SOLICITATION DOCUMENTS & SPECIFICATIONS

FOR

SAXON CREEK AQUATIC ORGANISM PASSAGE PROJECT PHASE 2

FOREST SERVICE ROAD 1201
EL DORADO COUNTY, CALIFORNIA

BY
NEVADA TAHOE CONSERVATION DISTRICT
400 DORLA COURT
ZEPHYR COVE, NEVADA 89448

(775) 586-1610

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FOR
SAXON CREEK AQUATIC ORGANISM PASSAGE PROJECT PHASE 2
FOREST SERVICE ROAD 1201, EL DORADO COUNTY, CALIFORNIA

INDEX

NOTICE TO BIDDERS

1. Proposals will be received in the Office of the Nevada Tahoe Conservation District (NTCD) at 400 Dorla Court, Zephyr Cove, Nevada, or via email to mkelly@ntcd.org until **2:00 P.M. on August 2, 2022** for the **"SAXON CREEK AQUATIC ORGANISM PASSAGE PROJECT, EL DORADO COUNTY, CALIFORNIA"**. Sealed proposals will be opened virtually at 4:00 PM on the same day in the NTCD Conference Room. An online meeting link will be posted on ntcd.org 24 hours prior to the bid opening. The NTCD Board of Supervisors will consider award of the contract at a subsequently scheduled meeting the week of August 8th, 2022.

2. To assure consideration, all proposals shall be made on the blank form of proposal attached to these Specifications. If submitting a proposal by mail, electronic copies of the forms may be requested.

3. No proposal will be considered unless accompanied by a cashier's check, certified check, or bid bond in an amount equal to five percent (5%) of the base bid, made payable to Nevada Tahoe Conservation District as provided for in the General Conditions. The Engineer's Estimate for the Project is $715,000 for the base bid and bid alternate items.

4. Project Contract Documents may be obtained at no cost at Nevada Tahoe Conservation District at 400 Dorla Court, Zephyr Cove, Nevada 89448 or electronically via email.

5. The Contractor shall visit the project site and familiarize himself with the scope of the Project PRIOR TO SUBMITTING A BID. If the Contractor finds any errors, omissions, or discrepancies in the plans or specifications, he shall notify the Engineer immediately. An optional pre-bid meeting will be held at **10:00 PM on July 27th, 2022** at the Saxon Creek Bridge Crossing on Forest Service Road 1201 located approximately 1 mile east of the intersection of Pioneer Trail and Oneidas Road in El Dorado County near South Lake Tahoe, California.

6. Should a bidder find discrepancies in, or omissions from, the drawings or documents, or should he be in doubt as to their meaning, he should at once notify NTCD, who will send a written instruction to all bidders. Neither NTCD nor the Engineer will be responsible for any oral instructions.

7. No grading may be performed outside the period between October 15 and May 1 without written permission from the TRPA.

8. **CONTRACTORS LICENSE CLASSIFICATION:** Bidders must be properly licensed to perform the Work pursuant to the Contractors' State License Law (Business and Professions Code Section 7000 et seq.) and must possess a CLASS A license or equivalent combination of Classes required by the categories and type of Work included in the Contract Documents and Plans at the time the Contract is awarded, and must maintain a valid license through completion and acceptance of the Work, including the guarantee and acceptance period. Failure of the successful Bidder to obtain proper adequate licensing will constitute a failure to execute the Contract and will result in the forfeiture of the Bidder's security.

9. **BUSINESS LICENSE**: The County Business License Ordinance provides that it is unlawful for any person to furnish supplies or services, or transact any kind of business in the unincorporated territory of the County of El Dorado without possessing a County business license unless exempt under County Ordinance Code Section 5.08.070. The Bidder to whom an award is made must comply with all of the requirements of the County Business License Ordinance, where applicable, prior to beginning Work under this Contract and at all times during the term of this Contract.

10. **CONTRACTOR REGISTRATION**: No contractor or subcontractor may bid on any public works project, be listed in a bid proposal for any public works project, or engage in the performance of any contract for public work unless registered with the Department of Industrial Relations pursuant to Labor Code sections 1725.5 and 1771.1. An inadvertent error in listing a subcontractor who is not registered pursuant to Section 1725.5 in a bid proposal shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive if the requirements of Labor Code section 1771.1 are met.

11. **EMISSIONS REDUCTION**: Contractor must comply with emission reduction regulations mandated by the California Air Resources Board, sign the certification of knowledge in the Agreement, and provide County a Certificate of Reported Compliance when road legal diesel vehicles with a gross vehicle weight over 14,000 pounds are included in their fleet. Contractor must require all sub-contractors to comply with such regulations and provide County a Certificate of Reported Compliance for each sub-contractor with road legal diesel vehicles over 14,000 pound gross vehicle weight.

12. **SUBCONTRACTOR LIST:** Each Proposal must have listed therein the name, contractor's license number, DIR number, and address of each subcontractor to whom the bidder proposes to subcontract portions of the Work in an amount in excess of 0.5% of the total bid or $10,000, whichever is greater, in accordance with the Subletting and Subcontracting Fair Practices Act, commencing with Section 4100 of the Public Contract Code. The Bidder must also describe in the Subcontractor List the Work to be performed by each subcontractor listed. The Work to be performed by the subcontractor must be shown by listing the bid item number, bid item description, and portion of the Work to be performed by the subcontractor in the form of a percentage (not to exceed 100%) calculated by dividing the Work to be performed by the subcontractor by the respective bid item amount(s) (not by the total bid price).

    The percentage of each bid item subcontracted may be submitted with the Bidder's bid or sent via email or fax to Meghan Kelly, Nevada Tahoe Conservation District, email mkelly@ntcd.org Fax (775)586-1612 within 24 hours of being requested after the bid opening. The email or fax must contain the name of each subcontractor submitted with the Bidder's bid along with the bid item number, the bid item description, and the percentage of each bid item subcontracted, as described above. At the time the contract is awarded, all listed subcontractors must be properly licensed to perform their designated portion of the Work. The Bidder's attention is directed to other provisions of the Act related to the imposition of penalties for failure to observe its provisions by using unauthorized subcontractors or by making unauthorized substitutions.

    An inadvertent error in listing the California Contractor license number on the Subcontractor List will not be grounds for filing a bid protest or grounds for considering the bid non-responsive if the Bidder submits the corrected contractor's license number to Brian Franklin via fax or email as noted above within 24 hours of being requested after the bid opening, provided the corrected contractor's license number corresponds to the submitted name and location for that subcontractor.

13. **NONDISCRIMINATION:** Contracts for work under this proposal will obligate the Contractor and subcontractors not to discriminate in employment practices pursuant to Chapter 5 of Division 4.1 of Title 2, California Code of Regulations.

    Comply with the additional nondiscrimination and fair employment practices provisions in the Draft Agreement contained in these Contract Documents that will apply to this Federal-aid Contract.

    The Nevada Tahoe Conservation District hereby notifies all Bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, sex, national origin, religion, age, or disability in consideration for the award.

14. **PREVAILING WAGE REQUIREMENTS:** This Project is funded in whole or part by Federal funds and therefore the general prevailing rate of wages in the county in which work is to be done has been determined by the United States Secretary of Labor under the Davis-Bacon Act (40 U.S.C. 3141-3147 and 29 CFR Part 5), and project bids must comply with this act. Interested parties can obtain current wage information through the System for Award Management (SAM) website at https://sam.gov/content/wage-determinations. As well, contractors must comply with the Copeland Act (18 U.S.C. 874 and 29 CFR Part 3) and the Contract Work Hours and Safety Standards Act (40 U.S.C. 3701 and 29 CFR Part 5).

15. **BID PROTEST PROCEDURE**: The protest procedure is intended to handle and resolve disputes related to the bid award for this Project pursuant to Title 2 Code of Federal Regulations Part 200.318(k) and Nevada Tahoe Conservation District policies and procedures. A protestor must exhaust all administrative remedies with the Nevada Tahoe Conservation District before pursuing a protest with a Federal Agency. Reviews of protests by the Federal agency will be limited to:

1. Violations of Federal law or regulations and the standards of 2 CFR Part 200.318(k). Violations of State of California or local law will be under the jurisdiction of the State of California or the County of El Dorado.

The protest procedure is an extension of the formal bid process and allows those who wish to protest the recommendation of an award after bid the opportunity to be heard.

Policy: Upon completion of the bid evaluation, the Department of Transportation will notify all bidders of the recommendation of award, the basis therefore, and the date and time on which the recommendation for award will be considered and acted upon by the Board of Supervisors. All bidders may attend the Board of Supervisors meeting at the time the agenda item is considered, address the Board of Supervisors, and be heard.
Procedure: If a bidder wishes to protest the award, this is the procedure:

District staff will review the bids received in a timely fashion under the terms and conditions of the Notice to Bidders, and notify the bidders in writing, at the fax number designated in the Proposal, of its recommendation including for award or rejection of bids ("All Bidders Letter").

Within five (5) business days from the date of the "All Bidders Letter," the Bidder protesting the recommendation for award must submit a letter of protest to and must be received by the Nevada Tahoe Conservation District, PO Box 915, Zephyr Cove, NV 89448, and state in detail the basis and reasons for the protest. The Bidder must provide facts to support the protest, including any evidence it wishes to be considered, together with the law, rule, regulation, or criteria on which the protest is based.

If the District finds the protest to be valid, it may modify its award recommendations and notify all bidders of that decision. If the District does not agree with the protest, or otherwise fails to resolve the protest, it will notify the bid protestor and all interested parties of its decision and the date and time that the recommendation for award will be agendized for the Board of Supervisors' consideration and action. The District staff will also include in its report to the Board of Supervisors the details of the bid protest.

The Bidder may attend the Board of Supervisors meeting at which the recommendation and bid protest will be considered. The Board of Supervisors will take comment from the Bidder, staff, and members of the public who wish to speak on the item. In the event that the Bidder is not in attendance at that time, the bid protest may be dismissed by the Board of Supervisors without further consideration of the merits; and The decision of the Board of Supervisors on the bid protest will be final.

16. **AWARD OF CONTRACT:** Bids will be considered for award by the Nevada Tahoe Conservation District Board of Supervisors. The Nevada Tahoe Conservation District reserves the right after opening bids to reject any or all bids, to waive any irregularity in a bid, or to make award to the lowest responsive, responsible Bidder and reject all other bids, as it may best serve the interests of the District.

In the event that additive alternate and/or optional bid items are requested by the NTCD, in determining the low bid, the NTCD reserves the right, within its sole judgment and discretion, to make the award of the base bid alone, or of the base bid with alternates and any combination or order of additive optional bid items which represent the lowest overall bid combining the base bid, alternates and optional bid items selected by the NTCD. The selected combination and/or order of any additive alternate bid items along with the base bid shall be final at the time of award.

As a condition of award, the successful Bidder will be required to submit bonds and evidence of insurance prior to execution of the Agreement by the District. Failure to meet this requirement constitutes abandonment of the Bid by the Bidder and forfeiture of the Bidder's security. Award will then be made to the next lowest, responsive, responsible Bidder.

The Nevada Tahoe Conservation District must receive all required documents within ten (10) business days of the date of the Notice of Award of Contract letter.

17. Following receipt of written notification of contract award, the contractor shall execute and return the Agreement within ten (10) calendar days. The contract work shall be commenced upon receiving the NOTICE TO PROCEED. The Notice to Proceed will be issued by the NTCD after execution of the contract.

18. The Nevada Tahoe Conservation District reserves the right to accept the lowest responsible bid for the project, to reject any or all bids, or to waive any informalities or irregularities in the bid process. Bids must remain valid for a period of 30 days following the bid opening. Award of the bid is subject to the availability of funds.

SCOPE OF WORK

1. **WORK UNDER THIS CONTRACT:** includes but is not limited to, all material, labor, tools, expendable equipment, utility and transportation service, traffic control, signage, and all other incidental items necessary to perform and complete, in a workmanlike manner, the work described within and required for:

- Construction special technical provisions as prepared by Nevada Tahoe Conservation District (NTCD).
- Construction of Saxon Creek Aquatic Organism Passage Project, Phase 2 improvements (refer to plans prepared by NTCD) including, but not limited to:
    1. Excavation, fill placement, and grading;
    2. Installation of boulder sills, log and rock structures, and woody debris jams;
    3. Installation of hardened pedestrian creek access;
    4. Removal of trees;
    5. Dewatering of Saxon Creek during construction;
    6. Revegetation of all disturbed lands;
    7. Installation and maintenance of temporary erosion control;
    8. Performance of necessary traffic control;
    9. Disposal of any extra material;
    10. Repair of all existing site improvements damaged during the course of the work;
    11. Restoration of historic ditch used for dewatering to pre-project conditions; and
    12. Work must be completed by October 15, 2022 unless written approval from NTCD and TRPA is obtained by the Contractor.

2. **CONFORM WITH THE FOLLOWING SCHEDULE*:*** Work may begin no earlier than August 15, 2022 in order to assure the site is dry and all permits are in place. Work must be completed by October 15, 2022 unless written approval is given by NTCD and TRPA. Construction shall be completed within forty-five (45) working days from the date the Contractor is issued the Notice to Proceed. If the construction schedule cannot be completed within the scheduled time due to circumstances beyond the Contractor's control, the construction schedule can be extended through a revised schedule established at the discretion of Nevada Tahoe Conservation District and retention shall be held until construction work is completed.

3. **PERMITS AND LICENSES:** NTCD will provide the Tahoe Regional Planning Agency (TRPA), Army Corps of Engineers, (USACE), California Department of Fish and Wildlife (CDFW), Lahontan Regional Water Quality Control Board (LRWQCB) and US Forest Service (USFS) permits. The Contractor shall obtain any other permits and licenses required to complete this work. The Contractor shall procure and maintain, at his expense, all licenses, insurance policies, etc. as may be necessary to comply with Federal, State or local laws in the performance of the work.

4. **UTILITIES:** There are no known utilities in the project site. However, it is the contractor's responsibility to verify the utility locations and contact the engineer if any discrepancies are found between the plans and what is verified in the field. Coordinate with the Engineer and utilize call before you dig, underground services prior to any work on site.

5. **BID IRREGULARITIES:** The NTCD reserves the right to reject any or all bids and to withhold award for up to thirty (30) days. If there are minor irregularities or informalities in any bid or in the bidding process, the NTCD reserves the right to waive provisions of the specifications relating to said minor irregularities of informalities.

INSTRUCTIONS TO BIDDERS

Proposals, to be entitled for consideration, must be made in accordance with the following instructions:

1. Proposals will be received in the Office of the Nevada Tahoe Conservation District (NTCD) at 400 Dorla Court, Zephyr Cove, Nevada, or via email to mkelly@ntcd.org until **2:00 P.M. on August 2, 2022** for the **"SAXON CREEK AQUATIC ORGANISM PASSAGE PROJECT, PHASE 2, EL DORADO COUNTY, CA"**. Sealed proposals will be opened virtually at 4:00 PM on the same day in the NTCD Conference Room. An online meeting link will be posted on ntcd.org 24 hours prior to the bid opening. The NTCD Board of Supervisors will consider award of the contract at a subsequently scheduled meeting the week of August 8th, 2022.

2. Proposals shall not contain any recapitulation of the work to be done. No oral, telegraphic or telephonic proposals or modifications will be considered.

3. Bids will be accepted only on the complete project as outlined in the Scope of Work. No partial bids will be accepted.

4. Bidder shall visit the site and know all requirements of work within these specifications to his/her satisfaction before submitting a bid. An optional pre-bid meeting will be held at 10:00 AM on July 27th, 2022 at Saxon Creek Bridge Crossing on Forest Service Road 1201 located approximately 1 mile east of the intersection of Pioneer Trail and Oneidas Road in El Dorado County near South Lake Tahoe, California.

5. Should a bidder find discrepancies in, or omissions from, the drawings or documents, or should he be in doubt as to their meaning, he should at once notify NTCD, who will send a written instruction to all bidders. Neither NTCD nor the Engineer will be responsible for any oral instructions.

6. Any written instructions, bulletins or drawings issued to bidders by NTCD or Engineer during the course of bidding shall be covered in the proposal, and in closing a contract, they will become a part thereof.

7. The Agreement Form attached hereto will be used in executing a contract for this work.

8. No proposal will be considered unless accompanied by cashier's check, certified check, or bid bond in an amount equal to five percent (5%) of the base bid, made payable to the Nevada Tahoe Conservation District as provided in the General Conditions. The Engineer's Estimate for the Project is $715,000 for the base bid and bid alternate items.

9. Following receipt of written notification of contract award, the contractor shall execute and return the Agreement within ten (10) calendar days. The Notice to Proceed will be issued by NTCD after execution of the contract and confirm the date by which work under the contract must commence. Construction shall be completed within forty-five (45) working days from the date the Contractor is issued the Notice to Proceed. All project work shall be completed by October 15, 2022.

10. Should the Contractor fail or refuse to complete the work within the stipulated time, including any authorized extensions of time, there shall be deducted from the monies due him, not as a penalty but as liquidated damages, FIVE HUNDRED DOLLARS ($500.00) for each day required to complete the work in addition to the period of time hereinbefore set forth.

11. Bidders attention is directed to the Insurance Specifications attached as Exhibit "A". The successful bidder shall be required to comply with such provisions.

12. NTCD reserves the right to reject any or all bids and to withhold award for up to thirty (30) days. If there are minor irregularities or informalities in any bid or in the bidding process, NTCD reserves the right to waive provisions of the Specifications relating to said minor irregularities or informalities.

13. Contracts for work under this proposal will obligate the Contractor and subcontractors not to discriminate in employment practices pursuant to Chapter 5 of Division 4.1 of Title 2, California Code of Regulations.

The Contractor must pay the prevailing wage rates pursuant to the Davis-Bacon Act (40 U.S.C. 3141-3147 and 29 CFR Part 5) and must also comply with the Copeland Act (18 U.S.C. 874 and 29 CFR Part 3) and the Contract Work Hours and Safety Standards Act (40 U.S.C. 3701 and 29 CFR Part 5).

14. Award of the contract will be made to the best value bid considering lowest cost, similar successful project work, and responsiveness of bidder as determined by the NTCD in compliance with the bid documents and which, in the NTCD's sole judgment, best meet the NTCD's needs and complies with California Public Contract Code. In the event that additive alternate and/or optional bid items are requested by the NTCD, in determining the low bid, the NTCD reserves the right, within its sole judgment and discretion, to make the award of the base bid alone, or of the base bid with alternates and any combination or order of additive optional bid items which represent the lowest overall bid combining the base bid, alternates and optional bid items selected by the NTCD. The selected combination and/or order of any additive alternate bid items along with the base bid shall be final at the time of award.

15. Each Contractor, subcontractor and other person who provides labor, equipment, materials, supplies or services for the public work must comply with the requirements of all applicable state and local laws, including without limitation, any applicable licensing requirements and requirements for the payment of sales and use taxes on equipment, materials and supplies provided for the public work.

BID PROPOSAL

NEVADA TAHOE CONSERVATION DISTRICT
400 Dorla Court
Zephyr Cove, Nevada 89448

Gentlemen:

I (we) hereby submit my (our) proposal for the **"SAXON CREEK AQUATIC ORGANISM PASSAGE PROJECT, PHASE 2, EL DORADO COUNTY, CA"**.

In compliance with your published Notice to Contractors, the undersigned as bidder declares that he has carefully examined the location of the proposed work and the Plans and Specifications, including the Special Technical Provisions and the Standard Specifications for Public Works; therefore, together with addenda numbered _____ through _____, and I (we) propose and agree that if this proposal is accepted, I (we) will contract with the Nevada Tahoe Conservation District (NTCD) to provide all necessary labor, machinery, tools, apparatus, and other means of construction, and do all the work and furnish all the materials required to complete construction of the project, in a satisfactory manner at the prices stated in the bid proposal.

Construction shall be in strict conformity with the 100% Design Plans, Special Technical Provisions, Specifications, and contract documents prepared therefore, which hereby are made a part of this proposal.

The bidder proposes and agrees to contract with NTCD to furnish and perform all of the described work, including subsidiary obligations as defined in said contract documents and specifications and to complete the work in the manner and within the time limits set forth in the Contract Documents.

The bidder understands that the following quantities are approximate, only being given as a basis for the comparison of Proposals; and that NTCD does not expressly or by implication agree that the actual amount of work will correspond therewith but reserves the right to increase or decrease the amount of work as may be deemed necessary or advisable by the Engineer.

BID SCHEDULE

SAXON CREEK AQUATIC ORGANISM PASSAGE PROJECT, PHASE 2

BASE BID: Saxon Creek Aquatic Organism Passage Project Phase 2 construction bid items. All items not covered by in the Plans, Special Provisions, and Special Technical Provisions but are necessary for completion of the project are incidentals to the listed Bid Items.

Item No.	Quantity	Unit	Item Description	Unit Price	Amount
1	1	LS	Mobilization and Demobilization		
2	1800	LF	Filter Fence		
3	1800	LF	Construction Limit Fencing		
4	500	LF	Sediment Logs, As Directed		
5	2	EA	Gravel Construction Access		
6	1	LS	Dewatering/Diversion		
7	33000	SF	Clearing and Grubbing		
8	2500	SF	Salvage Sod, Stage, and Maintain		
9	45	EA	Rootwad Logs		
10	114	EA	Tree Removal and Stockpile		
11	1	LS	Earthwork		
12	6	EA	Riffle Log Structures		
13	255	LF	Riffle Channel		
14	187	LF	Type 1 Pool		
15	257	LF	Type 2 Pool		
16	107	LF	Boulder Sill		
17	1	LS	Hardened Stream Access		
18	6400	SF	Water's Edge Treatment		
19	6680	SF	Meadow Treatment		
20	29500	SF	Upland Treatment		
21	1	LS	Irrigation		

BASE BID TOTAL (in numerals) _____

BASE BID TOTAL (in words) _____

BID ALTERNATE SCHEDULE

SAXON CREEK AQUATIC ORGANISM PASSAGE PROJECT, PHASE 2

BID ALTERNATE: Saxon Creek Aquatic Organism Passage Project, Phase 2 construction bid alternate items. All items not covered in the Plans, Special Provisions, and Special Technical Provisions but are necessary for completion of the project are incidentals to the listed Bid Alternate Items.

Item No.	Quantity	Unit	Item Description	Unit Price	Amount
Alt-1	19	EA	Full Span Debris Jams, As Directed		
Alt-2	6	EA	Partial Debris Jams, As Directed		
Alt-3	25	EA	Willow/Alder Rootwad Salvage and Placement, As Directed		
Alt-4	20	EA	Log Placement, As Directed		

BID ALTERNATE TOTAL (in numerals) _____

BID ALTERNATE TOTAL (in words) _____

BID SUMMARY

SAXON CREEK AQUATIC ORGANISM PASSAGE PROJECT, PHASE 2

TOTAL BASE BID: $_____

TOTAL BID ALTERNATE: $_____

The unit prices above shall be the basis of determining the amount paid for the completed project including any increased or decreased quantities authorized by the Engineer.

If the undersigned be notified of the acceptance of his proposal, he agrees to execute the Agreement within ten (10) calendar days for the work covered in his proposal for the above stated prices as full compensation for furnishing all materials and labor, and doing all of the work, in strict accordance with the contract documents, to the satisfaction of the Engineer.

The undersigned further agrees to commence the work within the time stated in the Notice to Proceed and to complete the work specified within the time stated in the Agreement.

The undersigned states that he has a thorough understanding of the conditions embodied in the contract documents and specifications.

Name of Firm_____

By_____

Address_____

_____

Phone_____

Fax_____

Email_____

California Contractor's License

No._____

Date_____

_____

WITNESS

BID BOND

KNOW ALL PEOPLE BY THESE PRESENTS, that we, the undersigned, _____

_____, as Principal, and _____

_____

(legal description and address of Surety)

authorized to do business of Surety in the State of California, as Surety, are held and firmly bound unto Nevada Tahoe Conservation District, as NTCD, in the sum of _____ Dollars ($_____), (which is not less than 5% of the contract price) for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, and administrators, successors, and assigns.

Signed this _____ day of _____, 2022.

The condition of the above obligation is such that whereas the Principal has submitted to NTCD, a certain bid, attached hereto and hereby made a part hereof, to enter into a Contract in writing for the **"SAXON CREEK AQUATIC ORGANISM PASSAGE PROJECT, PHASE 2"**.

Now, therefore, if said bid shall be rejected, or in the alternative, if said bid shall be accepted and the Principal shall execute and deliver a Contract in the form of contract attached hereto (properly completed in accordance with said Bid) and shall furnish a Bond for his Faithful Performance of said Contract, and a Bond for the payment of all persons performing labor or furnishing materials in connection therewith, and shall provide and comply with the insurance requirements, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be void.

Otherwise, the same shall remain in force and effect, and the sum herein specified paid over to the NTCD, it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by an extension of the time within which the NTCD may accept such bid; and said Surety does hereby waive notice of such extension.

In Witness whereof, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their officers, the day and year first set forth above.

Bond No. _____

_____

Principal

_____

(Seal) By

Surety _____

(Seal) By _____

(NOTE: Signature of those executing for the Surety shall be properly acknowledged, and accompanied by a Certificate of Acknowledgement.)

GENERAL CONTRACTOR

_____ _____

(Firm Name) (California Contractors License #)

_____

(Name of Officer) is authorized to bid and to enter into this Contract for the above listed firm.

The firm is: (check one)

____ a corporation ____ a partnership ____ sole proprietorship

Principal Officers:

Name	Title	Signature

Owners Not Listed Above:

I _____ (Name of Officer) certify that the above lists includes all officers, owners and financial partners of the above mentioned firm corporate structures to the best of my knowledge.

_____

Signature and Title of Officer

QUALIFICATION OF BIDDER CERTIFICATE

The undersigned bidder, proposed contractor or subcontractor certifies, that they are qualified to do the water quality improvement project and associated revegetation as described in Section 102 CONTRACTOR QUALIFICATIONS of the Special Provisions prepared by NTCD and submitted all qualification as stated in 102.01 Description together with the bid document.

Contractor Qualifications _____

_____

_____

_____

_____

_____

_____

_____

_____

Name of Bidder, Proposed Contractor or Subcontractor

_____

Name and Title of Authorized Representative

_____ _____

Signature Date

SUBCONTRACTOR LIST

The Bidder must list the name, address, license number, and DIR number of each subcontractor to whom the Bidder proposes to subcontract portions of the Work as required by the Contract Documents and the Subletting and Subcontracting Fair Practices Act, commencing with Section 4100 of the Public Contract Code. The Bidder must also list the Work portion to be performed by each subcontractor by listing the bid item number, bid item description, and portion of the Work to be performed by the subcontractor in the form of a percentage calculated by dividing the Work to be performed by the subcontractor by the respective bid item amount(s) (not by the total bid price).

Firm Name Address City, State, Zip Code	Phone Fax	License No. DIR No.	Bid Item Number Bid Item Description		Percentage of Each Bid Item Subcontracted
Name *Address* *City, State, Zip Code*	*Phone* *Fax*	*License No.* *DIR No.*	*No.*	*Description*	
Name *Address* *City, State, Zip Code*	*Phone* *Fax*	*License No.* *DIR No.*	*No.*	*Description*	
Name *Address* *City, State, Zip Code*	*Phone* *Fax*	*License No.* *DIR No.*	*No.*	*Description*	
Name *Address* *City, State, Zip Code*	*Phone* *Fax*	*License No.* *DIR No.*	*No.*	*Description*	

(THE BIDDER'S EXECUTION ON THE SIGNATURE PORTION OF THIS PROPOSAL SHALL ALSO CONSTITUTE AN ENDORSEMENT AND EXECUTION OF THOSE CERTIFICATIONS WHICH ARE A PART OF THIS PROPOSAL)

EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION

	Has	Has Not
The Bidder _____	_____	_____
Proposed Subcontractor(s) _____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

hereby certifies the above information regarding participation in a previous contract or subcontract subject to the equal opportunity clauses, as required by Executive Orders 10925, 11114, 11246, and 11375, and as supplemented by 41 CFR 60, and that, where required he has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

NONCOLLUSION AFFIDAVIT

(Title 23 United States Code Section 112 and
Public Contract Code Section 7106)

NONCOLLUSION DECLARATION TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

The bidder declares:

I am the _____ of _____, the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. The bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder. All statements contained in the bid are true. The bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____[date], at _____[city], _____[state].

NOTE:
The above Noncollusion Declaration is part of the Proposal and required by Title 23 United States Code Section 112 and Public Contract Code Section 7106. Signing this Proposal on the signature portion thereof shall also constitute signature of this Noncollusion Declaration.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Public Contract Code Section 10285.1 Statement

In conformance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the Bidder hereby declares under penalty of perjury under the laws of the State of California that the Bidder has ____ , has not ____been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or Federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "Bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

Note: The Bidder must place a check mark after "has" or "has not" in one of the blank spaces provided. The above Statement is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Public Contract Code Section 10162 Questionnaire

In conformance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the Bidder, any officer of the Bidder, or any employee of the Bidder who has a proprietary interest in the Bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes _____ No _____

If the answer is yes, explain the circumstances in the following space.

Public Contract Code Section 10232 Statement

In conformance with Public Contract Code Section 10232, the Bidder, hereby states under penalty of perjury under the laws of the State of California, that no more than one final unappealable finding of contempt of court by a Federal Court has been issued against the Bidder within the immediately preceding two year period because of the Bidder's failure to comply with an order of a Federal Court which orders the Bidder to comply with an order of the National Labor Relations Board.

Note: The above Statement and Questionnaire are part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement and Questionnaire.
Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

STATE OF CALIFORNIA

DRUG-FREE WORKPLACE CERTIFICATION

STD. 21 (REV. 12-93)

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized legally to bind the contractor or grant recipient to the certification described below. I am fully aware that this certification, executed on the date below, is made under penalty of perjury under the laws of the State of California.

CONTRACTOR/BIDDER FIRM NAME	FEDERAL ID NUMBER
BY *(Authorized Signature)*	DATE EXECUTED
PRINTED NAME AND TITLE OF PERSON SIGNING	TELEPHONE NUMBER *(Include Area Code)* ( )
TITLE	
CONTRACTOR/BIDDER FIRM'S MAILING ADDRESS	

The contractor or grant recipient named above hereby certifies compliance with Government Code Section 8355 in matters relating to providing a drug-free workplace. The above named contractor or grant recipient will:

1. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations, as required by Government Code Section 8355(a).

2. Establish a Drug-Free Awareness Program as required by Government Code Section 8355(b), to inform employees about all of the following:

   (a) The dangers of drug abuse in the workplace,

   (b) The person's or organization's policy of maintaining a drug-free workplace,

   (c) Any available counseling, rehabilitation and employee assistance programs, and

   (d) Penalties that may be imposed upon employees for drug abuse violations.

3. Provide as required by Government Code Section 8355(c), that every employee who works on the proposed contract or grant:

   (a) Will receive a copy of the company's drug-free workplace policy statement, and

   (b) Will agree to abide by the terms of the company's statement as a condition of employment on the contract or grant.

4. At the election of the contractor or grantee, from and after the "Date Executed" and until _____ (DATE) (NOT TO EXCEED 36 MONTHS), the state will regard this certificate as valid for all contracts or grants entered into between the contractor or grantee and NV Tahoe Cons. District without requiring the contractor or grantee to provide a new and individual certificate for each contract or grant. If the contractor or grantee elects to fill in the blank date, then the terms and conditions of this certificate shall have the same force, meaning, effect and enforceability as if a certificate were separately, specifically, and individually provided for each contract or grant between the contractor or grantee.

DEBARMENT, SUSPENSION, INELIGIBILITY, AND VOLUNTARY EXCLUSION CERTIFICATION, UNITED STATES DEPARTMENT OF TRANSPORTATION(USDOT) 2 CODE OF FEDERAL REGULATIONS (CFR) 1200 FEDERAL AGENCY REGULATIONS FOR GRANTS AND AGREEMENTS AND EXECUTIVE ORDER 12549

The Bidder, under penalty of perjury, certifies that, except as noted below, he/she or any other person associated therewith in the capacity of owner, partner, director, officer, or manager:

- is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any Federal agency;
- has not been suspended, debarred, voluntarily excluded or determined ineligible by any Federal agency within the past 3 years;
- does not have a proposed debarment pending; and
- has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

If there are any exceptions to this certification, insert the exceptions in the following space.

Exceptions will not necessarily result in denial of award, but will be considered in determining Bidder responsibility. For any exception noted above, indicate below to whom it applies, initiating agency, and dates of action.

Bidder further agrees by submitting this Proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where any lower tier participant is unable to certify to this statement, it shall attach an explanation to its proposal to the prime contractor.

Notes: Providing false information may result in criminal prosecution or administrative sanctions.
The above certification is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Certification.

NON-LOBBYING CERTIFICATION
FOR FEDERAL-AID CONTRACTS

The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

(1) No federal or state appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any federal or state agency, a member of the State Legislature or United States Congress, an officer or employee of the Legislature or Congress, or an employee of a Member of the Legislature or Congress in connection with the awarding of any state or federal contract, including this Contract, the making of any federal grant, the making of any state or federal loan, the entering into of any cooperative contract, and the extension, continuation, renewal, amendment, or modification of any state or federal contract, grant, loan, or cooperative contract.

(2) If any funds other than federal appropriated funds have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any federal agency, a member of Congress, an officer or employee of Congress or an employee of a member of Congress in connection with this Contract, grant, local, or cooperative contract, the Bidder shall complete and submit Standard Form-LLL, " Disclosure of Lobbying Activities," in accordance with the form instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Bidder also agrees by submitting its bid or Proposal that it shall require that the language of this certification be included in all of its subcontracts which exceed $100,000 and that all such subcontractors shall certify and disclose accordingly. If the Bidder is awarded this Contract, it shall ensure that all subcontractors submit certifications regarding federal lobbying activities as required by Section 1352, Title 31, United States Code and that all such certifications are made a part of any subcontracts entered into as a result of this Contract.

DISCLOSURE OF LOBBYING ACTIVITIES

COMPLETE THIS FORM TO DISCLOSE LOBBYING ACTIVITIES PURSUANT TO 31 U.S.C. 1352

1. Type of Federal Action:

☐ a. contract
b. grant
c. cooperative agreement
d. loan
e. loan guarantee
f. loan insurance

2. Status of Federal Action:

☐ a. bid/offer/application
b. initial award
c. post-award

3. Report Type:

☐ a. initial
b. material change

For Material Change Only:
year ____ quarter _____
date of last report _____

4. Name and Address of Reporting Entity

☐ Prime ☐ Subawardee
Tier _____, if known

Congressional District, if known

5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime:

Congressional District, if known

6. Federal Department/Agency:

7. Federal Program Name/Description:

CFDA Number, if applicable_____

8. Federal Action Number, if known:

9. Award Amount, if known:

10. Name and Address of Lobby Entity
(If individual, last name, first name, MI)

11. Individuals Performing Services (including address if different from No. 10a)
(last name, first name, MI)

(attach Continuation Sheet(s) if necessary)

12. Amount of Payment (check all that apply)

$ _____ ☐ actual ☐ planned

13. Form of Payment (check all that apply):

☐ a. cash
☐ b. in-kind; specify: nature _____
Value _____

14. Type of Payment (check all that apply)

☐ a. retainer
☐ b. one-time fee
☐ c. commission
☐ d. contingent fee
☐ e deferred
☐ f. other, specify _____

15. Brief Description of Services Performed or to be performed and Date(s) of Service, including officer(s), employee(s), or member(s) contacted, for Payment Indicated in Item 11:

(attach Continuation Sheet(s) if necessary)

16. Continuation Sheet(s) attached: **Yes** ☐ **No** ☐

17. Information requested through this form is authorized by Title 31 U.S.C. Section 1352. This disclosure of lobbying reliance was placed by the tier above when his transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to Congress semiannually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Signature: _____

Print Name:_____

Title: _____

Telephone No.: _____ Date: _____

Authorized for Local Reproduction

Standard Form - LLL

Federal Use Only:

Standard Form LLL Rev. 04-28-06

INSTRUCTIONS FOR COMPLETION OF SF-LLL,

DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime federal recipient at the initiation or receipt of covered federal action or a material change to previous filing pursuant to title 31 U.S.C. Section 1352. The filing of a form is required for such payment or agreement to make payment to lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress an officer or employee of Congress or an employee of a Member of Congress in connection with a covered federal action. Attach a continuation sheet for additional information if the space on the form is inadequate. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered federal action for which lobbying activity is or has been secured to influence, the outcome of a covered federal action.
2. Identify the status of the covered federal action.
3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last, previously submitted report by this reporting entity for this covered federal action.
4. Enter the full name, address, city, state, and zip code of the reporting entity. Include Congressional District if known. Check the appropriate classification of the reporting entity that designates if it is or expects to be a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the first tier. Subawards include but are not limited to: subcontracts, subgrants, and contract awards under grants.
5. If the organization filing the report in Item 4 checks "Subawardee" then enter the full name, address, city, state, and zip code of the prime federal recipient. Include Congressional District, if known.
6. Enter the name of the federal agency making the award or loan commitment. Include at least one organization level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the federal program name or description for the covered federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans and loan commitments.
8. Enter the most appropriate federal identifying number available for the federal action identification in item 1 (e.g., Request for Proposal (RFP) number, Invitation for Bid (IFB) number, grant announcement number, the contract grant. or loan award number, the application/proposal control number assigned by the federal agency). Include prefixes, e.g., "RFP-DE-90-001."
9. For a covered federal action where there has been an award or loan commitment by the Federal agency, enter the federal amount of the award/loan commitments for the prime entity identified in item 4 or 5.
10. Enter the full name, address, city, state, and zip code of the lobbying entity engaged by the reporting entity identified in Item 4 to influence the covered federal action.
11. Enter the full names of the individual(s) performing services and include full address if different from 10 (a). Enter Last Name, First Name and Middle Initial (MI).
12. Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (Item 4) to the lobbying entity (Item 10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.
13. Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.
14. Check all boxes that apply. If other, specify nature.
15. Provide a specific and detailed description of the services that the lobbyist has performed or will be expected to perform and the date(s) of any services rendered. Include all preparatory and related activity not just time spent in actual contact with federal officials. Identify the federal officer(s) or employee(s) contacted or the officer(s) employee(s) or Member(s) of Congress that were contacted.
16. Check whether or not a continuation sheet(s) is attached.
17. The certifying official shall sign and date the form, and print his/her name title and telephone number.

Public reporting burden for this collection of information is estimated to average 30-minutes per response, including time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, D.C. 20503.

SF-LLL-Instructions Rev. 06-04

AGREEMENT FORM

THIS AGREEMENT, made and entered into this day of _____, 2022, by and between the NEVADA TAHOE CONSERVATION DISTRICT, a political subdivision of the State of Nevada, acting through its Board of Supervisors, hereinafter called the "NTCD" and _____, General Contractor, California State License No. _____, hereinafter called the "Contractor".

W I T N E S E T H :

That the NTCD and the Contractor, for the consideration hereinafter named, agree as follows:

Article 1. Scope of Work. The Contractor shall furnish all of the materials and perform all of the work described in the Specifications entitled **"SAXON CREEK AQUATIC ORGANISM PASSAGE PROJECT, PHASE 2, EL DORADO COUNTY, CALIFORNIA"** prepared by the Nevada Tahoe Conservation District, and shall do everything required by this Agreement and the Specifications.

Article 2. Time of Completion. The work to be performed under this Agreement shall be completed within forty-five (45) working days from the date the Contractor is issued the Notice to Proceed.

The date specified in the Notice to Proceed shall be the effective date of this Agreement.

Should the Contractor fail or refuse to complete the work within the stipulated timeframe, including any authorized extensions of time, there shall be deducted from the monies due him, not as a penalty, but as liquidated damages, FIVE HUNDRED DOLLARS and NO CENTS ($500.00) for each work day required to complete the work in addition to the period of time hereinbefore set forth.

In the event that the NTCD has failed to appropriate or budget funds for the purposes specified in this agreement, or that NTCD has been required (in its sole judgment) to amend previous appropriations or budgeted amounts to eliminate or reduce funding for the purposes in this agreement, this agreement shall be terminated without penalty, charge or sanction.

Article 3. Contract Time Extensions. All claims for extensions of time shall be made in writing to the Engineer within seven (7) calendar days after the beginning of the delay; otherwise, they will be disallowed.

If the Contractor is delayed at any time in the progress of the work by any act or neglect of the NTCD or the Engineer, or by any employee of either, or by any separate contractor disputes, fire, unusual weather conditions, unusual delay in transportation, or by unavoidable casualties, the contract time may be extended by change order for such reasonable time as the NTCD may determine.

It is further expressly understood and agreed that the Contractor shall not be entitled to any damages or compensation, or be reimbursed for any losses, on account of any delay resulting from any of the aforesaid causes or any other cause regardless of whether the delay is foreseeable or not, except that the NTCD agrees to compensate the Contractor for any damage resulting from any affirmative, willful act in bad faith performed by the NTCD or its employees which unreasonably interferes with the Contractor's ability to perform the work.

An extension of contract time for a delay will be allowed only in the case that a normal working day is lost. A normal working day is defined as any day, except weekends and holidays, during which the Contractor can work for at least four hours. Delays will not be allowed for non-working days (e.g., weekends and holidays). Claims by the Contractor for delays will not be allowed on account of failure to furnish information, until 14 days after a request for information is submitted by the Contractor, and then not unless such claim is reasonable.

Extensions of contract time shall not be allowed for the following types of delays:

1. Delays which could have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor.
2. Delays in the execution of parts of the work, which may in themselves be unavoidable, but do not prevent or delay prosecution of other parts of the work, or the completion of the whole work within the time specified.
3. Delays arising from interruptions occurring during the prosecution of the work on account of reasonable interference of other contractors employed by the NTCD, which do not prevent the completion of the whole work within the contract time.

Article 4. Progress Payments. If acceptable progress has been made, the NTCD shall, once each month, make an estimate of the total amount of work completed to date and the monetary value thereof and make a partial payment on the Contract.

