b. This Agreement is limited both in scope and duration, as herein specified.

2. Term of Agreement. The term of this Agreement shall commence on [Start Date] and terminate on [End Date], but shall not become effective until executed by the parties.

3. Performance Responsibilities. Contractor shall complete the herein described services by no later than October 15, 2017 unless a later date is agreed upon by the parties in writing. Time is and shall be of the essence in the performance of the specified services by CONTRACTOR. Upon start of work on the PROJECT, CONTRACTOR must commit full resources to PROJECT until completion.

4. Compensation.

a. TCRCD agrees to pay CONTRACTOR an amount not to exceed [amount written]**,** ($xxx,xxx) for the successful and timely completion of the specified services.

b. In the event that the funding on which the above described contract services relies is materially reduced or made unavailable, despite the parties understandings and expectations that no such disruptions will occur, this Agreement will terminate immediately upon notice of such funding disruption by TCRCD to CONTRACTOR.

5. Billing and Payment Procedure. CONTRACTOR will submit requests for payment along with documentation acceptable to the TCRCD no more frequently than monthly. All invoices will be reviewed by the TCRCD prior to submittal to grantor(s) for reimbursement. Invoices will be paid upon receipt of funds from the grantor(s), a process that may take up to 90-120 days from the time of submittal to the grantor(s) by the TCRCD. Due to grantors' requirements, a 10% retention rate will be applied to all invoices submitted to TCRCD and will be withheld until project completion meets grantors' requirements.

6. Cooperation. TCRCD and CONTRACTOR agree to cooperate in any way and every way or manner on the PROJECT. TCRCD will immediately transmit to CONTRACTOR any new information which becomes available or any change in plans. CONTRACTOR will likewise bring any new information, issues or concerns to the TCRCD's attention as soon as practicable.

7. Assignment. Without the written consent of TCRCD, this Agreement is not assignable by CONTRACTOR in whole or in part.

8. Conflict of Interest. The CONTRACTOR shall comply with all applicable State laws and rules pertaining to conflicts of interest, including but not limited to, Government Code Section 1090 and Public Contract Code 10410 and 10411.

9. Applicable Laws. All work performed on behalf of the TCRCD, as set forth in this Agreement shall be performed in accordance with all applicable state and federal laws, regulations, policies, procedures, and standards. Furthermore, this Agreement and performance hereunder and all suits and special proceedings hereunder shall be construed in accordance with the laws of the State of California in any action, special proceeding, or other proceeding that may be brought arising out of, in connection with, or by reason of this Agreement, the laws of the State of California shall be applicable and so govern to the exclusion of laws of any other forum without regard to the jurisdiction in which the action or special proceeding may be instituted.

10. Wages. All work implemented by the TCRCD, a public agency, is considered a public work or public improvement project. As public projects, they are subject to prevailing wage and other requirements included in California Labor Code §1720 -1861. Contractors, and any subcontractor under them, shall pay not less than the specified prevailing rates of wages to all workers employed in the execution of the Contract. Prevailing wage determinations can be found at Department of Industrial Relations website.

11. No Benefit To Arise For Local Employees. Except as provided by State law, no member, officer, or employee of TCRCD or its designees or agents, and no public official who exercises authority over or has responsibilities with respect to the Project during their tenure or for one (1) year thereafter, shall have any interest, direct or indirect, in any agreement or sub-agreement or the proceeds thereof, for work to be performed in connection with the services performed under this Agreement.

12. Independent Contractor Status. The CONTRACTOR, and the officers, the agents and employees of the CONTRACTOR, in the performance of the Agreement, shall act in an independent capacity and not as officers, employees or agents of the TCRCD. Nothing in this Agreement is intended nor shall be construed to create an employer-employee relationship, a joint venture relationship.

13. Standard of Professionalism. CONTRACTOR shall conduct all work consistent with professional standards for the industry and type of work being performed under this Agreement.

14. Ownership of Materials. Except as otherwise expressly stated in Exhibit A, all materials and work products, including data collected for the Work produced as a result of this Agreement are the property of the TCRCD. Any final products distributed or produced will acknowledge the CONTRACTOR, TCRCD, and other Funding Agencies as reasonably requested by the TCRCD. The TCRCD shall be entitled to use and publish the work product and deliverables under this Agreement.

15. Indemnification. To the fullest extent permitted by applicable law, Contractor agrees to defend, at Contractor's expense and with counsel acceptable to District, indemnify, and save and hold harmless District and all of its officers, directors, employees and agents, as well as the US Forest Service, and private property owners who own land associated with PROJECT, from and against any and all claims, suits, losses, causes of action, damages, liabilities, and expenses of any kind whatsoever arising out of the performance or nonperformance of the CONTRACTOR's work, including without limitation, all expenses of litigation and/or arbitration, court costs, and attorneys' fees, arising on account of or in connection with injuries to or the death of any person whomsoever, or any and all damages to property, regardless of possession or ownership, which injuries, death or damages arise from, or are in any manner connected with, the work performed by or for the CONTRACTOR under this Agreement, or are caused in whole or part by reason of the acts or omissions or presence of the person or property of the Contractor or any of its employees, agents, representatives and or suppliers.

16. Insurance. Without limiting CONTRACTOR indemnification, it is agreed that CONTRACTOR shall maintain, in force at all times during the performance of this agreement, the following policy or policies of insurance covering its operation.

COVERAGE	MINIMUM LIMITS
Comprehensive General Liability	$1,000,000.00
Worker's Compensation	As required by the State of California

Contractors Liability Insurance Policy shall contain the following clause:

TCRCD is added as additional insured as respects operation of the named insured formed under contract with TCRCD.

It is agreed that any insurance maintained by TCRCD shall apply in excess of, and not contribute with, insurance provided by this policy.

The insurer agrees to waive all rights of subrogation against the TCRCD, its officers and employees for losses arising from work performed by CONTRACTOR for TCRCD.

All insurance policies required by this paragraph shall contain the following clause:

"This insurance shall not be canceled, limited, or non-renewed until after 30 days written notice has been given to the TCRCD."

Certificates of insurance evidencing the coverage required by the clauses set forth above shall be filed with TCRCD prior to the effective date of this agreement.

17. Non-discrimination. During the performance of this Agreement, CONTRACTOR will not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of sex (gender), sexual orientation, race, color, ancestry, religion, creed, national origin (including language use restriction), pregnancy, physical disability (including HIV and AIDS), mental disability, medical condition (e.g., cancer), age (over 40), marital status, and denial of medial and family care leave or pregnancy disability leave.

CONTRACTOR shall ensure that the evaluation and treatment of its employees and applicants for employment are free from such discrimination and harassment.

CONTRACTOR will comply with the provisions of the Fair Employment and Housing Act (Gov Code 12990 (a-f) et seq.) and the applicable regulations promulgated there under (California Code of Regulations, Title 2, Section 7285 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code Section 12900 (a-f), set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations, are incorporated into this Agreement by reference and made a part hereof as if set forth in full. CONTRACTOR will give written notice of its obligations under this clause to labor organizations with which they have a collective bargaining or other Agreement.

18. It is the policy of TCRCD that full opportunity to respond be extended to all interested parties including disadvantaged businesses (DBE). No goals have been established for this project. CONTRACTOR shall maintain records of all subcontracts entered into with certified DBE subcontractors and records of materials purchased from certified DBE suppliers. Such records shall show the name and business address of each DBE subcontractor or vendor. Upon completion of the contract, a summary of these records shall be prepared on forms supplied by the TCRCD.

19. Notices. Any notice required to be given pursuant to the terms and provisions of this Agreement shall be in writing and shall be sent first-class mail. Notice shall be deemed to be effective two (2) days after mailing to the following addresses:

To TCRCD: Executive Director
Trinity County Resource Conservation District
PO Box 1450
Weaverville, CA 96093

To CONTRACTOR: Contact name, Title Address

20. Amendments and Integration. This Agreement supersedes all previous agreements or understandings, and constitutes the entire understanding between the parties with respect to the above referenced services, terms of compensation, and otherwise. This Agreement shall not be amended, except in a writing that is executed by authorized representatives of both parties.

21. Drug Free Workplace Certification: By signing this Agreement, CONTRACTOR hereby certifies, under penalty of perjury under the laws of State of California, compliance with the requirements of the Drug-Free Workplace Act of 1990 (Government Code 8350 et seq.) and will provide, as required by Government Code Sections 8355(a)(3), that every employee, contractor, or subcontractor who works under this Grant Agreement will receive a copy of Grantee's drug-free policy statement (Supplied with final contract), and will abide by terms of the policy.

22. Labor Code Compliance: The CONTRACTOR will take all measures necessary to ensure compliance with applicable California Labor Code requirements, including, but not limited to Section 1720 *et seq*. of the California Labor Code regarding public works, labor compliance programs (California Labor Code Section 1771.5), and payment of prevailing wages for work done and funded pursuant to these Guidelines, including any payments to the Department of Industrial Relations under Labor Code Section 1771.3. As a condition of receiving payments for this Project, the CONTRACTOR agrees to present to the TCRCD, or its designee, all applicable and necessary documentation required to show compliance with a Labor Compliance Program, as required by the California Labor Code. All persons on the job must be listed on certified payroll records and be paid prevailing wage along with travel pay. Sub-contractors, if any, must certify payroll for their own employees. The CONTRACTOR is solely responsible for providing documentation of certified payroll and per diem payments, to the TCRCD, *for all persons on this job*. The

TCRCD shall withhold any portion of a payment until all required forms and documentation of compliance of the Labor Compliance Program are properly submitted. In the event that certified payroll forms do not comply with the requirements of Labor Code Section 1720 et seq., the TCRCD may continue to hold sufficient funds to cover estimated wages and penalties under the contract.

23. Standards for Financial Management System: CONTRACTOR shall maintain fiscal control and accounting procedures which are sufficient to:

a. Permit preparation of reports required by Title 48 CFR Part 31 (including those required by Title 48 CFR Part 31.40 and 31.41) and statutes authorizing the grant to the TCRCD;

b. Permit tracing of funds to a level of expenditures adequate to establish that such funds have not been used in violation of the restrictions and prohibitions of applicable statutes;

c. A requirement to this effect shall be placed in all subcontractors' contracts related to performance of work under this Agreement.

24. Inspections: The Funder shall have the right to inspect the work being performed at any and all reasonable times during the term of this Agreement.

25. Termination. This Agreement may be terminated for any of the following reasons:

a. If CONTRACTOR fails to perform the services hereunder agreed to the satisfaction of TCRCD, or otherwise fails to fulfill its obligations under this Agreement, immediately upon written notice from TCRCD; and

b. Upon notice from TCRCD to CONTRACTOR that the funding on which this Agreement is based has been materially disrupted or discontinued.

IN WITNESS WHEREFORE, the parties agree to the foregoing terms and conditions and hereby enter into this Agreement.

Date: _____ By:_____

Trinity County RCD Name _____Title_____

Date: _____ By:_____

Contractor signatory name_____ Title_____

EXHIBIT D

WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT

Insurance Requirements

1. Insurance Requirements

CONTRACTOR shall procure and maintain for the duration of this Agreement insurance against claims and injuries to persons or damages to property which may arise from or in connection with the work hereunder by CONTRACTOR, its agents, representatives, employees or subcontractors. The cost of such insurance shall be the sole responsibility of CONTRACTOR.

A. Minimum Scope of Coverage and Limits of Insurance:

a. Comprehensive General Liability: $1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage.

b. Worker's Compensation: Limits as set forth in the Labor Code of the State of California.

