SAN GERONIMO CREEK SALMON HABITAT ENHANCEMENT PROJECTS

May 10, 2019

sponsored by the

MARIN RESOURCE CONSERVATION DISTRICT

And

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

And

CALIFORNIA STATE COASTAL CONSERVANCY

Landowners:

Michael Snyder & Carol Stanger

7303 Sir Francis Drake Blvd. Lagunitas, CA 94938

Donna McGuinn

6355 Sir Francis Drake Blvd. San Geronimo, CA 94963

Alison Greene

6315-6335 Sir Francis Drake Blvd. San Geronimo, CA 94963

Site 1 Salmonid Habitat Enhancement: Large wood placement and anchoring with boulders in San Geronimo Creek, grading back banks to enhance habitat in adjacent tributary, invasive vegetation removal, native planting and erosion control.

Site 2 Salmonid Habitat Enhancement: Biotechnical bank stabilization, large woody material placement and anchoring with boulders, invasive vegetation removal, native planting and erosion control. Includes dewatering and fish relocation.

MARIN RESOURCE CONSERVATION DISTRICT

PO BOX 1146 – POINT REYES STATION, CA 94956 – TEL: (415) 663-1170

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Site 2 Salmonid Habitat Enhancement: Biotechnical bank stabilization, large woody material placement and anchoring with boulders, invasive vegetation removal, native planting and erosion control. Includes dewatering and fish relocation.

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- Exhibit A: Instructions for Vendors
- Exhibit B: Site 1 Project Plans: *Salmonid Habitat Enhancement: Large wood placement and anchoring with boulders in San Geronimo Creek, grading back banks to enhance habitat in adjacent tributary, invasive vegetation removal, native planting and erosion control.*
- Exhibit C: Site 2 Project Plans: *Salmonid Habitat Enhancement: Biotechnical bank stabilization, large woody material placement and anchoring with boulders, invasive vegetation removal, native planting and erosion control. Includes dewatering and fish relocation.*
- Exhibit D: San Geronimo 100% Specifications
- Exhibit E: Permits
    - Environmental permit from SF Regional Water Quality Control Board (RWQCB), and Environmental Conditions from CA Department Fish & Wildlife
- Exhibit F: Aquatic Invasive Species Prevention Protocols
- Exhibit Included by Reference:
    - California Labor Code Sections 1771, 1774-11776, 1777.5, 1813, and 1815
    - Standard General Conditions of the Construction Contract, latest edition, and Caltrans Standard Specifications, latest edition

INSTRUCTIONS

INTRODUCTION

This project, part of the San Geronimo Valley Landowners Assistance Program, is being constructed by the Marin Resource Conservation Service (MRCD) with grants from the California Department of Fish and Wildlife (CDFW) and CA State Coastal Conservancy (SCC). The MRCD is a division of state government and is responsible for conservation of soil, water, and related resources.

For the purposes of the bid documents, "OWNER" shall mean the MRCD Board of Directors, "Project Engineer," shall mean Stillwater Sciences, 2855 Telegraph Ave. Suite 400 Berkeley, CA 94705. "Construction Managers" and "Project Biologists" shall mean contractors hired by the MRCD.

SCOPE OF WORK

The 'project' consists of constructing instream habitat enhancement features and bank stabilization techniques at two sites on San Geronimo Creek. **Site 1:** Large wood placement and anchoring with boulders in San Geronimo Creek, grading back banks to enhance habitat in adjacent tributary, invasive vegetation removal, native planting and erosion control. And **Site 2:** Biotechnical bank stabilization, large woody material placement and anchoring with boulders, invasive vegetation removal, native planting and erosion control. Includes dewatering and fish relocation. Work may be undertaken sequentially or in parallel by an individual general contractor.

Work at the sites may include but is not limited to small tree and brush removal, soil excavation, installation of large pieces of wood logs and rootwads with boulders as ballast, as well as temporary and permanent erosion and sediment control measures within the work areas. Plan Set Sheets for Site 1 (Snyder-Stranger) and Site 2 (Greene & McGuinn-Newman) by Stillwater Sciences (latest set dated April 2019) provide plan and profile views of the work areas, construction specifications, and details of the various system components. Earthwork and wood installation will be under the direct supervision of the PROJECT ENGINEER, Chris Lyle with Stillwater Sciences in Berkeley, CA for both project sites. Construction Oversight Managers hired by the MRCD will be overseeing the projects.

Contractor should supply all labor, equipment, materials, and miscellaneous items necessary to the projects, with the following specifications for logs and rootwad purchase, transportation and installation. Please refer to Wood and Boulder Features Table; on pg. 10 in each of the two plan sets. a total of 36 redwood pieces (logs/rootwads) will be required for the job.

- Five (5) rootwads, Seven (7) redwood logs at 35'-40' in length and Eight (8) logs with rootwads attached at 25'-35' in length will be purchased, loaded and transported by the Contractor to the project sites. THE PROPOSAL SHOULD LIST THE COST FOR PURCHASING AND TRANSPORTING THESE LOGS AND ROOTWADS AS A SEPARATE LINE ITEM, APART FROM THE COST OF INSTALLATION.
- At least sixteen (16) redwood logs, 20'–25' in length have been donated and are available for transport at West Marin Compost, 5575 Nicasio Road, CA 94946. The Contractor shall only be responsible for the loading and transportation of these logs to the project sites.

LOCATION

The projects are located on San Geronimo Creek in the San Geronimo Valley, an unincorporated area of Marin County east of Point Reyes National Seashore and northwest of Mount Tam.

SUBMISSION OF COST PROPOSAL

A Cost Proposal shall be submitted to MRCD by **Wednesday, JUNE 13, 2019 BY 5:00 PM** (Pacific Standard time zone) on the forms attached hereto. Submit the entire Request for Cost Proposal (RFCP) package with the Cost Proposal forms completely filled out and a construction schedule. A bid tour will be scheduled to take place on **Thursday, May 23rd**. Please contact Sarah Phillips, MRCD Urban Streams Program Manager to get the time and location for the tour. The mailing address for submittal is:

Marin Resource Conservation District
PO Box 1170
Point Reyes Station, CA 94956

or hand delivery at:
80 4th Street, Suite 202
Point Reyes Station, CA 94956
Monday through Thursday 10:00 AM – 3:00 PM

REQUEST FOR COST PROPOSAL DOCUMENT PREPARATION
This document was prepared through two Agreements; California Department of Fish and Wildlife, Agreement No. 2017103 and CA State Coastal Conservancy, Agreement No. 17-076.

LABOR CODE PROVISIONS

PREVAILING WAGES

The Contractor and all Subcontractors under the Contractor shall pay all workers on Work performed pursuant to this Contract not less than the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work as determined by the Director of the Department of Industrial Relations, State of California, for the type of work performed and the locality in which the work is to be performed, pursuant to sections 1770 et seq. of the California Labor Code. Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the State of California Department of Industrial Relations, are on file at the Court's principal office. Prevailing wage rates are also available from the Court or on the internet at (http://www. dir.ca.gov).

Contractor shall ensure that Contractor and all of Contractor's Subcontractors execute the Prevailing Wage and Related Labor Requirements Certification attached to the Contract and incorporated herein.

The Project is subject to compliance monitoring and enforcement by the Department of Industrial Relations. Contractor shall post job site notices, as prescribed by regulation. Contractor shall comply with all requirements of Labor Code section 1771.4, except the requirements that are exempted by the Labor Commissioner for the Project.

Contractor shall maintain certified payroll records on forms approved by the OWNER throughout the duration of the project and for a period of three years thereafter. These

records shall be made available to the OWNER or its authorized representative upon request.

Department of Industrial Relations Registration

Contractor shall comply with the registration and compliance monitoring provisions of Labor Code section 1771.4, including furnishing its certified payroll records ("CPR(s)") to the Labor Commissioner of California and complying with any applicable enforcement by the Department of Industrial Relations ("DIR"). Labor Code section 1771.1(a) states the following:

> "A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded."

PLANS AND WORK SITE

The submission of a Cost Proposal shall constitute certification by the proposer that they have:

A) Visited the site at the bid tour to familiarize themselves with all local conditions that in any manner affect cost, progress, or performance of the work.
B) Developed their own plan takeoffs for determination of materials quantities independent of the Engineer's estimates.
C) Familiarized themselves with all federal, state and local laws, ordinances, rules, and regulations that in any manner may affect the cost, progress, or performance of the work.
D) Have thoroughly examined and understand the bid documents, plans, and specifications.

ENVIRONMENTALLY SENSITIVE AREAS & PERMITS

The project site is located within sensitive biological resources zones. The San Geronimo Creek watershed and its tributaries are known habitat for several protected species. Particularly noteworthy are federally listed as endangered Central California Coast ESU coho salmon (*Oncorhynchus kisutch*) threatened Central California Coast ESU steelhead trout (*Oncorhynchus mykiss*) and California red-legged frog (*Rana aurora draytonii)*. The 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. The following items are an integral aspect of this construction project:

A) Contractor will work with the PROJECT BIOLOGIST to ensure work will follow guidelines outlined in the project permits.
B) For work in or near creeks (USACE 404/RWQCB 401) permits are required and have been obtained by the Marin RCD (MRCD). All contractors at the site must have possession of a copy of these documents and conform to their requirements.
C) For work in or near San Geronimo Creek, a CDFW Stream Alteration Agreement (SAA) is required and has been obtained by the MRCD. All contractors at the site must have in their possession a copy of the SAA and the contractor shall conform to SAA requirements during construction.
D) As frogs, fish and other aquatic organisms are relocated out of the work areas by PROJECT BIOLOGIST, coffer dams will be installed by CONTRACTOR around construction sites and maintained throughout the duration of construction to keep any relocated animals from returning while construction operations proceed.
E) CONTRACTOR will comply with a Sediment and Erosion Control Plan (SECP) that is prepared by MRCD. A copy of the SECP must be kept at the site for ready reference. Emergency erosion control measures and supplies must be readily available. All vehicles and equipment on the site must not leak any type of hazardous materials such as oil, hydraulic fluid, or fuel. Vehicles and equipment must be inspected and approved by the monitor before use. Fueling shall take place outside of the riparian corridor.
F) Contractor shall have emergency spill cleanup gear (spill containment and absorption materials) and fire equipment (see section J.1 "Fire Precautions" in Contract Supplementary Terms and Conditions) available on site at all times. These items are to be reviewed by monitor before construction begins.

G) Access to the site must be thoroughly reviewed with the PROJECT ENGINEER. Exact location of access way, number of trips planned, and type of vehicles used shall be discussed. Contractor shall be responsible for repairing, at his/her own cost above and beyond the scope of work, any damage to the site caused by access not approved by the PROJECT ENGINEER. Also see Section J.2 "Protection of Property" in Contract Supplementary Terms and Conditions.

H) Trash, litter, construction debris, cigarette butts, etc., must be stored in a designated area approved by the CONTRUCTION MANAGER or removed from the site at the end of each working day. Upon completion of work, contractor is responsible for removing all of these unwanted items to the satisfaction of the PROJECT ENGINEER.

BIOLOGICAL OVERSIGHT REQUIREMENTS

Questions regarding biological resource issues should be directed to the PROJECT BIOLOGIST and CONSTRUCTION MANAGER(S). The conditions contained in Exhibits B, C, D, E, & F: plans, specifications, permits and Aquatic Invasive Species Prevention are requirements of this Contract. They include measures for the protection of biological resources.

CONTRACT DOCUMENTS

Attached to this Request for Cost Proposals are copies of contract documents, including a sample Contract and the MRCD Contract Supplementary Terms and Conditions. Section of the Labor Code are included by reference. The Standard General Conditions of the Construction Contract, latest edition and the Caltrans Standard Specifications, latest edition are incorporated by reference. Bidders are expected to thoroughly examine and understand the contents of each of these documents, which contain pertinent and specific information regarding every aspect of project construction. These contract documents will be included in the final contract made between the successful bidder and the MRCD.

The latest edition of the Standard Specifications of the State of California, Division of Transportation, shall govern operations and materials (but not pricing) for this project except where otherwise indicated in the specifications and on the plans. The CalTrans Standard Specifications are included as part of this contract by reference.

LICENSES

This job requires a California State Contractor's License, Classification A.

BID SECURITY AND REQUIRED BONDS

Bid security in the amount of five percent (5%) of the bid price in the form of a certified check or bid bond is required.

If the Contract value is greater than twenty thousand dollars ($20,000), the Contractor shall provide a performance bond in favor of the MRCD, the California Department of Fish and Wildlife (CDFW) and the State Coastal Conservancy (SCC) in the amount of one hundred percent (100%) of the contract price and a labor and materials bond in favor of the MRCD in the amount of one hundred percent (100%) of the contract price.

The successful bidder's security will be retained until he/she has entered into a bona fide contract with the MRCD and has supplied the necessary insurance certificates and performance bonds, if required. Failure to enter into a contract or to provide the proper required bonds and/or certificates of insurance will result in both forfeiture of the bid security and status as the successful bidder. The bid/bond/certified check will be returned to the unsuccessful bidders no later than 15 days after bid opening. Bids submitted without bid security will not be accepted.

FUNDING

This project will be billed to the MRCD, who has received construction funding from CDFW and SCC. Payment policy and instructions for vendors are attached hereto as Exhibit A.

PROJECT TIMELINE

May 23, 2019	Pre-Bid Tour – A pre-bid tour of the two project sites will take place on Thursday, May 23rd. You must RSVP by calling MRCD at 415-663-1170 x302 or email sarah@marinrcd.org. MRCD will give you the time and location.
June 13, 2019	Cost proposals and construction schedules are due to MRCD by 5:00pm.
June 20, 2019	Contract is awarded.
June 27, 2019	Contractor enters into a bona fide contract with MRCD: contract signed, insurance provided, W-2 paperwork submitted and performance bond issued.

August 15, 2019	Construction and inspections may begin. On the first day of construction, training with the PROJECT BIOLOGIST is required. (Project requires a pre-construction survey for nesting birds for all work done before August 15th and California red-legged frog within 48 hours of the start of construction)
October 15, 2019	Deadline for completion of work OCTOBER 15TH, 2019 per grant agreements and permits. See MEASUREMENT AND PAYMENT No. 4 Liquidated Damages

WORK SCHEDULE

Contractor is to submit a planned construction schedule to MRCD with the Cost Proposal that conforms to the project timeline, which may be adjusted for delays such as inclement weather at the discretion of the MRCD.

No work shall begin until authorized by the MRCD or its agent. A project kick-off meeting will be held with the CONTRACTOR, CONSTRUCTION MANAGER and PROJECT ENGINEER prior to start of work. The construction schedule, inspection points, access routes, and spoils areas will be discussed at the start up meeting. Particular attention should be paid to biological constraints related to the construction season.

The Contractor shall complete construction within 44 working days (defined as Monday-Friday, excluding weekends, holidays and rain days) and within the deadline for completion of work defined in the Timeline above (see also, Liquidated Damages in Section E4 of Contract Supplementary Terms and Conditions). Contractors will be responsible for communicating project delays and potential problems to the CONSTRUCTION MANAGER(S) immediately.

INSPECTIONS

All work performed on this project shall be subject to regular inspection and documentation. The Contractor shall not cover up any work prior to these inspections. Contractors will be responsible for contacting the CONSTRUCTION MANAGER(S) to schedule an inspection no later than 4:00 pm on the day before the inspection. Inspections shall occur during construction and at job completion.

CONTRACTOR will be responsible for contacting the CONSTRUCTION MANAGER prior to construction, or on the first day of construction to undertake preconstruction training, a requirement for biological protections. All Questions regarding biological resource issues should be directed to the PROJECT BIOLOGIST and CONSTRUCTION MANAGER(S), contact information available through MRCD. Contractor will work with the PROJECT BIOLOGIST throughout dewatering and re-watering activities while the PROJECT BIOLOGIST relocates any and all aquatic species. The Contractor will work with the PROJECT BIOLOGIST who will make frequent visits to the work area to ensure that no fish or other animals are being impacted by construction activities. The CONSTRUCTION MANAGER will monitor to ensure water quality standards are being met and sediment is not entering the watercourse.

Throughout project construction, the PROJECT ENGINEER will make visits as necessary to the work area to document the completed work. PROJECT ENGINEER will prepare project as-builts when the work is complete.

Engineering points of inspection include:

1) Feature staking and anchoring locations prior to construction;
2) During placement of fills and backfills;
3) During feature placement and anchoring;
4) Before seed, mulch and erosion blanket installation;
5) Verification of placement and anchoring of completed structures;
6) At job completion for as-built and completion reporting.

SUBCONTRACTORS

The use of any subcontractors must be in writing and submitted to MRCD

The CONTRACTOR agrees that affirmative steps will be taken to assure that qualified small, minority and women-owned businesses are used when possible as source of supplies, construction and services in the performance of grant-assisted subcontracts. Affirmative steps taken shall include the following:

1) Include qualified small, minority and women-owned businesses on solicitation lists;
2) Assuring that small, minority and women-owned businesses are solicited whenever they are potential sources;

3) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation of small, minority and women-owned businesses; Establishing delivery schedules, where the requirements of the work permit, which will encourage participation by small, minority and women-owned businesses;
4) Using the services and assistance of the Small Business Administration, the Minority business Development Agency of the U.S. Department of Commerce, and the State Office of Small Business and Disabled Veteran Business Enterprise Certification

COST PROPOSAL

To: Board of Directors, Marin Resource Conservation District

We, the undersigned, having familiarized ourselves with 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, ready for use:

- Site 1: Salmonid Habitat Enhancement: Alcove improvement, large woody material placement and anchoring with boulders, invasive vegetation removal, native planting and erosion control; and

- Site 2: Salmonid Habitat Enhancement: Vertical bank stabilization, large woody material placement and anchoring with boulders, invasive vegetation removal, native planting and erosion control. The project includes dewatering as specified and outlined in the plans and specifications, which are attached, and as are described below in the Description of the Work section.

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

We, the undersigned, understand that the contract is a line item contract. We understand that this project is to be billed to the MRCD. The CONTRACTOR cannot be paid over the sum "not to exceed" without a change order from the OWNER. The CONTRACTOR must bid on all parts of this project. The MRCD will not be responsible for any loss of anticipated profits due to reductions in the size of the contract.

Site 1 (Snyder-Stanger)

Item No.	Description	Unit Cost	Quantity	Units	Total Item Cost
1	Mobilization & Site Protection		1	LS	
2	Grading		360	CY	
3	Off-haul		360	CY	
4	Purchase, Transport of 35-40′ Logs and Rootwads		1 long log and 2 rootwads	Each	
4a	Purchase, Transport of 25′-35′ Logs with rootwads attached		2	Each	
4b	Large Wood-Placed & Anchored		18	Each	
4c	Large Wood-loaded and Transported from Nicasio		11	Each	
5	Boulders-Placed and Anchored		40	CY	
6	Coir Log		40	LF	
7	Bioswale		1	LS	
8	Seeding/mulch/planting		1	LS	
9	Irrigation		1	LS	
				Site 1 Subtotal:	

Site 2 (Greene & McGuinn-Newman)

Item No.	Description	Unit Cost	Quantity	Units	Total Item Cost
1	Mobilization & Site Protection		1	LS	
2	Temporary Access		1	LS	
3	Dewatering		1	LS	
4	Purchase, Transport of 35-40′ Logs and Rootwads		6 long logs and 3 rootwads	Each	
4a	Purchase, Transport of 25′-35′ Logs with rootwads attached		6	Each	
4b	Large Wood-Placed & Anchored		18	Each	
4c	Large Wood-loaded and Transported from Nicasio		5	Each	
5	Boulders-Placed and Anchored		100	CY	
6	Coir/Willow Fence Structures		200	LF	
7	Seeding/mulch/planting		1	LS	
				Site 2 Subtotal:	
				Grant Total Cost Proposal for Sites 1 & 2:	

Grant total (in words):

_____

Add-on work:

Proposals for change orders, additional work, or materials that would increase the cost of the Contract must be submitted and approved before the materials are purchased or the work is done.

A) Materials purchased and delivered to the site: Contractor's purchase cost, as documented by sales receipts, plus _____ percent for contractor handling and profit.

B) List all equipment you expect to use and cost per hour with operator.

_____ $_____/hour

_____ $_____/hour

_____ $_____/hour

_____ $_____/hour

_____ $_____/hour

_____ $_____/hour

C) List all labor classifications you expect to use and the rate per hour.

_____ $_____/hour

_____ $_____/hour

_____ $_____/hour

_____ $_____/hour

_____ $_____/hour

_____ $_____/hour

List (if any) subcontractors you are planning to use on this project. Provide company name and California license number and classification.

Name of Subcontractor_____

License # _____ Classification_____

Name of Subcontractor_____

License # _____ Classification_____

Estimated Work Timeline: Attach a sheet to the Cost Proposal that indicates approximately by date when Project milestones are expected to be started and completed. This is for MRCD initial planning purposes only and is not a schedule to which CONTRACTOR will be held.

- Mobilization
- Biological site review, training
- Clearing and grubbing
- Relocation and dewatering
- Feature placement and anchoring
- Soil bioengineering installation(s)
- Erosion control measures and plantings

I hereby certify…

1) that all of the statements herein made by me are made on behalf of:

A) a corporation organized and existing under the laws of the State of California, governed by:

President _____

Vice-President _____

Secretary _____

Treasurer _____

or B) a partnership consisting of:

and _____;

or C) an individual trading as:

in the County of _____ State of _____

2) that I have thoroughly examined the plans and specifications, contract documents and all other items bound herein;

3) that I have carefully prepared this Cost Proposal form and have checked the same in detail before submitting this bid;

4) that I have full authority to make such statements and to submit this bid on the Company's behalf; and

5) that the statements herein are true and correct.

Signature _____ Date _____

By _____

Title_____

Calif. Contractor's License No. _____Classification_____ Expires _____

Name of Qualifier for License _____

Federal Tax Identification No. _____

Company Address _____

Phone _____

Project Representative _____

Representative's Phone No. _____

CONTRACT RECITALS

1. This Contract (Contract) is by and between the Marin Resource Conservation District, hereinafter called "MRCD," and _____, hereinafter called "Contractor." The effective date of this Contract is _____.

2. The MRCD is a political subdivision of the state of California. The Contractor is an independent contractor. All persons employed by the Contractor in connection with works covered by this Contract are not to be considered employees of the MRCD in any respect whatsoever.

For the considerations stated herein, MRCD and the Contractor agree hereby as follows:

A. Contractor shall, at his/her own risk and expense, provide all labor, materials, necessary tools, equipment, rock delivery, and all utility and transportation services required to complete all of the work for the project described as:

Site 1 Salmonid Habitat Enhancement: Large wood placement and anchoring with boulders in San Geronimo Creek, grading back banks to enhance habitat in adjacent tributary, invasive vegetation removal, native planting and erosion control.

Site 2 Salmonid Habitat Enhancement: Biotechnical bank stabilization, large woody material placement and anchoring with boulders, invasive vegetation removal, native planting and erosion control. Includes dewatering and fish relocation.

and as described in Exhibits B and C attached hereto and by this reference incorporated herein, in accordance with this Contract, and all attached and referenced contract documents, and under the supervision of the MRCD and its authorized agents.

B. **This project will be billed to MRCD**. MRCD has received funding from the California Department of Fish and Wildlife and CA State Coastal Conservancy. Payment schedules and reimbursement time will vary with the differing funders. Payment policy and instructions for vendors are attached hereto and incorporated herein as Exhibit A.

MRCD shall pay to the Contractor a sum not to exceed $_____, as full consideration for the faithful performance of this Contract, in accordance with the terms of this Contract, the Contractor's accepted Cost Proposal to MRCD, and all attached Contract documents. Said sum may be adjusted by change orders approved in writing by MRCD. Payment instructions for vendors are attached hereto and incorporated herein as Exhibit A.

C. The undersigned certifies that the Contractor understands and agrees to act in accordance with the terms of this contract and the contents of each of the Contract documents set forth below which are attached hereto and/or incorporated herein by reference.

1) This Contract;
2) MRCD Contract Supplementary Terms and Conditions;
3) Standard General Conditions of the Construction Contract, latest edition;
4) Request for Cost Proposal including Instructions to Bidders and Contractor's Cost Proposal;

5) Addenda as listed below:

- Exhibit A: Instructions for Vendors
- Exhibit B: Site 1 Project Plans: *Salmonid Habitat Enhancement: Large wood placement and anchoring with boulders in San Geronimo Creek, grading back banks to enhance habitat in adjacent tributary, invasive vegetation removal, native planting and erosion control.*
- Exhibit C: Site 2 Project Plans: *Salmonid Habitat Enhancement: Biotechnical bank stabilization, large woody material placement and anchoring with boulders, invasive vegetation removal, native planting and erosion control. Includes dewatering and fish relocation.*
- Exhibit D: San Geronimo 100% Specifications
- Exhibit E: Permits
    - Environmental permit from SF Regional Water Quality Control Board (RWQCB), and Environmental Conditions from CA Department Fish & Wildlife
- Exhibit F: Aquatic Invasive Species Prevention Protocols
- Exhibit Included by Reference:
    - California Labor Code Sections 1771, 1774-11776, 1777.5, 1813, and 1815

- Standard General Conditions of the Construction Contract, latest edition, and Caltrans Standard Specifications, latest edition

All modifications, additions, or changes to this Contract shall be in writing and signed by MRCD, the PROJECT ENGINEER and CONTRACTOR.
In witness hereof, the parties hereto have entered into this Contract.

_____

Printed Full Name of Contractor Date

_____

Signature of Contractor's Authorized Representative Date

_____

Printed Name and Title of Contractor's Authorized Representative Date

_____

Signature of the President of the MRCD Board of Trustees Date

_____

Signature of the Landowner Date

CONTRACT SUPPLEMENTARY TERMS AND CONDITIONS

A. DEFINITIONS AND TERMS

OWNER or MRCD:	OWNER or MRCD shall mean the Marin Resource Conservation District, a division of government of the state of California and the sponsors of the Landowner Assistance Program.
PROJECT ENGINEER:	PROJECT ENGINEER shall mean Stillwater Sciences,: the authorized agent of the MRCD, who shall act within the scope of their authority as the representative of the MRCD during the term of the Contract.
PROJECT BIOLOGIST:	PROJECT BIOLOGIST shall mean a qualified and appropriately licensed fisheries and amphibian expert individual or firm capable of providing the required environmental monitoring and assessment protocols, who shall act within the scope of their authority as the representative of the MRCD during the term of the Contract.
LANDOWNER(S):	LANDOWNER(S) shall mean Michael Snyder and Carol Stanger at Site 1 and Donna McGuinn and Alison Greene at Site 2, the owners of the properties on which the projects are being constructed.
CONTRACTOR:	CONTRACTOR shall mean the contractor who has signed the Contract and any subcontractors.
CONTRACT:	That Contract signed by MRCD and Contractor.
CONSTRUCTION MANAGER:	CONSTRUCTION MANAGER shall mean subcontractors hired by the MRCD to oversee the project.

B. PRELIMINARY MATTERS

1. Governing Laws

   This Contract is formed under the laws of the state of California. The CONTRACTOR agrees to abide by all applicable state of California and United States government laws and to conform to all applicable ordinances of the County of Marin.

   The CONTRACTOR and subcontractors shall comply with all applicable standards, orders, or requirements issued under Section 306 of the Clean Air Act, Title 42 U.S.C. 1857(h), Section 508 of the Clean Air Act, Title 33 U.S.C. 1368 Executive Order 11738 and Title 40 CFR part 15.

2. Plans and Specifications

   The latest edition of the Standard Specifications of the State of California, Division of Transportation is made a part of this Contract by reference and shall govern operations and materials for this project, except where otherwise indicated in the project specifications and on the plans.

3. Conflicts in Contract Documents

   In cases of ambiguities or conflicts in language, every effort will be made to resolve uncertainties by conference and communication between Contractor, MRCD, and PROJECT ENGINEER. Should additional resources be required, the following order of documents shall prevail in the interpretation of this Contract:

   a. Drawings
   b. Project Specifications
   c. MRCD Contract Supplementary Terms and Conditions
   d. Standard Specifications of the State of California, Division of Transportation, latest edition
   e. Standard General Conditions of the Construction Contract, latest edition.

4. Permits

   The MRCD is responsible for all permit acquisition for this project.

5. Schedule of Work

   CONTRACTOR shall abide by the latest start of work and completion of work dates as set forth in the Project Timeline contained in the Instructions to Bidders section of the Request for Cost Proposal or, if applicable, by the dates as adjusted by the MRCD for delays due to inclement weather or saturated soil conditions.

6. Delivery of Documents Prior to Start of Construction

   The CONTRACTOR shall submit his/her specific timeline/work plan to the PROJECT ENGINEER by the latest start work date as set forth in the Project Timeline or, if applicable, by the latest start work date as adjusted by the MRCD.

   CONTRACTOR shall submit required performance bonds and certificates of insurance to the MRCD prior to commencing any work on the project.

   The CONTRACTOR shall use the following address(es) for delivery of required documents:

   MRCD: Marin Resource Conservation District
   PO Box 1146
   80 4th Street [Upstairs Suite 202; M-Th 10AM-3PM]
   Point Reyes Station, CA 94956

C. LEGAL RELATIONS AND RESPONSIBILITIES

1. Payment

   The contract prices paid for the work shall include full compensation for all taxes that the CONTRACTOR is required to pay, whether imposed by federal, state, or local government, including, without being limited to, state and federal payroll taxes, withholding taxes and Social Security, federal excise tax, and federal transportation tax. No tax exemption certificate or any document designed to exempt the CONTRACTOR from payment of any tax will be furnished to CONTRACTOR by the MRCD, or the landowner as to any tax on labor, services, materials, transportation, or any other items

furnished pursuant to this Contract. CONTRACTOR agrees to indemnify and hold the MRCD, Stillwater Sciences, and the landowner(s) harmless from any liability that it may incur to the federal, state, or local governments as a consequence of this Contract.

2. Labor Code Provisions

2.1. Prevailing Wage:

2 .1.1. The Contractor and all Subcontractors under the Contractor shall pay all workers on Work performed pursuant to this Contract not less than the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work as determined by the Director of the Department of Industrial Relations, State of California, for the type of work performed and the locality in which the work is to be performed, pursuant to sections 1770 et seq. of the California Labor Code. Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the State of California Department of Industrial Relations, are on file at the Court's principal office. Prevailing wage rates are also available from the Court or on the internet at (http://www. dir.ca.gov).

2.1.2. Contractor shall ensure that Contractor and all of Contractor's Subcontractors execute the Prevailing Wage and Related Labor Requirements Certification attached to the Contract and incorporated herein.

2.1.3. The Project is subject to compliance monitoring and enforcement by the Department of Industrial Relations. Contractor shall post job site notices, as prescribed by regulation. Contractor shall comply with all requirements of Labor Code section 1771.4, except the requirements that are exempted by the Labor Commissioner for the Project.

2.2. Registration:

2.2.1. Contractor shall comply with the registration and compliance monitoring provisions of Labor Code section 1771.4, including furnishing its

certified payroll records ("CPR(s)") to the Labor Commissioner of California and complying with any applicable enforcement by the Department of Industrial Relations ("DIR"). Labor Code section 1771.1(a) states the following:

"A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded."

2.2.2. Contractor shall, and shall ensure that all "subcontractors" (as defined by Labor Code section 1722.1), comply with Labor Code section 1725.5, including without limitation the registration requirements with the Department of Industrial Relations that are set forth in Labor Code section 1725.5. Contractor represents to the Court that all "subcontractors" (as defined by Labor Code section 1722.1) are registered pursuant to Labor Code section 1725.5. Contractor shall not permit any Subcontractor to perform Work on the Project, without first verifying the Subcontractor is properly registered with the DIR as required by law, and providing this information in writing to the Court. Contractor acknowledges that, for purposes of Labor Code section 1725.5, this Work is public work to which Labor Code section 1771 applies.

2.3. Hours of Work:

2.3.1. Notwithstanding the timing and duration of the Work under the Contract which is subject to court activities and other coordination required for occupied facilities, as provided in article 3 (commencing at section 1810), chapter 1, part 7, division 2, of the Labor Code, eight (8) hours of labor shall constitute a legal day's work. The time of service of any worker employed at any time by Contractor or by any Subcontractor on any subcontract under

this Contract upon the Work or upon any part of the Work contemplated by this Contract shall be limited and restricted by Contractor to eight (8) hours per day, and forty (40) hours during any one week, except as hereinafter provided. Notwithstanding the provisions hereinabove set forth, Work performed by employees of Contractor in excess of eight (8) hours per day and forty (40) hours during any one week, shall be permitted upon this public work upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half times the basic rate of pay.

2.3.2. Contractor shall keep and shall cause each Subcontractor to keep an accurate record showing the name of and actual hours worked each calendar day and each calendar week by each worker employed by Contractor in connection with the Work or any part of the Work contemplated by this Contract. The record shall be kept open at all reasonable hours to the inspection of Judicial Council and to the Division of Labor Standards Enforcement of the DIR.

2.3.3. Pursuant to Labor Code section 1813, Contractor shall as a penalty to the Court forfeit the statutory amount (believed by the Court to be currently twenty five dollars ($25)) for each worker employed in the execution of this Contract by Contractor or by any Subcontractor for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week in violation of the provisions of article 3 (commencing at section 1810), chapter 1, part 7, division 2, of the Labor Code.

2.3.4. Any Work necessary to be performed after regular working hours, or on Sundays or other holidays shall be performed without additional expense to the Court.

2.3.5. Project Work will typically take place in an occupied court facility; therefore, work hours may be restricted depending upon the Project. The individual Service Work Order will include any restrictions on hours of work. If the Service Work Order does not include a restriction on hours of work, then the work must take place during business hours.

2.4. Payroll Records:

2.4.1. In addition to submitting CPR(s) to the Labor Commissioner of California pursuant to Labor Code section 1771.4 or any other applicable law, if requested by the Court, Contractor shall provide to the Court and shall cause each Subcontractor performing any portion of the Work to provide the Court CPR(s), showing the name, address, social security number, work classification, straight time, and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by the Contractor and/or each Subcontractor in connection with the Work.

2.4.2. All CPRs shall be available for inspection at all reasonable hours at the principal office of Contractor on the following basis:

2.4.2.1. A certified copy of an employee's CPR shall be made available for inspection or furnished to the employee or his/her authorized representative on request.

2.4.2.2. CPRs shall be made available for inspection or furnished upon request to a representative of the Court, Division of Labor Standards Enforcement, Division of Apprenticeship Standards, and/or the Department of Industrial Relations.

2.4.2.3. CPRs shall be made available upon request by the public for inspection or copies thereof made; provided, however, that a request by the public shall be made through either the Court, Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested CPRs have not been provided pursuant to the provisions herein, the requesting party shall, prior to being provided the records, reimburse the costs of preparation by Contractor, Subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal office of Contractor.

2.4.3. The form of certification for the CPRs shall be as follows:

I, _____ (Name-Print), the undersigned, am the _____ (Position in business) with the authority to act for and on behalf of _____ (Name of business and/or Contractor), certify under penalty of perjury that the records or copies thereof submitted and consisting of _____ (Description, number of pages) are the originals or true, full, and correct copies of the originals which depict the payroll record(s) of actual disbursements by way of cash, check, or whatever form to the individual or individual named, and (b) we have complied with the requirements of sections 1771, 1811, and 1815 of the Labor Code for any work performed by our employees on the Project.

Date: _____ Signature _____
(Section 16401 of Title 8 of the California Code of Regulations)

2.4.4. Each Contractor shall file a certified copy of the CPRs with the entity that requested the records within ten (10) days after receipt of a written request.

2.4.5. Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the Court, Division of Apprenticeship Standards, or Division of Labor Standards Enforcement shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address, and social security number. The name and address of Contractor awarded Contract or performing Contract shall not be marked or obliterated.

2.4.6. Contractor shall inform the Court of the location of the records enumerated hereunder, including the street address, city, and county, and shall, within five (5) Business Days, provide a notice of change of location and address.

2.4.7. In the event of noncompliance with the requirements of this section, Contractor shall have ten (10) days in which to comply subsequent to receipt of written notice specifying in what respects Contractor must comply with this section. Should noncompliance still be evident after the ten (10) day period, Contractor shall, as a penalty to the Court, forfeit one hundred dollars ($100) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of Division of Apprenticeship Standards or Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due.

2.4.8. It shall be the responsibility of Contractor to ensure compliance with the provisions of Labor Code section 1776.

2.5. Apprentices:

2.5.1. Contractor acknowledges and agrees that, if this Contract involves a dollar amount greater than or a number of working days greater than that specified in Labor Code section 1777.5, then this Contract is governed by the provisions of Labor Code Section 1777.5. It shall be the responsibility of Contractor to ensure compliance with this Article and with Labor Code section 1777.5 for all apprenticeship occupations.

2.5.2. Apprentices of any crafts or trades may be employed and, when required by Labor Code section 1777.5, shall be employed provided they are properly registered in full compliance with the provisions of the Labor Code.

2.5.3. Every such apprentice shall be paid the standard wage paid to apprentices under the regulations of the craft or trade at which he/she is employed, and shall be employed only at the work of the craft or trade to which she/he is registered.

2.5.4. Only apprentices, as defined in section 3077 of the Labor Code, who are in training under apprenticeship standards and written apprentice agreements under chapter 4 (commencing at section 3070), division 3, of the Labor Code, are eligible to be employed. The employment and training of

each apprentice shall be in accordance with the provisions of the apprenticeship standards and apprentice agreements under which he/she is training.

2.5.5. Pursuant to Labor Code section 1777.5, if that section applies to this Contract as indicated above, Contractor and any Subcontractors employing workers in any apprenticeable craft or trade in performing any Work under this Contract shall apply to the applicable joint apprenticeship committee for a certificate approving the Contractor or Subcontractor under the applicable apprenticeship standards and fixing the ratio of apprentices to journeymen employed in performing the Work.

2.5.6. Pursuant to Labor Code section 1777.5, if that section applies to this Contract as indicated above, Contractor and any Subcontractor may be required to make contributions to the apprenticeship program.

2.5.7. If Contractor or Subcontractor willfully fails to comply with Labor Code section 1777.5, then, upon a determination of noncompliance by the Administrator of Apprenticeship, it shall:

2.5.7.1. Be denied the right to bid or propose on any subsequent project for one (1) year from the date of such determination; and

2.5.7.2. Forfeit as a penalty to the Court the full amount as stated in Labor Code section 1777.7. Interpretation and enforcement of these provisions shall be in accordance with the rules and procedures of the California Apprenticeship Council and under the authority of the Chief of the Division of Apprenticeship Standards.

2.5.8. Contractor and all Subcontractors shall comply with Labor Code section 1777.6, which section forbids certain discriminatory practices in the employment of apprentices.

2.5.9. Contractor shall become fully acquainted with the law regarding apprentices prior to commencement of the Work. Special attention is directed

to sections 1777.5, 1777.6, and 1777.7 of the Labor Code, and title 8, California Code of Regulations, section 200 et seq. Questions may be directed to the State Division of Apprenticeship Standards, 455 Golden Gate Avenue, San Francisco, California 94102.

2.5.10. Contractor shall ensure compliance with all certification requirements for all workers on the Project including, without limitation, the requirements for electrician certification in Labor Code sections 108 et seq.

D. PRICING

1. The pricing for this Contract shall be as set forth in the CONTRACTOR's Cost Proposal as accepted by the MRCD.

2. Substantial variations in the Contract size may occur. The authority for making changes to the Contract lies with the MRCD. The MRCD will not be responsible for any loss of anticipated profits due to reductions in the size of the Contract.

3. If the PROJECT ENGINEER or CONSTRUCTION MANAGER determines that additional work on the project is necessary; a change order to the Contract may be formed. Unit prices for equipment, materials, and labor, as set forth in the CONTRACTOR's Cost Proposal, shall form the basis of pricing for any additional work covered by a change order. The total value of the Contract shall then be adjusted by the value of each change order. Work performed under any change order shall be subject to the same terms and conditions, and contract documents, as work performed under the original agreement.

E. MEASUREMENT AND PAYMENT

1. MRCD may withhold from any estimate due the CONTRACTOR a sum sufficient to protect the MRCD from loss on account of (a) defective work not remedied, (b) claims filed or reasonable evidence indicating probable filing of claims, (c) failure of CONTRACTOR to make payments properly to subcontractors or for equipment, material, or labor, (d) a reasonable doubt that the Contract can be completed for the balance then unpaid, and/or (e)

damage to another contractor on the project. Such amounts withheld shall be paid upon removal of grounds for withholding payment.

2. CONTRACTOR is expected to correct defective work rejected by the PROJECT ENGINEER or CONSTRUCTION MANAGER in a timely manner. In summer months (June 21 to September 21), ten (10) days will be allowed for CONTRACTOR to complete defective work. In the fall (after September 21), when timing is crucial because of the impending rainy season, five (5) days will be allowed. If defective work is not complete within these time frames, the PROJECT ENGINEER or CONSTRUCTION MANAGER may order a third party to complete the work at the expense of the CONTRACTOR.

3. Partial payment shall cover work completed through the 25th calendar day of each month for contracts where the number of working days exceeds twenty (20). No partial payments shall be made for contracts having a time limit of twenty (20) working days or less, unless completion has been significantly delayed by causes that are clearly not the fault of the CONTRACTOR. When partial payments are to be made, the CONTRACTOR shall submit an estimate of the total amount of work accomplished, which will show the computed amount due, to the PROJECT ENGINEER or CONSTRUCTION MANAGER for approval. No partial payments will be made for materials stored on the job but not yet installed.

   Upon receipt of the PROJECT ENGINEER'S or CONSTRUCTION MANAGER'S approval of the estimate, the CONTRACTOR shall submit a covering invoice to the MRCD. Upon receipt of the invoice, the MRCD will schedule approval and payment at the next scheduled meeting of the MRCD Board of Directors.

4. Liquidated Damages
   MRCD and the CONTRACTOR agree that MRCD will suffer financial loss if the work is not completed by the date indicated in the Project Timeline and Work Schedule contained in the Instructions to Bidders section of the Request for Bids. Therefore, if work is not finished and accepted by the project

completion date and if working days were available to complete the work, the CONTRACTOR agrees to pay the MRCD two hundred fifty dollars ($250.00) per day as liquidated damages to cover losses, expenses and damages for each and every day in which the CONTRACTOR fails to achieve completion of the project.

5. Risks Associated with Inclement Weather
   The CONTRACTOR shall assume all risk of damage to works in progress until final acceptance by the MRCD. The CONTRACTOR accepts risk of all costs associated with delays resulting from inclement weather.

6. Final Payment
   Upon completion of the work, the CONTRACTOR shall submit a final accounting of all work accomplished, showing the computed amount due, to the CONSTRUCTION MANAGER for approval. Upon approval and acceptance of the work by the CONSTRUCTION MANAGER, the CONTRACTOR shall submit his/her final invoice to the MRCD. Notice of completion will be filed and retention of moneys will be paid as required by the laws of the state of California relating to mechanics' liens.

   All prior partial estimates and payments shall be subject to correction in the final accounting and payment.

   Contractor shall provide copies of receipts for materials to OWNER.

   In the absence of a formal claim filed by the CONTRACTOR, the final accounting shall be conclusive and binding against both parties to the Contract on all questions relating to the performance of the Contract, the amount of work done there under, and compensation paid therefore.

   Final payment of retention does not free the CONTRACTOR from any obligations arising out of the performance of work on this Contract.

7. Funding
   This project will be billed to MRCD.

MRCD has received funding from the California Department of Fish and Wildlife and State Coastal Conservancy. Payment instructions for vendors are attached hereto as Exhibit A.

F. INSURANCE REQUIREMENTS

1. The following paragraphs, which are contained within the Standard General Conditions of the Construction Contract attached hereto and incorporated herein, are superseded by the contents of this section, and shall not apply to this Contract: Paragraphs 5.05, 5.06, 5.07, 5.08, 5.09, 5.10 under Article 5: Bonds and Insurance, and Paragraph 8.06 under Article 8: Owner's Responsibilities.

2. CONTRACTOR agrees to procure and maintain insurance of the kinds and amounts hereinafter provided in insurance companies authorized to do business in the state of California, covering all operations under this Contract, whether performed by him/her or subcontractors. There is no Owner-provided insurance program for this project.

3. Before commencing any work on the project, CONTRACTOR shall furnish to the MRCD a certificate(s) signed by an authorized representative of the insurance company(ies) showing the CONTRACTOR has satisfactorily complied with the insurance provisions herein.

4. The types and amounts of insurance required are as follows:
   a. Worker's Compensation Insurance
      CONTRACTOR shall take out and maintain, during the life of this Contract, Worker's Compensation Insurance, including Employer's Liability Insurance of not less than one million dollars ($1,000,000) for injury or death per accident, in accordance with the Worker's Compensation laws of the state of California.

   b. Public Liability and Property Damage Insurance
      CONTRACTOR shall take out and maintain, during the life of this Contract, such public liability and property damage insurance as shall protect him/her, the state of California, its officers, agents, and employees,

the MRCD, the PROJECT ENGINEER, and the LANDOWNER from any and all claims for personal injury, including accidental death, as well as from claims from property damage that may arise from operations under this Contract, whether such operations be by the CONTRACTOR, by any subcontractor, or by anyone directly or indirectly employed by either.

The amounts of such insurance shall be as follows:

1. Injury, including accidental death, minimum one million dollars ($1,000,000) for any one person and one million dollars ($1,000,000) for any one occurrence.
2. Property damage, minimum one million dollars ($1,000,000).

The MRCD (its directors, officers, employees, and agents), the state of California, its officers, agents, and employees, the PROJECT ENGINEER (its directors, officers, employees, and agents), and the LANDOWNER(S) shall be specifically named as additional insureds on each and every public liability and property damage insurance policy provided under the terms of this section.

c. Comprehensive Vehicle Liability Insurance

CONTRACTOR shall take out and maintain, during the life of this Contract, such Comprehensive Vehicle Liability insurance as shall protect him/her, the MRCD, the PROJECT ENGINEER, and the LANDOWNER from all claims for personal injury, including accidental death, as well as from claims for property damage that may arise from operations under this Contract, whether such operations be by the CONTRACTOR, by any subcontractor, or by anyone directly or indirectly employed by either.

The amount of such insurance shall be not less than one million dollars ($1,000,000) combined single limit or equivalent for bodily injury and property damage as a result of any one occurrence, including coverage for Owned, Hired, and Non-Owned vehicles.

The MRCD (its directors, officers, employees and agents), the CONSTRUCTION MANAGER (its directors, officers, employees and

agents), the PROJECT ENGINEER (its directors, officers, employees and agents),and the LANDOWNER(S) shall be specifically named as additional insureds on each comprehensive vehicle liability insurance policy provided under the terms of this section.

d. Said policies shall remain in effect until final acceptance of the project by MRCD and shall provide that they may not be canceled without first providing MRCD with thirty (30) days written notice of such intended cancellation. If CONTRACTOR fails to maintain the insurance provided herein, MRCD may secure such insurance and deduct the cost thereof from any funds owing to CONTRACTOR.

G. INDEMNIFICATION

CONTRACTOR will indemnify and hold the OWNER or MRCD, the CONSTRUCTION MANAGER, the PROJECT ENGINEER, the COUNTY OF MARIN and the LANDOWNER harmless from all claims, demands, or liability arising out of or encountered in connection with this Contract or the prosecution of work under it, whether such claims, demands, or liability are caused by CONTRACTOR, CONTRACTOR's agents or employees, or subcontractors employed on the project, their agents or employees, or products installed on the project by CONTRACTOR or subcontractors, excepting only such injury or harm as may be caused solely and exclusively by OWNER'S fault or negligence. Such indemnification shall extend to claims, demands, or liability for injuries occurring after completion of the project as well as during the work's progress.