The NTCD shall retain ten percent (10%) of such estimated value of the work done as part security for the fulfillment of the Contract and shall pay monthly to the Contractor, while carrying on the work the balance not retained, after deducting there from all previous payments.

The amount withheld as provided herein shall be retained for a period of thirty (30) days from the date of the Notice of Completion.

NTCD shall pay to Contractor, at the end of each quarter this Agreement is in effect, interest for the quarter on the amount withheld at a rate to be determined by NTCD in accordance with State law. If the amount due the Contractor pursuant to this provision for any quarter is less than Five Hundred Dollars ($500.00), the NTCD may withhold the interest until: (1) the end of a subsequent quarter after which the amount of interest due is Five Hundred Dollars ($500.00) or more; (2) the end of the fourth consecutive quarter for which no interest has been paid to the Contractor; or (3) final payment is due under the Agreement or State law; whichever occurs first. Contractor shall pay the subcontractors progress payments and pay interest on amounts retained from said progress payments in accordance with the provisions of State law.

Article 5. Acceptance and Final Payment. As soon as practical, following the completion of the work, the Contractor shall make a request by letter to the NTCD for a final inspection and acceptance of the work; if, in the NTCD's opinion, all provisions of the Construction Specifications and Agreement have been satisfied, the NTCD will cause a Notice of Completion to be filed with the appropriate County office.

At the expiration of thirty (30) days following the filing of the Notice of Completion or use or occupancy of the public work by the NTCD, final payment shall be made as follows:

After deducting all previous payments from the total value of the work, the remaining balance shall be paid unless any of the following conditions exist to allow withholding of payment: (a) claims, liens or outstanding debt have been filed against the Contractor or against the work because of Contractor or its agents; (b) claims or demands by NTCD including those involving: disputes about the Contract, Contractor or subcontractor compliance with applicable codes and laws, the work, time or liquidated damages; (c) amounts required by law to be retained by the NTCD. Contractor shall submit proof satisfactory to the NTCD that all payrolls, materials, bills, and other indebtedness relating to the work performed, have been paid before final payment is made.

Article 6. The Contract Sum. The NTCD shall pay the Contractor, as full compensation for furnishing all materials and labor and doing all the work in strict accordance with the Construction Specifications and to the satisfaction of the Engineer the amount set forth in the contract documents. This sum is to be paid in the manner and under the conditions here in before specified.

Article 7. The Contract Documents. The following is an enumeration of all of the Contract Documents making up the Agreement (also herein and throughout the Contract Documents referred to as Contract), which are by this reference hereby incorporated into this Agreement and they are as fully a part of the Agreement as if hereto attached or herein repeated:

- Notice to Contractors
- Scope of Work
- Instructions to Bidders
- Bid Proposal
- Bid Schedule
- Bid Summary
- Bid Bond
- General Contractor Information Form
- Subcontractor List
- Affidavit of Non-Collusion
- Certification of Bidder, Proposed Contractor or Subcontractor Regarding Debarment, Suspension, Ineligibility or Voluntary Exclusion
- Agreement Form
- Payment Bond
- Performance Bond
- Federal Projects for the Construction of Roads and Bridges, 2014, or latest edition
- 100% Engineer Stamped Design Plan Set for the **Saxon Creek Aquatic Organism Passage Project, Phase 2**
- Exhibit A – Construction/Indemnification and Insurance Specifications
- Exhibit B – Special Technical Provisions by NTCD
- Exhibit C – Project Permits
- Addenda
- Change Orders

- Construction Change Directives
- Any amendments made hereto

In the event of any conflict between any of the Contract Documents, this contract shall be governed in accordance with the following order:

a) This Agreement
b) Plan Set Drawings
c) Special Technical Provisions by NTCD
d) Standard Specifications

Article 8. Nondiscrimination.

A. In connection with its performance under this Contract, Contractor shall comply with all applicable nondiscrimination statutes and regulations during the performance of this Contract including, but not limited to the following: Contractor, its employees, subcontractors and representatives shall not unlawfully discriminate against any employee or applicant for employment because of race, color, sex, sexual orientation, religion, ancestry or national origin, physical disability, medical condition, marital status, political affiliation, family and medical care leave, pregnancy leave or disability leave. Contractor will take affirmative action to ensure that employees are treated during employment, without regard to their race, color, sex, sexual orientation, religion, ancestry or national origin, physical disability, medical condition, marital status, political affiliation, family and medical care leave, pregnancy leave or disability leave. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Contractor shall post in conspicuous places, available to employees for employment, notices to be provided by State setting forth the provisions of this Fair Employment section. Contractor shall, unless exempt, comply with the applicable provisions of the Fair Employment and Housing Act (Government Code, Sections 12900 et seq.) and applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Sections 7285.0 et seq.); the applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12990, set forth in Sub Chapter 5 of Chapter 5 of Division 4.1 of Title 2 of the California Code of Regulations, section 11102 incorporated into this Agreement by reference and made a part hereof as if set forth in full; and Title VI of the Civil Rights Act of 1964, as amended. Contractor, its employees, subcontractors and representatives shall give written notice of their obligations under this clause as required by law.

B. Where applicable, Contractor shall include these nondiscrimination and compliance provisions in any of its subcontracts that affect or are related to the Work performed herein.

C. The Congress of the United States, the Legislature of the State of California and the Governor of the State of California, each within their respective jurisdictions, have prescribed certain nondiscrimination requirements with respect to Contract and other work financed with public funds. Contractor agrees to comply with the requirements of Exhibit B, marked “Fair Employment Practices Addendum” and the requirements of Exhibit C, marked “Nondiscrimination Assurances,” including Appendices A through D to Exhibit C, both of which exhibits and all of the Appendices to Exhibit C are incorporated herein and made by reference a part hereof. Contractor further agrees that any agreement entered into by Contractor with a third party for the performance of project-related Work shall incorporate Exhibits B and C and Appendices A through D to Exhibit C (with third party’s name replacing Contractor) as essential parts of such agreement to be enforced by that third party as verified by Contractor.

D. Contractor's signature executing this Contract shall provide any certifications necessary under the Federal laws and the laws of the State of California, including but not limited to Government Code Section 12990 and Title 2, California Code of Regulations, Section 11102.

Article 9. Workers’ Compensation Certification

Contractor shall comply with Labor Code Sections 3700 et seq., requiring it to obtain Workers’ Compensation Insurance, and sign a certificate of knowledge thereof.

CERTIFICATE OF KNOWLEDGE - LABOR CODE SECTION 3700

I am aware of the provisions of Section 3700 of the Labor Code, which require every employer to be insured against liability for workers’ compensation or to undertake self-insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of Work of this Contract.

Signed: _____ Date_____

Article 10. Warranty.
Contractor warrants to County that materials and equipment furnished for the Work will be of good quality and new, unless otherwise required or permitted under the Contract Documents, that the Work will be free from defects or flaws and is of the highest quality of workmanship and that the Work will conform with the requirements herein. Work not conforming to these requirements, including substitutions not properly approved and authorized, shall be considered defective.

Article 11. Prevailing Wage Rates.
Interested parties can obtain the current wage information by submitting their requests to the Department of Industrial Relations, Division of Labor Statistics and Research, PO Box 420603, San Francisco CA 94142-0603, Telephone (415) 703-4708 or by referring to the website at http://www.dir.ca.gov/ OPRL/PWD. The rates at the time of the bid advertisement date of a project will remain in effect for the life of the project in accordance with the California Code of Regulations, as modified and effective January 27, 1997. Copies of the general prevailing rate of wages in the county in which the Work is to be done are also on file at the Community Development Agency, Transportation Division's principal office, and are available upon request, and in case of projects involving Federal funds, Federal wage requirements as predetermined by the United States Secretary of Labor have been included in the Contract Documents. Addenda to modify the Federal minimum wage rates, if necessary, will be issued as described in the Project Administration section of this Notice to Bidders. In accordance with the provisions of Labor Code 1810, eight (8) hours of labor constitutes a legal day's work upon all work done hereunder, and Contractor and any Subcontractor employed under this Contract must conform to and be bound by the provisions of Labor Code Sections 1810 through 1815.

In the case of federally funded projects, where Federal and State prevailing wage requirements apply, compliance with both is required. This project is funded in whole by Federal funds. Comply with Exhibit D of this Agreement and the Copeland Act (18 U.S.C. 874 and 29 CFR Part 3), the Davis-Bacon Act (40 U.S.C. 3141-3147 and 29 CFR Part 5), and the Contract Work Hours and Safety Standards Act (40 U.S.C. 3701 and 29 CFR Part 5).

If there is a difference between the minimum wage rates predetermined by the Secretary of Labor and the general prevailing wage rates determined by the Director of the California Department of Industrial Relations for similar classifications of labor, Contractor and Subcontractors must pay not less than the higher wage rate. The Community Development Agency, Transportation Division will not accept lower State wage rates not specifically included in the Federal minimum wage determinations. This includes "helper" (or other classifications based on hours of experience) or any other classification not appearing in the Federal wage determinations. Where Federal wage determinations do not contain the State wage rate determination otherwise available for use by Contractor and Subcontractors, Contractor and Subcontractors must pay not less than the Federal minimum wage rate which most closely approximates the duties of the employees in question.

Article 12. Indemnification/Insurance. NTCD has established specific indemnification and insurance requirements for agreements/contracts with contractors to help assure that reasonable insurance coverage is maintained. Indemnification and hold harmless clauses are intended to assure that contractors accept and are able to pay for the loss of liability related to their activities. Exhibit A, pages 1-5, is included by reference. All conditions and requirements identified in this exhibit shall apply to any work completed under this Agreement.

Article 13. Alternative Dispute Resolution. NTCD's policies (based on Nevada Revised Statutes 338.150) requires that a method of alternate dispute resolution be utilized to resolve any disputes that arise between the public body and the contractor engaged on a public work before initiation of a judicial action. The parties agree to submit any dispute that arises under this contract to a mutually agreeable alternative dispute resolution method prior to the initiation of a judicial proceeding. In addition, it is further agreed that neither party is entitled to an award of attorney's fees from the opposing party as a result of the outcome of an alternative dispute resolution method or a judicial proceeding even if the party is considered to be a prevailing party.

Article 14. Termination. In addition to the other provisions of this Agreement, NTCD has the right to terminate the Agreement without cause at any time upon giving the Contractor seven (7) days' notice in writing. In the event the Agreement is terminated by NTCD in accordance with this provision, NTCD agrees to pay Contractor for all work satisfactorily completed and for materials installed prior to the date of termination.

Article 15. Laws and Compliance with Laws. This Contract is governed by and shall be interpreted under the laws of the State of California. The Contractor and his agents including subcontractors, employees and persons who provide labor, equipment, materials, supplies or services for the work shall comply with the requirements of all applicable state and local laws, including, without limitation, any applicable licensing requirements and the requirements for the payment of sales and use taxes on equipment, materials and supplies provided for the work. In addition, the parties to this contract agree and

stipulate that the venue for any dispute arising under this Agreement will be in a court of competent jurisdiction in El Dorado County, California.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first above written.

NEVADA TAHOE CONSERVATION DISTRICT

Dated: _____

_____
Cary Sarnoff, Chairman
Nevada Tahoe Conservation District

Board Meeting Date: _____

Witness

_____
Meghan Kelly, District Manager

_____
Dated

CONTRACTOR

Dated: _____ _____ _____
License No. Federal Employee ID Number

By: _____
President

By: _____
Corporate Secretary

NOTE: If Contractor is a corporation, the legal name of the corporation shall be set forth above together with the signature of the officer or officers authorized to sign Contracts on behalf of the corporation; if Contractor is a co-partnership, the true name of the firm shall be set forth above together with the signature of the partner or partners authorized to sign Contracts on behalf of the co-partnership; and if Contractor is an individual, his/her signature shall be placed above. Contractor executing this document on behalf of a corporation or partnership shall be prepared to demonstrate by resolution, article, or otherwise that it is appropriately authorized to act in these regards. For such corporation or partnership, such authority shall be demonstrated to the satisfaction of County. If signature is by an agent, other than officer of a corporation or a member of a partnership, an appropriate Power of Attorney shall be on file with the County prior to signing this document.

Mailing Address: _____

Business Address: _____

Email Address: _____

Phone: _____ Fax: _____

Nevada Tahoe Consertation District

PAYMENT BOND

(Section 9550, California Civil Code)

Bond No. _____

WHEREAS, the Nevada Tahoe Conservation District, a political subdivision of the State of Nevada, hereafter referred to as " Obligee", has
awarded to Contractor

_____

hereafter referred to as "Principal", a Contract for the Work described as follows:

Saxon Creek Aquatic

Organism Passage Project, Phase 2

AND, WHEREAS, said Principal is required to furnish a bond in connection with said Contract, guaranteeing the faithful performance thereof:

NOW, THEREFORE, we the undersigned Principal and Surety are held and firmly bound unto the Obligees, in the sum of _____Dollars,

($ _____) to be paid to the Obligees, for which payment we bind ourselves, jointly and severally.

THE CONDITION OF THIS OBLIGATION IS SUCH,

That if said Principal or its Subcontractors shall fail to pay any of the persons named in Civil Code Section 9100, or amounts due under the Unemployment Insurance Code with respect to Work or labor performed by such claimant, or any amounts required to be deducted, withheld, and paid over to the Franchise Tax Board from the wages of employees of the Principal and his Subcontractors pursuant to Section 18806 of the Revenue and Taxation Code, with respect to such Work and labor, that the Surety herein will pay for the same in an amount not exceeding the sum specified in this bond, otherwise the above obligation shall be void. In case suit is brought upon this bond, the Surety will pay a reasonable attorney's fee to be fixed by the court.

This bond shall inure to the benefit of any of the persons named in Civil Code Section 9100 as to give a right of action to such persons or their assigns in any suit brought upon this bond.

Dated:_____

Correspondence or Claims relating to this bond should be sent to the Surety at the following address:

_____ _____
PRINCIPAL

_____ _____
SURETY

_____ _____
ATTORNEY-IN-FACT

NOTE: Signatures of those executing for the Principal and for the Surety must be properly acknowledged, and a Power of Attorney attached for the Surety.

NOTARY ACKNOWLEDGMENTS ATTACHED

PRINCIPAL

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of _____

On _____before me, _____,

(here insert name and title of the officer)

personally appeared _____

_____

_____,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

SURETY

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of _____

On_____ before me, _____,
(here insert name and title of the officer)

personally appeared _____

_____

_____,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

Nevada Tahoe Conservation District

PERFORMANCE BOND

Bond No._____

KNOW ALL PERSONS BY THESE PRESENTS, that we _____

the Contractor in the Contract hereto annexed, as Principal, and _____

as Surety, are held firmly bound unto the Nevada Tahoe Conservation District, a political subdivision of the State of Nevada, hereinafter called the "Obligee"

in the sum of_____DOLLARS,

($_____) lawful money of the United States, for which payment, well and truly to be made, we bind ourselves, jointly and severally, firmly by these presents.

Signed, sealed and dated: _____

The condition of the above obligation is such that if said Principal as Contractor in the Contract hereto annexed shall faithfully perform each and all of the conditions of said Contract to be performed by him, and shall furnish all tools, equipment, apparatus, facilities, transportation, labor and material, other than material, if any, agreed to be furnished by the Obligees, necessary to perform and complete, and to perform and complete in a good and workmanlike manner, the Work of **Saxon Creek Aquatic Organism Passage Project, Phase 2** in strict conformity with the terms and conditions set forth in the Contract hereto annexed, then this obligation shall be null and void; otherwise this bond shall remain in full force and effect and the said Surety will complete the Contract Work under its own supervision, by Contract or otherwise, and pay all costs thereof for the balance due under terms of the Contract, and the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the Work to be performed thereunder shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the Work.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including a reasonable attorney's fee to be fixed by the court.

This guarantee shall insure the Obligee during the Work required by any Contract and for a period of one (1) year from the date of acceptance of the Work against faulty or improper materials or workmanship that may be discovered during that time.

No right of action shall accrue under this bond to or for the use of any person other than the Obligee named herein.

Dated:_____, 20_____.

Correspondence or Claims relating to this bond should be sent to the Surety at the following address:

_____ _____
PRINCIPAL

_____ _____
SURETY

_____ _____
ATTORNEY-IN-FACT

NOTE: Signatures of those executing for the Principal and the Surety must be properly acknowledged, and a Power of Attorney attached for the Surety.

NOTARY ACKNOWLEDGMENTS ATTACHED

PRINCIPAL

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of _____

On_____ before me, _____,

(here insert name and title of the officer)

personally appeared _____

_____

_____,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

SURETY

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of _____

On _____ before me, _____,

(here insert name and title of the officer)

personally appeared _____

_____

_____ ,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

Exhibit A

CONSTRUCTION/INDEMNIFICATION AND INSURANCE SPECIFICATIONS FOR SAXON CREEK AQUATIC ORGANISM PASSAGE PROJECT, PHASE 2

INTRODUCTION

NTCD has established specific indemnification, insurance, and safety requirements for public works construction contracts to help assure that reasonable insurance coverage is purchased and safe working conditions are maintained. Indemnification and hold harmless clauses are intended to assure that CONTRACTOR accepts and is able to pay for the loss or liability related to its activities.

BIDDERS' ATTENTION IS DIRECTED TO THE INSURANCE REQUIREMENTS BELOW. IT IS HIGHLY RECOMMENDED THAT BIDDERS CONFER WITH THEIR RESPECTIVE INSURANCE CARRIERS OR BROKERS TO DETERMINE IN ADVANCE OF BID SUBMISSION THE AVAILABILITY OF INSURANCE CERTIFICATES AND ENDORSEMENTS AS PRESCRIBED AND PROVIDED HEREIN. IF ANY APPARENT LOW BIDDER FAILS TO COMPLY STRICTLY WITH THE INSURANCE REQUIREMENTS, THAT BIDDER MAY BE DISQUALIFIED FROM AWARD OF THE CONTRACT.

INDEMNIFICATION AGREEMENT

CONTRACTOR agrees to hold harmless, indemnify, and defend NTCD, its officers, agents, employees, and volunteers from any loss or liability, financial or otherwise resulting from any claim, demand, suit, action, or cause of action based on bodily injury including death or property damage, including damage to CONTRACTOR'S property or injury to CONTRACTOR'S employee, caused by any action, either direct or passive, the omission, failure to act, or negligence on the part of CONTRACTOR, its employees, agents, representatives, or Subcontractors arising out of the performance of work under this Agreement by CONTRACTOR, or by others under the direction or supervision of CONTRACTOR.

CONTRACTOR must either defend NTCD or, upon determination that the work performed by CONTRACTOR was negligent in any manner or that CONTRACTOR failed to perform any duty set forth in this Agreement, pay NTCD'S costs related to the investigation and defense of any claim, demand, action, or cause of action.

If NTCD's personnel are involved in defending such actions, CONTRACTOR shall reimburse NTCD for the time spent by such personnel at the actual cost incurred by NTCD for such services.

In determining the nature of the claim against NTCD, the incident underlying the claim shall determine the nature of the claim, notwithstanding the form of the allegations against NTCD.

GENERAL REQUIREMENTS

CONTRACTOR shall purchase Industrial Insurance, General Liability, Automobile Liability, Property Insurance and Professional Insurance as described below. The cost of such insurance shall be included in the CONTRACTOR'S bid.

INDUSTRIAL INSURANCE

It is understood and agreed that there shall be no Industrial Insurance coverage provided for CONTRACTOR or any Subcontractor by NTCD. CONTRACTOR agrees, as a precondition to the performance of any work under this Agreement and as a precondition to any obligation of the NTCD to make any payment under this Agreement to provide NTCD with a certificate issued by an insurer in accordance with Nevada Revised Statutes (NRS) 616B.627 and with certificates of an insurer showing coverage pursuant to NRS 617.210 for CONTRACTOR and all subcontractors.

If CONTRACTOR or Subcontractor is unlicensed and is a sole proprietor, coverage for the sole proprietor must be purchased and evidence of coverage must appear on the Certificate of Insurance. Such requirement may be waived for a sole proprietor who does not use the services of any employees, subcontractors, or independent contractors and completes an Affirmation of Compliance pursuant to NRS 616B.627(2).

It is further understood and agreed by and between NTCD and CONTRACTOR that CONTRACTOR shall procure, pay for, and maintain the above mentioned industrial insurance coverage at CONTRACTOR'S sole cost and expense.

Should CONTRACTOR be self-funded for Industrial Insurance, CONTRACTOR shall so notify NTCD in writing prior to the signing of this Agreement. NTCD reserves the right to approve said retentions, and may request additional documentation, financial or otherwise, for review prior to the signing of this Agreement.

MINIMUM LIMITS OF INSURANCE

CONTRACTOR shall maintain limits no less than:

1. General Liability: $1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit is used, the general aggregate limit shall be increased to equal twice the required occurrence limit or revised to apply separately to each project or location.

2. Automobile Liability: $1,000,000 combined single limit per accident for bodily injury and property damage covering “Any Auto”. No aggregate limits may apply.

3. Professional Errors and Omissions as required by Risk Manager, $0.

The General Contractor shall provide, at its sole cost and expense, maintaining during the entire term of this Agreement, a policy of commercial general liability insurance naming NEVADA TAHOE CONSERVATION DISTRICT and DOUGLAS COUNTY as an additional insured covering the premises (including the land, equipment, controls and other facilities) insuring against the risks of death, bodily injury, property damage and personal injury liability arising out of or in connection with the use of the roads on the Premises, including roads used for traffic diversion purposes in connection with the Project, for the purposes authorized by this Agreement. Such insurance shall provide not less than the following limits: One Million Dollars ($1,000,000.00) with respect to bodily injury or death to any one person; Two Million Dollars ($2,000,000.00) with respect to bodily injury or death arising out of any one (1) occurrence; and One Million Dollars ($1,000,000.00) with respect to property damage or other loss arising out of any one (1) occurrence. The insurance required under this Agreement shall (a) be issued by insurance companies authorized to do business in the State of California, with classification of at least A and a financial rating of XI or better as rated in the most current issue of "Best's Key Rating Guide," and (b) contain an endorsement requiring thirty (30) days' written notice from the insurance company to all additional insureds before cancellation or change in the coverage, scope, or amount of the policy.

DEDUCTIBLES AND SELF-INSURED RETENTIONS

Any deductibles or self-insured retentions must be declared to and approved by the NTCD. NTCD reserves the right to request additional documentation, financial or otherwise, prior to giving its approval of the deductibles and self-insured retention and prior to executing the underlying agreement. Any changes to the deductibles or self-insured retentions made during the term of this Agreement or during the term of any policy, must be approved by the NTCD prior to the change taking effect.

OTHER INSURANCE PROVISIONS

The policies are to contain, or be endorsed to contain, the following provisions:

1. General Liability and Automobile Liability Coverages

   a. NTCD, its officers, agents, employees, and volunteers are to be included as insureds as respects damages and defense arising from: activities performed by or on behalf of CONTRACTOR, including the insured's general supervision of CONTRACTOR; products and completed operations of CONTRACTOR; premises owned, occupied, or used by CONTRACTOR; or automobiles owned, leased, hired, or borrowed by the CONTRACTOR. The coverage shall contain no special limitations on the scope of protection afforded to the additional insureds nor shall the rights of the additional insureds be affected by the insured’s duties after an accident or loss.

b. CONTRACTOR'S insurance coverage shall be primary insurance as respects NTCD, its officers, agents, employees, and volunteers. Any insurance or self-insurance maintained by NTCD, its officers, employees, or volunteers shall be excess of CONTRACTOR'S insurance and shall not contribute with it in any way.

c. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to NTCD, its officers, agents, employees, or volunteers.

d. CONTRACTOR'S insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

e. CONTRACTOR'S insurance shall issue a Waiver of Subrogation endorsement.

2. Property Coverages

CONTRACTOR shall provide builders risk insurance on an “All Risk” basis on a policy form satisfactory to NTCD. The limit of coverage will be the amount necessary to cover the bid value of any structures in the Contract or other value determined by NTCD. CONTRACTOR shall provide boiler and machinery insurance coverage or other forms of property insurance as appropriate for the project. If the project is in a flood plain, NTCD reserves the right to require flood coverage at CONTRACTOR’S expense. Losses paid under any property insurance policy or policies shall be paid directly to NTCD by the insurer(s).

3. All Coverages

Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled, or non-renewed by either CONTRACTOR or by the insurer, reduced in coverage or in limits except after thirty (30) days' prior written notice by certified mail, return receipt requested, has been given to NTCD except for nonpayment of premium.

ACCEPTABILITY OF INSURERS

Insurance is to be placed with insurers with a Best's rating of no less than A-: VII. NTCD, with the approval of the Risk Manager, may accept coverage with carriers having lower Best's ratings upon review of financial information concerning CONTRACTOR and insurance carrier. NTCD reserves the right to require that CONTRACTOR'S insurer be a licensed and admitted insurer in the State of California, or on the Insurance Commissioner's approved but not admitted list.

VERIFICATION OF COVERAGE

CONTRACTOR shall furnish NTCD with certificates of insurance and with original endorsements affecting coverage required by this exhibit. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. ***All certificates and endorsements are to be addressed to the NTCD and be received and approved by NTCD before work commences.*** NTCD reserves the right to require complete certified copies of all required insurance policies at any time.

SUBCONTRACTORS

CONTRACTOR shall include all Subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each Subcontractor. All coverages for Subcontractors shall be subject to all of the requirements stated herein.

MISCELLANEOUS CONDITIONS

1. CONTRACTOR shall be responsible for and remedy all damage or loss to any property, including property of NTCD, caused in whole or in part by CONTRACTOR, any Subcontractor, or anyone employed, directed, or supervised by CONTRACTOR.

2. Nothing herein contained shall be construed as limiting in any way the extent to which CONTRACTOR may be held responsible for payment of damages to persons or property resulting from its operations or the operations of any Subcontractors under it.

3. In addition to any other remedies NTCD may have if CONTRACTOR fails to provide or maintain any insurance policies or policy endorsements to the extent and within the time herein required, NTCD may, at its sole option:

   a. Purchase such insurance to cover any risk for which NTCD may be liable through the operations of CONTRACTOR under this Agreement and deduct or retain the amount of the premiums for such insurance from any sums due under the Agreement;

   b. Order CONTRACTOR to stop work under this Agreement and/or withhold any payments which become due CONTRACTOR here under until CONTRACTOR demonstrates compliance with the requirements hereof; or,

   c. Terminate the Agreement.

SAFETY PROGRAM

CONTRACTOR shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work.

CONTRACTOR shall take all necessary precautions for the safety of, and shall provide all necessary protection to prevent damage, injury, or loss to:

1. All employees on the work site and all other persons who may be affected thereby.

2. All the work, materials, and equipment to be incorporated therein, whether in storage on or off the site.

3. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

CONTRACTOR shall comply with all applicable laws, ordinances, rules, regulations, and others of any public authority having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss. He shall erect and maintain, as required by existing conditions and progress on the work, all necessary safeguards for safety and protection, including posting danger signs, other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent utilities. CONTRACTOR shall comply with OSHA'S Hazard Communication Standards.
CONTRACTOR shall designate a responsible member of its organization at the site whose duty shall be the prevention of accidents. This person shall be CONTRACTOR'S superintendent unless otherwise designated in writing by CONTRACTOR to the Owner and the Engineer.

Exhibit A

SPECIAL TECHNICAL PROVISIONS

SPECIAL TECHNICAL PROVISIONS

FOR

SAXON CREEK AQUATIC ORGANISM PASSAGE PROJECT

NEVADA TAHOE CONSERVATION DISTRICT

EL DORADO COUNTY, CALIFORNIA

FOR USE WITH:

Standard Specifications, as referred to in these Special Technical Provisions, are the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP-14)," current edition. These Special Technical Provisions are supplemental to the Standard Specifications.

PREPARED BY:

Nevada Tahoe Conservation District
400 Dorla Court
Box 915
Zephyr Cove, NV 89448

Meghan Kelly, P.E.
CA P.E. #: C 77162

Date: July 2022

Contents

SECTION 100 – GENERAL

101.01 Description
The work described herein shall conform to the Contract Documents, Project Plans, Standard Specifications, these Special Technical Provisions, and Project Permits. Standard Specifications, as referred to in these Special Technical Provisions, are the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP-14) https://highways.dot.gov/sites/fhwa.dot.gov/files/docs/federal-lands/specs/12851/fp14.pdf.

These Special Technical Provisions are supplemental to the Standard Specifications. In case of conflict between the Standard Specifications and these Special Technical Provisions, the Special Technical Provisions shall govern, take precedence over, and be used in lieu of such conflicting portions.

SECTION 102 – CONTRACTOR QUALIFICATIONS

102.01 Description
In addition to any bidder qualifications noted elsewhere in the Contract Documents, Project Plans, Standard Specifications, and these Special Technical Provisions, each bidder shall attach sufficient documentation to the bid forms to clearly demonstrate his/her ability to meet the minimum experience qualifications stated in this section. The following items shall be included in the bid submittal:

1. Project descriptions of similar projects to the Saxon Creek Aquatic Organism Passage Project, Phase 2 including:
    a. Location of projects
    b. Dates project was initiated and completed by the Contractor
    c. Description of size of restoration
    d. Total contract costs
    e. Client/agency contact in responsible charge (owner of the work)
2. Other references demonstrating Contractor qualifications on similar projects. These references shall only include regulatory, funding and/or local agency representatives or licensed Professional Engineers working on similar projects within the Lake Tahoe Basin.
3. Contractor's license number, classification, & status.

The above items shall clearly demonstrate the Contractor's qualifications to perform the work associated with the Saxon Creek Aquatic Organism Passage Project, Phase 2 and past similar experience on other projects. The experience to be demonstrated above is required to meet the following minimum requirements:

A. The Contractor and his/her designated Foreman is required to have successfully performed a minimum of one (1) project, within the past five (5) years, which included work components of a similar scope and nature (within a US Army Corps of Engineer regulated wetland area or a TRPA Stream Environment Zone) as to that which is indicated herein consisting of minimum project total costs of $350,000 and contract times exceeding 15 days.
B. All landscape and revegetation work required as part of this project shall be performed by a licensed Landscape Contractor (C-27 in California). The licensed Landscape Contractor is required to have successfully performed and completed a minimum of two (2) projects, within the past five (5) years, which included landscape and revegetation work components of a similar

scope and nature as to that which is indicated herein (within a US Army Corps of Engineers regulated wetland area, or TRPA Stream Environment Zone). In addition, at least one (1) of these representative projects shall include revegetation and/or bank stabilization work within waterways under an Lahontan Regional Water Quality Control Board (LRWQCB) or equivalent regulatory agency permit, and preferably within the Lake Tahoe basin.

Failure of the Contractor to submit the information required or to demonstrate experience as required in this section shall warrant the Contractor's bid submittal incomplete. The determination of whether the Contractor meets the qualifications is at the sole discretion of the Nevada Tahoe Conservation District.

102.02 Measurement and Payment
There will be no compensation for providing required bid documents and support materials for a complete bid package for this project. Incomplete bid packages or bid packages received after the submittal deadline will not be considered.

SECTION 110 – ORDER OF WORK

110.01 Description
The construction of this project shall conform to the Contract Documents, Plans, Standard Specifications, and these Special Technical Provisions. Prior to commencing work, the Contractor shall submit to the Engineer a sequence and schedule of work for review and acceptance in accordance with the Standard Specifications and these Special Technical Provisions. The schedule shall include all work necessary for a full and complete project as shown on the 100% Design Plans and described in these Special Technical Provisions.

The project requires coordination with several different public entities (US Forest Service, Lake Tahoe Basin Management Unit, the Lahontan Regional Water Quality Control Board, the Nevada Tahoe Conservation District, and the Tahoe Regional Planning Agency). The Nevada Tahoe Conservation District will assist the contractor in coordinating with all entities public and private. The Contractor shall be solely responsible for coordinating with all contractors working in the area whether listed in these Special Technical Provisions or not. Contractors working in the area may include, but are not limited to, tree removal and paving contractors.

The order of work shall be as follows:

1. Verification of all underground utilities within the project area.
2. Installation of Temporary Traffic Control Measures.
3. Coordination with NTCD for bird survey and tree removal.
4. Coordination with NTCD and USFS for fish rescue and fish exclusion net installation.
5. Construction of all temporary erosion control measures as shown on the project plans and as approved by the Engineer and Lahontan Regional Water Quality Control Board.
6. Site clearing and grubbing.
7. Installation of all dewatering elements as necessary.
8. Construction of project as shown on the project plans and as described in these Special Technical Provisions. Contractor may select sequence for construction.
9. Restoration of entire project site:
    a. Restoration/revegetation of all disturbed areas.
    b. Removal of all dewatering equipment.

c. Road sweeping.
d. Restoration of staging, access, and dewatering areas as needed.
e. Removal of temporary BMPs with approval of Engineer.

10. Pre-Final site walk with the Engineer, Contractor, US Forest Service, and Lahontan Regional Water Quality Control Board.
    a. Development of project punchlist (by Engineer).
11. Completion of punchlist items.
12. Final site walk with Engineer and Contractor.

The Contractor may submit a revised order of work to the Engineer for review and approval. In the event the Engineer does not accept the Contractor's proposed order of work, the above order of work shall hold for the contract.

The Contractor will be responsible for meeting all the requirements of all the regulations and requirements set forth by the US Forest Service, Lahontan Regional Water Quality Control Board, and TRPA. In the event fines are levied by any of these agencies, the Contractor shall be solely responsible for all costs associated with these fines. In the event the project receives a stop work order by any entity, the Contractor will not be granted any additional working days. The working days during which no work is performed will be counted as contract working days, even though the Contractor is unable to work due to the stop work order.

The Contractor shall submit a construction schedule in accordance with the provisions of this section, these Special Technical Provisions and the Standard Specifications for review and approval by the Engineer.

110.02 Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals for all work associated with all work involved in provisions of this section, complete in place as shown on the Plans, as specified in the Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, shall be considered as included in prices paid for the various contract items of work involved; no additional compensation will be allowed.

SECTION 120 – PROJECT PERMITS

120.01 Description
This project is located within El Dorado County, California and the Lake Tahoe Basin and is entirely on the US Forest Service, LTBMU lands and is regulated by the US Forest Service, the Tahoe Regional Planning Agency (TRPA), and the Lahontan Regional Water Quality Control Board (LRWQCB). Furthermore, the project is constructing improvements in a US Army Corps of Engineers jurisdictional wetland, which requires the issuance of a nationwide permit from the US Army Corps of Engineers.

All project permits have not been received for the project at the time of Bid, however, the plans and specifications outline the expected permit requirements as their development occurred under agency review. The contractor will be responsible for all permit requirements upon receipt of the permits for the project and no additional compensation shall be allowed for. The project permit(s) will have specific requirements covering work to be performed under this contract. The Contractor shall meet the permit(s) requirements for grading season restrictions, stormwater discharges, Best Management Practices (BMPs), selection of staging and storage areas, dewatering and diversion practices,

revegetation and restoration requirements, and all other agency approval conditions. The Contractor shall note that the project is located in sensitive lands (TRPA Stream Environment Zone and US Army Corp of Engineers Wetlands) and thus require special care during construction. The contractor shall also take special note of the US Forest Service Resource Protection Measures document located in Appendix B of these Special Technical Provisions.

The Contractor shall maintain a copy of all permit(s) at the construction site and shall make the permit(s) available to operating personnel during construction activities; also upon request these permit(s) must be made available for public inspection. NTCD will provide the permits to the Contractor.

The Contractor shall maintain a set of stamped plans and special provisions at the construction site and shall make them available to operating personnel during construction activities; also upon request, plans and special provisions must be made available for public inspection.

It shall be the Contractor's responsibility to completely inform him or herself of the conditions of all Project Permit(s) and conduct construction operations accordingly. Any requested change to an agency's permit conditions of approval, proposed by the Contractor, shall be submitted to the Engineer for transmittal to USACE, LRWQCB, or USFS, or other agency for their approval. The Contractor shall also be responsible for adhering to the requirements of the project permits relating to this project. Should conflicts arise between the Standard Specifications and the project permits, the project permits shall supersede the Standard Specifications.

The **Contractor is responsible for coordinating the pre-construction meeting with NTCD, USFS, and LRWQCB** to allow for review of the project site and determination of the adequacy of temporary erosion control measures and BMPs deployed by the Contractor. The Contractor shall follow the requests of the reviewing environmental agencies as necessary to bring the construction site temporary erosion control devices and BMPs into compliance with the permit(s) requirements, regulations, and other provisions of these Special Technical Provisions, and the Project Permits. The Contractor shall maintain all temporary erosion control devices and BMPs until all work is complete and the project site is stabilized per acceptance of the Engineer and all relevant agencies in review of the project site at the "Final Walk Through". The Contractor can remove temporary erosion control devices and BMPs only upon approval by the Engineer, LRWQCB, and the USFS to do such. Attention is directed to the revegetation requirements found elsewhere in these Special Technical Provisions.

The Contractor shall comply with all noxious weed requirements per the United States Forest Service (USFS) and other regulatory agencies. These requirements include but are not limited to the following:

- All tools, equipment and vehicles used for project implementation are required to be weed-free.
- All tools, equipment and vehicles will be cleaned of all attached mud, dirt, and plant parts. This will be done at a vehicle washing station or steam cleaning facility (power or high pressure cleaning) before the equipment and vehicles enter the project area, and before vehicles enter the Lake Tahoe Basin (if they originate from outside the Basin).
- All soil, fill, gravel, rock, mulch, seed, organic matter or other imported materials are required to be weed-free. Use onsite soils, gravel, rock, or organic matter when possible. Otherwise, obtain materials from pits, quarries, nurseries, and other sources that are certified or have been determined to be weed-free by the noxious weed coordinator of the USFS Lake Tahoe Basin Management Unit.

- Minimize the amount of ground and vegetation disturbance in the construction areas. Reestablish vegetation on all disturbed bare ground to minimize weed establishment and infestation.
- Use weed-free mulches, and seed sources. Salvage topsoil from project area for use in onsite revegetation, unless contaminated with noxious weeds. All activates that require seeding or planting must utilize locally collected native seed sources when possible. Plant and seed material should be collected from or near the project area, from within the same watershed, and at a similar elevation when possible. Persistent non-native such as Phleum pretense (cultivated timothy), Dactylis glomerata (orchard grass), or Lolium spp. (ryegrass) will not be used. This requirement is consistent with the USFS Region 5 policy that directs the use of native plant material for revegetation and restoration for maintaining "the overall national goal of conserving the biodiversity, health, productivity, and sustainable use of forest, rangeland, and aquatic ecosystems." Seed mixes should be accepted by the Revegetation Specialist.
- Staging areas for equipment, materials, or crews shall not be sited in weed infested areas.

The project is located within a sensitive land capability class area (1b SEZ) as classified by the TRPA. Therefore the Contractor will be required to use extreme caution in all activities associated with the project. The Contractor will be required to meet all of the requirements shown on the Plans, as described in the Project Permit(s) and these Special Technical Provisions. The Contractor is restricted from parking equipment, and storing materials within the Project limits, except as shown on the Plans or as directed by the Engineer. Soil and other materials shall not be stored, stockpiled, or otherwise placed within areas or on a surface that is not designated for such treatment on the drawings. Refueling of equipment will not be allowed within the floodplain project work areas or other SEZ areas.

The Contractor is further required to only use "low impact equipment" for this project. No equipment having a ground pressure that will disturb and/or compact the ground (generally ground pressures less than 25 psi) will be allowed off of paved areas, or designated temporary truck haul routes under any circumstance. All equipment on the project site, (off paved areas or designated truck haul routes), shall meet this low pressure requirement. TRPA prefers the use of "rubber track" equipment as low impact equipment and the Contractor is encouraged to use "rubber track" equipment in sensitive land capability areas. The Contractor shall provide detailed information, (manufacture's data brochure, or other product specific materials), to the Engineer for review and acceptance prior to any equipment being mobilized to the project site and placed in the work.

The Contractor shall meet all of the requirements of the project permits as issued by the permitting agencies, and any provisions for rights-of-entries issued by the US Forest Service. The following project permits may be found as appendices to the Contract Documents:

- US Army Corp of Engineers – *NWP#27*
- US Army Corp of Engineers – 404
- Lahontan Regional Water Quality Control Board – 401
- Categorical Exclusion from US Forest Service and associated Resource Protection Measures

120.02 Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals for all work associated with performing all the work involved in provisions of this section, complete in place as shown on the Project Plans, as specified in the Contract Documents, Project Permits(s), Standard

Specifications, these Special Technical Provisions, and as directed by the Engineer, shall be considered as included in prices paid for the various contract items of work involved; and no additional compensation will be allowed for.

SECTION 130 – MOBILIZATION & DEMOBILIZATION

130.01 Mobilization
This item shall consist of mobilization of the Contractor's forces which shall include obtaining all bonds, insurance, and permits; purchasing, transportation, setup, staging and storage of equipment and materials; establishing a field office at the project site; plus furnishing all labor, materials, tools, equipment, and incidentals required for performance and completion of the work as shown on the Project Plans, and specified in the Contract Documents, Project Permit(s), Standard Specifications, these Special Technical Provisions, and as directed by the Engineer. Mobilization shall also include but not be limited to the following items:

- Provide on-site sanitary facilities;
- Post all Occupational Safety and Health Administration (OSHA) required notices;
- Post all prevailing wage requirements;
- Prepare and transmit all submittals as noted on the Plans, and as specified in the Contract Documents, Standard Specifications, and these Special Technical Provisions;
- Wash and clean all tools and equipment prior bringing on site, as specified in the Project Permits, Contract Documents, Standard Specifications, these Special Technical Provisions, and as required by TRPA and the US Forest Service.