B. Contractors Liability Insurance Policy shall contain the following clauses:

a. TCRCD, is added as an additional insured as respects operation of the named insured formed under contract with TCRCD.

b. It is agreed that any insurance maintained by RCD shall apply in excess of, and not contribute with, insurance provided by this policy.

c. The insurer agrees to waive all rights of subrogation against TCRCD, its officers and employees for losses arising from work performed by CONTRACTOR for TCRCD.

C. Each insurance policy required herein shall be endorsed to state that coverage shall not be cancelled, limited, or non-renewed except after thirty (30) days written notice has been given to TCRCD.

Certificates of insurance evidencing the coverage required by the clauses set forth above shall be filed with TCRCD within 8 working days to the effective date of this Agreement.

2. Certificate of Compliance

TO: Trinity COUNTY RESOURCE CONSERVATION DISTRCT
PROJECT: ***West Weaver Creek Salmonid Habitat/ Channel and Floodplain Rehabilitation Project***

This is to certify that all requirements for insurance of contractor as specified have been met.

_____
[***Contractor]***

_____
By

_____
Dated

Please return this completed form with your Bonds and Certificates of Insurance within 8 days of notice of award.

EXHIBIT E

WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT

Labor Compliance Program

The state labor law requirements applicable to the contract are composed of, but not limited to, the following:

1. Payment of Prevailing Wage Rates

The award of a public works contract requires that all workers employed on the project be paid not less than the specified general prevailing wage rates by the contractor and its subcontractors. Prevailing wage determinations for this project can be obtained at: **www.dir.ca.gov.** This includes a total package including fringe benefits and training contributions which are paid to the employee or for the benefit of the employee to a bona fide ERISA approved or otherwise unconditionally paid for the benefit of the employee Trust Fund.

The contractor is responsible for obtaining and complying with all applicable general prevailing wage rates for trades workers and any rate changes, which may occur during the term of the contract. Prevailing wage rates and rate changes are to be posted at the job site for workers to view. Or the contractor may post a notice stating where the prevailing wage determinations are available on the jobsite and the contractor shall provide access to such information upon reasonable notice.

2. All individuals or companies performing prevailing wage work on this project must be registered as a public works contractor and pay an annual fee of $300 to the Department of Industrial Relations (DIR). This includes all work covered by prevailing wage such as trucking, surveying, building inspection and so on.

3. Apprentices

It is the duty of the contractor and subcontractors to employ registered apprentices on public works projects per Labor Code Section 1777.5; Contractors and subcontractors must submit proof of Public Works Contract Award Information (DAS140) or other documentation for Division of Apprenticeship Standards approved apprenticeship programs. Apprentices are to be employed in all crafts and in all trades with approved training programs. Contactors are to employ apprentices on a ratio of 1 apprentice hour for every 5 journeymen hours or as otherwise approved by the DAS approved Apprenticeship Training Committee. Contractors and subcontractors who do not meet this ratio must submit documentation that apprentices were requested and were not provided and/or not available in sufficient number to meet this ratio. The submission of an accurate DAS142(s) meets this requirement. Additional documentation may be required to verify the apprenticeship status of employees.

4. Penalties

Penalties, including forfeitures and debarment, shall be imposed for contractor/subcontractor failure to pay prevailing wages, failure to maintain and submit accurate certified payroll records upon request, failure to employ apprentices, and for failure to pay employees for all hours worked at the correct prevailing wage rate, in accordance with Labor Code Sections 1775, 1776, 1777.7, and 1813. Monetary penalties of $200 per day per worker shall be imposed for failure to pay correct prevailing wage; $25 per day per worker shall be imposed for overtime violated; $100 per day per worker for failure to provide certified payroll information; $100-$300 per calendar day for noncompliance of Apprenticeship issues.

5. Certified Payroll Records

Per Labor Code Section 1776, contractors and subcontractors are required to keep accurate payroll records which reflect the name, address, social security number, and work classification of each employee; the straight time and overtime hours worked each day and each week; the fringe benefits; and the actual per diem wages paid to each journeyperson, apprentice, worker, or other employee hired in connection with a public works

project. A listing of all current prevailing wage determinations can be obtained from the Agency's main office or by accessing the Department of Industrial Relation's website at: www.dir.ca.gov.

Employee payroll records shall be certified (signed under penalty of perjury by someone in authority at the company) and shall be made available for inspection at all reasonable hours at the principal office of the contractor/subcontractor, or shall be furnished to any employee, or to his or her authorized representative on request. Disclosure of certified payroll information to anyone other than the Awarding Body, its agent, or the Department of Industrial Relations requires that personal information about the employees (name, address and social security number) listed on the forms be redacted (omitted) to protect employee privacy.

Contractors and subcontractors shall maintain their certified payrolls on a weekly basis and shall submit said payrolls on a monthly basis (at end of month for previous month's records) to RCD in conjunction with contractor's requests progress or final payment. In the event that there has been no work performed during a given week, the Certified Payroll Record shall be annotated "No Work" for that week. The Agency or its authorized representative is also authorized to request and review all related payroll records such as time cards, cancelled checks, etc. For all projects awarded after April 1, 2015, certified payrolls must also be submitted to the DIR the electronically through their eCPR system.

While the DIR accepts electronic versions of your certified payroll, the DIR and this agency may also request copies of the original certified payroll and supporting documentation at any time.

6. Nondiscrimination in Employment
Prohibitions against employment discrimination are contained in Labor Code Sections 1735 and 1777.6; the Government Code; the Public Contracts Code; and Title VII of the Civil Rights Act of 1964, as amended. All contractors and subcontractors are required to implement equal employment opportunities as delineated below:
a. Equal Employment Poster
The equal employment poster shall be posted at the job site in a conspicuous place visible to employees and employment applicants for the duration of the project. All other labor and employment related posters are also to be properly displayed on the jobsite.

7. Kickback Prohibited
Per Labor Code Section 1778, contractors and subcontractors are prohibited from accepting, taking wages illegally, or extracting "kickback" from employee wages.

8. Acceptance of Fees Prohibited
Contractors and subcontractors are prohibited from exacting any type of fee for registering individuals for public work (Labor Code Section 1779); or for filling work orders on public works contracts (Labor Code Section 1780);

9. Listing of Subcontractors
Contractors are required to list all subcontractors hired to perform work on a public works project when that work is equivalent to more than one-half of one percent of the total contract amount or $10,000 whichever is greater. (Public Contract Code Section 4100, et seq.);

10. Proper Licensing
Contractors and subcontractors are required to be properly licensed. Penalties will be imposed for employing workers while unlicensed (Labor Code Section 1021 and Business and Professions Code Section 7000, et seq. under California Contractors License Law);

11. Unfair Competition Prohibited
Contractors and subcontractors are prohibited from engaging in unfair competition (Business and Professions Code Sections 17200-17208);

12. Workers' Compensation Insurance
All contractors and subcontractors are required to be insured against liability for workers' compensation, or to undertake self-insurance in accordance with the provisions of Labor Code Section 3700 (Labor Code Section 1861);

13. OSHA
Contractors and subcontractors are required to comply with the Occupational, Safety and Health laws and regulations applicable to the particular public works project.

14. Prompt Payment of Subcontractors and Suppliers
Contractors are required by law to promptly pay their subcontractors and suppliers within seven (7) days of receipt of any progress or final payment from the Public Agency. Likewise the subcontractor and supplier are required to pay their respective subcontractors and suppliers within seven (7) days of receipt of payment from the general contractor. When the payment to the contractor is a release of final retention on the project, those funds must be paid within seven (7) days of receipt.

15. IRCA
Pursuant to the Immigration Reform and Control Act of 1986, employers are required to verify that all employees working on public works contracts are legally able to work in the United States. Employers shall keep on file appropriate I-9 forms and documentation for all workers employed on the jobsite and make such forms available to inspection and review by the LCO upon request.

16. Jobsite Interviews
Jobsite interviews are required on a regular basis on this project, CCMI may conduct random jobsite interviews as necessary to meet labor compliance obligations. Please contact Field Representative Christina Sanchez once project has a confirmed start date. Her phone number is (650) 759-9891.

17. Certification of Electricians
Those employing electricians must comply with employment testing and certification requirements for electricians. Additional information may be required to verify the certification status of those employed.

18. Employee Wage Statements
It is required to provide itemized wage statements (pay stubs) to Employees under Labor Code Section 226.

19. Posting of Labor Compliance
Notice of Labor Compliance Approval is required to be posted at the job site in accordance with section 16429, listing a telephone number to call for inquiries, questions, or assistance with regard to the Labor Compliance Program.

20. Confirmation of Payroll Records – Confirmation of payment to employees for each contactor and subcontractor shall be undertaken randomly for at least one worker for at least one weekly period within that month. This will entail a monthly request of the front and back of a canceled check and employee pay stub for each contractor/subcontractor. Per Title 8 of the California Code Regulations section 16432(c).

21. Public Works Contractor Registration – Only those businesses who have registered and paid the applicable fee to the Department of Industrial Relations as a Public Works Contractor will be allowed to work on the project.

I acknowledge that I have been informed and am aware of the foregoing requirements in listed Exhibit E and that I am authorized to make this certification on behalf of _____.
(Name of Contractor)

Signature _____

Name _____

Title of Contractor's Authorized Representative _____

EXHIBIT F

WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT

Billing Instructions for Contractors

Process and timing

All invoices will be reviewed by the TCRCD prior to submittal to grantor for reimbursement. Invoices will be paid upon receipt of funds from the grantor, a process that may take up to 90-120 days from the time of submittal to the grantor by the TCRCD. Due to grantor requirements, a 10% retention rate will be applied to all invoices submitted to TCRCD and will be withheld until project completion meets grantors' requirements.

Format

In order to process your invoice without delay, you should use the attached invoice template, or include all elements in the template on your invoice. Please do not deduct retention from the invoice, as grantor calculates and withholds retention from bottom line. Retention can be tracked on a separate statement, if desired.

Description: Provide a thorough but concise description of all work on the invoice. Include a breakdown of equipment and labor rates, hours and dates worked, materials, subcontractors and other costs. Attach receipts for all subcontractors and expenses included on invoice.

Please submit your invoice to:

Trinity County Resource Conservation District
P.O. Box 1450
Weaverville, CA 96093

Bill To:
Trinity County RCD
PO Box 1450
Weaverville, CA 96093

Date:
Invoice #

Your Company Information

Project	Date Range for Work
W. Weaver Creek Rehabilitation	

Quantity	Description	Rate	Amount
	Personnel		
	Name		
	Subtotal Personnel		
	Expenses		
	Item		
	Subtotal Expenses		
	Subcontractors		
	Company		
	Subtotal Subcontractors		
		Total	$ -

EXHIBIT G

WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT

Fire Plan for Construction and Service Contracts

1. **SCOPE:**

The provisions set forth below outline the responsibility for fire prevention and suppression activities and establish a suppression plan for fires within the contract area. The contract area is delineated by map in the contract. The provisions set forth below also specify conditions under which contract activities will be curtailed or shut down.

2. **RESPONSIBILITIES:**

A. Contractor

(1) Shall abide by the requirements of this Fire Plan.

(2) Shall take all steps necessary to prevent his/her employees, subcontractors and their employees from setting fires not required in completion of the contract, shall be responsible for preventing the escape of fires set directly or indirectly as a result of contract operations, and shall extinguish all such fires which may escape.

(3) Shall permit and assist in periodic testing and inspection of required fire equipment. Contractor shall certify compliance with specific fire precautionary measures in the fire plan, before beginning operations during Fire Precautionary Period and shall update such certification when operations change.