H. BONDING REQUIREMENTS

1. If the Contract value is greater than twenty thousand dollars ($20,000), the CONTRACTOR shall provide a performance bond in favor of the MRCD in the amount of one hundred percent (100%) of the contract price and a labor and materials bond in favor of the MRCD in the amount of one hundred percent (100%) of the contract price.

2. CONTRACTOR shall submit required performance bonds to the MRCD prior to commencing any work on the project.

I. INSPECTIONS

1. All work performed on this project shall be subject to regular inspections. The CONTRACTOR shall not cover up any work prior to inspection by the PROJECT ENGINEER, CONSTRUCTION MANAGER and PROJECT BIOLOGIST. Inspection of the work will be scheduled by the CONTRACTOR in consultation with the CONSTRUCTION MANAGER. Points of inspection are defined in the Inspections section of the Request for Bids.

2. Final Inspection
   When the work covered by the project is substantially completed, the CONTRACTOR shall notify the CONSTRUCTION MANAGER in writing that the work will be ready for final inspection on a definite date, which shall be stated in such notice. The notice shall be given at least five (5) days prior to the stated date for final inspection. If the CONSTRUCTION MANAGER AND PROJECT ENGINEER determines that the status of the work is as represented, he/she will make the arrangements necessary to have final inspection commence on the date stated in such notice, or as soon thereafter as is practicable.

J. SAFETY AND PROTECTION

1. Fire Precautions
   CONTRACTOR shall have on hand and maintain the following tools and equipment while working on the job site: an approved five-pound ABC fire extinguisher, one five-gallon backpack pump or equivalent, and one shovel, McLeod, or other grubbing tool suitable for fire-fighting per person working on the project. All motor-driven equipment shall have approved spark arrestors in place and functioning properly. Stationary equipment shall have a 10-foot fire break cut around it.

2. Protection of Property
   CONTRACTOR shall take care not to damage property on which the project is being constructed. This includes, but is not limited to, damage to roads and pastures resulting from vehicle use during wet conditions. CONTRACTOR will be required to repair damage resulting from CONTRACTOR's activities at his/her own expense.

K. RETENTION OF RECORDS

CONTRACTOR and his/her subcontractors shall retain all administrative documents pertaining to the project, including payroll records, for a period of at least three (3) years following completion and acceptance of the project by the MRCD. The MRCD and its duly authorized agents shall have the right to inspect and reproduce any such records or documents. CONTRACTOR and his/her subcontractors shall 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. CONTRACTOR and his/her subcontractors shall permit tracing of funds to a level of expenditures to establish that such funds have not been used in violation of the restrictions and prohibitions of applicable statutes.

L. DISPUTE RESOLUTION

1. Intent

   The parties intend to resolve all disputes and other matters in question arising out of or relating to the interpretation, application, performance or breach of any term, covenant or condition of this CONTRACT through reasonable business-like negotiations without resort to litigation. If a dispute should arise regarding the obligations of the MRCD or CONTRACTOR towards each other or the PROJECT, the parties shall attempt to resolve the dispute in accordance with this Dispute Resolution section. Unless the MRCD requires otherwise, and regardless of the size or nature of the dispute, the CONTRACTOR shall not cease or delay performance of its obligations under the CONTRACT during the existence of any dispute, and the MRCD shall pay to the CONTRACTOR all amounts owing and not subject to dispute or offset.

2. Resolution Procedure

   MRCD and CONTRACTOR shall attempt to resolve any disputes in accordance with the following procedures:

   a. Special Meeting

      MRCD or the CONTRACTOR may call a special meeting for the resolution of disputes. The meeting shall be held within three (3) working

days after delivery of written request for such meeting specifying the nature of the dispute to be resolved. If a meeting is called prior to commencement of the construction, the meeting shall be held at the MRCD'S offices; thereafter, the meeting shall be held at the PROJECT site. The meeting shall be attended by representatives of the MRCD and CONTRACTOR. Such representatives shall have authority to resolve the dispute and shall not be an attorney(s) actively practicing law.

b. Mandatory Mediation

If the dispute has not been resolved within five (5) working days after the special meeting, both parties shall engage in a mediation proceeding, which shall be attended by all parties to the dispute and which, unless all parties to such proposed mediation proceeding agree otherwise, shall be conducted by an independent mediator, such as Judicial Arbitration and Mediation Service ("JAMS") in San Francisco, California, in accordance with its procedures. The costs of mediation shall be shared equally by all parties to such mediation.

c. Settlement

If, as a result of the mediation, a voluntary settlement is reached and the parties agree that such settlement shall be reduced to writing, the agreement may be enforced as a settlement agreement in the Marin Superior Court. Such agreement shall be and have the same force and effect as an arbitration award in California and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

d. Evidence Code

All proceedings under this Dispute Resolution section shall be subject to California Evidence Code Sections 1152 and 1152.5. The restrictions set forth therein on the use of evidence from the special meeting or mediation shall apply to any arbitration as well as any court proceeding. The parties expressly agree to abide by subdivisions (a) and (b) of Section 1152.5, which provide as follows:

I. Subject to the conditions and exceptions provided in the section, when persons agree to conduct and participate in mediation for the purpose of compromising, settling, or resolving a dispute:
   i. Evidence of anything said or of any admission made in the course of the mediation is not admissible in evidence, and disclosure of any such evidence shall not be compelled, in any civil action (or arbitration) in which, pursuant to law, testimony can be compelled to be given.
   ii. Unless the document otherwise provides, no document prepared for the purpose of, or in the course of, or pursuant to the mediation, or copy thereof, is admissible in evidence, and disclosure of any such document shall not be compelled, in any civil action (or arbitration) in which, pursuant to law, testimony can be compelled to be given.

II. Subdivision I does not limit the admissibility of evidence if all persons who conducted or otherwise participated in the mediation consent to its disclosure.

III The presentation of evidence from any expert or consultant shall not waive the attorney-client or other privilege or exclusionary rule a party may later seek in another proceeding.

3. The CONTRACTOR shall incorporate the provisions of this Dispute Resolution into contracts with all subcontractors so that such lower tier subcontractors and material suppliers shall also be bound to this dispute resolution procedure.

4. This dispute resolution procedure shall not in any way affect any statutes of limitation relating to any claim, dispute or other matter or question arising out of or relating to this CONTRACT or the breach thereof. This dispute resolution procedure may be conducted before or during the pendency of any other legal proceedings between MRCD and any third party.

Exhibit A

INSTRUCTIONS FOR VENDORS
MARIN RESOURCE CONSERVATION DISTRICT

For Sites 1 & 2, the following instructions are intended to speed up payment of bills & reimbursement requests. All invoices shall include company name, address, phone, date and a breakdown of labor and materials for the following construction practices:

TIMING

One invoice **per project site** will be issued to the following:

Marin RCD (ATTN: Sarah Phillips, Project Manager)
80 4th Street PO Box 1146
Point Reyes Station, CA 94956

The bill must arrive by the last day of the month. The Marin RCD Board meets to approve payments once each month; if your bill arrives on time and if funds are available, it can be paid as early as the third week of the following month. No bill can be paid without Board approval.

FORMAT

In order to be paid promptly, your billing must include these elements:

Name: Please list your legal name as well as any business name you may use; the name for the check must appear on the invoice.

Address: Where you want your check to be mailed. Please include the zip code.

Phone: Number where we can contact you in case of questions.

Date: Use the date on which your invoice is written.

Job Number: If you were assigned a Job Number at the time your contract was signed, this number must appear on all your invoices for work done on this Job.
Sample number: 9183INV-2395

Project Sites: If your contract or Work Order shows that you will be performing work on more than one project site, please break out the charges on your invoice by site as each of the two project sites are funded by different sources.

Example: Grant for Fencing, Site 1

Task: Materials	$2,511.75
Task: Labor	5,000.00
Total Invoice amount:	$7,511.75

TAX ID NO.

If you or your companies are providing services (rather than being reimbursed for expenses) you must have a Form W-9 on file. Please fill out the W-9 Form provided and return it with your bill.

Thanks for your cooperation.

Exhibit B
SITE 1 PLANS AND SPECIFICATIONS

Site 1 Snyder-Stanger
7303 Sir Francis Drake Blvd.
Lagunitas, CA 94938

Site 1 Salmonid Habitat Enhancement: Large wood placement and anchoring with boulders in San Geronimo Creek, grading back banks to enhance habitat in adjacent tributary, invasive vegetation removal, native planting and erosion control.

Location:
The project is located in an unincorporated area of Marin County east of Point Reyes National Seashore and northwest of Mount Tam, along San Geronimo Creek.

Description of Work:
The Marin Resource Conservation District (MRCD) has been awarded a grant by the CA Department of Fish & Wildlife (CDFW) to implement a salmon enhancement project in the San Geronimo Creek watershed.

The project will transform the lower 100 ft. of Cintura Creek from a narrow, incising channel with vertical banks laden with blackberry to a wide alcove of inset floodplains off the mainstem filled with large wood, rootwads and shaded by willow, alder, and other native riparian vegetation. This installation will provide high flow refugia for adult, juvenile, and newly emergent salmonids in addition to native riparian canopy cover. This project also includes additional habitat features in the mainstem of San Geronimo Creek such as large wood pieces and rootwads anchored to boulders. A total of 18 pieces of large wood will be anchored to boulders and installed at this overall project site. Rootwads and riparian plants installed along San Geronimo Creek upstream of the confluence will also provide shelter along the channel edge for fish to use to escape high velocities in the winter and to cool water temperatures during juvenile rearing periods in the summer. Logs and rootwads will also be placed on the downstream corner of the confluence to create slower water and edge habitat. Native riparian plantings and native erosion control seeding will be installed post-construction to enhance the riparian corridor and mitigate construction erosion. Additionally, soil bioengineering techniques will be implemented in the form of willow staking.

SAN GERONIMO CREEK HABITAT ENHANCEMENT PROJECT (SNYDER-STRANGER)

MARIN COUNTY, CA

GENERAL NOTES, TERMS, & CONDITIONS:

1. **DESIGN INTENT.** THESE DRAWINGS REPRESENT THE GENERAL DESIGN INTENT TO BE IMPLEMENTED AND CONTRACTOR IS RESPONSIBLE FOR ALL ITEMS SHOWN ON THESE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE PROJECT MANAGER FOR ANY CLARIFICATIONS OR FURTHER DETAILS NECESSARY TO ACCOMMODATE ACTUAL SITE CONDITIONS. ANY DEVIATION FROM THESE PLANS WITHOUT THE RCD'S REPRESENTATIVE APPROVAL ARE AT THE CONTRACTOR'S OWN RISK AND EXPENSE. NOTIFY PROJECT MANAGER IMMEDIATELY OF ANY UNEXPECTED AND CHANGED CONDITIONS, SAFETY HAZARDS, AND ENVIRONMENTAL PROBLEMS ENCOUNTERED.

2. **JOB SITE CONDITIONS AND CONTRACTOR RESPONSIBILITY.** CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR SITE CONDITIONS DURING THE COURSE OF THE CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY, AND ALL ENVIRONMENTAL PROTECTION ELEMENTS, WHETHER SHOWN ON THESE DRAWINGS OR NOT. CONTRACTOR SHALL FOLLOW ALL APPLICABLE CONSTRUCTION AND SAFETY REGULATIONS. THESE REQUIREMENTS SHALL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE RCD OR THE ENGINEER (STILLWATER SCIENCES) HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FROM LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE RCD OR ENGINEER.

3. **DAMAGE.** CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO EXISTING PUBLIC AND PRIVATE PROPERTY, INCLUDING NATIVE TREES AND SHRUBS, AND OTHER PROPERTY IMPROVEMENTS. IF CONTRACTOR CAUSES DAMAGES TO SUCH ITEMS, HE SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT IN LIKE NUMBER, KIND, CONDITION, AND SIZE. ANY SUCH COST MAY BE DEDUCTED BY RCD FROM MONIES DUE CONTRACTOR UNDER THIS CONTRACT.

4. **LIMITS OF WORK, ACCESS, STAGING AND MOBILIZATION AREAS.** EXACT LIMITS OF WORK, POINTS OF INGRESS-EGRESS, CREEK CHANNEL ACCESS, MOBILIZATION, STAGING, AND WORK AREAS WILL BE IDENTIFIED IN THE FIELD BY THE RCD AND/OR ENGINEER. EQUIPMENT MAINTENANCE AND FUELING MUST OCCUR OUTSIDE OF THE CHANNEL AREA AS DESCRIBED IN THE ENVIRONMENTAL PERMITS FOR THE PROJECT.

5. **WORK IN STREAM CHANNELS AND STREAM DIVERSIONS.** ALL WORK INVOLVING USE OF HEAVY EQUIPMENT MUST BE COMPLETED FROM TOP OF BANK UNLESS A SPECIFIC POINT OF CREEK CHANNEL ACCESS HAS BEEN APPROVED AND IS SHOWN ON THE PLANS, AND THEN ONLY IN NON-LIVE WATER AS DEFINED BY CDFW. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING THE DEWATERING PLAN DEPICTED IN THIS PLAN SET.

5.1. CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND DISPOSING OF ALL WATER CONTROL STRUCTURES AND EQUIPMENT.

5.2. THE CONTRACTOR SHALL FURNISH, INSTALL, AND OPERATE ALL OTHER NECESSARY MACHINERY, APPLIANCES, AND EQUIPMENT TO DIVERT FLOWING WATER AROUND WORK AREAS, AND TO KEEP EXCAVATIONS AND TRENCHES REASONABLY FREE FROM WATER DURING CONSTRUCTION. CONTRACTOR SHALL DISPOSE OF THE WATER SO AS NOT TO CAUSE INJURY TO PUBLIC OR PRIVATE PROPERTY, OR TO CAUSE A NUISANCE OR A MENACE TO THE PUBLIC, OR TO DEGRADE WATER QUALITY. HE SHALL AT ALL TIMES HAVE ON HAND SUFFICIENT PUMPING EQUIPMENT AND MACHINERY IN GOOD WORKING CONDITION FOR ALL ORDINARY EMERGENCIES AND SHALL HAVE AVAILABLE AT ALL TIMES COMPETENT MECHANICS FOR THE OPERATION OF ALL PUMPING EQUIPMENT. IF THE CONTRACTOR CHOOSES TO USE A PUMPING SYSTEM FOR ANY PORTION OF THE WATER CONTROL WORK, HE SHALL HAVE ADEQUATE BACK-UP EQUIPMENT TO INSURE THE CONTINUOUS OPERATION OF THE EQUIPMENT.

5.3. THE CONTRACTOR SHALL AT ALL TIMES PROVIDE FOR THE ADEQUATE RETURN FLOW OF DIVERSIONS BELOW THE PROJECT SITE. THE CONTRACTOR MAY TEMPORARILY DIVERT WATER DURING CONSTRUCTION, AS OUTLINED IN THE APPROVED STREAM DIVERSION AND WATER CONTROL PLAN. THIS MAY INCLUDE FOR INSTANCE, VISQUEEN AND STRAW BALE OR SAND BAG DIVERSION DIKES AND PIPING SYSTEMS. RETURN FLOW SHALL BE FILTERED THROUGH FILTER CLOTH, STRAW BALES AND/OR THROUGH A SERIES OF STILLING BASINS WHEN REQUIRED.

5.4. TURBID DEWATERING FLOWS SHALL BE PUMPED INTO A HOLDING FACILITY OR SPRAYED OVER A LARGE AREA OUTSIDE THE STREAM CHANNEL TO ALLOW FOR NATURAL FILTRATION OF SEDIMENTS. AT NO TIME SHALL TURBID WATER FROM THE HOLDING FACILITY BE ALLOWED BACK INTO THE STREAM CHANNEL UNTIL WATER IS CLEAR OF SILT. SUCH PRACTICE SHOULD NOT SUPERCEDE IMPORTANCE OF MAINTAINING BYPASS FLOWS.

5.5. ALL HEAVY EQUIPMENT MUST HAVE A SUPPLY OF SORBENT PADS AVAILABLE TO CLEAN-UP GREASE, OIL, OR FUEL THAT DRIPS OR SPILLS INTO THE STREAM CHANNEL. SORBENT BOOMS MUST BE PLACED DOWNSTREAM FROM LOCATIONS WHERE MACHINERY IS EXPECTED TO CROSS THE STREAM CHANNEL. USED PADS AND BOOMS ARE TO BE DISPOSED OF PROPERLY AT CONTRACTOR'S EXPENSE.

6. **EARTHWORK QUANTITIES.** CONTRACTOR IS RESPONSIBLE FOR ALL EARTHWORK, INCLUDING GRADING, PROVISION AND PLACEMENT OF ROCK MEETING SIZE LIMITS, AS SHOWN ON DRAWINGS, AND DISPOSAL OF ALL EXCESS SOIL AND RUBBLE. EARTHWORK QUANTITIES, INCLUDING GRADING, PLACED ROCK RIP-RAP QUANTITY ESTIMATES PROVIDED BY THE ENGINEER ARE ESTIMATES ONLY. RCD AND ENGINEER DO NOT, EXPRESSLY OR OTHERWISE BY IMPLICATION, EXTEND ANY WARRANTY TO EARTHWORK CALCULATIONS.

7. **THE FOLLOWING PERMITS** ARE REQUIRED FOR THIS PROJECT, THE CONTRACTOR SHALL BE GIVEN COPIES OF ALL THE PERMITS, SHALL BECOME FAMILIAR WITH THE PERMIT REQUIREMENTS, AND SHALL BE RESPONSIBLE FOR ADHERENCE TO AND CONFORMANCE WITH ALL PERMIT CONDITIONS.
   SEC. 404 PERMIT ISSUED BY US ARMY CORPS OF ENGINEERS
   1601/1603 STREAMBED ALTERATION AGREEMENT ISSUED BY CA DEPT. FISH & WILDLIFE
   WATER QUALITY CERTIFICATION, BY NORTH COAST REGIONAL WATER QUALITY CONTROL BOARD
   US FISH AND WILDLIFE SERVICE CONSULTATION AND IMPLEMENTATION RECOMMENDATIONS
   NATIONAL MARINE FISHERIES SERVICE CONSULTATION AND IMPLEMENTATION RECOMMENDATIONS.

8. AREAS TO BE GRADED SHALL BE CLEARED OF ALL VEGETATION INCLUDING ROOTS AND OTHER UNSUITABLE MATERIAL FOR A STRUCTURAL FILL, THEN SCARIFIED TO A DEPTH OF 6 INCHES PRIOR TO PLACING OF ANY FILL.

9. AREAS WITH EXISTING SLOPES WHICH ARE TO RECEIVE FILL MATERIAL SHALL BE KEYED AND BENCHED.

10. FILL MATERIAL SHALL BE SPREAD IN LIFTS NOT EXCEEDING 12 INCHES IN COMPACTED THICKNESS, MOISTENED OR DRIED AS NECESSARY TO NEAR OPTIMUM MOISTURE CONTENT AND COMPACTED BY AN APPROVED METHOD. FILL MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 90% MAXIMUM DENSITY AS DETERMINED BY 1957 ASTM D - 1557 - 91 MODIFIED PROCTOR (AASHO) TEST OR SIMILAR APPROVED METHODS.

11. CUT AND FILL SLOPES SHALL NOT EXCEED A GRADE OF 2 HORIZONTAL TO 1 VERTICAL. ALL DISTURBED GROUND SHALL BE PLANTED WITH NATIVE GRASS SEED AND MULCHED.

12. BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES: ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ONSITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES, OR WIND. STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER. FUELS, OILS, SOLVENTS, AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MAY NOT BE WASHED INTO THE DRAINAGE SYSTEM. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM.TRASH AND CONSTRUCTION RELATED SOLID WASTE MUST BE DEPOSITED INTO A COVERED WASTE RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND. SEDIMENTS AND OTHER MATERIAL MAY NOT BE TRACKED FROM TO THE SITE BY VEHICLE TRAFFIC.

13. BRUSH, LIMBS AND TOPS OF TREES GENERATED FROM WOOD HARVESTED ONSITE SHOULD BE USED IN THE CONSTRUCTION OF THE HABITAT ENHANCEMENT FEATURES AS DIRECTED IN THE FIELD BY THE RCD OR ENGINEER.

14. CONTRACTOR SHALL REFER TO PROJECT SPECIFICATIONS FOR ANY ITEMS NOT ADDRESSED ON THESE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ITEMS SHOWN ON PROJECT SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE PROJECT MANAGER AND/OR ENGINEER FOR ANY CLARIFICATIONS OR FURTHER DETAILS NECESSARY TO ACCOMMODATE ACTUAL SITE CONDITIONS. ANY DEVIATION FROM THESE SPECIFICATIONS WITHOUT THE RCD'S REPRESENTATIVE APPROVAL ARE AT THE CONTRACTOR'S OWN RISK AND EXPENSE.

15. CONTRACTOR MUST CALL MARK AREA AND CALL 811 A MINIMUM OF 48 HOURS PRIOR TO ANY GROUND DISTURBANCE ACTIVITIES.

16. CONTRACTOR SHALL HOLD HARMLESS THE COUNTY OF MARIN AND ITS AUTHORIZED REPRESENTATIVES FROM ALL LIABILITIES AND DAMAGES RESULTING FROM HIS CONSTRUCTION OPERATIONS.

EARTHWORK ESTIMATES:

EARTHWORK CUT (CY): 360 CY
EARTHWORK FILL (CY): 0 CY
EXPORT (CY): 360 CY
IMPORT RIPRAP (CY): 40 CY
IMPORT BIOSWALE MIX (CY): 10 CY
IMPORT LARGE WOOD (#): 20

ABBREVIATIONS AND SYMBOLS:

(E) = EXISTING

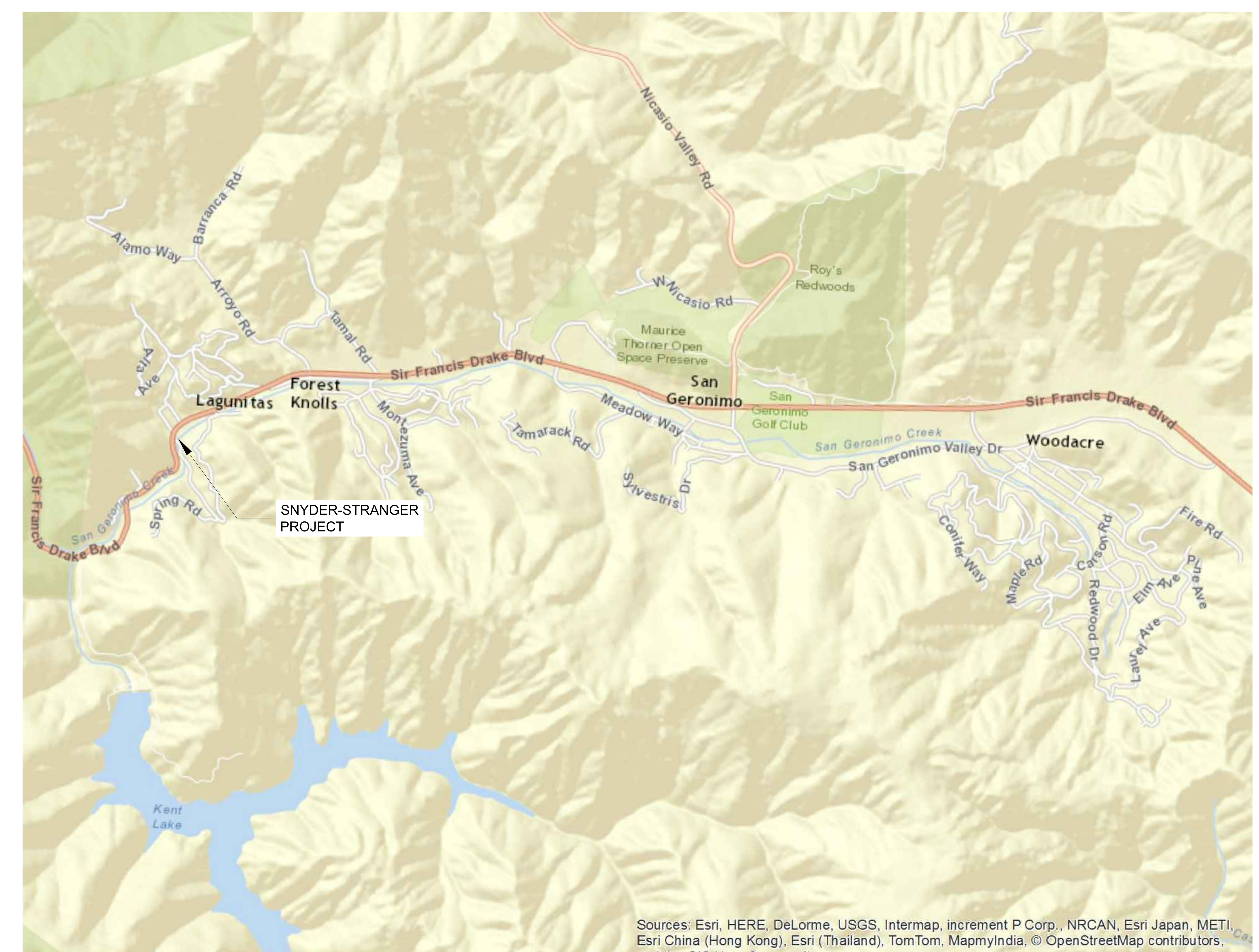
(N) = NEW OR PROPOSED

X — DETAIL
X — SHEET

X+XX — SITE-SPECIFIC SECTIONS SHOWN ON SHEET 5

SHEET INDEX:

PROJECT LOCATION MAP:



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SAN GERONIMO CREEK HABITAT ENHANCEMENT PROJECT
MARIN COUNTY DEPARTMENT OF PUBLIC WORKS
MARIN COUNTY, CA

Stillwater Sciences
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Checked:	EB
Appr'd:	JM

TITLE SHEET

Size	D
Project	597.00
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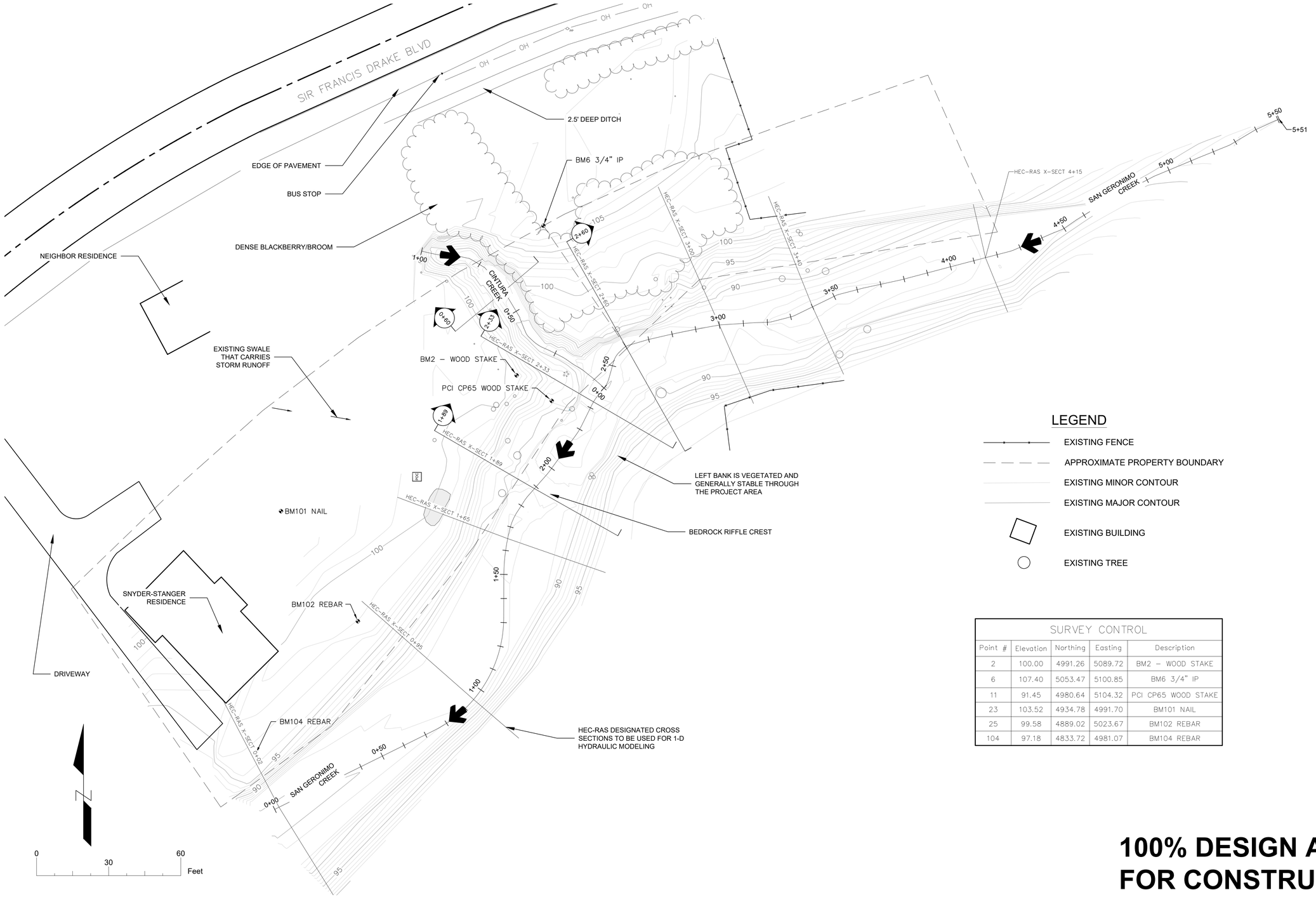
Sheet:	1 OF 11



LEGEND

- EXISTING FENCE
- APPROXIMATE PROPERTY BOUNDARY
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING BUILDING
- EXISTING TREE

SURVEY CONTROL				
Point #	Elevation	Northing	Easting	Description
2	100.00	4991.26	5089.72	BM2 – WOOD STAKE
6	107.40	5053.47	5100.85	BM6 3/4" IP
11	91.45	4980.64	5104.32	PCI CP65 WOOD STAKE
23	103.52	4934.78	4991.70	BM101 NAIL
25	99.58	4889.02	5023.67	BM102 REBAR
104	97.18	4833.72	4981.07	BM104 REBAR

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MARIN COUNTY, CA

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REGISTERED PROFESSIONAL ENGINEER — JAMES MINAMIDE — No. 79688 — 9-30-20 EXPIRES — CIVIL — STATE OF CALIFORNIA

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SNYDER-STANGER HABITAT ENHANCEMENT
EXISTING CONDITIONS & RAINWATER CATCHMENT

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Sheet:	2 OF 11

IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE – ADJUST ACCORDINGLY

LAST SAVED: 4/22/2019 PLOT DATE: 4/26/2019 PLOT STYLE: ---

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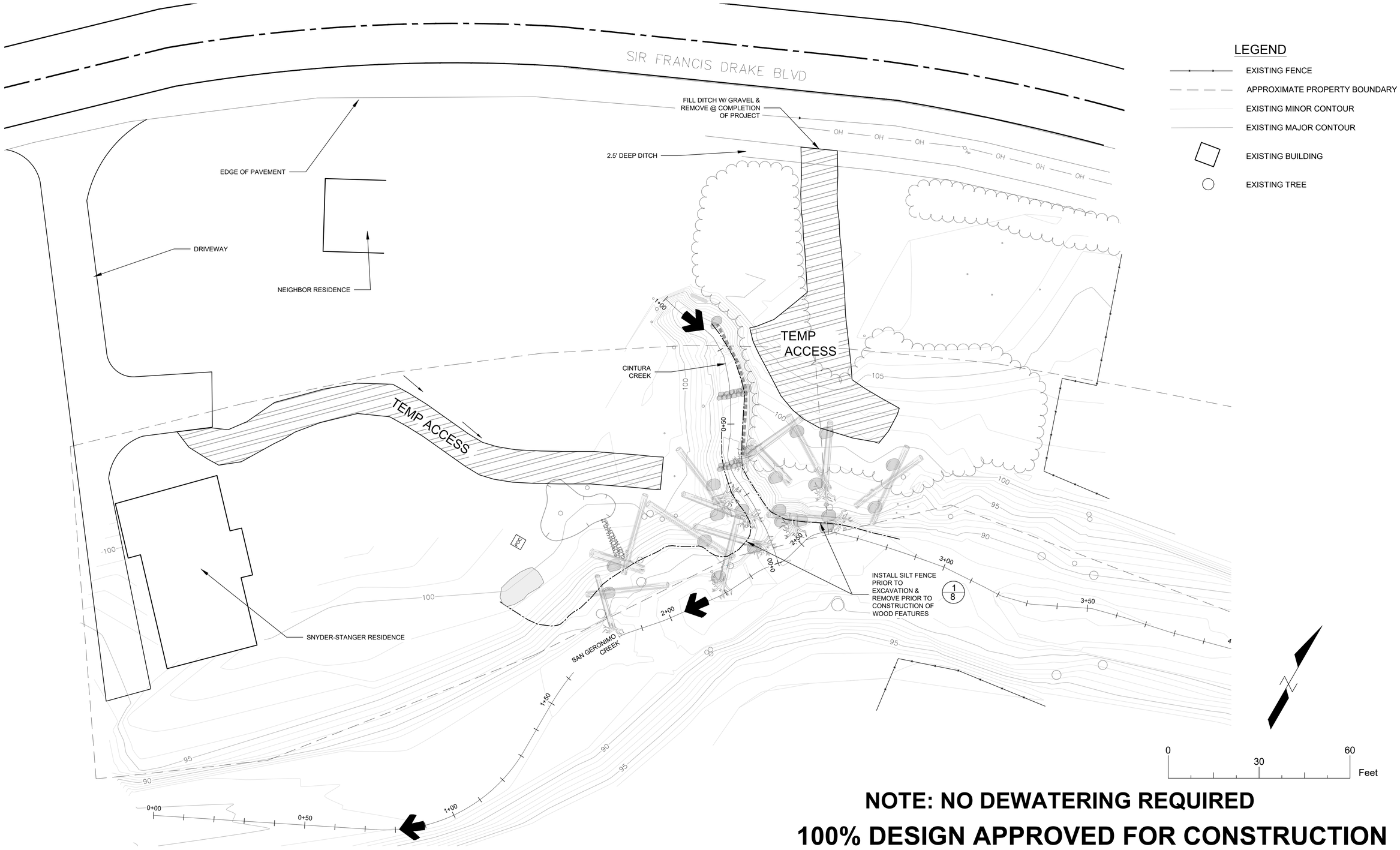

NOTE: NO DEWATERING REQUIRED

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REGISTERED PROFESSIONAL ENGINEER — JOEL MENSONG — No. 79688 — EXPIRES 9-30-20 — CIVIL — STATE OF CALIFORNIA

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SNYDER-STANGER HABITAT ENHANCEMENT STAGING, ACCESS & SITE PROTECTION

Size	D
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Date:	4-22-2019
Sheet:	3 OF 11

IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE - ADJUST ACCORDINGLY

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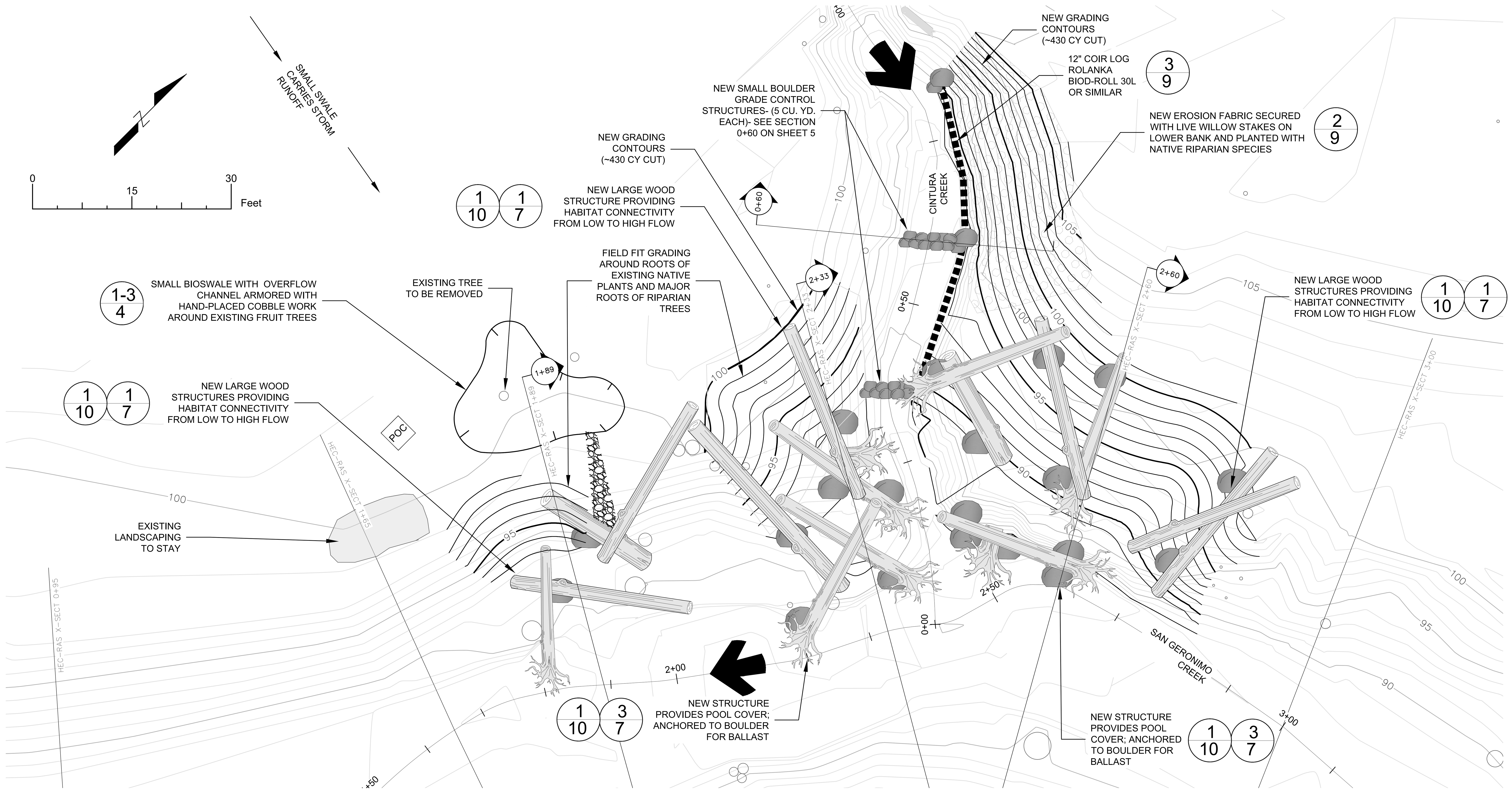
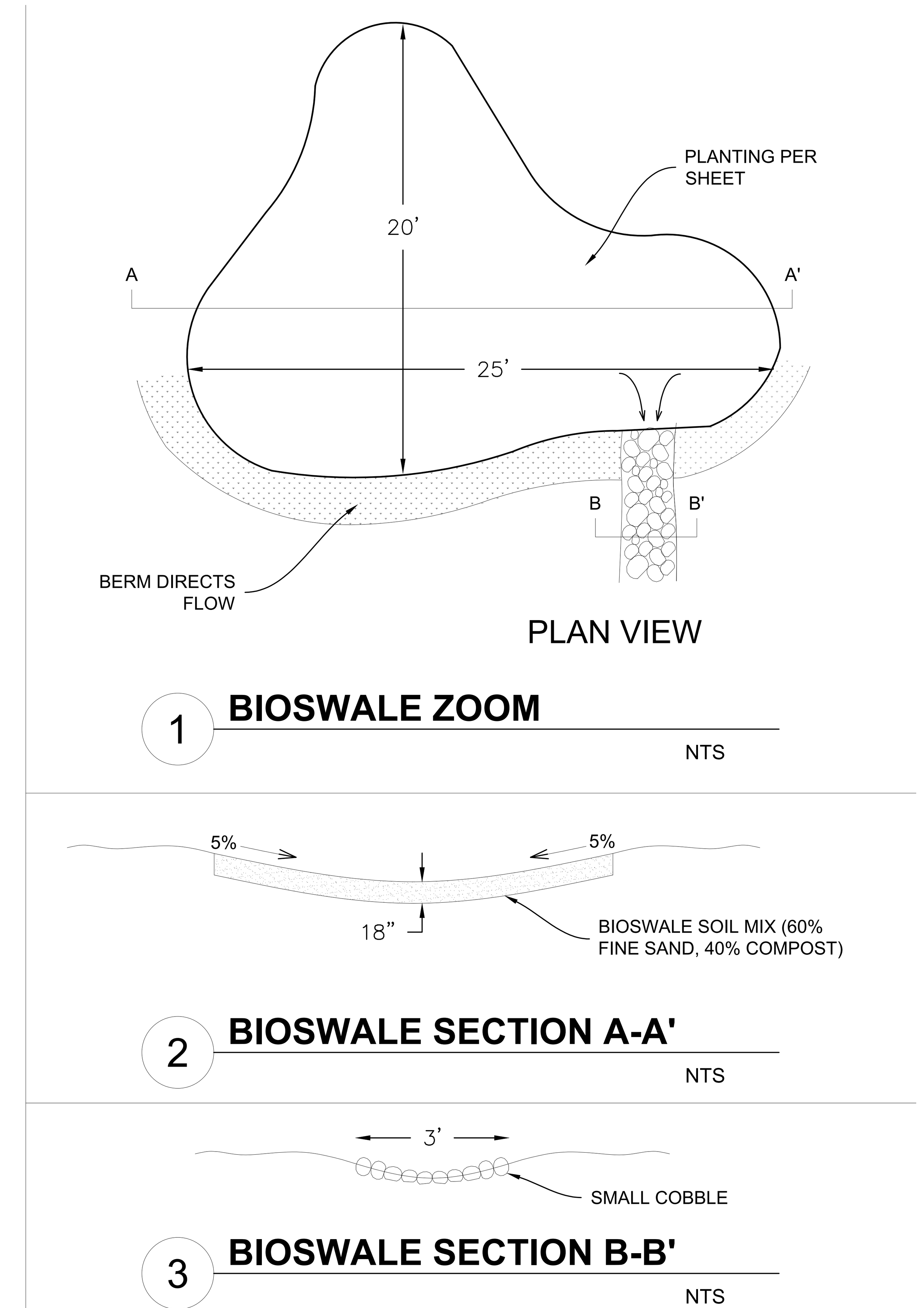
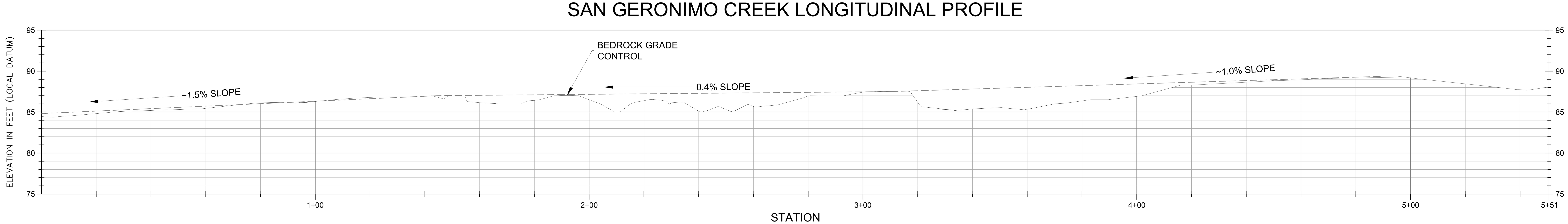




SAN GERONIMO CREEK LONGITUDINAL PROFILE



PROFILE NOTES:
1. LONGITUDINAL PROFILE HAS 3X VERTICAL EXAGGERATION
2. DASHED LINES REPRESENT APPROXIMATE CHANNEL GRADIENT MEASURED BETWEEN RIFFLE CRESTS

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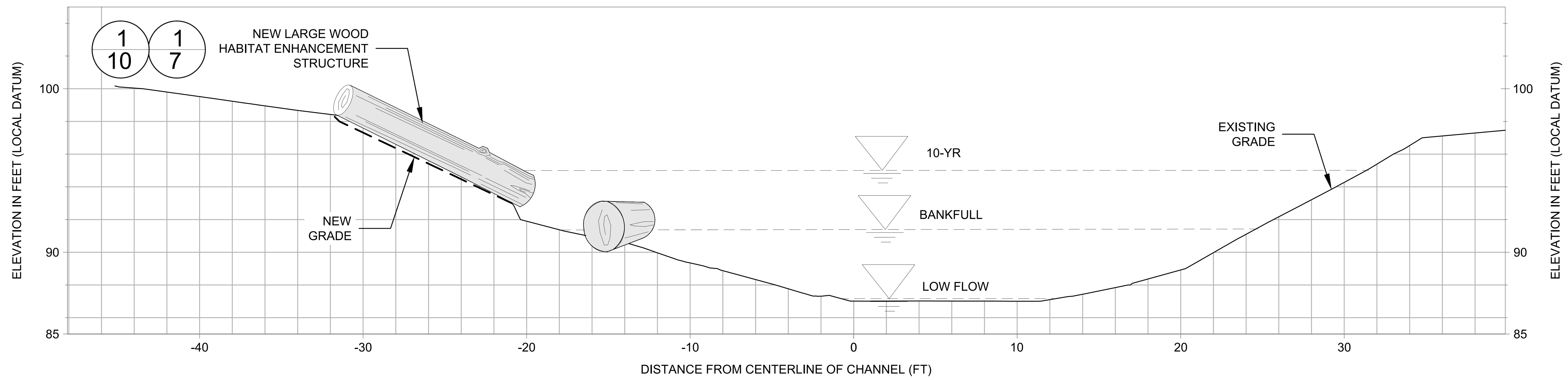
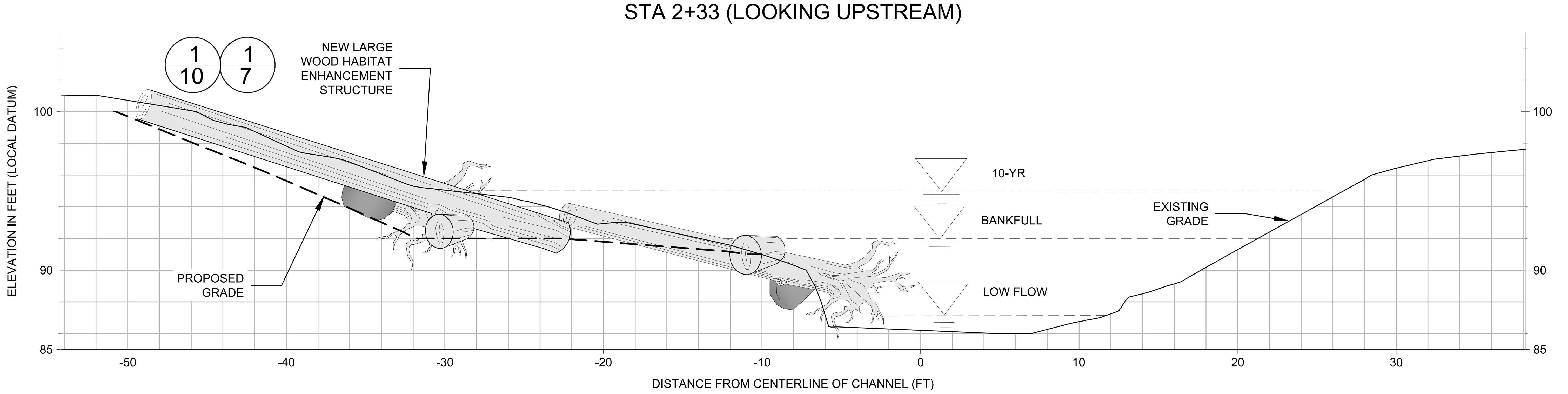
SNYDER-STANGER HABITAT ENHANCEMENT PLAN AND PROFILE