130.02 Demobilization
Demobilization shall consist of the removal of all materials, equipment, signage, temporary pollution control materials, trash, debris, and all other items imported to or generated on-site as a result of the work completed by the Contractor and his/her operations. Furthermore, demobilization shall include cleaning the existing drainage inlets, sediment caps, pipes, and culverts within the project boundary. Furthermore, demobilization shall include repairing all pavements, walkways, infrastructure, signage, landscape, trails, or other public or private facilities damaged by construction activities to their pre-construction conditions using comparable materials as accepted and directed by the Engineer. All disturbed areas shall be returned, as nearly as possible, to the lines and grades which existed prior to construction except where modified as part of the work so designated on the Plans. Attention is directed to Appendix B Resource Protection Measures.

At the conclusion of work, final acceptance of the Project improvements must be in the form of a written “Notice of Completion.”

130.04 Record Drawings
The Contractor shall keep accurate records on a set of project black line prints (22 inches x 34 inches) of all additions and deletions to the work and of all changes in location, elevation, and character of the work not otherwise shown or noted on the Project Plans. NTCD will furnish up to six (6) sets of full size black line prints for use at no cost to the Contractor.

Record drawings plans shall be provided to the Engineer for acceptance within one (1) calendar month after project completion as defined by the Engineer. Release of retention monies will not occur prior to

submittal and acceptance of the final record drawings, which shall be a comprehensive set of Record Drawings detailing all aspects of the Project. Two (2) sets of full sized (22x34) hard copy record drawings shall be provided with changes to the original Contract work shown in red color, including revision clouds. All redline changes and details to be shown on the record drawings shall include, but not be limited to, difference in quantities of the original plans vs. actual installation (as appropriate), modifications to the location and elevations of public utility and storm drainage facilities, any utility relocations, any signage or traffic control devices, and any other modifications, additions or adjustments to any other facilities not shown or as modified on the Project Plans.

Record drawings plans shall be signed and dated by the Contractor or the sub-contractor that actually constructed the facility. In addition, company names of the Contractor and sub-contractors shall be added to the Title Sheet of the record drawings. Should the Contractor not provide this information to the Engineer in the time specified in this section, or to the acceptance of the Engineer (record drawings do not note all changes to the project) the Engineer will not accept the record drawings, retention shall not be released on the project, the record plans will be returned to the Contractor and the Contractor shall resubmit the record drawings to meet the requirements of this section to the acceptance of the Engineer.

130.05 Measurement and Payment

Mobilization and Demobilization, as described above shall be considered one bid item. Project Sign, as described above shall be considered as included with Mobilization and Demobilization and no additional compensation shall be allowed for. Record Drawings, as described above shall be considered as included with Mobilization and Demobilization and no additional compensation shall be allowed for. Mobilization and Demobilization shall be measured on a lump sum basis, completed and accepted by the Engineer as conforming to all the requirements in the complete work.

The contract price paid for Mobilization and Demobilization shall include full compensation for mobilizing the Contractor's forces which shall include but not be limited to: bonds, insurance, permits, record drawings, purchasing, transporting equipment, setup, temporary power source and installation, project signs, establishment of a field office, sanitation facilities, and furnishing all labor, materials, tools, equipment, and incidentals required for performance and completion of the work; including full compensation for operations required to demobilize the Contractor's forces which shall include but not be limited to: the removal of all equipment, materials, debris, project signs, field office, sanitation facilities, temporary BMPs, tree protection fencing, and project clean-up; for the contract lump sum price bid, as shown on the Plans, in accordance with the Contract Documents, Standard Specifications, these Special Technical Provisions, project permit(s), and to the satisfaction of the Engineer.

Partial payments paid for Mobilization and Demobilization shall be made as follows:

- When 5% of the total original contract amount is earned from other bid items, 50% of the amount bid for mobilization/demobilization will be paid.
- When 10% of the total original contract amount is earned from other bid items, 100% of the amount bid for mobilization will be paid.

Full compensation for conforming to the provisions of this Section, not otherwise provided for, shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed.

SECTION 140 – STAGING AND STORAGE

140.01 Staging and Storage Areas

The staging and storage areas as identified on the Project Plans are allowed for use by the Contractor in accordance with the Contract Documents, Project Permit(s), Standard Specifications, and these Special Technical Provisions. These staging/storage areas are owned by the US Forest Service and are considered public lands and shall be maintained at all times in a clean and safe environment, including any provisions for rights-of-entries issued by the US Forest Service or US Department of Agriculture. The Contractors use of the designated staging/storage areas shall be limited to and/or controlled by the restrictions as noted on the Project Plans, Project Permits, and elsewhere in these Special Technical Provisions.

If the Contractor wishes to make use of additional areas, for staging/storage activities, not identified on the Plans, it will be the Contractor's sole responsibility to secure use of these areas with agreements with the individual property owners; and file a copy of said authorization with the Engineer. The Contractor shall further be responsible for establishing all necessary and required temporary erosion control protections. The Contractor will be responsible for bearing all costs with securing these areas, and all efforts associated with the approvals, setup, maintenance, decommissioning and restoration, with no additional compensation allowed for. The Contractor shall be responsible for appropriate security and safety measures at all staging/storage areas to protect property and the public.

Set-up, use, and restoration of all staging/storage areas requires the Contractor to protect all existing facilities, equipment, vegetation, and surface features (such as, but not limited to, fences, posts, signs, boulders, landscaping, slopes, etc.) in place. Special care will need to be given to some cultural sites that will be flagged in the field prior to construction. Should the Contractor's operations damage any of these items the Contractor shall replace, in kind, the damaged or destroyed item. The damage or destruction of any item will be determined by the Engineer during the course of construction or at the final punchlist development. In the event the Contractor needs to relocate any item (boulder, fence, etc.) the Contractor shall replace the item to its original location. If the relocated item is damaged, as determined by the Engineer, the Contractor will be required to replace the damaged item with an in-kind replacement. No additional compensation will be allowed for any relocation, or replacement of damaged items, this will be at the sole cost to the Contractor.

The Contractor shall not proceed with any construction until truck haul routes and temporary haul roads have been identified and accepted to the satisfaction of the Engineer, NTCD and the US Forest Service. **The Contractor shall submit a electronic and hard copy of a proposed truck haul route plan, along with the proposed project construction schedule and traffic control plan, to the Engineer for review and acceptance at least seven (7) calendar days prior to the scheduled Pre-Construction Meeting.** Any days lost due to the lack of an accepted truck haul plan will be charged against the Contractor's allowable work days. The Contractor's truck haul route plan shall include, but not be limited to, the following:

- Proposed construction zone;
- Proposed storage areas;
- Location of flaggers (to control truck access, where applicable);
- Construction phasing (including phasing of intersection construction and detours, if any); and,
- Proposed truck route (including the location of other construction projects which impact, or may be impacted by, the proposed haul route.)

All staging/storage areas shall comply with the US Forest Service's and TRPA's requirements for BMPs while storing or stockpiling materials. The Contractor shall be responsible for locating staging/storage areas and will need to install all temporary erosion controls and BMPs and maintain them at all times during construction and until project closeout. The limits of the staging/storage areas shall be reviewed and accepted by the Engineer, NTCD, and the US Forest Service prior to use.

At the completion of the work or when no longer required for use, all construction staging/storage areas shall be cleared of all equipment, tools, materials, trash, debris, etc to produce a clean area and returned, as nearly as possible, to the lines and grades which existed prior to construction.

The restored staging/storage areas, if areas exist as an unpaved condition, shall be treated with the final Revegetation Treatment Type as shown on the Plans (if any areas for Staging/Storage are used and not shown on the Revegetation Plans, the Contractor shall treat the area with Revegetation Treatment Type as directed by the Engineer) and as described in these Special Technical Provisions. For storage and staging areas in paved areas, the areas shall be swept clean and returned to the existing condition, prior to use. The Engineer will inspect the paved areas, and if damage has occurred, whether by fault of the contractor's operations or not, the contractor will be required to make remedial action, including complete pavement restoration. No additional compensation shall be allowed for any remedial restoration work of paved areas, including complete replacement of the pavement areas.

140.02 Measurement and Payment

Staging and Storage shall be measured on a lump sum basis, accepted by the Engineer as conforming to all the requirements in the complete work. The contract price paid for Staging and Storage shall include set-up of all staging and storage areas and installation of any applicable temporary erosion control measures and BMPs (except where otherwise paid for) and furnishing all labor, materials, tools, equipment, and incidentals required for performance and completion of the work; including full compensation for operations required to remove and dispose of all materials, clean-up, and restore the site to its pre-construction condition, and re-pave and stripe the parking area as shown on Plans; for the contract lump sum price bid, as shown on the Plans, in accordance with the Contract Documents, Standard Specifications, these Special Technical Provisions, Project Permit(s), and to the satisfaction of the Engineer.

The schedule for payment for Staging and Storage shall be in direct proportion to the percentage of work completed; i.e. if 20% of the project is completed, the Contractor may request payment for 20% of the lump sum total of the bid item for Staging and Storage. Measurement of the percentage of work completed shall be based on the percentage of work billed by the Contractor based on the total dollar amount of the contract bid price. Increases in the total contract price for any reason do not justify an increase in the lump sum price paid for any of the Staging, Storage and Access bid items. The Engineer reserves the right to adjust the partial payment amounts of these said bid items based on any adjustments made to other pay items on the payment request by the Engineer.

Full compensation for conforming to the provisions of this Section, not otherwise provided for, shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed.

SECTION 145 – SUBMITTALS

145.01 General

Where required by the Contract Documents, project permit(s), Project Plans, Standard Specifications, elsewhere in these Special Technical Provisions, and/or as indicted herein, the Contractor shall provide submittals, and furnish shop drawings and material certifications to the Engineer for review and acceptance. The required number of submittals, shop drawings and certificates shall be delivered within the specified time frames, including a transmittal letter in conformance with the Contract Documents, Standard Specifications, and these Special Technical Provisions. The transmittal letter at a minimum shall include the following information:

A. Submittal number and item description
B. Scheduled date of submittal
C. Specification section/item number
D. Supplier and/or manufacturer, plus contact information
E. Contractor or sub-contractor name and point of contact information

Submittals may be submitted electronically or as a hard copy. Electronic submittals are preferred.

145.02 Submittals Required

The following items require a submittal, shop drawing, and/or material certification for review and acceptance by the Engineer (this list may not be complete; it is the Contractors responsibility to review and be knowledgeable with all portions of the project permits, Plans, Contract Documents, Standard Specifications, and these Special Technical Provisions for any additional requirements):

- Construction Schedule
- Traffic Control Plan, and Truck Haul Routes
- Equipment list for all equipment to be used, including the following minimum information:
    - Manufacturer and Model
    - Ground pressure rating (in psi)
    - Certification for washing/steam cleaning, including date
- Filter fence, sediment coir logs, and other BMP materials
- Construction limit fence
- Engineered fabrics
- Aggregates used in the work
- Chinking, cobble, boulders, and gravel used in the work
- Aggregate base (AB), imported fill, engineered fill, and bedding materials
- Material testing reports and other data necessary to provide the Engineer with established laboratory values for optimum moisture and maximum dry density, for use of any native soils, imported soils and aggregates requiring density testing
- Weed-free certification certificates for any imported materials to be used in the project
- Asphalt mix design and other bituminous materials used in the work (if applicable, see section 140 of these Special Provisions).
- Loose aggregate samples as specified in Section 200 “Gravel, Cobble, Rock, Boulder & Other
- Aggregates”
- Revegetation items as specified in Section 260 “Revegetation”
- Record Drawings

145.03 Measurement and Payment

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals for all work associated with performing all the work involved in provisions of this section, complete in place as shown on the Project Plans, as specified in the Contract Documents, Project Permit(s), Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, shall be considered as included in prices paid for the various contract items of work involved; and no additional compensation will be allowed for.

SECTION 150 – TRAFFIC CONTROL

150.01 Traffic Control Plan

Work under this item shall consist of furnishing all labor, tools, materials, and equipment necessary to complete and maintain all traffic control provisions in accordance with the Plans, Contract Documents, Standard Specifications and these Special Technical Provisions, and as directed by the Engineer during the life of the Contract. All traffic control devices and plans shall conform to the latest editions of the Manual on Uniform Traffic Control Devices (MUTCD) and the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP-14).

The Contractor shall submit the proposed traffic control plan, along with the proposed project construction schedule and truck haul route plan, to the Engineer for review and comments at least seven (7) calendar days prior to the scheduled Pre-Construction Meeting.

- The Contractor's traffic control plans shall include, but not be limited to, the following:
- Designated construction site Traffic Control Supervisor (TCS) name and contact information
- Proposed construction zone and existing speed limits
- All construction signing
- Location of flaggers
- Types and location of traffic control devices
- Construction phasing (including phasing of intersection construction and detours, if any)
- Lane crossovers between construction phases
- Special events scheduling
- Detours
- Accommodations for pedestrians and bicycles
- Intersection Control Strategy

The Engineer and US Forest Service personnel will provide written comments and/or corrections to the Traffic Control Plans. If necessary, the Contractor and Engineer will meet to consider the comments and/or corrections to the plan prior to the preconstruction conference to resolve any issue relative to the traffic control plans. Upon resolution of all issues or acceptance of the traffic control plans as submitted, the Engineer shall accept the plans in writing.

Acceptance by the Engineer of the submitted traffic control plans shall in no way relieve the Contractor of the responsibility for safety requirements. Acceptance of the traffic control plans by the Engineer indicates that the plans generally appear to conform to the contract requirements. Such acceptance shall in no way be construed as confirmation of the technical accuracy or adequacy of the contents of the plans and shall not relieve the Contractor of the obligation to institute traffic control measures in full compliance with contract requirements, and which function safely and correctly, and are in conformance with applicable statutes, ordinances, and regulations. If during construction, revisions to

the accepted plans are necessary for safety or accommodation to traffic, the Engineer may require such revisions.

Any request by the Contractor to change the traffic control plans shall be submitted in writing at least five (5) working days prior to implementation. Such requests must be accepted in writing by the Engineer prior to implementation. Traffic control plans shall be maintained and must be current with the applicable phase of the work.

150.02 Traffic Control Notification
Upon acceptance of the traffic control plans, and at least 2 working days prior to beginning construction, the Contractor shall notify and submit a copy of the accepted traffic control plans to the Engineer, refuse collection agencies, and appropriate police and fire departments, REMSA, and any other emergency service as directed by the Engineer.

150.03 Existing Signs
If existing traffic control device regulatory signage (i.e. stop, yield, speed limit, etc) is removed or damaged due to the Contractor's operations, the Contractor shall notify the appropriate jurisdiction maintenance department and immediately install temporary signs of the same designation as close as possible to the original location.

All existing traffic control devices removed to facilitate construction of the project improvements, shall be salvaged and replaced to its original condition as part of the work. Any materials that are damaged or lost shall be replaced in like kind. All traffic control devices require acceptance of the Engineer.

150.05 Measurement and Payment
"Traffic Control" shall be measured on a lump sum basis, completed and accepted by the Engineer as conforming to all the requirements in the complete work.

The contract price paid for "Traffic Control" shall include full compensation for preparation and submittal of a traffic control plan, and for furnishing all labor, materials, tools, equipment, and incidentals to perform all the work involved in provisions of this section, including but not limited to temporary construction signs and traffic control devices, flagging, flasher units, barricades, lights, electrical power, resetting of traffic signs and delineators, and all incidentals and materials necessary to provide these items for the duration of construction.

The schedule for payment for "Traffic Control" shall be in direct proportion to the percentage of work completed; i.e. if 20% of the project is completed, the Contractor may request payment for 20% of the lump sum total of the bid item for traffic control. Measurement of the percentage of work completed per each phase shall be based on the percentage of work billed by the Contractor based on the total dollar amount of the contract bid price. Increases in the total contract price for any reason do not justify an increase in the lump sum price paid for any of the traffic control bid items. The Engineer reserves the right to adjust the partial payment amounts of these said bid items based on any adjustments made to other pay items on the payment request by the Engineer.

Full compensation for conforming to the provisions of this Section, not otherwise provided for, shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed.

SECTION 155 – CONSTRUCTION STAKING

155.01 Description
Work under this item shall consist of furnishing all labor, tools, materials, and equipment necessary to complete construction staking in accordance with the Standard Plans and Specifications and these Special Technical Provisions.

NTCD shall furnish one set of stakes and/or marks to establish lines and grades required for the completion of the work as shown on the Plans and as specified in the Standard Specifications and these Special Technical Provisions. The Contractor is responsible for notifying the Engineer at least seven (7) days in advance of when staking is needed. The Contractor will be responsible for any and all additional construction staking necessary for the full and complete construction of the Project. The Contractor shall be solely responsible for maintenance and protection of the survey stakes or marks. Contractor's construction staking will be verified by the Engineer, at the Engineer's discretion.

NTCD shall furnish labor and surveying equipment necessary for staking the Project including the following:

- Control points,
- Limits of grading and grade breaks,
- Stream alignments and offsets, and
- In stream structure locations and offsets.

The contractor shall provide any survey in excess of the aforementioned items.

All stakes and survey markers will be conspicuously marked with flagging tape or paint. The Contractor shall inform the Subcontractors of the importance of the preservation of all survey markers. The Contractor shall be responsible for protecting and maintaining all stakes from destruction. In the event that one or more of the stakes are damaged or destroyed, the Contractor will replace the stakes at the expense of the Contractor.

The Contractor's surveyor will be provided with the northing, easting, and elevation of the control points existing in the field as shown on the Project Plans. Additionally, the Contractor's surveyor will be provided with an electronic copy (ASCI Format) of the control points depicted on the Project Plans to develop the construction staking as stated in these Special Technical Provisions.

If the Contractor's surveyor wishes to develop a different work plan it shall be the Contractor's responsibility to develop such a work plan and present to the Project Engineer for approval.

155.02 Measurement and Payment
Full compensation for furnishing all labor, materials, tools, equipment, and incidentals for all work associated with all work involved in provisions of this section, complete in place as shown on the Plans, as specified in the Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, should be incidental to the other construction items; no additional compensation will be allowed.

SECTION 160 – TEMPORARY EROSION CONTROL

160.01 General

This work shall consist of temporary erosion control measures, devices, and BMPs that may be shown on the Project Plans, and as specified in the Contract Documents, Project Permit(s), Standard Specifications, these Special Technical Provisions, or as directed by the Engineer during the life of the contract. Temporary erosion control measures will also be required at staging/storage areas utilized during project construction. Said work is intended to provide prevention, control, and abatement of water and air pollution within the limits of the project and to minimize damage to the work, adjacent properties and Lake Tahoe, streams, or other bodies of water.

The Contractor shall submit any proposed revisions to the applicable Project Plan sheets for Temporary Erosion Control and the Dewatering and/or Diversion operations. No work shall be started until applicable plan sheets, schedules and methods of operation for temporary pollution control are reviewed and accepted by the Engineer, NTCD, USFS, and LRWQCB. The Contractor is reminded that the project is located within the Lake Tahoe Basin and all pollution control measures and clean-up procedures must satisfy the requirements of TRPA, USFS, LRWQCB and the permit(s) issued for the project. During the course of project construction, the Contractor shall cooperate with the Engineer, USFS, LRWQCB, TRPA, and other regulatory officials and take immediate action as directed to protect water bodies and sensitive areas, and provide for erosion or other pollution control.

Installation and maintenance of temporary erosion control measures, devices and BMPs shall conform to the requirements as stated within this section and the National Best Management Practices for Water Quality Management on National Forest System Lands (Volume 1, National Core BMP Technical Guide FS-990a, 2012).

As Directed Placement

Due to the nature of the project and expected field direction from the Engineer, USFS, and permitting agencies, the Contractor shall make provisions to furnish all labor, tools, materials, and equipment as necessary to furnish and place additional temporary erosion control devices in the work (i.e. beyond or in addition to what is designated on the Project Plans) as directed by the Engineer, in conformance with the Contract Documents, Project Permits, Standard Specifications, and these Special Technical Provisions. Installation, maintenance, removal, and disposal of any additional as directed temporary erosion control device shall be considered as included in the applicable "as directed" bid item unit price, and no additional compensation will be allowed. The installation and location of any as directed temporary erosion control device shall only occur as determined and marked in the field by the Engineer.

The intent of the as directed temporary erosion control device bid items, is to provide the Engineer and Contractor with a means and allowance for additional temporary erosion control devices to be incorporated in the work where modifications to the construction sequence, changing field conditions, temporary stockpiles, and other potential minor unknowns can be adequately addressed in order to maintain compliance with the Project permits.

The Contractor will not be compensated for the installation of any additional "as directed" temporary erosion control devices without prior direction and acceptance of the Engineer.

Temporary Soil Stabilization

The Contractor shall install temporary soil stabilization materials for water pollution control in all disturbed work areas that are considered inactive (i.e. excess of 14 days) or before forecast storm events. Should any temporary erosion control of this nature be required elsewhere as directed by the Engineer and/or regulatory agencies, the Contractor shall install within 48 hours of notification. Where applicable and upon acceptance of the Engineer, the Contractor shall furnish and apply/install temporary mulch, temporary hydraulic mulch, temporary erosion control blankets, or temporary covers in conformance with the Standard Specifications and these Special Provisions. Materials and construction methods shall comply with the Standard Specifications and these Special Provisions.
The Contractor shall maintain a temporary cover on all stockpiles at all times. Whenever a temporary cover is removed to perform other work, the temporary cover shall be replaced and secured within one (1) hour of stopping work.

Compensation for the requirements of this section, not otherwise provided for in a specified bid item, shall be considered included in prices paid for the various contract items of work involved, and no additional compensation will be allowed.

160.02 Gravel Construction Access
Work under this item shall consist of furnishing all labor, tools, equipment, and materials necessary to install, maintain, remove, and dispose of this temporary erosion control measure as required by the Project Plans, Contract Documents, Standard Specifications, these Special Technical Provisions, Project Permit(s), and TRPA Best Management Practices.

Work under this item shall consist of clearing and grubbing, excavation, furnishing and placing reinforcement mat, furnishing and placing rock at each entrance/exit access road, maintenance (i.e. removal of large quantities of captured sediment, and/or placement of additional rock during course of construction), removal, disposal of excess materials, and restoration of disturbed area.

Fabric to be used for the reinforcement mat shall be manufactured from polyester, nylon, or polypropylene material, or any combination thereof. Fabric shall be manufactured from virgin, or recycled or a combination of virgin and recycled, polymer materials. No virgin or recycled materials shall contain biodegradable filler materials that can degrade the physical or chemical characteristics of the finished fabric. The fabric shall be a non-woven, needle-punched fabric. The fabric shall be permeable, not act as a wicking agent, and shall conform to the following:

Test	**Test Method**	**Requirement**
Weight, grams per square meter	D 3776	135 min.
Grab Tensile Strength, Newton, (25 millimeter grip, in each direction)	D 4623	0.40 min.
Elongation at Break, percent	D 4632	30 min.
Toughness, kilonewtons (percent elongation x grab tensile strength)		26 min.
Permittivity, 1/sec.	D 4491	0.5 min.
Ultraviolet Resistance, percent strength retention	D 4355	70 min.

Rocks shall be angular to sub-angular in shape and shall conform to the material quality requirements in Section 200.07, Riprap, of the Standard Specifications for resistance to wear, absorption, apparent

specific gravity, and durability. Rocks used for the gravel construction entrance/exit shall conform to the following sizes:

Square Screen Size	Percent Passing
6 inches	100
3 inches	0-20

Each gravel construction entrance/exit shall be of adequate size to prevent the tracking of sediment and materials onto any paved public right-of-way. At a minimum the size of each gravel construction entrance/exit shall be as shown on the Project Plans.

While the gravel construction entrance/exit is in use, pavement shall be cleaned and sediment removed at least once a day and as often as necessary when directed by the Engineer. Soil and sediment or other extraneous material tracked onto existing pavement shall not be allowed to enter any existing or proposed drainage facilities.

In the event the Contractor's operations are causing excessive tracking of materials the Engineer may direct the Contractor to replace the gravel construction entrance/exit, expand the size (area – length and/or width) of the gravel construction entrance/exit, and/or expand the depth of the gravel construction entrance/exit. In the event this is required, the Contractor will not be entitled to any additional payment.

When no longer required as shown on the Project Plans or as determined by the Engineer, each gravel construction entrance/exit shall become the property of the Contractor and be removed and disposed of in conformance with the Contract Documents, Standard Specifications, and these Special Technical Provisions. Under no circumstance shall any of the materials used for gravel construction entrance/exit be re-used on the project. All areas disturbed by the placement and use of each gravel construction entrance/exit shall be graded and restored to its pre-existing condition, including any provisions for revegetation found elsewhere in these Special Technical Provisions.

Gravel construction entrance/exit is considered a temporary erosion control measure or BMP. A fine of $100 per day will be levied against the Contractor for each day the Contractor delays in responding to the Engineer's request to install new temporary erosion control devices and/or maintain existing temporary erosion control devices, in addition to any other fines levied by any other regulatory agency with no additional compensation allowed for.

160.03 Construction Limit Fence. Work under this item shall consist of furnishing all labor, tools, equipment, and materials necessary to install, maintain, remove, and dispose of this BMP as required by the Project Plans, Contract Documents, Standard Specifications, these Special Technical Provisions, Project Permit(s), and TRPA Best Management Practices.

The Contractor shall perform all construction activities that are outside the road right-of-way within the construction limits (and/or grading limits) as shown on the Project Plans and staked by the Contractor's surveyor, and as delineated with construction limit fence installed by the Contractor. Where directed by the Engineer and/or shown on the plans, construction limit fence shall be placed around individual trees or groups of trees that are to remain, in accordance with the Tree Protection and Construction Limit Fence depicted on the project plans.

The area within which the Contractor will be allowed to conduct his/her construction operations will be the area within the limits of the construction limit fencing and/or grading limits as shown on the Project Plans. Where located within the immediate vicinity of any trees (or dripline), the width of the work area will be reduced in order to protect the trees. The Contractor shall review each such location to determine what equipment can be used to install the improvements at these locations or if hand work will be necessary. The costs associated with working within these reduced widths shall be included in the unit price bid for the applicable item of work with no additional compensation therefore.

Contractor's attention is directed to the applicable bid item descriptions in these Special Technical Provisions regarding the type of equipment that can be used in construction on sensitive land areas. Where tree protection fencing cannot be placed at the dripline of the tree, as determined by the Engineer in coordination with TRPA, wood batten (as shown on the Project Plans) with bottom set approximately 3 feet above ground surface shall be strapped to the tree trunk (space between wood batten shall be no more than 6"). The unit price bid for construction limit and tree protection fence shall also apply to this condition (i.e. linear foot measurement of tree circumference where wood batten is attached). Construction limit and tree protection fencing shall be inspected daily and repaired, secured, and/or replaced as necessary to maintain and preserve its intended purpose. All construction limit and tree protection fencing shall remain in place during any construction activities unless directed by the Engineer. Tree protection and construction limit fencing is considered a temporary erosion control measure or BMP.

A fine of $100 per day will be levied against the Contractor for each day the Contractor delays in responding to the Engineer's request to install new temporary erosion control devices and/or maintain existing temporary erosion control devices, in addition to any other fines levied by any other regulatory agency with no additional compensation allowed for.

160.04 Filter Fence. Work under this item shall consist of furnishing all labor, tools, equipment, and materials necessary to install, maintain, remove, and dispose of this temporary erosion control measure as required by the Project Plans, Contract Documents, Standard Specifications, these Special Technical Provisions, Project Permit(s), and TRPA Best Management Practices.

Filter (silt) fence shall be manufactured from polyester or polypropylene material. The fabric shall be woven and shall conform to the following:

Test	Test Method	Requirement
Grab Tensile Strength, Newton, (25 millimeter grip, in each direction)	4623	400 min.
Elongation at Break, percent	4632	20 min.
Apparent Opening Size, Micrometers (um)	D 4751	850 min.
Coefficient of Permeability, cm/sec.	D 4491	0.01 min.
Ultraviolet Resistance, percent strength retention	D 4355	90 min.

- Filter fence fabric shall be handled and placed in accordance with the manufacturer's recommendations. The fabric shall be aligned and placed in a wrinkle-free manner.
- When joints are necessary, filter fence fabric shall be spliced together only at a support post, with a minimum twelve (12) inches overlap and securely sealed or stitched. See manufacturer's recommendations. Should the filter fence fabric be damaged, the torn or punctured section

shall be repaired by placing a piece of fabric that is large enough to cover the damaged area and to meet the overlap requirement.

- Posts shall be spaced a maximum of ten (10) feet apart at the barrier location or as recommended by the manufacturer if less than ten (10) feet and driven securely into the ground (minimum of 1 foot). The posts and fence shall be angled ten (10) degrees off vertical up-slope for stability.
- A trench shall be excavated approximately four (4) inches wide and six (6) inches deep along the line of posts and upslope from the barrier in accordance with manufacturer's recommendations.
- A wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy duty wire staples at least one (1) inch long, tie wires or hog rings. The wire mesh shall extend into the trench a minimum of two (2) inches and shall not extend more than three (3) feet above the original ground surface.
- The filter fence fabric shall be installed on the upslope side of the wire mesh fence and shall be stapled, wired, or tied to the wire fence and eight (8) inches of the fabric shall be extended into the trench. The fabric shall not extend more than three (3) feet above the original ground surface.
- Filter fence fabric shall not be stapled to existing trees.
- The trench shall be backfilled and the soil compacted over the filter fence fabric.
- For installations on slopes less than 20%, slope lengths of 200 feet or less and around drainage inlets, the Contractor has the option to use fiber rolls in lieu of filter fence.
- Should the filter fence fabric decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly.

Filter fence shall remain in place for the complete duration of the project (all Phases of work) as necessary to conform to the Project Permit(s). All filter fence shall be routinely inspected and maintained at all times and on a continual basis for the duration of the Project, and is expected to be in good condition at the time the Notice of Completion is issued. Repair and or replacement of any damaged filter fence, upon discovery or as directed by the Engineer, shall be considered as included in the prices paid for this bid item of work, and no additional compensation will be allowed. At the conclusion of the project or as directed by the Engineer, TRPA and NDEP, all filter fence shall become the property of the Contractor and be completely removed from the project site and disposed of in conformance with the Contract Documents, Standard Specifications, and these Special Technical Provisions.

Fiber log (sediment roll) shall not be used in place of filter fence without prior acceptance and written consent of the Engineer. Filter fencing is considered a temporary erosion control measure or BMP. A fine of $100 per day will be levied against the Contractor for each day the Contractor delays in responding to the Engineer's request to install new temporary erosion control devices and/or maintain existing temporary erosion control devices, in addition to any other fines levied by any other regulatory agency with no additional compensation allowed for.

160.05 Fiber Log (Sediment Roll). Work under this item shall consist of furnishing all labor, tools, equipment, and materials necessary to install, maintain, remove, and dispose of this temporary erosion control measure as required by the Project Plans, Contract Documents, Standard Specifications, these Special Technical Provisions, Project Permit(s), and TRPA and USFS Best Management Practices. **The Contractor shall submit a material specification for the fiber roll, for acceptance of the Engineer, prior to placement in the work.**

Fiber rolls will be certified weed free logs that consist of drainage filter made of curled aspen wood excelsior or coir and rolled into a cylindrical shape with a consistent width of fibers evenly distributed throughout the cylinder. Logs will be encased in 100% natural fiber biodegradable netting (no photodegradable or plastic materials). Weed free certification must be provided.

Fiber rolls with a diameter of 8 to 10 inches shall have a density of at least 1.1 lb/ft, and sediment logs with a diameter of 12-inches shall have a density of at least 3 lb/ft. Its basic purpose is to provide a flexible, lightweight, porous sediment control device demonstrating the ability to conform to terrain details, dissipate water velocity, and capture loose sediment. All fiber rolls shall be properly staked in place, except where its use is intended to be short term (daily operations) or reposition of the fiber roll will occur on a regular basis (i.e. active construction areas, trenching operations and windrows, temporary or active stockpiles, active areas for soil processing/screening operations, spill containment devices, etc.) as determined by the Engineer. In such instances where a fiber roll is not staked, it shall be weighted or secured in place using a sufficient number of gravel bags to control the flow of storm water and capture sediment.

The Contractor shall furnish, install, maintain, and remove when no longer required, all fiber rolls per the Manufacturer's directions, as shown on the Project Plans and as directed by the Engineer (where applicable to each Phase of the work), including but not limited to the following general requirements:

- Prior to fiber roll installation; the Contractor shall excavate a concave trench along the contour line, three (3) inches to five (5) inches deep. Soil excavated from the trench shall be placed on the uphill or flow side of the roll to prevent water from undercutting the roll.
- The Contractor shall place the fiber roll in the trench and stake on both sides of the fiber roll within eight (8) inches of each end and then at a maximum spacing of four (4) feet, using one (1) by two (2) inch stakes.
- When more than one fiber roll is placed in a row or check dam, the fiber rolls shall be overlapped in a horizontal configuration to provide a tight joint.

Fiber roll shall remain in place, where directed by the Engineer, for the complete duration of the project (all Phases of work) as necessary to conform to the Project Permit(s). All sediment logs shall be routinely inspected and maintained at all times and on a continual basis for the duration of the Project. Repair and or replacement of any damaged sediment log, upon discovery or as directed by the Engineer, shall be considered as included in the prices paid for this bid item of work, and no additional compensation will be allowed. At the conclusion of the revegetation "maintenance and bonding period" or where accepted to occur at an earlier date as directed by the Engineer, TRPA and NDEP, all sediment log shall become the property of the Contractor and be completely removed from the project site and disposed of in conformance with the Contract Documents, Standard Specifications, and these Special Technical Provisions.

Any sediment logs required or used in the work on a short term basis that are not permanently staked in place or are anticipated to be moved on a daily or routine basis (such as areas immediately adjacent to trench excavations, temporary stockpiles, active areas for soil processing/screening operations, spill containment devices, etc.) shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed.

Fiber rolls are considered a temporary erosion control measure or BMP. A fine of $100 per day will be levied against the Contractor for each day the Contractor delays in responding to the Engineer's request to install new temporary erosion control devices and/or maintain existing temporary erosion control devices, in addition to any other fines levied by any other regulatory agency with no additional compensation allowed for.

160.06 Watering/Dust Control

Work under this item shall consist of furnishing all labor, tools, equipment, and materials necessary to provide construction water for the control of dust generated by the Contractors activities as required by the Project Plans, Contract Documents, Standard Specifications, these Special Technical Provisions, Project Permit(s), and USFS and TRPA Best Management Practices.

The Contractor shall be responsible for dust control throughout all phases of construction. All federal, state, regional and local ordinances regarding dust control shall be complied with. The responsibility of obtaining the regulations and requirements and full compliance with such ordinances is solely that of the Contractor.

No chemical additives shall be permitted for any watering/dust controls operations.

If the Contractor desires to use water from Saxon Creek during construction, water must be pumped and used in accordance with any rules, regulations, and procedures as established by the US Forest Service. Water drafting sites should be located in areas that will avoid adverse effects to stream flows and depletion of pool habitat. If instream flows or water drafting sites are not sufficient due to a lack of water, water would be obtained from local municipal water hydrants. Water drafting sites will be reviewed by a hydrologist or fisheries biologist every two weeks during low flow periods and determinations made regarding adequate minimum flows. If flows are not adequate for instream needs, drafting will be discontinued. Use screening devices for water drafting pumps (Fire suppression activities are exempt during initial attack). Use pumps with low entry velocity to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats. The following criteria should be used to avoid impacts:

- Drafting operations should be restricted to one hour after sunrise to one hour before sunset to avoid the use of lights that attract fish.
- Pumping rate shall not exceed 350 gallons per minute.
- The pumping rate shall not exceed ten percent of stream flow (estimated by pump operators) to ensure adequate downstream flow to support aquatic species.
- Drafting should occur in streams and pools with deep and flowing water; not streams with low flows and isolated pools.
- Pumping operations shall not result in obvious upstream or downstream pools.
- Each pumping operation shall use screens. The screen face should be oriented parallel to flow for best screening performance.

160.07 Sweeping

Work under this item shall consist of furnishing all labor, tools, materials, and equipment necessary to sweep all paved areas within the project site, and streets adjacent to the project site, and dispose of the swept materials in accordance with the Project Plans, Contract Documents, Standard Specifications, these Special Technical Provisions, Project Permit(s), and USFS and TRPA Best Management Practices. Tracking of sediment onto public streets shall be minimized by a combination of road sweeping and use of gravel construction entrance/exit areas designated on the Plans during soil hauling operations, during

equipment transporting from one work area to another, and as necessary to keep the streets and other paved areas clear of soil and debris. Tracking control applies to streets within the project area as well streets adjacent to the project area that have the potential to be impacted by tracking from the Contractor's operations.

Affected streets shall be swept a minimum of three times daily (e.g. mid-morning, mid-afternoon, and at the end of the day) during soil hauling operations, during equipment transporting from one work area to another, and as necessary to keep the streets clear of soil and debris. The swept material shall be disposed of in accordance with the standard specifications, project permits and these Special Technical Provisions.

Sweeping is considered a temporary erosion control measure or BMP. A fine of $100 per day will be levied against the Contractor for each day the Contractor delays in responding to the Engineer's request to install new temporary erosion control devices and/or maintain existing temporary erosion control devices, in addition to any other fines levied by any other regulatory agency with no additional compensation allowed for.

160.08 Maintenance

The Contractor shall maintain all temporary erosion control measures, devices, and/or BMPs placed in the work, for the duration of the project. Maintenance includes all Manufacture's recommendations, and includes but is not limited to the following:

- Damage to any temporary erosion control devices and/or BMPs during the course of the project shall be repaired by the Contractor immediately upon discovery and at his expense.
- Temporary erosion control devices and/or BMPs shall be inspected routinely and immediately after each rainfall event and at least daily during prolonged rainfall events. Any required repairs shall be made immediately.
- Construction limit and tree protection fencing shall be inspected daily and repaired, secured, and/or replaced as necessary to maintain and preserve its intended purpose.
- All signage as required for the project shall be routinely inspected and repaired or replaced upon discovery of damage, vandalism, and/or missing parts.
- Should the filter fence fabric decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly.
- Should a sediment log decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the sediment log shall be replaced promptly.
- Any single or group of gravel bag(s) shall be replaced when the bag material is ruptured or when the yarn has failed, allowing the bag contents to spill out.
- Any stakes and/or rope used to secure a sediment log in place shall be routinely inspected and repaired as necessary if found to be loose or ineffective.
- Sediment deposits and other debris shall be removed when they reach approximately one-half the height of the sediment barrier (or as recommended by the Manufacture) and disposed of in a manner acceptable to the Engineer, USFS, LRWQCB, and TRPA.
- Any sediment deposits remaining in place after the temporary erosion control measure and/or BMPs is no longer required shall be removed and disposed of in a manner acceptable to the Engineer, USFS, LRWQCB, and TRPA.

160.09 Measurement and Payment.

"Filter Fence" shall be measured on a per linear foot basis along the top of the fence line, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The linear foot price for "Filter Fence" shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing the filter fence, including but not limited to, excavation, staking, burying, maintenance, and off-haul and disposal of excess materials, for a complete job in place to the lines and dimensions as shown on the Project Plans, and specified in the Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, and no additional compensation will be allowed.

"Construction Limit Fence" shall be measured on a per linear foot basis along the top of the fence line, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The linear foot price for "Construction Limit Fence" shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing the construction limit fence, including but not limited to, installing stakes and fence, maintenance, and off-haul and disposal of excess materials, for a complete job in place to the lines and dimensions as shown on the Project Plans, and specified in the Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, and no additional compensation will be allowed.

"Fiber Roll, As Directed" shall only be installed at the direction of the Engineer and shall be measured on a per linear foot basis along fiber rolls, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The linear foot price for "Fiber Roll" shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing the fiber rolls, including but not limited to, communication with the Engineer, excavation of trench, installing stakes and rolls, maintenance, and off-haul and disposal of excess materials, for a complete job in place to the lines and dimensions as shown on the Project Plans, and specified in the Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, and no additional compensation will be allowed.

"Gravel Construction Access" shall be measured on a per each basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The per each price for "Gravel Construction Access" shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing the gravel construction access, including but not limited to, installing stakes and fence, maintenance, and off-haul and disposal of excess materials, for a complete job in place to the lines and dimensions as shown on the Project Plans, and specified in the Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, and no additional compensation will be allowed.

Full compensation for conforming to the provisions of this Section, not otherwise provided for, such as sweeping and dust control, shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed.

SECTION 165 – DEWATERING AND/OR DIVERSION

165.01 General

Work under this item shall consist of furnishing all labor, tools, equipment, and materials as necessary to dewater, divert and/or bypass any groundwater or surface waters and to maintain a reasonably dry excavation or general work area for the proper installation, construction, curing, grow-in, maintenance, and completion of any improvements and utility relocates, including revegetation/restoration activities,

for a complete job in place as shown on the Project Plans, described in the Special Technical Provisions, the Appendix A "Dewatering and Diversion Plan, and Standard Specifications, or as directed by the Engineer.

Dewatering and/or Diversion operations as stated herein, or as directed by the Engineer, are required to be performed at any time and on a continual basis, for the duration of the project and any ensuing maintenance period, as necessary to install, construct, complete and maintain all project improvements.

In general, the Contractor should expect/anticipate that groundwater may be encountered at any time the existing ground is disturbed within the project area, as a majority of the project site is located within a TRPA delineated SEZ (land capability SEZ 1b) shown on the Project Plans.

The Contractors attention is directed to the "Dewatering and Diversion Plan" (Appendix A). All dewatering and/or diversion operations and activities shall be in complete compliance with the Project Plans, Project Permits, the Standard Specifications, these Special Technical Provisions, and other applicable regulatory agency requirements.