(4) Shall designate in the Fire Plan and furnish on Contract Area, during operating hours, a qualified fire supervisor authorized to act on behalf of Contractor in fire prevention and suppression matters.

Shall complete a Contractor's Plan Regarding personnel and shall furnish Trinity County RCD with a copy prior to commencing work on the site. Shall notify TCRCD of any changes in personnel related to the plan and update personnel as shown in 5H.

B. Trinity County RCD

The TCRCD may conduct one or more inspections for compliance with the Fire Plan. The number, timing, and scope of such inspections will be at the discretion of agency employees responsible for contract administration. Such inspections do not relieve the Contractor of responsibility for correcting violations of the fire plan or for fire safety in general, as outlined in paragraph 2.A above.

3. **DEFINITIONS:**

The following definitions shall apply:

Active Landing: A location the contractor may be skidding logs into, or performing other operations such as delimbing, log manufacturing, and chipping logs. Except for EV and E days, loading logs or stockpiling chips only, on a cleared landing, does not constitute an Active Landing.

Hot Saw: A harvesting system that employs a high-speed (>1100 rpm) rotating felling head, i.e., full rotation lateral tilt head.

Mechanical Operations: The process of felling, skidding, chipping, shredding, masticating, piling, log processing and/or yarding which requires the use of motorized power which includes, chainsaws, chippers, motorized carriages, masticators, stroke delimbers, skidders , dozers etc.

4. **TOOLS AND EQUIPMENT:**

The Contractor shall comply with the following requirements during the fire precautionary period, as defined by unit administering contracts:

The Fire Precautionary Period is set by the State of California which is April 1 through December 1 of any year.

- **This contract ☒ requires, ☐ does not require, a Fire Box and associated Fire Tools according to CPRC Section 4428.**

A. Fire Tools and Equipment: Contractor shall meet minimum requirements of Section 4428 of the California Public Resources Code (C.P.R.C.). Fire tools kept at each operating landing shall be sufficient to equip all employees in the felling, yarding, loading, chipping, and material processing operations associated with each landing. Fire equipment shall include two tractor headlights for each tractor dozer used in Contractor's Operations. Tractor headlights shall be attachable to each tractor and served by an adequate power source. All required fire tools shall be maintained in suitable and serviceable condition for fire-fighting purposes.

Trucks, tractors, skidders, pickups and other similar mobile equipment shall be equipped with and carry at all times a size 0 or larger shovel with an overall length of not less than 46 inches and a 2-1/2 pound axe or larger with an overall length of not less than 28 inches.

Where cable yarding is used, Contractor shall provide a size 0 or larger shovel with an overall length of not less than 46 inches and a filled backpack can (4 or 5 gallon) with hand pump within 25 feet of each tail and corner block.

B. Fire Extinguishers: Contractor shall equip each internal combustion yarder, fuel truck, and loader with a fire extinguisher for oil and grease fires (4-A:60-B:C).

Skidders and tractors shall be equipped with a minimum 5-BC fire extinguisher.

All Fire Extinguishers shall be mounted, readily accessible, properly maintained and fully charged.

Contractor shall equip each mechanized harvesting machine with hydraulic systems, powered by an internal combustion engine (chipper, feller/buncher, harvester, forwarder, hot saws, stroke delimber, etc.), except tractors and skidders, with at least two 4-A:60-B:C fire extinguishers or equivalent.

C. Spark Arresters and Mufflers: Contractor shall equip each operating tractor and any other internal combustion engine with a spark arrester, except for motor vehicles equipped with a maintained muffler as defined in C.P.R.C. Section 4442 or tractors with exhaust-operated turbochargers. Spark Arresters shall be a model tested and approved under Forest Service Standard 5100-1a as shown in the. National Wildlife Coordinating Group Spark Arrester Guide, Volumes 1 and 2, and shall be maintained in good operating condition. Every motor vehicle subject to registration shall at all times be equipped with an adequate exhaust system meeting the requirements of the California Vehicle Code.

D. Power Saws: Each power saw shall be equipped with a spark arrester approved according to C.P.R.C. Section 4442 or 4443 and shall be maintained in effective working order. An Underwriters Laboratories (UL) approved fire extinguisher containing a minimum 14 ounces of fire retardant shall be kept with each operating power saw. In addition, a size 0 or larger shovel with an overall length of not less than 38 inches shall be kept with each gas can but not more than 300 feet from each power saw when used off cleared landing areas.

- **This contract ☐ requires, ☒ does not require, Section 4E of the Fire Plan.**

E. Tank Truck or Trailer: Contractor shall provide a **water tank truck or trailer** on or in proximity to Contract Area during Contractor's Operations hereunder during Fire Precautionary Period. When Project Activity Level B or higher is in effect, a tank truck or trailer shall be on or immediately adjacent to each active landing, unless otherwise excepted when Hot Saws or Masticators are being used. See Section 6 for specific contract requirements.

The tank shall contain at least 300 gallons of water available for fire suppression. Ample power and hitch shall be readily available for promptly and safely moving tank over roads serving Contract Area. Tank truck or trailer shall be equipped with the following:

(1) Pump, which at sea level, can deliver 23 gallons per minute at 175 pounds per square inch measured at the pump outlet. Pumps shall be tested on Contract Area using a 5/16 inch orifice in the Forester One Inch In-Line Gauge test kit. Pump shall meet or exceed the pressure value in the following table for nearest temperature and elevation:

Temp	Sea Level		1000 Feet		2000 Feet		3000 Feet		4000 Feet		5000 Feet		6000 Feet		7000 Feet		8000 Feet		9000 Feet		10000 Feet	
55	179	23	174	23	169	23	165	22	161	22	157	22	153	22	150	21	146	21	142	21	139	21
70	175	23	171	23	166	22	162	22	158	22	154	22	150	21	147	21	143	21	139	21	136	20
85	171	23	168	23	163	22	159	22	155	22	151	21	147	21	144	21	140	21	136	20	133	20
100	168	23	164	23	159	22	155	22	152	22	148	21	144	21	141	21	137	20	133	20	131	20
	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM

The pump outlet shall be equipped with 1-1/2 inch National Standard Fire Hose thread. A bypass or pressure relief valve shall be provided for other than centrifugal pumps.

(2) 300 feet of 3/4-inch inside diameter rubber-covered high-pressure hose mounted on live reel attached to pump with no segments longer than approximately 50 feet, when measured to the extreme ends of the couplings. Hose shall have reusable compression wedge type 1-inch brass or lightweight couplings (aluminum or plastic). One end of hose shall be equipped with a coupling female section and the other end with a coupling male section. The hose shall, with the nozzle closed, be capable of withstanding 200 PSI pump pressure without leaking, distortions, slipping of couplings, or other failures.

(3) A shut-off combination nozzle that meets the following minimum performance standards when measured at 100 P.S.I. at the nozzle:

	G.P.M.	Horizontal Range
Straight Stream	10	38 feet
Fog Spray	6 - 20	N/A

(4) Sufficient fuel to run the pump at least 2 hours and necessary service accessories to facilitate efficient operation of the pump.

When Contractor is using Hot Saws or Masticators, an additional 250 feet of light weight hose, approved by the Forest Service, shall be immediately available for use and be capable of connecting to the 300 feet of hose and appurtenances in (2) and (3) above.

This equipment and accessories shall be deliverable to a fire in the area of operations and is subject to the requirements for each specific activity level identified in Section 6.

F. Compressed Air Foam System: A Compressed Air Foam System (CAFS) is a fire suppression system where compressed air is added to water and a foaming agent. By agreement, Contractor may substitute a CAFS or functional equivalent in lieu of the tank truck, trailer or fire extinguishers, provided it meets or exceeds the following specifications and requirements:

1. Variable foam expansion ratio – 10:1 to 20:1.
2. Units shall be kept fully charged with air; water and foam concentrate as recommended by the manufacturer and have the appropriate tools to service the system.

3. The unit shall contain enough energy to empty tank and clear hose prior to exhausting propellant.
4. The unit shall be capable of being completely recharged within 10 minutes.
5. When used on cable yarding landings, the unit shall be outfitted for immediate attachment to carriage and transported without damage to the unit.

Fire extinguishers required for Hot Saws, Masticators and similar equipment identified in Section 4 B. above may be substituted with a 3 gallon CAFS.

Tank truck, trailer or equivalent may be substituted with a 30 Gallon CAFS with at least 550 feet of one inch hose and an adjustable nozzle with enough water, air and foam concentrate for at least one recharge.

This equipment and accessories shall also be deliverable to a fire in the area of operations and subject to the requirements for each specific activity level identified in Section 6.

5. **GENERAL**

A. **State Law**: In addition to the requirements in this Fire Plan, the Contractor shall comply with all applicable laws of the State of California. In particular, see California Public Resource Codes.

B. **Permits Required**: The Contractor must secure a special written permit from CalFire or designated representative before burning, welding or cutting metal or starting any warming fires. If contract requires Blasting and Storing of Explosives and Detonators, an Explosives Permit may be required pursuant to the California Health and Safety Code, Section 12101.

C. **Blasting**: Contractor shall use electric caps only unless otherwise agreed in writing. When blasting is necessary in slash areas, a Fire Patrolperson equipped with a size 0 or larger shovel with an overall length of not less than 46 inches and a filled backpack can (4 or 5 gallon) with hand pump shall remain in the immediate area for an hour after blasting has been completed.

D. **Smoking**: Smoking shall not be permitted during fire season, except in a barren area or in an area cleared to mineral soil at least three feet in diameter. In areas closed to smoking, the TCRCD may approve special areas to be used for smoking. The Contractor shall sign designated smoking areas. Contractor shall post signs regarding smoking and fire rules in conspicuous places for all employees to see. Contractor's supervisory personnel shall require compliance with these rules. Under no circumstances shall smoking be permitted during fire season while employees are operating light or heavy equipment, or walking or working in grass and woodlands.

E. **Storage and Parking Areas**. Equipment service areas, parking areas, and gas and oil storage areas shall be cleared of all flammable material for a radius of at least 10 feet unless otherwise specified by local administrative unit. Small mobile or stationary internal combustion engine sites shall be cleared of flammable material for a slope distance of at least 10 feet from such engine. The COR shall approve such sites in writing.

F. **Reporting Fires**: As soon as feasible but no later than 15 minutes after initial discovery, Contractor shall notify CalFire of any fires on Contract Area or along roads used by Contractor. Contractor's employees shall report all fires as soon as possible to CalFire emergency dispatch first, and then to USFS and TCRCD.

	Name	Office Address	Telephone Number
Dispatch Center			
CalFire Emergency	Redding		530-243-1434
USFS Station	Tim Ritchey or Fire Management Unit	360 Main St., Weaverville, CA	530-623-1741
TCRCD	Donna Rupp or Kelly Sheen	30 Horseshoe Lane	623-6004

When reporting a fire, provide the following information:

- Your Name
- Call back telephone number
- Project Name
- Location: Legal description (Township, Range, Section); and Descriptive location (Reference point)
- Fire Information: Including Acres, Rate of Spread and Wind Conditions.

- **This contract ☒ requires, ☐ does not require, Section 5G of the Fire Plan.**

G. **Communications**: Contractor shall furnish a serviceable telephone, radio-telephone or radio system connecting each operating side with Contractor's headquarters. When such headquarters is at a location which makes communication to it clearly impractical, TCRCD may accept a reasonable alternative location. The communication system shall provide prompt and reliable communications between Contractor's headquarters (or agreed to alternative) and TCRCD via commercial or TCRCD telephone.