Size	D
Project	597.00
Scale:	AS NOTED
Date:	4-22-2019
Sheet:	4 OF 11

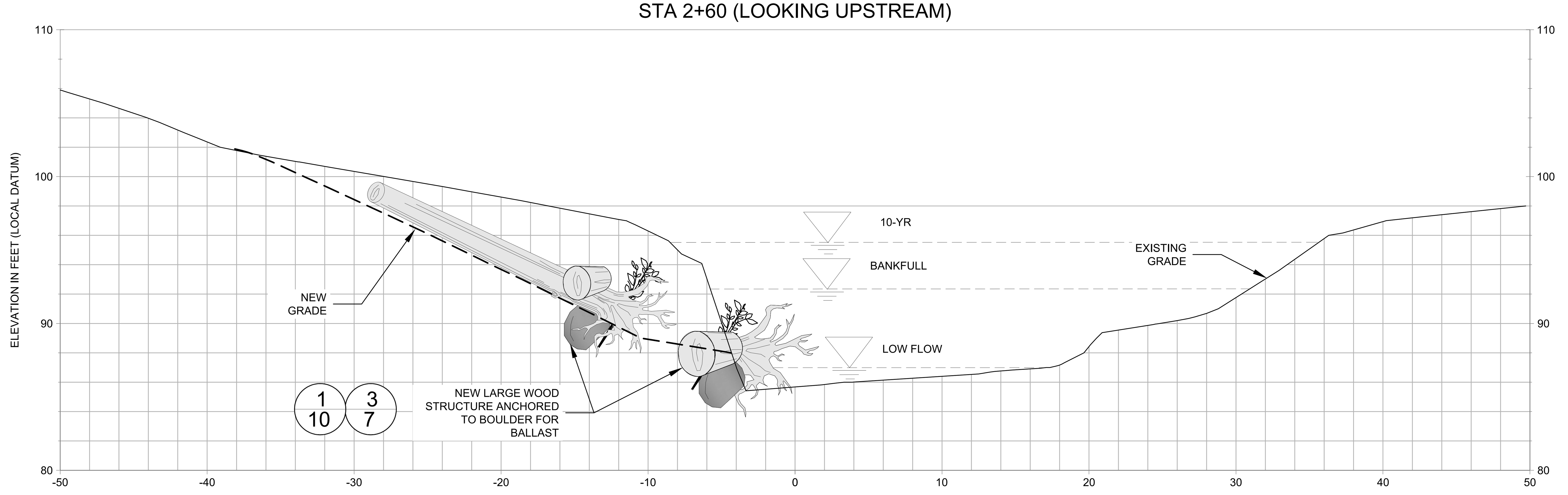
STA 1+89 (LOOKING UPSTREAM)



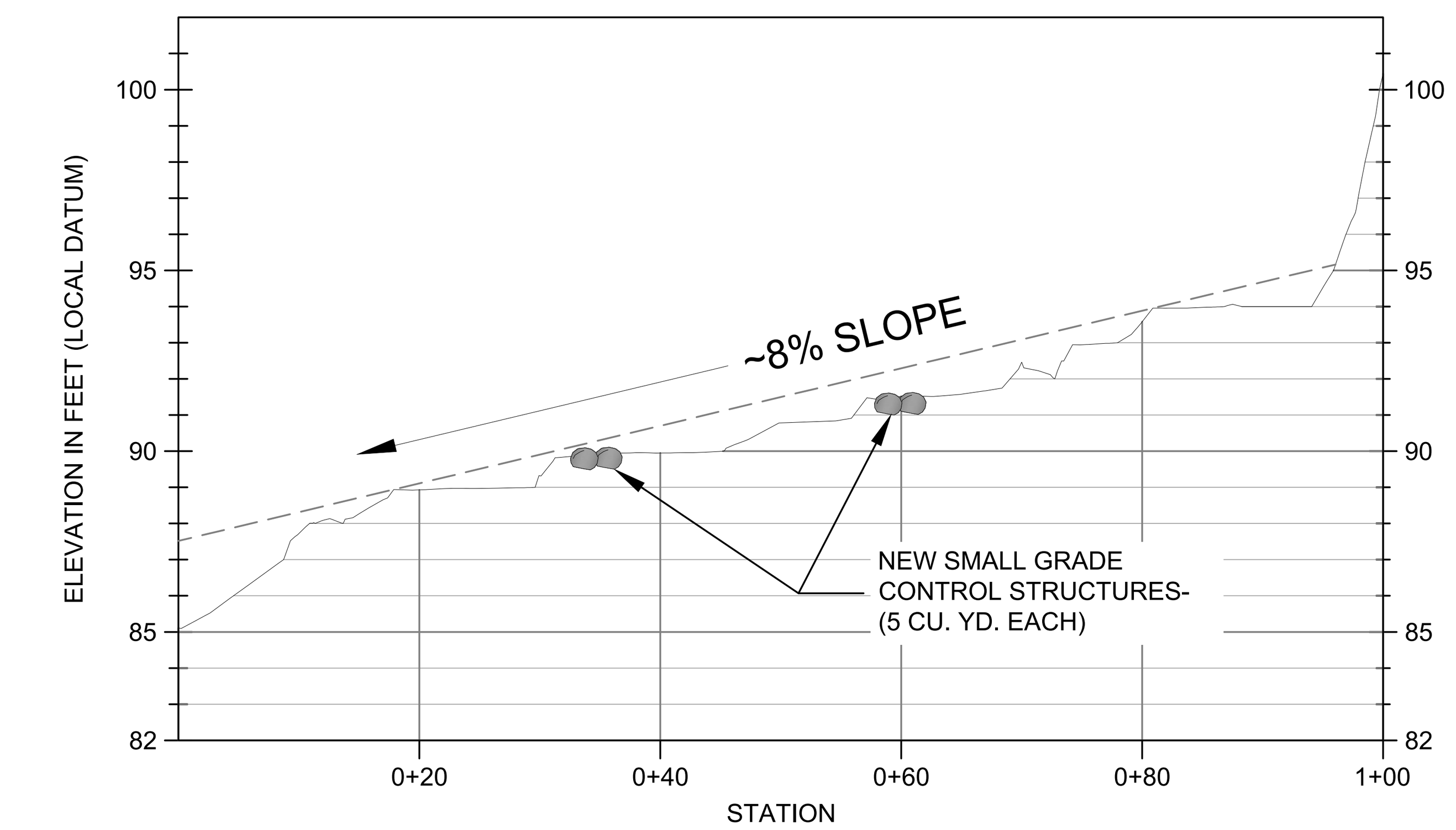
STA 2+33 (LOOKING UPSTREAM)



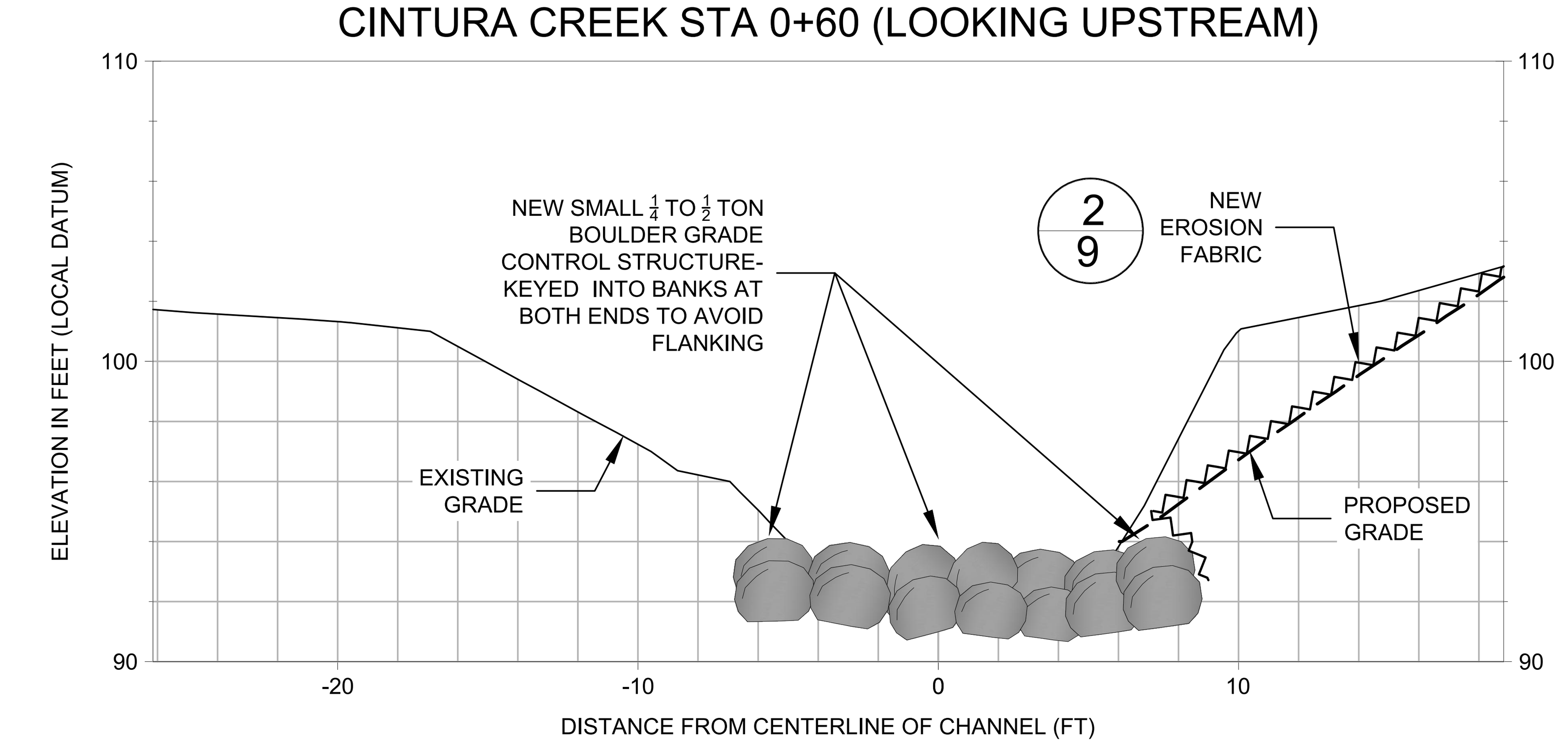
STA 2+60 (LOOKING UPSTREAM)



CINTURA CREEK LONGITUDINAL PROFILE



CINTURA CREEK STA 0+60 (LOOKING UPSTREAM)



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SNYDER-STANGER HABITAT ENHANCEMENT CROSS SECTIONS

Size	D
Project	597.00
Scale:	AS NOTED
Date:	4-22-2019
Sheet:	5 OF 11

SEEDING AND PLANTING PALLET:

PLANTING TYPE: RIPARIAN NATIVE GRASS AND HERB EROSION CONTROL SEED MIX; AREA = ~0.5 ACRE

Planting Zone	Scientific Name	Common Name	Life Form	Qty (lbs)
ALL DISTURBED AND/OR BARE GROUND WITHIN PROJECT AREA	*Agrostis exarata*	spike bent grass	Perennial grass	0.05 (0.8 oz)
	Anthoxanthum occidentale	California sweet grass	Perennial grass	0.5
	Danthonia californica	California oat grass	Perennial grass	1
	Deschampsia cespitosa subsp. *holciformis*	coastal tufted hair grass	Perennial grass	0.1 (1.6 oz)
	Deschampsia elongata	slender hair grass	Perennial grass	0.25
	Elymus triticoides	beardless wild rye	Perennial grass	2.5
	Festuca californica	California fescue	Perennial grass	0.5
	Hordeum brachyantherum subsp. *californicum*	California barley	Perennial grass	2.5
	Juncus bufonius var. *bufonius*	toad rush	Annual grasslike herb	0.005 (2.25 g)
			Total	**7.405**

PLANTING TYPE: RE-GRADED UPPER RIPARIAN BANK; AREA = 0.04 ACRE

Planting	Scientific Name	Common Name	Life Form	Container	Spacing	% Cover	# Plants
	Acer macrophyllum	big-leaf maple	Tree	treeband	20 ft	70	3
	Frangula californica	California coffeeberry	Shrub	deepot 16	12 ft	50	6
	Rosa californica	California wild rose	Shrub	TB9	5 ft	25	17
	Rubus ursinus	California blackberry	Vine	deepot 16	12 ft	50	6
						Total	**32**

PLANTING TYPE: RE-GRADED LOWER RIPARIAN BANK; AREA = 0.02 ACRE

Planting	Scientific Name	Common Name	Life Form	Container	Spacing	% Cover	# Plants
	Carex densa	dense sedge	Perennial grasslike herb	plugs	6 ft	60	15
	Juncus patens	spreading rush	Perennial grasslike herb	plugs	6 ft	60	15
	Acer negundo	box elder	Small tree	treeband	12 ft	30	2
	Alnus rhombifolia	white alder	Tree	treeband	20 ft	70	2
	Alnus rubra	red alder	Small tree	treeband	12 ft	45	3
	Cornus sericea	red-osier dogwood	Shrub	deepot 16	12 ft	60	4
	Fraxinus latifolia	Oregon ash	Tree	deepot 16	20 ft	25	1
						Total	**42**

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SNYDER-STANGER HABITAT ENHANCEMENT PLANTING PLAN

Size: D | Project: 597.00
Scale: AS NOTED
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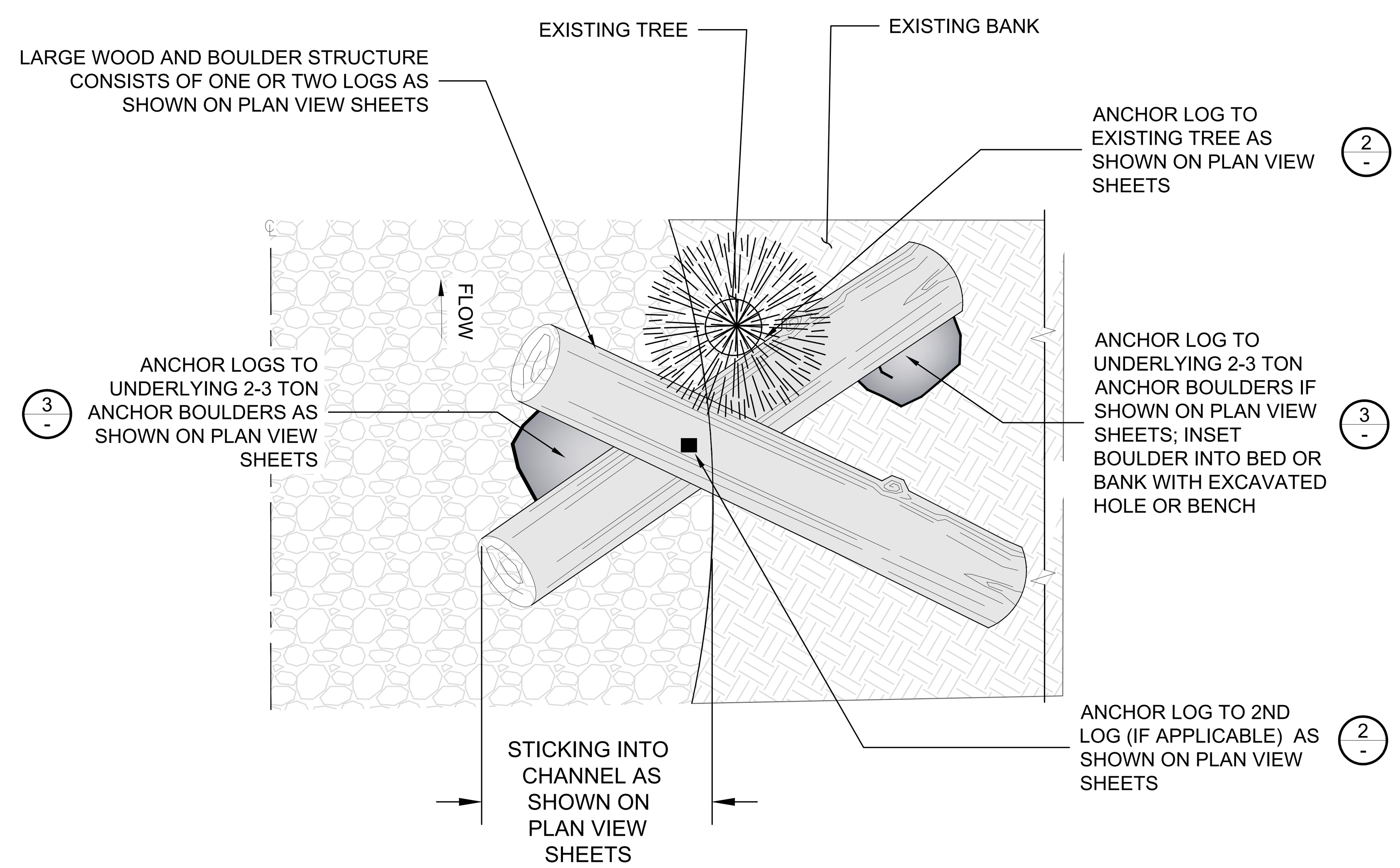
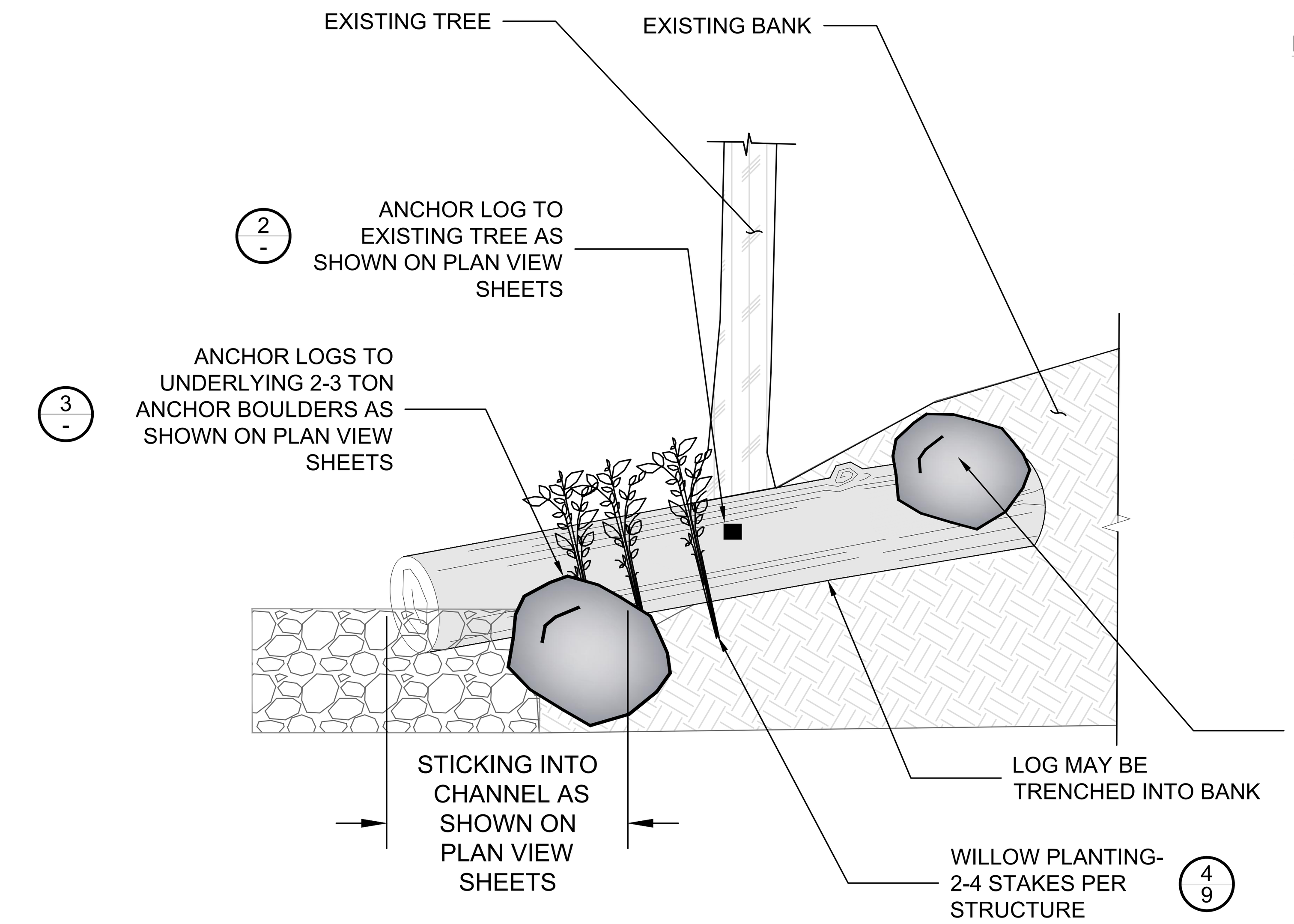
Sheet: 6 OF 11



PLAN VIEW



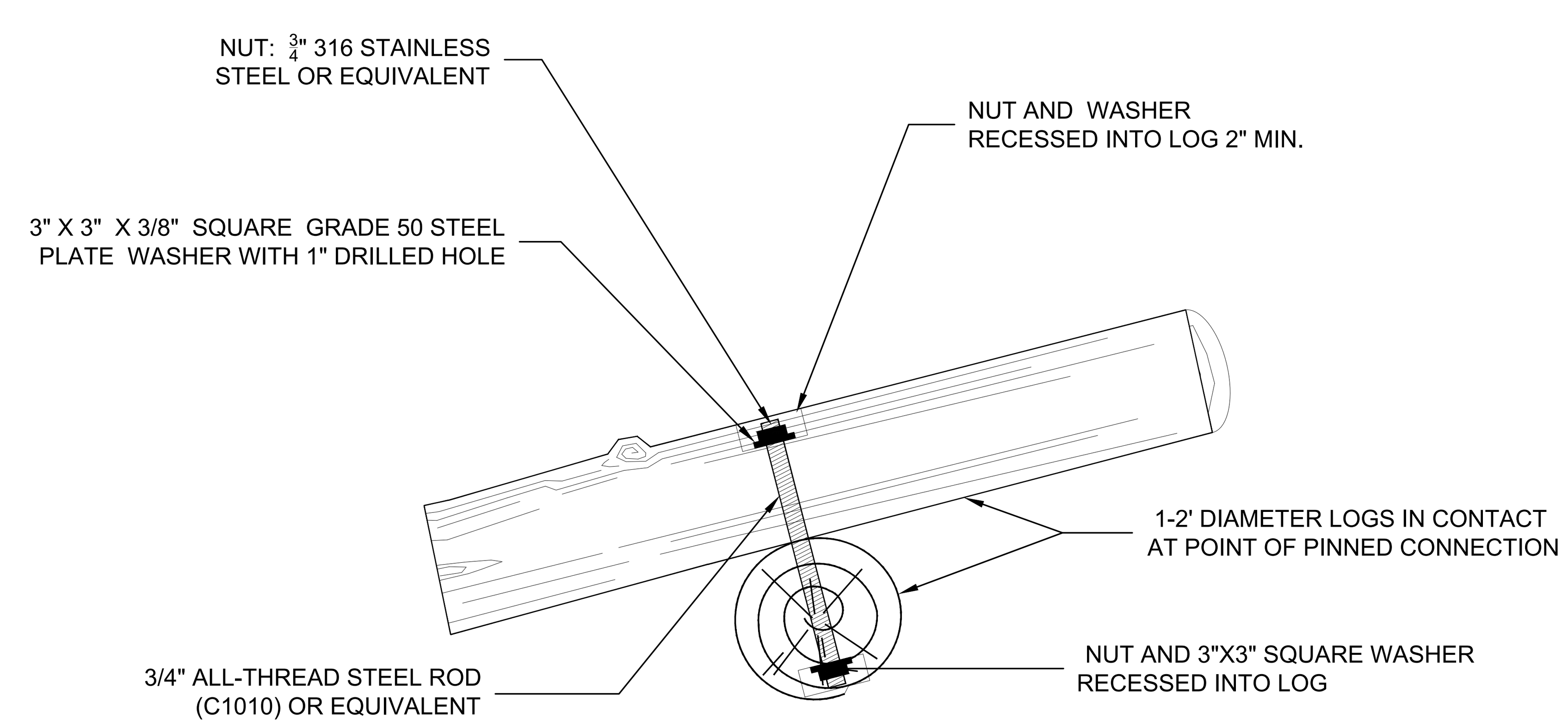
SECTION VIEW

NOTES:

1. LOG STRUCTURES SHALL BE INSTALLED AS SHOWN ON PLAN VIEW SHEETS
2. WHERE BANKS ARE STEEP, LOG STRUCTURES MAY BE TRENCHED INTO THE BANK TO ALLOW FOR A LOWER ANGLE AND PROVIDE MORE WOOD VOLUME IN THE ACTIVE CHANNEL
3. HOLE OR BENCH FOR BOULDERS SHOULD BE EXCAVATED INTO CHANNEL BANK OR BED TO INCREASE STABILITY OF STRUCTURE TO A MINIMUM DEPTH OF HALF OF THE BOULDER THICKNESS
4. BOULDER SHOULD BE PLACED WITH THE LARGEST FLAT SIDE DOWN FOR MAXIMUM STABILITY
5. LOG STRUCTURE CONSTRUCTION DETAILS MAY BE MODIFIED IN THE FIELD AS APPROVED BY THE PROJECT MANAGER AND ENGINEER
6. REDUNDANT ANCHORING SHALL BE CONDUCTED AS DIRECTED BY THE ENGINEER

1 1- AND 2-PIECE WOOD STRUCTURE DETAILS

NTS

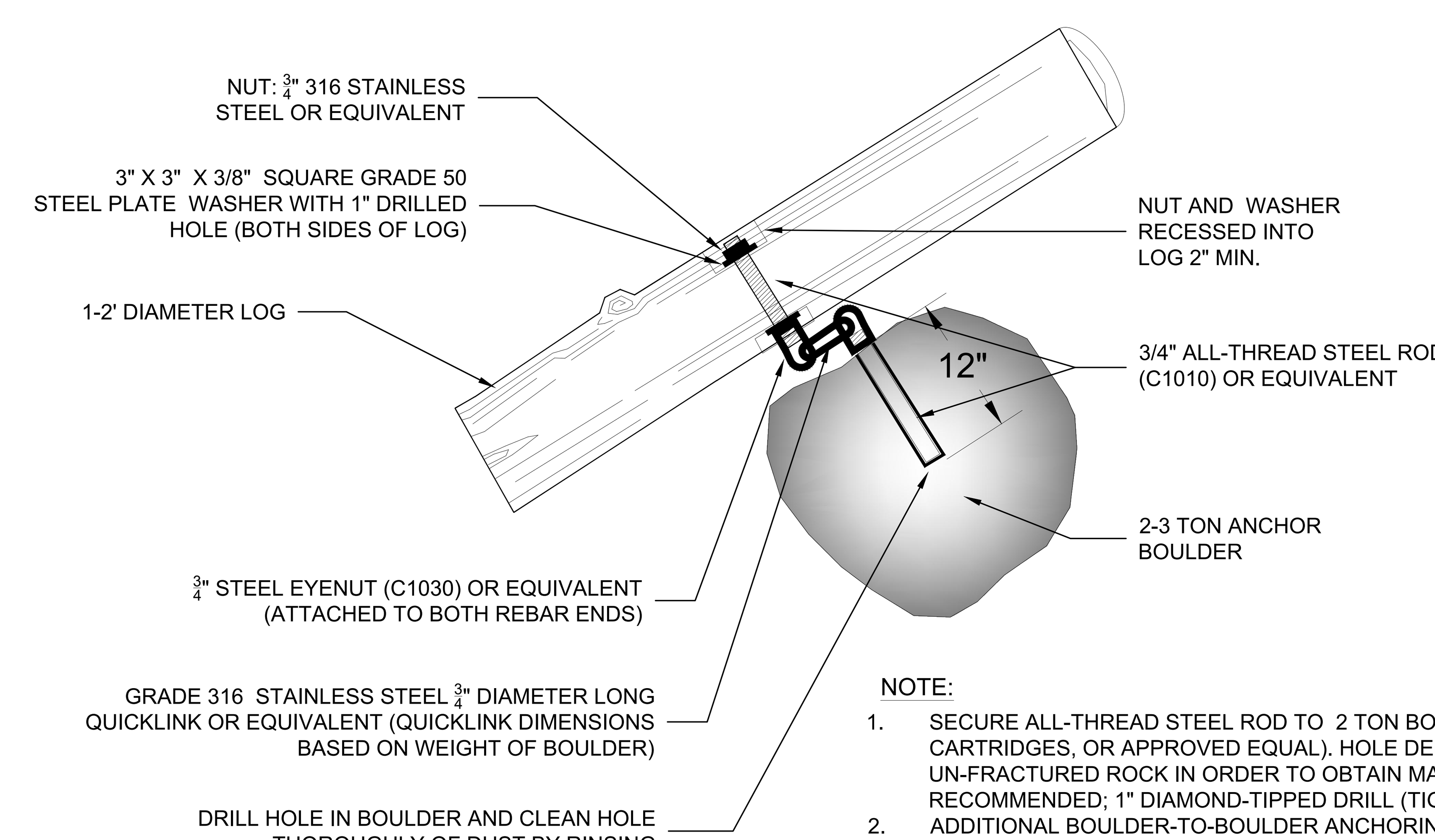


NOTE:

1. NOTCHING NOT REQUIRED ON LIVE TREES TO REDUCE IMPACTS TO TREE HEALTH

2 LOG-LOG OR LOG-TREE ANCHORING

NTS



NOTE:

1. SECURE ALL-THREAD STEEL ROD TO 2 TON BOULDER USING EPOXY ADHESIVE (HILTI C-10 EPOXY CARTRIDGES, OR APPROVED EQUAL). HOLE DEPTH MUST BE SUFFICIENT TO REACH COMPETENT, UN-FRACTURED ROCK IN ORDER TO OBTAIN MAXIMUM BONDING STRENGTH. A MINIMUM OF 12 INCHES IS RECOMMENDED; 1" DIAMOND-TIPPED DRILL (TIGHT FIT).
2. ADDITIONAL BOULDER-TO-BOULDER ANCHORING (USING TECHNIQUE DESCRIBED IN DETAIL 3) MAY BE REQUIRED TO ACHIEVE "TOTAL WEIGHT OF BOULDERS REQUIRED" SHOWN ON DETAIL 1 ON SHEET 10.
3. REDUNDANT ANCHORING SHALL BE CONDUCTED AS DIRECTED BY THE ENGINEER TO REDUCE THE RISK OF FAILURE OF THE LARGE WOOD STRUCTURES

3 LOG-BOULDER ANCHORING

NTS

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CONSTRUCTION DETAILS
WOOD ANCHORING

Size	D
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Date:	4-22-2019
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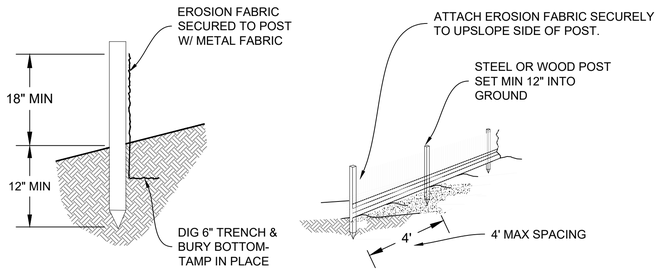

1 SILT FENCING

NTS

STANDARD SYMBOL	DESCRIPTION	MANUFACTURER	MODEL # (if applicable)	COMMENTS	DETAIL (see sheet 24)
	Irrigation Trench - Mainline	Sch. 40 PVC for line 1" & smaller		18" below fin. grade	1
	Sleeves	Class 315 PVC		24"/18" below fin. grade	1
	Quick-Coupling Valve (in box)	Rainbird	44LRC - 1" key	May substitute for normal faucet based on landowner input	4
	Quick-Coupling Valve Box	Carson	910 Lockable	10" Round box w/ lid	4
	Emitters*	Rainbird	Xeri-Bug 10-32 Threaded Inlet XB-20PC-1032	Two per plant	2
	Dripline Tubing	Rainbird	Black Stripe Tubing; 1/2" polyethylene pipe	Extend from lateral PVC and connect to emitter	2
	Gate Valve (in box)	Nibco	T-113		3
	Gate Valve Box	Carson	910 Lockable		3
	Remote Control Valve (in box)	Rainbird	XCZ-100-PRB-COM		5
	Remote Control Valve Box	Rainbird	Valve box with cover: Rainbird VB-STD		5

*Emitters not shown on plan

POC POINT OF CONNECTION

2 IRRIGATION SYMBOLOGY AND MATERIALS

NTS

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SAN GERONIMO CREEK HABITAT ENHANCEMENT PROJECT
MARIN COUNTY DEPARTMENT OF PUBLIC WORKS
MARIN COUNTY, CA

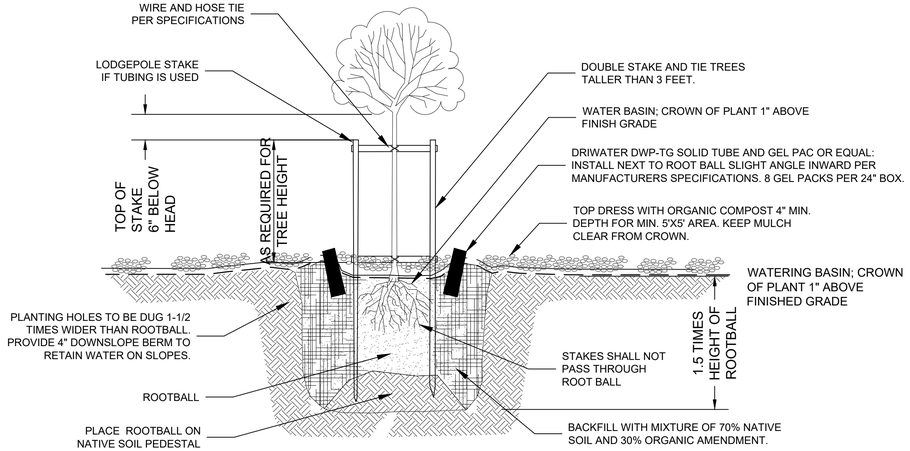
Stillwater Sciences
www.stillwatersci.com

REGISTERED PROFESSIONAL ENGINEER — JEFF MINNICH — No. 79688 — 9-30-20 EXPIRES — CIVIL — STATE OF CALIFORNIA

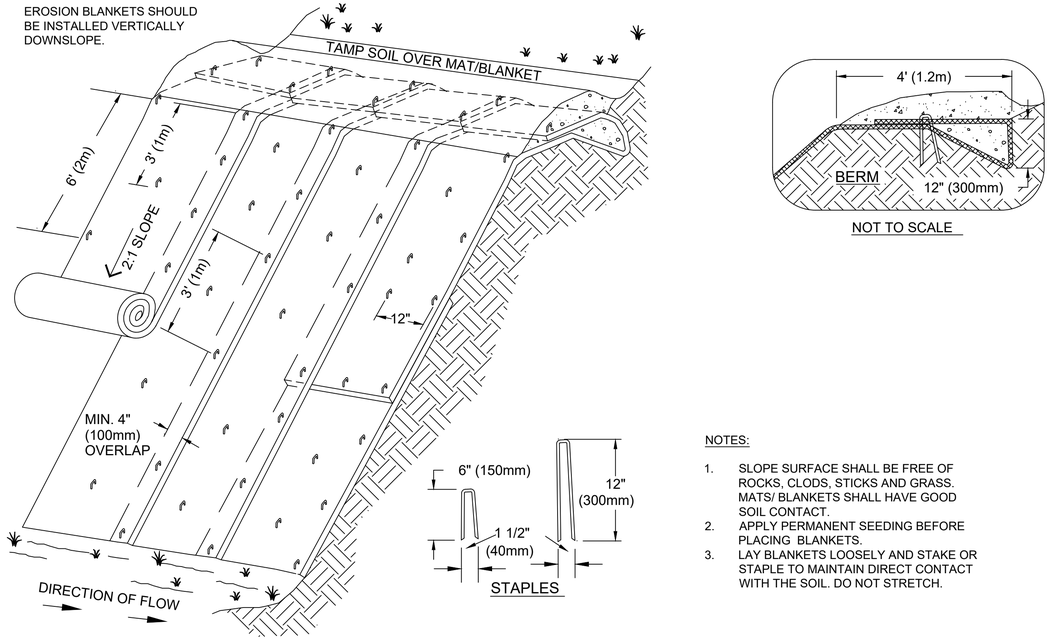
Design: JM
Drawn: JM
Checked: EB
Appr'd: JM

CONSTRUCTION DETAILS
DEWATERING AND OTHER

Size D | Project 597.00
Scale: AS NOTED
Date: 4-22-2019
Sheet: 8 OF 11



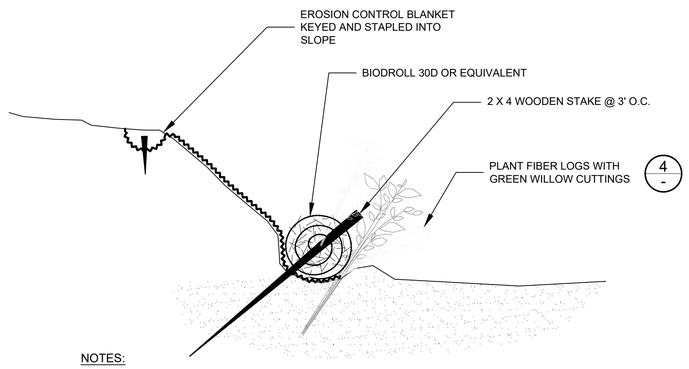
1 **TREE PLANTING**
TREE POTS
NTS



NOTES:

1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/ BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

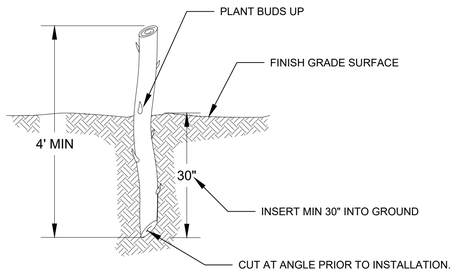
2 **EROSION CONTROL FABRIC**
NTS



NOTES:

1. PLANT GREEN WILLOW AT 3-FT O.C.
2. USE LIVE WILLOW STAKES 0.5 TO 2-INCHES THICK AND ± 5-FT LONG.

3 **BIOLOG STAKING**
NTS



NOTES:

1. WILLOW STAKE SPECIES SHALL BE A MIX OF SPECIES PRESENT AT AND ADJACENT TO THE WORK SITE INCLUDING: SALIX LASIANDRA, VAR. LASIANDRA (PACIFIC WILLOW), SALIX LASIOLEPIS (ARROYO WILLOW), AND SALIX SITCHENSIS (SITKA WILLOW).
2. EACH STAKE SHALL BE 1" - 3" THICK AT THE BOTTOM TO FACILITATE ROOT GROWTH AFTER TREATMENT WITH ROOTING HORMONE
3. INSERT MIN 30" INTO GROUND
4. INSTALL STAKES CONCURRENTLY WITH ROCK AND LOG STRUCTURES AND THEN BACKFILL WITH NATIVE SOIL TO PROMOTE ROOTING

4 **WILLOW STAKE PLANTING**
NTS

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SAN GERONIMO CREEK HABITAT ENHANCEMENT PROJECT
MARIN COUNTY DEPARTMENT OF PUBLIC WORKS
MARIN COUNTY, CA

Stillwater Sciences
www.stillwatersci.com

REGISTERED PROFESSIONAL ENGINEER — JAMES MONSEN — No. 79688 — 9-30-20 EXPIRES — CIVIL — STATE OF CALIFORNIA

Design:	JM
Drawn:	JM
Checked:	EB
Appr'd:	JM

CONSTRUCTION DETAILS
PLANTING AND EROSION CONTROL

Size	D
Project	597.00
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Date:	4-22-2019
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SNYDER-STANGER HABITAT ENHANCEMENT FEATURES

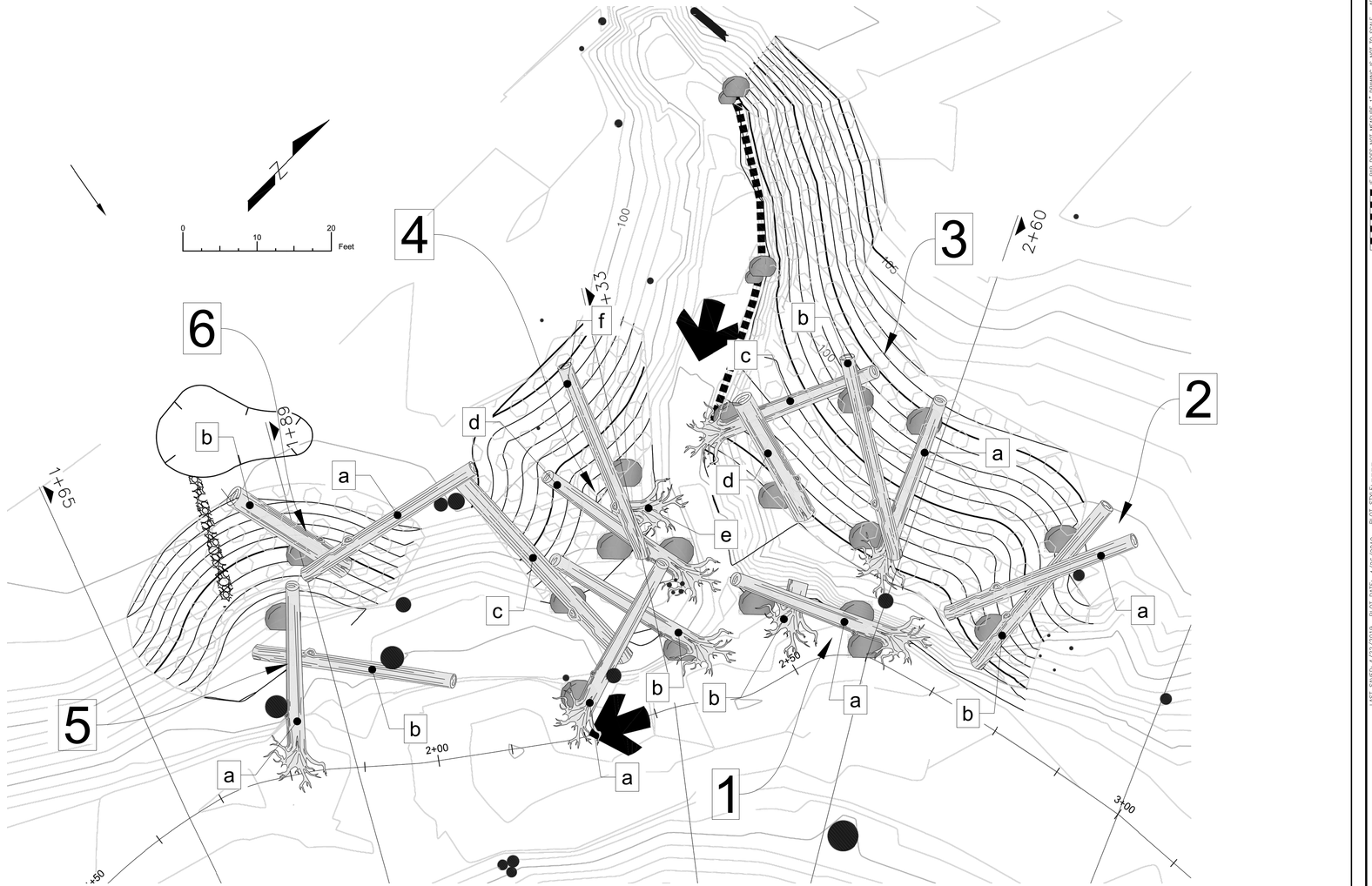
Feature Number	Total Pieces of Wood (#)	Individual Pieces of Wood Reference Number	Length (ft)	Width (ft)	Tree with Rootwad	Total Weight of Boulder Required (tons)
1	2	**1A**	25	2	Yes	13.6
		1B	Rootwad		N/A	
2	2	**2A**	30	2	No	4.9
		2B	30	2	No	
3	4	**3A**	20	2	Yes	14.0
		3B	30	2	No	
		3C	20	2	Yes	
		3D	20	2	No	
4	6	**4A**	25	2	Yes	18.1
		4B	25	2	Yes	
		4C	40	2	No	
		4D	25	2	Yes	
		4E	Rootwad		N/A	
		4F	30	2	No	
5	2	**5A**	25	2	Yes	3.4
		5B	30	2	No	
6	2	**6A**	30	2	No	3.0
		6B	20	2	No	
Total	18					57.0

NOTES:

1. FOR PLAN VIEW LAYOUT OF FEATURES, SEE DET (2/-)
2. EVERY WOOD COMPONENT WITHIN EACH FEATURE SHALL BE ANCHORED TO THE REST OF THE FEATURE AND TO THE TOTAL WEIGHT OF BOULDERS REQUIRED AS LISTED IN TABLES ABOVE SO THAT CONTINUITY OF ANCHORAGE WITHIN EACH FEATURE IS ACHIEVED AND ENTIRE FEATURE WILL RESIST MOVEMENT AS ONE UNIT.