The Contractor shall be responsible for the final design, installation, operation, maintenance and removal of any dewatering and/or diversion systems as required for completion of the contract work. The Project Plan sheets and Dewatering and Diversion Plan as provided as part of the Contract Documents provide a basis for, show, and describe dewatering scenarios and minimum requirements. **The Contractor shall submit their own detailed Dewatering and Diversion Plan (including all necessary diagrams/ exhibits) to the Engineer for review and acceptance (by the Engineer, USFS, and LRWQCB) prior to commencement of any construction activities that may require dewatering and/or diversion operations.** The proposed Dewatering and Diversion Plan shall be prepared by a licensed Engineer in the state of California, or qualified licensed Contractor (at discretion of the Engineer) that specializes in dewatering, filtration, pumping, and liquid handling operations. Information required to be submitted shall included but is not limited to the following:

- Any Sub-Contractor information and proof of experience
- Qualified operator of the system and equipment
- Access routes, pads, spill containment devices, and locations for equipment
- Sources for power supply and pump operation
- Dewatering/diversion system design performance measures for volume and pumping rates
- Pump equipment description, performance measures and manufacture's data sheets
- Intake and discharge locations, methods, and materials
- Disposal methods and any proposed treatment practices
- Provisions to provide back-up equipment and/or stage on-site
- Emergency plan to accommodate high flow flood events

If the Contractor plans to conduct any dewatering and/or diversion operations, he/she shall contact the Engineer for authorization, prior to starting the work at a given location. In the event the Contractor initiates dewatering and/or diversion operations without prior authorization of the Engineer, no payment for that work will be made.

165.02 Dewatering and/or Diversion for Channel Construction

Dewatering and/or diversion operations as necessary for, including but not limited to, the construction of the proposed creek channel, floodplains, in stream structures, boulder sills, floodplain improvements and grading operations shall be as shown on the accepted Contractor's Dewatering and Diversion Plan, and in conformance with the Project Plans, and these Special Technical Provisions. Discharge of all captured and/or diverted waters shall be in conformance with all project permit regulations.

The excavation and general work area shall be sufficiently dry to allow for the proper construction of the channel and associated structures, as shown on the Project Plans and described in these Special Technical Provisions. The location and depth of sumps and/or well points for pumping of ground water or surface water is at the discretion of the Contractor, but shall be reviewed and accepted by the Engineer prior to initiating the work involved. The dewatering operations shall also be sufficient to produce a stable sub-grade within the excavation or general work area as necessary for access of equipment and personnel to complete the work.

The Dewatering and Diversion operations shall adequately protect the work area(s) from creek flows, prevent erosion and discharge of sediment or pollutants, and divert "bypass" creek flows to designated stable discharge points downstream. Fish screens shall be installed as indicated on the Project Plans and described in the Dewatering and Diversion Plan. In the event there is a storm event which increases the flow of the creek beyond what can be handled by the Contractor's established creek diversion "by-pass" operations, the Contractor shall make provisions for and have equipment (i.e. pumps, piping, gravel bags, plastic sheeting, temporary dams, etc.) on standby to either provide additional pumping capacity to handle the additional flow, or provide for a complete gravity flow by-pass system. In addition the Contractor shall make all provisions to provide adequate protection of the active work area(s), avoid flooding and inundation of excavation(s), divert runoff to stabilized downstream areas away from any active work site(s), and reduce and/or prevent erosion and discharge of sediment or other pollutants.

165.03 Dirt Bag Device. Work under this item shall consist of furnishing all labor, tools, equipment, and materials necessary to install, maintain, remove, and dispose of this temporary erosion control measure as required by the Project Plans, Contract Documents, Standard Specifications, these Special Technical Provisions, Project Permit(s), and TRPA Best Management Practices. **The Contractor shall submit a material specification for the 'Dirtbag' device, for acceptance of the Engineer, prior to placement in the work.**

Use of any 'Dirtbag' or other similar sediment control filter bag device used in coordination with pumping of sediment laden waters for discharge shall be as shown on the Project Plans and details and conform to the provisions of the Project Permits. The 'Dirtbag' shall be a commercially manufactured nonwoven geotextile fabric bag (polypropylene or equivalent) intended for such use, with a minimum grab tensile strength of 200 psi in any principal direction (ASTM D4632), and permittivity of 0.05 sec (ASTM D4491). For project area soils (source of sediment in waters) with more than 15% by weight passing a No. 200 sieve the fabric shall have an apparent opening size between 50 and 140, and for project area soils (source of sediment in waters) with less than 15% by weight passing a No. 200 sieve the fabric shall have an apparent opening size between 20 and 50. The geotextile fabric material shall contain ultraviolet ray inhibitors and stabilizers to provide an expected usable life comparable to the anticipated construction period; ultraviolet stability shall exceed 70% after 500 hours of exposure (ASTM D4355). The 'Dirtbag' device shall have a fill spout large enough to accommodate a pump four (4) inch discharge hose and attachment straps to secure the hose in place. The Dirtbag' device shall be sized to accommodate the applicable flow rates and prohibit release of the target effluent. Location of any

'Dirtbag' device requires acceptance of the Engineer, equipment access for removal and off-site disposal, and the area shall be stable to prevent erosion. Placement of drain rock, fabric, or other suitable substance to create a stable discharge site is the responsibility of the Contractor. Any 'Dirtbag' device shall be fitted with straps strong enough for lifting and the device removed from the Project site and properly disposed of; **cutting open the device and leaving the captured sediment/fines in place is prohibited**. Removal and off-site disposal may be facilitated by placing the 'Dirtbag' device on pallets, crates, trailer, or some other small mobile device to dismiss the need for lifting the 'Dirtbag' device by straps.

165.04 Measurement and Payment
The "Dewatering/Diversion" bid item shall be measured on a lump sum basis, completed and accepted by the Engineer as conforming to all the requirements in the complete work. Payment for "Dewatering/ Diversion" shall be made at the lump sum price bid, with no additional compensation therefore. The "Dewatering/Diversion" bid item shall be paid in full if any dewatering operations are required and performed as part of the project work, as directed and accepted by the Engineer. No additional compensation will be allowed for if excess ground water or higher than expected creek flows are encountered and dewatering operations beyond what was anticipated by the Contractor is required for proper construction of the project improvements. All dewatering necessary for the proper installation, construction, and maintenance of the project improvements, including revegetation/restoration activities shall be included in this bid item(s). Any dewatering and diversion operations performed during the revegetation "maintenance period" (i.e. after completion and acceptance of all project improvements) shall be considered as included in the "Dewatering/Diversion" bid item.

Full compensation for conforming to the provisions of this Section, not otherwise provided for, shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed.

SECTION 170 – CLEARING AND GRUBBING AND TREE REMOVAL

170.01 Description
This section covers the construction methods involved in all clearing and grubbing, and tree removal operations as shown on the Project Plans, described in the Standard Specifications, these Special Technical Provisions, and/or as directed by the Engineer. Work under this item shall consist of furnishing all labor, tools, equipment, and materials as necessary to perform operations, including but not limited to, clearing and grubbing, topsoil salvage, tree removal, stump removal, generation and storage of rootwad logs, and disposal of waste and other miscellaneous debris in accordance with the Project Plans, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer.

170.02 Clearing and Grubbing
Clearing and grubbing shall consist of removing all objectionable and unacceptable natural or artificial materials from within the construction area project limits, and disposal of said material off the job site, in order to construct the project in a proper manner, in accordance with the Project Plans, Project Permits, Standard Specifications, these Special Technical Provisions, as directed by the Engineer, and other applicable Local, Regional, State, and Federal requirements. This work includes but is not limited to any earthen material, organic growth, willow and alder clumps, trees and stumps (less than 6-inches diameter at breast height – DBH will be measured at 4.5-ft above the existing ground surface on uphill side of tree), man-made deposits, industrial waste, sludge or landfill, and other materials as designated

by the Engineer. Existing structures, to be preserved, shall be protected and restored upon completion of the work.

Clearing and grubbing shall extend to the outer limits of excavation and fill slope lines, except where slopes are to be rounded in which case the areas shall extend to the outside limits of slope rounding. Within the limits of clearing, all stumps and roots 1-1/2 inches in diameter or larger, buried logs, and all other objectionable material shall be removed up to three (3) feet below the existing ground surface or subgrade, whichever is deeper. All existing vegetation, outside the areas to be cleared and grubbed, shall be protected from injury or damage resulting from the Contractor's operations. For typical protection of trees and other vegetation, see the Project Plans.

No live trees or downed logs or wood (equal to or greater than 6-inches diameter) shall be removed from the project site that are not identified and marked by the Engineer. In the event the Contractor removes any live trees or downed logs or wood (equal to or greater than 6-inches diameter) not marked by the Engineer, the Contractor shall be solely responsible for any and all fines and/or penalties levied to the Contractor, Engineer, or USFS in association with the removal.

For the purposes of this Project, willow and alder clump vegetation shall not be considered singular trees as part of the tree removal bid item work. Any willow/alder material shall be removed and disposed of within the project limits/areas of disturbance (clearing and grubbing limits as shown on the Project Plans), unless specifically directed to be protected in place of as part of the work. Any removal and disposal of existing willow/alder vegetation shall be considered as part of the clearing and grubbing efforts, and no additional compensation shall be allowed for.

Existing aggregate and asphalt roadway materials may be reused for embankments after being reduced in size to particles of three inches (3") maximum diameter. Pulverizing and replacement of this material is part of this work. All embankment and fill, and areas over excavated shall be compacted to a relative density of ninety five percent (95%) within the roadway and shoulder prism, and ninety (90%) in ditch and slope areas. This work shall be performed in advance of grading and trenching operations and in accordance with the requirements herein specified, subject to all erosion control requirements.

Topsoil, Sod, and Organic Materials

During clearing and grubbing, the Contractor shall salvage and stockpile topsoil and sod for reuse in the project area in accordance with Section 260, "Revegetation," of these Special Technical Provisions.

Harvest sod from the footprint of the restoration area as shown on the plans and as staked in the field. Do not stockpile more than 30 calendar days. Salvage and replant approximately 2,500 sq. ft. of native sod.

Use a low weight bearing equipment ASV-POSI TRACK SKID STEER with a front-end bucket (front end loader or tractor with bucket) to salvage and transport sod and minimize damage to native vegetation remaining in place along temporary maintenance access road.

Salvaged sod shall consist of cohesive, contiguous material of sedges *(Carex spp*.) and Baltic rush (*Juncus balticus*), and other wetland and mesic meadow species, as shown on the plans and as staked in the field by the RS. Remove in as large a unit as practicable, resulting in clean, vertical edges. Sod shall be scalped from the original ground surface to a depth of no less than eight (8) inches, as measured from the root crown. Do not stack. If stored, sod shall be placed with roots down and edges snugly adjoining adjacent

sections in a shaded facility for a maximum time of one month; minimize storage and handling. Maintain as a viable growth media and do not let material dry out during handling and storage. Re-plant concurrent with channel construction to the greatest extent possible and as directed by the Engineer.

Material that cannot be moved in a contiguous manner shall be salvaged, stockpiled, and re-applied as organic matter as directed by the Engineer.

Topsoil shall not be stockpiled for a period greater than two (2) weeks or greater than three (3) feet in height unless accepted by the Engineer. Topsoil shall be re-applied within the project area in accordance with Section 260, "Revegetation," of these Special Technical Provisions. All suitable organic materials removed during the clearing and grubbing operation including, but not limited to, pine needles, leaves, duff, trees smaller than six (6) inches DBH, stumps, and suitable roots shall be stockpiled and used for revegetation/restoration treatments. The Contractor shall make allowances for chipping larger organic materials such as trees, suitable roots, branches, and stumps so that these materials can be used for project revegetation/restoration efforts.

The Contractor shall not stockpile any vegetation or other debris generated as a result of the clearing and grubbing or tree removal operations that is not suitable for use in revegetation efforts. All unsuitable vegetation or other debris shall be removed from the job site by the end of each working day.

170.03 Tree Removal

Tree removal work of trees larger than 6-inches in diameter, measured at an elevation of 4.5-feet above the prevailing existing ground surface on uphill side of tree (a.k.a diameter at breast height – DBH) shall be completed by others prior to this contract commencing. Some stumps will be left in place and this will be considered part of "clearing and grubbing" as described above. 10 to 15 foot long logs will be left on site in the designated staging area for use within the creek channel restoration. Trees that are designated for use with a rootwad will be left 10-15 feet high so that they can be knocked over by equipment. The rootwad trees shall be knocked or pulled away from flowing water and the roots should be shaken out prior to transport.

The quantity (contract value) of rootwad trees to be removed, as shown on the Project Plans, may be more or less than the contract amount, as determined by the Engineer. Final quantities may fluctuate based on field conditions and actual construction staking, layout, and grading limits at the time of construction. All rootwad trees necessary for removal, as determined by the Engineer will be identified and conspicuously marked in the field for removal.

Prior to rootwad log removal operations all associated temporary erosion control measures and BMPs, and traffic control must be in place, in accordance with the Project Permit(s), Standard Specifications and these Special Technical Provisions.

Trees shall be felled to minimize disturbance to surrounding facilities, structures, vegetation and traffic flow on roadways. The Contractor shall make all efforts to minimize any damage to trees and/or root systems that are to remain in place. The Contractor shall be liable for damage to utility service lines, fences or other structures.

The Contractor shall set aside specific materials (trees, stumps, slash, etc.) onsite for use and placement in the work and/or revegetation treatments. All such materials, and quantities, will be clearly identified and marked by the Engineer prior to the start of clearing and grubbing, and tree removal operations.

Contractor is responsible for complete site cleanup, including slash disposal. No slash may be stored or burned on site. All wood products must be removed from the site prior to resale.

No trees (equal to or greater than 6-inches diameter) shall be removed from the project site that are not identified and marked by the Engineer. In the event the Contractor removes any trees (equal to or greater than 6-inches diameter) not marked by the Engineer, the Contractor shall be solely responsible for any and all fines and/or penalties levied to the Contractor, Engineer, or the US Forest Service in association with the removal.

170.04 Stump Removal
Work under this item shall be considered part of the clearing and grubbing work and shall consist of furnishing all labor, tools, equipment and materials necessary for the removal and disposal of stumps depicted on the project plans, or as directed by the Engineer. Stump removal as described herein will only consist of stumps to be removed that are not directly associated with the removal of a tree (as defined herein - tree removal bid items and prices include the cost of removing the associated stump).

Trees and stumps designated for removal shall be removed to at least two (2) feet below finished grade. Ground trees and stumps intended for use as wood chip mulch shall conform to the requirements of these Special Technical Provisions. Trees and stumps not suited as wood chip mulch or for use in project improvements shall be removed and appropriately disposed of outside the project limits. The Engineer and Revegetation Specialist will determine which trees and stumps are suited for use as wood chip mulch and for use in project improvements. The Contractor shall schedule an inspection of stumps and trees with the Engineer, at least 10 days prior to the Contractor scheduling wood chipping operations, for a determination of what can be used as mulch.

Compensation for the removal of trees and stumps less than six (6) inch diameter and stumps greater than six (6) inch diameter, as necessary for construction of the various items of work as staked by the Engineer, shall be included in the clearing and grubbing bid item and no additional compensation shall be made therefore.

170.05 Work Outside of Stated Limits
The Contractor shall not, and no payment will be made to the Contractor, for clearing and grubbing outside the stated limits as shown on the Project Plans, or as described in these Special Technical Provisions, unless such work is authorized by the Engineer.

170.06 Protection of Plants
Trees and plants that are not to be removed shall be fully protected from injury by the Contractor at his/her expense. Trees shall be removed in such a manner as not to injure standing trees, plants, and improvements which are to be preserved. The Contractor shall remove tree branches under the direction of the Engineer, in such a manner that the tree will present a balanced appearance.

Scars resulting from the removal of branches shall be treated with a heavy coat of a tree sealant accepted by the Engineer and Revegetation Specialist. Construction limit fence shall be installed around all trees to be protected near excavation limits at the dripline of the tree as shown on the Project Plans. If large roots of protected trees are encountered during excavation activities, work shall cease in this area and the Engineer shall be notified. Work shall commence as directed by the Engineer.

170.07 Removal and Disposal of Materials

All materials scheduled or specified for removal and disposal shall be removed and hauled from the site at the Contractor's expense, unless otherwise specified, and disposed of outside of the Lake Tahoe Basin in accordance with TRPA ordinances. The construction area shall be left with a neat and finished appearance.

170.08 Measurement and Payment

"Clearing and Grubbing" (including trees under 6-inch DBH) shall be measured on a per square foot basis, completed and accepted by the Engineer as conforming to all the requirements in the complete work. The per square foot price for "Clearing and Grubbing" (including trees under 6-inch DBH) shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in the clearing and grubbing of the project site as shown on the plans and as specified in the Project Plans, Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer including the removal and disposal of all the resulting materials from the Tahoe Basin. The per square foot area is based on the disturbance area shown on the plans. If the Contractor disturbs additional area without the approval of the Engineer, no additional payment is allowable for this bid item.

"Rootwad Logs" shall be measured on a per each basis, completed and accepted by the Engineer as conforming to all the requirements in the complete work. The per each price for "Rootwad" shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in removing each tree and rootwad and stockpiling the trees as necessary for the construction of in stream structures shown on the plans and as specified in the Project Plans, Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, including the removal and disposal of all the materials not to be used in the project from the Tahoe Basin.

"Tree Removal and Stockpile" shall be measured on a per each basis, completed and accepted by the Engineer as conforming to all the requirements in the complete work. The per each price for "Tree Removal and Stockpile" shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in removing all trees as marked and stockpiling the trees as necessary for the construction of in stream structures shown on the plans and as specified in the Project Plans, Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, including the removal and disposal of all the materials not to be used in the project from the Tahoe Basin.

"Salvage Sod, Stage, and Maintain" shall be measured on a per square foot, completed and accepted by the Engineer as conforming to all the requirements in the complete work. The per each price for "Salvage Sod, Stage, and Maintain" shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in removing the sod as marked by the Engineer and stockpiling and maintaining the sod per Section 260 of these Special Technical Provisions and as necessary for use in the Water's edge revegetation treatment and as specified in the Project Plans, Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer.

Full compensation for conforming to the provisions of this Section, not otherwise provided for, shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed.

SECTION 175 – REMOVAL OF EXISTING MICELLANEOUS ITEMS

175.01 General. Work under this section shall conform to the project permits, Plans, Contract Documents, Standard Specifications, these Special Technical Provisions, and USFS Best Management Practices

175.02 Remove Existing Woody Debris
Work under this section shall include removal and disposal of woody debris as required to properly construct the project, as shown on the Project Plans, described in the Standard Specifications, these Special Technical Provisions, and/or as directed by the Engineer. Woody debris and logs that are embedded into the creek banks shall remain in place unless active grading is required in the area.

Any materials removed in conformance with this provision shall become the property of the Contractor and shall be removed and disposed of by the Contractor in conformance with the Standard Specifications and these Special Technical Provisions.

175.03 Measurement and Payment
Payment for "Remove Existing Woody Debris" shall be measured on a lump sum basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The contract lump sum price for "Remove Existing Woody Debris" shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work including but not limited to removing debris, water quality control measures, and off-haul and disposal of excess materials, for a complete job in place as shown on the Project Plans, and specified in the Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, and no additional compensation will be allowed.

SECTION 200 – GRAVEL, COBBLE, ROCK, BOULDER & OTHER AGGREGATES

200.01 General. Work under this item shall consist of furnishing all labor, tools, materials, and equipment necessary to furnish and place gravel, cobble, rock, boulder, sand aggregate, and other aggregates in the work, including but not limited to, channel bed and bank material, in stream structures, boulder sills, rock slope protection, aggregate base courses, bedding and backfill, and general rip-rap as indicated on the Project Plans, described in these Special Technical Provisions, and directed by the Engineer, in conformance with the Contract Documents, Project Permits, Standard Specifications, and these Special Technical Provisions.

The limits of loose aggregate and aggregate base course placement as indicated on the Project Plans are approximate, and the exact limits of placement shall be determined in the field by the Engineer. All aggregates used in the work for aggregate base courses, bedding and backfill, and general rip-rap shall be in strict conformance with the Standard Specifications, and other applicable provisions found elsewhere in these Special Technical Provisions.

All chinking, gravel, cobble, rock, boulders, sand aggregate, and other loose aggregate used in the work for proposed creek channel, in stream structures, boulder sills, and all other areas requiring said materials shall be in conformance with these Special Technical Provisions, and other applicable provisions of the Standard Specifications. **All chinking, gravel, cobble, rock, boulders, sand aggregate, and other loose aggregate used in the work for proposed creek channel and in stream structures,**

including imported and reused rock, shall be thoroughly washed outside of the confines of the proposed stream and floodplain in a location approved by the engineer so that each material runs clear when water is applied.

All stone, aggregate materials, and soils imported to the site shall be from a certified "Weed Free" source approved by the US Forest Service - LTBMU.

All loading, transport, temporary stockpiling, on-site hauling, excavation, preparation of sub-grade, placement, embedment, backfill, compaction, clean-up, and off-haul and disposal of excess materials needed to install all gravel, cobble, rock, boulder, sand aggregate, and other aggregates where incorporated in the work shall be considered as included in the applicable bid item unit price, and no additional compensation will be allowed.

All aggregate materials generated on-site and meeting the quality requirements as stated in Section 200, "Gravel, Cobble, Rock, Boulder & Other Aggregates" of these Special Technical Provisions may be incorporated in the work upon acceptance of the Engineer prior to placement; any such material that is rejected for placement in the work shall be removed and disposed of in conformance with the provisions found elsewhere in these Special Technical Provisions, and the Standard Specifications. Use of said aggregate material in the work shall be considered as included in prices paid for the various contract items of work involved; and no additional compensation will be allowed for.

200.02 Submittals

The Contractor shall submit certificate(s) and other material testing data as necessary to validate the source of the chinking, gravel, cobble, rock, boulder, sand aggregate, and other aggregate materials and its conformance with the Standard Specifications and these Special Technical Provisions. Include all applicable test results for specific gravity, resistance to degradation, absorption, durability index, and soundness (as described elsewhere in these Special Technical Provisions). Samples of loose stone aggregates shall be submitted to the Engineer a minimum of ten (10) working days prior to large-scale delivery to the project site or placement in the work, for review and acceptance of color and material.

All aggregate materials generated on site shall be reviewed and accepted by the Engineer, prior to placement in the work. Visual evaluation of the source, samples, suitable certificates and material testing data sheets, and service records may be used to determine the acceptability of any aggregate materials imported or generated on-site. The Engineer reserves to the right to reject said materials.

200.03 Quality Requirements for Loose Stone Aggregates.

The Contractor shall use stone (i.e. gravel, cobble, rock, boulder, etc.) that is sound and durable against disintegration under conditions to be met in handling and placing, and is hard and tenacious and otherwise of a suitable quality to ensure permanency in the specified kind of work. All applicable stone materials shall meet the requirements stated herein and conform to the following test requirements.

	Requirement	Test Method
Apparent specific gravity, minimum	2.5	ASTM C-127-59
Abrasion, maximum percent	45	ASTM C-535-65
Freeze-thaw loss, maximum percent	10	AASHTO 103
After 12 cycles		Procedure A

Stone shall be of such shape to form a stable protection structure for the required section or feature. Flat or elongated shapes will not be accepted unless the thickness of the individual pieces is at least 1/3 of the length. Stones shall be sound, durable, hard, resistant to abrasion and free from laminations, weak cleavage planes, and the undesirable effects of weathering. It shall be of such character that it will not readily disintegrate from the action of air, water, or the typical conditions experienced during handling and placing. All aggregate material shall be clean and free from deleterious impurities, including alkali, earth, clay, refuse, and adherent coatings.

Gravel, cobble, rock, and boulder identified for use in the proposed creek channel, in stream structures, and other areas subject to or where it is expected to be exposed to hydraulic conditions (water flow) shall be smooth and rounded in shape, as is typical of river run cobblestone, fieldstone, or that from a former stream deposited source. Angular rock, quarried, split rock, crushed rock or shot rock shall not be used (except where specified or allowed as shown on the Plans). In addition the aforementioned stone materials shall be of a native nature to the Tahoe Basin (i.e. of similar color and texture to that generally found within the Tahoe Basin and in particular the project area South Lake Tahoe, California and vicinity). All creek channel toe boulders and other specified boulders used for the in stream structures that are located within and immediately adjacent to the proposed creek channel shall be smooth and rounded in shape as noted above and of a natural earth tone color/hue that blends with the surrounding environment (or generally described as “round and brown”). Attention is directed to the submittal requirements as noted in this section.

The stone used for “chinking” material or creek channel sub bed material (only where defined/shown on the Plans) may be angular, fractured or crushed stone and be in conformance with these Special Technical Provisions, and the Standard Specifications. Angular stone that is harvested from the site and reused in the vicinity of the Fountain Place Road culvert may also be reused.

200.04 Sand Requirements and Standards

Sand shall be medium to coarse sand and shall be free of organic debris and other deleterious substances. The sand shall have a minimum specific gravity of 2.5 and shall be sub-rounded to rounded. Volcanic cinder material shall not be acceptable. Samples of the proposed sand shall be submitted to the Engineer for approval 10 days prior to placement. No sand finer than 75µm is allowable. The mineral materials required for the “sand” as designated on the Project Plans for inclusion in the proposed creek channel work shall generally meet the following gradation requirements (per ASTM C136):

Sieve Size	**Percent passing by weight**
3/8”	100
#4 (4.75mm)	75.0 (max)
#8 (2.36mm)	50.0 (max)
#30 (0.6mm)	5.0 (max)
#100 (0.15mm)	2.5 (max)
#200 (75µm)	2.0 (max)

200.05 Well Graded Gravel Mixture Requirements and Standards
Well Graded Gravel Mixture shall be "round and brown" as described in Section 200.03 and conform to the gradation requirements below:

Size	Percent finer than by Weight
4"	100
3"	90-100
2"	35-70
3/8"	5-15
0.15 inches	0-5

Where identified on the Project Plans, the well graded gravel mixture shall be a well graded blend of the sizes as indicated, uniformly and evenly distributed by weight. Material shall be washed and it is recommended that gradation and washing is completed off site.

200.06 Channel Bed Material
Channel Bed Material shall be a mix of 75 percent of the Well Graded Gravel Mixture in Section 200.05 and 25 percent of the Sand in Section 200.04. Alternatively the contractor may salvage existing channel bed material by removing the top 18" of stream channel within the disturbance footprint and setting aside on plastic for future use.

200.07 Boulder Sill Materials

All boulders that are placed above grade shall be smooth and rounded in shape as noted above and of a natural earth tone color/hue that blends with the surrounding environment (or generally described as "round and brown"). See section 230.08 on Boulder Sill.

200.08 Hardened Stream Access

Rocks used for the Hardened Stream Access shall meet the requirements for loose stone aggregates in this section and be a similar color and texture to that generally found within the Tahoe Basin and in particular the project area South Lake Tahoe, CA and vicinity. Rocks shall be smooth-topped rocks (i.e. thick granite blocks) with a minimum weight of 1,000 lbs each and a minimum thickness of 12 inches.

200.09 Placement
In general, larger rock and boulders shall be placed with their longitudinal axis normal to the slope face, fully seated on a stable sub-grade or foundation course and arranged so that each large rock or boulder above the foundation course has a minimum 3 point bearing on any underlying rocks. A full bearing load only on cobble and smaller rock, such as well graded gravel mixture for voids, shall not be acceptable.

The placement of any sand, well graded gravel mixture, cobble, rock, or boulder strictly by dumping shall not be permitted. Hand and/or mechanical adjustments/placement of the stone materials are expected in order to meet the requirements stated herein. Larger rock and boulders shall not be dropped during placement operations, in a manner that will cause significant scaring of the surface, or fracture to

minimize its roundness. All larger rock and boulder shall generally be placed with the smoothest side up; care shall be taken to place a rough or coarse textured side of a large rock or boulder to its underside.

All stone products shall be placed to follow the lines and grades shown on the Project Plans. Prevent the contamination of stone features, channel bed material, chinking mix, and other designated rock fills by soil and other earthen materials during excavation, placement, and/or backfill. All stone features shall be blended with adjacent rock areas and grades, by tapering margins, mixing rock color, and keying into and around existing bedrock, rock, soils, and vegetation. The Engineer will direct the Contractor in placement of well graded gravel mixture and boulders for construction of designated stone features and proposed creek channel, to attain a natural appearance and complete job in place as shown on the Project Plans and described in these Special Technical Provisions. Exact elevations and horizontal locations of the stone materials and features as shown on the Project Plans may be slightly adjusted in the field by the Engineer, with no additional compensation allowed for.

All channel bed material shall be placed in the locations as shown on the Project Plans in such a manner to produce a relatively uniform graded mass. Place material to thicknesses shown on the Project Plans and uniformly distribute stone and sand materials to produce the required gradation of rock and wheel-roll into place (or compact by other methods) to create a firm and stable structure, and meet finished grade as shown on the Project Plans. Placement of channel bed material shall be conducted in a manner as not to produce a downstream turbidity or other pollutant discharge in violation of the project permit(s) or other water quality standards.

The segregation of mixed stone materials may occur during transport, dumping, on-site hauling, etc. The Contractor shall distribute all stone materials to produce the required gradation of rock. Routine control of gradation will be by visual inspection.

"Chinking" – All larger rock and boulders used in construction of the proposed creek channel banks, log and boulder step pools, flow split structures, culvert outfall, and boulder sill structures shall have well graded gravel material (specified in Section 200.05) placed immediately adjacent to (minimum 9-inches) and into all void spaces. All said larger rock and boulders will be placed in succession and/or in combination with the chinking material in order to effectively reduce void spaces and produce a solid matrix of rock, which will help to control piping of waters and reduce the chances for failure of the structure. The Contractor is expected to hand place and tamp (using hand tools, feet, etc.) all chinking material to form a tight, firm, well compacted, and cohesive structure. Detailed inspection and/or direction from the Engineer shall occur in the field. The associated cost to furnish and place all chinking material in the work shall be considered as included in the unit bid price of the various items of work requiring said material, and no additional compensation will be allowed.

Rounded and smooth gravel, cobbles, rock, and boulder shall not be used on slopes steeper than 2:1 (horizontal: vertical) unless otherwise directed by the Engineer. Rounded and smooth gravel, cobbles, rock, and boulders are intended to be used in the proposed creek channel, in stream structures, boulder sills, and other designated areas subject to or where it is expected to be exposed to hydraulic conditions.

200.10 RipRap. In addition to the requirements of Section 705 of the Standard Specifications, riprap stone shall be of such shape to form a stable protection structure for the required section. Stones shall be sound, durable, hard, resistant to abrasion and free from laminations, weak cleavage planes, and the undesirable effects of weathering. It shall be of such character that it will not disintegrate from the

action of air, water, or the conditions experienced during handling and placing. Stone shall additionally be of native nature to the Tahoe Basin, of similar color and texture to that found within the Tahoe Basin and in particular the project area, and samples shall be provided to the Engineer for review and approval for use, prior to placement of any stone. All material shall be clean and free from deleterious impurities, including alkali, earth, clay, refuse, and adherent coatings. Visual evaluation of the source, suitable tests and service records may be used to determine the acceptability of the stone. Routine control of gradation will be by visual inspection.

200.11 Measurement and Payment. Full compensation for furnishing all labor, materials, tools, equipment, and incidentals for the materials in this section, complete in place as shown on the Plans, as specified in the Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, should be incidental to the other construction items; no additional compensation will be allowed.

SECTION 205 –EARTHWORK

205.01 General

Work under this item shall consist of furnishing all labor, tools, equipment, and materials necessary for stream and floodplain excavations, berm construction, local borrow native soils, import, salvage channel bed material, salvage topsoil, imported topsoil, existing sub-grade scarification and preparation, rough grading, compaction, finish grading, loading, transport, onsite hauling, off-site hauling, temporary stockpile, off-site stockpile, processing/conditioning, screening, placement, and disposal/salvage of unsuitable or surplus materials, for all the contract work items involved or delineated as excavation, earthwork, or grading as shown on the Project Plans, and as described in the Standard Specifications and these Special Technical Provisions. All excavations, fill, earthwork, and associated grading shall be made true to the lines and grades as shown on the Project Plans, staked by the Engineer, and verified by the Engineer, and shall be so constructed as to avoid removing or loosening any material outside the required slopes and grading limits.

Attention is directed to Section 704.06, “Unclassified Borrow”, of the Standard Specifications.

Because of the nature of the project, careful excavation, backfill, and grading are mandatory. The proposed contours, representative cross sections, and applicable typical cross section as shown on the Project Plans represent the intended shape of the land but the Contractor shall take into account that the proposed channel, in stream structures, floodplain grading areas, existing channel backfill, slopes, grade breaks, etc., shall be constructed and graded to natural shapes that transition smoothly to adjacent features and grades. As part of the scope of this item of work, the Contractor shall work under the direction of the Engineer to create a natural-looking finished grade surface. The Contractor may be directed in the field to make minor modifications to the depth of cuts, heights of fills, angle of slopes, and other contour grading to achieve a natural appearance, and the desired functioning of the system and proposed improvements. Additionally, the Contractor may be field directed, by the Engineer, to slightly modify the alignment or elevation of the proposed improvements to account for variations in substrate or topography, and true field conditions present at the time of construction. Compensation for these potential directives and minor field modifications, as noted above, shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed.

All finished areas with cut and/or fill slopes shall be graded as indicated on the Project Plans, staked in the field, and directed by the Engineer. The Contractor shall employ excavation and/or placement methods that does not disturb or damage other work. Areas that are shown to not have any excavation or grading shall be protected and remain undisturbed to protect the existing soil profile and vegetation cover.

Cobbles and boulders will likely be encountered during grading and should not be incorporated within the floodplain grading or other fill areas. If these oversize particles conform to the description of Rock or Channel Bed Materials as described in Section 200 of these Special Technical Provisions, they should be set aside for other applications on the project site as accepted and allowed per direction of the Engineer.

During the course of the project (all phases) any damage to previously installed and accepted work including but not limited to any creek channel, in stream structures, and floodplain areas shall be repaired/replaced at the Contractor's expense. Furthermore, the Contractor shall protect all previously installed revegetation treatments and irrigation equipment; and repair/replace all areas that are damaged as a result of the Contractors operations. The Contractor shall reshape, grade, and re-compact (where applicable) any areas subjected to displacement from vehicular traffic. The Contractor is responsible to locate, identify, and protect all existing utilities from damage.

205.02 Miscellaneous and Temporary Grading and Excavation
Work under this item shall consist of providing all labor, tools, materials, and equipment necessary to perform minor excavation, temporary excavation and finish grading as directed by the Engineer. Miscellaneous and temporary excavation and grading includes excavation, grading, fill, compaction, and disposal of excess materials as necessary to construct the project improvements, maintain prevailing grades, and create minor drainage swales to ensure correct flow paths and positive drainage is maintained within the finished project site. In addition, miscellaneous grading and excavation shall include finish/contour grading within the project area to create natural shapes that transition smoothly to adjacent features, grades and slopes and generally provide for a natural appearance, in accordance with the Project Plans, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer. All such miscellaneous excavation and grading, including detailed finish grading as directed by the Engineer in the field to produce a natural finish, shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed.

205.03 Stream and Floodplain Grading
Clearing and grubbing, excavation, sub-grade scarification and preparation, rough grading, fill, compaction, finish grading, and disposal/salvage of unsuitable or surplus materials within the designated areas of the stream and floodplain shall produce a finished surface to the lines and grades as shown on the Project Plans, and all work shall be in conformance with the applicable sections of these Special Technical Provisions.

The Contractor is only permitted to use "low impact equipment" within the floodplain/SEZ areas for completion of this work. The Contractor's attention is directed to Section 120, "Project Permits."

Any fill materials used in the work shall be in conformance with the Standard Specifications, these Special Technical Provisions, and at a minimum shall not exceed optimum moisture content, and be free of stones or lumps exceeding 3 inches in greatest dimension, organic matter, or other unsatisfactory material that may restrict compaction requirements.

Following completion of the excavation and rough grading work within the floodplain grading areas, and prior to placement of any topsoil, the Engineer will inspect the work site subgrade (using a soil probe or penetrometer) for any areas of excessive compaction. Upon discovery the Engineer will mark the limits of all areas, and the Contractor shall loosen/decompact the areas in accordance with the applicable provisions of Section 260, “Revegetation” of these Special Technical Provisions.

Placement of topsoil and revegetation treatments shall be as specified elsewhere in these Special Technical Provisions, or as directed by the Engineer.

205.04 Local Borrow (Native Fill)
Selected material and other local borrow native earthen material encountered and/or generated on-site in excavation within the project limits may be used as backfill where shown on the Plans for construction of the proposed creek channel, as specified for backfill of existing channel, and/or placed in designated fill areas within the floodplain, and as specified for the berm where shown on the Project Plans, as specified in the Special Technical Provisions, the Standard Specifications, or as directed by the Engineer.

All fill materials used in the work shall be in conformance with the Standard Specifications, these Special Technical Specifications, and at a minimum shall not exceed optimum moisture content, and be free of stones or lumps exceeding 3 inches in greatest dimension, organic matter, or other unsatisfactory material that may restrict compaction requirements. **Any native, local borrow, or imported borrow soils used for backfill shall be accepted by the Engineer prior to placement**. Any screening operations and processing of soils as required for conformance with this section shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed.

Local borrow (topsoil, and underlying native earthen soils) generated on-site in excavation within the project limits may be placed in the fill only in locations as specified on the Project Plans and described in these Special Technical Provisions. Topsoil excavated and properly salvaged within the grading limits may be considered as a select material or local borrow only for the purpose of placement in areas to be planted or revegetated as specified elsewhere in these Special Technical Provisions, or as directed by the Engineer.

The Contractor shall perform and/or submit all material testing reports and other data as necessary to provide the Engineer with established laboratory values for optimum moisture and maximum dry density, for any local borrow native fill requiring density testing.

205.05 Import
Importing of earthwork fill material, if necessary or required to meet the grades and elevations shown on the plans, shall be considered included in the Contractor's bid for the various items of work involved and no additional compensation will be made therefore. Should such imported material be required, the Contractor shall notify the Engineer of the borrow site location at least 72 hours in advance, and provide an adequate sample size (~ 1 cubic foot) so the Engineer can verify the suitability of the material. All imported materials shall be proposed by the Contractor in writing in accordance with the submittal requirements of these Special Provisions and the Standard Specifications.

The Contractor shall perform and/or submit all material testing reports and other data as necessary to provide the Engineer with established laboratory values for optimum moisture and maximum dry density, for any imported material requiring density testing.

205.06 Channel Fill for Subgrade Preparation

Fill within the existing creek channel to achieve the subgrade indicated in the proposed channel profile shall produce a finished subgrade surface to the lines and grades as shown on the Project Plans, and all work shall be in conformance with the applicable sections of these Special Technical Provisions, and as directed by the Engineer. Placement of channel bed material and associated finish grading, and revegetation treatments shall be as specified elsewhere in these Special Technical Provisions, or as directed by the Engineer.

Earthen materials used for native fill and import fill shall be in conformance with the requirements stated herein. Placement, layering, compaction, and locations of the fill materials to create a distinct soil profile to produce a finished grade surface shall be as shown on the Project Plans, described herein, and as directed by the Engineer.

Execution of Work

Prior to the placement of fill materials the exposed channel sub-grade should be cleared of excessively loose or disturbed soil and stone materials, large woody debris, vegetation, organic matter, and other waste materials (i.e. clearing and grubbing). No fill should be placed on frozen ground; and placement of fill on or in standing water will not be allowed. If soft, wet, or pumping subgrade soils are present, the required minimum level of compaction for the initial fill lift shall be eighty-five percent (85%) of the soil's maximum dry density as determined in accordance with ASTM D 1557. Construction traffic on soft, wet, or pumping subgrade soils shall be reduced to a minimum. The intent of the reduction is to limit the amount of construction traffic that could lead to further deterioration and destabilization of the exposed subgrade and to build a more stable pad upon which to place subsequent fill lifts.

Fills shall be placed in loose lifts not to exceed eight (8) inches and shall be compacted to not less than ninety percent (90%) of the soil's maximum dry density as determined in accordance with ASTM D 1557. Pumping or deflection within fill lifts is acceptable as long as the required level of compaction is being met and does not preclude achieving adequate density in subsequent lifts. No frozen fill should be placed. Placement and compaction of the channel fills should be accomplished under full-time observation from the Engineer. Testing of compaction will be conducted throughout the process. Fill shall be benched into existing channel sidewalls where sidewall slopes exceed 4:1 (V:H).

Materials

Soils used as Native Fill should consist of native materials generated during construction operations following associated clearing and grubbing and sod or topsoil salvage. Native fill generated on site should be relatively free (i.e. less than 5 percent) of organics. Import fill, if required or desired for use, shall be free of organics and other perishable material and meet the requirements as noted below. For placement in the work, all native fill or import shall be free of construction debris and shall meet the following requirements:

Channel Fill Requirements	
Sieve Size	**Percent Passing (by dry weight)**
6”	100
4”	90 - 100
¾”	70-100
No. 40	10-85
No. 200	8-45
Liquid Limit	60 max.
Plasticity Index	30 max.

The Contractor shall perform and submit material testing reports and other data as necessary to validate the source and makeup of import fill selected for placement in the work, and to provide the Engineer with established laboratory values for optimum moisture and maximum dry density, for any fill material requiring density testing. Any proposed import fill that deviates from the criteria stated herein, shall have written acceptance from the Engineer prior to import or placement in the work. All import fill must be certified weed free.

The Contractor is hereby advised that some of the on-site soils may be saturated and will require drying prior to placement in order to achieve the specified degree of compaction.

205.07 Topsoil Placement

Placement of salvaged topsoil to the required thickness, including any associated finish grading and compaction, shall produce a finished surface to the lines and grades as shown on the Project Plans, and all work shall be in conformance with the applicable sections of these Special Technical Provisions. The salvaged topsoil shall be placed to blend with the adjacent project improvements and floodplain/slope areas to create a generally smooth, natural appearance (including minor variations) as directed by the Engineer; and to create a stable area to receive all proposed revegetation treatments as specified elsewhere in these Special Technical Provisions.

Prior to any topsoil placement the underlying subgrade shall be left rough as directed by the Engineer. Topsoil shall be placed to uniform depths as indicated on the Project Plans.