- **This contract ☒ requires, ☐ does not require, Section 5H of the Fire Plan.**

H. **Fire Patrolperson**: Contractor shall furnish a qualified fire patrolperson each operating day when Project Activity Level C or higher is in effect. When on duty, sole responsibility of patrolperson shall be to patrol the operation for prevention and detection of fires, take suppression action where necessary and report to agencies as required. This Fire patrol is required on foot, unless otherwise agreed. By agreement, one patrolperson may provide patrol on this and adjacent projects. No patrolperson shall be required on Specified Road construction jobs except during clearing operations unless otherwise specified.

The Contractor shall, prior to commencing work, furnish the following information relating to key personnel:

Title	**Name**	**Telephone Number**
Fire Supervisor		
Fire Patrolperson		

I. **Clearing of Fuels:** Contractor shall clear away, and keep clear, fuels and logging debris as follows:

Welding equipment and stationary log loaders, yarders and other equipment listed in California State Law:	10 feet slope radius
Tail or corner haulback blocks:	All running blocks shall be located in the center of an area cleared to mineral soil at least 15 feet in diameter.
Lines near, between or above blocks:	Sufficient clearing to prevent line from rubbing on snags, down logs and other dead woody material.

6. **EMERGENCY PRECAUTIONS**

Contractor's Operations shall conform to the limitations or requirements in the Project Activity Level (PAL) table below. Project Activity Levels applicable to this project shall be the predicted activity levels for the Fire Danger Rating Area(s), or fire weather station(s) stated in the Contract Area Map Legend on Integrated Resource Service Contracts (IRSC's), and other contracts where applicable.

Fire Danger Rating Area/Fire Weather Station for Project FDRA 230 PAL Area 5
Big Bar/Trinity Camp

The Forest Service, in its sole discretion, may change the predicted activity level if the current fire suppression situation, weather and vegetation conditions warrant an adjustment. If practicable, Forest Service will determine

the following day's activity level by 6:00 PM. Contractor shall obtain the predicted Project Activity Level from the appropriate Ranger District Office before starting work each day.

Phone Number or Website to obtain Predicted Activity Levels: (866)242-9941

Forest Service may change the Project Activity Level Table to other values upon revision of the National Fire Danger Rating System. When Contractor is notified, the revised Project Activity Levels will supersede the levels in the Project Activity Level Table below.

PROJECT ACTIVITY LEVEL

Level	*Project Activity Minimum Requirements and Restrictions. Restrictions at each level are cumulative.*
A	Minimum requirements noted above in Sections 4 and 5.
B	1. Tank truck, trailer, or approved CAFS substitute shall be on or adjacent to the Active Landing.
C	1. When Hot Saws or Masticators are operating, a tank truck, trailer, or approved CAFS substitute shall be within ¼ mile of these operations. Effective communications shall exist between the operator and the Active Landing. 2. Immediately after Mechanical Operations cease, Fire patrol is required for two hours.
D	1. Immediately after Hot Saw or Masticator operations cease, Fire patrol is required for three hours. 2. No Dead Tree felling after 1:00 PM, except recently dead. 3 No burning, blasting, welding or cutting of metal after 1:00 PM, except by special permit.
Ev	1. The following activities may operate all day: a) Loading and hauling logs decked at approved landings. b) Loading and hauling chips stockpiled at approved landings. c) Servicing equipment at approved sites. d) Dust abatement, road maintenance (Chainsaw use prohibited)**,** culvert installation within cleared area, chip sealing, paving, earth moving or rock aggregate stock pile loading and installation (does not include pit or quarry development). e) Chainsaw and log processing operations associated with loading logs or other forest products at approved landings. 2. Hot Saws or Masticators may operate until 1:00 PM; provided that: a) A tractor or other equipment with a blade capable of constructing fire line is on or adjacent to the active landing or within ¼ mile of the operating equipment. This piece of equipment shall have effective communication with the Hot Saw or Masticator. b) Any additional restrictions specified by the Forest. 3. All other conventional Mechanical Operations are permitted until 1:00 PM. 4. Some operations may be permitted after 1:00 PM, on a case-by-case basis, under the terms of a PAL Ev Variance Agreement. Activities for which a Variance may be issued are: • Rubber Tire Skidding • Chipping on Landings • Helicopter Yarding • Fire Salvage When approved by a Line Officer, a Variance Agreement can be implemented when the criteria specified in the agreement are met and mitigation measures are in place. This approval is good for ten (10) days unless cancelled sooner or extended by the Contracting Officer for an additional ten (10) days. Variance approval can be withdrawn at the sole discretion of the Forest Service. Variance approval is contingent on the 7-day fire weather forecast, fuel conditions, site characteristics, current fire situation, state of Contractor's equipment for prevention and suppression readiness, type of operation and social and community considerations etc. (See attached Project Activity Level Variance Agreement).

Level	***Project Activity Minimum Requirements and Restrictions. Restrictions at each level are cumulative.***
E	The following activities may operate all day: 1. Loading and hauling logs decked at approved landings. 2. Loading and hauling chips stockpiled at approved landings. 3. Servicing Equipment at approved sites. 4. Dust abatement, road maintenance (chainsaw use prohibited) or loading stock piles and rock aggregate installation (does not include pit or quarry development). 5. Chainsaw operation associated with loading at approved landings. All other activities are prohibited.

This Project utilizes "The Project Activity Level" (PAL), an industrial operation's fire precaution system. The following Climatology Chart indicates the Historic Activity Levels for the Project Fire Danger Rating Area or Fire Weather Station utilized on this Project. This is only a historical average of the Activity Levels for the identified Fire Danger Rating Area or Weather Station.

Project Activity Level Climatology

Fire Danger Rating Area/Weather Station	**FDRA 230 Big Bar/Trinity Camp Scorpion RAWS**				Years Analyzed		**1993-2011**	
	A	**B**	**C**	**D**	**Ev**	**E**	Days	
Month	Expected Days per Month at Each PAL Value						Analyzed	
July	0	3	14	10	4		402	
August	0	2	11	9	8		401	
September	1	3	12	8	6		385	
October	6	5	13	4	2		400	

IF NEEDED DUE TO PAL CONDITIONS, TO BE COMPLETED BY CONTRACTOR AND SUBMITTED TO: _____USFS Weaverville Ranger Station

Region 5 Project Activity Level (PAL) Ev Variance Application/Agreement

Project Name: _West Weaver Creek, TCRCD_____
Contract Number: _____
Contractor Name: _____
Request #__, for period: _____
Units/Subdivisions Affected: _____

Location of operation:	
Slope	
Aspect	
Elevation	
Fuels on site	
Fuels in surrounding area	
7 Day PAL Outlook	
Short range predictions (Red Flags)	
Fuel Moistures	
Response time of suppression resources	
Potential for ignition	
RAWS location	5 Cent
Current Fire Situation:	
Draw down information	
National Readiness Level	
Contractual considerations:	
Normal Operating Season	
Frequency of recent contract fires in area	
Type of operation	
Contractors past/current performance & equipment readiness	
Other site specific mitigation or precaution (i.e. Contractors proposals)	
Social & Community Considerations:	
Proximity of high value resources	
Sensitivity of location	

Proposed Actions:

Description of Mitigation Measures:

Remarks:

Fire Management Officer Concurrence	Date
Line Officer Approval	Date

I have considered the above request and determined the specified mitigation measures or actions must be implemented to continue operations in Project Activity Level Ev. Unless extended, the approval remains in effect for ten (10) calendar days unless cancelled sooner or extended by the Forest Service for an additional ten (10) days. At the sole discretion of the Forest Service, this variance can be modified and/or cancelled at no cost to the government.

Contracting Officer	Date
Contractor Representative	Date

EXHIBIT H

WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT

Contractor Experience, Construction Schedule and Bonds

BUSINESS NAME_____

CALIF. CONTRACTOR LICENSE #_____CLASSIFICATION_____

NAME OF QUALIFIER FOR LICENSE_____

FEDERAL TAXPAYER I.D. # _____

BUSINESS ADDRESS_____

CITY, STATE, ZIP_____

PHONE _____EMAIL_____

Project Representative:_____

Rep's PHONE _____EMAIL_____

The following information is key for the RCD to evaluate CONTRACTOR. Please supply information on separate sheets, clearly marked with CONTRACTOR name and numbered to correspond to evaluation criteria listed below.

1. Contractor Experience

1A. Key Personnel: Resume´ information for key personnel that includes previous jobsite responsibilities on major contracts for individuals who will occupy the key function on this project. Key personnel includes: the Project Manager, Foreman, Supervisor, Superintendent, etc. and Excavator Operators.

Resume information shall include:

a) Name and the tasks to be assigned.

b) Education, background, experience, certifications, accomplishments, and other pertinent information that demonstrates their suitability for the work assigned to them.

c) Include project names, locations, dates, details, position occupied, and description of duties for qualifying experience. (Favorable consideration to be given to experience with simultaneous coordination of multiple subcontractors, trades and critical equipment and material integration if the work elements are similar to this project).

d) Availability of key personnel and percent of time anticipated onsite for the duration of the project.

1B. All other personnel and subcontractors:

Resume´ information shall include:

a) Name and the tasks to be assigned.

b) Education, background, experience, certifications, accomplishments, and other pertinent information that demonstrates their suitability for the work assigned to them.

1C. Referrals: Include a list of at least four Federal, State, local government or commercial projects similar in scope, complexity, and magnitude to the work required under this solicitation, which the CONTRACTOR or their subcontractors have completed during the last 5 years or now has on-going. The following information to be provided for each project:

Name and location of project.

a) Description of work.

b) Original completion time and date, and actual dates and duration of each project.

c) Name, address and telephone number of owner.

d) Initial contract amount and final contract amount (including modifications).

e) Percentage of work self-performed or subcontracted.

f) Any problems encountered in performance of the work and corrective action(s) taken.

g) Name, telephone number, e-mail address of at least one reference from the customer who may be contacted for further information.

If CONTRACTOR is newly formed and has limited past performance of projects of the same degree of complexity and magnitude as this solicitation as a firm, but has key personnel who possess such experience or is a new business entity previously a part or division of another firm, it may submit the past performance information for those employees or firms.

2. Proposed Construction Schedule and Narrative

2A. Construction Schedule: A bar chart that includes (at a minimum) all work contained in the bid schedule (EXHIBIT B). The schedule shall be printed legibly (approximately 10pt font or larger) in color and have columns which display the following information in order: activity name, planned duration, start, finish, calendar, and total float.

The schedule shall include critical submittals allowing for submittal preparation time and associated RCD review/approvals. The construction schedule shall be in such detail to show the sequencing of the principal and critical components of work contained in the schedule and other activities or information required to accurately portray the CONTRACTOR'S proposed schedule.

If the proposal offers an early completion date the narrative shall clearly indicate the dates proposed and any assumptions associated with those dates.

2B. Construction Narrative: Shall relate to all items in the Construction Schedule and shall include:

i) A detailed list of labor and equipment resources for principal and critical work components including: site preparation, channel and floodplain construction, water management (unwater and dewater) for all activities, stockpile management and processing, material processing and management, and storm water control and management. For each work component, the narrative shall describe resources including contractor(s) responsible for the component of work, equipment types, capacities, sizes, shifts, crew sizes, and assumed production rates. The detailed list shall correlate with the schedule.

ii) The construction sequence shall include a clear description of each of the features of work and the planned operational sequence for the work specifically related to the site conditions, (such as work space limitations, haul routes, work hours, safe access, weather, environmental restrictions, and other contractor activities), specifications, and operational restrictions, and milestones.