1 **WOOD AND BOULDER FEATURE TABLES**

NTS



2 **SNYDER-STANGER FEATURE OVERVIEW**

NTS

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SAN GERONIMO CREEK HABITAT ENHANCEMENT PROJECT

MARIN COUNTY DEPARTMENT OF PUBLIC WORKS
MARIN COUNTY, CA

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REGISTERED PROFESSIONAL ENGINEER — JOEL MONSEN — No. 79688 — 9-30-20 EXPIRES — CIVIL — STATE OF CALIFORNIA

Design:	JM
Drawn:	JM
Checked:	EB
Appr'd:	JM

CONSTRUCTION DETAILS
WOOD STRUCTURE STABILITY TABLE

Size	D
Project	597.00
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Date:	4-22-2019
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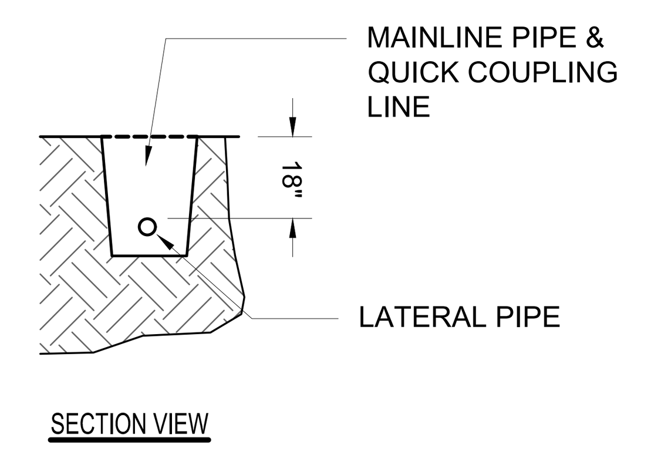
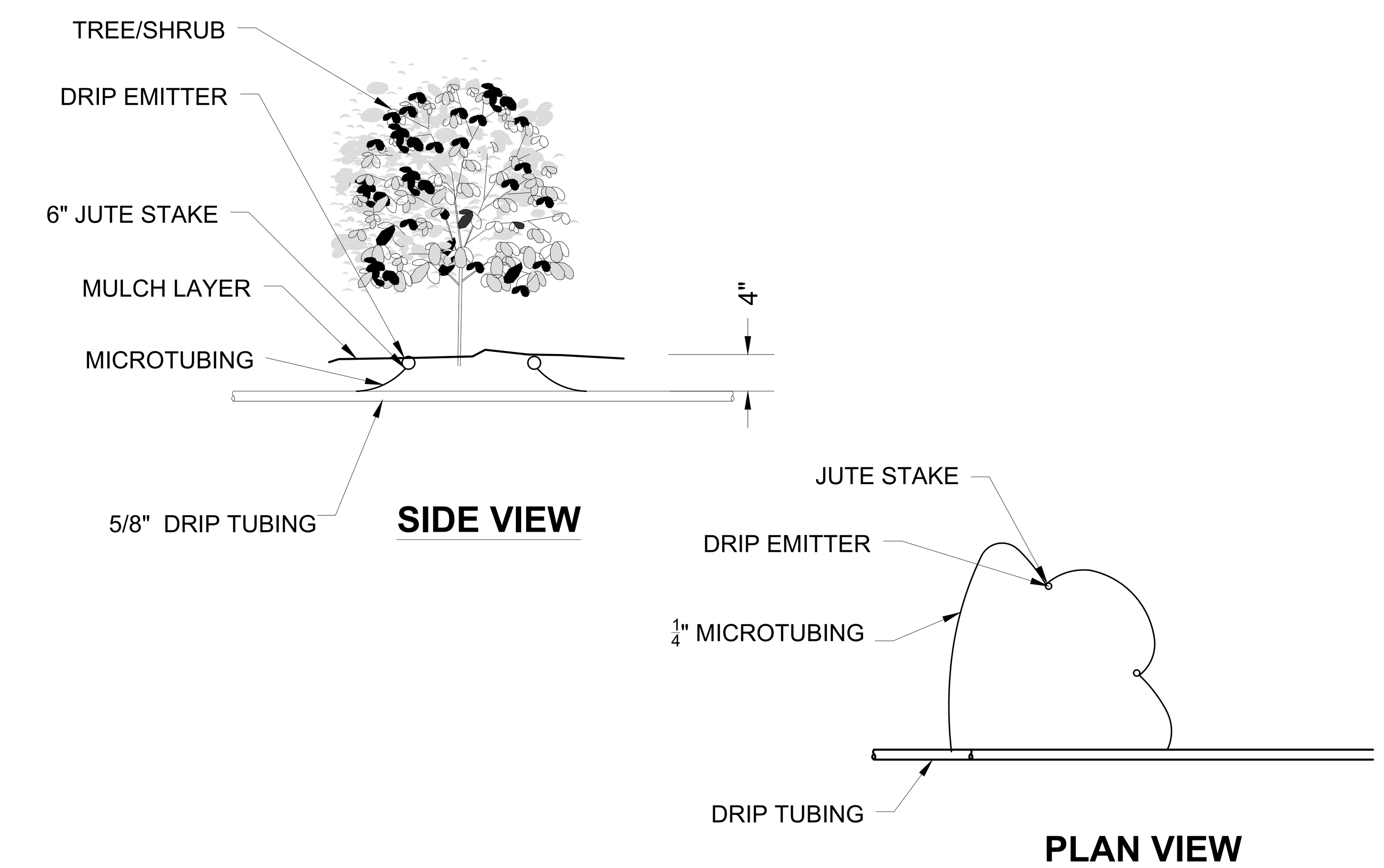


NOTES:
1. FOR PIPE AND WIRE BURIAL DEPTHS, SEE SPECIFICATIONS.
2. SCH 40 PVC FOR MAINLINE 2 INCHES OR SMALLER.
3. SCH 40 PVC FOR QUICK COUPLING LINE 1 INCH MIN. TO 2 INCH MAXIMUM
4. TRENCH BACKFILL SHALL BE NATIVE MATERIAL, COMPACT TO 90% MINIMUM, RELATIVE COMPACTION.

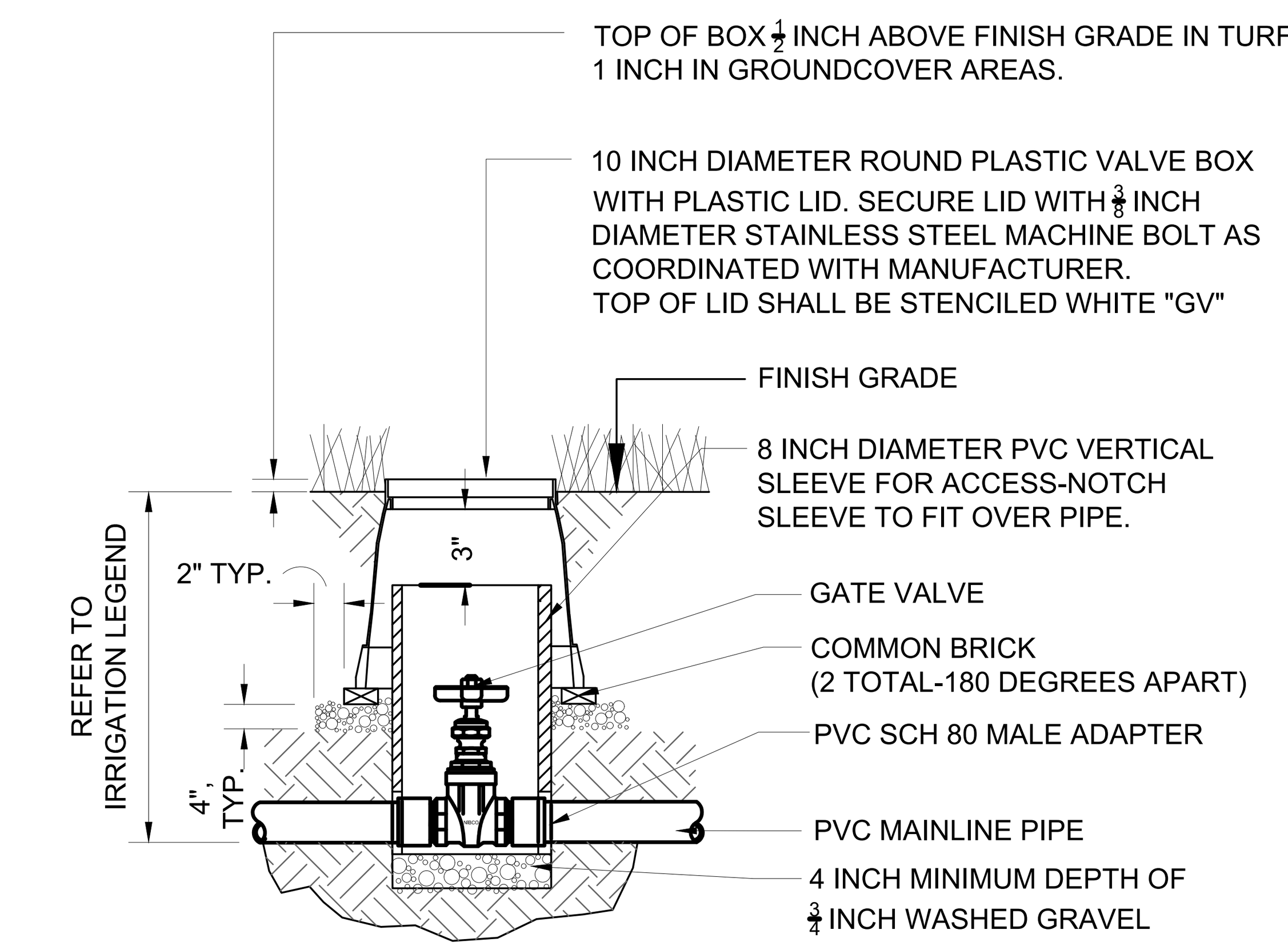
1 TRENCHING DETAILS

NTS



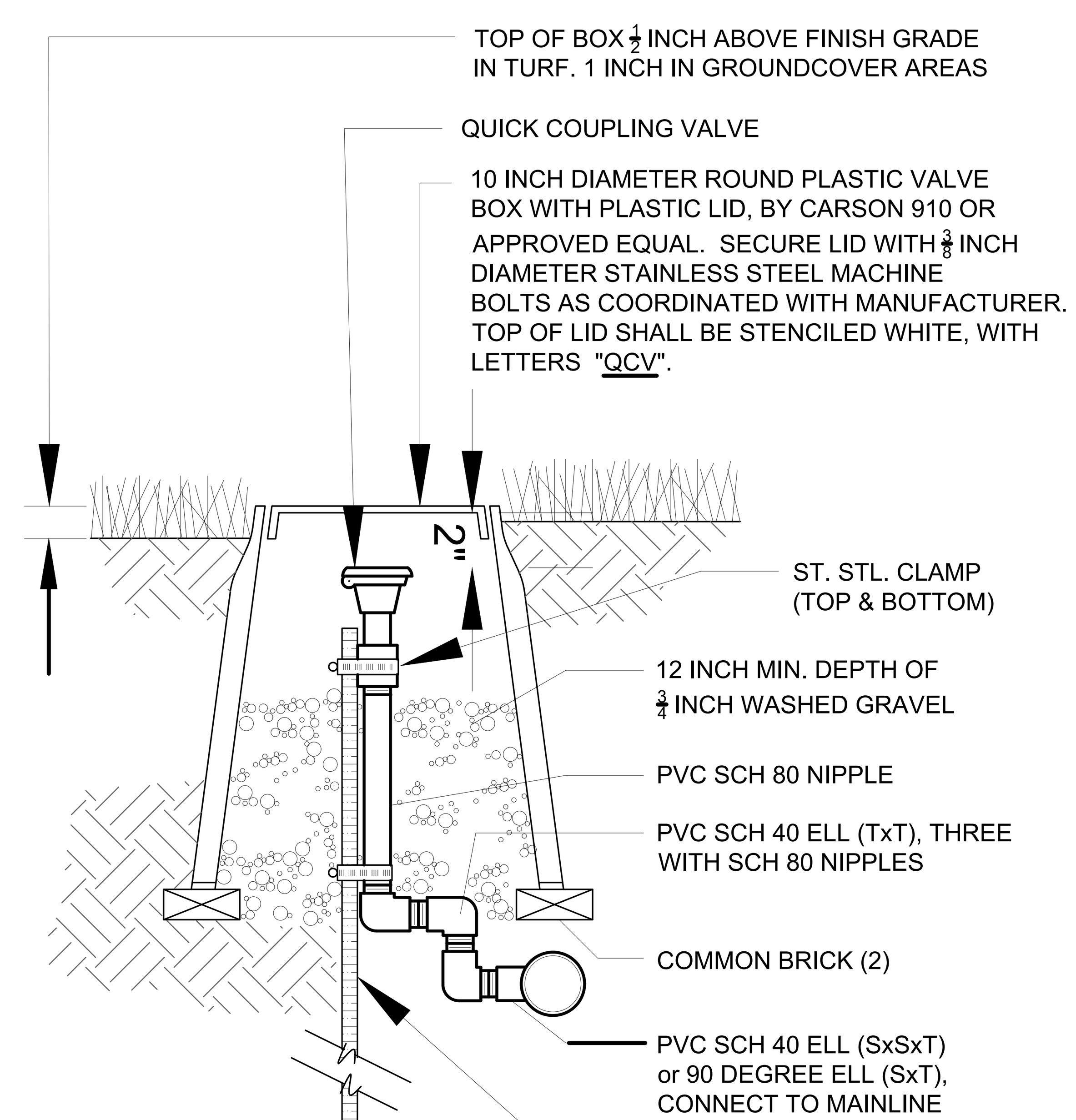
2 DRIP IRRIGATION

NTS



3 GATE VALVE DETAIL

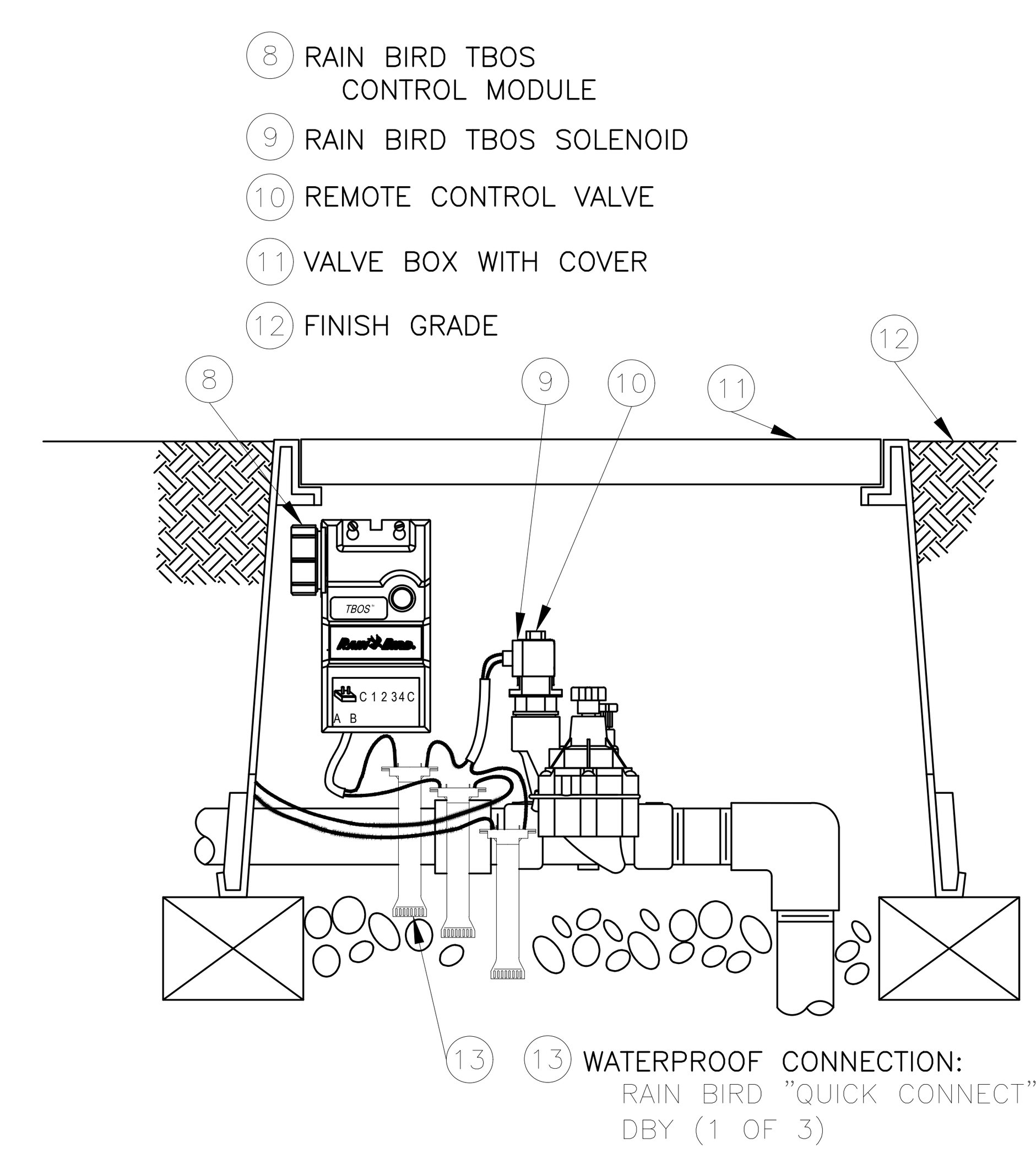
NTS



NOTE:
1. CONTRACTOR SHALL PROVIDE:
   (2) VALVE KEYS
   (2) SWIVEL HOSE-ELLS
2. ALL BOXES SHALL BE OFFSET 12 INCHES FROM ANY SIDEWALK, CURB OR HEADER.
3. REFER TO CITY STANDARD DETAIL LSD-14 FOR ALL MATERIALS

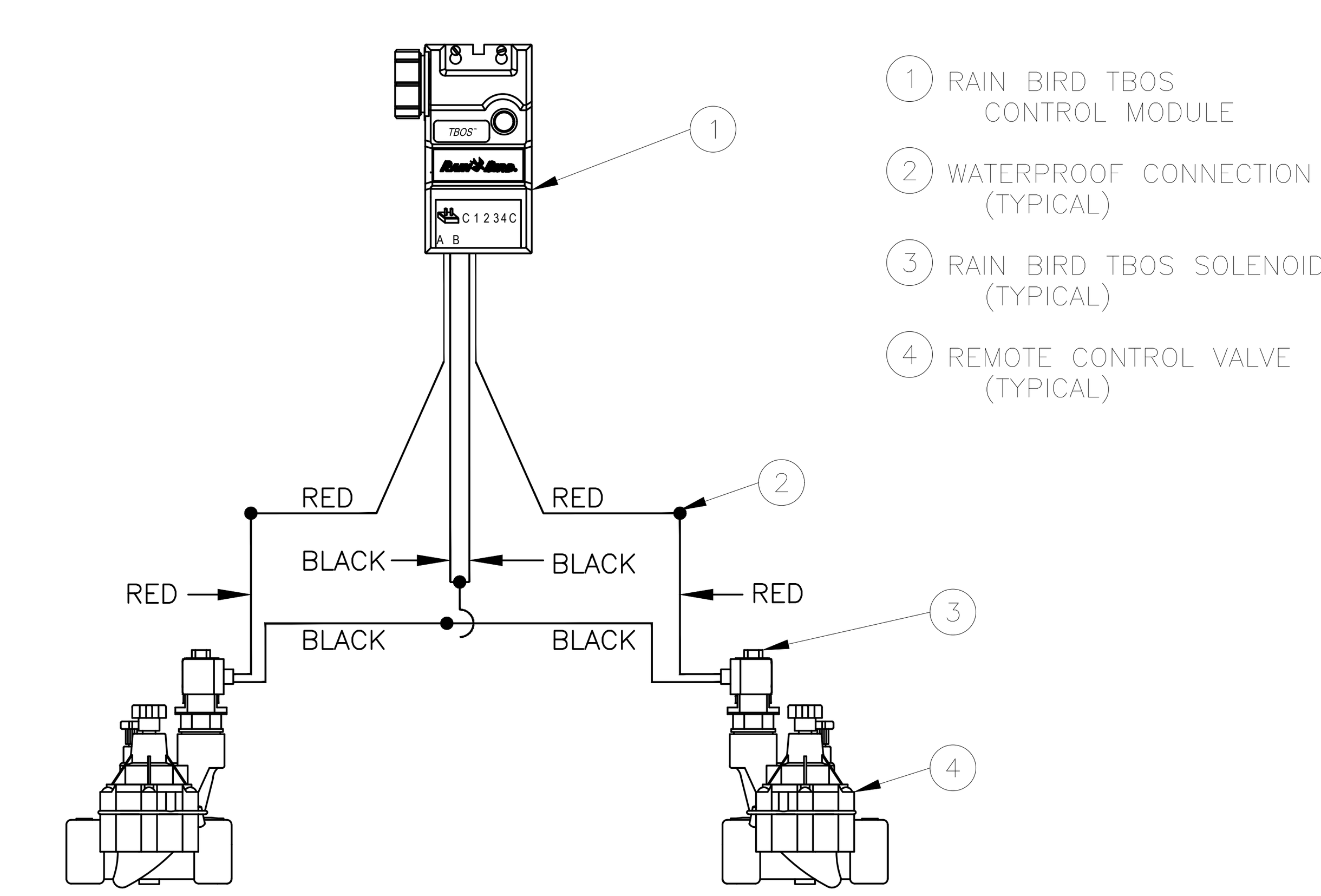
4 QUICK CONNECT FAUCET AND VALVE

NTS



5 THREE PROGRAM BATTERY OPERATED CONTROLLER

NTS



6 CONTROLLER WIRING

NTS

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SAN GERONIMO CREEK HABITAT ENHANCEMENT PROJECT MARIN COUNTY DEPARTMENT OF PUBLIC WORKS MARIN COUNTY, CA	Stillwater Sciences www.stillwatersci.com	Design: JM Drawn: JM Checked: EB Appr'd: JM	**CONSTRUCTION DETAILS** **IRRIGATION DETAILS**

Size	D
Project	597.00
Scale:	AS NOTED
Date:	4-22-2019
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Exhibit C
SITE 2 PLANS AND SPECIFICATIONS

Site 2 McGuinn-Greene
6315-6335 and 6355 Sir Francis Drake Blvd.
San Geronimo, CA 94963

Site 2 Salmonid Habitat Enhancement: Biotechnical bank stabilization, large woody material placement and anchoring with boulders, invasive vegetation removal, native planting and erosion control. Includes dewatering and fish relocation.

Location:
The project is located in San Geronimo Valley, in an unincorporated area of Marin County east of Point Reyes National Seashore and northwest of Mount Tam, along San Geronimo Creek.

Description of Work:
The Marin Resource Conservation District (MRCD) has been awarded a grant by the CA State Coastal Conservancy (SCC) to implement a salmon habitat enhancement project in the San Geronimo Creek watershed.

This project will create winter and summer rearing habitat for salmonids throughout a 370 Linear Feet reach of San Geronimo Creek by installing a total of 18 pieces of large wood anchored with boulders that will aid in the production of an area of still water during high flows for salmon to eddy out in until flood waters recede. Rootwads and riparian plants installed along San Geronimo Creek upstream of the confluence will also provide shelter along the channel edge for fish to use to escape high velocities in the winter and to cool water temperatures during juvenile rearing periods in the summer. Logs and rootwads will also be placed on the downstream corner of the confluence to create slower water and edge habitat. The project will divert high flows away from vertical banks, enhance riffle habitat, and create low-velocity edge habitat downstream from the Larsen Creek confluence. The proposed design will stabilize the stream banks using biotechnical methods including the installation of willow-planted boulder and wood structures that direct the stream's erosive forces away from the toe of the bank.

SAN GERONIMO CREEK HABITAT ENHANCEMENT PROJECT
(GREENE & MCGUINN-NEWMAN)

MARIN COUNTY, CA

GENERAL NOTES, TERMS, & CONDITIONS:

1. **DESIGN INTENT.** THESE DRAWINGS REPRESENT THE GENERAL DESIGN INTENT TO BE IMPLEMENTED AND CONTRACTOR IS RESPONSIBLE FOR ALL ITEMS SHOWN ON THESE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE PROJECT MANAGER FOR ANY CLARIFICATIONS OR FURTHER DETAILS NECESSARY TO ACCOMMODATE ACTUAL SITE CONDITIONS. ANY DEVIATION FROM THESE PLANS WITHOUT THE RCD'S REPRESENTATIVE APPROVAL ARE AT THE CONTRACTOR'S OWN RISK AND EXPENSE. NOTIFY PROJECT MANAGER IMMEDIATELY OF ANY UNEXPECTED AND CHANGED CONDITIONS, SAFETY HAZARDS, AND ENVIRONMENTAL PROBLEMS ENCOUNTERED.

2. **JOB SITE CONDITIONS AND CONTRACTOR RESPONSIBILITY.** CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR SITE CONDITIONS DURING THE COURSE OF THE CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY, AND ALL ENVIRONMENTAL PROTECTION ELEMENTS, WHETHER SHOWN ON THESE DRAWINGS OR NOT. CONTRACTOR SHALL FOLLOW ALL APPLICABLE CONSTRUCTION AND SAFETY REGULATIONS. THESE REQUIREMENTS SHALL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE RCD OR THE ENGINEER (STILLWATER SCIENCES) HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FROM LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE RCD OR ENGINEER.

3. **DAMAGE.** CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO EXISTING PUBLIC AND PRIVATE PROPERTY, INCLUDING NATIVE TREES AND SHRUBS, AND OTHER PROPERTY IMPROVEMENTS. IF CONTRACTOR CAUSES DAMAGES TO SUCH ITEMS, HE SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT IN LIKE NUMBER, KIND, CONDITION, AND SIZE. ANY SUCH COST MAY BE DEDUCTED BY RCD FROM MONIES DUE CONTRACTOR UNDER THIS CONTRACT.

4. **LIMITS OF WORK, ACCESS, STAGING AND MOBILIZATION AREAS.** EXACT LIMITS OF WORK, POINTS OF INGRESS-EGRESS, CREEK CHANNEL ACCESS, MOBILIZATION, STAGING, AND WORK AREAS WILL BE IDENTIFIED IN THE FIELD BY THE RCD AND/OR ENGINEER. EQUIPMENT MAINTENANCE AND FUELING MUST OCCUR OUTSIDE OF THE CHANNEL AREA AS DESCRIBED IN THE ENVIRONMENTAL PERMITS FOR THE PROJECT.

5. **WORK IN STREAM CHANNELS AND STREAM DIVERSIONS.** ALL WORK INVOLVING USE OF HEAVY EQUIPMENT MUST BE COMPLETED FROM TOP OF BANK UNLESS A SPECIFIC POINT OF CREEK CHANNEL ACCESS HAS BEEN APPROVED AND IS SHOWN ON THE PLANS, AND THEN ONLY IN NON-LIVE WATER AS DEFINED BY CDFW. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING THE DEWATERING PLAN DEPICTED IN THIS PLAN SET.

   5.1. CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND DISPOSING OF ALL WATER CONTROL STRUCTURES AND EQUIPMENT.

   5.2. THE CONTRACTOR SHALL FURNISH, INSTALL, AND OPERATE ALL OTHER NECESSARY MACHINERY, APPLIANCES, AND EQUIPMENT TO DIVERT FLOWING WATER AROUND WORK AREAS, AND TO KEEP EXCAVATIONS AND TRENCHES REASONABLY FREE FROM WATER DURING CONSTRUCTION. CONTRACTOR SHALL DISPOSE OF THE WATER SO AS NOT TO CAUSE INJURY TO PUBLIC OR PRIVATE PROPERTY, OR TO CAUSE A NUISANCE OR A MENACE TO THE PUBLIC, OR TO DEGRADE WATER QUALITY. HE SHALL AT ALL TIMES HAVE ON HAND SUFFICIENT PUMPING EQUIPMENT AND MACHINERY IN GOOD WORKING CONDITION FOR ALL ORDINARY EMERGENCIES AND SHALL HAVE AVAILABLE AT ALL TIMES COMPETENT MECHANICS FOR THE OPERATION OF ALL PUMPING EQUIPMENT. IF THE CONTRACTOR CHOOSES TO USE A PUMPING SYSTEM FOR ANY PORTION OF THE WATER CONTROL WORK, HE SHALL HAVE ADEQUATE BACK-UP EQUIPMENT TO INSURE THE CONTINUOUS OPERATION OF THE EQUIPMENT.

   5.3. THE CONTRACTOR SHALL AT ALL TIMES PROVIDE FOR THE ADEQUATE RETURN FLOW OF DIVERSIONS BELOW THE PROJECT SITE. THE CONTRACTOR MAY TEMPORARILY DIVERT WATER DURING CONSTRUCTION, AS OUTLINED IN THE APPROVED STREAM DIVERSION AND WATER CONTROL PLAN. THIS MAY INCLUDE FOR INSTANCE, VISQUEEN AND STRAW BALE OR SAND BAG DIVERSION DIKES AND PIPING SYSTEMS. RETURN FLOW SHALL BE FILTERED THROUGH FILTER CLOTH, STRAW BALES AND/OR THROUGH A SERIES OF STILLING BASINS WHEN REQUIRED.

   5.4. TURBID DEWATERING FLOWS SHALL BE PUMPED INTO A HOLDING FACILITY OR SPRAYED OVER A LARGE AREA OUTSIDE THE STREAM CHANNEL TO ALLOW FOR NATURAL FILTRATION OF SEDIMENTS. AT NO TIME SHALL TURBID WATER FROM THE HOLDING FACILITY BE ALLOWED BACK INTO THE STREAM CHANNEL UNTIL WATER IS CLEAR OF SILT. SUCH PRACTICE SHOULD NOT SUPERCEDE IMPORTANCE OF MAINTAINING BYPASS FLOWS.

   5.5. ALL HEAVY EQUIPMENT MUST HAVE A SUPPLY OF SORBENT PADS AVAILABLE TO CLEAN-UP GREASE, OIL, OR FUEL THAT DRIPS OR SPILLS INTO THE STREAM CHANNEL. SORBENT BOOMS MUST BE PLACED DOWNSTREAM FROM LOCATIONS WHERE MACHINERY IS EXPECTED TO CROSS THE STREAM CHANNEL. USED PADS AND BOOMS ARE TO BE DISPOSED OF PROPERLY AT CONTRACTOR'S EXPENSE.

6. **EARTHWORK QUANTITIES.** CONTRACTOR IS RESPONSIBLE FOR ALL EARTHWORK, INCLUDING GRADING, PROVISION AND PLACEMENT OF ROCK MEETING SIZE LIMITS, AS SHOWN ON DRAWINGS, AND DISPOSAL OF ALL EXCESS SOIL AND RUBBLE. EARTHWORK QUANTITIES, INCLUDING GRADING, PLACED ROCK RIP-RAP QUANTITY ESTIMATES PROVIDED BY THE ENGINEER ARE ESTIMATES ONLY. RCD AND ENGINEER DO NOT, EXPRESSLY OR OTHERWISE BY IMPLICATION, EXTEND ANY WARRANTY TO EARTHWORK CALCULATIONS.

7. **THE FOLLOWING PERMITS** ARE REQUIRED FOR THIS PROJECT, THE CONTRACTOR SHALL BE GIVEN COPIES OF ALL THE PERMITS, SHALL BECOME FAMILIAR WITH THE PERMIT REQUIREMENTS, AND SHALL BE RESPONSIBLE FOR ADHERENCE TO AND CONFORMANCE WITH ALL PERMIT CONDITIONS.
   - SEC. 404 PERMIT ISSUED BY US ARMY CORPS OF ENGINEERS
   - 1601/1603 STREAMBED ALTERATION AGREEMENT ISSUED BY CA DEPT. FISH & WILDLIFE
   - WATER QUALITY CERTIFICATION, BY NORTH COAST REGIONAL WATER QUALITY CONTROL BOARD
   - US FISH AND WILDLIFE SERVICE CONSULTATION AND IMPLEMENTATION RECOMMENDATIONS
   - NATIONAL MARINE FISHERIES SERVICE CONSULTATION AND IMPLEMENTATION RECOMMENDATIONS.

8. AREAS TO BE GRADED SHALL BE CLEARED OF ALL VEGETATION INCLUDING ROOTS AND OTHER UNSUITABLE MATERIAL FOR A STRUCTURAL FILL, THEN SCARIFIED TO A DEPTH OF 6 INCHES PRIOR TO PLACING OF ANY FILL.

9. AREAS WITH EXISTING SLOPES WHICH ARE TO RECEIVE FILL MATERIAL SHALL BE KEYED AND BENCHED.

10. FILL MATERIAL SHALL BE SPREAD IN LIFTS NOT EXCEEDING 12 INCHES IN COMPACTED THICKNESS, MOISTENED OR DRIED AS NECESSARY TO NEAR OPTIMUM MOISTURE CONTENT AND COMPACTED BY AN APPROVED METHOD. FILL MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 90% MAXIMUM DENSITY AS DETERMINED BY 1957 ASTM D - 1557 - 91 MODIFIED PROCTOR (AASHO) TEST OR SIMILAR APPROVED METHODS.

11. CUT AND FILL SLOPES SHALL NOT EXCEED A GRADE OF 2 HORIZONTAL TO 1 VERTICAL. ALL DISTURBED GROUND SHALL BE PLANTED WITH NATIVE GRASS SEED AND MULCHED.

12. BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES: ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ONSITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES, OR WIND. STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER. FUELS, OILS, SOLVENTS, AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MAY NOT BE WASHED INTO THE DRAINAGE SYSTEM. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM.TRASH AND CONSTRUCTION RELATED SOLID WASTE MUST BE DEPOSITED INTO A COVERED WASTE RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND. SEDIMENTS AND OTHER MATERIAL MAY NOT BE TRACKED FROM TO THE SITE BY VEHICLE TRAFFIC.

13. BRUSH, LIMBS AND TOPS OF TREES GENERATED FROM WOOD HARVESTED ONSITE SHOULD BE USED IN THE CONSTRUCTION OF THE HABITAT ENHANCEMENT FEATURES AS DIRECTED IN THE FIELD BY THE RCD OR ENGINEER.

14. CONTRACTOR SHALL REFER TO PROJECT SPECIFICATIONS FOR ANY ITEMS NOT ADDRESSED ON THESE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ITEMS SHOWN ON PROJECT SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE PROJECT MANAGER AND/OR ENGINEER FOR ANY CLARIFICATIONS OR FURTHER DETAILS NECESSARY TO ACCOMMODATE ACTUAL SITE CONDITIONS. ANY DEVIATION FROM THESE SPECIFICATIONS WITHOUT THE RCD'S REPRESENTATIVE APPROVAL ARE AT THE CONTRACTOR'S OWN RISK AND EXPENSE.

15. CONTRACTOR MUST CALL MARK AREA AND CALL 811 A MINIMUM OF 48 HOURS PRIOR TO ANY GROUND DISTURBANCE ACTIVITIES.

16. CONTRACTOR SHALL HOLD HARMLESS THE COUNTY OF MARIN AND ITS AUTHORIZED REPRESENTATIVES FROM ALL LIABILITIES AND DAMAGES RESULTING FROM HIS CONSTRUCTION OPERATIONS.

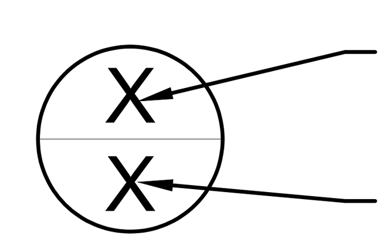
EARTHWORK ESTIMATES:

- EARTHWORK CUT (CY): 30 CY
- EARTHWORK FILL (CY): 30 CY
- EXPORT (CY): 0 CY
- IMPORT RIPRAP (CY): 100 CY
- IMPORT LARGE WOOD (#): 18

ABBREVIATIONS AND SYMBOLS:

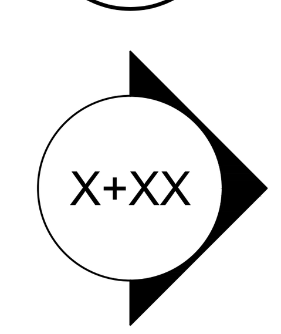
(E) = EXISTING

(N) = NEW OR PROPOSED



DETAIL

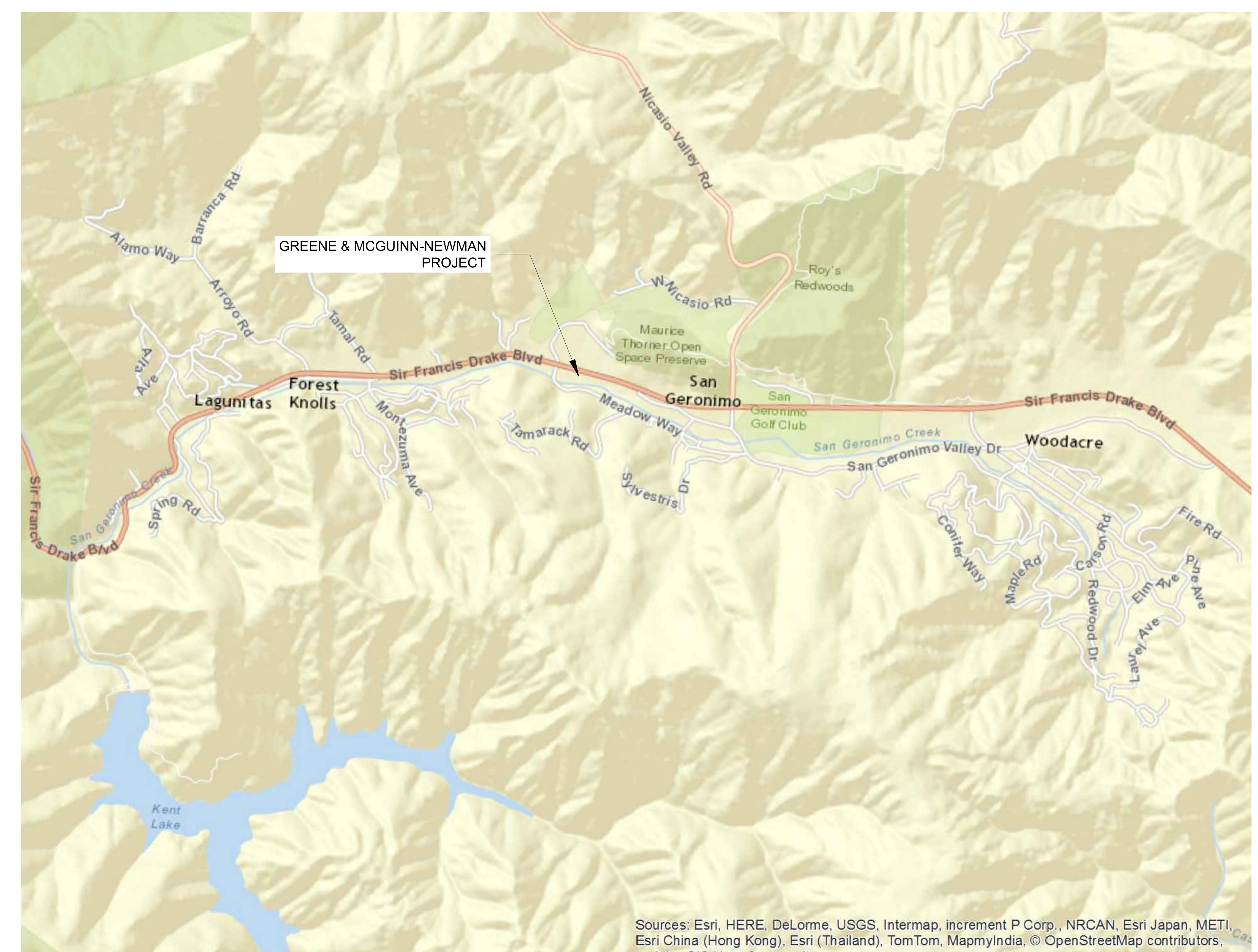
SHEET



SITE-SPECIFIC SECTIONS SHOWN ON SHEET 5

SHEET INDEX:

PROJECT LOCATION MAP:



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SAN GERONIMO CREEK HABITAT ENHANCEMENT PROJECT

MARIN COUNTY DEPARTMENT OF PUBLIC WORKS
MARIN COUNTY, CA

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Drawn:	JM
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Appr'd:	

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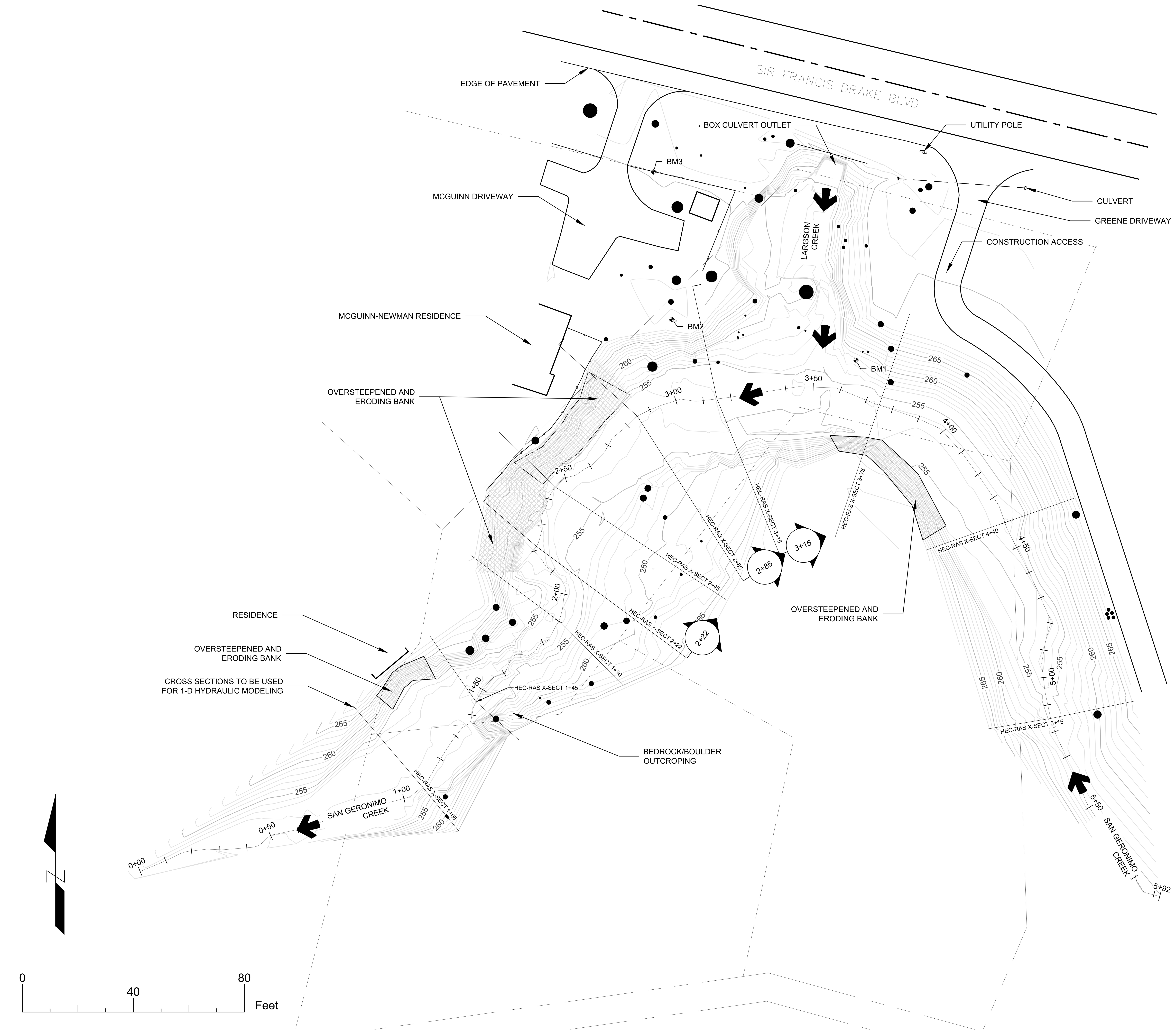

LEGEND

- EXISTING FENCE
- APPROXIMATE PROPERTY BOUNDARY
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING BUILDING
- EXISTING TREE

CONTROL POINTS

Point #	Elevation	Northing	Easting	Description
1	257.54	49113.30	40493.56	BM1
2	270.10	49128.03	40427.21	BM2
3	270.07	49181.21	40420.61	BM3

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MARIN COUNTY DEPARTMENT OF PUBLIC WORKS
MARIN COUNTY, CA

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Design: JM
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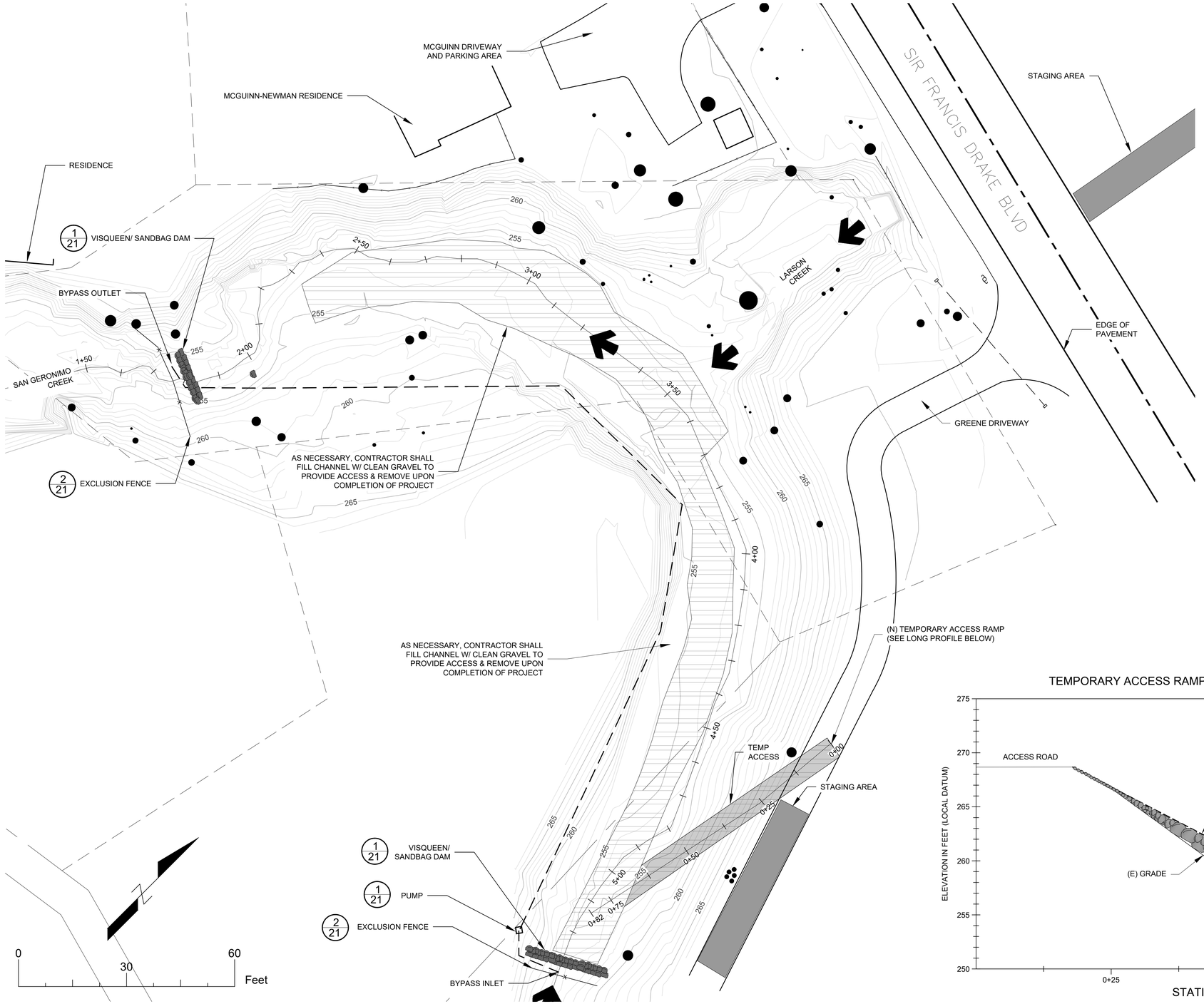
GREENE & MCGUINN-NEWMAN BANK REHABILITATION
EXISTING CONDITIONS

Size: D
Project: 597.00
Scale: AS NOTED
Date: 4-22-2019
Sheet: 2 OF 10



LEGEND

- EXISTING FENCE
- APPROXIMATE PROPERTY BOUNDARY
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING BUILDING
- EXISTING TREE

NOTE:

ONSITE STAGING AREA SPACE EXTREMELY LIMITED; CONTRACTOR MUST STAGE OFFSITE WHENEVER POSSIBLE

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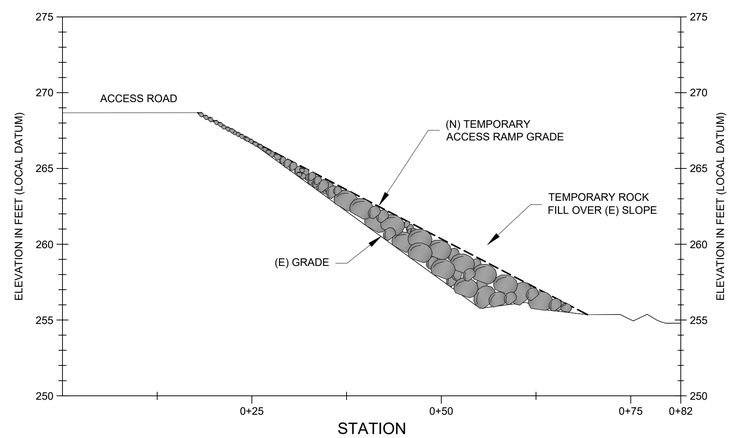
TEMPORARY ACCESS RAMP LONGITUDINAL PROFILE



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Drawn:	JM
Checked:	EB
Appr'd:	

GREENE & MCGUINN-NEWMAN BANK REHABILITATION
DEWATERING ACCESS & SITE PROTECTION

Size	D
Project	597.00
Scale:	AS NOTED
Date:	4-22-2019
Sheet:	3 OF 10

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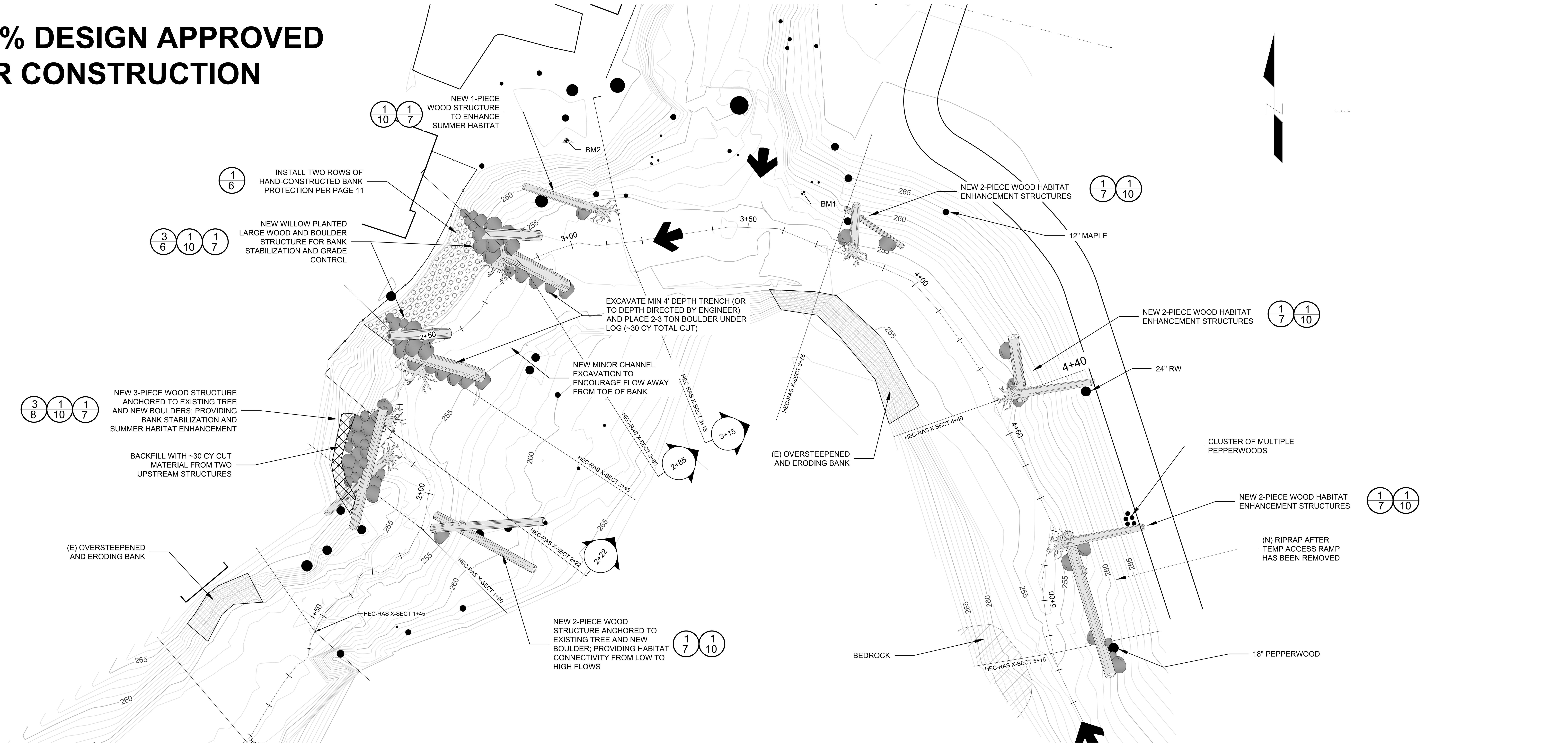

SAN GERONIMO CREEK LONGITUDINAL PROFILE

PROFILE NOTES:

1. LONGITUDINAL PROFILE HAS 3X VERTICAL EXAGGERATION
2. DASHED LINES REPRESENT APPROXIMATE CHANNEL GRADIENT MEASURED BETWEEN RIFFLE CRESTS

SAN GERONIMO CREEK HABITAT ENHANCEMENT PROJECT
MARIN COUNTY DEPARTMENT OF PUBLIC WORKS
MARIN COUNTY, CA

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GREENE & MCGUINN-NEWMAN BANK REHABILITATION
PLAN AND PROFILE

Size	Project
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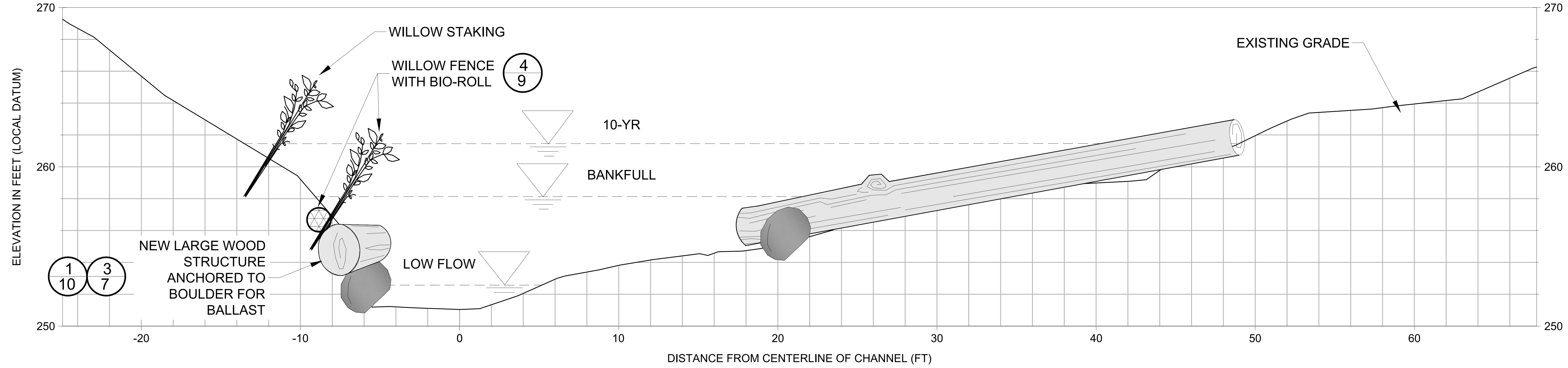
Scale:	AS NOTED
Date:	4-22-2019
Sheet:	4 OF 10

STA 2+22 (LOOKING UPSTREAM)



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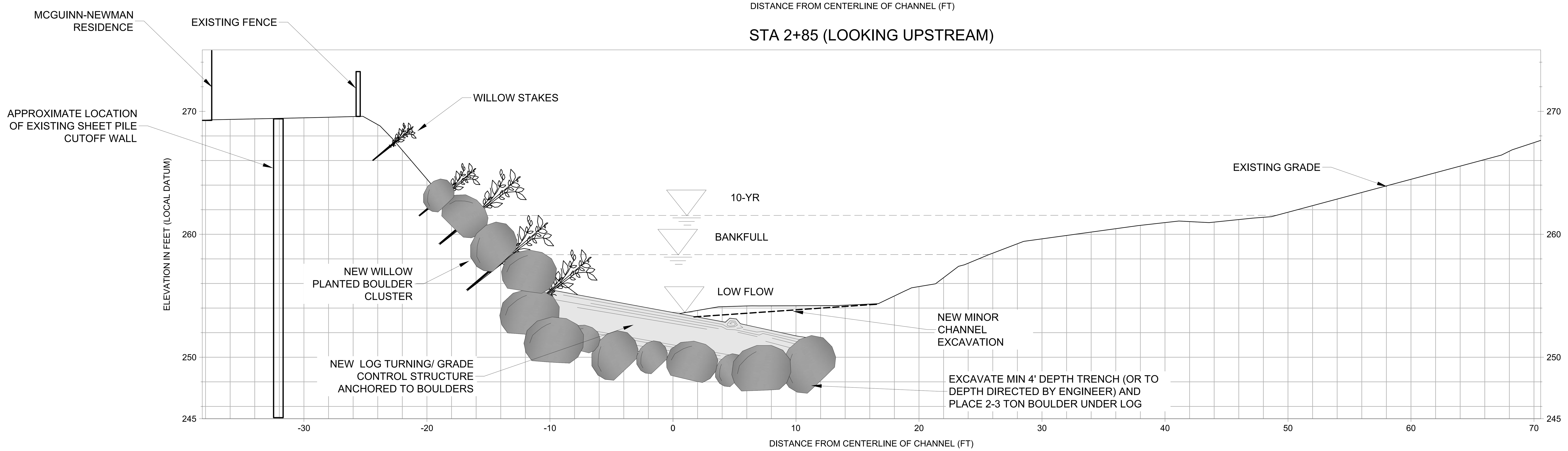
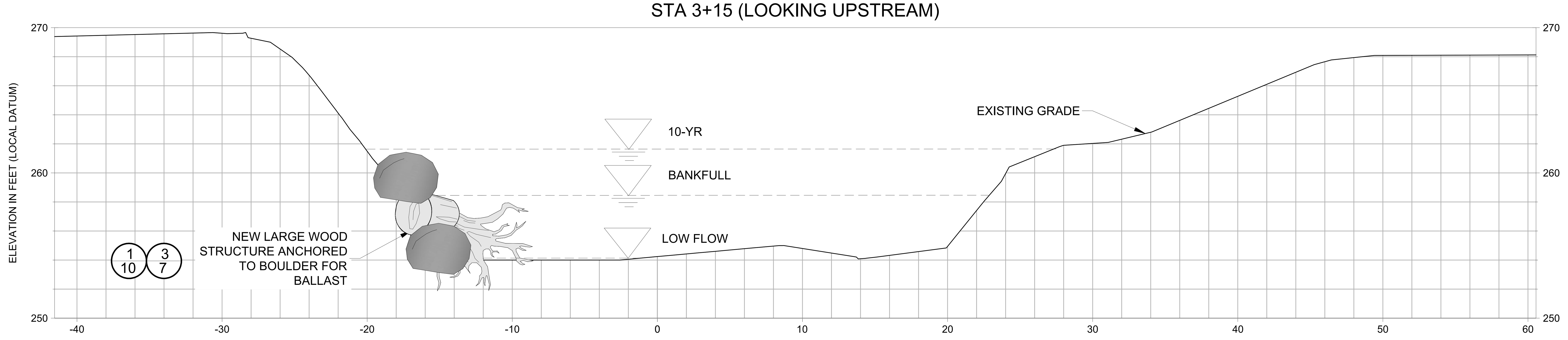


STA 3+15 (LOOKING UPSTREAM)



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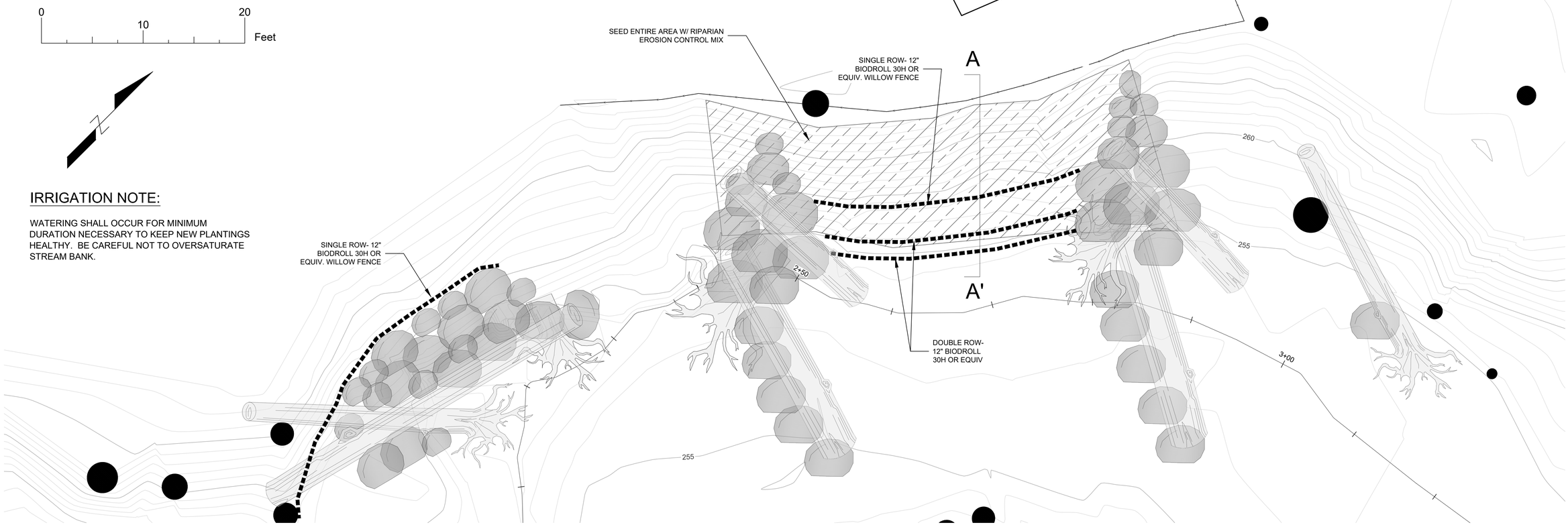
GREENE & MCGUINN-NEWMAN BANK REHABILITATION
CROSS SECTIONS

Size: D	Project: 597.00
Scale:	AS NOTED
Date:	4-22-2019
Sheet:	5 OF 10



IRRIGATION NOTE:

WATERING SHALL OCCUR FOR MINIMUM DURATION NECESSARY TO KEEP NEW PLANTINGS HEALTHY. BE CAREFUL NOT TO OVERSATURATE STREAM BANK.

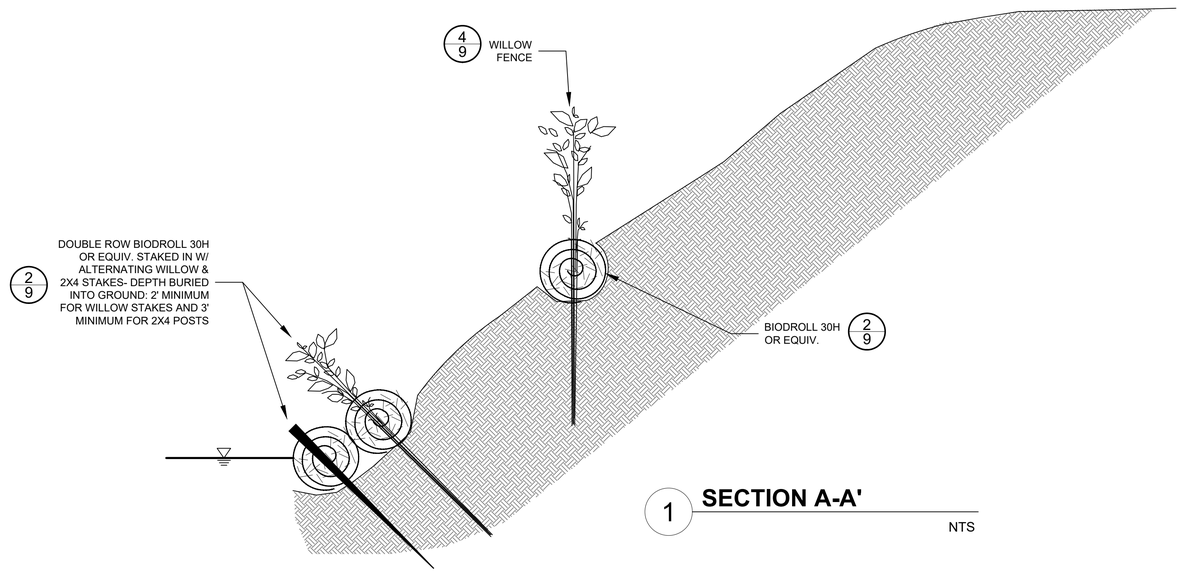
SEEDING AND PLANTING PALLET:

PLANTING TYPE: RIPARIAN NATIVE GRASS AND HERB EROSION CONTROL SEED MIX; AREA = ~0.5 ACRE

Planting Zone	Scientific Name	Common Name	Life Form	Qty (lbs)
ALL DISTURBED AND/OR BARE GROUND WITHIN PROJECT AREA	*Agrostis exarata*	spike bent grass	Perennial grass	0.05 (0.8 oz)
	Anthoxanthum occidentale	California sweet grass	Perennial grass	0.5
	Danthonia californica	California oat grass	Perennial grass	1
	Deschampsia cespitosa subsp. *holciformis*	coastal tufted hair grass	Perennial grass	0.1 (1.6 oz)
	Deschampsia elongata	slender hair grass	Perennial grass	0.25
	Elymus triticoides	beardless wild rye	Perennial grass	2.5
	Festuca californica	California fescue	Perennial grass	0.5
	Hordeum brachyantherum subsp. *californicum*	California barley	Perennial grass	2.5
	Juncus bufonius var. *bufonius*	toad rush	Annual grasslike herb	0.005 (2.25 g)
			Total	**7.405**

PLANTING TYPE: GENERALLY UNDISTURBED OVERSTEEPENED BANK PLANTING; AREA = ~0.01 ACRE

Planting Zone	Scientific Name	Common Name	Life Form	Container	Spacing	% Cover	# Plants
	Alnus rubra	red alder	Shrub/tree	treeband	12 ft	85	3
	Cornus sericea	red-osier dogwood	Shrub	deepot 16	12 ft	85	3
	Fraxinus latifolia	Oregon ash	Tree	deepot 16	20 ft	100	2
	Marah fabacea	California man-root	Vine	deepot 16	12 ft	85	3
	Rubus ursinus	California blackberry	Vine	deepot 16	12 ft	85	3
						Total	**14**



1 **SECTION A-A'**
NTS

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GREENE & MCGUINN-NEWMAN BANK REHABILITATION
PLANTING PLAN

Size	Project
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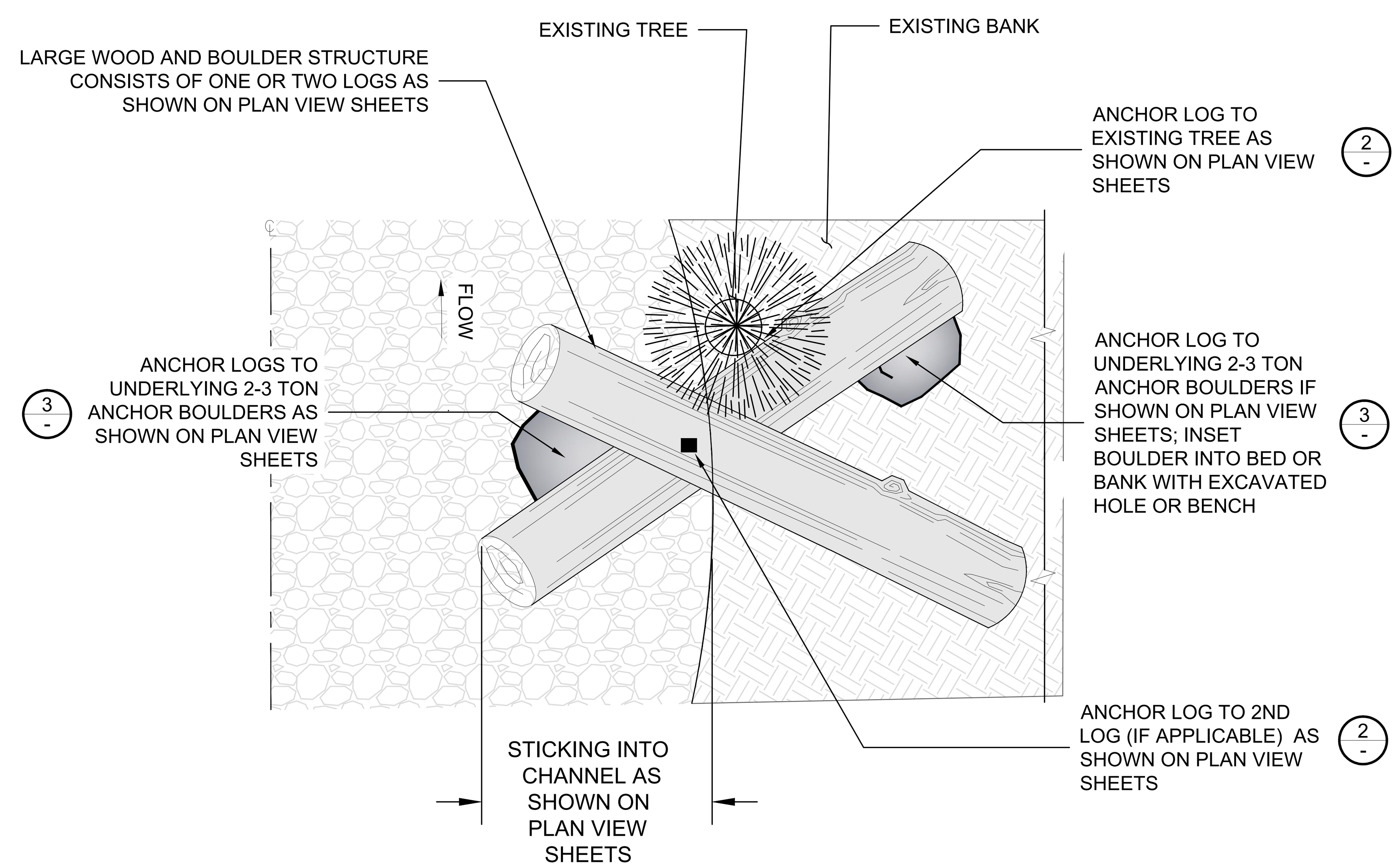
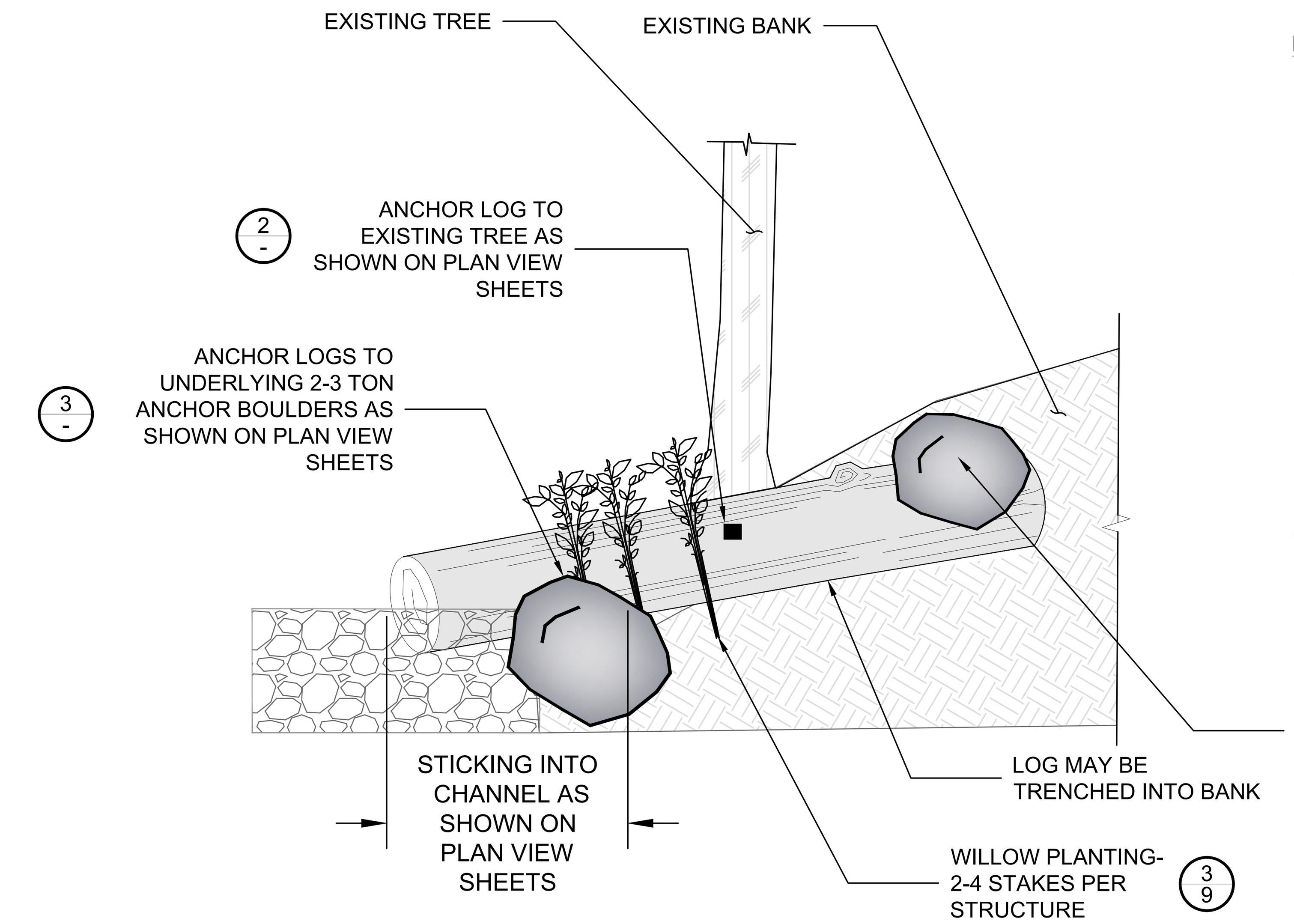
Date:	4-22-2019
Sheet:	6 OF 10

LAST SAVED: 4/26/2019 PLOT DATE: 4/26/2019 PLOT STYLE: ---- IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE - ADJUST ACCORDINGLY
Z:\ARA\597.00_SANGER_ENV\ACAD\1 WORK_CONSTRUCTION\MCGUINN_DOR\DESIGN_TITLE & DETS.DWG



PLAN VIEW



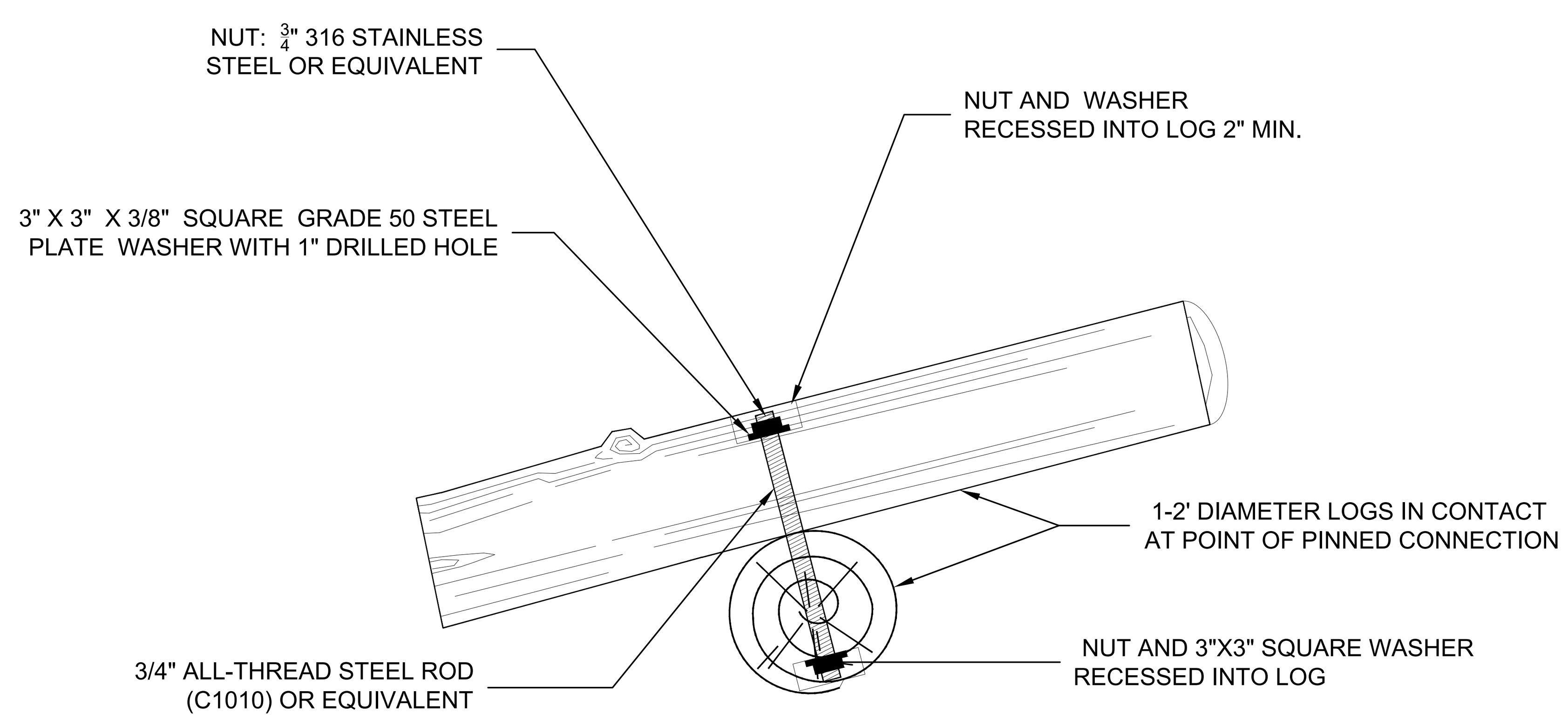
SECTION VIEW

NOTES:

1. LOG STRUCTURES SHALL BE INSTALLED AS SHOWN ON PLAN VIEW SHEETS
2. WHERE BANKS ARE STEEP, LOG STRUCTURES MAY BE TRENCHED INTO THE BANK TO ALLOW FOR A LOWER ANGLE AND PROVIDE MORE WOOD VOLUME IN THE ACTIVE CHANNEL
3. HOLE OR BENCH FOR BOULDERS SHOULD BE EXCAVATED INTO CHANNEL BANK OR BED TO INCREASE STABILITY OF STRUCTURE TO A MINIMUM DEPTH OF HALF OF THE BOULDER THICKNESS
4. BOULDER SHOULD BE PLACED WITH THE LARGEST FLAT SIDE DOWN FOR MAXIMUM STABILITY
5. LOG STRUCTURE CONSTRUCTION DETAILS MAY BE MODIFIED IN THE FIELD AS APPROVED BY THE PROJECT MANAGER AND ENGINEER
6. REDUNDANT ANCHORING SHALL BE CONDUCTED AS DIRECTED BY THE ENGINEER

1 1- AND 2-PIECE WOOD STRUCTURE DETAILS

NTS

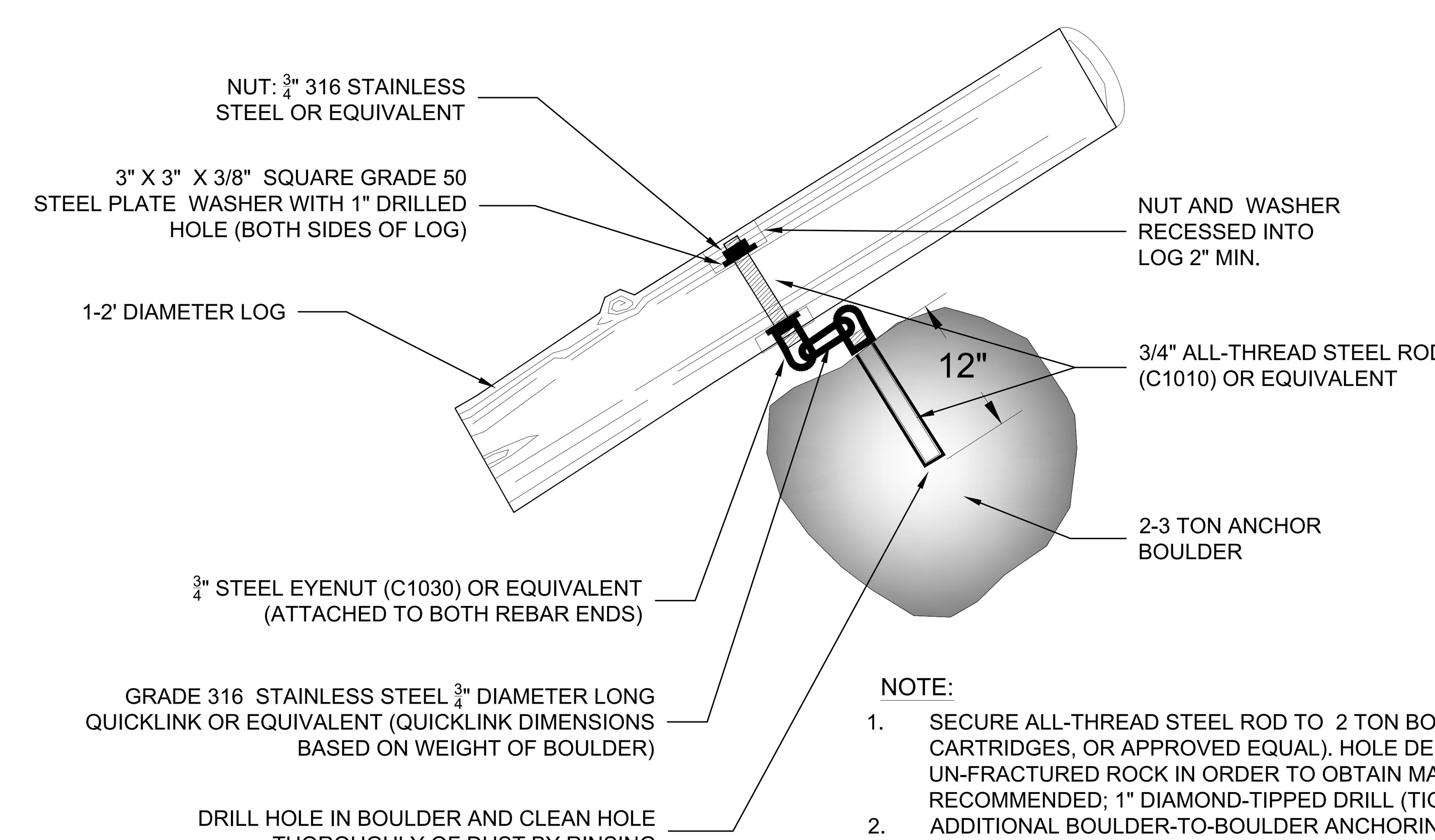


NOTE:

1. NOTCHING NOT REQUIRED ON LIVE TREES TO REDUCE IMPACTS TO TREE HEALTH

2 LOG-LOG OR LOG-TREE ANCHORING

NTS



NOTE:

1. SECURE ALL-THREAD STEEL ROD TO 2 TON BOULDER USING EPOXY ADHESIVE (HILTI C-10 EPOXY CARTRIDGES, OR APPROVED EQUAL). HOLE DEPTH MUST BE SUFFICIENT TO REACH COMPETENT, UN-FRACTURED ROCK IN ORDER TO OBTAIN MAXIMUM BONDING STRENGTH. A MINIMUM OF 12 INCHES IS RECOMMENDED; 1" DIAMOND-TIPPED DRILL (TIGHT FIT).
2. ADDITIONAL BOULDER-TO-BOULDER ANCHORING (USING TECHNIQUE DESCRIBED IN DETAIL 3) MAY BE REQUIRED TO ACHIEVE "TOTAL WEIGHT OF BOULDERS REQUIRED" SHOWN ON DETAIL 1 ON SHEET 10.
3. REDUNDANT ANCHORING SHALL BE CONDUCTED AS DIRECTED BY THE ENGINEER TO REDUCE THE RISK OF FAILURE OF THE LARGE WOOD STRUCTURES

3 LOG-BOULDER ANCHORING

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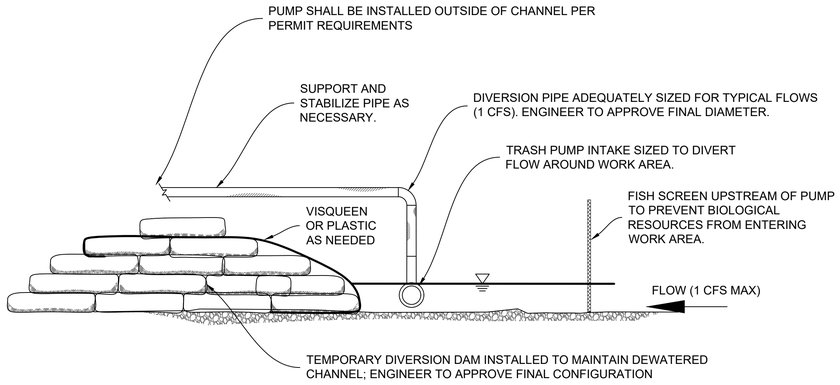
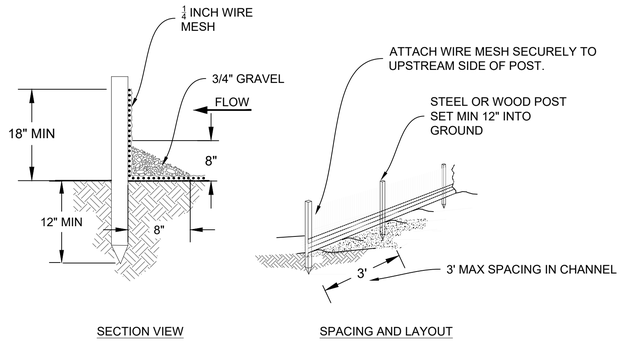
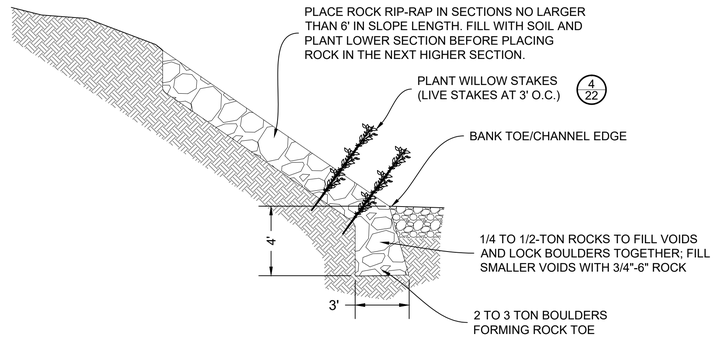
Sheet:	7 OF 10



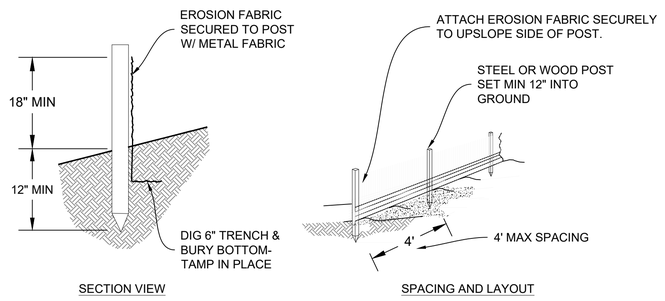
1 **COFFER DAM AND PUMP INTAKE**
NTS



2 FISH EXLUSIONARY FENCING
NTS



3 **WILLOW PLANTED BOULDER PLACEMENT**
NTS



4 **SILT FENCING**
NTS

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CONSTRUCTION DETAILS
DEWATERING AND OTHER

Size	D
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Sheet:	8 OF 10

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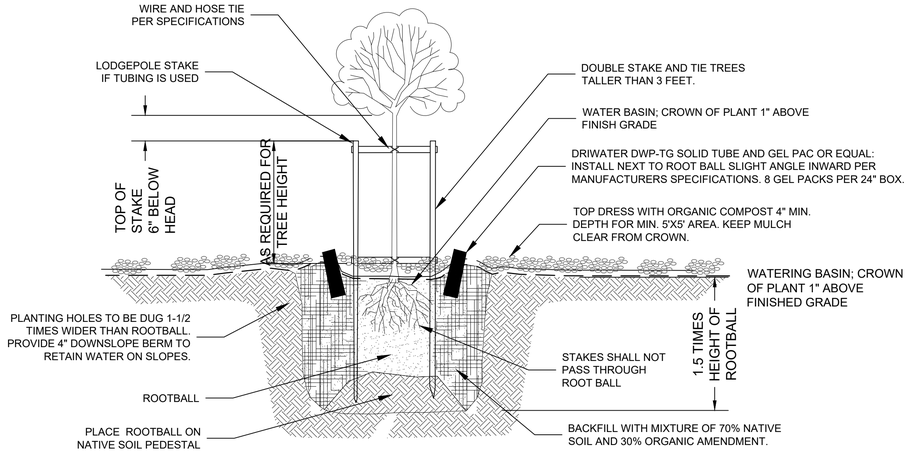
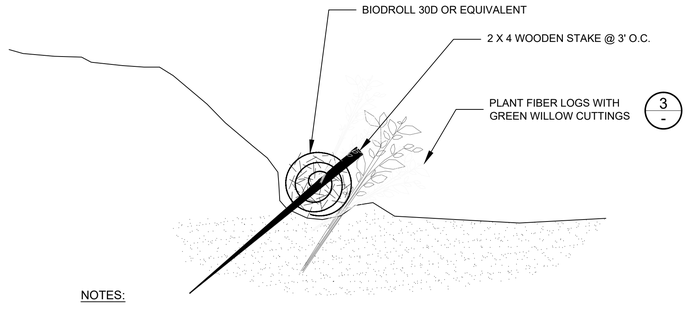


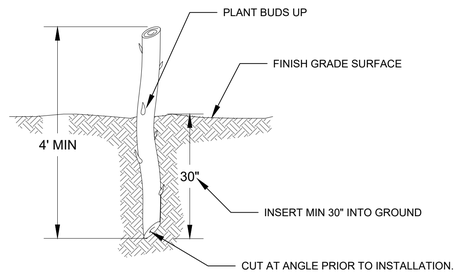
1 **TREE PLANTING**
TREE POTS
NTS



NOTES:

1. PLANT GREEN WILLOW AT 3-FT O.C.
2. USE LIVE WILLOW STAKES 0.5 TO 2-INCHES THICK AND ± 5-FT LONG.

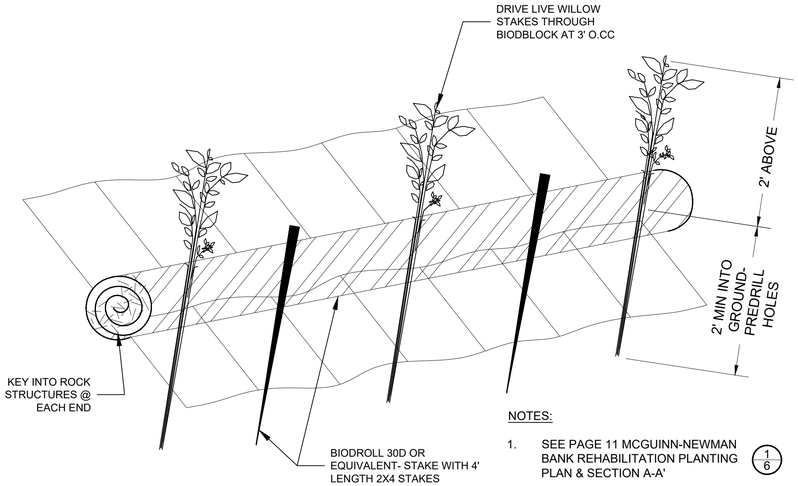
2 **BIOLOG STAKING**
NTS



NOTES:

1. WILLOW STAKE SPECIES SHALL BE A MIX OF SPECIES PRESENT AT AND ADJACENT TO THE WORK SITE INCLUDING: SALIX LASIANDRA, VAR. LASIANDRA (PACIFIC WILLOW), SALIX LASIOLEPIS (ARROYO WILLOW), AND SALIX SITCHENSIS (SITKA WILLOW).
2. EACH STAKE SHALL BE 1" - 3" THICK AT THE BOTTOM TO FACILITATE ROOT GROWTH AFTER TREATMENT WITH ROOTING HORMONE
3. INSERT MIN 30" INTO GROUND
4. INSTALL STAKES CONCURRENTLY WITH ROCK AND LOG STRUCTURES AND THEN BACKFILL WITH NATIVE SOIL TO PROMOTE ROOTING

3 **WILLOW STAKE PLANTING**
NTS



NOTES:

1. SEE PAGE 11 MCGUINN-NEWMAN BANK REHABILITATION PLANTING PLAN & SECTION A-A' (1/6)

4 **WILLOW FENCE DETAIL**
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CONSTRUCTION DETAILS
PLANTING AND EROSION CONTROL

Size	D
Project	597.00
Scale:	AS NOTED
Date:	4-22-2019
Sheet:	9 OF 10

MCGUINN-NEWMAN BANK REHABILITATION FEATURES

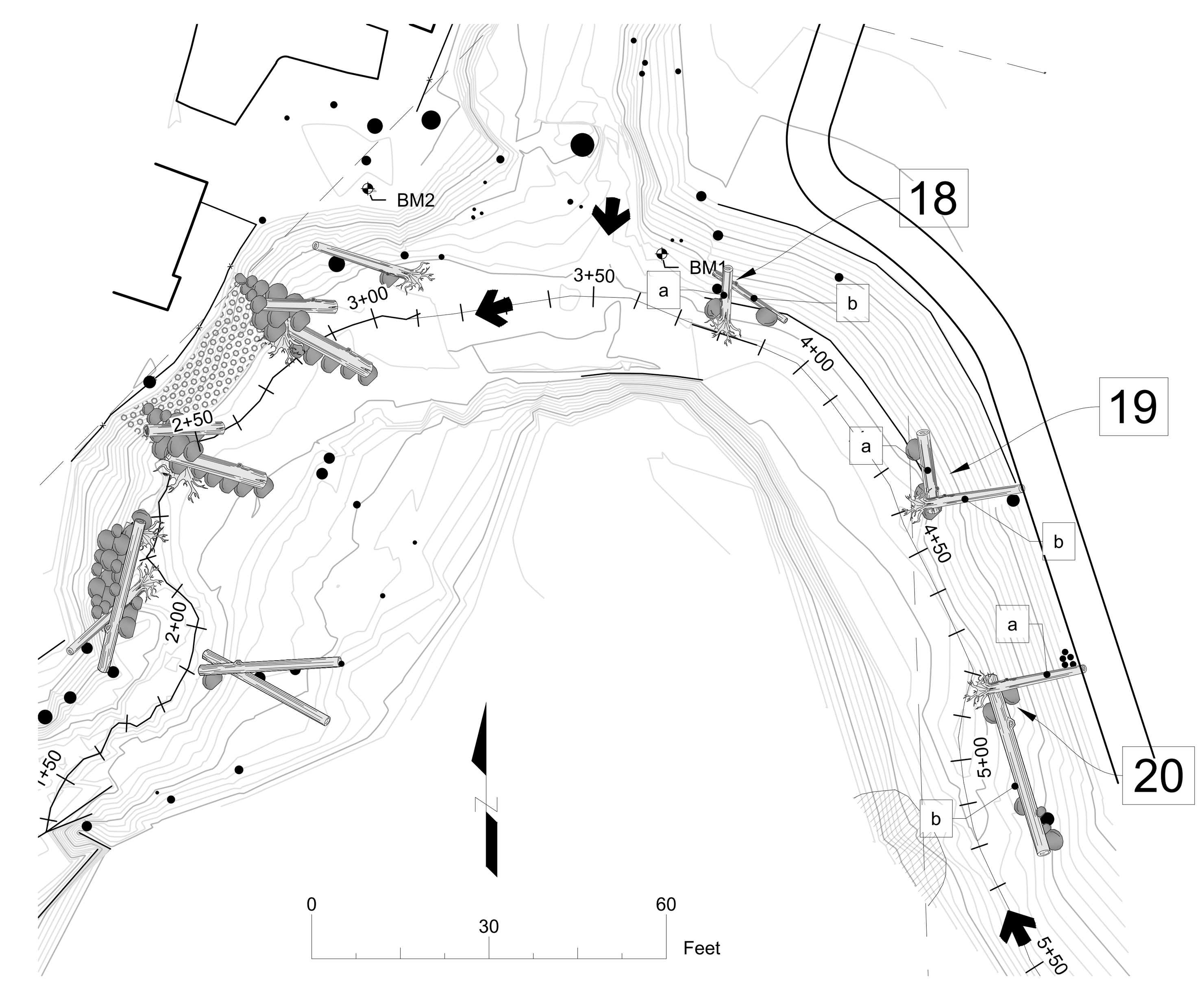
Feature Number	Total Pieces of Wood (#)	Individual Pieces of Wood Reference Number	Length (ft)	Widt h (ft)	Tree with Rootwad	Total Weight of Boulder Required (tons)
7	2	7A	40	2	No	0.0
		7B	40	2	No	
8	3	8A	40	2	No	2.9
		8B	35	2	Yes	
		8C	rootwad		N/A	
9	3	9A	25	3	No	14.3
		9B	20	1.5	Yes	
		9C	rootwad		N/A	
10	3	10A	25	3	No	14.3
		10B	20	1.5	Yes	
		10C	rootwad		N/A	
11	1	11A	30	2	Yes	2.2
18	2	18A	20	2	Yes	0.0
		18B	20	2	No	
19	2	19A	25	2	No	3.6
		19B	30	2	Yes	
20	2	20A	40	2	Yes	0.0
		20B	40	2	No	
Total	18					37.3

NOTES:

1. FOR PLAN VIEW LAYOUT OF FEATURES, SEE DET 2-3 / -
2. EVERY WOOD COMPONENT WITHIN EACH FEATURE SHALL BE ANCHORED TO THE REST OF THE FEATURE AND TO THE TOTAL WEIGHT OF BOULDERS REQUIRED AS LISTED IN TABLES ABOVE SO THAT CONTINUITY OF ANCHORAGE WITHIN EACH FEATURE IS ACHIEVED AND ENTIRE FEATURE WILL RESIST MOVEMENT AS ONE UNIT.