Following completion of excavations, fill, grading, compaction, placement of aggregates, and construction of all proposed improvements as shown on the Project Plans as required prior to placement of any topsoil, the Contractor shall schedule for a site inspection by the Engineer (minimum of 4 working days notice required) in order to inspect the subject work area for conformance with the contract documents, plans, and specifications. **Placement of topsoil shall not commence until the Engineer has inspected and accepted the subject work area**. In addition, the base soils will be inspected (using a soil probe or penetrometer) for any areas of excessive compaction. Upon discovery the Engineer will mark all areas/items required for corrective measures and mark the limits of areas where soils shall be loosened/decompacted in order to commence placement of topsoil and subsequent installation of the revegetation treatments in accordance with the applicable provisions of Section 260, “Revegetation” of these Special Technical Provisions.

Salvaged topsoil shall only be generated from the project site (within the limits of grading) as specified in Sections 195 “Clearing and Grubbing” and 260 “Revegetation” of these Special Technical Provisions.

205.08 Unsuitable Soils, Surplus Earthen Material, and Stockpiles
Unsuitable soils, surplus soils, and other excess earthen materials shall be removed and disposed of in accordance with all local, state, and federal regulations from the project site as a part of this item of work. No unsuitable or surplus material may be disposed of within the rights-of-way or project limits. The Contractor shall make all arrangements for disposal of the materials at off-site locations (including disposal outside of Tahoe basin) and at the Contractor’s expense.

All surplus materials generated from the project site during construction operations, including but not limited to, clearing and grubbing, topsoil salvage, sod salvage, proposed creek channel, earthwork, and other operations, shall be off-hauled and salvaged/disposed of outside the project limits and Tahoe basin (unless a specific off-site area is authorized for use by the Engineer and applicable regulatory agencies). Any shortage of material caused by premature disposal of the surplus or salvaged materials, by the Contractor, shall be replaced by him/her and no additional compensation will be allowed for such replacement.

205.09 Measurement and Payment. Stream Earthwork shall be measured on a lump sum basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The contractor shall bid based on the cut, fill, and total net offhaul quantities provided on the Project Plans. The total net offhaul listed on the plans includes earthwork quantities required to place channel bed material, boulders, and logs. If the contractor disputes the quantities provided on the plans, the contractor shall pay for and provide a survey, at his/her own expense and prepare the necessary figures and calculations to support the claim. Excess quantities will be paid for as a percent increase based on the original lump sum bid. Any associated contour grading and other general earthwork movement as required to complete the work shall be considered as included in the lump sum price.

The lump sum price paid for “Stream Earthwork” shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the earthwork involved, including but not limited to, excavation, loading, transport, onsite hauling, local borrow, import, screening, conditioning, backfill, rough grading, scarifying, compacting, finish grading, disposal of unsuitable or surplus materials, and otherwise manipulating the existing ground surface and soils, and placing additional local borrow or import soils as required for the grading and construction of the designated creek, floodplain areas, and berm for a complete job in place to the lines and grades as shown on the Project Plans, and specified in the Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, and no additional compensation will be allowed.

Full compensation for conforming to the provisions of this Section, not otherwise provided for, shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed.

SECTION 210 – ROCK DISSIPATOR

210.01 General

Channel Fill Requirements	
Sieve Size	**Percent Passing (by dry weight)**
6”	100
4”	90 - 100
¾”	70-100
No. 40	10-85
No. 200	8-45
Liquid Limit	60 max.
Plasticity Index	30 max.

The Contractor shall perform and submit material testing reports and other data as necessary to validate the source and makeup of import fill selected for placement in the work, and to provide the Engineer with established laboratory values for optimum moisture and maximum dry density, for any fill material requiring density testing. Any proposed import fill that deviates from the criteria stated herein, shall have written acceptance from the Engineer prior to import or placement in the work. All import fill must be certified weed free.

The Contractor is hereby advised that some of the on-site soils may be saturated and will require drying prior to placement in order to achieve the specified degree of compaction.

205.08 Topsoil Placement

Placement of salvaged topsoil to the required thickness, including any associated finish grading and compaction, shall produce a finished surface to the lines and grades as shown on the Project Plans, and all work shall be in conformance with the applicable sections of these Special Technical Provisions. The salvaged topsoil shall be placed to blend with the adjacent project improvements and floodplain/slope areas to create a generally smooth, natural appearance (including minor variations) as directed by the Engineer; and to create a stable area to receive all proposed revegetation treatments as specified elsewhere in these Special Technical Provisions.

Prior to any topsoil placement the underlying subgrade shall be left rough as directed by the Engineer. Topsoil shall be placed to uniform depths as indicated on the Project Plans.

Following completion of excavations, fill, grading, compaction, placement of aggregates, and construction of all proposed improvements as shown on the Project Plans as required prior to placement of any topsoil, the Contractor shall schedule for a site inspection by the Engineer (minimum of 4 working days notice required) in order to inspect the subject work area for conformance with the contract documents, plans, and specifications. **Placement of topsoil shall not commence until the Engineer has inspected and accepted the subject work area**. In addition, the base soils will be inspected (using a soil probe or penetrometer) for any areas of excessive compaction. Upon discovery the Engineer will mark all areas/items required for corrective measures and mark the limits of areas where soils shall be loosened/decompacted in order to commence placement of topsoil and subsequent installation of the revegetation treatments in accordance with the applicable provisions of Section 260, “Revegetation” of these Special Technical Provisions.

Salvaged topsoil shall only be generated from the project site (within the limits of grading) as specified in Sections 195 “Clearing and Grubbing” and 260 “Revegetation” of these Special Technical Provisions.

205.09 Unsuitable Soils, Surplus Earthen Material, and Stockpiles
Unsuitable soils, surplus soils, and other excess earthen materials shall be removed and disposed of in accordance with all local, state, and federal regulations from the project site as a part of this item of work. No unsuitable or surplus material may be disposed of within the rights-of-way or project limits. The Contractor shall make all arrangements for disposal of the materials at off-site locations (including disposal outside of Tahoe basin) and at the Contractor’s expense.

All surplus materials generated from the project site during construction operations, including but not limited to, clearing and grubbing, topsoil salvage, sod salvage, proposed creek channel, earthwork, and other operations, shall be off-hauled and salvaged/disposed of outside the project limits and Tahoe basin (unless a specific off-site area is authorized for use by the Engineer and applicable regulatory agencies). Any shortage of material caused by premature disposal of the surplus or salvaged materials, by the Contractor, shall be replaced by him/her and no additional compensation will be allowed for such replacement.

205.10 Measurement and Payment. Stream Earthwork shall be measured on a lump sum basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The contractor shall bid based on the cut, fill, and total net offhaul quantities provided on the Project Plans. The total net offhaul listed on the plans includes earthwork quantities required to place channel bed material, boulders, and logs. If the contractor disputes the quantities provided on the plans, the contractor shall pay for and provide a survey, at his/her own expense and prepare the necessary figures and calculations to support the claim. Excess quantities will be paid for as a percent increase based on the original lump sum bid. Any associated contour grading and other general earthwork movement as required to complete the work shall be considered as included in the lump sum price.

The lump sum price paid for “Stream Earthwork” shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the earthwork involved, including but not limited to, excavation, loading, transport, onsite hauling, local borrow, import, screening, conditioning, backfill, rough grading, scarifying, compacting, finish grading, disposal of unsuitable or surplus materials, and otherwise manipulating the existing ground surface and soils, and placing additional local borrow or import soils as required for the grading and construction of the designated creek, floodplain areas, and berm for a complete job in place to the lines and grades as shown on the Project Plans, and specified in the Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, and no additional compensation will be allowed.

Full compensation for conforming to the provisions of this Section, not otherwise provided for, shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed.

SECTION 210 – ROCK DISSIPATOR

210.01 General

Rock size shall be as shown on Project Plans. Rock shall be angular and a color that matches native granite material found in the Lake Tahoe Basin. All rock used for the rock dissapator shall be uniform in color and shape.

210.02 Measurement and Payment.

"Rock Dissipator" shall be measured as per each with dimensions shown on the project plans. Full compensation for furnishing all labor, material, equipment, and incidentals necessary to construct the Rock Dissipator, including, but not limited to, excavation, backfill, rock, placement, labor, and incidentals is included in the contract unit price per each for Rock Dissipator and no additional compensation will be allowed.

SECTION 230 – PROPOSED CREEK CHANNEL

230.01 General

Work under this item shall consist of furnishing all labor, tools, equipment, and materials necessary to construct the proposed creek channel to the limits shown and in accordance with the Project Plans, Contract Documents, Standard Specifications, these Special Technical Provisions, Project Permit(s), and as directed by the Engineer.

The alignment, elevations, grades, slopes, dimensions, etc. of the proposed creek channel is shown on the Project Plans to provide a basis for construction and bidding purposes. The Engineer is expected to make minor revisions and provide direction in the field to fit any varying field conditions. The Contractor shall include all costs for working under the direction of the Engineer in his/her bid for this work, as no additional compensation will be allow therefore. Removal and disposal of all excess materials and waste debris shall be as specified elsewhere in these Special Technical Provisions.

230.02 Riffle Channel

The designated area shall be cleared and grubbed, and excavated/fill to the lines and grades as shown on the Project Plans. The sub-grade shall be graded and compacted as shown on the Project Plans. Upon acceptance of the sub-grade by the Engineer the Contractor shall prepare (mixed thoroughly and uniformly as described in these Specifications) and compact, the channel bed of the channel section as shown on the Plans, and all stone materials, sand, and aggregate shall be placed to the lines, grades, and dimensions as shown on the Project Plans, and as directed by the Engineer (in accordance with Section 200, "Gravel, Cobble, Rock, Boulder & Other Aggregates," of these Special Technical Provisions). During the placement of the channel bed material the Contractor shall place the any log or rock structures or erosion control blanket as indicated on the Project Plans. The bed materials shall be filled and compacted around all edges of any structures to leave minimal voids. The Contractor shall uniformly distribute stone materials to produce the required gradation of rock and to meet finished grades as shown on the Project Plans. As the work progresses the Contractor shall backfill and compact around the sides and edges of all stone materials to produce a stable channel.

Following the placement of all stone materials, sand, aggregate, and chinking, for the sub-grade and bed, as accepted by the Engineer, the Contractor shall then properly place and compact all designated fill (as specified on the plans) to create the banks of the proposed creek channel and produce a firm and stable creek channel to the lines, grades, and dimensions as shown on the Project Plans and as directed by the Engineer. All fill including topsoil shall be placed to the required thickness, and finish graded to

blend with the adjacent floodplain areas to create a smooth, natural appearance as directed by the Engineer; and to create a stable area to receive all proposed revegetation treatments as specified elsewhere in these Special Technical Provisions. If directed by the Engineer, the Contractor shall place sand and or "Chinking Material" to fill voids in both the channel bed and banks.

230.03 Riffle Log Structure
The designated area shall be cleared and grubbed and excavated/fill to the lines and grades as shown on the Project Plans. The sub-grade shall be prepared and compacted as shown on the Plans, and channel bed material shall be placed to the lines, grades, and dimensions as shown on the Project Plans, and as directed by the Engineer (in accordance with Section 200, "Cobble, Rock, Boulder & Other Aggregates", of these Special Technical Provisions). Following the placement of the channel bed materials, the Contractor shall properly place the log as shown on the Project Plans and as directed by the Engineer. Following the placement of the log, the Contractor shall then properly place and compact all designated fill (as specified on the plans) to create the bed and banks of the proposed creek channel per section 230.02.

230.04 Type 1 Pool
The designated area shall be cleared/grubbed and excavated/fill to the lines and grades as shown on the Project Plans. The sub-grade shall be graded and compacted as shown on the Project Plans. Upon acceptance of the sub-grade by the Engineer the Contractor shall place the logs and boulders to the lines, grades, and dimensions as shown on the Project Plans, and as directed by the Engineer. The Contractor shall complete the channel bed construction filling and compacting around all edges of the toe log structure and chinking any voids per Section 200, "Gravel, Cobble, Rock, Boulder & Other Aggregates," of these Special Technical Provisions.

Following the placement of all wood and stone materials and chinking, for the sub-grade and bed, as accepted by the Engineer, the Contractor shall then properly place and compact all designated fill (as specified on the plans) to create the banks of the proposed creek channel and produce a firm and stable creek channel to the lines, grades, and dimensions as shown on the Project Plans and as directed by the Engineer. All fill including topsoil shall be placed to the required thickness, and finish graded to blend with the adjacent floodplain areas to create a smooth, natural appearance as directed by the Engineer. Upon acceptance by the Engineer, the Contractor shall install debris jams and revegetation treatments as shown on the Project Plans.

230.05 Type 2 Pool
The designated area shall be cleared/grubbed and excavated/fill to the lines and grades as shown on the Project Plans. The sub-grade shall be graded and compacted as shown on the Project Plans. The sub-grade shall account for the placement of the willow bank mattress and log toe. Upon acceptance of the sub-grade by the Engineer the Contractor shall place the willow bank mattress followed by the logs and boulders to the lines, grades, and dimensions as shown on the Project Plans, and as directed by the Engineer. The willow bank mattress shall be keyed beneath the log toe. The Contractor shall complete the channel bed construction filling and compacting around all edges of the toe log structure and chinking any voids per Section 200, "Gravel, Cobble, Rock, Boulder & Other Aggregates," of these Special Technical Provisions.

Following the placement of all wood and stone materials and chinking, for the sub-grade and bed, as accepted by the Engineer, the Contractor shall then properly place and compact all designated fill (as specified on the plans) to create the banks of the proposed creek channel and produce a firm and stable

creek channel to the lines, grades, and dimensions as shown on the Project Plans and as directed by the Engineer. All fill including topsoil shall be placed to the required thickness, and finish graded to blend with the adjacent floodplain areas to create a smooth, natural appearance as directed by the Engineer. Upon acceptance by the Engineer, the Contractor shall install debris jams and revegetation treatments as shown on the Project Plans.

230.06 Debris Jam Structures

The Contractor shall notify the Engineer at least 72 hours in advance of date to install debris jam structures. The Engineer will conspicuously mark the location of the structures in the field. The contractor will harvest willow stakes per Section 260 "Revegetation" and logs and woody debris from stockpile materials referenced in Section 170 "Tree Removal." Before installing the woody debris and stakes, the Contractor shall obtain approval of the materials for use from the Engineer. Upon approval, using hand work only, the contractor shall install each row of woody debris and willow stakes as indicated on the plans. Care shall be taken to avoid considerable disturbance to the creek bed. The Contractor shall carefully cut any split ends of the willow stakes. Once the bulk of the structure is installed, the Engineer may direct the Contractor to pack the structure with additional organic debris prior to wrapping the structure in natural fiber twine (Section 260).

230.07 Willow Bank Mattress

The contractor will harvest willow stakes per Section 260 "Revegetation." Before installing the willow mattress, the Contractor shall obtain approval of the materials for use from the Engineer. Upon approval, using hand work only, the contractor shall install the 1 to 4 inch diameter 24 inch long willow stakes in the pattern shown on the Project Plans. The Contractor shall carefully cut any split ends of the willow stakes. The stakes shall be 9 inches above the subgrade. Upon Engineer's approval, a layer of willow branches shall be placed as indicated on the plans. The willow branch later should be approximately 8" thick and composed of branches varying in diameter from 1/8 inch to 2 inches. Leave may remain on these branches. Branches should have a minimum length of 4 feet. After the brush mattress is approved, the Contractor shall wrap the structure in natural fiber twine (Section 260) and partially backfill the mattress with native fill as shown on the Project Plans. Native fill should be loosely compacted and some willow should remain exposed.

230.08 Boulder Sill

The designated area shall be cleared and grubbed, and excavated/fill to the lines and grades as shown on the Project Plans. The sub-grade shall be prepared and compacted as shown on the Plans, and all stone materials, including chinking, shall be placed to the lines, grades, and dimensions as shown on the Project Plans, and as directed by the Engineer. Uniformly distribute stone materials to produce the required configuration of the boulder structure and to meet finished grades as shown on the Project Plans. As the work progresses, place all chinking and backfill and compact around the sides and edges of all stone materials to produce a stable structure. Following the placement of all stone materials and chinking the Contractor shall then properly place and compact all designated fill (as specified on the plans) in order to produce a firm and stable floodplain to the lines, grades, and dimensions as shown on the Project Plans and as directed by the Engineer. All fill, including topsoil, shall be placed to the required thickness, and finish graded to blend with the adjacent floodplain areas to create a smooth, natural appearance as directed by the Engineer; and to create a stable area to receive all proposed revegetation treatments as specified elsewhere in these Special Technical Provisions.

The location, elevation, grade, dimensions, slope, etc. of the boulder sill structures are shown on the Project Plans to provide a basis for construction and bidding purposes. The Engineer is expected to make

minor revisions and provide direction in the field to fit any varying field conditions. The Contractor shall include all costs for working under the direction of the Engineer in his/her bid for this work, as no additional compensation will be allow therefore. Removal and disposal of all excess materials and waste debris shall be as specified elsewhere in these Special Technical Provisions.

230.09 Hardened Stream Access

Rocks used for the Hardened Stream Access will be placed in a step like manor as indicated on the Project Plans. The steps will be created with smooth-topped rocks (i.e. thick granite blocks) with a minimum weight of 1,000 lbs each and a minimum thickness of 12 inches creating an improved and protected access to the river in one location. The Hardened Access shall be built from the footer rocks to the top. The Contractor shall work with the Engineer in the field to ensure the desired aesthetic of the features.

230.10 Measurement and Payment

"Riffle Channel" shall be measured on a per linear foot basis along the centerline of the facility (i.e. alignments as shown on the Project Plans), complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The linear foot price for "Riffle Channel" shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing the riffle channel section, including but not limited to, excavation, sub-grade preparation, grading, stone materials, backfill, local borrow, import, compaction, and off-haul and disposal of excess materials, for a complete job in place to the lines, grades, and dimensions as shown on the Project Plans, and specified in the Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, and no additional compensation will be allowed. The linear foot price for "Riffle Channel" does not include the log structures at the riffle crest.

"Riffle Log Structures" shall be measured on a per each basis complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The per each price for "Riffle Log Structures" shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing the riffle log structure section, including but not limited to, excavation, sub-grade preparation, grading, wood materials, backfill, local borrow, import, compaction, and off-haul and disposal of excess materials, for a complete job in place to the lines, grades, and dimensions as shown on the Project Plans, and specified in the Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, and no additional compensation will be allowed.

"Type 1 Pool" shall be measured on a per linear foot basis along the centerline of the facility (i.e. alignments as shown on the Project Plans), complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The linear foot price for "Type 1 Pool" shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing the type 1 pool section, including but not limited to, excavation, sub-grade preparation, grading, stone and wood materials, backfill, local borrow, import, compaction, and off-haul and disposal of excess materials, for a complete job in place to the lines, grades, and dimensions as shown on the Project Plans, and specified in the Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, and no additional compensation will be allowed. The linear foot price for "Type 1 Pool" includes all log and rock structures as shown in the plans but does not include partial or full debris jams. See section XXX for partial and full debris jams.

"Type 2 Pool" shall be measured on a per linear foot basis along the centerline of the facility (i.e. alignments as shown on the Project Plans), complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The linear foot price for "Type 2 Pool" shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing the type 2 pool section, including but not limited to, excavation, sub-grade preparation, grading, stone and wood materials, willow bank mattress materials and installation, backfill, local borrow, import, compaction, and off-haul and disposal of excess materials, for a complete job in place to the lines, grades, and dimensions as shown on the Project Plans, and specified in the Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, and no additional compensation will be allowed. The linear foot price for "Type 2 Pool" includes all willow, log, and rock structures as shown in the plans but does not include partial or full debris jams. See section XXX for partial and full debris jams.

Payment for "Full Span Debris Jam" shall be made at the contract unit price per each, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The contract unit price for "Full Span Debris Jam" shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing the each structure, including but not limited to, harvesting stakes and debris, installation, inspections, water quality control measures, dewatering and diversion, and off-haul and disposal of excess materials, for a complete job in place to the lines, grades, and dimensions as shown on the Project Plans, and specified in the Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, and no additional compensation will be allowed.

Payment for "Partial Debris Jam" shall be made at the contract unit price per each, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The contract unit price for "Partial Debris Jam" shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing the each structure, including but not limited to, harvesting stakes and debris, installation, inspections, water quality control measures, dewatering and diversion, and off-haul and disposal of excess materials, for a complete job in place to the lines, grades, and dimensions as shown on the Project Plans, and specified in the Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, and no additional compensation will be allowed.

Payment for "Boulder Sill" shall be made at the contract unit price per linear foot, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The contract unit price for "Boulder Sill" shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing each boulder sill, including but not limited to, excavation, sub-grade preparation, grading, stone materials, backfill, local borrow, import, compaction, and off-haul and disposal of excess materials, for a complete job in place to the lines, grades, and dimensions as shown on the Project Plans, and specified in the Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, and no additional compensation will be allowed.

"Hardened Stream Access" shall be measured on a lump sum basis complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The lump sum price for "Hardened Stream Access" shall include furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing Hardened Stream Access, including but not limited to,

excavation, sub-grade preparation, grading, rock materials, communication with Engineer, backfill, local borrow, import, compaction, and off-haul and disposal of excess materials, for a complete job in place to the lines, grades, and dimensions as shown on the Project Plans, and specified in the Contract Documents, Project Permits, Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, and no additional compensation will be allowed.

SECTION 235 – LOGS AND TIMBER

235.01 General
All logs shall be sized as indicated in the Plans. All logs are to be harvested from the trees marked for removal on site by the Contractor and cost of salvaging and storing these logs shall be included in other bid items. If logs are damaged by the contractor during removal, it is the sole responsibility of the Contractor to find a suitable replacement and import the logs into the site. Only logs from coniferous trees native to the Tahoe basin will be acceptable. All logs to be incorporated into the project must be tight grain sound wood with no rot. The Engineer has the right to refuse unsatisfactory logs prior to placement in the structures. Engineer may direct placement of some excess logs as floodplain or upland roughness if Bid Alternate is awarded.

235.02 Measurement and Payment.

"Log Placement, As Directed" shall be measured on a per each basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The contract price paid for "Log Placement, As Directed" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for performing all the work involved in placing the cut log above finished grade as directed by the Engineer, complete in place, as shown on the Plans, as specified in these Special Technical Provisions and as directed by the Engineer; and no additional compensation will be allowed.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals for the materials in this section, complete in place as shown on the Plans, as specified in the Standard Specifications, these Special Technical Provisions, and as directed by the Engineer, should be incidental to the other construction items; no additional compensation will be allowed.

SECTION 260 – REVEGETATION

260.01 General. Work shall be conducted and/or overseen by a licensed Landscape Contractor (C-27) and will be inspected by the Engineer. The Contractor shall perform all revegetation work as specified herein and in accordance with the provisions of these Special Technical Provisions, the Project Plans, and the Standard Specifications. The revegetation work shall consist of all site preparations associated with the revegetation treatments and shall include sod and plant salvage, storage and replanting, seedbed preparation, seeding, mulching, installation of erosion control blankets, installation of containerized plants and wetland plugs, installation of willow stakes and poles, installation of willow brush mattress, and maintenance and record keeping in accordance with the requirements as shown on the Project Plans, and as directed by the Engineer. Areas to receive revegetation treatments shall include all areas disturbed during construction and all areas indicated on the plans and as directed by the Engineer.

Revegetation work shall be conducted during non-windy conditions. Windy conditions are defined as a sustained wind of 10 mph or more; gusts where the difference between the ambient and the increased velocity is more than 4 mph; or any conditions that may make the dispersal of revegetation and erosion control material difficult or inaccurate. The Contractor is responsible for providing certified instruments or data from certified instruments in case of a claim or conflict. There shall be no pay item, payment or claim for instruments or data from measuring instruments.

All revegetated areas shall be maintained for two years following completion of work to ensure proper establishment of vegetation. Supplemental treatments may be required if revegetation efforts are unsatisfactory following completion of work as determined by the Engineer. This re-treatment may include re-application of the seed mix, willow poles and stakes, containerized plants, mulch and other items as necessary to achieve the performance measures below. The cost of this bonding shall be included in the Revegetation bid item. The Contractor must achieve 70% vegetative cover for areas receiving seed mix application. A warranty of 80% survival of all containerized plantings and 50% survival of all poles and stakes shall accompany containerized plants, poles, and stakes.

The Contractor shall notify the Engineer no less than five (5) working days in advance of revegetation work and shall not begin work until prepared revegetation treatment areas have been accepted by the Engineer. The Contractor shall request that treatment types and boundaries are located by the Engineer prior to progressing with the work.

No substitutions or alterations to these Special Technical Provisions shall be accepted without the prior written approval of the Engineer. No further disturbance of any treatment area shall be allowed once seeding or installation of cuttings and plant materials has been initiated.

260.02 Soil Disturbance
Soil disturbance shall be minimized and limited to those areas that require treatment. All existing vegetation within the project limits not designated for removal shall be protected. Delineate project boundaries with fencing per the requirements in Construction Limit Fencing and in these Special Technical Provisions. Traffic outside of project area is prohibited. Any existing or previously installed vegetation damaged shall be replaced by the Contractor. Areas to receive revegetation treatments shall include all areas disturbed during construction, as indicated on the Project Plans and as directed by the Engineer.

260.03 Submittals. Within ten (10) calendar days following the Notice to Proceed for the contract, the Contractor shall submit to the Engineer statements proving that orders for erosion control blanket and stakes have been received and accepted by the supplier(s). The statement(s) shall include product specifications and quantity of product(s) to be delivered and the estimated date(s) of delivery. Additionally, the Contractor shall submit plans, labels or material samples for the following items:

- Revegetation Schedule and Order of Work
- Irrigation Plan and Schedule

Proposed substitutions must be submitted in writing for approval by the Engineer.

260.04 Materials
Seed

All Seed Mix shall be supplied by the NTCD to the Contractor 3 days prior to seeding. NTCD will supply the contractor with enough seed for applying to disturbed areas plus an additional 20%. Contractor will supply at their expense any additional seed necessary to adequately seed the revegetation areas.

Seed mix will include the following shallow rooted annual grasses and wildflowers.

Seed Mix 1 (Water's Edge)	
Species (Common Name)	Species (Botanical Name)
Slender Sedge	*Carex athrostachya*
Cluster Sedge	*Carex praegracilis*
Baltic Rush	*Juncus balticus*
Mountain Bog Bulrush	*Scirpus microcarpus*
Nebraska Sedge	*Carex nebrascensis*
Praegracilis Sedge	*Carex praegracilis*
Bigleaf Lupine	*Lupinus polyphyllus*
Lupine, perennis	*Lupinus perennis*
Monkeyflower, yellow	*Mimulus guttatus*
Penstemon, rydbergii	*Penstemon rydbergii*
Columbine, red	*Aquilegia Formosa*
Gilia, golden	*Linanthus aureus*

Seed Mix 2 (Meadow)	
Species (Common Name)	Species (Botanical Name)
Blue Wildrye	*Elymus glaucus*
Big Bluegrass	*Poa ampla 'Sherman'*
Creeping Wildrye	*Elymus triticoides*
Tufted Hairgrass	*Deschampsia Cespitosa*
Slender Wheatgrass	*Elymus trachycaulus 'Revenue'*
Hard Fescue	*Festuca trachyphylla 'Durar'*
California Sierra Brome	*Bromus carinatus*
Lupine, argentus	*Lupinus argenteus*
Lupine, perennis	*Lupinus perennis*
Showy Penstemon	*Penstemon speciosus*
Arrowleaf Balsamroot	*Balsamorhiza sagittata*
Creeping Snowberry	*Rubus pariflorus*
Thimbleberry	*Symphoriacarpus mollis*

Seed Mix 3 (Upland)	
Species (Common Name)	Species (Botanical Name)
Big Bluegrass	*Poa ampla 'Canby'*
Sheep Fescue 'Covar'	*Festuca trachyphylla 'Covar'*
Hard Fescue	*Festuca trachyphylla 'Durar'*
Squirreltail	*Elymus elymoides*
Creeping Wildrye	*Elymus triticoides*
Slender Wheatgrass	*Elymus trachycaulus 'Revenue'*
California Sierra Brome	*Bromus carinatus*

Western Needlegrass	*Achnatherum occidentale*
Blue Flax	*Linum perenne*
California Poppy	*Eschscholzia californica*
Sulfur-flower Buckwheat	*Eriogonum umbellatum*
Yarrow	*Achillea millefolium*
Woods Rose	*Rosa woodsii*

Containerized Plants

All containerized plants shall be supplied by NTCD to the Contractor 3 days prior to planting. Prior to delivery to the site the Contractor shall review all material with NTCD and Engineer for acceptance. All material not deemed acceptable by the Contractor and/or the Engineer shall be replaced by NTCD. Upon acceptance of material by the Contractor, the Contractor shall assume responsibility for plant health and survival. Containerized plants are wetland plugs for use in the Water's Edge revegetation treatment. Plants shall be supplied on site by NTCD at no additional cost to the Contractor.

Salvaged Sod and Wetland Plugs

Harvest from the footprint of the restoration area as shown on the plans and as staked in the field. Do not stockpile more than 30 calendar days. Salvage and replant approximately 2,500 sq. ft. of native sod.

Use a low weight bearing equipment ASV-POSI TRACK SKID STEER with a front-end bucket (front end loader or tractor with bucket) to salvage and transport sod and minimize damage to native vegetation remaining in place along temporary maintenance access road.

Salvaged sod shall consist of cohesive, contiguous material of sedges *(Carex spp*.) and Baltic rush (*Juncus balticus*), and other wetland and mesic meadow species, as shown on the plans and as staked in the field by the RS. Remove in as large a unit as practicable, resulting in clean, vertical edges. Sod shall be scalped from the original ground surface to a depth of no less than eight (8) inches, as measured from the root crown. Do not stack. If stored, sod shall be placed with roots down and edges snugly adjoining adjacent sections in a shaded facility for a maximum time of one month; minimize storage and handling. Maintain as a viable growth media and do not let material dry out during handling and storage. Re-plant concurrent with channel construction to the greatest extent possible and as directed by the Engineer.

Material that cannot be moved in a contiguous manner shall be salvaged, stockpiled, and re-applied as organic matter as directed by the Engineer.

Fiber Twine

Fiber Twine should be made of coir, jute, or sisal, be made of 100 percent natural materials and be 100 percent biodegradable. The fiber twine should meet the following minimum specifications.

Property	**Minimum Specification**
Tensile Strength	40 lbs (178 N)
Thickness of Twine	0.12 inch (3 mm)
Type of Fiber	Coir or Jute
Lifespan until degradation	12 months

Willow Poles, Stakes and Cuttings

All materials shall be cut from healthy, live, dormant branches of willow and shall be taken from suitable plants within the project area as identified by the Engineer. Exclusively cutting poles from one plant will not be allowed. Poles shall measure at a minimum of six feet in length and three (3) to four (4) inches in diameter. Stakes may vary in length, depending on source material and application, but shall be a minimum of two (2) feet in length and a minimum of one (1) inch diameter and a maximum of two (2) inches diameter. Cuttings shall be material less than one (1) inch diameter with the leaves and stems intact. Material shall not be cut more than seven days prior to installation unless approved by the RS in accordance with construction schedules. Poles and stakes shall be straight, with all leaves removed from the stems. All cuts shall be clean without frayed ends. Cut bottoms on a forty-five degree angle. Keep material cut bottoms in a water filled bucket in a shaded environment or submerge the cut bottoms in a shaded stream pool.

Local Topsoil

Local topsoil has been identified for salvage and reuse adjacent to the parking lot removal area. The Engineer will identify the extent of the topsoil to be salvaged prior to construction. Once removed, topsoil and duff shall be stockpiled in designated areas prior to excavation or equipment traffic. Topsoil will be stored with a minimum of handling. Subsoil spoil material shall not be mixed with salvaged topsoil. Stockpiled topsoil will not be piled or compacted in a manner that significantly alters its inherent density, water holding capacity or infiltration.

Topsoil shall be stockpiled for as short a time period as is possible, since storage periods of over three months have been shown to be detrimental to soil organic matter amount and quality. Topsoil shall not be compacted, used as temporary fill or further disturbed once stockpiling has occurred unless approved in writing by the Engineer. Topsoil shall be stockpiled at designated material storage areas and shall not be stockpiled in a manner which destroys or damages existing vegetated areas not marked for excavation

If salvaged topsoil is lost or disturbed such that it can no longer be reused, the volume of topsoil specified for salvage shall be replaced with a comparable material (to be determined by the Engineer) at the Contractor's expense.

Imported topsoil shall comply with the following requirements:

- Contain no less than 3 percent nor more than 13 percent organic matter, as determined by the test for organic matter in accordance with ASTM D2974.
- Contain no less than 25 percent or more than 40 percent clay, as determined in accordance with ASTM D422.
- Sand content shall not exceed 55 percent, as determined in accordance with ASTM D422.
- Silt Content shall be between 30 and 50 percent, as determined in accordance with ASTM D422.
- The pH shall not be lower than 5.0 or higher than 8.0. The pH shall be determined with an acceptable pH meter on that portion of the sample passing the No. 10 sieve, in accordance with the "Suggested Methods of Tests for Hydrogen Ion Concentration (pH) of Soils," included in the ASTM Procedures for Testing Soils issued December 1964.
- Topsoil shall meet the following mechanical criteria: 100 percent shall pass the 1-inch screen; and 40-60 percent shall pass the No. 100 mesh sieve.

Any topsoil imported from outside the project area must consist of fertile, friable soil of loamy character that contains organic matter in amounts natural to the region and be capable of sustaining healthy plant

life. Imported topsoil must be free from deleterious substances such as litter, refuse, toxic waste, stones larger than 1 inch in size, coarse sand, heavy or stiff clay, brush, sticks, grasses, roots, noxious weed seed, weeds, and other substances detrimental to plant, animal, and human health. **Topsoil shall be certified to be free of non-native noxious vegetation and seed documented in writing from the Vendor**. Should such regenerative material be present in the soil, the Contractor shall remove, at his expense and in a manner satisfactory to the Engineer, all such growth, both surface and root, which may appear in the imported topsoil within 1 (one) year following acceptance of the work.

Salvaged Willow and Alder Rood Wads

Salvage native willows clumps from the restoration area. Prior to removal, prune willows so that branches include two to three nodes, but do not exceed six (6) inches in length. Cuts shall be clean, leave no frayed bark, and be made ½ inch above the node.

Carefully remove plants by excavating around the root zone with a backhoe bucket, or other approved equipment. As much of the root ball as feasible shall be removed intact. Prune damaged roots. Burlap may be used to wrap and protect the root zone during transport. Store in pre-excavated, pre-watered trenches and maintain well-watered and healthy until moved to the permanent planting sites. Engineer will indicate planting locations if bid alternate is awarded.

Mulch

Mulch shall be wood chips generated on site or pine needles. Mulch shall contain no more than 5% impurities by volume such as pine cones, twigs, rocks or other material. Garbage shall represent no more that 0.5% of the total volume. Mulch shall contain no more than 2% by volume mineral soil and no more than 10% by volume decomposed organic matter.

Erosion Control Blanket and Stakes

A double layer of blanket is specified for this project at the Water's Edge Treatment. The bottom blanket for the water's edge treatment shall be North American Green SC150 BN 70% straw and 30% coconut fiber, 9.66 ounces per square yard, sewn between 2 biodegradable natural fiber nets, or equivalent as approved by the Engineer. The top blanket for the water's edge treatment shall be Geocoir ® 900 or equivalent 100% biodegradable spun coir fabric with open-weave construction and a 35 to 40 percent open area. A single later of non-woven straw coconut blanket may also be specified for installation on upland slopes greater than 3:1 steepness. Each roll or bail of fabric shall be identified with a tag or label securely affixed to the outside of the roll on one end. The label shall include the manufacturer or supplier, the style number, and the roll and lot numbers. Stakes shall be 12 inches in length, manufactured from a wood (North American Green Eco-STAKE or equivalent), or as approved by the Engineer.

260.05 Installation of Treatments

The Contractor shall notify the Engineer no less than three working days in advance of revegetation work and shall not begin the work until prepared treatment areas have been approved. The Engineer shall verify labeling of erosion control blankets and stakes upon delivery to the site and prior to application.

Preparing Seed Beds

All soils in the project area, and those in areas outside the project area that were disturbed by the Contractor, shall be loosened as needed to a depth of 6 inches unless otherwise specified on the plans

or directed by the Engineer. Soils shall be loosened with hand tools, an agricultural disc, rippers, or other equipment approved by the Engineer. Soils shall be loosened so that no soil clods are larger than an average of 1 inch in diameter. Care must be taken around existing trees and shrubs to prevent root damage during soil conditioning, grading and excavation activities. No mechanical loosening of soil shall take place within the dripline of mature trees or shrubs. Final surfaces shall be left rough unless erosion control blankets are specified, in which case soils shall be raked smooth. No wheeled or other mechanical equipment shall be permitted to travel on the prepared seedbed.

Installing Local Topsoil

Topsoil shall be applied to all locations receiving Water's Edge and Meadow Treatments as shown on the Sheet R-1 of the Project Plans. A depth of two (2) inches of topsoil shall be applied after seedbed preparation as directed by Engineer. Topsoil placed in revegetation treatment areas shall not be compacted.

Placing and spreading of topsoil shall not be done when the ground is frozen, excessively wet or otherwise in a condition detrimental to the work. Surfaces designated to be covered shall be lightly scarified just prior to the spreading operation. Compaction of topsoil will not be allowed.

Seeding

Seed shall be uniformly broadcast with hand-held seeders to achieve desired application rate. Incorporate seed by raking or harrowing to a depth of ¼ inch to ½ inch. Seed shall not be left uncovered more than 24 hours. Seeding shall not occur under conditions that would allow the seed to become windborne (winds greater than 5 mph) or to wash away.

Mulching

Material shall be evenly applied to a depth of approximately one (1) to two (2) inches, for 100% cover over revegetation areas (except for areas to receive the erosion control blanket—which shall not receive mulch).

Installing Erosion Control Blankets

Install where shown on the project plans according to the treatment types. A double layer of erosion control blanket will be installed for the Water's Edge and Meadow Treatment Type. For the Upland Treatment, only a single layer of non-woven straw coconut blanket will be installed on slopes 3:1 or greater.

Carefully key in blankets (6" keyed) under all structures. Overlap blankets eighteen (18) inches working upstream, if possible. Stake with stakes installed three (3) feet on center. Key fabric in to a six (6) inch deep toe trench at the toe of the channel. Anchor blankets in trenches with the stakes on one-foot centers, backfill the trench and compact loose soil. Overlap blanket any blanket ends twelve (12) inches minimum. The final result should achieve 100% cover over channel bank (where no log structures or willow mattress are present) and riparian area as shown on plans and directed in the field by the Engineer.

Installing Containerized Plants

The Engineer shall approve the planting dates and final locations. Plants shall be stored in shady location until 1 hour before planting. The contractor shall schedule the planting three working days in advance of the proposed planting time with the Engineer. Thoroughly water all plants before planting.

Cut an 'X' through the erosion control blanket the width of the required hole (diameter of pot minimum). Remove mulch and expose soil. Thoroughly water holes prior to planting and plant immediately to avoid drying of soils. Loosen soils in the bottom and along the sides of the hole. Place the plant in the hole and backfill with the excavated moist soil so that the crown is at grade. Tamp soil firmly into place. Form a saucer with a two-inch doughnut-shaped berm centered on the plants. Replace any displaced mulch and/or blanket. Immediately water plants after completion of planting.

Re-planting Salvaged Sod and Wetland Plugs

The Engineer shall approve the planting dates and final locations. The contractor shall schedule the planting three working days in advance of the proposed planting time. Thoroughly water all plugs and sod blocks before re-planting. Plugs shall be transported from their storage location to planting location within 5 minutes. Re-plant salvaged wetland plugs and sod adjacent to the stream channel in areas identified by the Engineer.

Where erosion control blanket is installed and receiving wetland plugs, cut an 'X' through the erosion control blanket the width of the required hole. Remove mulch and expose soil. Wetland plugs shall be planted into moist soil in holes approximately an inch deeper and two (2) inches wider than the root ball (one inch on either side). Backfill with excavated moist soil so that the crown is at grade. Tamp soil firmly into place. Replace any displaced mulch and/or blanket. Immediately water wetland plugs after completion of re-planting.

Installing Willow Poles, Stakes and Cuttings

Install willow poles and stakes per the project plans. Poles and stakes shall be pushed into a hole slightly larger than the diameter of the pole, prepared using a 4' bucket stinger, power auger, Waterjet Stinger, (ftp://ftpfc.sc.egov.usda.gov/ID/programs/technotes/waterjet.pdf), or other approved methodology. The bottom of the pole shall be at an elevation below the bankfull water elevation of the adjacent creek. Insert the pole or stake in the excavated hole to the proper depth, backfill the hole with the excavated material and firmly tamp the soil around the poles to eliminate air pockets and hold the poles in place. Cuttings shall be woven into the headcut stabilization structures per the design plans and as directed by the Engineer.

Salvaged Willow and Alder Rood Wads

Salvage native willows clumps from the restoration area as shown on the plans and as staked in the field and directed by the Engineer. Remove and re-plant willows with construction as much as practicable. Engineer will indicate planting locations if bid alternate is awarded.

260.06 Revegetation Treatment Types

Water's Edge Treatment

Complete stream channel construction. Place local topsoil in area from top of bank to toe of slope. Rake smooth. Apply Water's Edge Seed Mix 1. Install erosion control blanket starting with the straw coconut blanket and ending with the coir blanket. Stake blankets. Notify Engineer when erosion control blanket is installed. Engineer will mark locations for containerized plants, salvaged wetland plugs, and willow root wads or stakes. Install in the marked locations. Up to 2500 square feet of salvaged sod and 500 containerized wetland plugs will be installed in this treatment area.

Meadow Treatment

Complete in conjunction with Water's Edge Treatment using same top soil and erosion control blanket.