BIDDER'S BOND
TRINITY COUNTY RESOURCE CONSERVATION DISTRICT

KNOW ALL MEN BY THESE PRESENTS:

That we, _____ as PRINCIPAL, and

_____ as SURETY, are held and firmly bound unto the Trinity County Resource Conservation District, hereinafter called the RCD, in the penal sum of TEN PERCENT (10%) of THE TOTAL AMOUNT OF THE BID of the Principal above named, submitted by said Principal to the RCD for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents. In no case shall the liability of the surety hereunder exceed the sum of :

$_____.

Weaverville, CA
(Name of City where bids will be opened)

June 21, 2017 at 5:30 PM

For **SOLICITATION #** 2017 WEST WEAVER CREEK SALMONID HABITAT/ CHANNEL AND FLOODPLAIN REHABILITATION PROJECT

This project is located approximately 1.5 miles west of Weaverville, CA. The work consists of in-stream restoration and other associated tasks as described and shown on the project plans and specifications.

BIDDER'S BOND

NOW, THEREFORE, if the aforesaid Principal is awarded the contract and *within the time and manner required under the construction specifications*, after the prescribed forms are presented to him/her for signature, enters into a written contract, in the prescribed form, in accordance with the bid, and files the two bonds with the Trinity County Resource Conservation District, one to guarantee faithful performance and the other to guarantee payment for labor and materials as required by law, then this obligation shall be null and void; otherwise, it shall remain in full force and virtue.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the surety shall pay all cost incurred by the Obligee in such suit, including a reasonable attorney's fee to be fixed by the Court.

IN WITNESS WHEREOF, we have hereunto set our hands and seals on this _____ day of _____ A.D. 20___.

_____SEAL

_____SEAL

_____SEAL

_____SEAL

Principal

_____SEAL

_____SEAL

_____SEAL

_____SEAL

Surety

NOTE: Signatures of those executing for the surety must be properly acknowledged.

EXHIBIT I

WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT

Submittal Check List

Proposals must be received by **Friday June 9, 2017, 12:00 pm.**

This is a sealed bid process. In order to review CONTRACTOR qualifications prior to opening bids containing proposed dollar amounts, TCRCD requests that your bid be submitted as follows:

Create two (2) separate envelopes:
one marked COST and
one marked CONTRACTOR INFO

The COST envelope should contain:

- Pages B1-B3, with completed Bid Schedule and all information and signature on page B-3. (Exhibit B).
    - Note: Page B-2, Bid Schedule, may be recreated in Excel for submittal, but all rows and columns must match format shown on page B-2.

The COST envelope will remain sealed until opened at the June 21, 2017, 5:30 pm TCRCD Board Meeting to be held at 20 Horseshoe Ln., #2B, Weaverville.

The CONTRACTOR INFO envelope should contain:

- All information requested in Exhibit H
- Proposed Bidders Bond (Exhibit H)
- Signed page E-4.

Only the CONTRACTOR INFO envelope will be opened prior to the Board Meeting to confirm requirements are met and evaluate the contractor.

These two (2) envelopes will then be placed into a single envelope and submitted to the address listed below:

Trinity County RCD
Attn: Donna Rupp
PO Box 1450
Weaverville, CA 96093

Or dropped off at: 30 Horseshoe Lane, Weaverville, CA

Award of contract will be made to the most responsible bidder, at the discretion of the TCRCD. The TCRCD is not required to accept the lowest bid. The TCRCD reserves the right to reject any and all bids.

EXHIBIT J

WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT

Permits

The TCRCD is in the process of receiving required environmental permits. One application has been approved and is included in this exhibit. Updates on permits will be provided at the mandatory walk through (May 26, 2017). If additional permits are issued prior to June 9, 2017 (bid closing) this section will be updated and uploaded to www.tcrcd.net and on the required electronic plan rooms.

West Weaver Creek Project Permit Status				
Permit	**Coverage**	**Agency**	**Status**	**NOTES**
NMFS (NOAA Fisheries) Programmatic BO (aquatic)	**Anadromous fish (salmonids) and essential fish habitat**	**National Marine Fisheries Service**	**Attached (Exhibit J)**	**Covered under the Programmatic Biological Opinion with US Army Corps of Engineers as nexus.**
USACE NWP Permit (404)	**Waters/wetlands (discharge of fill)**	**US Army Corps of Engineers SF (North Branch)**	**In process.**	**Expect standard permit with no special conditions. Should be issued by end of May.**
401 WQ Certification	**Water resources (focus on WQ, Nor CA Basin Plan)**	**Regional Water Quality Control Board (North Coast)**	**Public comment period ended May 8.**	**Don't anticipate any issues. Should be issued by end of May.**
1600 LSAA	**Streambed/bank alterations (focus: wildlife, habitat, riparian zones)**	**California Department of Fish and Wildlife**	**In process.**	**Don't anticipate any issues.**

NOAA

APPLICATION FOR INCLUSION IN THE NOAA RC
ARCATA OFFICE PROGRAMMATIC BIOLOGICAL OPINION

INSTRUCTIONS

- Read through the Programmatic Biological Opinion (BO) to determine if the project fits under the described activities.
- Fill out an online application from the U.S. Army Corps of Engineers, if necessary.
- Fill out the application below.
- Review the list of specific "Minimization and Mitigation measures" on the last pages of this application.
- Sign and date the application.
- Attach a map of the project site, project site photos, a dewatering plan, and any other documents as necessary, then submit the completed form to the NOAA Restoration Center by e-mailing it to bob.pagliuco@noaa.gov.

General Information

Applicant Name	Donna Rupp, Trinity County Resource Conservation District (TCRCD)				
Landowner Name	U.S. Forest Service, Aaron King (private), Brans Schoenfeld (private), and Tom Talbot (private)				
Project Name	West Weaver Creek Salmonid Habitat Rehabilitation Program				
Project Location	on West Weaver Creek just downstream of Highway 299, west of the town of Weaverville, at RM2.0				
Project Start Date	06/15/17	Stream	West Weaver Creek	Latitude	40.738247
Project End Date	10/31/17	Watershed	Weaver Creek - Trinity River	Longitude	122.967208

Project Description

How is your project expected to fit under the Programmatic BO?

- [ ] This project is applying for / has received funding from the NOAA Restoration Center.
- [x] This project is expected to require / has received a permit from the U.S. Army Corps of Engineers.

Which salmonid species are present at your project site?

- [x] Southern Oregon / Northern California Coho Salmon
- [ ] Central California Chinook Salmon
- [ ] Upper Klamath / Trinity River Chinook Salmon
- [ ] Northern California Steelhead Trout
- [x] Klamath Mountains Province Steelhead Trout

What is the current problem addressed by this project? What is the context of this issue in the watershed?

The subject reach of West Weaver Creek is highly degraded by historical hydraulic mining operations and multiple recent wildfires, which has led to several elements of impaired fish habitat. The existing stream in the project reach is incised with predominantly exposed bedrock and tall banks of coarse substrate. Incoming sediment is efficiently transported through the project reach. Despite its location in the mountain watershed, the altered setting does not have the hillslopes to supply colluvium needed to maintain a natural stream bed. This has led to several elements of impaired fish habitat: reduced fish passage, lack of alluvium needed for spawning and macroinvertebrate production, and a lack of summer rearing habitat. Areas adjacent to stream lack the conditions, soil and available water, for riparian and upland species to

What solution are you proposing? What are the goals, objectives, and proposed benefits of your project?

To conduct channel and floodplain rehabilitation to enhance critical fisheries habitat. Specifically, to improve fish passage through the project reach, improve instream conditions for spawning and summer/winter rearing for coho salmon and steelhead within the project reach, and promote fine sediment deposition in the overbank areas, and raise stream and ground water levels, thus improving conditions for the establishment of riparian species and reducing downstream sediment input to the Trinity River. Project goals would be achieved through the following actions: 1. Design and construct a series of riffle pool, step pool, and cascade morphologic features that will: a. Improve fish passage; b. Create deep pools for improved summer rearing conditions; c. Provide channel substrate suitable for spawning; d. Retain

PROJECT INFORMATION (continued)

Please indicate the type(s) of techniques your project is likely to involve.
Check all that apply.

- ✔ Bioengineering and/or riparian habitat restoration
- ☐ Upslope watershed restoration
- ✔ Instream habitat structures and/or improvements
- ☐ Barrier modification for fish passage improvement
- ☐ Removal of small dam(s), permanent and/or flashboard
- ✔ Creation of off-channel/side-channel habitat
- ☐ Development of alternative stockwater supply
- ☐ Creation of tailwater collection pond(s)
- ☐ Construction/use of water storage tank(s)
- ☐ Construction/use of piping ditch(es)
- ☐ Installation of fish screen(s)
- ☐ Use of headgate(s)/water measuring device(s)

Will construction occur between Jun 15 - Nov 1?	Yes
Will riparian vegetation (>2 inches dbh) removal exceed 0.25 acres?	No
Will native trees >16 inches dbh and 20 feet high with cavities, trees with nests, or trees > 36 inches dbh be removed ?	No
Will dewatering and/or fish relocation be required?	Yes
Will mechanized equipment be working in the stream channel or within 25 feet of a wetted channel?	Yes

Will the project involve activities not described as a part of the Proposed Action section (Section II) in the Biological Opinion? If so, please explain.

No, the proposed Project would only include activities described as part of the Proposed Action, per Section II of the PBO. It is a proposed restoration project in Trinity County, requiring a Section 404 Nationwide permit from the Corps. The Project proposes instream habitat improvements, creation of side channel features, and some riparian restoration. The proposed Project is further described in the attached Biological Assessment, and shown on Figure 6 and the attached 60% Design Plans.

Please describe the specific construction elements of your project, including dimensions, timing, equipment used, and any staging area / access roads needed.

Proposed construction includes: clearing and grubbing of approx. 0.4 acre; temporary dewatering to conduct earthwork within West Weaver Creek; grading to construct a series of riffle pool step pool, and cascade features; grading to create anabranching (secondary) side channels and a lowered floodplain terrace; enhancement of riffle pools and side channels with wood structures and boulders; and enhancement of the lowered terrace with willow/alder/cottonwood flow baffles. Placement of appropriately-sized spawning gravels is also proposed. Following construction, areas of temporary disturbance would be restored (site stabilization and seeding for erosion control), and riparian planting (live pole, container stock, and seed) would be conducted. See attached Figure 6 and 60% Design Plans. Dimensions: The area of in-stream disturbance would be approx. 0.06 ac (over 490 LF) of streambed (with a dewatering footprint of up to 605 LF total). Timing: the project would be constructed between June 15 and

What minimization and avoidance measures are already planned as a part of this project?

The Project is seeking appropriate local, state and federal permits and approvals, as well as being analyzed pursuant to CEQA. With respect to water quality avoidance and minimization measures, the project contractor will prepare and implement a SWPPP and implement construction BMPs (such as dewatering in-stream flows, limiting work to the dry season, utilizing silt fencing as appropriate, screening gravel or using clean-washed gravels, washing equipment before use and inspecting it regularly, and monitoring water quality - especially turbidity. Avoidance and minimization measures proposed to protect sensitive species include: performing pre-construction surveys for several species, minimizing vegetation removal, using silt fencing, using fish screens during dewatering, utilizing a qualified biologist to monitor and lead fish rescue and relocation efforts if needed during dewatering, revegetating the site after construction, and conducting worker environmental awareness training. Proposed avoidance and minimization measures are

Please attach photos and a map of the project site.

Attach photos separately. Pre-project photos should be taken from the four cardinal directions and from established locations for comparison to post-project photos. Post-project photo documentation will be required of all approved projects.