1 WOOD AND BOULDER FEATURE TABLES
NTS

2 MCGUINN-NEWMAN FEATURE OVERVIEW
NTS



3 MCGUINN-NEWMAN UPSTREAM FEATURE OVERVIEW
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CONSTRUCTION DETAILS
WOOD STRUCTURE STABILITY TABLE

Size: D | Project: 597.00
Scale: AS NOTED
Date: 4-22-2019
Sheet: 10 OF 10

Exhibit D

100% San Geronimo Specifications

SPECIAL SPECIFICATIONS

1. GENERAL

The Contractor shall take all reasonable precautions to restrict his operations to the least area of work possible and shall not disturb private property beyond the areas of work. The Contractor shall make every effort to minimize his work area and keep the construction area clean and free of all excess trash, debris, pollutants, and dust at all times.

The Contractor shall be cognizant if the project involves work within the County road right of way or adjacent to private property. The Contractor shall not use or access the project site through private property without submitting written approval from the property owners to the Engineer. Access to the creek shall be graded per plans and within the existing paved area as much as possible. Unless otherwise indicated by the plans, all trees are to be protected. The Contractor shall notify the Client a minimum of one week prior to commencement of work. The Contractor shall notify the following adjacent property owners by written notification 72 hours prior to commencement of work.

The Contractor shall keep driveway access open to adjacent neighbors at all times. Before road closure, a minimum of (7) seven calendar days advanced notice is required. Signage and barricades are the responsibility of the Contractor. The closure area shall be barricaded at all times in order to protect the public from any open trenches.

Normal working hours for the jobsite shall not be earlier than 8:00 a.m. or later than 5:00 p.m. weekdays, unless otherwise approved by the Engineer.

Should the Contractor need to stage equipment and materials along public roads, there shall be unobstructed access for residents at all times. The Contractor shall provide any additional equipment or material staging areas at their own expense. Any damages to the existing asphalt beyond the limits of work as shown on the plans shall be repaired at the Contractor's expense. Disturbed areas resulting from stockpiling materials along the edge of pavement will be required to be restored with applying the grass seed mix listed herein and installation of erosion control per the approval of the Engineer.

Any damage or use of private property, non-county maintained road, or facility is the responsibility of the Contractor. The Contractor shall be responsible for any damage to

existing utilities, adjacent roads or property caused by his activities and shall also use suitable sized equipment to prevent such damage.

Debris, soil, silt, 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 and/or entering the public waters. 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 predators of salmonids will be properly contained, removed from the work site, and disposed of daily.

Any vehicles used in the transport of materials to and from rock quarries or other similar locations for the performance of work on this contract shall be tarped. This shall include the tarping of empty vehicles on the way to pick up materials, as well as, the tarping of loaded vehicles delivering materials to the area of work. Tarps shall be held in place securely so as to minimize "flapping".

ORDER OF WORK/PROGRESS SCHEDULE

The Contractor shall install advance notice construction and road closure signs at either end of the project, as indicated by the Engineer.

Construction work for the site shall not commence until all materials are available. Construction work for the site shall be coordinated with any work by utility entities performing utility relocations to avoid conflicts. Monetary reimbursement for any right of way delays regarding work by utility entities shall not be allowed.

The Contractor shall prepare and submit a work plan and progress schedule in a form provided by or acceptable to the Engineer. The above items shall clearly disclose the Contractor's proposed procedures and methods of operation, including identifying any special equipment intended for use on the project. The Contractor shall allow five (5) working days for review and approval of this item by the Engineer. The Progress Schedule will be reviewed weekly for accuracy. Any modifications to the Progress Schedule shall be submitted to the Client in writing. Modifications to the Progress Schedule will not constitute approval for a work schedule extension.

The Contractor shall submit a separate weekly schedule, separate from the entire project schedule, which shall indicate daily planned work activities. This separate weekly schedule shall be suitable for publishing in the local paper. A digital version and paper copy of the separate weekly schedule shall be submitted to the Engineer no later than

Wednesday preceding the workweek. The Client shall have the right to publish part of this schedule on the Client's web page or in a local publication.

No work may begin under the contract until the Engineer has approved the progress schedule. Time required for review and approval of these items shall not constitute a basis for time extension.

Full compensation for complying with these provisions shall be considered as included in the contract price paid for various items and no separate payment shall be made.

2. EXISTING FACILITIES

GENERAL

If Contractor requires overhead power lines to be de-energized in order to facilitate work, Contractor shall notify power utility as soon as possible. It takes approx. 1-2 weeks to de-energize lines.

In order to avoid conflicts, construction work for the site shall be coordinated with any work by utility entities performing utility relocations. The Contractor shall also coordinate with the utilities, such that the utilities may have sufficient time to install their facilities in the roadway prior to final paving. Reimbursement for right-of-way delays regarding work by utility entities shall not be allowed.

Existing utility poles, communication, and telephone lines shall be protected in place during construction. If contractor requires utilities to support the pole or lines during construction, Contractor shall coordinate with relevant utility prior to construction activities.

It is not the intent of the plans to show the exact location of existing or relocated utilities, and the Engineer assumes no responsibility therein. Whenever any such utilities are indicated thereon, the Contractor shall be responsible for verifying their actual location and depth in the field. The Contractor shall notify the appropriate Underground Service Alert for their location forty eight (48) hours prior to excavation.

Where excavations are performed in the vicinity of underground utility mains and/or services the Contractor shall, as necessary, perform initial exploratory excavations (i.e., potholing) to determine their exact depth and location. Payment for exploratory excavation shall be included in the various items of work needed to complete the excavation work.

Extreme care shall be exercised to avoid damage, and it will be the Contractor's responsibility to have repairs made to existing facilities at his/her expense in the event of damage. Where existing utilities require temporary or permanent relocation to accommodate proposed work the Contractor will work with the utilities to provide a minimum of interruption to local service.

Full compensation for complying with the above provisions shall be considered as included in the contract price for the various bid items and no separate payment will be made.

DRAIN LINE EXTENSIONS

The work involved shall include all additional excavation and backfill as required to locate the point of termination of the existing water system drain line, install an MJ coupling, and extend the drain line with PVC piping as indicated by the plans. The materials including coupling, fittings, and pipe shall be furnished to the Contractor by the Client or other specified party. The Contractor shall coordinate securing materials and field inspections through the Client or other specified party.

PAYMENT

The lump sum price paid for Drain Line Extension shall include but is not limited to furnishing all labor and equipment necessary to pick up materials, excavate, locate, extend, and secure the drain line as shown on the plans.

3. CONSTRUCTION STAKING

GENERAL

The Client or other approved party shall provide construction staking for the project. If it is desired that the Engineer conduct the staking, Contractor shall submit a survey request to the Engineer at the preconstruction meeting. The Contractor shall notify the Engineer five (5) working days in advance of when construction stakes will be required.

Any undue destruction of stakes by the Contractor shall constitute cause to hold the Contractor liable for the cost of re-staking, said cost shall be deducted from any monies due the Contractor.

PAYMENT

The price paid for providing the survey request and protecting stakes shall be included in various bid items and no separate payment shall be made herein.

4. SIGNS AND TRAFFIC CONTROL

GENERAL

All signs and other warning devices (including construction and warning signs placed beyond the limit of work), shall be provided by the Contractor, and shall remain his property after the completion of the contract.

The Contractor shall refer to the current "Manual of Traffic Controls for Construction and Maintenance Work Zones," and the "Uniform Signs Chart," issued by the California Department of Transportation, and shall furnish, erect, maintain and remove all necessary signs and devices during the length of this contract.

Work shall be accomplished in such a manner as to provide access to all intersecting streets and adjacent properties whenever possible. If during the course of the work it is necessary to restrict access to certain driveways for an extended period of time, the Contractor shall notify the affected residences and the Engineer in writing, at least forty-eight hours in advance.

It is the responsibility of the Contractor to arrange for the towing and removal of any vehicles, which interfere with the work operations.

At the end of each day's work, and at other times when construction operations are suspended, all equipment and other obstructions shall be removed from that portion of the roadway open for use by local residents.

The Contractor shall examine the entire project site at the end of each day and verify that all necessary warning signs are in place and have effective nighttime reflective visibility.

PAYMENT

The lump sum price paid for Signs and Traffic Control, shall include furnishing all labor, materials, and equipment necessary to provide for the convenience & safety of the public including but not limited to detours, flashing beacons, barricades and all incidentals necessary to facilitate the performance of the work as shown on the plans and specified herein.

5. CLEARING & GRUBBING

GENERAL

Clearing and grubbing, especially with concern for existing native vegetation, shall be limited to the maximum extent practicable to those areas actually affected by the planned construction, and for access as shown by the plan. No other access shall be allowed unless otherwise approved by the Engineer, and written approval is obtained from the property owner if desired access goes over private property.

Clearing and grubbing shall include, but not be limited to the following:

- Removal of concrete, wooden debris, abandoned ACC pipe or other type of piping as encountered during the excavation
- The Contractor may remove portions of abandoned utilities that are in conflict with project construction. Prior to such removal, Contractor shall verify with the applicable utility entity that the subject facility is abandoned.
- All saw cutting of asphalt concrete necessary to remove the existing asphalt concrete in the roadway shall be included in the price paid for Clearing and Grubbing in this section.
- Removal of trees that may be in conflict with the design not indicated on the plans may be necessary and marked by the Engineer in the field. Existing trees throughout the project not marked for removal shall be protected from equipment at all times. Other trees not marked for removal may require trimming/limbing to accommodate equipment movement within the project limits. Tree trimming will be limited to the minimum amount necessary and at the discretion of the Construction Manager. The Contractor shall protect the tree root systems for trees in the proximity of construction, and make every effort to modify his operation to not jeopardize the health of the trees.
- Remove roots as necessary that interfere with the work being performed within the project limits, (i.e., rock structure placement and excavation for new channel).
- Remove any debris, existing signs, or facilities that are in conflict with the proposed work and all other items conflicting with the work as shown on

the plans as necessary to accommodate construction operations, as first approved by the Engineer or Construction Manager.

- Under the direction of the Construction Manager removed materials, unless otherwise indicated on the plans and specified herein, shall become the property of the Contractor and disposed of outside the road right-of-way at a legal dumpsite.

PAYMENT

The lump sum price paid for Clearing and Grubbing shall include but is not limited to furnishing all labor, materials and equipment necessary to remove, and dispose of debris as shown on the plans and specified herein.

6. EARTHWORK

GENERAL

This section includes excavation, site preparation and grading, fill placement, compaction, rough grading, and finish grading to the lines and grades shown on the Plans and as directed by the Engineer.

Earthwork shall consist of performing all operations necessary to excavate and fill all materials, regardless of character and subsurface conditions per Plans. Earthwork shall also include all moving and compacting of earthen materials, and the creation and removal of any necessary access ramps within the roadway, as shown on the plans.

Earthwork includes floodplain excavation, as well as trenching and backfill for large wood structures. Cross sections are shown on the Plans to illustrate the intent but grading may also be adjusted in the field as directed by the Construction Manager or Engineer. In general, material excavated from any trenches should be used for backfill on top of logs and large wood structures and compacted to as close to 90% relative compaction as possible.

BACKFILL MATERIALS

Backfill may consist of Structure Backfill-(95% Relative Compaction, unless otherwise noted on plans), Structure Backfill-(90% Relative Compaction, unless otherwise noted on plans), or other material referenced herein or shown on the Plans. Unless specified otherwise on the plans or herein, all other backfill materials shall be compacted to a relative compaction of at least 90%.

95% Structure Backfill-(95% Relative Compaction) shall have a Sand Equivalent value of not less than 20 and the following gradation:

Sieve Size	% Passing
2″	100
#4	30-60
#30	5-35

90% Structure Backfill-(90% Relative Compaction) shall consist of material free of stones and lumps exceeding three (3) inches in greatest dimension, organic, and

other unsatisfactory material as determined by the Engineer. Excavated material deemed suitable by the Engineer meeting said requirements, may be used as 90% Structure Backfill-(90% Relative Compaction) and may be used for backfill of most channel stabilization and habitat structures unless otherwise noted on the plans.

ROUGH GRADING

Contractor shall be aware if there is bedrock within the riverbed of the project reach and prepare for hard digging accordingly. Where the installation of any rock structures conflicts with existing bedrock, Contractor shall cut into and notch the existing bedrock per the approval of the Engineer such that placement of any large boulders are supported against the flow of the creek, and do not roll off downstream.

The Contractor shall excavate unsuitable subgrade below the lower limits of excavation as shown on the Plans, only when directed in writing by the Engineer. If this is necessary, the Contractor shall replace the excavated area below said lower limits of excavation with suitable native excavated material as directed by the Engineer.

Earth generated from excavation that is not contaminated with construction material can be utilized as fill/backfill per the approval of the engineer (soil is preferred for some applications and must be excavated selectively for quality), stockpiled on site, or transported to another location at the Contractor's expense.

All excess excavated earth as well as unsuitable and/or oversized native material which cannot be used for backfill/fill purposes shall become the property of the Contractor and be disposed of outside the road right-of-way at a legal dumpsite. No extra or separate payment will be made for stockpiling or re-handling of any material.

FINISH GRADING

Contractor shall fine grade all channel slopes to eliminate rough or low areas and maintain channel slope and all levels, profiles, and contours of subgrade. Grades at planting areas shall conform to the Plans. Depressed or mounded surfaces shall not be accepted. Finished grades are to be within 0.2 feet of the elevation

shown on the Plans. Finish each area to present a neat and uniform appearance satisfactory to the Engineer.
Grades not otherwise indicated shall be uniform levels (1 percent minimum) or slopes between points where elevations are given. Finished grades shall be smooth, even, and on a uniform plane with no abrupt change of surface.

All finish grades shall provide for positive runoff to the creek channel without low spots or pockets of water ponding more than 2 inches in depth. The Engineer shall inspect final grades prior to authorizing planting.

Whenever reference to finish grade is made, it shall be considered to be the finished surface of graded channel embankments and/or any completed channel stabilization features (e.g. any wood structures, boulders structures, willow baffles/revetments, or Bio-block/coir log features) as shown on the Plans.

EROSION CONTROL

Upon the completion of the site grading, all exposed dirt surfaces shall be covered in order to prevent erosion. Erosion control measures will be installed over all disturbed and or graded surfaces, with the exception of the creek bed.

BIOSWALE

Bioswale shall be composed of 60% fine sand and 40% compost gently sloped at a 5% slope inclined into the center. Follow Design Plans for thickness of filtration layer and for berm location surrounding bioswale. An overflow channel, armored with hand-placed cobble work, shall be placed according to plans to minimize erosion in high rainfall conditions. Any existing trees to remain within the proximity of the bioswale shall be armored with hand placed cobble work.

TEMPORARY ACCESS RAMPS

Contractor shall be entirely responsible and liable for stability and safety of all temporary access ramps. The Engineer should be informed of any discrepancies on the Design Plans or other stability or safety concerns. Contractor shall stay within specifically designated Temporary Access regions as shown on Design Plans. Engineer should be notified if any existing tree roots or existing geomorphological feature, not noted on the plans, will be impacted by temporary

access ramps or construction equipment. Existing tree roots on banks should be preserved and protected by material specified by Engineer.
Temporary access ramps shall be composed of clean gravel installed in channels as shown on Design Plans. Sites requiring dewatering shall be dewatered prior to installation of temporary access ramps unless otherwise noted on Design Plans. Channel bed shall be thoroughly checked for structural stability to bear loads of construction equipment. Gravel ramps shall be entirely removed upon completion of project. Some temporary access ramps can be graded into channel bed at completion of project to be utilized as spawning gravel. If this option is not noted on Design Plans, Engineer must be informed and approve before beginning of project and gravel quality must be approved by Engineer.

MEASUREMENT

Earthwork quantities have been measured based on an end-area method using the limits shown on the plans. Earthwork quantities are final.

Reconstruction of engineered embankment fill using suitable native excavated material will not be measured or paid for. Excavation for any new channel stabilization features (Large Woody Debris Structures, Constructed Riffles, Boulder Clusters, Willow Baffles, Willow Planted Boulder Revetment, and Bio-block Slope Protection), or any other construction features will not be measured or paid for.

PAYMENT

The price paid per cubic yard for Earthwork shall be for the quantities stated in the Engineer's Estimate and no additional payment will be made unless the dimensions, as shown on the plans, are changed by the Engineer. Payment for earthwork, complete in place, will be made at the cubic yard price bid for earthwork as set forth on the bidding sheet.

The cubic yard price bid for Earthwork shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work involved in excavating, backfilling, compacting to the specified relative compaction, furnishing water necessary to moisten, place or otherwise aid in backfilling and compaction operation, stockpiling and moving excavated material regardless of number of times, rough and finish grading, and off

hauling of surplus material, complete in place, as shown on the Plans, as specified herein, and as directed by the Engineer.

No separate payment for excavation necessary for any diversion or control of water shall be made. Payment for such excavation shall be considered included in the price bid for De-Watering.

The cost of excavation and backfill below finish grade elevations for any individual channel stabilization features shall be included in the individual cost of the various channel stabilization features.

7. SITE DEWATERING (Site 2 ONLY) AND AQUATIC SPECIES RELOCATION

GENERAL

The Site 2 (McGuinn-Newman) work site shall be de-watered, to the Engineer's satisfaction, to provide working conditions free of detrimental water, prior to the start of any construction. The amount of flow in the project area may fluctuate. This variance can be attributed to, but not limited to, storms, domestic runoff, irrigation practices upstream, etc. Ground water may be encountered.

The Contractor shall develop and submit a dewatering plan for dewatering the project site, even if the creek is dry, in the event of rain or other upstream discharge to the creek. The dewatering plan shall be approved by the Engineer and reviewed by the Project Biologist prior to beginning excavation.

The Contractor shall maintain the work site in a de-watered condition. No work shall begin until the de-watering system has been installed and such installation has been approved by the Engineer.

The Contractor shall not lay claim against the Client for damages by surface and/or ground water flows to his work, property, or materials. The Contractor shall comply with all applicable laws, statutes, and permit provisions with regards to her/his de-watering system.

The de-watering system shall be maintained by the contractor until all construction is completed.

The de-watering system shall not be removed until authorized in writing by the Engineer.

Site dewatering work shall ideally be performed on one reach at a time to ensure adequate time to thoroughly relocate the aquatic species within each project reach, dewater the individual reach and perform project construction and/or remove sediment, per plans, thereby creating a less significant impact to the overall length of the reach at any one time. An approved, qualified biologist shall coordinate timing on when to begin dewatering and sediment removal within each reach as each reach is isolated, and species sufficiently removed and relocated prior to starting work in the next reach.

The process typically includes the following steps (see design plan details):

- Install exclusionary screening across channel upstream of location for upper coffer dam.
- Install exclusionary screening across channel downstream of location for lower coffer dam in this reach.
- A biologist will seine low flow channel and any pools between exclusionary screens to capture and relocate native marine or freshwater fish and shall continue until as many fish as possible have been captured and relocated from reach. Portable pumps shall be used as needed to complete dewatering of any pools.
- When biologists have completed fish relocation efforts, they will authorize installation of the coffer dam, to be installed just inside the exclusionary screening at the upstream limits of reach.
- After coffer dam has been installed, further dewatering will occur (if necessary).
- After dewatering construction and/or sediment removal may proceed.
- Removal of coffer dam and exclusionary screening.
- Complete any grading and install erosion control, and plantings if needed.

EXCLUSIONARY SCREENING

Prior to fish removal, installing coffer dams, and dewatering, exclusionary screens shall be securely installed across reach at the downstream and upstream project limits as shown on plans. Exclusionary netting shall be a fine mesh block net placed across the full wetted channel of the creeks within each individual reach to assist in isolating individual areas for more thorough fish capture by the biologist.

All fish screens, including exclusionary netting shall have openings no larger than 3/32" in diameter (or diagonally if rectangular) and shall comply with DFW/NMFS screening criteria for salmonids. When used to screen intakes on portable pumps, the screen shall be in the form of a basket of sufficient size to comply with CDFW/NMFS criteria for water velocity across the screen face, in order to not entrain fish and cause them to be impinged against the screen.

Exclusionary screening may also be installed where the biologist determines the downstream limit of fresh-water fish capture should be. In this case, the biologist will determine an appropriate location for the exclusionary screening, which will

be placed across the channel in this location. Fish capture and relocation downstream of the limit of active freshwater fish capture will be per the recommendation of the Biologist.

The biologist shall determine exact locations for exclusionary screening and netting in the field sufficient to minimize the length of creek that will require fish relocation and at the same time that adequately relocate fish that could be impacted by the planned work. The fish capture should begin only when the exclusionary screens and nets are in place for each reach.

PROJECT BIOLOGIST

Contractor's work shall be coordinated with any work performed by biologists performing fish relocation activities, to avoid conflicts. Fish relocation activities must be completed by a qualified fishery biologist, experienced with fish capture and handling.

FISH SALVAGE AND RELOCATION

The Contractor will need to coordinate with the Construction Manager and the qualified fisheries PROJECT BIOLOGIST to relocate any fish occupying the pools remaining throughout the project reach prior to start of work. Contractor should contact the construction manager a minimum of (1) one week prior to dewatering to arrange the specific day for this work to occur.

INSTALLATION OF COFFER DAM

Cofferdam shall be constructed upstream of the work area to bypass all flow from upstream of the upstream cofferdam to downstream. The cofferdam can be constructed of clean river gravel or sand bags. Clean river gravel may be left by grading into natural bed elevation following construction, whereas sandbags (and sheet plastic) must be removed.

As each reach has been approved by the Biologist for completion of fish relocation, the Biologist will authorize the crews to install the cofferdam and dewater as necessary. With the approval of the Biologist, once coffer dam and dewatering has occurred for each reach at a time, construction will begin.

The Biologist and team will monitor the project site throughout coffer dam installation and dewatering. The upstream coffer dam for each reach will be installed first. Engineer shall determine if bypass pumping from upstream of the upper coffer dam around the reach is necessary or if construction and/or sediment removal within each reach can be completed before significant ponding above the upper coffer dam occurs. Dewatering shall begin only after authorized by the biologist.

The upstream coffer dams for each reach shall be constructed by excavating the top portion of pervious gravels from the creek bed, placing a large sheet of plastic sheeting down into the excavated bed, backfilling across the plastic sheeting in the creek channel with gravel filled sand bags, and then wrapping the gravel bag coffer dam with the plastic sheeting.

WATER BYPASS

Water bypass shall be conducted using a gravity feed or pumped bypass line as recommended by plans. Bypass pipe diameter shall be sized to accommodate, at a minimum, twice the summer base flow. Contractor is required to maintain free flowing water bypass at all times during the project including nighttime and weekends. Bypass water shall be discharged to the channel in a location approved by the Engineer and may require energy dissipation at the outlet, which shall be installed and maintained at the Contractor's expense.

Existing stream flow and or existing pool water levels upstream of the project work area and downstream of the project work area will be maintained at or near normal summer low flows during construction. Pumping rates should be monitored to ensure water levels upstream are not being inadvertently lowered by excessive pumping.

DEWATERING

Pumps shall be placed in flat areas, well away from the wetted stream channel. Pumps shall be secured in place (staked or tied back) to prevent movement caused by vibration. Pumps shall be refueled in an area that is well away from the stream channel and be placed on top of fuel absorbent mats. Spill control kits shall be available at the project site at all times and construction personnel trained in the proper spill control procedures. In no case shall sediment laden, or any contaminated water be discharged directly to any waterway.

Pumped water shall be discharged to a filtration/settling system (i.e. filter fabric, turbidity curtain or settling basin) downstream of work area to reduce turbidity, or discharged to vegetated upland areas for infiltration, where the water may be absorbed by the ground and not flow back into the creek within the work area. Contractor is responsible for establishing infiltration or sediment basin location to be approved by the Engineer and the landowner (if on private property). All sediment collected from dewatering the construction area shall be disposed of off-site by the Contractor to an approved location.

SEDIMENT REMOVAL

Sediment shall be removed, where called for on the Site 2 (Greene & McGuinn-Newman) plans, when the water surface is at its lowest level, with minimal surface water flows. To reduce turbidity, sediment removal shall occur only after wet project reaches are dewatered. During dewatering, as many individuals as possible of native aquatic species shall be captured and relocated, including but not limited to Central California Coast steelhead, and Coho Salmon that live in wet project reaches to prevent direct mortality by stranding or exposure to predators.

REMOVAL OF EXCLUSIONARY SCREEN AND COFFER DAMS

All coffer dams, pumps, screens, gravel filled sand bags, and any other materials shall be removed from the stream upon construction completion as soon as possible and in a manner that will allow flow to resume with the least disturbance to the substrate. Coffer dams shall be removed carefully and methodically to prevent erosion and increased turbidity of water flow back into the downstream reach. Coffer dams shall be removed such that surface elevations of water impounded above the coffer dam will not be reduced by a rate greater than one inch per hour. This will minimize the risk of beaching and stranding fish as the water surfaces of areas upstream are lowered.

PAYMENT

Payment for designing, implementing, operating, and removing the de-watering system will be made as set forth on the bidding sheet and no separate payment shall be made herein.

The contract lump sum price bid for dewatering shall include full compensation for furnishing all labor (filtering and cleaning), materials, tools, equipment (including baker tanks, if necessary), and incidentals, and for doing all work involved in designing, implementing, operating, and removing the de-watering system as specified herein, required by the permits as directed by the Engineer.

8. BOULDER PLACEMENT

GENERAL

This scope of work includes materials, purchase, delivery, site preparation, and placement of boulders at the elevations and locations shown on the Plans and as directed by the Engineer. The various mixtures of boulders and backfill required for each structure shall be placed to the dimensions and at the locations shown on the Plans or as directed by the Engineer. The boulder channel and bank features on the plan sheets have their own separate designated mix or a combination of mixes and native material that are to be used in their construction.

Boulders shall be placed by equipment suitable for handling material of the sizes required, and no dumping will be allowed. Caltrans Method A placement (3-point bearing) shall be used for all placement. In general, boulders should be placed in such a way to maximize stability with the largest flat side on the bottom where possible. Plan view diagrams and cross sections shown on the Plans illustrate the boulder placement intent, but adjustments may be made in the field as directed by the Construction Manager or Engineer.

These boulders shall be constructed using the dimensions, elevations, and tolerances indicated on the Plans. All boulder placement shall be reasonably homogeneous with larger rocks uniformly distributed and firmly in contact with one another and smaller rocks filling voids between larger rocks. Boulders shall be placed by equipment suitable for handling material of the sizes required. Hand or manual labor shall be used to place smaller rocks within the voids of the larger rocks to seal all gaps larger than 1". No placed boulder shall exhibit movement when walked upon. If necessary, iron bars and other methods such as manually manipulating the boulders shall be used to ensure a solid mass of interlocking rock is constructed.

BOULDER MATERIALS

All of the boulders imported to the site shall be fresh, un-weathered, hard, resistant to water action, and of a suitable quality to ensure permanence in the climate in which they are to be used. They shall be reasonably well graded and shall range in size as shown on the Plans. No broken concrete or asphalt shall be

allowed. If possible, neither the width nor the thickness of any boulder shall be less than one-third of its length. The general boulder specifications for all types and mixes shall be:

Density (apparent specific gravity)	2.5 min per Caltrans
Gradation Types	Caltrans Standard 4 ton, 2 ton, 1 ton, ½ ton, ¼ ton, Backing No 1 (see table below for definition of each class)
Durability Index	52 min. per Caltrans, California Test 229
Soil Material	Backfill rocks with suitable native excavated materials
Color	Rocks shall be of color which blends into the natural bedrock of area and must be approved by the Engineer

Prior to commencement of the contract, the Contractor shall locate potential sources of rock, and the chosen quarry should be contacted a minimum of one month prior to the beginning of the project to insure that sufficient boulder is available.

Local sources of boulders are preferred. Samples or documentation of boulder color and durability shall be submitted to the Engineer and/or Construction Manager to determine whether the rock meets the requirements as set forth in these Specifications.

Rock class gradation table:

RSP Class	D50Size[1] (in.)	D50Weight (lb.)
4 Ton	56	8800
2 Ton	45	4400
1 Ton	36	2200
1/2 Ton	28	1100
1/4 Ton	23	550
Backing No 1	12	75
Backing No 2	8	25

[1]Assumes rock density = 165 lb/ft^3

GRADE CONTROL STRUCTURES

Boulder structures shall be installed as indicated by the Plans and are designed to facilitate fish passage, direct flow to the center of the channel, and maintain the design slope of the channel.

All large boulders shall be placed individually. Chink voids in the boulder structure with smaller boulders to obtain a compact, low-permeability mass. Boulder structures should follow the details shown on the drawings. The boulder structure shall be constructed so that top of structure is flush with the final grade of the channel, and it shall be sloped per plans from the centerline. Boulders for the top will be 1-ton class boulder and one boulder wide (plan view) unless otherwise noted on plans. Footer boulders for the log channel spanning structures will be 1-ton class boulder and two boulders wide (plan view) unless otherwise noted on plans. Boulders shall be durable and of suitable quality, sound and dense, free from cracks, seams and other defects that would tend to increase deterioration from weathering. Boulders selected for placement shall be a minimum of 2 feet diameter and a maximum of 3 feet diameter, unless otherwise noted on plans, and shall be angular in shape, to make them least likely to roll out of place during high flows. The least dimension of an individual boulder fragment shall not be less than one third the greatest dimension of the fragment. Boulder shall have a minimum specific gravity of 2.5.

Bottom of footer boulders shall be initially placed in a trench a minimum of 3 feet below the finished channel bed elevation unless otherwise noted on plans. The footer boulders shall be placed individually and in a manner such that they exert pressure on each adjacent boulder and towards the bank boulders. Boulders selected for the footer boulders shall be among the largest most angular boulders in the delivery. Boulders shall be keyed into the channel bed and banks sufficiently to avoid flanking during high flows. Once the two rows of footer boulders have been placed securely, select top boulders which fit snugly on top of and between the two rows of footer boulders. Top boulders should have a minimum of four contact points with footer boulders so they are securely supported by the footer boulders against the flow of the creek. Boulder placement shall be observed by and at the discretion of the Engineer.

Placement of filler material into the boulder structures shall be done to prevent subgrade water flow during low flows. Filler material is described in item C of this section. Use jetting and tamping to compact the material and fill voids. Place

filler material onto boulder structures. Then tamp and jet with high pressure hose to fill voids with material. Place additional filler material and repeat process until no voids are visible while jetting. No water used during the jetting process shall be allowed to discharge into the stream and shall be reused or pumped to sediment reduction facilities.

Grade control structures can also be constructed with a combination of boulder and large wood and should follow directions in the "Large Wood Structures" section of these Special Specifications.

BANKLINE BOULDERS

Bankline Boulders shall be placed after the construction of the large wood structures. Bankline boulders define the edges of the stream simulation channel. Constructed bank faces should be uneven, protrude into the channel and be rough in appearance. Bankline boulders shall consist of ¼ ton class boulder, and shall be individually placed along the edge of the channel as shown in the Plans. Work smaller boulders and fines in with the larger boulders to fill all voids. Thickness of bankline boulders should be a variety ranging from 1.5 to 2 feet unless otherwise noted on plans. The bankline boulders should be constructed on both left bank and right banks to develop a channel top width (bankfull width) and a channel bottom width (active channel width) as dimensioned on plans and/or sections. Constructed banklines shall be tied back into existing banks at the project limits to match existing ground.

Banklines will not be constructed in stream sections located within any new culverts.

WILLOW PLANTED BOULDER SLOPE PROTECTION

Before laying boulders and filler, prepare the subgrade to the required lines and grades shown on the Plans and cross-sections. Compact any local fill required in the subgrade to a density approximating that of the surrounding undisturbed material. Overfill any depressions with small boulders. Remove brush, trees, stumps and other objectionable material.

Slope features provide bank stabilization at critical locations throughout the stream reach and shall constructed using the Revetment Mix specified below:

Slope Feature Mix:
40% - Caltrans standard size gradation – RSP 2-4 ton,
40% - Caltrans standard size gradation – RSP 1 ton, and
20% - Caltrans standard size gradation - Cobble Class

Installation steps are as follows:

- Cut the subgrade sufficiently deep so that the finished grade of the boulder will be at the approximate elevation of the surrounding area. Channel toe should be excavated sufficiently to allow placement of the boulder in a manner such that the finished inside dimensions and grade of the boulder meet design specifications for toe depth and thickness as shown on the Plans. Allow for smooth transition and bank key-in at upstream and downstream extents.
- Place boulder and soil backfill to its full thickness in a sequencing operation proceeding up-slope from the toe in sections no more than 3 to 4 feet in slope length. Place boulder so that it forms a dense, well-graded mass of stone with a minimum of voids. Before finishing one section and proceeding to the next, voids in the newly placed boulder shall be backfilled with soil, watered, and planted with live willow cuttings (see below).
- Do not place boulder by dumping through chutes or other methods that cause segregation of stone sizes. (Use Caltrans Type A placement). Take care not to dislodge the underlying base or filter when placing the stones.
- The toe of the boulder slope should be keyed to a stable foundation at its base. The toe should be excavated to the depth about 1.5 times the design thickness of the boulder and should extend horizontally from the slope, or as shown on the Plans.
- The finished slope should be free of pockets of small stone (except where chinked into voids or clusters of large stones). Some final hand placing (with a cable or wrecking bar) may be necessary to achieve the proper distribution of stone sizes to produce a relatively smooth, uniform surface.
- The finished grade of boulder should be apparent and should transition smoothly to adjacent slopes.
- Boulder placement shall be reasonably homogeneous with larger rocks uniformly distributed and firmly in contact with one another, with smaller rocks and spills filling voids between larger rocks.
- Stones shall be placed by equipment suitable for handling material of the sizes required. Armor and toe stones shall be placed to the grades shown on the Plans and sections. The intention is for the stone protection to be

built to at least the grade lines, with the outer surfaces reasonably even and uniform in appearance, and without extreme ranges in tolerance between adjacent stones. Hand labor shall be utilized as required to improve rock arrangement and produce thickness and surface as specified, and a neat appearance.

- Construct slope to slope gradient and dimensions shown on Plans to avoid or minimize impingement of toe section into low-flow channel.
- Willow cuttings shall be installed while the rock is being placed. Plantings shall average 2 to 3 feet on center, inserted into soil. Willows should be planted as soon as possible after harvesting. Cut willows should be stored in water prior to planting no longer than 72 hours. Willow cuttings must be harvested from local sources, either on the site or from nearby drainages.
- Backfill joint/voids with soil to near top of crowns of rock after placement of willow cuttings. Cut off willow cuttings to no more than 10 inches above grade. Minimize damage to willow cuttings by final course local hand placement of soil. If necessary, trim off damaged ends of willow cuttings.

BOULDER AND LARGE WOOD STRUCTURES

Boulder and large wood structures have a variety of purposes including bank protection, pool creation, and enhanced habitat. Generally, boulders used these structures should consist of 1 to 4 ton boulders unless otherwise specified on the Plans or directed by the engineer.

Installation steps are as follows:

- The majority of channel and stream bank grading (if shown on the plans) shall be completed before placing Boulders.
- Excavate ~1-3 feet into existing grade where Plans show boulder placement to provide a solid foundation for the boulders.
- Place boulder such that the large flat edge is against the dirt to provide maximum stability.
- Use excavator bucket to push boulder into the underlying soil.
- After placing Boulder, smooth surrounding grade to ensure a smooth transition between the feature and adjoining channel and banks.
- Consult Engineer during boulder installation to insure proper placement.
- Place large wood and anchor structure as described in the “Large Wood Structures” Section of these Special Specifications.

9. LARGE WOOD STRUCTURES

GENERAL

This scope of work includes purchase, delivery, site preparation, and placement of Large Wood Structures including all materials, excavation, fill, compaction, rock placement, and anchoring required to install the features at the elevations and locations shown on the Plans and as directed by the Engineer. Plan view diagrams and cross sections shown on the Plans illustrate the wood placement intent, but adjustments may be made in the field as directed by the Construction Manager or Engineer.

The general anchoring techniques used for this project will follow procedures listed in the CDFW Restoration Manual with log to log and log to tree connections made with threaded rebar. However, 7/8-inch diameter threaded rebar, cast eyenuts, and1/2-inch diameter quick links will be used for log to rock anchoring. This will provide clean and durable connections and eliminates the need for cable which is more likely to rust and break down over time.

STRUCTURE TYPES

This work item involves furnishing logs and rootwads and installing Large Wood Structures as shown on the Plans. Large Wood Structure locations, though shown on the Plans, may be adjusted in the field by the Engineer.

SOURCE OF LARGE WOOD

Contractor should supply all labor, equipment, materials, and miscellaneous items necessary to the projects, with the following specifications for logs and rootwad purchase, transportation and installation

Supply and Transport of Large Logs and Rootwads

Please refer to Wood and Boulder Features Table; on pg. 10 in each of the two plan sets. The Contractor is responsible for *purchase* and *transportation* of 5 rootwads, 7 of the longer logs, 8 logs with rootwads (25'-40'), however at least 16 of the smaller (20'-25') redwood logs have been donated already, so the Contractor shall only be responsible for the *loading and transportation* of these 16 or more donated logs to the project sites. The logs are currently being stored at West Marin Compost, located at 5575 Nicasio Road, CA 94946.

There is a chance that the remaining longer logs and rootwads will be donated to the project prior to construction, so the proposal should list the cost for purchasing and transporting these longer logs and rootwads as a separate line item. The loading and transportation of the already donated 16 logs should be included in the cost proposal as a separate line item as well.

LOGS AND ROOTWADS

Rootwads shall include the root mass/ root ball of a tree and a portion of the trunk. Care should be taken to preserve as much of the root material as possible in transport, as it provides critical fish habitat. Contractor should refer to the Design Plans for length of trunk required at specific locations, which can vary from 20′ to 40′. Rootwads should generally have a basal diameter between 18″ and 48″ unless otherwise approved by engineer. Logs and rootwads should be Douglas Fir or Redwood in generally good condition with no rot, visible cracks, large knots, mold, or decomposed wood. Other species may be used if approved by the Engineer. Contractor must submit proposed log source prior to installation.

ANCHORING MATERIALS

- All bolts shall conform to ASTM A307, and all reinforcing steel shall conform to ASTM A615.
- 7/8" diameter threaded reinforcing steel shall be DYWIDAG Systems #7 Grade 75 Threadbar or equivalent.
- 1" threaded reinforcing steel shall by Dywidag Systems #8 Grade 75 Threadbar or Equivalent.
- Nuts shall by DYWIDAG Systems #7 Grade 75 Cast Anchor Nut 1.75″ length or equivalent.
- Eye nuts shall be DYWIDAG Systems #7 Grade 75 Cast Eye Nut or equivalent.
- Quick links shall be Suncor Grade 316 Stainless Steel ranging from ½″ diameter, long quick links or equivalent
- Square washers shall be 3" X 3" X 3/8" thick Grade 50 Steel plate washers with 1 1/2" drilled hole.
- Epoxy shall be of type Hilti C-10 or equivalent.

PLACEMENT

Below is a general procedure for installation of large wood structures although this can be modified based on site conditions or as directed by the Construction Manager or Engineer.

- After rough grading to the finish grades and lines shown on the plans excavate trench into bank for placement of the Large Wood Structure where specified. The trench should be of sufficient width and depth to accommodate a log and anchor boulders as shown on the plans.
- Anchor the logs adhering to the following specifications: Where wood to wood connections are made, logs shall be pinned together with threaded rebar and 3" by 3" square washers recessed into the logs as shown on the plans.
- If anchored to a tree, position the log in contact with the tree and drill hole through log and tree; drive threaded rebar through hole and install 3" by 3" square washers recessed into the logs (no recess necessary in live tree); screw nuts onto both ends of threaded rebar.
- If anchored to a boulder, position boulder and log anchoring points as close together as possible and use methodologies shown on the Plans and as described in the epoxy manufacturers specifications.
- Large wood should be anchored to sufficient boulders to ensure stability of the structures per Wood Stability Tables in design plans
- Boulder-to-Boulder anchoring may be required to meet required boulder weight
- Anchoring redundancy should be conducted as directed by the engineer
- Backfill and compact trenches with native soil as applicable.
- Place willow cuttings in and around Large Woody Debris Structure.

MEASUREMENT

Measurement and payment for installation of Large Wood Structures will be made per each piece of wood.

PAYMENT

The Contractor is responsible for *purchase* and *transportation* of 5 rootwads, 7 of the longer logs, 8 logs with rootwads (25'-40'), however at least 16 of the smaller (20'-25')

redwood logs have been donated already, so the Contractor shall only be responsible for the *loading and transportation* of these 16 or more donated logs to the project sites. The logs are currently being stored at West Marin Compost, located at 5575 Nicasio Road, CA 94946.

There is a chance that the remaining longer logs and rootwads will be donated to the project prior to construction, so the proposal should list the cost for purchasing and transporting these longer logs and rootwads as a separate line item. The loading and transportation of the already donated 16 logs should be included in the cost proposal as a separate line item as well.

Contractor is responsible for verifying locations of each feature and no payment will be made for any excavation, compaction, or work resulting from misplacement of features.

10. EROSION CONTROL FABRIC

GENERAL

This element of work consists of furnishing and installation of Erosion Control Fabric on the slope of both banks as shown on the Plan and seeding under the erosion control fabric prior to installation.

MATERIALS

Biodegradable Erosion Control Fabric
North American Green C125 BN, Rolanka Biomat 70 or equivalent.

- No plastic reinforcing for the Erosion Control Fabric will be allowed.
- Substitutions must be submitted to the Engineer for approval, and samples and manufacturer's specifications must be provided.

SITE PREPARATION

Proper site preparation is essential to ensure complete contact of the Erosion Control Fabric with the soil. All grading and shaping of bank slope areas shall be paid for under Earthwork. Remove all rocks, clods, vegetative or other obstructions so that the installed fabric, or mats will have direct contact with evenly sloped soil (no bridging). Hydro-seeding of slopes prior to fabric installation is a separate work item. Hydro-seeding and hand broadcast seeding must be performed before fabric installation.

ANCHORING

U-shaped wire staples, metal geotextile stake pins, or triangular wooden stakes can be used to anchor mats to the ground surface. Wire staples shall be a minimum of 11 gauge. Metal stake pins shall be 3/16-inch diameter steel with a 1½-inch steel washer at the head of the pin. Wire staples and metal stakes should be driven flush to the soil surface. All anchors shall be 6 inches minimum in length and have sufficient ground penetration to resist pullout. Longer anchors made from bent rebar may be required for loose soils.

INSTALLATION

Erosion Control Fabric shall be installed in strips running down the slope, perpendicular to the direction of creek flow in the channel and overlapped in the

downstream direction by 4 inches. The top edge of each strip of fabric shall be extended 4 feet laterally from the top of bank and anchored in a 12-inch-deep by 2-foot-wide trench to be excavated at the top of the slope, as shown in the Plan details. After anchoring the blanket to the top of bank, unroll the blanket down slope, laying it loosely while maintaining direct contact with the soil. Care should be taken not to not stretch the blanket. Blanket edges shall be overlapped a minimum of 4 inches in the downstream direction to the adjacent rolls and stapled every 3 feet on center in both directions. If a single blanket is not long enough to extend the entire slope to the bankline rocks or toe of slope, two blankets shall be spliced by overlapping the upslope end over the down slope blanket by a minimum 12-inches. Staple at splices through the overlap at approximately 12 inches distance apart. The bottom edge of the each layer shall be anchored in a 1-foot-deep, 2–foot-wide trench excavated below the toe of slope. The fabric shall be stapled according to the Plan details. This trench shall be backfilled with soil and compacted to make a smooth surface.

MEASUREMENT

Erosion Control Fabric shall be measured by the square yard of visible installed fabric, as determined by the dimensions shown on the Plans or as specified in writing by the Engineer.