Apply Meadow Seed Mix. Install erosion control blanket starting with the straw coconut blanket and ending with the coir blanket. Stake blankets. Notify Engineer when erosion control blanket is installed. Engineer will mark locations for containerized plants and willow root wads or stakes. Install in the marked locations. Up to 100 containerized plants will be installed. Willow root wads will be installed at engineers direction if bid alternate is awarded.

Upland Treatment

Have Engineer check for any areas of excessive compaction. De-compact as necessary to 6" depth and rake smooth. See with Upland Seed Mix. Install single layer of straw coconut erosion control blanket on slopes 3:1 or greater (approximately 9400 square feet of blanket). Mulch remaining areas with 1 to 2 inch layer of mulch.

260.07 Temporary Irrigation

Temporary irrigation shall be used to encourage rapid plant establishment. Irrigation is intended solely as an initial assistance for germination and establishment and is not intended to continue past the initial vegetation establishment period. Only areas within 25' of each bank of the channel shall receive temporary irrigation as directed by the Engineer.

Temporary irrigation shall be performed with a low-pressure impact system in order to establish vegetation to conditions described in these Special Provisions. Irrigation shall be performed such that water is applied evenly throughout all revegetation treatment areas and shall penetrate to at least six (6) inches below the ground surface within twelve (12) hours of irrigation and allows the surface soil to dry out while maintaining adequate moisture levels at depth. Exact irrigation scheduling for all areas shall depend on air and soil temperatures and will require adjusting during the course of the growing season. Irrigation schedules shall be as described in these Special Technical Provisions and submitted to the Engineer for acceptance to ensure proper timing, frequency and duration. Above-ground irrigation shall take place early in the morning or late in the evening whenever possible in order to minimize water loss due to high air temperatures and wind. A suitable timer/controller device shall be part of the temporary irrigation system in order to program an irrigation schedule an apply water to the revegetation treatments areas as specified herein.

The temporary irrigation system shall consist of above-ground piping that is flexible, highly burst resistant and suitable for use in a creek fed piping system. The Contractor shall be responsible to provide for any underground crossings and pipe sleeves as may be necessary to avoid surface conflicts with roads, trails, and other public use areas. No irrigation application or overspray to concrete or asphalt surfaces will be allowed.

NTCD has obtained a permit to draw up to 1000 gallons per day from Saxon Creek for 4 to 6 weeks utilizing an in channel pump. See the attached Resource Protection Measures for additional precautions that must be taken to utilize creek water.

Water drafting sites should be located in areas that will avoid adverse effects to stream flows and depletion of pool habitat. If instream flows or water drafting sites are not sufficient due to a lack of water, water would be obtained from local municipal water hydrants. Water drafting sites will be reviewed by a hydrologist or fisheries biologist every two weeks during low flow periods and determinations made regarding adequate minimum flows. If flows are not adequate for instream needs, drafting will be discontinued.

Use screening devices for water drafting pumps (Fire suppression activities are exempt during initial attack). Use pumps with low entry velocity to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats. The following criteria should be used to avoid impacts:

a. Drafting operations should be restricted to one hour after sunrise to one hour before sunset to avoid the use of lights that attract fish.

b. Pumping rate shall not exceed 350 gallons per minute.

c. The pumping rate shall not exceed ten percent of stream flow (estimated by pump operators) to ensure adequate downstream flow to support aquatic species.

d. Drafting should occur in streams and pools with deep and flowing water; not streams with low flows and isolated pools.

e. Pumping operations shall not result in obvious down-down of upstream or downstream pools.

f. Each pumping operation shall use screens. The screen face should be oriented parallel to flow for best screening performance. See Appendix X for Screen Construction Criteria.

Alternatively, the Contractor may locate a potable water source for irrigation. Alternate irrigation methods proposed by the Contractor shall be submitted to the Engineer for review and acceptance prior to commencement of irrigation activities.

260.08 Maintenance and Revegetation Maintenance Bond

A Maintenance Bond (12 month) shall be supplied by the Contractor prior to acceptance of the revegetation and irrigation work, by the Contractor (at the completion of the construction of the project and acceptance of the entire project by the Engineer). The Maintenance Bond shall be in the amount of $40,000 or the lump sum bid value of the revegetation bid item, whichever value is greater, for a length of one year from the date of final acceptance.

The one year maintenance period shall start when the overall project has been accepted, in full, by the Engineer in writing (completion of construction of the project – final payment). The Owner and Engineer will not accept portions of the revegetation or irrigation work nor will it “stager” the start of the one year maintenance period. If at any time it is deemed that proper maintenance is not being performed, the countdown for the maintenance period shall be stopped and not resumed until the project is brought up to the specifications and proper maintenance is resumed, thus increasing the “calendar” duration time of the maintenance period. All costs with re-issuance of the bond as a result of this extension will be borne by the Contractor and no additional compensation will be allowed for.

Work under this item shall consist of maintaining all revegetation areas (and revegetation types) and irrigation systems for one year following completion of construction and acceptance of the Project (acceptance of the entire project, and closeout of the construction contract, NOT upon completion of any specific revegetation component) so that there is no evidence of erosion, such as rills or gullies, or failure to the irrigation system. This may require re-application of seed, amendments, inoculants, tackifiers, erosion control blankets, and mulches. During the maintenance period, seeded areas shall be kept free from noxious and invasive weeds at all times. Revegetation maintenance shall further include the following:

- Maintain health of all containerized plants and willow stakes,
- Maintain full coverage of soil by erosion control blankets through 12 months,
- Maintain irrigation system as needed, and
- Insure establishment of revegetation.

260.09 Performance Standard and Acceptance
The Contractor shall guarantee revegetation in accordance with these Special Technical Provisions. Revegetated areas will be inspected by the Engineer at completion of installation and accepted subject to compliance with specified materials and installation requirements.

Following one full growing seasons after treatment, the Contractor must achieve 70% vegetative cover for areas receiving seed mix application and 90% mulch coverage. Cover assessment shall be assessed by the point-intercept method. If specified coverage is not achieved, the Contractor may be required to re-seed, and/or re-mulch.

A warranty of 80% survival of all containerized species and 50% of willow poles shall accompany containerized plants and willow poles. The Engineer, upon the Contractor's request, will make final inspection and acceptance at the conclusion of the maintenance period. The Contractor will provide the Engineer notification at least ten working days before the requested inspection date.

Security shall remain in effect until maintenance and survival guarantee criteria have been met as defined herein and accepted in writing by the Engineer. The acceptance for releasing the security will occur following the end of the second growing season if the success criteria is met. This guarantee period constitutes the warranty period strictly associated with the revegetation work described herein.

Acceptance of other work and/or filing of a Notice of Completion shall not constitute acceptance, waiver and/or modification of the revegetation, revegetation maintenance, and survival guarantee portion of the project.

260.10 Measurement and payment
"Water's Edge Treatment" shall be measured on a square foot basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The contract price paid for "Water's Edge Treatment" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for performing all the work involved in completing the revegetation of this area including the required maintenance and bonding, complete in place, as shown on the Plans, as specified in these Special Technical Provisions and as directed by the Engineer; and no additional compensation will be allowed.

"Meadow Treatment" shall be measured on a square foot basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The contract price paid for "Meadow Treatment" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for performing all the work involved in completing the revegetation of this area including the required maintenance and bonding, complete in place, as shown on the Plans, as specified in these Special Technical Provisions and as directed by the Engineer; and no additional compensation will be allowed.

"Upland Treatment" shall be measured on a square foot basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. Additional unauthorized disturbance outside those areas shown on the Project Plans shall be at the expense of the contractor and not part of the square footage measured for payment. The contract price paid for "Upland Treatment" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for performing all the work involved in completing the revegetation of this area including the required erosion control blanket, soil preparation, seed installation, maintenance and bonding, complete in place, as shown on the Plans, as specified in these Special Technical Provisions and as directed by the Engineer; and no additional compensation will be allowed.

"Willow/Alder Root Wads" shall be measured on a per each basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The contract price paid for "Willow/Alder Root Wads" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for performing all the work involved in salvaging and installing the root wad as directed by the Engineer, complete in place, as shown on the Plans, as specified in these Special Technical Provisions and as directed by the Engineer; and no additional compensation will be allowed.

"Irrigation" shall be measured on a lump sum basis, complete in place and accepted by the Engineer as conforming to all the requirements in the complete work. The contract price paid for "Irrigation" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for performing all the work involved in completing the irrigation for up to 12 months after project completion, including the required maintenance and bonding, complete in place, as shown on the Plans, as specified in these Special Technical Provisions and as directed by the Engineer; and no additional compensation will be allowed.

Full compensation for conforming to the provisions of this Section, not otherwise provided for, shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed.

Appendix A: Dewatering and Diversion Plan

DEWATERING AND DIVERSION PLAN

SAXON CREEK AQUATIC ORGANISM PASSAGE PROJECT

Prepared By:

Nevada Tahoe Conservation District

June 2022

TABLE OF CONTENTS

1.0 Background and Objectives

The Saxon Creek Aquatic Organism Passage Project, Phase 2, is a follow up project to Phase 1 completed in 2018 which replaced a failing road culvert with a bridge and realigned and restored 140 feet of channel upstream of the Fountain Place Road crossing. The goal of the project is to ultimately restore the approximately 917 feet of stream channel beginning 50 feet upstream of the bridge crossing. Restoration will include performing adaptive management on the upstream section of the channel to achieve hydrologic and geomorphic continuity and provide for suitable passage conditions for the target aquatic species through the entire restored reach. The Project is being designed and managed by the Nevada Tahoe Conservation District under a Participating Agreement with the US Forest Service, Lake Tahoe Basin Management Unit.

Objectives:

1) Restore a channel with morphology appropriate for the position in the watershed;
2) Restore channel morphology that successfully provides fish passage for the target species over a range of flows;
3) Longitudinal hydrologic continuity: Restore an alluvial channel with energy grade appropriate for the position in the watershed and expected range of streamflow up to an approximate 100-year flood;
4) Lateral hydrologic continuity: Restore an active low-flow channel that exhibits hydrologic connectivity with a floodplain under bankfull flows and has a floodplain width that is comparable to reference reach conditions, and;
5) Design a restored channel that enables flood conveyance of the predicted 100-year flood.

2.0 EFFLUENT REQUIREMENTS

The diversion and dewatering operations as well as the introduction of flow into the newly constructed channel are required to meet the permit requirements of Lahontan Regional Water Quality *Control Board* and the Tahoe Regional Planning Agency (TRPA). The TRPA standards are specified in Chapter 81 – Water Quality Control of the TRPA Code of Ordinances. The Lahontan standards for tributaries in the Lake Tahoe Basin typically permit a 10% increase over background conditions; however, in the case of stream restoration where the background water quality is high, we are requesting a variance from the Basin Plan in-stream turbidity standards during the implementation of some tasks. The tasks that we anticipate higher turbidity than 10% above background are the installation and removal of the check dams associated with the clean water diversion and the rewetting of the creek. We expect up to a 30 NTU increase in comparison to background conditions during these operations. We request a Basin Plan Prohibition Exemption for the work on Saxon Creek to allow for discharge of water of no more than 30 NTUs above background conditions. Operations will be required to divert all in-channel flows and intercepted groundwater for the entire duration of the Project to assure Project success and to protect the downstream reaches of Saxon Creek and Lake Tahoe from any discharge exceeding 30 NTUs above the background condition.

3.0 Dewatering and Diversion Plan

3.1 Summary

The project boundary encompasses Saxon Creek in the vicinity of the Fountain Place Road Crossing, extending 50 feet upstream from the crossing and 850 feet downstream. The channel restoration will be constructed from downstream to upstream, starting with the installation of the in channel structures, then the removal of material to create inset floodplains, the placement of channel bed material, and any bank restoration efforts including installation of woody debris, salvaged sod, erosion control blanket, and the hardened entrance. The entire area will remain dewatered until grading is completed. The newly restored channel will be "seasoned" by incremental rewetting, initially using just 1 cfs of the flow to rewet the channel and then increasing at increments until all water can be placed back into the channel. The channel is proposed to be dewatered using a coffer dam installed at the upstream end of the project, flows will be pumped through an existing 18-inch culvert under Fountain Place Road and rejoined with Saxon Creek at the downstream end of the project via an existing abandoned ditch. A dewatering plan is provided in Appendix A – Dewatering Plan.

3.1 Description

The diversion will consist of an upstream and downstream sandbag coffer dam, a pump to divert flows to an existing drainage channel that crosses under Fountain Place Road through an 18-inch culvert and enters Saxon Creek approximately 850 feet down stream of the bridge crossing. The existing drainage channel is approximately 530 feet long, it begins at the end of the 18-inch culvert and terminates at Saxon Creek, just beyond the planned restoration extent. The drainage channel is well vegetated with abundant woody debris, it is less defined closest to the culvert crossing and gradually becomes defined as it approaches Saxon Creek. Due to the amount of debris in the drainage channel and poor channel formation in various location, flow diversion is planned to be conveyed through a pipe for the beginning 415 feet of drainage channel. The pump is planned to pipe Saxon Creek flows through the existing 18-inch culvert and discharge flows in the existing drainage channel approximately 115 feet before it enters Saxon Creek. Any debris in the last 115 feet of the drainage channel will be cleared out prior to use and the channel will be lined with 6 mil visqueen. At the pipe outlet an energy dissipator will be installed to absorb energy from the outlet flows, at the end of the drainage channel a rock apron will be constructed at the intersection with Saxon Creek. At the end of construction, the energy dissipator and rock apron will be removed and the site will be revegetated with native vegetation. Since the culvert at the road will remain in place, the ditch will be left open ending in a fan to spread evenly across the land during flood flows. Some rock will be left at this culvert outlet.

Prior to channel dewatering, block nets will be installed at the upstream and downstream ends of the work area and all fish will be removed from the work area by qualified biologists. The dewatering pump will be capable of conveying a minimum flow of 8 cubic feet per second (cfs) which was calculated to be 30% above the average flow in Saxon Creek for the period of July 15 to October 15 to account for rain events. One pump capable of handling 6 CFS is planned to be used and a second pump with a min capacity of 2 CFS will be on standby in the event additional flow capacity is required.

During excavation activities associated with the channel restoration, well points within the channel will need to be established to keep the site dry. Exact location of the well points and their associated pump(s) will depend on ground water conditions. The location of the well points will generally be near the upstream end of active construction. Any collected water will be pumped away from the creek to an adjacent upland area to infiltrate. Collected water will be spread in the Forest in a manner that does not generate surface runoff or allow water to return to the stream.

3.2 Decommissioning Diversion

Decommissioning of the diversion dams shall only be initiated after acceptance and substantial completion of the Saxon Creek restoration project by the Engineer, NTCD, USFS, LRWQCB, and TRPA. The clear water diversion will be removed by Oct 1 unless an extension is approved by Water Board staff in writing. The decommissioning shall start with an inspcof the downstream coffer dam just upstream from where the diversion enters Saxon Creek. This will serve as an area to contain flows that are too turbid to be discharged down the channel. Once this coffer dam is installed and a pump is in place at the end of the restored reach, the upstream coffer dam will be slowly and carefully removed starting with the top layer to minimize the downstream forces from water and retain downstream water supply at the diversion. The diversion dam shall be removed in a manner as to not create turbidity and shall be done all by hand (no use of equipment). Turbidity will be tested during rewatering and water that does not meet the standard will be pumped to the upland areas for infiltration. Once a suitable level is achieved, flow will be restored to the new channel and allowed to flow downstream. The final elements of any downstream of upstream coffer dam will be removed by hand followed by the pumps and diversion pipe.

To decommission the ditch, the visqueen liner and all other materials will be removed and disposed of offsite. The ditch will be filled with the spoils from the original excavation as well as excess cut from the restoration of Saxon Creek and track compacted with a minimum of three passes. The entire ditch alignment will be finished with 6” of topsoil and seeded with native vegetation and covered with mulch. The final grade will match the existing ground with a slight slope toward Saxon Creek. A mulch such as wood chips or pine needles will be used to provide adequate seed and soil protection until vegetation is established. The stream bank where the ditch terminated will be reconstructed to match the existing shape and should have at least 90% cover with vegetation, wood and/or rock mimicking natural conditions.

3.3 Phasing and Winterization

This Project has an anticipated construction time of one season. Any diversions installed will be eliminated by the end of the first construction season when in channel construction is finished. Winterization of the diversion is not expected to be necessary for the project.

3.4 Diversion Flow Rates

During phase 1 of this project, completed in 2018, the surrounding watersheds were analyzed to get baseline flows for Saxon Creek and dewatering design (Balance Hydrologics, 2013). There is no gage or historic flow record for Saxon Creek however, USGS 10336670 is located nearby on Trout Creek, which is

a reasonable surrogate for Saxon Creek. Watershed sizes (Saxon is 8.1mi^2, Trout is 7.4mi^2) and landscape settings are similar for both watersheds. The WY 2008 and 09 values were chosen as reasonably similar to the current water, given both were moderately below average in terms yearly precipitation. Mid late summer flows on Trout Creek in 2008 (July 18 thru Sept 30) started at 5.5 CFS. falling to 3 CFS by mid-September. Flow in 2009 (same period) started at 6 CFS and fell to 3.5 CFS by the end of September. There was only one spike in flow cause by a rain event during these two years, causing the flow to increase to a temporary peak of approximately 8.5 CFS in Late August of 2009. Flow was measured in Saxon Creek on July 19, 2018 to verify current conditions and found to be 3.06 CFS, which is slightly below average based on the comparison with WY 2008 and WY 2009. In order to account for potential rain event flow increases, the 2009 flow of 6 CFS plus a 2 CFS factor of safety, 8 CFS, was used to size the diversion. Flows should be monitored regularly, and personnel should be available to install any relevant contingencies when rain forecast exceeds a certain threshold. The same trigger that is used for a Rain Event Action Plan in the Tahoe Construction General Permit (30% chance of 0.1 inch of precipitation or more) will be used to increase monitoring frequency or deploy contingencies such as additional pumping capacity.

	Peak Flow[1]
Saxon Creek Flow During Construction	8 cfs

[1]No flow data exists on the Saxon Creek drainage, flows are estimated based on the Trout Creek watershed.

4.0 Dewatering Requirements

4.1 Summary

A combination of pumping and gravity flow diversion will be utilized to divert flows in Saxon Creek through the project site. The creek will only be dewatered for the time necessary to complete the in-channel work, a period of approximately 3 weeks occurring between mid-July to late September. The Saxon Creek diversion will start approximately 50 linear feet upstream from the Fountain Place Road Bridge and reconnect to the channel as shown in Attachment A. Locations of intakes and outlets are approximate; actual locations will be determined based on field conditions by the project engineer, hydrologist, and construction contractor.

4.2 Discharge and Treatment Options

Treatment options may include the use of dirt bag filters or the construction of temporary sedimentation basins within an area that may be disturbed such as a staging area or a former channel access area.

The existing ditch to be used for diversion flows is more than adequately sized for the anticipated flow with a capacity of 120 CFS. However, the existing 18-inch culvert has a capacity of 6 cfs, not enough to convey the minimum flows. Bypassing the culvert by pumping flow through it and discharging where the ditch is more established will provide the capacity required for dewatering since the pump will create additional head.

5.0 References

Balance Hydrologics, 2013. Limited Design Basis for Saxon Creek Aquatic Organism Passage Project, Lake Tahoe Basin, El Dorado County, California. Revised November 11, 2013.

USGS, 2022. waterdata.usgs.gov

APPENDIX A:

EXAMPLE DEWATERING AND DIVERSION DAILY INSPECTION FORM

SWPPP INSPECTION REPORT	Approx. Temperature: _____	Storm Start: _____ (date)
Project: _____	PPT: ____Y / N____	Storm Duration: _____
Inspector: _____	PPT Amount at time of inspection: _____ in.	Time since last storm: _____

DATE: _____ TIME: _____	DAY:	M	T	W	TH	F	SA	SU

Construction Stage: _____

Area of site exposed to storm water runoff: _____

Construction Activities: _____

_____

Inspection Type

Daily ☐ Prior to Predicted Rain ☐ Following Rain Event ☐

Weekly ☐ During Rain Event ☐

Blank=No Inspection NC=Needs Correction, See Observations OK or Check Mark=Meets Standards NA=Not Applicable

1)	Damage to containment dikes or erosion control fencing?	
2)	Improperly installed or ineffective erosion control fencing?	
3)	Unauthorized vehicle access, vehicles accessing designated non-construction areas not subject to disturbance?	
4)	Boundary fence damage or removal?	
5)	Disturbed areas with inadequate erosion prevention and sediment control protection?	
6)	Evidence of any sediment leakage through erosion control fencing or containment dikes?	
7)	Soil piles and other earthen materials which are unprotected or located in a drainage way?	
8)	Spilled and improperly stored chemicals, paint, fuel, oil, solvents, sealants, etc.?	
9)	Upstream runoff diversion structures (are in place and operational)?	
10)	Any evidence of sediment tracking from construction equipment?	
11)	Any signs of soil erosion or deposition down gradient from runoff discharges?	
12)	Sediment accumulation within onsite storm water drainage control facilities, and facilities in need of maintenance?	
13)	Any evidence of non-storm water discharges from the project site? Authorized, illicit, BMP condition?	
14)	Does SWPPP or WPCP require revisions?	
15)	Notable observation at relevant discharge points and downstream locations of the receiving water?	
16)	Observed impacts to the receiving water?	
17)	Photographs taken?	

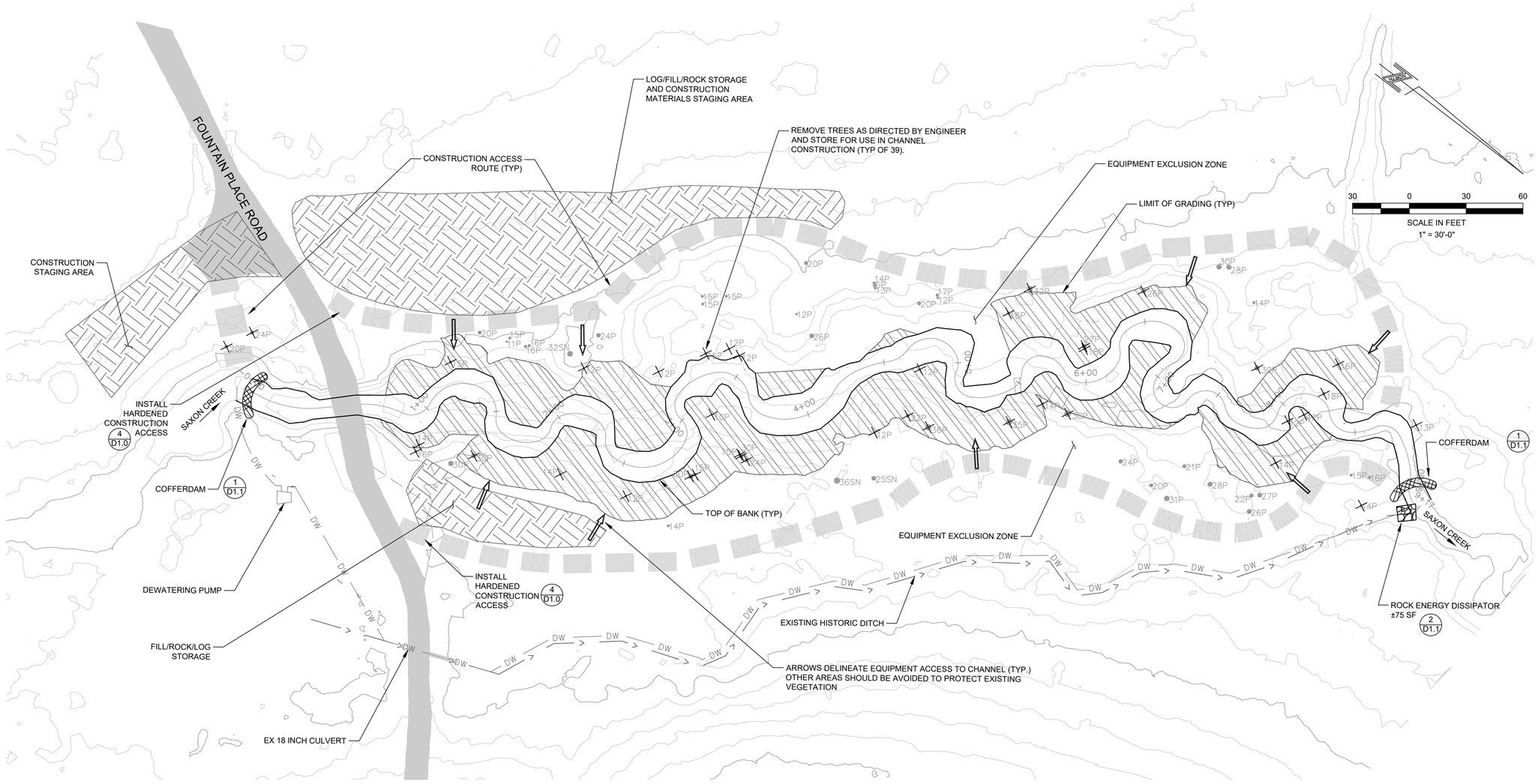
Date = Defeciency to be addressed O = Observation

Date added	Observation/Inspection	WPCD #	Photo	Date Completed

SIGNATURE: _____ **TITLE:** _____

APPENDIX B:

SITE MAP FOR DEWATERING/DIVERSION



NOTES:

1. NO TREE REMOVAL IS ALLOWED UNTIL BIRD SURVEYS ARE COMPLETED. ALERT ENGINEER AT LEAST 7 DAYS PRIOR TO PLANNED TREE REMOVAL SO SURVEYS MAY PROCEED.
2. VEHICLE THROUGH TRAFFIC ON FOUNTAIN PLACE ROAD SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT.
3. CONTRACTOR SHALL DELINEATE STAGING AREAS, EQUIPMENT EXCLUSION ZONES, AND AREAS OUTSIDE OF GRADING LIMITS WITH CONSTRUCTION LIMIT FENCING.
4. SEDIMENT LOGS AND SILT FENCE SHALL BE INSTALLED IN ACCORDANCE WITH TRPA AND THE SWPPP TO PROTECT AREAS DOWN GRADIENT OF MATERIALS STORAGE AND ACTIVE GRADING AREAS. STABILIZE SOIL AFTER DISTURBANCE TO MINIMIZE SEDIMENT DISCHARGE.
5. SEE DEWATERING PLAN FOR ADDITIONAL INFORMATION ON PIPES, PUMPS AND DITCH SIZES.
6. FISH RESCUE WILL BE COMPLETED PRIOR TO ANY DEWATERING OR WORK WITHIN THE CHANNEL. FISH NETS WILL REMAIN IN PLACE AT THE UPSTREAM AND DOWNSTREAM END OF THE WORK AREA FOR THE DURATION OF THE PROJECT.
7. COFFER DAM MAY BE PLACED INTERMITTENTLY ON RESTORED REACH FOR REWATERING OPERATIONS, SEE DEWATERING PLAN FOR MORE INFORMATION.

PLAN

SCALE: 1":30'

Know what's below. Call before you dig.

BID SET

Nevada Tahoe Conservation District

LICENSED PROFESSIONAL ENGINEER
MEGHAN C. KEIL
C 77162
EXP. 12/31/22
7/6/2022
CIVIL
STATE OF CALIFORNIA

CONSTRUCTION STAGING & DEWATERING PLAN
SAXON CREEK PHASE 2

DESIGNED/DRAWN	PJ
CHECKED BY	MK
DATE	07/2022
SCALE	AS SHOWN
PROJECT	SAXON CREEK PHASE 2
SHEET	iii
	3 OF 13

Appendix B: US Forest Service Resource Protection Measures

Saxon Creek Aquatic Organism Passage Project
Project Resource Protection Measures and Best Management Practices

Activities associated with implementation of this project could have localized, short-term effects. The following Resource Protection Measures have been incorporated into the Proposed Action and are intended to minimize or avoid effects on soils, water, vegetation, wildlife, fisheries, heritage resources, recreational resources, and air quality. In addition to the following Resource Protection Measures, applicable BMPs identified in Water Quality Management for Forest System Lands (USFS 2012b) will be utilized. Adherence to these BMPs ensures compliance with the Clean Water Act. Detailed specifications for these BMPs would be incorporated into the final design plans and any plans required for permitting.

Botanical resources

- Although no sensitive plant species were documented to occur within the project area (Sierra Ecotone Solutions LLC 2021), disturbance will be limited to only that necessary for project access, staging/storage and construction. If during project related activities, sensitive species are observed, the Forest Botanist will be notified and appropriate actions shall be implemented to protect sensitive species.
- In project areas that may impact suitable habitat, native wetland-associated plant species will be revegetated as needed to facilitate channel stabilization, water table maintenance, and erosion prevention.

Invasive Plants

- All equipment and vehicles (Forest Service and contracted) used for project implementation must be free of invasive plant material, soil, seeds, vegetative material, or other debris or water that could contain or hold seeds of non-native aquatic invasive species before moving into the project area. Equipment will be considered clean when visual inspection does not reveal soil, seeds, standing water, plant material or other such debris. Cleaning shall occur at a vehicle washing station or steam-cleaning facility before the equipment and vehicles enter the project area.
- When working in known invasive plant infestations or designated weed units, equipment shall be cleaned before moving to other National Forest Service system lands. These areas will be identified on project maps.
- Do not stage equipment, materials, or crews in invasive plant-infested areas.
- Where feasible, invasive plant infestations will be designated as Control Areas—areas where equipment traffic and soil-disturbing project activities would be excluded. If Control Areas are designated, they will be identified on project maps and delineated in the field with flagging.
- Equipment traffic and soil-disturbing project activities would be excluded from invasive plant infestations, unless otherwise specified in the Invasive Plant Management Plan. These areas will be identified on project maps and delineated in the field with flagging.
- Minimize the amount of ground and vegetation disturbance in staging and construction areas. Where feasible, reestablish native vegetation cover on disturbed bare ground to reduce invasive species establishment; revegetation is especially important in staging areas.
- Any additional infestations discovered prior to or during project implementation should be reported to the Forest Botanist or their designated appointee for prioritization and assessment for treatment.

- Erosion control blankets shall be composed of certified weed free processed all-natural fibers (straw is not acceptable) mechanically bound between two all-natural fiber nettings (no plastic netting) to form a continuous matrix. Weed free certification will be provided.
- Wattles or sediment logs will be certified weed free logs that consist of drainage filter made of curled aspen wood excelsior or coir and rolled into a cylindrical shape with a consistent width of fibers evenly distributed throughout the cylinder. Logs will be encased in 100% natural fiber biodegradable netting (no photodegradable or plastic materials). Weed free certification will be provided.
- All gravel, fill, or other materials are required to be certified weed-free. Use onsite sand, gravel, rock, or organic matter when possible. Otherwise, obtain weed-free materials from sources that have been certified as weed-free by the LTBMU. If an LTBMU inspector is not available to inspect material source, then the project proponent will provide a weed-free certificate for its material source.
- Use certified weed-free mulches and topsoil. Salvage topsoil from project area for use in onsite revegetation, unless contaminated with invasive species. Do not use material (or soil) from areas contaminated by non-native invasive species. Weed free certification will be provided.
- If staging and construction areas cannot be revegetated (active or passive) or rehabilitated within the same growing season as construction, then they will be stabilized until such activities can be accomplished, unless revegetation of the area is deemed unnecessary by a staff hydrologist and botanist. Stabilization options include, but are not limited to, complete cover of wood chip mulch, landscape fabric, or erosion control fabric.
- Infestations prioritized for treatment will be treated in accordance with USFS management direction and the Resource Protection Measures of the LTBMU 2010 Terrestrial Invasive Plant Species Treatment Project Environmental Assessment. Project leader will notify the Forest Botanist or their designated appointee at least one month prior to project initiation to coordinate invasive plant treatment.
- After the project is completed, notify the Forest Botanist so that (as funding allows) the project area can be monitored for invasive plants subsequent to project implementation.
- Post implementation invasive plant monitoring will occur withing the project area, including staging areas for two years upon completion of the project activities. Monitoring activities will include treatment, if necessary, in the form of manual pulling and/or herbicide in accordance with the programmatic EA to support herbicide treatment. Monitoring shall continue for two years after no invasive plants are determined to be present.

Revegetation

- Seed and plant mixes must be approved by the Forest Botanist or their designated appointee who has knowledge of local flora.
- Non-native and invasive species will not be intentionally used in revegetation. Seed lots will be tested for weed seed and test results will be provided to Forest Botanist or their designated appointee.
- Persistent non-natives, such as timothy (*Phleum pretense*), orchardgrass (*Dactylis glomerata*), ryegrass (*Lolium spp.),* or crested wheatgrass (*Agropyron cristatum*) will not be used in revegetation.
- Seed and plant material will be from native, high-elevation sources as much as possible. Plant and seed material should be collected from as close to the project area as possible, from within the same watershed, and at a similar elevation whenever possible.

Aquatic

- Water drafting sites should be located in areas that will avoid adverse effects to stream flows and depletion of pool habitat. If instream flows or water drafting sites are not sufficient due to a lack of water, water would be obtained from local municipal water hydrants. Water drafting sites will be reviewed by a hydrologist or fisheries biologist every two weeks during low flow periods and determinations made regarding adequate minimum flows. If flows are not adequate for instream needs, drafting will be discontinued.
- Use screening devices for water drafting pumps (Fire suppression activities are exempt during initial attack). Use pumps with low entry velocity to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats. The following criteria should be used to avoid impacts:
    - Drafting operations should be restricted to one hour after sunrise to one hour before sunset to avoid the use of lights that attract fish.
    - Pumping rate shall not exceed 350 gallons per minute.
    - The pumping rate shall not exceed ten percent of stream flow (estimated by pump operators) to ensure adequate downstream flow to support aquatic species.
    - Drafting should occur in streams and pools with deep and flowing water; not streams with low flows and isolated pools.
    - Pumping operations shall not result in obvious upstream or downstream pools.
    - Each pumping operation shall use screens. The screen face should be oriented parallel to flow for best screening performance.
- Salvage/recovery of fish will be conducted within anticipated construction dewatering or diversion zones operations by electro-shocking or other suitable means as developed through consultation with the LTBMU fisheries staff. Fish will be moved approximately 500 -700 feet upstream or downstream of project activities, as determined by USFS fisheries staff. Block nets will be installed to ensure fish do not move back into the project area.
- Nets will be monitored and cleaned one to two times daily, as needed, to ensure the nets are functioning.
- Western pearlshell mussel (*Margaritifera falcate*) surveys will be conducted by the LTBMU aquatic survey crew prior to implementation.
- Mussels will be removed, where feasible, from the active Proposed Project reach prior to diverting channel flow into the newly constructed channel. Feasibility will be determined in the field by the USFS aquatic biologist and will take into consideration mussel population within and outside of the project area.
- Staging areas will not be in wet meadow, lakes, ponds, or any waterway.

Terrestrial Wildlife

- Prior to construction, all contractors, and subcontractor project personnel will receive training from qualified resource specialists regarding the appropriate work practices necessary to effectively implement the Resource Protection Measures and to comply with the applicable environmental laws and regulations, including appropriate wildlife avoidance measures; impact minimization procedures; the importance of sensitive resources, and the purpose and methods for protecting such resources.

- Projects would follow all applicable protection measures identified in the US Fish and Wildlife Service Biological Opinion on Sierra Nevada yellow legged frog within the Lake Tahoe Basin (or superseding current direction).
- Implement LOPs to avoid or minimize disturbance to breeding activities of sensitive species. LOPs would be implemented around nests, dens, roost sites, and other areas of concentrated use (e.g., Protected Activity Centers) by these species as directed in the Forest Plan. LOPs limit the type, spatial extent, and timing of project activities permitted. The timing of LOPs is standardized by species as described below. The use of surveys to confirm non-presence of species, limitations on types of equipment used, or other measures as identified during the annual review process may be implemented in order to prevent disturbance to these species during the LOP. Only project activities that do not result in disturbance to these species may proceed.
    - a. California spotted owl PAC: March 1 - August 15
    - b. Northern goshawk PAC: February 15 - September 15
    - c. Golden eagle and Peregrine Falcon nest: April 1 - July 31
    - d. Willow flycatcher nest: June 1 - August 31
    - e. Pacific marten den: May 1 - July 31
    - f. Townsend's big-eared bat roost: May 1 - August 31
- Nesting bird surveys will be conducted no more than 14 days prior to construction activities if work is scheduled to occur during the breeding season-April through August. If a nest is found, exclusionary avoidance zones (to be determined based on species-specific needs) will be created surrounding any active nests along the project alignment.
- Conduct pre-implementation pedestrian visual surveys of project area and a 50-meter buffer (to look for marten dens). Conduct surveys no more than three weeks before project initiation and regardless of season. Possible dens will be further monitored by remote camera in order to determine if they are being actively used by marten. Based upon the results, the Responsible Official may implement a Limited Operation Period (LOP) and/or adapt construction timelines or facility locations as determined necessary to provide adequate protection.
- Bat surveys will be conducted within 30 days of the start of tree removal activities in order to identify active bat roosting sites, such as snags, complex trees, trees with sloughing bark, and/or large diameter trees. If tree removal activities take more than 30 days and/or if there is a gap of 30 days between tree removal activities, surveys should be repeated. All potential roosting sites will be surveyed by a qualified biologist in order to determine usage. Specific survey methodologies will be determined in coordination with the USFS. If an active roost is identified, the Responsible Official may implement an LOP and/or adapt construction and/or tree removal timelines necessary to provide adequate protection to the individuals in the roost.
- Measures shall be taken to allow for exit of trapped wildlife within the project area. Excavations left overnight shall be fitted with ramps and/or suitable egress for small mammals that may be contained within the excavated area. Construction monitors shall inspect all excavations and areas of active construction on a for trapped wildlife. Wildlife found in active construction areas will be allowed to passively leave the site. If necessary, wildlife may be relocated by a qualified biologist. The construction foreman will notify the environmental monitor immediately if any wildlife enters or becomes trapped in the work area.
- If sensitive species are found during implementation, pause project activity that may affect the species and notify the project biologist within 24 hours.

- All trash and food will be removed from the site at the end of each workday in order to deter wildlife from entering the site.
- No harm, harassment, or collection of plant and wildlife species will be allowed. Feeding of wildlife will be prohibited.

Hydrology/Soils

- Temporary and permanent BMPs will be implemented to meet water quality objectives and maintain and improve the quality of surface waters. Methods and techniques for applying the BMPs will be incorporated into the associated project plan and implementation documents, and temporary BMPs will be in place prior to commencing soil disturbing activities. Temporary BMPs may include but will not be limited to: water diversions, sandbag check dams, and diversion pipes and hoses, silt fences, straw wattles, coir logs, water filled berms, mulching, gravel/sand bags, plastic coverings and linings, and construction limit fencing.
- The USFS has recently developed technical guidance to provide uniform direction for BMP implementation on all USFS lands to protect water quality (FS-990a, 2012, Appendix B). The following National BMPs will be considered during project planning and design to develop site-specific BMP prescriptions/practices to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resource: AqEco-2 Operations in Aquatic Ecosystems; Road-5 Temporary Roads; Road-7 Stream Crossings; Road-9 Parking and Staging Areas; Road-10 Equipment Refueling and Servicing.
- Soil disturbing activities will not occur from October 15 to May 1 of each year unless an exemption request is applied for and approved from TRPA.
- Assure that permanent or temporary erosion control measures are in place for the winter season.
- Temporary access will be constructed for use during this project and will be designed with the least amount of soil disturbance and the fewest stream or water channel crossings.
- All disturbed soil areas, including temporary roads, staging and storage sites, will be mulched and seeded following construction.

Recreation:

- Closures of the trailhead parking spaces adjacent to the bridge will be limited in duration and only in the instance of possible hazards to public safety from large construction equipment.
- Closures of the parking spaces will not occur during high volume holiday weekends.
- Public notice of temporary daily closure of a portion of the parking area and pathway in vicinity of the work area.
- All signage and postings will meet applicable USFS universal accessibility guidelines (Architectural Barriers Act Accessibility Standards and Forest Service Outdoor Recreation Accessibility Guidelines).
- Temporary construction fencing will be placed in a manner such that it does not block existing travel routes on Fountain Place Road.

Public Safety and Disruption to Public Use:

- Install signage and temporary barriers as needed during the intermittent closures.
- Implement traffic control as needed on Fountain Place Road. Design access routes, staging areas and time of use to minimize impacts to public access to recreational lands.

Cultural Resources::

2.0 Class II: On-Site Historic Property Protection Measures

Heritage Program Manager (HPM)/designated Heritage Program staff (DHPS) may provide written approval for an undertaking's activities within or adjacent to the boundaries of historic properties based on professional judgment that such activities will not have an adverse effect on historic properties, or under carefully controlled conditions such as those specified below. All activities performed under Section 2.0 (Standard Protection Measures) must be documented in inventory or other Heritage Program Reports (HPMs), or other compliance reports prepared pursuant to this categorical exclusion.

2.1 The following historic property protection measures may be approved for undertakings under the conditions detailed below:

(a) Linear sites (e.g., historic trails, roads, railroad grades, ditches) may be crossed or breached by equipment in areas where their features or characteristics clearly lack historic integrity (i.e., where those portions do not contribute to site eligibility or values).

(1) Crossings are not to be made at the points of origin, intersection, or terminus of linear site features.

(2) Crossings are to be made perpendicular to linear site features.

(3) The number of crossings is to be minimized by project and amongst multiple projects in the same general location.

(4) The remainder of the linear site is to be avoided, and traffic is to be clearly routed through designated crossings.

(c) Placement of foreign, non-archaeological material (e.g., padding or filter cloth) within transportation corridors (e.g., designated roads or trails, campground loops, boat ramps, etc.) over archaeological deposits or historic features to prevent surface and subsurface impacts caused by vehicles or equipment. Such foreign material may be utilized on historic properties under the following conditions:

(1) Engineering will design the foreign material depth to acceptable professional standards;

(2) Engineering will design the foreign material use to assure that there will be no surface or subsurface impacts to archaeological deposits or historic features;

(3) The foreign material must be easily distinguished from underlying archaeological deposits or historic features;

(4) The remainder of the archaeological site or historic feature is to be avoided, and traffic is to be clearly routed across the foreign fill material;

(5) The foreign material must be removable should research or other heritage need require access to the archaeological deposit or historic feature at a later date; and

(6) Indian tribe or other public concerns about the use of the foreign material will be addressed prior to use.