Additional Information Required for Specific Project Activities

Upslope Restoration

- Will all stream crossing removals in fish bearing streams be more than 800 feet (stream distance) apart, or removals in a non-fish-bearing more than 500 feet apart?.....

Dewatering / Fish Relocation

- Will more than 1000 feet of stream need to be dewatered?..... No
- Please describe your planned methods for temporarily dewatering the stream, and how they will meet the Guidelines for Dewatering [Section II.D.9.b.(1)] in the Biological Opinion.

Up to 605 feet of stream may be dewatered during the course of proejct implementation. A Dewatering Plan will be developed and designed to meet the water quality objectives provided in the Water Quality Control Plan (Basin Plan) for the North Coast Region (NCRWQCB, 2011); it will be prepared to satisfy the requirements of the California's General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Storm Water Permit). The Dewatering Plan will include details on the use of fish screens and the approach to season the channel before reestablishing flows, so that flushing flows do

- Will fish relocation likely be necessary?..... Yes
- If so, please describe your fish removal and relocation plan and how it will meet the *General Conditions for Fish Capture and Relocation Activities, Electrofishing Guidelines, Seining Guidelines*, and *Guidelines for Relocation of Salmonids* [Sections II.D.9.b.(2)-(5)] in the Biological Opinion.

Please see attached Biological Assessment for details on Fish Rescue/Relocation methods. Methods are expected to meet the PBO's Guidelines for fish capture and relocation by: proposing work within the June 15-Nov 1 work window; using dewatering for in-channel activities, using fish exclusion and screening methods and devices per the PBO requirements (including adhering to CDFW Fish Screening Criteria, 2000, and NMFS Southwest Region Fish Screening Criteria for Salmonids, 1997a); and utilizing a qualified biologist who will be responsible for carrying out PBO requirements, including those related to fish capture and

Off-Channel and/or Side-Channel Habitat

- Will the project involve a flashboard dam, a head gate, or other mechanical structure? ..... No
- Will the resulting ponds be used as a point of water diversion? ..... No
- Please attach descriptions of the following as separate files:
  - How the project will consider water supply, including channel / overland flow, and groundwater;
  - Water quantity and reliability, risk of channel change, and channel and hydraulic grade.
- Please explain how your project will meet the protection measures for off-channel / side-channel projects as identified in the Biological Opinion (Section II.C.6.b.).

The proposed Project's creation of side-channel habitat would improve hydrologic connection between the floodplain and main channel; it would employ dewatering and diversion if flow is present; flow diversion intake(s) would be fitted with fish screens meeting CDFW and NMFS fish screening criteria (for <40cfs); cofferdams or other foreign materials used for diversion would be removed following project construction; and turbid water, if occurring, would not be discharged in a manner to allow it flow or drain directly into the channel.

Barrier Modification for Fish Passage Improvement

- Does the proposed project meet DFG fish passage criteria?.....
- Please explain.

N.A.

- Please attach your project designs as a separate file.

ADDITIONAL INFORMATION REQUIRED FOR SPECIFIC PROJECT ACTIVITIES (continued)

Removal of Small Dams

- Does the proposed project meet DFG fish passage criteria?.....
- Please explain.

N.A.

- Is the structure less than 25 feet in height from the natural bed of the stream or watercourse at the downstream toe of the barrier, or from the lowest elevation of the outside limit of the barrier to the maximum possible water storage elevation?.....
- Was the structure designed to have an impounding capacity of less than 50 acre-feet?.....
- Will the project form a natural grade/shape upstream, naturally or with excavation?.....
- Is the project site located downstream of potential contamination sources such as current or historical lumber or paper mills, industrial sites, or intensive agricultural production?.....
- Is there risk of significant loss or degradation of downstream spawning or rearing areas from potential sediment deposition resulting from the project?.....
- Please explain how your project will meet the protection measures for small dam removal projects as identified in the Biological Opinion (Section II.C.5.b.).

- Please attach your project designs as a separate file.

Water Conservation

- To aid us in verifying compliance with applicable water rights, please attach the following as separate files:
  - A copy of the small domestic use or livestock stockpond registration, appropriative water right, or a statement of riparian water use registered with the State Water Resources Control Board.
  - Any additional associated permitting that may have been required (e.g. Lake or Streambed Alteration Agreement, CA Environmental Quality [CEQA] analysis, etc.).
  - Diversion records (riparian and appropriative) both upstream and downstream of the project site.
  - The household / property water conservation plan (low flow shower heads, toilets, etc.).
  - A document detailing the estimated stream gradient and substrate, as well as what method(s) will be used to accurately measure the diversion rate.
- What are the proposed dates of diversion?..... From to
- What is the proposed rate of diversion (in cfs)?.....
- What is the estimated water use / storage needed for this project (in gallons/year)? .....

ADDITIONAL INFORMATION REQUIRED FOR SPECIFIC PROJECT ACTIVITIES (continued)

Development of Alternative Stockwater Supply

- Please explain how your project will meet the protection measures for alternative stockwater supply projects as identified in the Biological Opinion (Section II.C.7.b.).

N.A.

Creation of Tailwater Collection Ponds

- Please explain how your project will meet the protection measures for projects that create tailwater collection ponds, as identified in the Biological Opinion (Section II.C.8.b.).

N.A.

Construction / Use of Water Storage Tanks

- Is the landowner / water rights holder willing to enter into a forbearance agreement for at least 10 years .....
- What are the proposed dates of forbearance? ..... From to
- What is the estimated water need for the forbearance period (in gallons/year)? .....
- Please explain how your project will meet the protection measures for projects that construct or use water storage tanks, as identified in the Biological Opinion (Section II.C.9.b.).

N.A.

Construction / Use of Piping Ditches

- Has a Petition for Instream Flow Dedication (California Water Code §1707, 1991) been filed? No
- If yes, please attach a copy of the Petition for Instream Flow Dedication as a separate file. If no, has any other progress been made towards instream dedication? Please explain.

N.A. The Project would utilize a mobile water tank, which will be filled off-site and hauled to the site, for temporary irrigation of restoration planting; the project would not pump water from the creek for temporary irrigation.

- Please explain how your project will meet the protection measures for piping ditch projects as identified in the Biological Opinion (Section II.C.10.b.).

ADDITIONAL INFORMATION REQUIRED FOR SPECIFIC PROJECT ACTIVITIES (continued)

Use of Fish Screens

- Will the fish screen comply with NMFS screening criteria / DFG screening criteria? ..... Yes
- Please explain.

The Project does not propose permanent installation of a fish screen, but may utilize fish screens on intake pipes associated with temporary dewatering and flow diversion, if needed. These intake pipe fish screens are addressed in 'Dewatering' and 'Off-Channel and/or Side Channel Habitat' above, and would comply with the Department of Fish and Game's Fish Screening Criteria (June 19, 2000) for small pumped diversions (<40cfs) which are screened using "manufactured, self-contained" screens and which confirm to the National Marine Fisheries Service - Southwest Region "Fish Screening Criteria for Anadromous Salmonids,

- Please explain how your project will meet the protection measures for projects that involve fish screens, as identified in the Biological Opinion (Section II.C.11.b.).

- Please attach a copy of your project designs / documentation of compliance as a separate file.

Use of Headgates / Water Measuring Devices

- Please explain how your project will meet the protection measures for projects involving headgates / water measuring devices, as identified in the Biological Opinion (Section II.C.12.b.).

N.A.

- Please provide instream and ditch/pump hydraulic calculations showing there is sufficient head to divert maximum diversion flow and bypass flow at minimum stream flow considering head losses at flow measurement devices, fish screens, pipes, open ditches, and/or headgates. Please attach a separate file.

Signature

Priya Finnemore

Digitally signed by Priya Finnemore
DN: cn=Priya Finnemore, o=ESA, ou=ESA, email=pfinnemore@esassoc.com, c=US
Date: 2017.03.09 09:54:36 -08'00'

MINIMIZATION MEASURES

General Protection Measures

- Work shall not begin until (a) the Corps and/or NOAA RC has notified the applicant to the Program that the requirements of the Endangered Species Act (ESA) have been satisfied and that the activity is authorized and (b) all other necessary permits and authorizations are finalized.
- The general construction season shall be from June 15 to November 1. Restoration, construction, fish relocation, and dewatering within any wetted or flowing stream channel shall only occur within this period. Revegetation outside of the active channel may continue beyond November 1, if necessary.
- Prior to construction, any contractor shall be provided with the specific protective measures to be followed during implementation of the project. In addition, a qualified biologist shall provide the construction crew with information on the listed species and State Fully Protected Species in the project area, the protection afforded the species by the ESA, and guidance on those specific protection measures that must be implemented as part of the project.
- All activities that are likely to result in negative aquatic effects, including temporary effects, shall proceed through a sequencing of effect reduction: avoidance, reduction in magnitude of effect, and compensation (mitigation). Mitigation may be proposed to compensate for negative effects to waters of the United States. Mitigation shall generally be in kind, with no net loss of waters of the United States on a per project basis.
- Mitigation work shall proceed in advance or concurrently with project construction.
- Poured concrete shall be excluded from the wetted channel for a period of 30 days after it is poured During that time the poured concrete shall be kept moist, and runoff from the concrete shall not be allowed to enter a live stream. Commercial sealants may be applied to the poured concrete surface where difficulty in excluding water flow for a long period may occur. If sealant is used, water shall be excluded from the site until the sealant is dry and fully cured according to the manufacturers specifications.
- If the thalweg of the stream has been altered due to construction activities, efforts shall be undertaken to reestablish it to its original configuration.

Measures to Minimize Degradation of Water Quality

General erosion control during construction:

- When appropriate, isolate the construction area from flowing water until project materials are installed and erosion protection is in place.
- Effective erosion control measures shall be in place at all times during construction. Do not start construction until all temporary control devices (e.g., straw bales with sterile, weed free straw, silt fences) are in place down slope or downstream of project site within the riparian area. The devices shall be properly installed at all locations where the likelihood of sediment input exists. These devices shall be in place during and after construction activities for the purposes of minimizing fine sediment and sediment/water slurry input to flowing water and detaining sediment-laden water on site. If continued erosion is likely to occur after construction is complete, then appropriate erosion prevention measures shall be implemented and maintained until erosion has subsided. Erosion control devices such as coir rolls or erosion control blankets will not contain plastic netting of a mesh size that would entrain reptiles (especially snakes) and amphibians.
- Sediment shall be removed from sediment controls once it has reached one-third of the exposed height of the control. Whenever straw bales are used, they shall be sterile and weed free, staked and dug into the ground 12 cm. Catch basins shall be maintained so that no more than 15 cm of sediment depth accumulates within traps or sumps.
- Sediment-laden water created by construction activity shall be filtered before it leaves the settling pond or enters the stream network or an aquatic resource area.
- The contractor/applicant to the Program is required to inspect, maintain or repair all erosion control devices prior to and after any storm event, at 24 hour intervals during extended storm events, and a minimum of every two weeks until all erosion control measures have been completed.

Guidelines for temporary stockpiling:

- Minimize temporary stockpiling of material. Stockpile excavated material in areas where it cannot enter the stream channel. Prior to start of construction, determine if such sites are available at or near the project location. If nearby sites are unavailable, determine a location where material will be deposited. Establish locations to deposit spoils well away from watercourses with the potential to delivery sediment

MINIMIZATION MEASURES (continued)

Measures to Minimize Degradation of Water Quality (continued)

into streams supporting, or historically supporting populations of listed salmonids. Spoils shall be contoured to disperse runoff and stabilized with mulch and (native) vegetation. Use devices such as plastic sheeting held down with rocks or sandbags over stockpiles, silt fences, or berms of hay bales, to minimize movement of exposed or stockpiled soil.