PAYMENT

Payment for Erosion Control Fabric shall be paid at the square yard price bid for Erosion Control Fabric as set forth on the bidding sheet.

The square yard price bid for erosion control fabric shall include full compensation for furnishing and installing erosion control fabric, including all labor, materials, tools, equipment, and incidentals (such as overlap, staples and trenching) and for doing all work involved in installing erosion control fabric as shown on the Plans, as specified herein, and as directed by the Engineer.

11. COIR LOG BANK STABILIZATION STRUCTURES

GENERAL

This item consists of furnishing and installing coir fiber logs in locations shown on the Plans generally consisting of handwork activities in areas that are inaccessible or too steep for heavy equipment to work. The coir log structures are generally keyed into wood/boulder structures at their upstream and downstream extents and anchored with wood stakes and/or Live Willow Stakes as shown on the Plans.

DESCRIPTION OF WORK

This scope of work includes purchase, delivery, site preparation, and installation of Coir Logs including all excavation, embedment, and staking, required to install Coir Logs at the elevations and locations shown on the Plans and as directed by the Engineer.

MATERIALS

Coir Bio Roll:
Rolanka BioD-Roll 30H or equivalent
Stout stakes shall be constructed from 4 foot long No. 1 or No. 2 Douglas Fir 2" x 4"s. Rip each 2" x 4" diagonally to form a triangular (pointed) stake for driving into the ground as shown on the Plans.
Willow Stakes (see "Live Willow Stake" Section of these Specifications.
No other wood species will be accepted.

INSTALLATION

- Excavate small trench and stream bank to the dimensions, grade, and orientation shown on the Plans.
- Place the Coir Logs as shown on the plans. Stakes shall be driven into the ground a minimum of 24" into underlying soil at 3' on center as shown on the Plans.
- Install 4' length Live Willow Stakes at 3' on center as shown on the Plans. Willow stakes must be inserted a minimum of 24 inches into the underlying native soil.
- Upstream and downstream extent of Coir Log structure shall be keyed into Boulder/Wood structure to prevent flanking or undercutting.

MEASUREMENT

Coir Logs will be measured by the linear foot of installation, complete in place.

PAYMENT

Payment for installing Coir Logs will be made as per linear foot of Coir Log installed, as set forth on the bidding sheet.

The price bid per lineal foot of Coir Logs shall include full compensation for, excavation, placement, stout stakes, and furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in installing Coir Logs as specified herein, as shown on the Plans and as directed by the Engineer.

12. WILLOW/BRUSH FENCE

GENERAL

This item consists of furnishing and installing Willow/Brush Fence in locations shown on the Plans and generally consisting of handwork activities in areas that are inaccessible or too steep for heavy equipment to work. The fences may be constructed in combination with coir log installation and should be keyed in at their upstream and downstream extents.

DESCRIPTION OF WORK

This scope of work includes purchase, delivery, site preparation, and installation of Willow/Brush Fence including all excavation, placement, and compaction required to install Willow/Brush Baffles at the elevations and locations shown on the Plans and as directed by the Engineer.

MATERIALS

Contractor or Client shall locate a live willow source area preferably within 10 miles of the project site, a minimum seven (7) days prior to construction.
Appropriate brushy material obtained during on-site clearing and grubbing.
Live Willow Branches and Brush shall be 2 to 4 inches in basal diameter at the cut end.
All Willow and Brush shall be left as bushy and branchy as possible.
Willow Stake lengths shall be ~5 feet length.

INSTALLATION

- See willow procurement instructions in the "Willow Stake" Section below.
- Predrill holes to a minimum of 1.5 feet
- Drive willow to a minimum of 2 feet into the ground (may include a coir log if shown on the plans; coir log should be installed per "Coir Log Bank Stabilization" section of these special specifications).
- Weave three lines of willow branches between the stakes.
- Secure the three rows of willow branches to the stakes with twine such that the connections are as solid and tight as possible.
- Weave non-willow brushy material between the three lines of willow branches creating a solid brush fence that will catch sediment behind it.
- Willow Brush Fence shall be watered until the first significant rainfall of the season to ensure survival.

MEASUREMENT

Willow/Brush Fence will be measured by the linear foot, complete in place.

PAYMENT

Payment for installing Willow/Brush Fence will be made as per linear foot of Baffle installed, as set forth on the bidding sheet.

The price bid per lineal foot of Willow/Brush Baffle shall include full compensation for, excavation, placement, backfill, and furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in installing Willow/Brush Baffles as specified herein, as shown on the Plans and as directed by the Engineer.

13. LIVE WILLOW STAKES

GENERAL

This section applies to the furnishing and planting of Live Willow Stakes during construction of habitat enhancement and bank and channel stabilization features as directed by the Construction Manager and engineer. Willow stakes must have sufficient sunlight and moisture to survive.

MATERIALS

The Contractor shall source the live willow stakes on-site. If an appropriate source is not available on-site, the Construction Manager shall provide a secondary local source, ideally within 10 miles of the project site. Willow stakes shall be 1 to 3 inches in basal diameter by ± 4 feet long.

INSTALLATION

- Willow stakes shall be collected (harvested) and soaked in water a minimum of 12 hours prior to placement, but no earlier than 7 days before placement. Willow stakes can be stored for up to seven (7) days in large water tight bins (trash cans) filled with water and placed in the shade to prevent significant drying of ends.
- The Contractor must give a minimum of 48 hours notice to the Engineer prior to construction of any features that require Live Willow Stakes. Engineer will inspect conditions of willow stakes and ensure they are not desiccated. If Engineer approves Live Willow Stake conditions, the Engineer will direct contractor on installation procedures. Failure to properly store willow stakes and cause desiccation or failure to install properly may require the reconstruction of these features at no additional cost to the Client.
- When staking Large Wood Structures, Live Willow Stakes shall be placed immediately after trenches are excavated so that they are in maximum contact with the underlying soil. Small rocks and soil can then be placed in and around the stakes such that they are generally vertical and shall be trimmed as necessary to have no more than 24" inches sticking above the rock or grade line.
- Willow stakes shall have a minimum of 24" inches of contact with the underlying native material.

- Willow cuttings shall be planted during the placement of all features. WILLOW STAKES SHALL NOT BE PLANTED AFTER FEATURES ARE INSTALLED.
- Minimize damage to cuttings by laying final course or rock by hand placement. If necessary, trim off damaged ends of cuttings and remove and replace damaged stakes at discretion of Engineer at no additional cost to the Client.
- Willow shall be watered until the first significant rainfall of the season to insure survival.

MEASUREMENT

Live Willow Stakes shall be measured by each stake installed and visible from the surface, complete in place and watered as necessary during construction. Payment for excessively damaged stakes (determined by Engineer) that are removed and replaced will not be paid for.

PAYMENT

Payment for furnishing and planting live willow stakes will be made per each live willow stake, as set forth on the bidding sheet. The unit price bid for Live Willow Stakes shall include full compensation for harvesting, transporting, furnishing, and installing Live Willow Stakes including all storage, preparation, labor, materials, tools, equipment, and incidentals and for doing all work involved in planting Live Willow Stakes as shown on the Plans, as specified herein, and as directed by the Engineer.

14. PLANTING AND REVEGETATION (seed mix and plant list under section 10. Erosion Control Fabric, see 'General')

GENERAL

The Contractor shall furnish all labor, materials, tools, equipment, and incidentals to complete all planting shown on the Plans and related work for revegetating any areas disturbed by his construction activities and those areas shown on the Plans. Planting and revegetation shall be performed by a C-27 licensed landscaping contractor.

Prior to excavation for planting or placing, the Contractor will locate all electric cables, conduits and utility lines so that proper precautions may be taken not to damage such facilities. In the event of a conflict between such lines and plant locations, the Contractor will promptly notify the Engineer, who will arrange for relocation of one or the other. Failure to follow this procedure places upon the Contractor the responsibility to repair damages, at his own expense, which result from work hereunder.

The Contractor shall plant the following species, numbers and sizes of native plants as indicated by the location zones on the construction plans or as directed by the Engineer. Plant materials shall be those that have been propagated from local sources only.

Redwood seedlings and native grass seed shall be planted at the site primarily in areas disturbed by equipment access.

Contractor shall have plants delivered to the site no sooner than 2 days prior to planned installation. Plants to be installed in bank slope protection areas shall be planted through horizontal slits cut in the erosion blanket. Prior to planting the Contractor shall flag the location of all plantings for approval by the Engineer. Plants shall be planted in holes that are a minimum of 1.5 times the diameter of the pot size, and have a minimum 6 inches of backfilled soil underneath the potted plant.

Backfill for the holes shall be a sandy loam soil fill consisting of 50% approved native material, and 50% compost mixed together. The prepared soil shall be mixed in an adjacent area to the planting work, and shall be accurately proportioned using a suitable measuring container such as a wheelbarrow of

measured capacity. Any Rushes and Sedges planted in and around the Bankline Rocks shall be planted in void spaces within the rocks and shall be completely surrounded with the same sandy loam soil fill mix. A minimum 2 inch thickness of mulch shall be placed around all plants to cover any loosened soil. If straw mulch is used, it shall be certified weed free. Plants shall be watered thoroughly on the same day they are planted.

Plants shall be well grown, free from insect pests and disease and shall be grown in nurseries which have been inspected by the State Department of Agriculture and have complied with the regulations thereof. All plants shall comply with Federal and State laws requiring inspection for plant diseases and infestations. Only Phytophthora-free native plant nurseries shall be used.

Plants shall be of symmetrical growth typical for the species and variety. The height and spread of all plant materials shall be measured with branches in their normal position in conformance with AAN Publication 260.1, 1973. Plants shall be well-rooted, and roots shall show no evidence of having been restricted or deformed at any time. Root condition of plants in containers will be determined by removal of earth from the roots of not less than two plants nor more than two percent (2%) of the total number of plants of each species or variety. When container-grown plants are from several sources, the roots of not less than two plants of each species or variety from each source will be inspected by the Engineer. In case the sample plants inspected are found to be defective, the client or engineer reserves the right to reject the entire lot or lots of plants represented by the defective samples. Any plants rendered unsuitable for planting because of this inspection will be considered samples and will not be paid for.

All seed shall be in conformance with the California State Seed Law of the Department of Agriculture. Each seed bag shall be delivered to the site sealed and clearly marked as to species, purity, percent germination, dealer's guarantee, and dates of test. In addition, the container shall be labeled to clearly reflect the amount of Pure Live Seed (PLS) contained. Seed shall be purchased from Pacific Coast Seed (http://www.pcseed.com) or approved equivalent.

Inspection certifications required by law shall accompany each shipment of plants, and certificates shall be delivered to the Engineer. The Contractor shall obtain clearance from the County Agricultural Commissioner, as required by law, before installing plants delivered from outside the County. Evidence that such clearance has been obtained shall be presented to the Engineer.

Plant names listed shall conform to the U.S. Department of Agriculture, Natural Resources Conservation Plants Database http://plants.usda.gov/java/. Common planting species and corresponding scientific names are shown on the plans.

INSTALLATION

- Planting shall occur at the end of the project and the Engineer and Construction Manager shall approve the general location of tree plantings before installation.
- Planting shall only commence after complete installation of Erosion Control Fabric and associated Seeding (See Erosion Control Fabric and Seeding)
- The species, size, and location of trees to be planted as part of this project have been defined on the Plans. Engineer shall approve final location of tree plantings before installation.
- Each plant shall be handled and packed in the approved manner for that species or variety and all necessary precautions shall be taken to ensure that the plants will arrive at the work site in proper condition for successful growth. Trucks used for transporting plants shall be equipped with covers to protect plants from windburn.
- No plants shall be transported to the planting area that are not thoroughly wet throughout the ball of earth surrounding the roots. Any plants that, in the opinion of the Engineer, are dry or in a wilted condition when delivered to the planting area will not be accepted, and shall be replaced by the Contractor at his expense.
- Any plants delivered to the site which are found to be not true to name, or unsuitable in growth or condition, shall be removed from the site immediately and replaced with acceptable plants. Plants shall not be pruned prior to delivery unless authorized by the Engineer. Trees shall not be topped before delivery. The Contractor shall maintain each plant in a healthy growing condition from the time it is delivered until planting has been accepted.
- Planting operations shall be conducted in such a manner that no damage will result to adjacent site improvements and existing plantings. The Contractor shall be responsible for any damage resulting from his operations, and shall repair or replace such damage at his expense.

- No planting shall be done in soil that is too wet or too dry or otherwise in a condition not generally accepted as satisfactory for planting from a horticultural standpoint.
- Vehicles of any kind will not be allowed to pass over curbs, planted areas, etc., unless proper protection is provided.
- Plants shall be removed from the containers in such a manner that the balls of earth surrounding the roots are not broken. Plants will be planted and watered as specified immediately after removal from the containers. Containers shall not be cut prior to delivery of the plants to the planting area.
- Pruning after planting shall be limited to the minimum necessary for the removal of injured twigs and branches. On any branches larger than one-half inch in diameter, the cuts shall be coated with tree wound compound.
- The Contractor shall maintain all container grown plants from the initial planting through acceptance of the planting phase. This includes but is not limited to regular watering and weeding, promptly replacing sick, dead, or lost plants, and controlling pests and infestations. The purpose of the maintenance period is to ensure that the plants are healthy and well-established prior to the acceptance of the plantings.
- Each plant shall be planted in the center of the pit. No soil in muddy condition shall be used for backfilling. No filling will be permitted around trunks or stems. All broken or frayed roots shall be properly cut off. Pits shall be backfilled with compacted prepared backfill to the bottom of the root ball. The top of the root ball after planting shall be 1 inch higher than the grade of the existing ground. The rest of the plant pit shall be filled with prepared backfill and compacted by tamping and watering.
- All pits for trees shall be dug with vertical sides and level bottoms. Scarify sides to remove the glaze if drilling is used to prepare pits. Foot-tamp backfill material below root ball to prevent settling of plant.
- After planting operations have been completed, the Contractor shall remove all trash, excess soil, empty plant containers, and other debris from the work site. All scars, ruts or other marks in the project area caused by the revegetation work, shall be repaired and the work site left in a neat orderly condition.

NATIVE GRASS SEED

The following native grass seed mix shall be spread by hand broadcasting methods over all disturbed, exposed soil in rock slope protection and on graded

surfaces, with the exception of the creek bed. Incorporate the seed uniformly at the specified rates per acre. Provide seed of the latest crop, labeled in accordance with the California Food Agricultural Code with the ingredients per acre as described on the Design Plans.

Erosion control measures shall comply with the Bay Area Storm Water Management Agencies Association standards.

PLANT PROTECTION CAGES

The Contractor shall furnish and install deer browsing plant protection cages, only above ordinary high water, around all newly installed plants per the table above with the exception of the Rushes and Sedges, which shall not require plant protection. Plant Protection Cages shall consist of welded wire cages minimum 4 feet tall and minimum 24 inch diameter. Plant Protection Cages shall be secured to the ground with a minimum of 3 metal staples per each cage. Metal staples shall be U-shaped staples having minimum 6 inch legs and 1.5 inch crown made of a minimum 11 gauge steel wire. Cages shall be partially dug into the uphill side so that the cage sits in a vertical position, and not perpendicular to the creek bank slope.

TREE STAKES

- Double-stake all trees higher than 3 feet.
- Double stakes shall be at right angles to the prevailing wind, except where otherwise indicated.
- Set stakes plumb.
- Use only 2 inch diameter treated lodgepole stakes set outside rootball and driven 12 inches into undisturbed soil will be accepted.
- Stakes must not protrude through root ball.
- Trim tree stake 6 inches above highest tree stake.

FERTILIZER

Synthetic fertilizers and fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (http://www.omri.org/) in its generic materials list shall not be used.

Fertilizer for use in shrub and tree pits shall be Agriform 10 gram tablets of 20-10-5 composition or approved equal. Unless otherwise noted all shrubs and trees shall have two (2) Agriform 10 gram tablets.
Fertilizer shall be uniform in composition, in perfect condition and delivered to the site in the original, unopened containers, each bearing the Manufacturer's guaranteed statement of analysis.

INSPECTIONS

The Contractor or his authorized representative shall be on the site at each inspection.

The Engineer will conduct inspections at the following times:

- The first planting inspection will be when shrubs and trees are spotted for planting, but before planting holes are excavated. Final positioning of all trees are subject to approval of the Engineer. The Contractor shall notify the Engineer at least three (3) days prior to the delivery date for plant materials. The number of plants delivered to the job site on any day will be no more than can be planted and watered on that day. Inspection of materials shall include quality, nomenclature, health, habit of growth, and root condition as specified herein.
- The second inspection will take place within 24 hours after the trees have been planted and the pits have been backfilled.
- The acceptance of planting inspection will be held when all specified work, except the maintenance period, has been completed.
- The final inspection will be at the completion of the 90-day maintenance period. The purpose of this inspection will be to inspect and to review the quality of maintenance, the health of the plants, and to determine which plants, if any, are to be replaced. Before final acceptance by the Engineer, all plant basins shall be clean and free of debris and weeds, plant materials shall be living, healthy and free of infestations and all damaged or lost plants replaced.

MEASUREMENT

Measurement for Planting and Revegetation will be per each unit, complete in place as specified on the Plans.

15. IRRIGATION

GENERAL

This element of work consists of furnishing and installation of the Irrigation System as shown on the Plans (Site 1 only).

Watering shall occur for minimum duration necessary to keep new plantings healthy. Be careful not to oversaturate stream bank.

Contractor shall maintain and protect any above and below grade utilities indicated to remain.

The Contractor shall use materials as specified in Design Plans or get written approval by the Engineer or Client for substitutions. All materials to be incorporated in this system shall be new, without flaws or defect and of quality and performance as specified. All material overages at the completion of the installation are the property of the contractor and are to be removed from site.

All required irrigation systems shall be maintained in working condition as approved. Any equipment or material needing replacement is to be replaced immediately with equipment or material of the same type and performance standards as the originally approved irrigation system. On-grade piping shall not be allowed where subject to adjacent pedestrian traffic or vandalism. All components shall be of non-corrosive materials.

Emitter distribution tubing (downstream of emitters) may be installed on finish grade if covered by mulch. The design of drip systems shall provide balanced water supply to plant materials of different sizes irrigated by a common lateral line.

Just before placement, each pipe section shall be inspected to ensure that all foreign material is removed from inside the pipe. The pipe ends shall be free of foreign material when assembled. In turn, all systems shall be capable of flushing out accumulated particulate matter. System designs shall provide a means for servicing such flushing requirements with a minimum of erosion or disruption to the surrounding landscape.

Install plastic pipe in accordance with manufacturer's installation instructions. Lay pipes to lines and grades indicated on drawings. Lift or roll pipe into position. Do not drop or drag pipe over prepared bedding. Shore pipe to required position; retain in place until after compaction of adjacent fills. Ensure pipe remains in correct position and to required slope.

Pipe shall be delivered and handled with adequate support such that it is not subjected to undue stresses or damage. Pipe shall be inspected carefully upon arrival for any damage or defects. When handling and placing plastic pipe, care shall be taken to prevent impact blows, abrasion damage, and gouging or cutting (by metal edges and/or surface or rocks). The manufacturer's special handling requirements shall be strictly observed. Special care shall be taken to avoid impact when the pipe must be handled at a temperature of 40 degrees Fahrenheit or less. Pipe shall be stored on a relatively flat surface so that the barrels are evenly supported. Unless the pipe is specifically manufactured to withstand exposure to ultraviolet radiation, it shall be covered with an opaque material when stored outdoors for 15 days or longer. HDPE pipe shall have a smooth interior, conforming to AASHTO M294. Both inside and outside diameter of piping shall correspond precisely with the size of fittings used in order to avoid leaks, blow-outs or stripped threads on fittings. Contractor shall be responsible for any problems caused by incorrectly matched fittings.

IRRIGATION SYMBOLOGY AND MATERIALS

STANDARD SYMBOL	DESCRIPTION	MANUFACTURER	MODEL # (if applicable)	COMMENTS	DETAIL (see sheet 24)
———————	Irrigation Trench - Mainline	Sch. 40 PVC for line 1" & smaller		18" below fin. grade	1
———————	Sleeves	Class 315 PVC		24"/18" below fin. grade	1
◆	Quick-Coupling Valve (in box)	Rainbird	44LRC - 1" key		4
	Quick-Coupling Valve Box	Carson	910 Lockable	10" Round box w/ lid	4
	Emitters*	Rainbird	Xeri-Bug 10-32 Threaded Inlet XB-20PC-1032	Two per plant	2
- - - - - - - - - - -	Dripline Tubing	Rainbird	Black Stripe Tubing; 1/2" polyethylene pipe	Extend from lateral PVC and connect to emitter	2
⋈	Gate Valve (in box)	Nibco	T-113		3
	Gate Valve Box	Carson	910 Lockable		3
◓	Remote Control Valve (in box)	Rainbird	XCZ-100-PRB-COM		5
	Remote Control Valve Box	Rainbird	Valve box with cover : Rainbird VB-STD		5

*Emitters not shown on plan

1 — STATION
9 — GALLONS/HR

POC POINT OF CONNECTION

POC

Point of Connection shall be located per project Design Plans; contractor may adjust location based on landowner input and location of existing water supply; additional plumbing may be necessary to supply water to the POC and shall be supplied by the contractor within the lump sum irrigation project cost.

VALVES

See Irrigation Symbology and Materials chart above and Design Plan Construction Details- Irrigation 2 Sheet for details of all valves.

Quick Coupling Valves shall be Rainbird 44LRC with a 1" key or equivalent brass valves with an operating pressure range of 5-125 psi and flow range of 10 to 125 GPM per specifications located at:
http://www.rainbird.com/landscape/products/valves/quickCouplingValves.htm

Gate Valve shall be Nibco T-113 Class 125 bronze valves or equivalent with a 200 psi cold working pressure per specifications located at:
http://www.nibco.com/Valves/Gate-Valves/Bronze-Gate-Valves-%E2%80%93-Irrigation/T-113-K-Gate-Valve-Bronze-Class-125-Irrigation/

Quick Coupling and Gate Valve Boxes shall Carson 10" Grade 910 or equivalent and composed of HDPE per specifications located at:
http://www.oldcastleprecast.com/plants/Enclosures/products/irrigation/Pages/specgrageplastics.aspx

Remote Control Valve shall be Rainbird Medium Flow Commercial Control Zone Kit with Pressure Regulating, Basket Filter (XCZ-100-PRB-COM) or equivalent with an operating pressure range of 15 to 150 psi and flow range of 3.0 to 20.0 GPM per specifications located at:
http://www.rainbird.com/landscape/products/dripControl/XCZ-100-PRB-COM.htm

Remote Control Valve Box shall be Rainbird VB-STD with cover or equivalent per specifications located at:
http://www.rainbird.com/LANDSCAPE/PRODUCTS/valves/index.htm

MAINLINE

Mainline shall be 2″Ø or smaller Schedule 40 PVC. Use Schedule 40 PVC for 1″Ø to 2″Ø quick coupling line. Sleeves shall be Class 315 PVC.

DRIPLINE

Dripline shall be Rainbird 5/8"Ø-1/2″Ø HDPE (High Density Polyethylene).

MICROTUBING AND EMMITERS

Microtubing shall be ¼″Ø HDPE. Drip emitters shall be per Irrigation Symbology and Materials chart above and held in place with 6" steel jute stakes.

Rainbird Emmiters shall be Xeri-bug 10-30 threaded inlet XB-20PC-1032 or equivalent with an operating pressure range of 15 to 50 psi and flow range of 0.5 to 2.0 gph. Use Xeriman tool to install. See specifications located at: http://www.rainbird.com/landscape/products/dripEmission/XeriBugEmitters.htm

TRENCHING

Large stones or other hard matter shall be removed which could damage piping or impede consistent backfilling or compaction. Onsite material used for compacted earth bedding shall be free of rocks or stones greater than 1 inch in diameter and earth clods greater than 2″ in diameter. Excavate pipe trench to 6″ below pipe invert, and place bedding material at trench bottom, level fill materials in one continuous layer not exceeding 8″ compacted depth. During installation, the pipe shall be firmly and uniformly bedded throughout its entire length, to the depth and in the manner as shown on the Design Plans. Blocking or mounding beneath the pipe to bring the pipe to final grade is not permitted. The bedding shall be compacted to ample bearing strength and of uniform density when filled with water to support the pipe without noticeable differential settlement. Trench backfill shall be native material, compacted to 90% minimum, relative compaction (maintain moisture content of bedding material to attain required compaction density). The pipe shall be loaded sufficiently during the compaction of bedding under the haunches and around the sides of the pipe to prevent displacement from its final approved placement. When sand, gravel, or crushed rock bedding is specified, the pipe shall be firmly and uniformly placed on the bedding material.

Minimum depth of cover over all pipe shall be 18" unless otherwise specified. Initial backfill to 6"above the top of the conduit is required. Initial backfill material shall consist of soil material that is free of rocks, stones, or hard clods more than 1 inch in diameter. Initial backfill shall be placed in two stages. In the first stage (haunching), backfill is placed to the pipe spring line (center of pipe). In the second stage, it is placed to 6" above the top of the pipe. The first stage material shall be worked carefully under the haunches of the pipe to provide continuous support throughout the entire pipe length. The haunching backfill material shall be placed in layers that have a maximum thickness of 6" and compacted.

During compaction operations, care shall be taken to ensure that the tamping or vibratory equipment does not come in contact with the pipe and the pipe is not deformed or displaced. Final backfill shall consist of placing the remaining material required to complete the backfill from the top of the initial backfill to the ground surface, including mounding at the top of the trench. Final coarse backfill material within 18" of the top of the pipe shall be free of debris or rocks larger than 3" nominal diameter and shall be the specified sand, gravel, or crushed rock. Final backfill shall be placed in approximately uniform, compacted layers. Protect pipe and bedding from damage or displacement until backfilling operation is in progress. Vehicles or construction equipment shall not be allowed to cross the pipe until a minimum of 18" feet of earth cover and required density has been obtained.

MEASUREMENT

The Irrigation System shall be measured Lump Sum, as shown on the Plans or as specified in writing by the Engineer.

PAYMENT

Payment for Irrigation System shall be paid by the Lump Sum for Irrigation as set forth on the bidding sheet. 100% of the payment shall be following complete construction of the Irrigation System. The Lump Sum Bid shall include full compensation for furnishing and installing Erosion Control Fabric, including all labor, materials, tools, equipment, and incidentals as shown on the Plans, as specified herein, and as directed by the Engineer.

16. INVASIVE SPECIES

GENERAL

Implementation of this project will be conducted to with a strong commitment to avoid the spread of aquatic invasive species (AIS), most notably New Zealand mudsnail, quagga mussels, and zebra mussels. Protocols will be used consistent with CDFW (2013) to decontaminate all gear (e.g., waders, boots, etc.) and equipment (e.g., survey rods, excavators, block nets, etc.) prior to entering the project reach to ensure protection from AIS.

Exhibit E

Permits

AMENDED ORDER FOR CLEAN WATER ACT SECTION 401 GENERAL WATER QUALITY CERTIFICATION FOR SMALL HABITAT RESTORATION PROJECTS FILE # ~~SB09016GN~~ SB12006GN

All changes to the Water Quality Certification (Certification) issued on September 6, 2012, are shown below as additions in **bold underline**, and deletions in **bold strikethrough**. This does not include minor grammatical edits.

This Certification Order (2012 Order) authorizes small habitat restoration projects that qualify for a categorical exemption under, California Code of Regulations title 14, section 15333, "Small Habitat Restoration Projects." These projects are intended to improve the quality of waters of the state and contribute to the state's No Net Loss Policy (Executive Order W-59-93).

This 2012 Order is an interim reissuance of the expired Small Habitat Restoration Order (effective August 10, 2007- August 10, 2012; 2007 Order) until an updated Order prescribing Waste Discharge Requirements (WDRs) containing new program provisions may be considered by the State Water Resources Control Board (State Water Board). If the new WDRs are adopted by the State Water Board, this 2012 Order will expire. It is anticipated that current enrollees will be automatically enrolled under the new WDRs for Small Habitat Restoration Projects.

The following procedure clarifies the status of Notices of Intent (NOIs) received just prior to the expiration of the 2007 Order. NOIs submitted to the State Water Board or a Regional Water Quality Control Board (Regional Water Board) 30 days or less from the expiration date of the 2007 Order (i.e., from July 12, 2012 to August 10, 2012) and not enrolled under the 2007 Order, shall be automatically re-instated under this 2012 Order. The number of days between the receipt of the NOI and the expiration date (August 10, 2012) shall be deducted from the 30-day review period under this 2012 Order. The 30-day review period will restart one working day after the 2012 Order is signed by the Executive Director.

A. ELIGIBILITY REQUIREMENTS

Eligibility for coverage under this Order is limited to discharges which meet the following criteria:

1. **California Environmental Quality Act** - The project shall be eligible for a categorical exemption under California Code of Regulations title 14, section 15333, "Small Habitat Restoration Projects." Examples of small habitat restoration projects may include, but are not limited to:

   a. Revegetation of disturbed areas with native plant species.

   b. Wetland restoration, the primary purpose of which is to improve conditions for waterfowl or other species that rely on wetland habitat.

   c. Stream or river bank re-vegetation, the primary purpose of which is to improve habitat for amphibians or native fish.

   d. Projects to restore or enhance habitat that are carried out principally with hand labor and not mechanized equipment.

   e. Stream or river bank stabilization with native vegetation or other bioengineering techniques, the primary purpose of which is to reduce or eliminate erosion and sedimentation.

   f. Culvert replacement conducted in accordance with published guidelines of the California Department of Fish and ~~Game~~ **Wildlife** ~~(DFG)~~ (**CDFW**) or National Oceanic & Atmospheric Administration Fisheries, the primary purpose of which is to improve habitat or reduce sedimentation.

2. **The Project Size** - The project size shall not exceed five acres or a cumulative total of 500 linear feet of stream bank or coastline.

3. **Pre-Project Authorization** - This Order authorizes discharges only if the State Water Board and/or appropriate Regional Water Board have received a NOI and if a Notice of Exclusion (NOE) has not been issued by a California Water Board for the project.

4. **Compensatory Mitigation Projects** - The project shall not be a compensatory mitigation project.

5. **Primary Project Purpose** - This Order authorizes activities whose primary purpose is habitat restoration. The project shall not be for restoration and enhancement conducted as part of a larger project whose primary purpose is not habitat restoration. e.g., land development or flood management.

6. **Project** - The construction period shall not exceed five years.

B. APPLICATION REQUIREMENTS

1. **Pre-Discharge Notification Requirements** - At least 30 days prior to the proposed discharge, the applicant shall provide the State Water Board and/or appropriate Regional Water Board(s) a NOI with a Monitoring Plan as described below.

2. **Notice of Intent**

   a. Each applicant shall complete and submit a NOI form, indicating the intent to discharge in compliance with the terms and conditions of this Order, to the appropriate Regional Water Board. In the event that the project is located in more than one region, the NOI, Attachment B, shall be sent to the State Board and affected Regional Water Boards. Mail completed NOI forms to:

   For projects in one region, send to:
   Program Manager
   Certification and Wetlands Program
   (Address of appropriate Regional Water Board; see:
   http://www.waterboards.ca.gov/waterboards_map.shtml

   For projects in more than one region, send to:
   Program Manager
   Certification and Wetlands Program
   Division of Water Quality
   State Water Resources Control Board
   1001 I Street, 15th Floor
   Sacramento, CA 95814

   b. The State or Regional Water Board may, at its discretion, issue a Notice of Applicability (NOA) to the applicant, indicating that the project activities are authorized under this Order. If project activities do not qualify for coverage under this Order, an NOE may be issued by State or Regional Water Board staff. Project activities not qualified for coverage under this Order may require an application for an individual Water Quality Certification. If the State or Regional Water Board does not issue a NOA or NOE to the applicant within 30 days of receipt of the NOI, the applicant may proceed with the discharge.

   c. The NOI must be signed by the applicant or the applicant's authorized agent (if an agent is submitting the NOI). The NOI must include a statement that the submitted information is complete and accurate. The applicant shall submit an adequate map[1] with project location(s) marked. Pre-project photographs shall also be included with a descriptive title, date taken, photographic site, and photographic orientation.

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[1] Clearly indicate existing habitat on a **map in one of the following formats (listed in order of preference):**

a. GIS shapefile (NAD83/WGS84 datum; UTM Zone 10 projection). The shapefile must depict the boundaries of the project site(s) and the boundaries of all habitats, using the habitat list on this form. Features and boundaries should be accurate to within 10 meters.

b. GIS shapefile in any datum and projection. Datum and projection must be specified. The shapefile must depict the boundaries of the project site(s) and the boundaries of all habitats, using the habitat list on this form.

c. Digital map produced on geo-rectified on-line aerial photographic image via web applications such as Google Earth. Map must show the boundaries of the project site(s) and the boundaries of all habitats, using the habitat list on this form.

d. Other electronic format (CAD or illustration format) that provides a context for location (inclusion of landmarks, known structures, geographic coordinates, USGS DRG or DOQQ).

e. Project outline(s) carefully marked on paper USGS 7.5 minute topographic map(s) or DOQQ printout(s). Map must show the boundaries of the project site(s) and the boundaries of all habitats.

3. **Fee** - The State Water Board fee schedule for General Orders is located at http://www.waterboards.ca.gov/water_issues/programs/cwa401/. A check in the appropriate amount as specified in California Code of Regulations title 23, section 2200, payable to the State or Regional Water Board, shall be enclosed with the copy of the NOI. The check shall be payable to the same Water Board to which the NOI is submitted.

4. **Monitoring Plan** - The applicant shall provide the State or appropriate Regional Water Board a copy of a Monitoring Plan with the NOI specified in section B.2 of this Order. The purpose of the required monitoring is to evaluate the success or failure of the project. The level of detail of the Monitoring Plan and associated reporting shall be commensurate with the scope and size of the restoration project. At a minimum, the Monitoring Plan shall document:

   a. Function(s) of the impacted water resources.

   b. Project purpose, and goal(s).

   c. Measurable performance standards appropriate to each goal.

   d. Monitoring parameters and protocols to determine whether performance standards have been met.

   e. The timeframe and responsible party for determining attainment of performance standards.

   f. The appropriate monitoring schedule.

   g. The appropriate reporting schedule, at least annually, for the period stated as needed to determine achievement of performance standards.

5. **Monitoring Report** - The applicant shall implement the monitoring program documented in the Monitoring Plan and shall provide Monitoring Reports at least annually to the State or appropriate Regional Water Board. The Monitoring Report shall document status of performance standards and project goals. Each Monitoring Report shall include:

   a. A summary of findings.

   b. Identification and discussion of problems with achieving performance standards.

   c. Proposed corrective measures, to be approved by the Regional Water Board.

   d. Monitoring data.

6. **Notice of Completion** - The applicant shall simultaneously provide the State Water Board and appropriate Regional Water Board a Notice of Completion (NOC) no later than 30 days after project completion. The NOC shall be mailed to the addresses provided in section B.2 of this Order and shall demonstrate

that the project has been carried out in accordance with the project's description as provided in the applicant's NOC. Included with the NOC shall be a map[2] of the project location(s), including final boundaries of the restoration area(s) and post-project photographs. Each photograph shall include a descriptive title, date taken, photographic site, and photographic orientation.

C. STANDARD CONDITIONS

1. This Certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to section 13330 of the Water Code and article 6 (commencing with section 3867) of chapter 28, title 23 of the California Code of Regulations.

2. This Certification action is not intended and shall not be construed to apply to any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to subsection 3855(b) of chapter 28, title 23 of the California Code of Regulations, and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

3. This Certification is conditioned upon total payment of any fee required under chapter 28, title 23 of the California Code of Regulations and owed by the applicant.

D. SPECIAL CONDITIONS

1. **Other Permits** - This Order does not relieve the project applicant from the responsibility to obtain other necessary local, state, and federal permits, nor does this Order prevent the imposition of additional standards, requirements, or conditions by any other regulatory agency.

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[2] Clearly indicate existing habitat on a **map in one of the following formats (listed in order of preference):**

a. GIS shapefile (NAD83/WGS84 datum; UTM Zone 10 projection). The shapefile must depict the boundaries of the project site(s) and the boundaries of all habitats, using the habitat list on this form. Features and boundaries should be accurate to within 10 meters.

b. GIS shapefile in any datum and projection. Datum and projection must be specified. The shapefile must depict the boundaries of the project site(s) and the boundaries of all habitats, using the habitat list on this form.

c. Digital map produced on geo-rectified on-line aerial photographic image via web applications such as Google Earth. Map must show the boundaries of the project site(s) and the boundaries of all habitats, using the habitat list on this form.

d. Other electronic format (CAD or illustration format) that provides a context for location (inclusion of landmarks, known structures, geographic coordinates, USGS DRG or DOQQ).

e. Project outline(s) carefully marked on paper USGS 7.5 minute topographic map(s) or DOQQ printout(s). Map must show the boundaries of the project site(s) and boundaries of all habitats.

2. **Liability** - This Order does not convey any property rights or exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, do not protect the permittee from liability under federal, state, or local laws, and do not create a vested right to continue to discharge waste.

3. **Cumulative Impact** - The project will not result in impacts that are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

4. **Endangered, Threatened, Candidate, Rare, Sensitive, or Special Status Species** - The project will not result in a taking, either directly or through habitat modification, of any plants or animals identified as endangered, threatened, candidate, rare, sensitive, or special status species in local or regional plans, policies, or regulations or by ~~DFG~~ **CDFW**, the U.S. Fish and Wildlife Service, or the National Marine Fisheries Service, unless the take is authorized by those agencies.

5. **Toxic Substances** - The project will not discharge substances in concentrations toxic to human, plant, animal, or aquatic life or that produce detrimental physiological responses.

6. **Hazardous Substances** - The project will not discharge waste classified as "hazardous" as defined California Code of Regulations title 22, section 66261 and Water Code section 13173.

7. **Water Diversion and Use** - This Order does not authorize any new or modified diversion or impoundment of water, unless such diversion or impoundment is solely for the purpose of temporary dewatering for construction of the restoration project. Any permanent diversion or impoundment for beneficial use of water must have a State Water Board water rights permit.

8. **Historical Sites** - This Order does not authorize any activity adversely impacting a significant historical or archeological resource; directly or indirectly destroying a unique paleontological resource or site or unique geologic feature; disturbing any human remains; or eliminating important examples of the major periods of California history or prehistory, unless the activity is authorized by the appropriate historical resources agencies.

9. **California Ocean Plan** - The project shall not cause a violation of any applicable water quality objectives, including impairment of designated beneficial uses of receiving waters of the state, as adopted in the State Water Board California Ocean Plan.

10. **Water Quality Control Plan (Basin Plan)** - The project shall not cause a violation of any applicable water quality objectives, including impairment of designated beneficial uses of receiving waters of the state, as adopted in the appropriate Regional Water Board water quality control plan(s).

11. **Porter-Cologne Water Quality Control Act** - The project shall comply with all requirements of the Porter-Cologne Water Quality Control Act (Wat.Code, § 13000 et.seq.)

12. **Enforcement** - In the event of any violation or threatened violation of the conditions of this Order, the violation or threatened violation shall be subject to any remedies, penalties, process, or sanctions as provided for under state law. For purposes of Clean Water Act (CWA) section 401(d), the applicability of any state law authorizing remedies, penalties, process, or sanctions for the violation or threatened violation constitutes a limitation necessary to ensure compliance with the water quality standards and other pertinent requirements incorporated into this Order.

    a. If the applicant fails or refuses to furnish technical or monitoring reports, as required under this Order, or falsifies any information provided in the monitoring reports, the applicant is subject to civil liability for each day in which the violation occurs. All reports, notices, or other documents required by this Order or requested by the State or Regional Water Boards shall be signed by the applicant or a duly authorized representative of the project.

    b. In response to a suspected violation of any condition of this Order, the State or Regional Water Boards may require the applicant to furnish, under penalty of perjury, any technical or monitoring reports the State or Regional Water Boards deem appropriate, provided that the burden, including cost of the reports, shall be in reasonable relationship to the need for the reports and the benefits to be obtained from the reports.

    c. The applicant shall allow the staff(s) of the State or Regional Water Boards, or an authorized representative(s), upon the presentation of credentials and other documents, as may be required by law, to enter the project premises for inspection, including taking photographs and securing copies of project-related records, for the purpose of assuring compliance with this Order and determining the ecological success of the project.

CEQA FINDINGS:

The issuance of this Certification and the activities described herein meet the exemption criteria under Californian Code of Regulations title 14, section 15333 (Small Habitat Restoration Projects).

Additionally, State Water Board staff concludes that no exceptions apply to the activities approved by this Certification. The State Water Board will file a Notice of Exemption in accordance with the California Code of Regulations title 14, section 15062 after issuance of this Order.

STATE WATER BOARD CONTACT PERSON:

If you have any questions, please contact State Water Board Environmental Scientist Catherine Woody at (916) 341-5785 CWoody@waterboards.ca.gov or by mail at:

State Water Resources Control Board
Division of Water Quality
Certification & Wetland Program
1001 I Street, 15th Floor
Sacramento, CA 95814

WATER QUALITY CERTIFICATION:

I hereby issue an order certifying that as long as all of the conditions listed in this Certification action are met, any discharge from the referenced project will comply with the applicable provisions of Clean Water Act sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards). This discharge is also regulated pursuant to State Water Board Water Quality Order No. 2003-0017-DWQ, which authorizes this Certification to serve as Waste Discharge Requirements pursuant to the Porter-Cologne Water Quality Control Act (Wat. Code, § 13000 et seq.).

Except insofar as may be modified by any preceding conditions, all Certification actions are contingent on (a) the discharge being limited and all proposed mitigation being completed in strict compliance with the Project Information Sheet (Attachment B and C), and (b) compliance with all applicable requirements of statewide water quality control plans and policies, and the Regional Water Boards Basin Plans.

Thomas Howard
Executive Director

3/27/13
Date

Attachments (2): A. Signatory Requirements
B. Notice of Intent

cc: Mr. Jason A. Brush, Chief
Wetlands Regulatory Office (WTR-8)
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco, CA 94105

Mr. Dan Yparraguirre
Deputy Director
Wildlife & Fisheries Division
Department of Fish and Game
1416 Ninth Street, 12th Floor
Sacramento, CA 95814

cc: (continue next page)

cc: (continuation page)

Ms. Sandra Morey
Deputy Director
Ecosystem Conservation Division
Department of Fish and Wildlife
1416 Ninth Street, 12th Floor
Sacramento, CA 95814

Mr. Michael Jewell, Chief
Regulatory Division
Sacramento District
U.S. Army Corps of Engineers
1325 J Street, Room 1444
Sacramento, CA 95814-2922

Mr. Wade L. Eakle, M.S.
Regulatory Program Manager
South Pacific Division
U.S. Army Corps of Engineers
1455 Market Street
San Francisco, CA 94103-1398

Ms. Susan Moore
Field Supervisor
U.S. Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Ms. Jane Hicks, Chief
Regulatory Division
San Francisco District
U.S. Army Corps of Engineers
1455 Market Street, 16th floor
San Francisco, CA 94103-1398

Mr. David Castanon, Chief
Regulatory Section
Los Angeles District
Ventura Field Office
U.S. Army Corps of Engineers
2151 Alessandro Drive, suite 110
Ventura, CA 93001

Ms. Diane K. Noda
Field Supervisor
U.S. Fish and Wildlife Service
2493 Portola Road, Suite B
Ventura, CA 93003

Mr. Jim Bartel
Field Supervisor
U.S. Fish and Wildlife Service
6010 Hidden Valley Rd.
Carlsbad, CA 92011

Sent via electronic mail: No hard copy to follow

May 3, 2019
CIWQS Reg. Meas. 429688
CIWQS Place ID 857344

Marin Resource Conservation District
80 4th Street
Point Reyes Station, CA 94956
Attn: Sarah Phillips
Email: sarah@marinrcd.org

Subject: Notice of Applicability for Enrollment of the San Geronimo Creek Restoration Project under the Clean Water Act (CWA) Section 401 General Water Quality Certification for Small Habitat Restoration Projects (File No. SB12006GN), Marin County

Dear Ms. Phillips:

On March 25, 2019, the Marin Resource Conservation District (Applicant) provided the Water Board with a Notice of Intent (NOI) to enroll the San Geronimo Creek Restoration Project (Project) for coverage under the State's Clean Water Act (CWA) Section 401 General Water Quality Certification for Small Habitat Restoration Projects (File No. SB12006GN) (Certification, Attachment A). On April 12, 2019, we received supplemental information to complete the Application. The Project qualifies for enrollment under the Certification.

The Project is located on San Geronimo Creek at 6355 Sir Francis Drake Boulevard, Marin County (38.016214 Latitude, -122.674947 Longitude). The Project objectives are to increase and improve the quality and quantity of salmonid habitat within San Geronimo Creek. To accomplish this, the Project will create winter and summer rearing habitat throughout a 370 linear foot (LF) reach by installing a total of 18 pieces of large wood. The large woody structures will be anchored with boulders and minimal rebar to create a total of 8 structures for added habitat complexity and high flow refugia for salmonids, such as coho salmon and steelhead.

The Project will be constructed based on the 100% design plans included in the Application submitted March 25, 2019. The designs were informed by the *Basis of Design package* which included extensive hydrology and hydraulic studies, woody structure stability analysis, existing conditions, and geomorphic assessments. The entire Project reach is a located at an almost 180-degree curve in the creek. The center

of the Project reach is the confluence with Larson Creek. Downstream of the confluence, the erosive flows from the curve and additional inputs form Larson Creek have resulted in overly steepened banks on the outside bend. Specific Project activities include:

- Implementation of the Dewatering and Rescue Plan in accordance with the Application, the Supplemental Information submitted April 12, 2019, and Condition 3 of this document. Best Management Practices (BMPs) and Avoidance and Minimization Measures (AMMs) will be implemented, including, but not limited to, the presence of an approved qualified biologist during all dewatering and fish relocation activities, and minimizing dewatering.
- From the furthest upstream boundary to the confluence with Larsen Creek, three large woody structures with rootwads will be installed along the right bank (looking downstream) with native riparian plantings, where feasible.
- From the confluence of Larsen Creek to the downstream project boundary, four large woody structures with rootwads will be installed along the right bank with biotechnical bank stabilization on the adjacent over steepened banks. The biotechnical work involves biorolls staked in with live willow cuttings to create three rows of willow fencing and biodegradable erosion control fabric secured with live willow stakes.
- At the downstream Project boundary, the last large woody structure will be installed on the left bank and slightly across the channel bed to work with the right bank wood structures as a grade control and habitat feature.

The Applicant will perform Project work between June 15 and October 15, when stream flows are minimal. A large excavator and tracked skid steer will be used to construct the Project. Appropriate BMPs and AMMs will be implemented in accordance with the Application received March 25, 2019, as revised by the April 12, 2019 submittal, to minimize temporary impacts from dewatering, equipment access, grading, and construction. It is anticipated that the habitat created by the Project will be utilized by fish following a season of scouring flows. As such, the Project will result in a long-term net benefit of up to 0.53 acres (370 LF) of stream and riparian habitat.