2.2 The following activity-specific standard protection measures may be approved by HPM/DHPS under the conditions specified below:

(a) Felling and removal of hazard, salvage, and other trees within historic properties

under the following conditions:

(1) Trees may be limbed or topped to prevent soil gouging during felling;

(2) Felled trees may be removed using only the following techniques: hand bucking, including use of chain saws, and hand carrying, rubber tired loader, crane/self-loader, helicopter, or other non-disturbing, HPM-approved methods;

(3) Equipment operators shall be briefed on the need to reduce ground disturbances (e.g., minimizing turns);

(4) No skidding nor tracked equipment shall be allowed within historic property boundaries; and

(5) Where monitoring is a condition of approval, its requirements or scheduling procedures should be included in the written approval.

Exhibit B

PROJECT PERMITS

SAXON CREEK
AQUATIC ORGANISM PASSAGE PROJECT – PHASE 2

Decision Memo - DRAFT

U.S. Forest Service
Lake Tahoe Basin Management Unit
El Dorado County, California

DECISION

I have decided to implement the proposed action, which includes restoration of an additional 934 feet of stream channel in Saxon Creek (see project map). The project will restore the section of channel downstream of the Fountain Place Road bridge, and perform additional restoration work on the Phase 1 restored section of the channel. These actions will achieve hydrologic and geomorphic continuity and provide for suitable passage conditions for target aquatic organism species (AOP passage) through the entire restored reach. The restoration work includes:

- Work to be performed upstream of Fountain Place Road that includes construction of a hardened access made of natural rock for bicycle and pedestrian access, repairing areas damaged by Caldor fire suppression efforts, and revegetation of the disturbed bank with planting of native plants.
- Realignment of the channel below the bridge to create a pool riffle morphology. This will increase the length of the channel from 934 to 1,130 feet.
- Excavation at steep banks to create inset floodplains and raising the channel bed profile using fill consisting of course sands, gravels, and cobbles.
- Incorporation of wood and rock structures, including larger bed materials like boulders, into the channel design to sustain riffles and facilitate fish passage.
- Use of fiber roll silt barriers, propagated sod mats and harvested sod plugs, and seeding and erosion control blankets to stabilize the site.
- Installation of debris structures including full-span or partial debris jams, log grade controls, and beaver dam analogues.
- Installation of 2 buried boulder sills, one above the bridge and one further downstream, to minimize the potential for knickpoint erosion and headcut migration.
- Removal of approximately 50 lodgepole pines > 12 inch diameter at breast height (dbh) within the riparian zone and use of these trees within the restoration.
- Fish rescue and subsequent dewatering of approximately 1,000 linear feet of channel using a nearby ditch.
- Additional revegetation work including willow staking, willow mattresses, placement of sod and seed, and installation of erosion control blankets.

Creek Restoration

A total of 934 feet of the Saxon Creek channel is being restored: 190 feet upstream of the bridge and 744 feet below the bridge. Upstream from the bridge, the focus will be on reducing the channel bed slope, creating a hardened bank for public access, repairing areas damaged by Caldor fire suppression efforts, removing knickpoints (sharp change in channel slope) on the banks and laying them back to create more inset floodplain area, and revegetation of bare areas. The bed modification will set up the profile for the remaining restoration to achieve the necessary slopes and water speed for Paiute sculpin to swim upstream.

Below the bridge, filling in the bed of the creek will create the more moderate slope for aquatic organism passage. Downstream of the bridge, the channel will be realigned for approximately 500 linear feet. Sinuosity of the channel (1.48 sinuosity) will match the reference reach upstream. An increase in channel length from 934 feet to 1,030 feet will be achieved using pool/riffle morphology. A channel bed material consisting of imported round cobbles and gravels and native material from the site will be used to raise the bed in this location. Log bank structures, habitat features, and grade controls will be installed throughout the entire 934 feet of restoration. Banks will be laid back in locations throughout the entire project reach to create additional inset floodplain area and reduce the probability of bank erosion. The final 600 feet will utilize sections of the existing channel to preserve desirable habitat features and will also occupy existing side channels and/or existing depressions to create more floodplain access.

The following specific conservation benefits will result from the Project:

- Water Quality: the project will reduce the input of sediment to both Trout Creek and Lake Tahoe from channel degradation and aid in the achievement of Lake Tahoe Total Maximum Daily Load (TMDL) sediment standards.
- Habitat: the project will improve access to quality fish habitat for the native salmonids and Paiute sculpin.
- Riparian and Forest Health and Climate Resilience: the project will expand the riparian boundary of the area by promoting overbanking where possible improving riparian plant populations, reducing conifer encroachment, and promoting groundwater recharge for a more sustainable baseflow.

The project will help achieve the following TRPA thresholds:

- Water Quality: reducing sediment downstream from channel degradation.
- Soil Conservation: Improve roughly 900 linear feet of stream channel through in channel stabilization, reconnecting adjacent floodplain and improving overall riparian health.
- Fisheries: Providing fish passage to the upstream reaches of Saxon Creek and improving fish habitat within this reach.

Project Schedule

Creek restoration activities will occur between August and October during low creek flows. Staging areas will be established using fencing and temporary Best Management Practices (BMPs). Temporary stormwater BMPs will also be installed prior to any work that involves moving dirt near the channel. When water levels are lowest, in early August, fish rescue and dewatering of the channel will occur. The channel restoration will be constructed from downstream to upstream starting with the installation of the channel structures, the removal of material to create inset floodplains, the placement of channel bed material, and any bank restoration efforts including installation of salvaged sod, erosion control blanket, and the hardened entrance. The entire area will remain dewatered until grading is completed. The newly restored channel will be “seasoned” by rewetting the new channel and pumping the water to upland surface discharge prior to letting the water flow downstream of the construction site. Water will be pumped to a sedimentation area as necessary until acceptable turbidity levels are achieved. Once the restored channel is active, additional revegetation work will be completed such as seeding, willow staking, and wetland plug transport.

Construction Access

Primary access to the project area will be via Fountain Place Road, which is a paved road that originates at Oneidas Road to the west. It is not anticipated that Fountain Place Road will need to be closed during this project, however traffic control may be required at times during construction. Within the project area, access routes will be created on both the west and east sides of Saxon Creek to allow construction equipment to reach the stream. Areas disturbed by construction access routes will be restored and revegetated at the end of the project.

Construction Staging

Staging areas will be needed for construction equipment and machinery, downed trees and excavated earthwork. The project will produce a net grading cut, off-haul of earthwork will be ongoing during the project to minimize on-site earthwork piles. Several staging areas will be used including the small parking area to the southwest of the Fountain Place Road bridge. Areas in the upland within the project area to the west and east of Saxon Creek will be used for staging and earthwork piles. In these areas, staging will be at least 25' from the top of the bank of the creek (see plan sheets). Construction BMPs such as coir wattles and filter fence will be installed and maintained around all staging areas to prevent the flow of sediment from the staging areas.

CATEGORICAL EXCLUSIONS

The action is categorically excluded from documentation in an environmental impact statement (EIS) or an environmental assessment (EA). The applicable categories of actions are as follows:

For the LTBMU, the proposed action meets the criteria outlined in the additional category (36 CFR 220.6(e)(25):

> *Forest and grassland management activities with a primary purpose of meeting restoration objectives or increasing resilience. Activities to improve ecosystem health, resilience, and other watershed and habitat conditions may not exceed 2,800 acres.*
>
> ***(i)*** *Activities to meet restoration and resilience objectives may include, but are not limited to:*
>
> ***(A)*** *Stream restoration, aquatic organism passage rehabilitation, or erosion control;*
>
> ***(ii)*** *The following requirements or limitations apply to this category:*
>
> ***(A)*** *Projects shall be developed or refined through a collaborative process that includes multiple interested persons representing diverse interests;*
>
> ***(B)*** *Vegetation thinning or timber harvesting activities shall be designed to achieve ecological restoration objectives, but shall not include salvage harvesting as defined in Agency policy; and*
>
> ***(C)*** *Construction and reconstruction of permanent roads is limited to 0.5 miles. Construction of temporary roads is limited to 2.5 miles, and all temporary roads shall be decommissioned no later than 3 years after the date the project is completed. Projects may include repair and maintenance of NFS roads and trails to prevent or address resource impacts; repair and maintenance of NFS roads and trails is not subject to the above mileage limits.*

Because the proposed project includes restoration of Saxon creek in an effort to improve aquatic organism passage; I am using the category specifically created by Congress for this purpose. There is no construction or reconstruction of roadways associated with the project. Trees proposed to be removed do not include salvage harvesting and will improve the riparian habitat within the project site. The proposed project was developed and refined through a collaborative effort between LTBMU hydrologists, biologists and engineers (both LTBMU and Nevada Tahoe Conservation District). This category is the best fit for the project actions.

I considered the following resource conditions and find there are no extraordinary circumstances warranting further analysis and documentation in an EA or EIS.

Federally listed threatened or endangered species or designated critical habitat, species proposed for federal listing or proposed critical habitat, or forest service sensitive species

<u>Federally Listed Botanical and Animal Species</u>

No botanical species listed as threatened or endangered under the federal Endangered Species Act (ESA) are present in the project area. As described in the biological evaluation/biological assessment (BE) prepared for the project, with incorporation of applicable Resource Protection Measures (RPMs), the proposed action will have no effect on federally listed plant species.

Potential habitat for threatened Lahontan cutthroat trout and the endangered Sierra Nevada yellow-legged frog (*Rana sierrae*) is present. Because the proposed action includes RPMs designed to reduce and avoid potential project-related effects on these species, and surveys show that the species do not occupy the project area, the proposed action will not affect Lahontan cutthroat trout or Sierra Nevada yellow-legged frog. Critical habitat for Lahontan cutthroat trout has not been designated by the U.S. Fish and Wildlife Service within the project area. The nearest designated critical habitat for Sierra Nevada yellow-legged frog is approximately 5 miles southwest of the project area and would not be affected by the proposed action.

Foraging habitat for monarch butterfly (*Danaus plexippus*) occurs within the project area. The proposed Project may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability monarch butterfly due to temporary impacts associated with loss of foraging area/habitat during construction.

Forest Service Sensitive Botanical and Animal Species

Determinations for Forest Service Sensitive botanical and animal species are as follows, based on the detailed analyses and determinations provided in the BE. The proposed action will not have an effect on the following Forest Service Sensitive species: Galena Creek rockcress (*Arabis rigidissima var.demota*), Tiehm's rockcress (*Boechera tiehmii*), Tulare rockcress (*Boechera tularensis*), upswept moonwort (*Botrychium ascendens*), scalloped moonwort (*Botrychium crenulatum*), slender moonwort (*Botrychium lineare*), common moonwort (Botrychium lunaria), Mingan's moonwort (*Botrychium minganense*), western goblin (*Botrychium montanum*), Bolander's bruchia (*Bruchia bolanderi*), Dendrocollybia (*Dendrocollybia racemosa*), Cup Lake draba (*Draba asterophora var. macrocarpa*), Mineral King draba (*Draba cruciata*), Tahoe draba (*Draba asterophera var. asterophera*), Starved daisy (*Erigeron miser*), Donner Pass buckwheat (*Eriogonum umbellatum var. torreyanum*), Jack's wild buckwheat (*Eriogonum luteolum var. saltuarium*), Blandow's bogmoss (*Helodium blandowii*), shortleaf hulsea (*Hulsea brevifolia*), Plumas Ivesia (*Ivesia sericoleuca*), Long petaled Lewisia (*Lewisia longipetala*), Sierra Valley Lewisia (*Lewisia kelloggii ssp. hutchinsonii*), Kellogg's Lewisia (*Lewisia kelloggii ssp. kelloggii*), Broad-nerved hump-moss (*Meesia uliginosa*), Orthotrichum moss (*Orthotrichum praemorsum*), Western waterfan (*Peltigera gowardii*), Whitebark pine (*Pinus albicaulis*), Tahoe yellow cress (*Rorippa subumbellata*), northern goshawk (*Accipiter gentilis*), and/or California spotted owl (*Strix occidentalis*).

Foraging habitat for western bumble bee (*Bombus occidentalis*) occurs within the project area. The proposed Project may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability monarch butterfly due to temporary impacts associated with loss of foraging area/habitat during construction.

The proposed Project may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability for pallid bat (*Corynorhinus townsendii*), Townsend's big-eared bat (*Corynorhinus townsendii*), and fringed myotis (*Myotis thysanodes*) because project design features would protect individuals if they were detected in the project area (therefore no direct impacts to individuals), and any modifications to habitat would be relatively minor when compared to the availability of suitable habitat in the vicinity and the greater Lake Tahoe Basin.

For Pacific marten (*Martes caurina*), direct impacts to individuals would be avoided by the implementation of resource protection measures. Therefore, the proposed Project may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability for the Pacific marten.

The proposed action will not affect any other Forest Service Sensitive botanical or animal species because the project area contains no suitable habitat and/or is located outside the elevation range or distribution of the species.

Floodplains, wetlands, or municipal watersheds

The project area includes floodplains and wetlands. An overall increase in wetland function and area will result from project implementation. The project will restore an alluvial channel with energy grade appropriate for the position in the watershed and expected range of streamflow up to an approximate 100-year flood. The project will restore an active low-flow channel that exhibits hydrologic connectivity with a floodplain under bankfull flows and has a floodplain width that is comparable to reference reach conditions thereby providing lateral hydrologic continuity. The restored channel will provide flood conveyance of the predicted 100-year flood. The project will have no effect on municipal watersheds.

Congressionally designated areas

There are no congressionally designated areas within the project area.

Inventoried Roadless Areas or potential wilderness areas

There are no Inventoried Roadless Areas or potential wilderness areas within the project area.

Research natural areas

There are no research natural areas within the project area.

American Indians religious or cultural sites

There are no known American Indian religious or traditional heritage resource sites within the project area. Consultation with the Washoe Tribe of Nevada and California was initiated on 6 May 2022 and no concerns were expressed. The Shingle Springs Band of Miwok Indians were also consulted with 6 May 2022 and no concerns were expressed.

Archaeological sites, or historic properties or areas

A comprehensive inventory consistent with the Programmatic Agreement Among the USDA Forest Service Southwest Region (Region 5), California State Historic Preservation Officer, Nevada State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Processes for Compliance with Section 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forests of the Pacific Southwest Region (2018) (R5 PA) has been completed for the project's Area of Potential Effects (APE). The R5 PA is being applied across the entire project area: properties identified within the APE will be protected through implementation of R5 PA Standard Protection Measures, ensuring that the project will have no adverse effect on historic properties. Areas and sites of concern to the Washoe Tribe will be monitored during implementation.

The proposed action complies with the National Historic Preservation Act of 1966, as amended (54 USC 306108) and implementing regulations at 36 CFR 800 in accordance with the provisions and stipulations of the R5 PA

PUBLIC INVOLVEMENT

The action was first listed as a proposal on the quarterly LTBMU Schedule of Proposed Actions (SOPA) in April 2022. A Preconstruction Notification and Form 4345 was submitted to US Army Corps of Engineers on 12 April 2022 for approval in accordance with Section 404 of the Clean Water Act. On October 12, 2021, a pre-filing meeting was conducted with the Lahontan Regional Water Quality Control Board. A field tour was arranged that included the Lahontan Regional Water Quality Control Board and the California Department of Fish and Game and a site walk was conducted on October 20, 2021. In May 2022, correspondence continued with the

representative from Lahontan Regional Water Quality Control board and on June 6, 2022, the 401 application was submitted.

FINDINGS REQUIRED BY OTHER LAWS AND REGULATIONS

This project is consistent with the standards and guidelines contained in the 2016 LTBMU Forest Plan. The project will implement BMPs and RPMs that are compliant with any permit or waiver issued by the Lahontan Regional Water Quality Control Board. This project falls under the *Memorandum of Understanding* between TRPA and Forest Service Region 5 regarding Stream Restoration and Forest Health Projects. LTBMU staff will coordinate closely with TRPA during project planning to ensure that the project components within TRPA jurisdiction are consistent with TRPA's environmental thresholds.

ADMINISTRATIVE REVIEW

This decision is not subject to appeal or objection, pursuant to Section 431 of the Consolidated Appropriations Act of 2014.

IMPLEMENTATION DATE

Implementation may begin immediately in areas where pre-implementation survey requirements and any associated documentation have been completed. Nevada Tahoe Conservation District and the Forest Service will coordinate the required survey work as required for implementation prior to completing vegetation treatments.

Interdisciplinary coordination during project development, design, and implementation is mandated in the LTBMU Forest Plan and is based on the Forest Service's multiple use land management mandate. The project Interdisciplinary Team (IDT) will continue to work as a group throughout the implementation of this project. The IDT consists of resource specialists from planning, terrestrial and aquatic wildlife, botany, hydrology, and engineering. The IDT will continue to gather information throughout implementation to ensure appropriate RPMs are applied while the needs of this project are met.

CONTACT

For additional information concerning this decision or project, please contact Theresa Cody, Restoration Hydrologist/Program Manager, 530-543-2693, theresa.cody@usda.gov.

ERICK WALKER Date

Forest Supervisor

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at http://www.ascr.usda.gov/complaint_filing_cust.html and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

UNITED STATES DEPARTMENT OF AGRICULTURE-FOREST SERVICE
LAKE TAHOE BASIN MANAGEMENT UNIT

Biological Assessment/Biological Evaluation
Terrestrial Wildlife and Aquatic Species

Saxon Creek Aquatic Organism Passage Project
Forest Service Road 1201 (Fountain Place Road)
El Dorado County, CA
T 12 N, R 18 E, Sec 22

Prepared by: _____ Date: 23 JUNE 2022
Garth Alling, Wildlife Biologist Sierra Ecotone Solutions LLC

Reviewed by: _____ Date: _____
Sarah Muskopf, LTBMU Aquatic Biologist

Reviewed by: _____ Date: 6/24/2022
Shay Zanetti, LTBMU Forest Biologist

I. Introduction

The purpose of this Biological Evaluation is to provide an analysis of the activities proposed under the Saxon Creek Aquatic Organism Passage Project (Project) to determine whether they have the potential to affect any Federally Endangered, Threatened, Proposed and Candidate, and Forest Service Region 5 Sensitive wildlife species and their habitats (referred to collectively as TEPCS species).

The Project site is located on land managed by the US Forest Service (USFS) Lake Tahoe Basin Management Unit (LTBMU) near the City of South Lake Tahoe in El Dorado County, California (**Figure 1- Vicinity Map**). This Phase 2 Project is a follow up project to Phase 1, completed in 2018, which replaced a failing road culvert under Fountain Place Road with a bridge and realigned and restored 140 feet of upstream channel. The proposed Phase 2 Project will complete the restoration of an additional 917 feet of channel downstream of the crossing and perform necessary adaptive management on Phase 1 of the restoration to achieve hydrologic and geomorphic continuity and provide suitable passage conditions for target aquatic species through the entire restored reach. For a project description of the proposed action please refer to Section 3 below.

2. Current Management Direction and Compliance

2.1 Federal Law

Endangered Species Act (16USC 1531 et seq.): This biological evaluation is being prepared in accordance with the Endangered Species Act of 1973 as amended (16 USC 1531 et seq.). Under this act, federal agencies must ensure that any action authorized, funded, or carried out by the agency is not likely to (a) jeopardize the continued existence of any listed species or (b) result in the destruction or adverse modification of a listed species' designated critical habitat. Section 7 of the act requires federal agencies to consult the U.S. Fish and Wildlife Service concerning listed (i.e. threatened or endangered) species that fall under their jurisdiction.

Forest Service Manual, Section 2670 (USDA 2005): provides policy for the protection of sensitive species and calls for the development and implementation of management practices to ensure that species do not become threatened or endangered because of Forest Service actions. It requires a review of all activities or programs that are planned, funded, executed, or permitted for possible effects on federally listed or Forest Service sensitive species (FSM 2672.4, USDA 2005).

A Biological Evaluation (BE) provides the means to conduct this review, analyze the significance of potential adverse effects, and determine how negative impacts will be minimized or avoided for those species whose viability has been identified as a concern. The objectives of a BE are to:

- ensure that Forest Service actions do not contribute to loss of viability of any native or desired nonnative plant or animal species;
- ensure that Forest Service actions do not jeopardize or adversely modify critical habitat of Federally listed species; and
- provide a process and standard through which rare plant species receive full consideration throughout the planning process, reducing negative impacts on species and enhancing opportunities for mitigation.

2.2 Regional and Forest Plan Direction

Tahoe Regional Planning Agency (TRPA) Code of Ordinances (TRPA 2012): directs the agency to conserve threatened, endangered, and sensitive wildlife species. Projects and activities in the vicinity of sensitive plants and their associated habitat that are likely to harm, destroy or otherwise jeopardize plants or habitat are prohibited, unless their significant adverse effects are fully mitigated.

LTBMU Land Management Plan (LMP) (USDA 2016): directs the LTBMU to manage the viability of sensitive wildlife species and to ensure that these species do not become threatened or endangered because of Forest Service activities. The primary purpose of the direction is to assure that existing habitat of these species is adequately protected and that additional habitat is provided to perpetuate the species. This direction implements the protections legislated in the National Forest Management Act and the Endangered Species Act.

3. Description of the Proposed Project

3.1 Location

The Project site is located on land managed by the US Forest Service (USFS) Lake Tahoe Basin Management Unit (LTBMU) near the City of South Lake Tahoe in El Dorado County, California (**Figure 1- Vicinity Map**). Saxon Creek is a perennial tributary to Trout Creek and the Upper Truckee River with drainage into Lake Tahoe. The Saxon Creek watershed is forested open space that is primarily used for recreation. The Project study area is 4.28 acres and located within the lower portion of the Saxon Creek watershed where the creek crosses at Fountain Place Road (FS road 1201) (**Figure 2 - Existing Condition and Figure 3 - Proposed Condition**). Fountain Place Road begins at Pioneer Trail just east of the community of Meyers and provides an important access route for the public to National Forest System land.

3.2 Existing Conditions

Watershed Hydrology

The Saxon Creek watershed is primarily forested open space managed by LTBMU and used for recreation. Hydrology in Saxon Creek is snow-melt dominated and punctuated with runoff from summer thunderstorms or from rain-on-snow events. Peak flows can occur during the snow-melt season (March through June) or during a rain-on-snow event. Mean annual precipitation in the watershed is 39 inches (USGS, StreamStats).

The Saxon Creek watershed, with a mean elevation of 7,580 feet, drains approximately 7.7 square miles of forested land above the Project Area. The Project Area includes 4.28-acres and 934 feet of the Saxon Creek channel. Elevations in the Project Area range from 6,326-6,337 feet.
A longitudinal profile of the watershed was developed using the USGS 7.5-minute topographic quadrangle (Freel Peak) to assess the position and slope of the project reach in context of the greater watershed. The Project reach is located within the lower portion of the Saxon Creek watershed with slopes less than 0.02 ft/ft (< 2 percent).

Saxon Creek is an alluvial system and supports both transport and deposition of sand with some gravels. Prior to the Phase 1 Project, abundant sediment deposition occurred upstream of the 72-inch culvert under Fountain Place Road, likely as a result of backwatering during high flows. Limitations on sediment transport imposed by the culvert caused localized scour or incision

throughout Saxon Creek. However, incision is more pronounced downstream of the Fountain Place Road crossing.

Saxon Creek lacks a developed floodplain and only overtops the bank under the most extreme flood conditions. The Phase 1 Project, completed in 2018, removed the culvert and replaced it with a free-span bridge in Fountain Place Road and restored 140 feet of channel upstream. The replacement of the crossing with a free-span bridge was intended to arrest on-going incision and minimize continued groundwater lowering. However, the restoration was not sufficient to restore connectivity with the floodplain. Continued degradation of the channel may be a source of fine sediment to Lake Tahoe and may also lower groundwater tables which can lead to encroachment by lodgepole pine (*Pinus contorta*) into nearby meadows.

The incised nature of Saxon Creek downstream of the bridge reflects low channel connectivity. Natural channel connectivity describes how well stream reaches transmit physical, biological and chemical components through the watershed. High connectivity is manifested by a lack of barriers to the natural flow of water, sediment and other stream-borne constituents along the length of the channel and across the width of the channel and floodplain environment. Saxon Creek has low channel connectivity in both senses of the term.

Vegetation

Despite the degraded channel conditions, the Saxon Creek channel and banks supports a healthy riparian plant community comprised of willow (*Salix sp.)* and mountain alder (*Alnus incana ssp. tenuifolia*) with a shrub layer that includes twinberry (*Lonicera involucrata var. involucrata*), thimbleberry (*Rubus parviflorus*), and gooseberry (*Ribes sp*.). A conifer overstory of white fir (*Abies concolor*) and lodgepole pine (*Pinus contorta*) is present. Dominant grass-like species include Mountain bog bulrush (*Scirpus microcarpus*), Sierra rush (Juncus nevadensis), and multiple sedges like Nebraska sedge (*Carex nebrascensis*). The forb layer includes a diverse assemblage of species occupying the channel banks and obligate wetland species within the channel such as American brooklime (*Veronica americana*) and watercress (*Nasturtium officinale*).

Outside of the channel banks, the upland vegetation is dominated by an open Jeffrey pine (*P. jeffreyi*) forest with a sparsely distributed shrub layer of big sage (*Artemisia tridentata*) and bitterbrush (*Purshia tridentata*) and very sparse grasses and forbs. The location of the proposed project is occupied by a dense canopy of lodgepole pine,

Aquatic wildlife

Historically, juvenile salmonids and Paiute Sculpin (*Cottus beldingi*) have been documented to occur in upper reaches of Saxon Creek. This suggests that the Project reach historically exhibited conditions suitable for passage. However, the 72-inch culvert prevented passage of fish to upstream habitat for many years. The 2018 Phase 1 replacement of the culvert with a free-span bridge represented an improvement for potential fish passage in Saxon Creek. Brook trout and Paiute Sculpin have been observed in Saxon Creek (2016 LTBMU). The Phase 2 Project is needed to restore a channel that maintains continuity in hydrologic and geomorphic processes and provides for suitable passage conditions for aquatic species.

Terrestrial wildlife

Wildlife species that are known to utilize the restoration area include pine siskin (*Spinus pinus*), mountain chickadee (*Poecile gambeli*), American robin (*Turdus migratorius*), hairy woodpecker (*Leuconotopicus villosus*), stellar's jay (*Cyanocitta stelleri*) and yellow-rumped warbler (*Setophaga coronata*). Mammals observed in the area include coyote (*Canis latrans*) and Douglas' squirrel (*Tamiasciurus douglasii*).

3.3 Project Objectives and Implementation

The Saxon Creek Aquatic Organism Passage Project (Project), Phase 2, is a follow up project to Phase 1, completed in 2018. Phase 1 replaced a failing road culvert under Fountain Place Road with a bridge and realigned and restored 140 feet of upstream channel. The proposed Phase 2 Project will complete the restoration of an additional 934 feet of channel downstream of the crossing and perform necessary adaptive management on Phase 1 of the restoration. Phase 2 is necessary to restore hydrologic and geomorphic continuity to Saxon Creek and provide suitable passage conditions for target aquatic species through the entire restored reach.

Phase 2 restoration work includes the following components:

- Work performed upstream of Fountain Place Road that includes construction of a hardened access made of natural rock for bicycle and pedestrian access, repairing areas damaged by Caldor fire suppression efforts, and revegetation of the disturbed bank with planting of native plants.
- Realignment of the channel below the bridge to create a pool riffle morphology. This will increase the length of the channel from 934 to 1,130 feet.
- Excavation at steep banks to create inset floodplains and raising the channel bed profile using fill consisting of course sands, gravels, and cobbles.
- Incorporation of wood and rock structures, including larger bed materials like boulders, into the channel design to sustain riffles and facilitate fish passage.
- Use of fiber roll silt barriers, propagated sod mats and harvested sod plugs, and seeding and erosion control blankets to stabilize the site.
- Installation of debris structures including full-span or partial debris jams, log grade controls, and beaver dam analogues.
- Installation of 2 buried boulder sills, one above the bridge and one further downstream, to minimize the potential for knickpoint erosion and headcut migration.
- Removal of approximately 50 lodgepole pines > 12 inch diameter at breast height (dbh) within the riparian zone and use of these trees within the restoration.
- Fish rescue and subsequent dewatering of approximately 1,000 linear feet of channel using a nearby ditch.
- Additional revegetation work including willow staking, willow mattresses, placement of sod and seed, and installation of erosion control blankets.

The following specific conservation benefits would result from the Project:

- Habitat: realignment of the creek and creation of pool riffle morphology would increase the sinuosity of the channel and extend the length of the existing Saxon Creek from 934 feet to 1,130 feet. The incorporation of wood and rock structures into the channel would sustain riffles, facilitate fish passage, and improve access to quality fish habitat for the native salmonids and Paiute sculpin.

- Riparian and Forest Health and Climate Resilience: The Project would expand the riparian plant community by almost 8,000 sq. feet and the area of the Saxon Creek channel by 6,000 sq. feet. The improved channel morphology and increase in hydraulic connectivity would promote overbanking where possible, thereby improving riparian plant populations, reducing conifer encroachment, and promoting groundwater recharge for a more sustainable baseflow.

- Water Quality: the project would reduce the input of sediment to both Trout Creek and Lake Tahoe from channel degradation and aid in the achievement of Lake Tahoe Total Maximum Daily Load (TMDL).

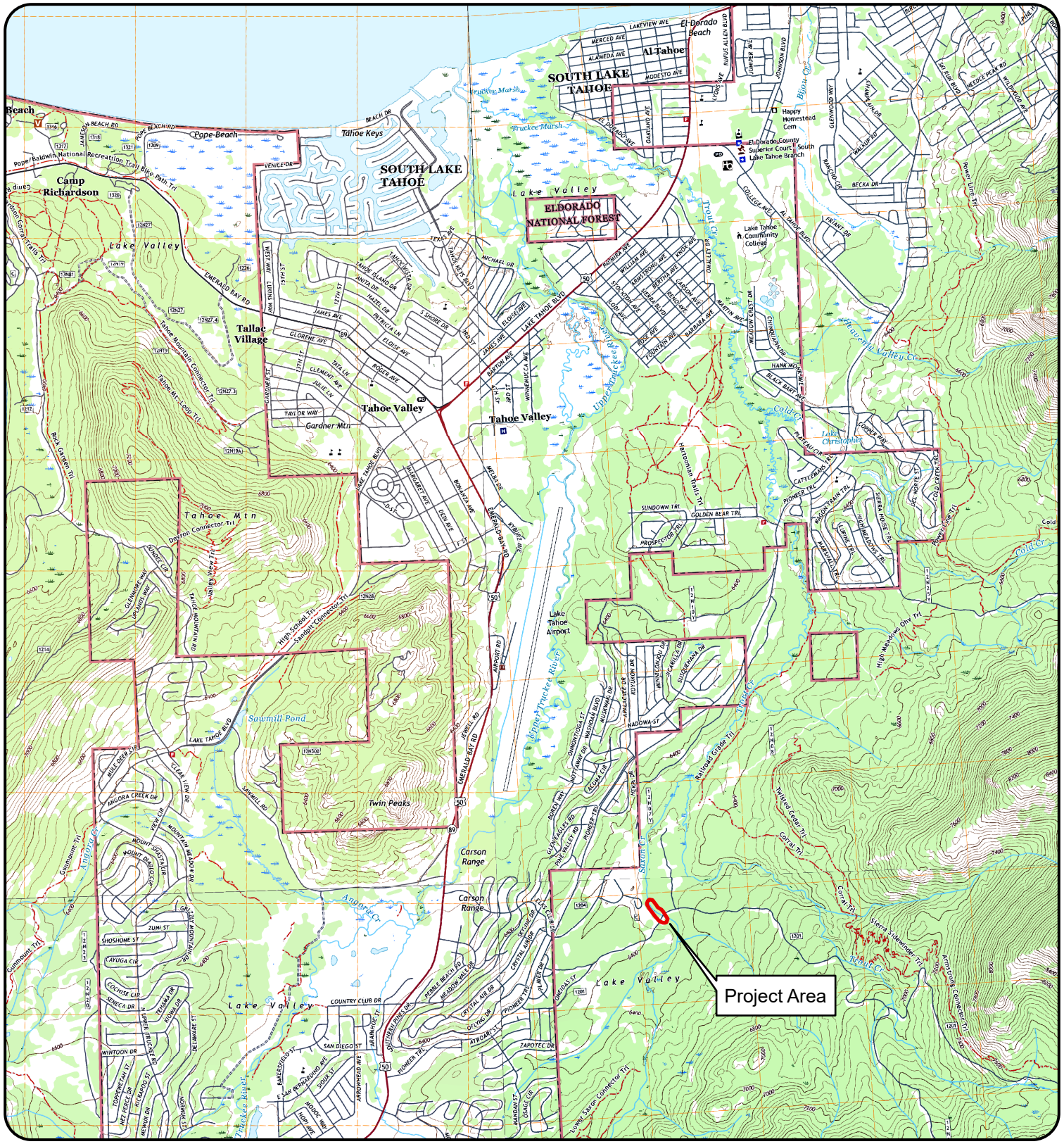
3.4 Resource Protection Measures relevant to Terrestrial and Aquatic Wildlife Species

The following resource protection measures relevant to terrestrial and aquatic wildlife species and habitat will be incorporated into the design and implementation of the project:

- WL -1: Prior to construction, all contractors, and subcontractor project personnel will receive training from qualified resource specialists regarding the appropriate work practices necessary to effectively implement the design features and to comply with the applicable environmental laws and regulations, including appropriate wildlife avoidance measures; impact minimization procedures; the importance of sensitive resources, and the purpose and methods for protecting such resources.
- WL - 2: Projects would follow all applicable protection measures identified in the US Fish and Wildlife Service Biological Opinion on Sierra Nevada yellow legged frog within the Lake Tahoe Basin (or superseding current direction).
- WL - 3: Implement LOPs to avoid or minimize disturbance to breeding activities of sensitive species. LOPs would be implemented around nests, dens, roost sites, and other areas of concentrated use (e.g., Protected Activity Centers) by these species as directed in the Forest Plan. LOPs limit the type, spatial extent, and timing of project activities permitted. The timing of LOPs is standardized by species as described below. The use of surveys to confirm non-presence of species, limitations on types of equipment used, or other measures as identified during the annual review process may be implemented in order to prevent disturbance to these species during the LOP. Only project activities that do not result in disturbance to these species may proceed.
    - a. California spotted owl PAC: March 1 - August 15
    - b. Northern goshawk PAC: February 15 - September 15
    - e. Golden eagle and Peregrine Falcon nest: April 1 - July 31
    - g. Willow flycatcher: June 1 - August 31
    - h. Pacific marten: May 1 - July 31
    - k. Townsend's big-eared bat roost: May 1 – August 31
- WL - 4: Nesting bird surveys will be conducted no more than 14 days prior to construction activities if work is scheduled to occur during the breeding season—April through August. If a nest is found, exclusionary avoidance zones (to be determined based on species-specific needs) will be created surrounding any active nests along the project alignment.

- WL – 5: Conduct pre-implementation pedestrian visual surveys of project area and a 50-meter buffer (to look for marten dens). Conduct surveys no more than three weeks before project initiation and regardless of season. Possible dens will be further monitored by remote camera in order to determine if they are being actively used by marten. Based upon the results, the Responsible Official may implement a Limited Operation Period (LOP) and/or adapt construction timelines or facility locations as determined necessary to provide adequate protection.
- WL – 6: Bat surveys will be conducted within 30 days of the start of tree removal activities in order to identify active bat roosting sites, such as snags, complex trees, trees with sloughing bark, and/or large diameter trees. If tree removal activities take more than 30 days and/or if there is a gap of 30 days between tree removal activities, surveys should be repeated. All potential roosting sites will be surveyed by a qualified biologist in order to determine usage. Specific survey methodologies will be determined in coordination with the USFS. If an active roost is identified, the Responsible Official may implement an LOP and/or adapt construction and/or tree removal timelines necessary to provide adequate protection to the individuals in the roost.
- WL - 7: Measures shall be taken to allow for exit of trapped wildlife within the project area when excavations are left open overnight. Excavations shall be fitted with ramps and/or suitable egress for small mammals that may be contained within the excavated area. Construction monitors shall inspect all excavations and areas of active construction for trapped wildlife. Wildlife found in active construction areas will be allowed to passively leave the site. If necessary, wildlife may be relocated by a qualified biologist. The construction foreman will notify the environmental monitor immediately if any wildlife enters or becomes trapped in the work area.
- WL – 8: Perform western pearlshell mussel survey prior to dewatering creek or commencing construction activities. Avoid installing temporary crossings, diverting flows or dewatering streams in occupied western pearlshell (*Margaritifera falcate*) habitat. If these activities cannot be avoided to meet project objectives, mussels will be relocated to suitable habitat 500 – 700 feet upstream of project activities prior to implementation. Suitable relocation sites will be determined in the field by Forest Service aquatic biologist and will take into consideration mussel population within and outside of the project area.
- WL - 9: If sensitive species are found during implementation, pause project activity that may affect the species and notify the project biologist within 24 hours.
- WL - 10: All trash and food will be removed from the site at the end of each workday in order to deter wildlife from entering the site.
- WL - 11: No harm, harassment, or collection of plant and wildlife species will be allowed. Feeding of wildlife will be prohibited.
- WL – 12: Salvage/recovery of fish will be conducted within anticipated construction dewatering or diversion zones operations by electro-shocking or other suitable means as developed through consultation with the LTBMU fisheries staff. Fish will be moved approximately 500 -700 feet upstream or downstream of project activities, as determined by USFS fisheries staff. Block nets will be installed to ensure fish do not move back into the project area. Nets will be cleaned one to two times daily to ensure the nets are functioning.