- If feasible, conserve topsoil for reuse at project location or use in other areas. End haul spoils away from watercourses as soon as possible to minimize potential sediment delivery.

Minimizing potential for scour:

- When needed, utilize instream grade control structures to control channel scour, sediment routing, and headwall cutting.
- For relief culverts or structures, if a structure that empties into a stream is installed, an energy dissipater shall be installed to reduce bed and bank scour. This does not apply to culverts in fish bearing streams.
- The toe of rock slope protection used for streambank stabilization shall be placed below the bed scour depth to ensure stability.

Post-construction erosion control:

- Immediately after project completion and before close of seasonal work window, stabilize all exposed soil with erosion control measures such as mulch, seeding, and/or placement of erosion control blankets. Remove all artificial erosion control devices after the project area has fully stabilized. All exposed soil present in and around the project site shall be stabilized after construction. Erosion control devices such as coir rolls or erosion control blankets will not contain plastic netting of a mesh size that would entrain reptiles (especially snakes) and amphibians.
- All bare and/or disturbed slopes (more than 100 square feet of bare mineral soil) will be treated with erosion control measures such as hay bales, netting, fiber rolls, and hydroseed as permanent erosion control measures.
- Where straw, mulch, or slash is used as erosion control on bare mineral soil, the minimum coverage shall be 95 percent with a minimum depth of two inches.
- When seeding is used as an erosion control measure, only seeds from native plant species will be used. Sterile (without seeds), weed-free straw, free of exotic weeds, is required when hay or hay bales are used as erosion control measures.

Measures to Minimize Loss or Disturbance of Riparian Vegetation

Minimizing disturbance:

- Retain as many trees and as much understory brush as feasible, emphasizing shade-producing and bank-stabilizing trees and brush.
- Prior to construction, determine locations and equipment access points that minimize riparian disturbance. Avoid entering unstable areas. Use project designs and access points that minimize riparian disturbance without affecting less stable areas, which may increase the risk of channel instability.
- Minimize soil compaction by using equipment with a greater reach or that exerts less pressure per square inch on the ground than other equipment, resulting in less overall area disturbed or less compaction of disturbed areas.
- If vegetation will be removed with chainsaws, consider using saws that operate with vegetable-based bar oil.
- Decompact disturbed soils at project completion as the heavy equipment exits the construction area.

Revegetation and success criteria:

- Any stream bank area left barren of vegetation as a result of the implementation or maintenance of the practices shall be restored to a natural state by seeding, planting, or other means with native trees, shrubs, or grasses prior to November 15 of the project year.
- Barren areas shall typically be planted with a combination of willow stakes, native shrubs and trees and/or erosion control grass mixes.
- Native plant species shall be used for revegetation of disturbed and compacted areas. The species used shall be specific to the project vicinity or the region of the state where the project is located, and comprise a diverse community structure (plantings shall include both woody and herbaceous species).

MINIMIZATION MEASURES (continued)

Measures to Minimize Loss or Disturbance of Riparian Vegetation (continued)	• For projects where re-vegetation is implemented to compensate for riparian vegetation impacted by project construction, a re-vegetation monitoring report will be required after five years to document success. Success is defined as 70 percent survival of plantings or 70 percent ground cover for broadcast planting of seed after a period of three years. If revegetation efforts will be passive (i.e., natural regeneration), success will be defined as total cover of woody and herbaceous material equal to or greater than pre-project conditions. If at the end of five years, the vegetation has not successfully been reestablished, the project applicant to the Program will be responsible for replacement planting, additional watering, weeding, invasive exotic eradication, or any other practice, to achieve the revegetation requirements. If success is not achieved within the first five years, the project applicant will need to prepare a follow-up report in an additional five years. This requirement will proceed in five year increments until success is achieved. • All plastic exclusion netting placed around plantings will be removed after three years.
Measures to Minimize Disturbance from Instream Construction	• If the stream channel is seasonally dry between June 15 and November 1, construction will only occur during this dry period. • Debris, soil, silt, excessive bark, rubbish, creosote-treated wood, raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to aquatic life, resulting from project related activities, shall be prevented from contaminating the soil or entering waters of the United States. Any of these materials, placed within or where they may enter a stream or lake, by the applicant or any party working under contract, or with permission of the applicant, shall be removed immediately. During project activities, all trash that may attract potential salmonid predators will be properly contained, removed from the work site, and disposed of daily. • Where feasible, construction shall occur from the bank, or on a temporary pad underlain with filter fabric. • Use of heavy equipment shall be avoided in a channel bottom with rocky or cobbled substrate. If access to the work site requires crossing a rocky or cobbled substrate, a rubber tire loader/backhoe is the preferred vehicle. Only after this option has been determined infeasible will the use of tracked vehicles be considered. The amount of time this equipment is stationed, working, or traveling within the creek bed shall be minimized. When heavy equipment is used, woody debris and vegetation on banks and in the channel shall not be disturbed if outside of the project's scope. • All mechanized equipment working in the stream channel or within 25 feet of a wetted channel shall have a double containment system for diesel and oil fluids. Hydraulic fluids in mechanical equipment working within the stream channel shall not contain organophosphate esters. Vegetable based hydraulic fluids are preferred. • The use or storage of petroleum-powered equipment shall be accomplished in a manner to prevent the potential release of petroleum materials into waters of the state (Fish and Game Code 5650). • Areas for fuel storage, refueling, and servicing of construction equipment must be located upland. • Prior to use, clean all equipment to remove external oil, grease, dirt, or mud. Wash sites must be located in upland locations so wash water does not flow into a stream channel or adjacent wetlands. • All construction equipment must be in good working condition, showing no signs of fuel or oil leaks. Prior to construction, all mechanical equipment shall be thoroughly inspected and evaluated for the potential of fluid leakage. All mechanical equipment shall be inspected on a daily basis to ensure there are no motor oil, transmission fluid, hydraulic fluid, or coolant leaks. All leaks shall be repaired in the equipment staging area or other suitable location prior to resumption of construction activity. • Oil absorbent and spill containment materials shall be located on site when mechanical equipment is in operation with 100 feet of the proposed watercourse crossings. If a spill occurs, no additional work shall commence in-channel until (1) the mechanical equipment is inspected by the contractor, and the leak has been repaired, (2) the spill has been contained, and (3) CDFG and NOAA RC are contacted and have evaluated the impacts of the spill.

MINIMIZATION MEASURES (continued)

Measures to Minimize Impacts to Roads

- Upon the completion of restoration activities, roads within the riparian zone damaged by the permitted activity shall be weather proofed according to measures as described in Handbook for Forest and Ranch Roads by Weaver and Hagans (1994) of Pacific Watershed Associates and in Part X of the CDFG Manual entitled *Upslope Assessment and Restoration Practices*. The following are some of the methods that may be applied to roads impacted by project activities implemented under this Program.
- Establish waterbreaks (e.g., waterbars and rolling dips) on all seasonal roads, skid trails, paths, and fire breaks by October 15. Do not remove waterbreaks until May 15.
- Maximum distance between waterbreaks shall not exceed the following standards: (1) 100 feet for road or trail gradients less than 10 percent slope; (2) 75 feet for road or trail gradients from 11 to 25 percent; (3) 50 feet for road or trail gradients from 26 to 50 percent slope; and (4) 50 feet for road or trail gradients greater than 50 percent slope.
- Depending on site-specific conditions more frequent intervals may be required to prevent road surface rilling and erosion.
- Locate waterbreaks to allow water to be discharged onto some form of vegetative cover, slash, rocks, or less erodible material. Do not discharge waterbreaks onto unconsolidated fill.
- Waterbreaks shall be cut diagonally a minimum of six inches into the firm roadbed, skid trail, or firebreak surface and shall have a continuous firm embankment of at least six inches in height immediately adjacent to the lower edge of the waterbreak cut.
- The maintenance period for waterbreaks and any other erosion control facilities shall occur after every major storm event for the first year after installation.
- Rolling-dips are preferred over waterbars. Waterbars shall only be used on unsurfaced roads where winter use (including use by bikes, horses, and hikers) will not occur.
- After the first year of installation, erosion control facilities shall be inspected for failure prior to the winter period (October 15) after the first major storm event, and prior to the end of the winter period (May 15). If the erosion controls have failed, additional erosion control elements will be installed to the project site.
- Applicant will establish locations to deposit spoils well away from watercourses with the potential to delivery sediment into streams supporting, or historically supporting populations of listed salmonids. Spoils shall be contoured to disperse runoff and stabilized with mulch and (native) vegetation.
- No berms are allowed on the outside of the road edge.
- No herbicides shall be used on vegetation on inside ditches.

Requirements for Fish Relocation and Dewatering Activities

Guidelines for dewatering:

- In cases where it is deemed necessary to work in flowing water, the work area shall be isolated and all flowing water shall be temporarily diverted around the work site to maintain downstream flows during construction.
- Exclude fish from occupying the work area by blocking the stream channel above and below the work area with fine-meshed net or screens. Mesh will be no greater than one eighth inch diameter. The bottom of a seine must be completely secured to the channel bed.
- Screens must be checked twice daily and cleaned of debris to permit free flow of water.
- Block nets shall be placed and maintained throughout the dewatering period at the upper and lower extent of the areas where fish will be removed. Block net mesh shall be sized to ensure salmonids upstream or downstream do not enter the areas proposed for dewatering between passes with the electrofisher or seine.
- Prior to dewatering, determine the best means to bypass flow through the work area to minimize disturbance to the channel and avoid direct mortality of fish and other aquatic vertebrates (as described more fully below under General conditions for all fish capture and relocation activities).
- Coordinate project site dewatering with a qualified biologist to perform fish and amphibian relocation activities. The qualified biologist(s) must possess a valid state of California Scientific Collection Permit as issued by CDFG, must be familiar with the life history and identification of listed salmonids and listed amphibians within the action area, and must be experienced with fish capture and handling. Check with your local CDFG biologist for assistance.

MINIMIZATION MEASURES (continued)

Requirements for Fish Relocation and Dewatering Activities (continued)

- Prior to dewatering a construction site, qualified individuals will capture and relocate fish and amphibians to avoid direct mortality and minimize adverse effects. This is especially important if listed species are present within the project site.
- Minimize the length of the dewatered stream channel and duration of dewatering, to the extent practicable.
- Any temporary dam or other artificial obstruction constructed shall only be built from materials such as sandbags or clean gravel which will cause little or no siltation.
- Visqueen shall be placed over sandbags used for construction of cofferdams construction to minimize water seepage into the construction areas. Visqueen shall be firmly anchored to the streambed to minimize water seepage. Coffer dams and stream diversion systems shall remain in place and fully functional throughout the construction period.
- If coffer dams with bypass pipes are installed, debris racks will be placed at the bypass inlet. Bypass pipes will be monitored a minimum of twice per day, seven days per week. All accumulated debris shall be removed.
- Bypass pipes will be sized to accommodate, at a minimum, twice the summer baseflow.
- The work area may need to be periodically pumped dry of seepage. Place pumps in flat areas, well away from the stream channel. Secure pumps by tying off to a tree or stake in place to prevent movement by vibration. Refuel in an area well away from the stream channel and place fuel absorbent mats under pump while refueling. Pump intakes shall be covered with 1/8 inch mesh to prevent potential entrainment of fish or amphibians that failed to be removed. Check intake periodically for impingement of fish or amphibians.
- If pumping is necessary to dewater the work site, procedures for pumped water shall include requiring a temporary siltation basin for treatment of all water prior to entering any waterway and not allowing oil or other greasy substances originating from operations to enter or be placed where they could enter a wetted channel. Projects will adhere to *NMFS Southwest Region Fish Screening Criteria for Salmonids* (NMFS 1997a).
- Discharge sediment-laden water from construction area to an upland location or settling pond where it will not drain sediment-laden water back to the stream channel.
- When construction is complete, the diversion structure shall be removed as soon as possible in a manner that will allow flow to resume with the least disturbance to the substrate. Cofferdams will be removed so surface elevations of water impounded above the cofferdam will not be reduced at a rate greater than one inch per hour. This will minimize the probability of fish stranding as the area upstream becomes dewatered.