The Water Board Executive Officer finds that the Project meets the eligibility criteria of the Certification, and accordingly, is hereby conditionally authorized for coverage under the Certification. The following conditions are associated with this Notice of Applicability (NOA):

1. The Applicant is required to use the Riparian Repair and Maintenance Form (Short Form) to provide Project information within 14 days from the date of this NOA. An electronic copy of the Short Form can be downloaded at: www.waterboards.ca.gov/sanfranciscobay/certs.shtml. The completed Short Form and map showing the Project boundaries shall be submitted electronically to

habitatdata@waterboards.ca.gov or shall be submitted as a hard copy to both: 1) The Water Board (see the address on the letterhead), to the attention of EcoAtlas; and 2) The San Francisco Estuary Institute, 4911 Central Avenue, Richmond, CA, 94804, to the attention of EcoAtlas.

2. The Project shall be constructed in conformance with the Project description provided in the Application dated March 25, 2019 and the Supplemental Information dated April 12, 2019. Any changes to information provided in the Application, such as temporary fill for equipment access and riprap placement, must be submitted to the Water Board, and receive Executive Officer approval before the changes are implemented

3. At least 30 days prior to the start of Project activities, the Applicant shall submit a final Dewatering and Rescue Plan in accordance with the minimum requirements outlined in the Supplemental Information received April 12, 2019. Dewatering activities shall not commence until the plan has received Executive Officer approval.

4. At least 30 days prior to the start of Project activities, the Applicant shall submit a final Monitoring Plan to ensure the Project meets the success criteria and AMMs outlined in the Application, along with any additions necessary to meet the following geomorphic monitoring requirement. The plan shall include the following, and all other information, as appropriate:

    a. A 5-year geomorphic monitoring plan shall be implemented to verify that the Project does not cause unintended erosion and sedimentation impacts. At a minimum, this shall consist of conducting visual assessments and photo monitoring of each woody structure and the biotechnical bank stabilization work. Photos shall be taken of any observed erosion, sedimentation, or instabilities with a minimum of two photos of channel conditions looking upstream and downstream every 25 feet through the project area and extending an additional 50 feet upstream and downstream, if access to private property can be acquired.

        Performance criteria shall be no significant erosion and/or sedimentation that threatens habitat quality or stability of essential property and infrastructure. If performance criteria are not met, the Applicant may propose adaptive management measures to be implemented following Executive Officer approval.

5. The Applicant shall implement the *Restoration and Enhancement Plan and Revegetation Monitoring Plan*, dated April 2019, and included in the Application, to verify successful establishment of riparian plantings. Annual monitoring shall include the collection and reporting of the following data: 1) percent survival of plantings; 2) percent cover; 2) native species dominance; and 3) percent cover of invasive species (defined as species ranked High on the California Invasive Plant

Council's (Cal-IPC's) invasive plant list). If the annual performance criteria listed for years 1-5 are not achieved, additional plantings shall be installed and are subject to the same performance criteria as the initial plantings.

6. Annual monitoring reports shall be submitted by January 31 following each monitoring year. These reports shall include findings of the visual inspections, photographs of the site, and vegetation monitoring data to document whether performance criteria are being attained. If performance criteria are not being attained, the reports shall describe adaptive management measures to be undertaken to ensure that criteria will be achieved, including, but not limited to, modifications to the Project, additional planting, and/or extension of the monitoring period as warranted. Annual monitoring reports shall be submitted via email to RB2-401Reports@waterboards.ca.gov, **or** via mail to the attention of 401 Certifications Reports at the Water Board (see the address on the letterhead).

7. The final monitoring report shall demonstrate all performance criteria have been met and shall include a Final Project Completion Report that includes: (a) the CIWQS Place ID for this project (Place ID 857344), (b) the date the project construction activities were completed, and (c) the date the project monitoring indicated successful completion. The Final Project Completion Report shall be submitted via e-mail to RB2-401Reports@Waterboards.ca.gov, or by mail to the attention of 401 Certifications Reports at the Water Board (see address on the letterhead).

If you have any questions, please contact Nicole Fairley of my staff by e-mail to nicole.fairley@waterboards.ca.gov or via phone at (510) 622-2424.

Sincerely,

for Michael Montgomery
Executive Officer

Attachment A.: Clean Water Act Section 401 General Water Quality Certification for Small Habitat Restoration Projects (File No. SB12006GN)

Cc: SWRCB, DWQ, stateboard401@waterboards.ca.gov
Water Board,
Victor Aelion, victor.aelion@waterboards.ca.gov
Abigail Smith, RB2-401Reports@waterboards.ca.gov
CDFW,
Karen Wiess, karen.weiss@wildlife.ca.gov
Deborah Waller, Deborah.waller@wildlife.ca.gov

Cc (cont.):

U.S. EPA, Region IX, Jennifer Siu, Siu.Jennifer@epa.gov
Corps, Roberta Morganstern, roberta.a.morganstern@usace.army.mil
EcoAtlas, Habitat.data@waterboards.ca.gov

Avoidance and Minimization Measures
McGuinn-Newman San Geronimo Creek Habitat Enhancement Project

PROJECT LOCATION

The McGuinn-Newman component of the San Geronimo Creek Habitat Enhancement Project is located on the mainstem of San Geronimo Creek, immediately upstream and downstream of its confluence with Larsen Creek. The Project is located at 6355 Sir Francis Drake Boulevard, San Geronimo, California (APN 169-071-20) and 6315-6335 Sir Frances Drake Boulevard (APN 169-071-32) (Exhibit A, 100% Design Plans for San Geronimo Creek Habitat Enhancement Project, dated February 23, 2016).

PROJECT DESCRIPTION

The Project includes installation of eight (8) large wood structures, root wads, enhancement of existing summer rearing pools and the enhancement of the riparian habitat, including installation of erosion control features and native riparian plantings. The Project will be constructed based on the 100% design plans included as Exhibit A and the San Geronimo Creek Habitat Enhancement Project Basis of Design Report (February 2016, Exhibit B). Construction activities within the channel will be completed in approximately 3 weeks or less, and the entire project, including replanting, will be completed within approximately 4 months.

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include:

- coho salmon (*Oncorhynchus kisutch*)
- steelhead trout (*Oncorhynchus mykiss irideus*)
- aquatic organisms
- nesting birds
- aquatic habitat
- riparian habitat
- riparian vegetation
- upland habitat
- upland vegetation
- water quality

The adverse effects the project could have on the fish or wildlife resources identified above include:

- temporary disruption to coho or coho habitat
- temporary disruption to steelhead or steelhead habitat
- temporary disruption to aquatic organisms
- temporary disruption to nesting birds and other wildlife

- temporary disruption of aquatic and riparian habitat
- alter the existing drainage pattern of the site in a manner which would result in on- or off-site erosion
- change in contour of bed, channel or bank
- change in gradient of bed, channel or bank
- change in channel cross-section
- soil compaction or other disturbance to soil layer
- increased bank erosion during construction
- increased temporary turbidity
- temporary disturbance from project activity
- ~~sort term release of contaminates~~

California Endangered Species Act (CESA) Covered Species Subject to Take Authorization:

	Name	CESA Status
1.	Coho salmon, south of Punta Gorda, (*Oncorhynchus kisutch*)	Endangered[1]

This species and only this species is the "Covered Species" under CESA for this project .

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

Administrative Measures

Permittee shall meet each administrative requirement described below.

1.1 Documentation at Project Site. Permittee shall make the determination, any and all related notification materials, and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to CDFW personnel, or personnel from another state, federal, or local agency upon request.

1.2 Providing Documents to Persons at Project Site. Permittee shall provide copies of the measures to all persons who will be working on the project at the project site on behalf of Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.

1.3 Notification of Conflicting Provisions. Permittee shall notify CDFW if Permittee determines or learns that a provision in the measures might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, CDFW shall contact Permittee to resolve any conflict.

[1] See Cal. Code Regs. tit. 14 § 670.5, subd. (a)(2)(N)

1.4 Project Site Entry. Permittee agrees that CDFW personnel may enter the project site at any time to verify compliance. Permittee will fully cooperate for any CDFW compliance requests.

1.5 Notify CDFW Engineering Prior to Work. The Permittee shall notify CDFW Engineering by email (Marjorie.Caisley@wildlife.ca.gov) at least 60 days prior to commencement of covered activities, with a copy to CDFW's Regional Representative.

1.6 Notify CDFW Regional Representative Prior to Work. The Permittee shall notify CDFW's Regional Representative by email at least 5 days prior to commencement of covered activities.

1.7 No Trespass. To the extent that any provisions provide for activities that require the Permittee to traverse another owner's property, such provisions are agreed to with the understanding that the Permittee possesses the legal right to so traverse. In the absence of such right, any such provision is void.

1.8 Fish Passage. The project shall be in compliance with Fish and Game Code section 5901 and shall not install or maintain any device or contrivance that prevents, impedes, or tends to prevent or impede, the passing of fish up and down stream.

1.9 Designated Representative. Before initiating ground-disturbing project activities, Permittee shall designate a representative (Designated Representative) responsible for communications with CDFW and overseeing compliance. The Permittee shall notify CDFW in writing 5 days prior to commencement of project activities of the Designated Representative's name, business address, and contact information. Permittee shall notify CDFW in writing if a substitute Designated Representative is selected or identified at any time during the term of this Agreement.

1.10 Unauthorized Take. – The Permittee is required to comply with all applicable State and Federal laws, including the California Endangered species Act (CESA) and Federal Endangered Species Act. These conditions do not authorize the take of any State or Federal endangered or threatened species, other than the Covered Species. Liability for any take or incidental take of species not covered by this agreement remains the responsibility of the Permittee for the duration of the project. Any unauthorized take of such listed species may result in prosecution and nullification of the Agreement.

Work Period and Design

1.11 Work Period. All work shall begin on or after June 15 and all work shall be completed by October 15. Revegetation work is not limited to this work window but

must be completed within the same season as project activities. If more time is needed to complete Project activities, the work period may be modified in writing on a week-by-week basis by a CDFW representative. Requests for a work period extension shall: 1) describe the extent of work already completed; 2) detail the activities that remain to be completed; 3) detail the time required to complete each of the remaining activities; 4) provide photographs of both the current work completed and the proposed site for continued work; and 5) include an assessment of additional biological impacts as a result of the work extension.

1.12 Conduct Work During Daylight Hours. Work is restricted to daylight hours (one hour after sunrise to sunset).

1.13 Work According to Documents. All work shall be conducted in conformance with the project description above and the avoidance, minimization, and mitigation measures provided in the Request to Approve Habitat Restoration or Enhancement Project (Form 1653) submittal package.

1.14 Work according to plans. All work shall be completed according to the plans, and all associated appendices and attachments, submitted to CDFW in the Request to Approve Habitat Restoration or Enhancement Project (Form 1653) submittal package including the 100% design plans entitled San Geronimo Creek Habitat Enhancement Project, prepared by Stillwater Sciences, dated February 23, 2016 (Exhibit A) and San Geronimo Creek Habitat Enhancement Project Basis of Design Report (Exhibit B). If the Permittee finds it necessary to update project plans prior to construction, the updated plans will be submitted to CDFW at least 30 days prior to beginning project activities to determine if an Amendment is required. Project activities shall not proceed until CDFW has accepted the updated plans in writing. At the discretion of the CDFW, if substantial changes are made to the original plans the Permittee shall submit a new Request to Approve Habitat Restoration or Enhancement Project (Form 1653).

1.15 Best Management Practices. All Best Management Practices (BMPs) and other conditions as submitted in the Request to Approve Habitat Restoration or Enhancement Project (Form 1653) shall be implemented as part of this project, unless otherwise conditioned herein.

1.16 Designer Oversight. The project designers or another designated qualified professional shall oversee installation/ construction of the creek enhancement and wood structures to ensure that the locations, elevations, grades, slopes, and wood structures are being constructed appropriately. Records shall be kept documenting the oversight, following Measure 1.17, Design/Construction Quality Analysis/Quality Control.

1.17 Design/Construction Quality Analysis/Quality Control. A design/construction Quality Analysis/Quality Control (QA/QC) From shall be developed and filled out regularly during the course of construction. Copies of QA/QC forms shall be

submitted within 30 days following project construction completion to CDFW Engineering by email (Marjorie.Caisley@wildlife.ca.gov) with a copy to CDFW's Regional Representative.

1.18 Significant Changes to Design. Significant changes to the design construction due to channel changes or during construction due to field fitting shall be conveyed, to CDFW Engineering by email (Marjorie.Caisley@wildlife.ca.gov) with a copy to CDFW's Regional Representative, prior to implementation, as outlined in Measure 1.14, Work According to Plans.

1.19 Record Plans. Within 30 days of submission by the contractor (but no longer than 60 days after project completion, a set of record plans shall be provided to CDFW Engineering by email (Marjorie.Caisley@wildlife.ca.gov) with a copy to CDFW Regional Representative.

Weather Restrictions

1.20 Work Period in Dry Weather Only. Project work shall be restricted to dry weather as allowed during the work period specified in Measure 1.11, Work Period. Construction shall be timed with awareness of precipitation forecasts and potential increases in stream flow. Construction activities shall cease when the National Weather Service (NWS) 72-hour weather forecast indicates a 30 percent chance or higher of precipitation. All necessary erosion control measures shall be implemented prior to the onset of precipitation. Construction equipment and materials shall be removed if inundation is likely. Construction activities halted due to precipitation may resume when precipitation ceases and the NWS 72-hour weather forecast indicates less than a 30 percent chance of precipitation. No work shall occur during a dry-out period of 24 hours after the above referenced wet weather. Weather forecasts shall be documented upon request by CDFW.

Dewatering

1.1. Dewatering and Rescue Plan. At least 30 days prior to start of work, the Permittee shall submit a detailed Dewatering and Capture and Rescue Plan to include, at a minimum, the following measures for all aquatic organisms (including steelhead trout) and Covered Species (coho salmon):

a) The approved Qualified Biologist [refer to Measure 1.30, Qualified Biologist(s) and Qualified Monitor(s)] shall be on site and direct all dewatering and relocation activities. Capture and relocation shall be conducted in a manner that minimizes stress and injury to captured animals.

b) Only a CDFW-approved qualified biologist with experience in aquatic organism and Covered Species capture and handling shall participate in the capture, handling, and monitoring of aquatic organism and Covered Species.

c) Relocation activities shall be performed during the morning when temperatures are coolest. Hourly air and water temperatures shall be measured and recorded.

d) Before removal and relocation of aquatic organisms and Covered Species, the approved qualified biologist [refer to Measure 1.30, Qualified Biologist(s) and Qualified Monitor(s)] shall identify the most appropriate release location(s). Release locations shall provide suitable habitat for aquatic organisms and Covered Species and shall be selected to minimize the likelihood of reentering the work area. Suitable habitat is defined as creek sections that will remain wet over the summer.

e) Following installation of water diversion structures, and prior to Project activities, a CDFW-approved qualified biologist shall perform surveys for aquatic organisms and Covered Species in the Project Area, collect, and relocate them to the nearest predetermined suitable habitat. During holding and transportation, aquatic organisms and Covered Species shall be held in stream water collected from the site.

f) Prior to fully dewatering the Project Area, remaining aquatic organisms and Covered Species in the work area shall be rescued. Dewatering efforts shall be monitored by the qualified biologist at all times. The qualified biologist shall reduce the rate of diversion if it appears that aquatic organisms or Covered Species may be stranded.

g) Efforts shall be made to reduce collecting and handling stress, minimize the time that aquatic organisms and Covered Species are held in buckets, and minimize handling stress during processing and release. Covered Species shall not be held in containers with other species. If not immediately released, buckets must be kept in the shade and water temperatures monitored to be consistent with the temperature in the creek. Immediately after collection, Covered Species shall be identified and counted. Capture methods may include dip nets. All nets shall be made of a soft braded nylon material that is non-abrasive. Mesh sizing shall be matched to species and the life stages likely encountered.

h) No employee or contractor shall remove any aquatic organisms or Covered Species, dead or alive, from the site for personal use. All efforts to reduce the time that live aquatic organisms and Covered Species are out of the water shall be made to reduce the chances of incidental take during the rescue. All aquatic organisms and Covered Species are to be promptly returned to the water with the exception of mortality.

i) Covered Species shall be processed first and released as soon as possible. Species name, and age class will be recorded on data sheets, as well as

time, date, location, gear type, water temperature, and any other pertinent observations of the Covered Species.

j) Rescue operations may result in Covered Species mortality. If Covered Species suffer mortality, the Permittee shall preserve individuals by freezing or placing in a sealed container with 10 percent formalin solution. Information on time and exact location of any incidental take, method of take, length of time from death to preservation, water temperature, and any other relevant information will be recorded in writing. Permittee shall contact the CDFW regional representative for instructions on transmitting preserved individuals.

k) After completing the rescue, a brief documentation report shall be prepared. The report shall include information on the personnel conducting the Covered Species rescue, methods used, numbers of Covered Species collected and relocated, age class, and estimate of the survival of Covered Species immediately after release. Photographs of the site and rescue operations shall be included. Any take of non-Covered Species shall be documented. The report shall be provided by the Permittee to CDFW in within a week.

l) After the aquatic organism and Covered Species rescue effort is completed, if additional aquatic organism or Covered Species are observed, Project activities shall cease until those individuals have been relocated. The qualified biologist shall remain at the site during dewatering to rescue additional aquatic organisms and Covered Species as necessary.

m) Reintroduction of stream flows shall be gradual to the isolated work area, so as to prevent stranding, channel instability, or excessive scour. The qualified biologist shall monitor upstream and downstream reaches to ensure no aquatic organisms or Covered Species are stranded or in distress during reintroduction of flows. If conditions causing or contributing to stress and/or injury are observed, the Permittee shall take immediate remedial actions directed at lessening sources of stress. This may include a more gradual reintroduction of flows, to avoid abrupt water surface elevation changes both downstream and upstream of the Project Area.

n) The plan shall consider partial or full stream diversion and dewatering. The plan should consider the use of cofferdams upstream and downstream of the work site and divert all flow from upstream of the upstream dam to downstream of the downstream dam, through a suitably sized pipe. If possible, gravity flow is the preferred method of water diversion. If a pump is used, it shall be operated at the rate of flow that passed through the site; pumping rates shall not dewater nor impound water on the upstream side of the cofferdam. Cofferdams shall be constructed as close as practicable upstream and downstream of the work area using clean gravel bags. The

stacked gravel bags may be sealed with plastic sheeting. All cofferdam materials shall be removed from the creek upon project completion within a timely manner. Normal flows shall be restored to the affected creek immediately upon completion of work at that location. If the cofferdams or stream diversion fail, they shall be repaired immediately. Diversion shall be conducted such that water at the downstream end does not scour the channel bed or banks. No other diversion method shall be used without authorization of the CDFW.

1.21 Entrainment. Permittee shall minimize the potential for aquatic organisms and Covered Species to be entrained during de-watering activities. The Permittee shall implement the use of a screen in accordance with the National Marine Fisheries Service 1996 Juvenile Fish Screen Criteria for Pump Intakes. Screen material may be constructed of any rigid woven, perforated, or slotted material that provides water passage while physically excluding fish. Round openings in the screen shall not exceed 3/32-inch diameter, square openings shall not exceed 3/32-inch measured diagonally, and slotted openings shall not exceed 0.069 inches in width. Approach velocity shall not exceed 0.33 feet per second.

1.22 Dewater Work Site. Once water has been diverted around the work area the site shall be dewatered to provide an adequately dry work area. Any muddy or otherwise contaminated water shall be pumped to a settling tank, dewatering filter bag, upland area, or other CDFW-approved location prior to re-entering the creek.

1.23 Groundwater Encountered. Nuisance groundwater encountered during excavation within the streambed shall be discharged at a location where it will infiltrate into the soil, resulting in no overland flow. Turbid water shall not be allowed to flow downstream.

1.24 Compliance Monitoring. The qualified biologist shall be on-site daily during all dewatering activities. The qualified biologist [refer to Measure 1.30, Qualified Biologist(s) and Qualified Monitor(s)] shall conduct compliance inspections to (1) minimize incidental take of the aquatic organism and Covered Species; (2) prevent unlawful take of species; (3) check for compliance with all measures; (4) check all exclusion zones; and (5) ensure that signs, stakes, and fencing are intact, and that covered activities are only occurring in the Project Area. The qualified biologist or monitor shall prepare daily written observation and inspection records summarizing oversight activities and compliance inspections, observations of Covered Species and their sign, survey results, and monitoring activities. The qualified biologist shall conduct compliance inspections a minimum of once a week during periods of inactivity and after de-watering and riparian vegetation removal are completed.

Rock Armoring

1.25 Rock Slope Protection - Limitations. Rock slope protection (i.e. riprap) shall not be used for armoring/protecting the bank if any of the following criteria apply:

- Rock slope protection shall not transfer erosive forces to the opposite bank or another area downstream;

- Rock slope protection shall not narrow or otherwise constrain the stream channel, limiting passage of peak flows and debris from existing conditions; or

- Installation of the rock shall not include removal of woody vegetation and/or trees over 4" DBH, unless otherwise permitted in this Agreement.

1.26 Rock Slope Protection. Permittee shall install angular, energy dissipating rock slope protection that is properly sized to withstand wash out during peak flows. Only clean material such as rock riprap that is free of trash, debris and deleterious material shall be used as bank stabilization. Asphalt shall not be considered an acceptable material.

1.27 Remove Concrete. Permittee shall remove all loose concrete rubble from the creek bed and bank. Concrete rubble shall not be used as slope protection or in any way in the creek bed and bank. Only clean rock riprap shall be used as bank stabilization. Existing pieces of concrete that are embedded in the bank will remain in place as to not compromise the integrity of the creek bank.

1.28 Fill voids in rock Slope Protection. Permittee shall ensure that all voids and spaces within the riprap are filled with smaller rock, gravels, and native soil material, and/or willow cuttings. Cementitious grouts or geotextile linings shall not be used.

Wildlife Protection and Prevention

1.29 Biological Monitor On-site. The Permittee shall designate a person to monitor on-site compliance with all conditions. All project-related activities shall take place shall take place under the direct observation of a biological monitor and or a qualified biologist. The monitor shall have the authority to halt project activities in order to comply with the conditions and otherwise avoid impacts to species and or habitats.

1.30 Qualified Biologist(s) and Monitor(s). Qualified Biologist(s) and Biological Monitor(s) shall meet the following requirements:

- A qualified biologist is an individual who shall have a minimum of 5 years of academic training and professional experience in biological sciences and related resource management activities with a minimum of two years conducting surveys for each species that may be present within the project area.

- A biological monitor is an individual who shall have academic and professional experience in biological sciences and related resource management activities as it pertains to this project, experience with construction-level biological monitoring, be able to recognize species that may be present within the project

area, and be familiar with the habits and behavior of those species.

1.31 Training Session for Personnel. Permittee shall ensure that a CDFW-approved qualified biologist conducts an education program for all persons employed on the project prior to performing covered activities. Instruction shall consist of a presentation by the qualified biologist that includes a discussion of the biology and general behavior of any sensitive species that may be in the area, how they may be encountered within the work area, and procedures to follow when they are encountered. The status of CESA-listed species including legal protection, penalties for violations and project-specific protective management measures provided shall be discussed. Interpretation shall be provided for non-English speaking workers, and the same instruction shall be provided for any new workers prior to on-site project activity. Copies of the conditions for this project shall be maintained at the worksite with the project supervisor. Permittee or qualified biologist shall prepare and distribute wallet-sized cards or a factsheet handout containing this information for workers to carry on-site. Upon completion of the program, employees shall sign an affidavit stating they attended the program and understand all protection measures. These forms shall be filed at the Permittee's office and be available to CDFW upon request.

1.32 Special-Status Species Survey. A CDFW-approved qualified biologist with the ability and knowledge to identify sensitive species and their habitat shall conduct pre-construction surveys **within 48 hours** prior to the start of project activities at each location. If any special-status species are found, work shall not start until CDFW has been contacted and consulted with regarding appropriate avoidance and minimization measures to prevent adversely affecting special-status species. When necessary, a qualified biologist shall remain on site during construction to monitor and prevent adversely affecting special-status species. CDFW reserves the right to provide additional provisions designed to protect special-status species.

1.33 Delineation of Habitat. Permittee shall clearly delineate habitat of the Covered Species within the Project Area with posted signs, posting stakes, flags, and/or rope or cord, and place fencing as necessary to minimize the disturbance of Covered Species' habitat.

1.34 Project Access and Staging. Project-related personnel shall access the Project Area using existing routes, or routes identified in the Project Description and shall stage equipment outside of the project area. Permittee shall not use or cross Covered Species' habitat outside of the marked Project Area. If Permittee determines construction of routes for travel are necessary outside of the Project Area and within the wetted channel, the Permittee shall contact CDFW for written approval before carrying out such an activity.

1.35 Leave Wildlife Unharmed. Each day prior to the start of Project-related activities, the biologist shall check the work site including equipment left onsite for sensitive wildlife species in case individuals have moved into the work area. If any wildlife is encountered during the course of construction, said wildlife shall be allowed to

leave the construction area unharmed. If any listed wildlife is encountered, the Permittee shall contact the Department immediately or proceed as described.

1.36 Trenching. At the end of each workday all trenches and holes greater than one foot deep shall be covered to prevent wildlife from entering. When trenches cannot be fully covered, an escape ramp shall be placed at each end of any constructed open trench to allow any wildlife that may have become entrapped in the trench to climb out overnight. The ramp may be constructed of either dirt fill or wood planking or other suitable material that is placed at an angle no greater than 30 degrees.

1.37 Pipes, Hoses, and Similar Structures. All pipes, hoses, or similar structures less than 12 inches in diameter shall be closed or covered to prevent animal entry. All construction pipes or similar structures greater than 2 inches in diameter stored at the project site overnight shall be inspected thoroughly for wildlife before the pipe or similar structure is buried, capped, used, or moved.

1.38 Work in Isolation from Flowing Water. All in-water work within San Geronimo Creek shall be conducted inside cofferdams and in isolation from flowing water.

1.39 No Equipment in Stream. No equipment shall be operated within the live stream.

Nesting Bird Surveys, Prohibitions, and Buffers

1.40 Nesting Bird Surveys. If construction, grading, vegetation removal, or other project-related improvements are scheduled during the nesting season of protected raptors and migratory birds January 31 to September 1, a focused survey for active nests of such birds shall be conducted by a qualified biologist within 7 days prior to the beginning of project-related activities. The results of the survey shall be sent to CDFW's Regional Representative prior to the start of project activities. If an active nest is found, Permittee shall consult with the United States Fish and Wildlife Service (USFWS) and CDFW regarding appropriate action to comply with the Migratory Bird Treaty Act of 1918 and Fish and Game Code. If a lapse in project-related work of 7 days or longer occurs, another focused survey and if required, consultation with CDFW and USFWS, shall be required before project work can be reinitiated.

1.41 Breeding Bird Nest Take Prohibition. Permittee shall avoid active nests occurring near the project site. Permittee is responsible to comply with the Migratory Bird Treaty Act of 1918 and the Fish & Game Code of California, section 3503.

1.42 Active Nest Buffers. If an active nest is found during surveys, Permittee or the qualified biologist shall consult with CDFW and USFWS regarding appropriate action to comply with State and federal laws. Active nest sites shall be designated as "Ecologically Sensitive Areas" (ESA) and protected (while occupied) during project work by demarking a "No Work Zone" around each nest site.

- Buffer distances for bird nests should be site specific and an appropriate distance, as determined by a qualified biologist. The buffer distances should be specified to protect the bird's normal bird behavior to prevent nesting failure or abandonment. The buffer distance recommendation should be developed after field investigations that evaluate the bird(s) apparent distress in the presence of people or equipment at various distances. Abnormal nesting behaviors which may cause reproductive harm include, but are not limited to, defensive flights/vocalizations directed towards project personnel, standing up from a brooding position, and flying away from the nest. The qualified biologist shall have authority to order the cessation of all nearby project activities if the nesting birds exhibit abnormal behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young) until an appropriate buffer is established.

- The qualified biologist shall monitor the behavior of the birds (adults and young, when present) at the nest site to ensure that they are not disturbed by project work. Nest monitoring shall continue during project work until the young have fully fledged (have completely left the nest site and are no longer being fed by the parents), as determined by the qualified biologist.

1.43 Nesting Habitat Removal or Modification. No habitat removal or modification shall occur within the ESA-fenced nest zone until the young have fully fledged and will no longer be adversely affected by the project. Any trees or shrubs that are removed shall be "downed" in such a manner as to minimize disturbance to stable soil conditions.

Special Status Plant Species

1.44 Plant Surveys. Prior to the start of Project-related construction activities, surveys for sensitive plant species, including those listed by the California Native Plant Society, that may occur within the Project area shall be conducted by a qualified botanist during the appropriate blooming season for each species. Surveys shall be conducted in accordance with CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities.* If sensitive plant species are found within the work area, they must be flagged and completely avoided, and CDFW shall be notified. Plant protection measures including buffers must be developed in consultation with CDFW. CDFW reserves the right to incorporate additional measures in this Agreement to protect sensitive plant species

Vegetation Protection, Prevention, and Restoration

1.45 Final Large Wood Structure Monitoring Plan. Permittee shall submit a Final Large Wood Structure Monitoring and Maintenance Plan for review and approval at least **30 days prior** to starting construction. The Plan should include, at a minimum, monitoring after storm events with bankfull or greater flow discharges to identify scour that could undermine the structure or cause bank erosion, significant shifting

of the structure, failure or potential failure of anchoring hardware, and racking of new large wood that may lead to instability of the structure, excessive erosion, or flooding of adjacent infrastructure. The Plan should include criteria for documentation and reporting of monitoring activities, including field photos and observations.

1.46 Final Revegetation Plan. Permittee shall submit a Final Revegetation Plan (Plan) that includes restoration and enhancement of approximately 0.01 acres of temporarily impacted riparian vegetation on-site for CDFW review and approval at least **30 days prior** to starting project construction. The Plan should include, at a minimum, the number and size of each species to be planted, approximate locations of plantings on a colored aerial map for each project site, and the source of plantings. All plantings shall be native plants that are found locally in the Lagunitas watershed, unless otherwise approved by CDFW in writing.

1.47 Revegetation Work Completed Within Same Work Season. The Permittee shall perform activities according to the Revegetation Plan approved by CDFW according to Measure 1.46, Final Revegetation Plan, within the same work season as Project activities occur.

1.48 Habitat Protection. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete the project. Vegetation outside the construction corridor shall not be removed or damaged without prior consultation and approval of a CDFW representative.

1.49 Vegetation Marked for Protection. Prior to project activities, the Permittee shall clearly mark all vegetation within the project area that shall be avoided during project activities.

1.50 Vegetation Success. To ensure a successful revegetation effort, all plants shall be monitored and maintained as necessary for 5 years. All planting shall have a minimum of 80% survival at the end of 5 years.

1.51 Irrigation. When supplemental watering is used to establish and maintain plant growth in order to meet success criteria, irrigation shall be done in the most water efficient manner possible, such as using hand watering, drip/mircoirrigation or through the use of a time release system.

1.52 Revegetation Remediation. If revegetation survival and/or cover requirements do not meet established goals, Permittee is responsible for replacement planting, additional watering, weeding, invasive exotic eradication, or any other practice, to achieve these requirements. Replacement plants shall be monitored with the same survival and growth requirements for 5 years after planting.

1.53 Native Plant Materials Required. Revegetation shall include only local plant materials native to the project area, unless otherwise approved by CDFW in

writing.

1.54 Prohibited Plant Species. Permittee shall not plant, seed or otherwise introduce invasive exotic plant species. Prohibited exotic plant species include those identified in the California Exotic Pest Plant Council's database, which is accessible at: www.cal-ipc.org/paf/.

1.55 Phytophthora. Permittee shall implement measures to avoid using plant stock that may be infected with the plant pathogen Phytophthora sp. Measures to avoid contamination with Phytophthora sp. may include, but are not limited to, avoiding collection of propagules from 1) known or likely infected areas; 2) during wet conditions; 3) when soil is muddy; or 4) from within 0.5 meters of the soil surface. Measures may also include implementing heat or chemical treatments to collected seeds prior to installation.

1.56 Treat Exposed Areas. All exposed/disturbed areas and access points within the riparian zone left barren of vegetation as a result of the construction activities shall be restored by seeding with a blend of native erosion control grass seed. Seeded areas shall be mulched. Landscape fabric shall not be used. Revegetation shall be completed as soon as possible after construction activities in those areas cease. Seeding placed after October 15 must be covered with broadcast straw, jute netting, coconut fiber blanket or similar erosion control blanket.

1.57 Control Invasive Species. Permittee is responsible for monitoring and if needed, eradication of invasive exotic species that may occur within the project area for a minimum of two years following construction. All revegetation efforts shall include local plant materials native to the project area.

Erosion and Sediment Control

1.58 Erosion control. At no time shall silt-laden runoff be allowed to enter a river, stream, or lake or directed to where it may enter a river, stream, or lake. Erosion control measures shall be utilized throughout all phases of operation where sediment runoff from exposed slopes threatens to enter a river, stream, or lake. Erosion control measures, such as, silt fences, straw hay bales, gravel or rock lined ditches, water check bars, and broadcasted straw shall be used where ever sediment has the potential to leave the work site and enter the river, stream, or lake.

1.59 Monofilament. Permittee shall not use erosion control materials containing plastic monofilament netting (erosion control matting) or similar material containing netting within the project area due to documented evidence of amphibians and reptiles becoming entangled or trapped in such material. Acceptable substitutes include coconut coir matting or similar.

1.60 Erosion Control Monitoring. Permittee shall monitor erosion control measures during and after each storm event and repair and/or replace ineffective measures immediately.

1.61 Disposal and Removal of Materials. All removed spoils and construction debris shall be moved outside the work area prior to inundation by water. Spoil sites shall not be located within the stream channel or areas that may be subjected to stream flows, where spoil may be washed back into a stream, or where it may impact streambed habitat, aquatic or riparian vegetation. All removed material shall be disposed of according to State and local laws and ordinances.

Material Handling, Debris, and Waste

1.62 Stockpiled Materials. Building materials and/or construction equipment shall not be stockpiled or stored where they may be washed into the water or cover aquatic or riparian vegetation. Stockpiles shall be covered when measurable rain is forecasted.

1.63 No Dumping. Permittee and all contractors, subcontractors, and employees shall not dump any litter or construction debris within the stream, or where it may pass into the stream.

1.64 Pick Up Debris. Permittee shall pick up all debris and waste daily.

1.65 Wash water. Water containing mud, silt, or other pollutants from equipment washing or other activities, shall not be allowed to enter a lake or flowing stream or placed in locations that may be subjected to high storm flows.

1.66 Trash Abatement. Permittee shall initiate a trash abatement program before starting the Project and shall continue the program for the duration of the Project. Permittee shall ensure that trash and food items are contained in animal-proof containers and removed at least once a week to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs.

1.67 Refuse Removal. Upon completion of the Project, Permittee shall remove from the Project Area and properly dispose of all temporary fill and construction refuse, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes.

Toxic and Hazardous Material

1.68 Toxic Materials. Any hazardous or toxic materials that could be deleterious to aquatic life that could be washed into the stream or its tributaries shall be contained in water tight containers or removed from the project site.

1.69 Hazardous Materials. Debris, soil, silt, bark, slash, sawdust, 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, wildlife, or riparian habitat resulting from the project related activities shall be prevented from contaminating the soil and/or entering the Waters of the State.

Spills and Emergencies

1.70 Spill Kits. Prior to entering the work site, all field personnel shall know the location of spill kits and trained in their appropriate use.

1.71 Spill of Material Deleterious to Fish and Wildlife. In the event of a hazardous materials spill into a stream (e.g., concrete or bentonite), Permittee shall immediately notify the California Office of Emergency Services State Warning Center by calling 1-800-852-7550 and immediately provide written notification to CDFW by email at R31600Program@wildlife.ca.gov. Permittee shall take all reasonable measures to document the extent of the impacts and affected areas including photographic documentation of affected areas, injured fish and wildlife. If dead fish or wildlife are found in the affected area, Permittee shall collect carcasses and immediately deliver them to CDFW. Permittee shall meet with CDFW within ten days of the reported spill in order to develop a resolution including: site clean-up, site remediation and compensatory mitigation for the harm caused to fish, wildlife and the habitats on which they depend as a result of the spill. The Permittee shall be responsible for all spill clean-up, site remediation and compensatory mitigation costs. Spill of materials to waters of the state that are deleterious to fish and wildlife are in violation of Fish and Game Code section 5650 et. seq. and are subject to civil penalties for each person responsible. CDFW reserves the right to refer the matter to the District Attorney's Office if a resolution cannot be agreed upon and achieved within a specified timeframe, generally six months from the date of the incident.

1.72 Spill Containment. All activities performed in or near a river, stream, or lake shall have absorbent materials designated for spill containment and cleanup activities on-site for use in an accidental spill. The Permittee shall immediately notify the California Emergency Management Agency at 1-800-852-7550 and immediately initiate the cleanup activities. CDFW shall be notified by the Permittee and consulted regarding clean-up procedures.

2. Reporting Measures

Permittee shall meet each reporting requirement described below.

2.1 Notification Prior to Work. At least 60 days prior to commencement of Project activities, Permittee shall notify CDFW Engineering that work will begin. At least 5 days prior to the start of Project activities, Permittee shall notify CDFW's Regional Representative that work will commence.

2.2 Notification of Designated Representative. At least 5 days prior to the start of Project activities, Permittee shall submit to CDFW's Regional Representative the name, business address, and contact information of the Designated Representative, and qualified biologist and qualified monitors.

2.3 Dewatering Plan. At least 30 days prior to the start of Project activities, Permittee shall submit to CDFW for approval a dewatering plan.

2.4 Restoration and Enhancement Plan. At least 30 days prior to the start of Project activities, Permittee shall submit to CDFW's Regional Representative for review and approval, a planting plan that includes restoration and enhancement of approximately 0.01 acres of temporarily impacted riparian vegetation on-site. The plan shall include plant survival and percent coverage criteria and annual monitoring activities for a period of not less than 5 years.

2.5 Large Wood Structure Monitoring Report. At least 30 days prior to the start of Project Activities, Permittee shall submit to CDFW's Regional Representative for review and approval a Large Wood Structure Monitoring Plan. The Plan should, at a minimum, include criteria for documentation and reporting of monitoring activities, including field photos and observations. For example, going out after each large storm event to visually assess the placement of the wood and documenting with photographs.

2.6 Nesting Bird Survey Reports. Survey results for nesting birds shall be submitted to CDFW prior to the start of work if work begins prior to September 1st.

2.7 Compliance Report. The Designated Representative or Designated qualified Biologist shall compile the observation and inspection records during dewatering. Compliance Reports shall be submitted via e-mail to CDFW's Regional Representative within 30 days of project completion. CDFW may at any time increase the timing and number of compliance inspections and reports required under this provision depending upon the results of previous compliance inspections. If CDFW determines the reporting schedule must be changed, CDFW will notify Permittee in writing of the new reporting schedule.

2.8 Record Plans. Within 30 days of submission by the contractor (but no longer than 60 days after project completion), a set of record plans shall be provided to CDFW Engineering by email (Marjorie.Caisley@wildlife.ca.gov) with a copy to CDFW's Regional Representative.

2.9 Design/Construction Quality Analysis/Quality Control. Design/Construction Quality Analysis/Quality Control (QA/QC) forms shall be submitted within 30 days following

completion of project construction to CDFW Engineering by email (Marjorie.Caisley@wildlife.ca.gov) with a copy to CDFW's Regional Representative.

2.10 Re-vegetation Annual Report. The Permittee shall submit an annual status report on the monitoring of planting to CDFW by January 31st of each year for 5 years. This report shall include the survival of planted species and and percent cover The number by species of plants replaced, an overview of the revegetation effort, and the method used to assess these parameters shall also be included. Photos from designated photo stations shall be included. A Final Restoration Report must be submitted once all success criteria are met.

2.11 Notification to the California Natural Diversity Database. If any listed, rare, or special status species are detected during project surveys or on or around the project site during project activities, the Permittee shall submit CNDDB Field Survey Forms to CDFW in the manner described at the CNDDB website (http://www.dfg.ca.gov/biogeodata/cnddb/submitting__data_to_cnddb.asp) within 5 working days of the sightings. Copies of such submittals shall also be submitted to the CDFW regional office as specified below.

2.12 Photographic Documentation of Work. Prior to commencement of work a minimum of four (4) vantage points that offer representative views of the project site and work areas shall be identified. The Permittee shall photograph the project area from each of the vantage points, noting the direction and magnification of each photo. Upon completion of work, the Permittee shall photograph post-project conditions from the vantage points using the same direction and magnification as pre-project photos. A reference key shall be submitted with the photos describing the location of the photo, the direction of the view, and whether the photo is pre- or post-construction. All photos shall be submitted within 30 days of project conclusion.

Exhibit F

Aquatic Invasive Species Prevention Protocols

Marin Resource Conservation District
Aquatic Invasive Species Prevention Plan

Marin RCD is dedicated to the protection, reconnection, and restoration of habitats that are critical to sustaining cold water fisheries populations.
Preventing the spread of aquatic invasive species (AIS) is an extremely important consideration as Marin RCD works to achieve these objectives. The term "prevention" usually refers to stopping the spread of invasive species into a new area, as conventional wisdom has shown that once an invasive species has become established, it is usually impossible to eradicate or prevent its subsequent spread (Vander Zanden and Olden, 2007). This protocol is intended to prevent the spread of AIS, including New Zealand mud snail (*Potamopyrgus antipodarum*), quagga mussel (*Dreissena rostriformis bugensis*), zebra mussel (*Dreissena polymorpha*), sudden oak death syndrome (*Phytophthora ramorum*), and chytrid fungus (*Batrachochytrium dendrobatidis*).
Currently, the Lagunitas Creek watershed does NOT contain AIS and the Marin RCD will do everything possible to ensure it remains clear of AIS with regard to RCD projects. All equipment, including heavy equipment, will be decontaminated using one or more of the methods listed below.

Personal and Field Equipment Decontamination Methods

Option 1: Dry

• Organic matter, aquatic sediments and terrestrial soil will be removed from waders, boots, tires, sampling devices, and other conveyances prior to leaving stream sites. This may be achieved by using a stiff bristled brush and rinsing with clean water.
• Equipment will be allowed to completely dry, either outside with direct exposure to sunlight or in an enclosed environment with heat. All gear will be dry for a minimum of 48 hours to ensure complete desiccation of any inadvertent organisms (CDFW, 2013).

Option 2: Chemical Decontamination

• Organic matter, aquatic sediments and terrestrial soil will be removed from

waders, boots, tires, sampling devices, and other conveyances prior to leaving stream sites. This may be achieved by using a stiff bristled brush and rinsing with clean water.
• Diluted concentrations of chemical disinfectants, such as Quaternary ammonium compound 128 or fresh household bleach, may be used to disinfect gear and field equipment (concentrations from Webb et al. 2007).
o Quat-128 will be used at concentrations of ~**0.01%** of the active ingredient
o Fresh standard bleach will be used at concentrations of ~**5%** of bleach solution in the bottle (approximately 1:20 bleach solution-to-water ratio).
• Any concentrated solutions will be neutralized with benzonite or a similar substance prior to disposal. Any solution disposed of in the field will be at least 100 ft from any water body where the compound will break down quickly (e.g. soils, decomposing wood, duff).

Option 3: Freeze
• Organic matter, aquatic sediments and terrestrial soil will be removed from waders, boots, tires, sampling devices, and other conveyances prior to leaving stream sites. This may be achieved by using a stiff bristled brush and rinsing with clean water.
• Gear will be placed in a freezer that is at least 32°F for a minimum of eight hours.

Heavy Equipment Decontamination Methods

After determining the present distribution of any known AIS in project watersheds, Marin RCD will ensure that all heavy equipment are properly inspected and decontaminated immediately following use and prior to being used in any additional watersheds. All heavy equipment will be cleaned and decontaminated using one or more of the methods listed below. Marin RCD will coordinate with subcontractors and CDFW staff to select the decontamination methods that are the most feasible and cost-effective on a project specific basis.

Heavy Equipment Inspection
All heavy equipment, including rubber-tired and tracked vehicles, will be thoroughly inspected for organic matter, terrestrial soil, and aquatic sediments in the field. Particular attention will be given to areas where organic materials can easily become trapped, such as cracks or crevices, undercarriages, and in the tread of tracks and tires. Any organic material discovered on or in heavy equipment will be removed prior to leaving any field sites. Heavy equipment inspection will be

conducted following methods described in the Bureau of Reclamation Technical Memorandum No. 86-68220-07-05 –Appendix A, "Inspection Protocols for Rubber-Tired and Tracked Vehicles", pg. A15-A24 (2012).

Heavy Equipment Cleaning and Decontamination

Option 1: Physical Removal

• Surface soils, plant material, and aquatic sediments will be removed from heavy equipment and associated gear using a stiff bristled brush.

• Vacuuming equipment may also be used to remove loose particulate matter. Any vacuumed materials will be double-bagged and disposed of in a sanitary landfill.

Option 2: High- Pressure Air Blasting or High-Pressure Washing

• Where applicable, heavy equipment will be cleaned using high-pressure air blasting or a high-pressure wash system to remove residual foreign materials following the physical removal of organic materials.

Option 3: Thermal Treatment

• Where applicable, all heavy equipment shall be steam cleaned or washed with hot water following the physical removal of organic materials.

See Bureau of Reclamation Technical Memorandum No. 86-68220-07-05 – Appendix B, "Cleaning and Decontaminating Vehicles and Equipment", pg. B2-B9 (2012) for additional details about these decontamination methods. See Bureau of Reclamation Technical Memorandum No. 86-68220-07-05 – Appendix B, "Cleaning and Decontaminating Vehicles and Equipment", pg. B2- B9 (2012) for additional details about these decontamination methods.

If any Marin RCD employee or project partner suspects that they have discovered the presence of New Zealand mudsnail, quagga and zebra mussels, sudden oak death syndrome, or any other AIS, they will immediately notify the CDFW Invasive Species Program by phone at (866) 440-9530 or email invasives@wildlife.ca.gov.

For additional descriptions and information on the species of interest mentioned in this protocol, please visit the following links:

New Zealand mudsnail Factsheet:
https://nas.er.usgs.gov/queries/factsheet.aspx?SpeciesID=1008
Quagga Mussel Factsheet:
https://nas.er.usgs.gov/queries/factsheet.aspx?speciesid=95
Zebra Mussel Factsheet:

https://nas.er.usgs.gov/queries/factsheet.aspx?speciesid=5
Sudden Oak Death Syndrome Factsheet:
http://www.suddenoakdeath.org/wp-content/uploads/2014/12/collectors-5-06-withnew-
2014-map.pdf
Chytrid Fungus Factsheet:
http://cisr.ucr.edu/chytrid_fungus.html

Literature Cited

Bureau of Reclamation. 2012. Inspection and cleaning manual for equipment and vehicles to prevent the spread of invasive species. Technical Memomrandum No. 86-68220-07-05, U.S. Department of the Interior, Policy and Administration, Denver, CO.

CDFW. 2013. California Department of Fish and Wildlife Aquatic Invasive Species Decontamination Protocol. Habitat Conservation Planning Branch, 1416 Ninth Street, 12th Floor, Sacramento, CA 95814.

Vander Zanden, M. J. and J. Olden. 2008. A management framework for preventing the secondary spread of aquatic invasive species. Canadian Journal of Fisheries and Aquatic Sciences, 65: 1512-1522.

Webb, R., D. Mendez, L. Bergere, and R. Speare. 2007. Additional disinfectants effective against the amphibian chytrid fungus *Batrachochytrium dendrobatidis*. Diseases of Aquatic Organisms, 74(13): 13-16.