General conditions for all fish capture and relocation activities:

- Fish relocation and dewatering activities shall only occur between June 15 and November 1 of each year.
- All seining, electrofishing, and relocation activities shall be performed by a qualified fisheries biologist, who shall capture and relocate listed salmonids prior to construction of the water diversion structures (e.g., cofferdams). The biologist shall note the number of salmonids observed in the affected area, the number and species of salmonids relocated, where they were relocated to, and the date and time of collection and relocation. The biologist shall have a minimum of three years field experience in the identification and capture of salmonids, including juvenile salmonids, considered in this biological opinion. The biologist will adhere to the following requirements for capture and transport of salmonids:
  - Determine the most efficient means for capturing fish (i.e., seining, dip netting, trapping, electrofishing). Complex stream habitat generally requires the use of electrofishing equipment, whereas in outlet pools, fish may be concentrated by pumping-down the pool and then seining or dipnetting fish.
  - Notify NMFS one week prior to capture/relocation of salmonids to provide an opportunity to monitor.
  - Initial fish relocation efforts will be conducted several days prior to the start of construction. This provides the fisheries biologist an opportunity to return to the work area and perform additional electrofishing passes immediately prior to construction. In many instances, additional fish will be captured that eluded the previous day's efforts.
  - In streams with high water temperature, perform relocation activities during morning periods.
  - Prior to capturing fish, determine the most appropriate release location(s). Consider the following when selecting release site(s): (a) Similar water temperature as capture location; (b) Ample habitat for captured fish; (c) Low likelihood of fish reentering work site or becoming impinged on exclusion net or screen; (d) Fish must be released in a nearby location within the same HUC 8 watershed.

MINIMIZATION MEASURES (continued)

Requirements for Fish Relocation and Dewatering Activities (continued)

- Periodically measure air and water temperatures. Cease activities when water temperatures exceed 17.8 °C. Temperatures will be measured at the head of riffle tail of pool interface.
- Submit reports of fish relocation activities to CDFG and NOAA in a timely fashion.

Electrofishing Guideline

- All electrofishing will be conducted by properly trained personnel, and according to *NMFS Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act* (NMFS 2000).
- The backpack electrofisher shall be set as follows when capturing fish:
  - Voltage setting on the electrofisher shall not exceed 300 volts.
  - Voltage: 100 Volts (initial), 300 Volt (max)
  - Duration: 500 microseconds (initial), 5 milliseconds (max)
  - Frequency: 30 Hertz (initial), 70 Hertz (max)
- A minimum of three passes with the electrofisher shall be conducted to ensure maximum capture probability of salmonids within the area proposed for dewatering.
- No electrofishing shall occur if water conductivity is greater than 350 microSiemens per centimeter (µS/cm) or when instream water temperatures exceed 17.8 C. Water temperatures shall be measured at the pool/riffle interface. Direct current (DC) used.
- A minimum of one assistant shall aid the fisheries biologist by netting stunned fish and aquatic vertebrates.

Seining Guidelines:

- A minimum of three passes with the seine shall be utilized to ensure maximum capture probability of salmonids within the area.
- All captured fish shall be processed and released prior to each subsequent pass with the seine.
- The seine mesh shall be adequately sized to ensure fish are not gilled during capture and relocation.

Guidelines for Relocation of Salmonids:

- Salmonid fish shall not be overcrowded into buckets; allowing approximately 6 cubic inches per young-of-the-year (0+) individual and more for larger fish.
- Every effort shall be made not to mix 0+ salmonids with larger salmonids, or other potential predators. Have at least two containers and segregate 0+ fish from larger age classes.
- Place larger amphibians, such as Pacific giant salamanders, in container with larger fish.
- Salmonid predators, such as sculpins (*Cottus sp.*) and Pacific-giant salamanders (*Dicamptodon ensatus*) collected shall be relocated so as to not concentrate them in one area. Particular emphasis shall be placed on avoiding relocation of sculpins and Pacific-giant salamanders into the steelhead and coho salmon relocation pools. To minimize predation on salmonids, these species shall be distributed throughout the wetted portion of the stream so as not to concentrate them in one area.
- All captured salmonids shall be relocated, preferably upstream, of the proposed construction project and placed in suitable habitat. Captured fish shall be placed into a pool, preferably with a depth of greater than two feet with available instream cover.
- All captured salmonids will be processed and released prior to conducting a subsequent pass.
- All native captured fish will be allowed to recover from electrofishing before being returned to the stream.
- Minimize handling of salmonids. When handling is necessary, always wet hands or nets prior to touching fish. Handlers will not wear DEET based insect repellents.
- Temporarily hold fish in cool, shaded, aerated water in a container with a lid. Provide aeration with a battery powered external bubbler. Protect fish from jostling and noise and do not remove fish from this container until time of release.
- Place a thermometer in holding containers and, if necessary, periodically conduct partial water changes to maintain a stable water temperature. If water temperature reaches or exceeds 18°C , fish shall be released and rescue operations ceased.
- Where aquatic vertebrates are abundant, periodically cease capture, and release at predetermined locations.

MINIMIZATION MEASURES (continued)

- Visually identify species and estimate year-classes of fishes at time of release. Record the number of fish captured. Avoid anesthetizing or measuring fish.
- If more than three percent of the steelhead, Chinook salmon, or coho salmon captured are killed or injured, the project lead shall contact NMFS PRD and CDFG. The purpose of the contact is to allow the agencies a courtesy review of activities resulting in take and to determine if additional protective measures are required. All steelhead, chinook salmon, and coho salmon mortalities must be retained, placed in an appropriately sized whirl-pak or zip-lock bag, labeled with date and time of collection, fork length, location of capture, and frozen as soon as possible. Frozen samples must be retained until specific instructions are provided by NMFS.

Barrier Modification for Fish Passage

- Projects will follow guidelines set out in the California Department of Fish and Game's *Salmonid Stream Habitat Restoration Manual, Part XII (Fish Passage Design and Implementation)*, as applicable.

Removal of Small Dams (Permanent/Flashboard)

- The potential for channel degradation shall be determined using a longitudinal profile of the stream channel thalweg for at least 20 channel widths upstream and downstream of the structure and long enough to establish the natural channel grade, whichever is farther (as described in the CDFG Manual).
- A minimum of five cross-sections (one downstream of the structure, three roughly evenly spaced through the reservoir area upstream of the structure, and one upstream of the reservoir area outside of the influence of the structure) shall be used to characterize the channel morphology and quantify the stored sediment.
- Sediment characterization within the reservoir and within a reference reach of a similar channel shall be used to determine the proportion of coarse sediment (>2mm) in the reservoir area and the target sediment composition.
- A habitat typing survey (DFG Manual Part III, Habitat Inventory Methods) shall be used to map and quantify all downstream spawning areas that may be affected by sediment released by removal of the water control structure.
- All construction will take place out of the wetted channel either by implementing the project from the bank and out of the channel or by constructing coffer dams, removing aquatic species located within the project reach, and dewatering the channel.
- No more than 250 linear feet (125 feet on each side of the channel) of riparian vegetation will be removed. All disturbed areas will be re-vegetated with native grasses, trees, or shrubs.
- All dewatering efforts associated with small dam removal will be implemented as described in *Requirements for Fish Relocation and Dewatering Activities*.

Creation of Off-Channel or Side-Channel Habitat

- Any equipment work within a stream channel shall be performed in isolation from the flowing stream. If there is any flow when work is done, coffer dams shall be constructed upstream and downstream of the excavation site and divert all flow from upstream of the upstream dam to downstream of the downstream dam. Coffer dams may be constructed from a variety of materials and methods, for example clean river gravel or sand bags, and may be sealed with sheet plastic. Foreign materials such as sand bags and any sheet plastic shall be removed from the stream upon project completion. In some cases, clean river gravel may be left in the stream, but the coffer dams must be breached to return stream flow to its natural channel.
- If it is necessary to divert flow around the work site, either by pump or by gravity flow, the suction end of the intake pipe shall be fitted with a fish screen that meets CDFG and NMFS (NMFS 1997a) criteria to prevent entrainment or impingement of small fish. Any turbid water pumped from the work site shall be disposed of in an upland location where it will not drain directly into any stream channel, or treated via settling pond to filter suspended materials before flowing back into the stream.

MINIMIZATION MEASURES (continued)

Development of Alternative Stock Water Supply	• Only projects with existing diversions compliant with water laws will be considered. In addition, storage reservoirs will not be greater than 10 acres in size. Flow measuring device installation and maintenance may be required for purposes of accurately measuring and managing pumping rate or bypass conditions set forth in this document or in the water right or special use permit. • All pump intakes will be screened in accordance with NMFS Southwest Region *Fish Screening Criteria for Salmonids* (NMFS 1997a). • Stockwater ponds and wells will be located at least 100 feet from the edge of the active channel and are not likely to cause stranding of juvenile salmonids during flood events.
Tailwater Collection Ponds	• Tailwater collection ponds that do not incorporate return channels to the creek will be located at least 100 feet from the edge of the active channel.
Construction / Use of Water Storage Tanks	• Water storage tank projects will be required to enter into a forbearance agreement for at least 10 years. The low flow threshold, measured in cubic feet per second (cfs) season of diversion and season of storage, will be determined in collaboration with CDFG and NOAA RC on a site by site basis. • Water storage capacity for the water diversion forbearance period must be of sufficient capacity to provide for all water needs during that time period. • Water conservation projects that include water storage tanks and a forbearance agreement for the purpose of storing winter and early spring water for summer and fall use require registration of water use pursuant to California Water Code § 1228.3, and require consultation with CDFG. • Diversions to fill storage facilities during the winter and spring months shall be made pursuant to a Small Domestic Use Appropriation (SDU) filed with the State Water Resources Control Board (SWRCB).
Construction / Use of Piping Ditches	• Only water conservation piping projects that result in a decrease in the diversion rate with a permitted instream dedication of the water saved are included in the Program. • Landowners will enter an agreement with NOAA RC or the Corps stating that they will maintain the pipe for at least 10 years.
Installation of Fish Screens	• All flows will be diverted around work areas as described in the *Requirements for Fish Relocation and Dewatering Activities.* • If fish removal is required, BMPs will be implemented as described in the *Requirements for Fish Relocation and Dewatering Activities.* • Riparian disturbance will be minimized as described in the *Measures to Minimize Loss or Disturbance of Riparian Vegetation.*
Use of Headgates / Water Measuring Devices	• Measuring devices must be approved by DWR for watersheds with DWR water master service. Otherwise, measuring devices must conform to the Bureau of Reclamation Water Measurement Manual (BOR 2001). • Design drawings must show structural dimensions in plan, elevation, longitudinal profile, and cross-sectional views along with important component details. • All flows will be diverted around work areas as described in the *Requirements for Fish Relocation and Dewatering Activities.* • If fish removal is required, BMPs will be implemented as described in the *Requirements for Fish Relocation and Dewatering Activities.* • Riparian disturbance will be minimized as described in the *Measures to Minimize Loss or Disturbance of Riparian Vegetation.*