Figure 1 – Project Location Map



Legend

Project Area

Basemap is a mosaic of (4) USGS 7.5 minute quadrangle sheets:
Emerald Bay, CA, NV, 2021
South Lake Tahoe, CA, NV, 2021
Echo Lake, CA, 2021
Freel Peak, CA, 2022

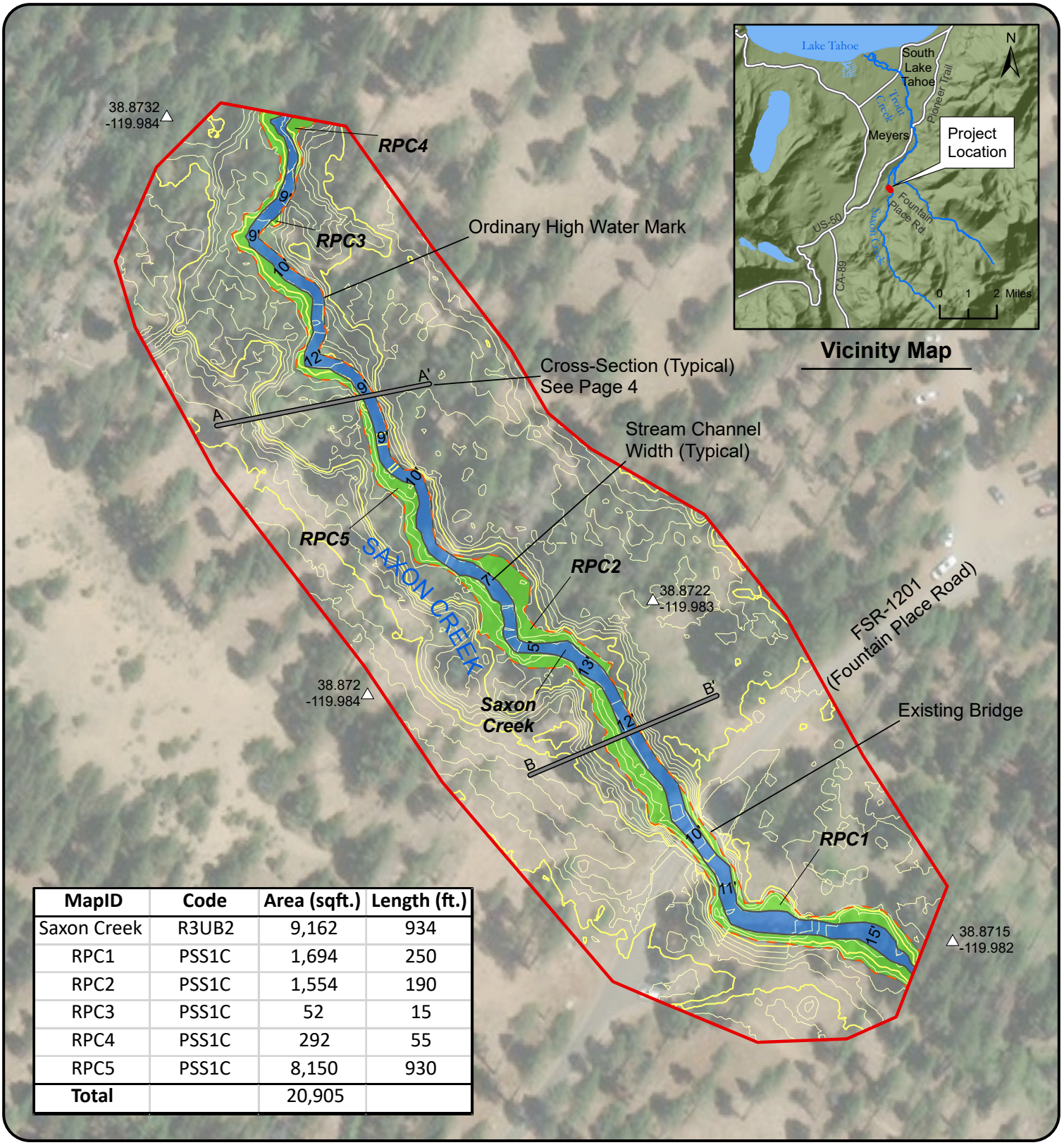
Locator Map
Saxon Creek AOP Phase II
El Dorado County, CA

Scale - 1:48,000
1"=4,000'

N

0 0.5 1 1.5 2 Miles

UTM Zone 10N	NAD 83	Prepared/Revised: February 11, 2022
Prepared by: P. Johnson, NTCD	Nevada Tahoe Conservation District	Page 1 of 4



MapID	Code	Area (sqft.)	Length (ft.)
Saxon Creek	R3UB2	9,162	934
RPC1	PSS1C	1,694	250
RPC2	PSS1C	1,554	190
RPC3	PSS1C	52	15
RPC4	PSS1C	292	55
RPC5	PSS1C	8,150	930
Total		20,905	

Legend

- Project Boundary (186,545 SF)
- Cross-Section
- Control Point
- Ex. Topographic Contours
  - 5' Contour
  - 1' Contour
- Aquatic Resources
  - Riparian plant community (11,743 SF)
  - Saxon Creek channel (9,162 SF)
  - OHWM (20,905 SF)

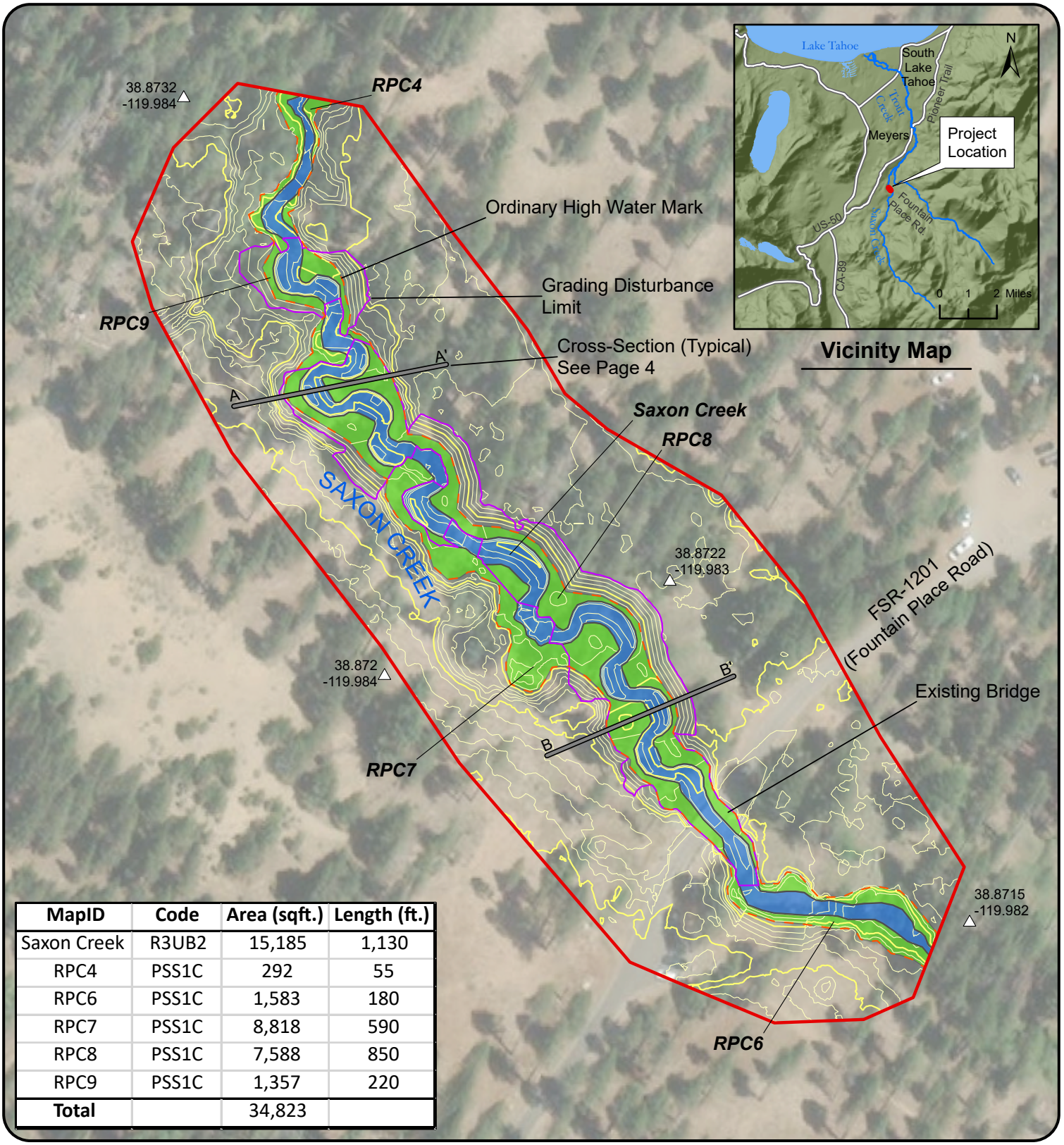
Imagery Source: Maxar, 7/2/2021

Delineation of Wetlands & Other Waters of the U.S.
Saxon Creek AOP Phase II
El Dorado County, CA

Scale - 1:1,200
1"=100'

0 50 100 150 200 Feet

CA State Plane Zone II	NAD 83	Prepared/Revised: March 11, 2022
Prepared by: P. Johnson, NTCD	Nevada Tahoe Conservation District	Page 2 of 4



MapID	Code	Area (sqft.)	Length (ft.)
Saxon Creek	R3UB2	15,185	1,130
RPC4	PSS1C	292	55
RPC6	PSS1C	1,583	180
RPC7	PSS1C	8,818	590
RPC8	PSS1C	7,588	850
RPC9	PSS1C	1,357	220
Total		34,823	

Legend

- Project Boundary (186,545 SF)
- Grading Disturbance Limit (30,000 SF)
- Cross-Section
- △ Control Point

Proposed Topographic Contours

- 5' Contour
- 1' Contour

Aquatic Resources

- Riparian plant community (19,683 SF)
- Saxon Creek channel (15,184 SF)
- OHWM (34,822 SF)

Imagery Source: Maxar, 7/2/2021

Proposed Project
Saxon Creek AOP Phase II
El Dorado County, CA

Scale - 1:1,200
1"=100'

N

0 50 100 150 200 Feet

CA State Plane Zone II	NAD 83	Prepared/Revised: March 11, 2022
Prepared by: P. Johnson, NTCD	Nevada Tahoe Conservation District	Page 3 of 4

4. Effects Analysis Methodology

4.1 Analysis Area

The Project Area is 4.28-acres and includes 934 feet of the Saxon Creek channel (**Figure 2 Project Location**) and encompasses all construction activities. Elevations in the Project Area range from 6,326-6,337 feet.

4.2 Species Considered and to Be Analyzed

This report consists of a Biological Assessment for federally listed wildlife species potentially occurring on the LTBMU and a Biological Evaluation for Region 5 Sensitive Species (updated July 3, 2013). An Official Species List of Federal Endangered and Threatened Species that may be affected by the Project was provided by the US Fish and Wildlife Service on 16 March 2022 FWS species list (see Appendix A) This list fulfills the requirements of the USFWS to provide a current species list pursuant to Section 7 of the Endangered Species Act (ESA) to determine the effects of the Saxon Creek Aquatic Organism Passage Project. The following threatened (T), endangered (E), proposed (P), candidate (C) species, and Forest Service Sensitive (FSS) species were considered:

Federally listed Terrestrial Wildlife and Aquatic Species Pursuant to ESA:

Endangered:

- Sierra Nevada Yellow-legged Frog (*Rana sierrae*)
- Critical Habitat for Sierra Nevada Yellow-legged Frog

Threatened:

- Lahontan cutthroat trout (*Oncorhynchus clarkia henshawi)*

Candidate:

- Monarch butterfly (*Danaus plexippus*)

Region 5 Forest Service Sensitive Wildlife and Aquatic Species:

Mammals

- North American wolverine (*Gulo gulo luteus*)
- Pacific marten (*Martes caurina*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Pallid bat (*Antrozous pallidus*)
- Fringed myotis (Myotis thysanodes)

Birds

- Bald Eagle (*Haliaeetus leucocephalus*)
- Northern Goshawk (*Accipiter gentiles*)
- California Spotted Owl (*Strix occidentalis occidentalis*)
- Great Gray Owl (*Strix nebulosa*)
- Willow Flycatcher (*Empidonax traillii adastus*)

Invertebrates

- Western bumble bee (*Bombus occidentalis*)
- Monarch butterfly (*Danaus plexippus*)

Fish

- Lahontan Lake tui chub (*Gila bicolor pectinifer)*

Invertebrates

- Great Basin rams-horn (*Helisoma (Carninifex) newberryi*)

4.3 Analysis Methods and Consultation to Date

The distribution and habitat associations of the special-status species were reviewed using records from the California Natural Diversity Database, LTBMU-wide wildlife program surveys, and current range maps for species. Following the review, several species were excluded from further analysis. The LTBMU is outside the geographic range of the following species:

- North American wolverine

On February 28, 2008, a detection of a lone male wolverine occurred approximately 14-19 miles northwest of the LTBMU near Truckee, California. This was the first verified record of a wolverine from California since 1922. Agency biologists and researchers used genetic samples (i.e. hair and scat) to determine that the wolverine was most closely related to, and most likely came from, a population on the western edge of the Rocky Mountains rather than either the historic California population (compared to samples taken from museum specimens) or contemporary northern Cascades (Washington) population (Moriarty et al. 2009). This attempted dispersal event may represent a continuation of the wolverine expansion in the contiguous United States and other wolverines may have travelled to the Sierra Nevada and remain undetected (USFWS 2013). However, there is no evidence that California currently hosts a wolverine population or that female wolverines have made, or are likely to make, similar dispersal movements (USFWS 2013). There are no current occurrences on the LTBMU. There are approximately 50,000 acres of wolverine habitat on the LTBMU (USDA LTBMU 2016a). Because this species is not known to currently occur on the LTBMU, consultation is not necessary at this time.

There is no suitable habitat and no known occurrences of the following species in or within 0.5 mile of the Project Area:

- great gray owl
- willow flycatcher
- bald eagle
- Lahontan Lake tui chub
- Great Basin rams-horn

Therefore, effects to these six species would not occur and these species will not be further discussed and thus have a determination of "**no effect**" for this project.

USFS and USFWS had a coordination meeting on January 11, 2022 to discuss a suite of projects that could be requiring some level of consultation in FY22. Saxon was discussed. Sarah Muskopf and Chad Mellison (ESA Biologist USFWS) followed up a on conversation regarding short term impacts to suitable habitat for Sierra Nevada yellow- legged from on January 12, 2022. Based on a conversation Chad Mellison (Reno Field Office) with the USFWS Sacramento Office, it was confirmed that projects in suitable habitat where no SNYLF have been detected after completing

USFWS Biological Opinion protocols that have short term impacts to suitable habitat can reach a no effect determination with appropriate rational.

5. Species Accounts and Effects of the Proposed Action

5.1 Species Accounts

Species and occurrence information for Lahontan cutthroat trout, spotted owl, northern goshawk, Pacific marten, western bumble bee, Sierra Nevada yellow-legged frog, and the three sensitive bat species (Fringed, Pallid, Townsend's big-eared) are discussed below.

Lahontan Cutthroat Trout

The Lahontan cutthroat trout (*Oncorynchus clarki henshawi*); LCT) was listed as an endangered species in 1970. In 1975, under the Endangered Species Act of 1973, the LCT was reclassified as threatened to facilitate management and to allow for regulated angling. In 1995, the U.S. Fish and Wildlife Service (FWS) released its recovery plan for LCT, encompassing six river basins within LCT historic range.

Historically, the Lahontan cutthroat trout was endemic to the physiographic Lahontan basin of northern Nevada, eastern California, and southern Oregon (USDI 1995). In California, the subspecies historically occurred in the streams and lakes of the Lahontan system, on the east side of the Sierra Nevada. The current distribution is a fraction of the historic distribution. Lake Tahoe's population was extinct by 1930. In the summer of 2011, the Nevada Department of Wildlife NDOW planted LCT on Lake Tahoe's Nevada shore where they are presumed to occur in the lake waters and tributary creeks. However, competition and inbreeding with introduced trout species, predation by introduced species, and disease decrease the likelihood that this fish species occupies these streams (NNHP 2019).

Habitat Requirements and Natural History: Lahontan cutthroat trout are obligatory stream spawners and spawn from April to July, with eggs being deposited in one fourth to one half inch gravels within riffles, pocket water, or pool crests (USDI 1995). In the Sierra Nevada, native Lahontan habitat primarily consists of eastern high mountain meadow streams (over 6,000 feet elevation). Optimal habitat for Lahontan cutthroat trout is characterized by: clear cold water and relatively stable summer water temperatures, with an average maximum summer temperature of less than 43 deg F to 72 deg F. and variations of no more than 37 deg F.; one to one pool to riffle ratios and a relatively silt free, rocky substrate in the riffle run area; well vegetated, stable stream banks; approximately 25 percent of the stream area providing cover; and relatively stable water flow regimes, with daily fluctuations less than 50 percent of the average annual daily flow (Hickman and Raleigh 1982).

Occurrence/Survey History in Project Area

Occupied habitat for LCT is present outside the proposed project area within the waters of Lake Tahoe and the Upper Truckee River and Taylor Creek (LTBMU 2016). Lake Tahoe is outside of the defined work areas surrounding the Project Area. Saxon Creek provides suitable habitat but LCT are not able reach the project area due to a barrier at the Trout Creek/Pioneer Trail crossing (LTMBU 2011) No LCT have been observed during surveys in the Project area.

California Spotted Owl

The California spotted owl (*Strix occidentalis occidentalis*) is a FSS. The range of the California spotted owl is considered to include the southern Cascades, the entire Sierra Nevada province of California, all mountainous regions of the southern California province, and the central Coast Ranges at least as far north as Monterey County (Verner, et al. 1992). In the Sierra Nevada, the major forest types comprising known and potential habitat include mixed conifer, red fir, ponderosa pine/hardwood, eastside pine, and foothill riparian/hardwood forests (Verner, et al. 1992). Mixed conifer forest is the most abundant forest type and contains most of the known owl sites. Nest stands typically include a mixture of tree sizes with a number of very large, tall, old trees and usually at least two canopy layers. Large snags and an accumulation of downed woody debris are usually present. Foraging habitat is similar in structure and composition, but also comprises more open stands with canopy covers down to 40 percent.

Spotted owls may have more than one nest stand within their home range, and nest stands may be used intermittently for many years. Nesting behavior is initiated in February or early March when pairs begin roosting together and calling to each other more frequently at dusk before foraging or when returning to roost before dawn (Forsman 1976; Forsman et al. 1984). Egg-laying occurs in March or April. The average incubation period is 30 ± 2 days, hatching peaks May 7-21 (Sierra Nevada), and fledging (i.e., defined as young leaving the nest) occurs generally when the nestlings are 34-36 days old (Forsman et al. 1984). The post-fledging dependency period extends through late summer; dispersal from the natal site occurs in September or October (Gutierrez and Carey 1985; Miller 1989).

Throughout the Sierra Nevada, California spotted owl nesting habitat is protected in PACs. The PAC includes 300 acres of the highest quality nesting habitat available, and the most recent nest site or activity center within a spotted owl breeding territory as described in management direction for the forest (USDA 2004). A PAC size of 300 acres corresponds with the following two criteria reported by Verner et al. (1992) in the California Spotted Owl report: 1) the size of the nest stand and adjacent suitable nesting stands; and 2) the area encompassing approximately 50% of radio-telemetry locations within spotted owl territories on the Sierra National Forest (USDA 2001). The amount of high and moderate capability nesting, roosting, and foraging habitat within each spotted owl PAC varies according to what is available, given existing conditions, on the forest.

Occurrence/Survey History in Project Area

Approximately 5-6 pairs (17-18 individuals) of California spotted owls are known to occur in the Lake Tahoe Basin (S. Zanetti pers. comm. 2014). Two PACs are located in close proximity to the project area; the Hellhole PAC (approximately 2,500 feet to the south of the project), and the Cold Creek PAC (approximately 7,500 feet to the east of the project). The most recent detection was a single individual along the Railroad Grade trail in 2015 approximately 1.25 miles to the north.

Northern Goshawk

The northern goshawk (*Accipiter gentilis*) is a Forest Service Sensitive species. The species inhabits a broad range of forested communities, including mixed conifer, true fir, montane riparian, Jeffrey pine, ponderosa pine, and lodgepole pine forest. Within California, this species occurs in the Sierra Nevada, Klamath, Cascade, Inyo-White, Siskiyou, and Warner Mountains, and the North Coast Ranges (Zeiner, et al. 1990; USFS 2000). Goshawks may also possibly inhabit suitable habitats in the Transverse Ranges and other mountainous areas in southern California (Zeiner, et al. 1990; USFS 2000).A study of the Sierra Nevada conducted in the Lake Tahoe Basin found that nest-site areas used by northern goshawks were characterized by high canopy closure, high

densities of trees in the >60-100 centimeter and >100 centimeter diameter-at-breast-height (dbh) classes, low densities of 5-30 centimeter dbh trees, and low shrub/sapling and ground cover (Keane 1999). Other site factors, including northerly aspects, proximity to water or meadows, forest openings, and low slope angles, have also been associated with nest sites in numerous studies, although these factors vary widely (USFS 2000). Snags and logs are considered important components of northern goshawk foraging areas, as they provide habitat for prey populations (USDA 1988b).

Northern goshawks are known to prey on over 50 species of birds and mammals throughout their western range (Graham et al. 1994). Prey size varies little between geographic regions (Boal and Mannan 1994). In the Lake Tahoe region, primary prey species include Douglas squirrel (*Tamiasciurus douglasii*), Steller's jay (*Cyanocitta stelleri*), northern flicker (*Colaptes auratus*), and ground squirrel (*Spermophilus* spp.). Other prey species include American robin (*Turdus migratorius*), blue grouse (*Dendragapus obscurus*), other woodpeckers, and other squirrels (Keane1999).

The home range increases in size from the breeding season to the non-breeding season and is generally larger for males than for females throughout the year. During the breeding season, the average home range of goshawks in the LTBMU is 6,745 acres for males and 5,040 acres for females. Non-breeding season home ranges averaged 23,448 acres for males and 13,888 acres for females (Keane 1999). Home ranges include areas with a greater proportion of larger tree size classes and higher density classes than that randomly available across the landscape.

In the Sierra Nevada, northern goshawk nesting habitat is protected by the delineation of PACs. Northern goshawk PACs are delineated to include the best available 200 acres of nesting habitat, and the most recent nest site and alternate nests within a goshawk breeding territory as described in management direction for the forest (USDA 2001; USDA 2004). The size of the PACs corresponds with criteria reported by Detrich and Woodbridge (1994) such that territory occupancy rates of approximately 100% were associated with clusters of nest stands totaling 150-200 acres (USDA 2001). The total acreage included in goshawk PACs on the LTBMU varies as "non-forest vegetation (such as brush and meadows) should not be counted as part of the 200 acres" (USDA 2004). There are currently 38 goshawk PACs on the LTBMU. In the last 10 years (2006-2015), goshawks have been detected in 31 (82%) of the 38 PACs that were monitored.

Occurrence/Survey History in Project Area

Two PACs are located within one mile of the project site; Upper Trout Creek (Hellhole) and Lower Saxon Creek. The Upper Trout Creek PAC had the most recent active nest in 2003 and the most recent Northern goshawk detection was in the Lower Trout Creek PAC in 2019.

Pacific Marten

The Pacific marten (*Martes caurina*) is a FSS. Distribution within the Sierra Nevada range is continuous at high elevations, at lower elevations there is a large gap (historic and current) in distribution in Tuolumne County and new large gaps where none were recorded previously (Zielinski et al. 2005).

Marten occur in suitable habitats throughout the Lake Tahoe Basin, predominantly on the western and southern sections (Spencer and Rustigian-Romsos 2012). Suitable montane habitats in the northern Sierra Nevada, including the Lake Tahoe basin, occur between 3,400 and 10,400 feet

elevation and between 4,000 to 13,100 feet in the southern portion of the range (Schempf and White 1977). Suitable habitat is considered dense (60-100% canopy closure), multi-storied, multi-species late seral stage coniferous forest of red fir, red fir/white fir mixtures, lodgepole pine, and mixed conifer (Freel 1991). Complex structure near the ground surface and the presence of snags are also considered key components of suitable marten habitat.

The southern distribution of martens in the Lake Tahoe Basin is most likely a peninsular distribution, based on the urbanization in the southern part of the Basin. The Luther Pass area is likely where martens are able to travel through in a peninsular distribution from the southwest portion of the Basin. This area has no potential for input of martens from the north, south, or east due to the lack of suitable habitat combined with the high amount of urbanization (Slauson et al. 2017). Peninsular distributions of martens are more reliant on the existing conditions within their distribution to support their persistence than the west shore population, which is better connected regionally (Slauson et al. in prep).

Occurrence/Survey History in Project Area

The closest marten detection was from a camera station placed approximately 3,500 to the southeast of the project site in June of 2017 (LTBMU GIS 2022). No site-specific surveys for forest carnivores have occurred within the project area. Known pacific marten occurrences have been recorded to the east of the project area

Western Bumble Bee

The western bumble bee (*Bombus occidentalis)* is a FSS. There are 94 collection records for the western bumble bee on 11 national forests in Region 5, including seven on the LTBMU (Hatfield 2012). There is only one record of the western bumble bee on the LTBMU since 2000.

Historically, the western bumble bee was one of the most broadly distributed bumble bee species in North America (Cameron et al. 2011). The species was broadly distributed across western North America along the Pacific Coast and westward from Alaska to the Colorado Rocky Mountains (Thorp and Shepard 2005, Koch et al. 2012). Currently, the western bumble bee currently occurs in all states adjacent to California but is experiencing severe declines in distribution and abundance due to a variety of factors including diseases and loss of genetic diversity (Tommasi et al. 2004, Cameron et al. 2011, Koch et al. 2012).

The overall status of populations in the west is largely dependent on geographic region: populations west of the Cascade and Sierra Nevada mountains are experiencing dire circumstances with steeply declining numbers, while those to the east of this dividing line are more secure with relatively unchanged population sizes. The reasons for these differences are not known.

Bumble bees are threatened by many kinds of habitat alterations that may fragment or reduce the availability of flowers that produce the nectar and pollen they require, and decrease the number of abandoned rodent burrows that provide nest and hibernation sites for queens. Major threats that alter landscapes and habitat required by bumble bees include agricultural and urban development. Exposure to organophosphate, carbamate, pyrethroid and particularly neonicotinoid insecticides has recently been identified as a major contributor to the decline of many pollinating bees, including honey bees and bumble bees (Henry et al. 2012, Hopwood et al. 2012). In the absence of fire, native conifers encroach upon meadows and this can also decrease foraging and nesting habitat available for bumble bees.

Occurrence/Survey History in Project Area

No surveys have been performed for western bumble bees within the Project area or adjacent areas. Nothing is known about the status of the species in the project area. Suitable foraging habitat includes the riparian area surrounding Saxon Creek that supports a variety of flowering plants.

Monarch Butterfly

Range, Distribution, and Status: The Monarch butterfly (*Danaus plexippus*) is a Candidate species under the ESA (listed 17 December 2020), and therefore also an LTBMU sensitive species. The monarch butterfly is a candidate species and not yet listed or proposed for listing. There are no section 7 requirements for candidate species however a discussion has been provided for this species below.

Adult monarch butterflies are large and conspicuous, with bright orange wings surrounded by a black border and covered with black veins. The black border has a double row of white spots, present on the upper side of the wings. Adult monarchs are sexually dimorphic, with males having narrower wing venation and scent patches. The bright coloring of a monarch serves as a warning to predators that eating them can be toxic. (USFWS 2021)

During the breeding season, monarchs lay their eggs on their obligate milkweed host plant (primarily *Asclepias* spp.), and larvae emerge after two to five days. Larvae develop through five larval instars (intervals between molts) over a period of 9 to 18 days, feeding on milkweed and sequestering toxic chemicals (cardenolides) as a defense against predators. The larva then pupates into a chrysalis before emerging 6 to 14 days later as an adult butterfly. There are multiple generations of monarchs produced during the breeding season, with most adult butterflies living approximately two to five weeks; overwintering adults enter into reproductive diapause (suspended reproduction) and live six to nine months. (USFWS 2021)

Occurrence/Survey History in Project Area

There is potential habitat for monarch within the project area in the form of flowering plants. No milkweed (*Asclepias*) species were observed during the plant survey of the project area.

Sierra Nevada Yellow-Legged Frog

On 29 April 2014, the USFWS designated the Sierra Nevada yellow-legged frog (*Rana sierrae*) as an endangered species under the Endangered Species Act of 1973. This species is also a FSS. Sierra Nevada yellow-legged frog inhabits ponds, lakes, and streams associated with montane riparian, lodgepole pine, subalpine conifer, and wet meadow communities (Zeiner et al. 1988, Jennings and Hayes 1994). Open stream and lake margins that gently slope to a depth of about 2 to 3 inches appear to be preferred (Jennings and Hayes 1994). In the Sierra Nevada, this species' elevational range extends from approximately 4,500 to 12,000 feet (Stebbins 1985, Jennings and Hayes 1994).

In the Sierra Nevada, breeding typically occurs from May to August depending on local conditions (Stebbins 1985). In still water environments, such as pools, eggs are deposited as unattached masses in shallow water; however, in streams the egg masses may be attached to the substrate (Jennings and Hayes 1994). Due to the short active season and the brevity of the intervals during which the aquatic habitat maintains warm temperatures, larvae (tadpoles) may

over-winter up to two times before attaining metamorphosis (Mullally and Cunningham 1956, Jennings and Hayes 1994).

Occurrence/Survey History in Project Area

Suitable habitat for Sierra Nevada yellow-legged frog (SNYLF) has been identified in the project area. Suitable habitat is defined in the Programmatic Biological Opinion (December 19, 2014, Ref #:FFO8ESMFOO-2014-F-0557) and *includes permanent water bodies or those hydrologically connected with permanent water such as wet meadows, lakes, streams, rivers, tarns, perennial creeks, permanent plunge pools within intermittent creeks, and pools, such as a body of impounded water contained above a natural dam. Mountain yellow-legged frogs have been observed using surrounding uplands up to a distance of 82 feet. When water bodies occur within 984 feet of one another, as is typical of some high mountain lake habitat, suitable habitat for dispersal and movement includes the overland areas between lake shorelines. In mesic areas such as lake and meadow systems, the entire contiguous or proximate areas are suitable habitat for dispersal and foraging.*

Surveys have been performed in the Saxon Creek project area by Sierra Ecotone Solutions LLC personnel in 2021 (one survey on July 2), 2014 (two surveys: July 29 and Oct 8) and in 2016 (June 23 and met 80% snowpack year in order to meet protocol). No Sierra Nevada yellow-legged frog were observed in the survey year. Sierran tree frog (*Pseudacris sierra*) adults were observed. Known existing occurrences (Hell Hole) of Sierra Nevada yellow-legged frog are within 3.5 miles from the Project Area and is occupied. Suitable habitat exists adjacent in the project area. No Sierra Nevada yellow-legged frogs were detected during protocol surveys. No critical habitat exists in the project area.

Pallid Bat

The pallid bat (*Antrozous pallidus*) is a FSS species. Throughout California, the pallid bat is usually found in low to middle elevation habitats below 6000 feet (Barbour and Davis 1969; Philpott 1997), however, the species has been found up to 10,000 feet in the Sierra Nevada Mountains. The range in California is statewide and it is predicted to occur on every National Forest in the Region (CWHR 2008).

At high elevation, the species is associated with conifer forests (Rambaldini 2005). Miner and Stokes (2005) suggest that riparian, chaparral, oak savannah, and cultivated areas are preferred habitat types, and Baker et al. (2008) further suggest open pine forest within higher elevations. CWHR (2008) suggest that all habitat types within California provide suitable foraging habitat for pallid bats and the following habitats found in the Lake Tahoe Basin provide suitable reproduction and roosting habitats: barren, mixed conifer, Sierran mixed conifer, urban, and white fir. Crevices in rock outcrops are the primary roost sites, although buildings, caves, tree hollows, and mines are also used (Hermanson and O'Shea 1983; Rambaldini 2005; Stephenson and Calcarone 1999; Miner and Stokes 2005; NatureServe 2011).

In forested habitats in the Sierra Nevada Mountains, Baker et al. (2008) found pallid bats in areas with greater availability of Sierran mixed conifer and white fir than open meadows, grasslands, barren areas, and montane chaparral. They caution, however that they were unable to discern actual

habitat use at a finer scale. Johnston and Gworek (2006) found pallid bat activity in the Sierra Nevada Mountains greatest where there was open mixed conifer forest near short grassland habitat. Roosts located were primarily in incense cedar trees.

Occurrence/Survey History in Project Area

No surveys have been performed for pallid bats within the Project area. Suitable habitat is present within the project area; however it will not be impacted as a result of project implementation. Two detections of pallid bats have been recorded within 1 mile of the project; one detection in August 2017 approximately 750' from the project site and the other in August of 2017 approximately 3,400 feet from the project site.

Fringed Myotis

The fringed myotis (*Myotis thysanodes*) is a FSS. The species is found in western North America from south-central British Columbia to central Mexico and to the western Great Plains (Natureserve 2012). In California, it is distributed statewide except the Central Valley and the Colorado and Mojave Deserts and is associated with pinyon-juniper, valley foothill hardwood and hardwood-conifers (CWHR 2008). Recent detections of fringed myotis in 2014 have been recorded in the Spooner Summit area at an elevation of 7,000-7,600 feet, approximately 11 miles to the north of the Project area (NDOW 2014).

The fringed myotis uses caves, crevices, cliffs, mines, large decadent trees, and bridges and buildings for roosting, hibernacula, and maternity colonies (Keinath 2004, Weller 2005, CWHR 2008). They day and night roost under bark and in tree hollows, and in northern California they day roost in snags only (Keinath 2004; Weller and Zabel 2001). Medium to large diameter snags are important day and night roosting sites Weller and Zabel 2001). There is increased likelihood of occurrence of this species as snags greater than 30 cm in diameter increases and percent canopy cover decreases (Keinath 2004). Large snags and low canopy cover, typical of mature, forest habitat types, offer warm roost sites (Keinath 2004). Decay classes were two to four (Keinath 2004) in ponderosa pine, Douglas-fir, and sugar pine.

Habitat alteration threatens this species because it is dependent on older forest types. Keinath (2004) summarized this in the Region 2 conservation assessment for the fringed myotis, indicating that this species depends on abundant large diameter snags and trees with thick loose bark. Thus, harvesting old growth and removal of snags for safety or fuel reduction reasons may reduce available roost sites.

Occurrence/Survey History in Project Area

No surveys have been performed for fringed myotis bats within the Project area. Large snags within the project area may be suitable for roost sites. No detections have been recorded within one mile of the project area.

Townsend's Big-Eared Bat

Townsends big-eared bat (*Corynorhinus townsendii*) is a FSS. The species occurs throughout the west, and is distributed from the southern portion of British Columbia south along the Pacific coast to central Mexico and east into the Great Plains, with isolated populations occurring in the south and southeastern United States. It has been reported in a wide variety of habitat types ranging from sea level to 3,300 meters. Habitat associations include: coniferous forests, mixed meso-phytic

forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types.

Distribution is strongly correlated with the availability of caves and cave-like roosting habitat, with population centers occurring in areas dominated by exposed, cavity forming rock and/or historic mining districts. Its habit of roosting on open surfaces makes it readily detectable, and it is often the species most frequently observed (commonly in low numbers) in caves and abandoned mines throughout its range. It has also been reported to utilize buildings, bridges, rock crevices and hollow trees as roost sites. Summer maternity colonies range in size from a few dozen to several hundred individuals. Foraging associations include: edge habitats along streams, adjacent to and within a variety of wooded habitats. It often travels large distances while foraging, including movements of over 10 miles during a single evening. It is a moth specialist with over 90% of its diet composed of lepidopterans.

Occurrence/Survey History in Project Area

No surveys have been performed for Townsend's big-eared bat within the Project area. Suitable roosting habitat is present within the project area in the form and hollow snags. No detections have been recorded within one mile of the project area.

5.2 Direct and Indirect Effects

Lahontan Cutthroat Trout

The proposed Project will result in beneficial effects to the suitability of the instream habitat for Lahontan cutthroat trout (LCT). However, there will not be any direct or indirect impacts to the species as there are no LCT within Saxon Creek due to the culvert at the Trout Creek/Pioneer Trail crossing that blocks the passage of aquatic organisms. The project will not affect Lahontan cutthroat trout from Project activities due to the absence of this species in the project site and the current inability of the species to access the project area due to road crossing barriers downstream.

California Spotted Owl

37 trees are proposed for removal in association with the restoration of Saxon Creek. Two of these 37 trees are larger than 36" dbh. The removal of these large lodgepole pine trees is not expected to result in the degradation of habitat suitability for California spotted owl as the project lies outside the two PACs that are nearby. Habitat suitability for spotted owls within the project area is not considered high quality and the project will not result in negative impacts to the species. Therefore, the Project will not affect suitable habitat for owls, would not directly affect individuals, and is not likely to result in a trend toward Federal listing or loss of viability for the California spotted owl.

Northern Goshawk

The proposed project will result in the removal of 37 trees larger than 12" dbh. Removal of trees associated with the creek restoration will not result in the loss of habitat suitability for northern goshawk. The proposed restoration will result in an overall increase in riparian habitat and health. Northern goshawk that may utilize the project area for foraging may benefit from an enhanced riparian habitat through the increase of prey species as a result of restoration. The loss of the

proposed trees will allow for an increased riparian corridor and enhance the biodiversity of the area, thereby indirectly benefitting northern goshawk that may occupy the Lower Saxon Creek PAC. As the project is located outside the Lower Saxon Creek PAC, the Project would not directly affect individuals, and is not likely to result in a trend toward Federal listing or loss of viability for the northern goshawk.

Pacific Marten

Currently forested areas with large diameter trees within the project could support denning and foraging marten. Marten may not find the project area suitable for denning because of their proximity to large openings and active human usage with Fountain Place Road and the bicycle trailhead in close proximity to the project area. However, marten are known to forage on the border of openings.

The proposed action would increase human traffic in the area during construction (summer season after the young are born) and increase the noise from both humans and equipment. The increased human presence during the summer months also coincides with marten breeding activity. These impacts will be minimized with implementation of resource protection measures that are listed above notably WL - 5 that requires the project area and habitat adjacent to the project area be surveyed for reproductive activity before construction activities.

The proposed project through enhancement of riparian habitat will result in increased biodiversity of plant and animal species in the immediate area. Marten that may utilize the project area for foraging may benefit from an enhanced riparian habitat through the increase of prey species as a result of restoration. Prior to commencement of construction activities the project area will be surveyed for marten den sites as outlined in the design feature WL – 5 above. If an active den site is located, a limited operating period will be implemented. The project may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability for Pacific marten.

Western bumble bee

Suitable foraging areas for western bumble bee are located in the restoration area. The temporary impact resulting from the project through the loss of foraging area (flowering plants within the project site) is not likely to result in the loss of individuals. The project will result in an overall increase in riparian habitat and will likely result in an increase in the number of flowering plants as a result. The completed project will result in a benefit to this species through the addition of potential nectar sources. Therefore, the Proposed Project may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability of Western bumble bee.

Monarch butterfly

Suitable foraging areas for monarch butterfly are located in the restoration area. The temporary impact resulting from the project though the loss of foraging area (flowering plants within the project site) is not likely to result in the loss of individuals. The project will result in an overall increase in riparian habitat and will likely result in an increase in the number of flowering plants as a result. The completed project will result in a benefit to this species through the addition of potential nectar sources. Therefore, the Proposed Project or Alternatives may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability of monarch butterfly.

Sierra Nevada Yellow-Legged Frog

Protocol-level surveys (2017, 2020 and 2021) were performed 1000' downstream and upstream of the project site. No SNYLF were detected in any of the surveys. The project site is suitable habitat. The proposed project will increase the length of the creek and wetland areas adjacent to the creek bed and will result in increased area suitable for SNYLF in the future. Impacts to the suitable habitat will be temporary in nature while the creek is dewatered, diverted and active grading of the creek bed and adjacent banks occurs. Upon completion of the project and subsequent growth of the proposed plantings and re-establishment of the sod and plants along the banks, the overall quantity (a net increase in 13,918 square feet of wetland) and quality of the habitat will increase. As the project area is not occupied by SNYLF as shown from three years of protocol surveys as well as the known existence of non-native trout, known to predate, displace, and prevent the establishment of SNYLF, the Project will have no effect on the species, There will be only a temporary impacts to the existing suitable habitat; however, the result of the restoration will be an overall increase in SNYLF habitat.

There is no critical habitat for SNYLF located within or adjacent to the project site. The closest critical habitat is located approximately 5 miles to the west south west of the project area at Echo Lakes.

Townsend's big-eared bat, Fringed Myotis bat, and Pallid bat

Although no surveys have been performed in the Project area, the suitability of the surrounding habitat of the proposed projects leaves the possibility open for these species to be disturbed by project implementation. All three species are sensitive to human disturbance while roosting and may roost under the bark of the large trees that are proposed for removal. Inclusion of Design Feature WL-6 will decrease the impacts to roost sites. Overall the Project may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability for Townsned's big-eared, fringed myotis or pallid bat.

5.3 Cumulative Effects

Past, present and reasonable foreseeable future management of the area surrounding the Project site in the Saxon, Trout Creek and Upper Truckee River watersheds, were analyzed to determine if a cumulative effect would exist when combined with the Saxon Creek Aquatic Organism Passage Project.

Cumulative timber losses that occur as a result of fire within and adjacent to the project vicinity would reduce available habitat for associated wildlife species and would compound the effects of the project. Lightning is the primary cause of fires in the upper elevations, while human-caused fires are more prevalent in the lower elevation areas that are more accessible to the public. The Caldor Fire burned within 1/3 of a mile of the project site and resulted in loss of suitable habitat for all wildlife species that occupied the area. The increase of human use of the area as a result of the proposed project may result in an increase in chances of fires within the project area during construction.

Timber thinning practices established by the Forest Service's Land Management Plan require the harvest of excess or unwanted trees within accessible immature stands where the cut trees can be harvested for consumptive purposes. The primary purposes of thinning are to maintain optimum growing conditions to assure healthy trees and to reduce the potential for rapid and intensive wildfire spread due to excessive fuel loading. This additional loss of habitat would compound the minor forest habitat lost due to the proposed restoration of Saxon Creek.

The timber management practice standards and guidelines contained within the LTBMU LMP (2016) require that timber cuts be planned based on land allocations to insure prevention of destruction from wildlife and to preserve benefits for vegetative diversity, wildlife habitat, visual quality, recreation opportunities and watershed protection. Based on TRPA and Forest Service regulations, the enhancement of older stands would continue in the Lake Tahoe Basin and would result in an overall increase of late seral forest types associated with sensitive species habitat over time.

Aside from the minor loss of forested habitat, the project will provide an overall increase in riparian and wetland habitat and offer beneficial effects to the aquatic environment. Temporary impacts during construction will result, however the benefits of the project far outweigh the impacts during implementation.

6. Determination

The determinations included in Table 3 follow the guidelines and definitions established by the Pacific Southwest Region of the Forest Service (USDA 1996) for federally listed and sensitive species.

The following determinations were found based on the description of the proposed action. The proposed Project **will not affect** great gray owl, willow flycatcher, bald eagle, Lahontan Lake tui chub, Great Basin rams-horn and North American wolverine because the proposed action is outside the current range of these species or because there is no suitable habitat in or within 0.5 miles of the Project area.

The proposed Project **will not affect** the Sierra Nevada yellow-legged frog **or its critical habitat**.

The proposed Project **will not affect** the Lahontan cutthroat trout.

The proposed Project **will not affect** California spotted owl and northern goshawk.

The proposed Project **may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability** for pallid bat, Townsend's big-eared bat, and fringed myotis because project design features would protect individuals if they were detected in the project area (therefore no direct impacts to individuals), and any modifications to habitat would be relatively minor when compared to the availability of suitable habitat in the vicinity and the greater Lake Tahoe Basin.

The proposed Proejct **may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability** for western bumble bee or monarch butterfly due to temporary impacts associated with loss of foraging area/habitat during construciton.

For Pacific marten, direct impacts to individuals would be avoided by the implementation of resource protection measures. Therefore, the proposed Project **may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability** for the Pacific marten**.**

Table 3. Special-Status Terrestrial Wildlife Species and Effect Determinations

Species	Known to Occur in Action Area	Suitable Habitat in Action Area	Legal Status[1]	Determination[2]
Birds				
Bald Eagle (*Haliaeetus leucocephalus*)	N	N	Forest Service Sensitive Species	Proposed Project – NE
California Spotted Owl (*Strix occidentalis occidentalis*)	N	Y	Forest Service Sensitive Species	Proposed Project – MANL
Northern Goshawk (*Accipiter gentiles*)	N	Y	Forest Service Sensitive Species	Proposed Project – MANL
Willow Flycatcher (*Empidonax traillii adastus*)	N	N	Forest Service Sensitive Species	Proposed Project – NE
Great Gray Owl (*Strix nebulosa*)	N	N	Forest Service Sensitive Species	Proposed Project – NE
Mammals				
Pacific marten (*Martes caurina*)	Y	Y	Forest Service Sensitive Species	Proposed Project – MANL
North American wolverine (*Gulo gulo luscus*)	N	N	Forest Service Sensitive Species	Proposed Project – NE
Townsend's big-eared bat (*Corynorhinus townsendii*)	N	Y	Forest Service Sensitive Species	Proposed Project – MANL
Fringed myotis (*Myotis thysanodes*)	N	Y	Forest Service Sensitive Species	Proposed Project – MANL
Pallid bat (*Corynorhinus townsendii*)	N	Y	Forest Service Sensitive Species	Proposed Project – MANL
Fish				
Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi)*	N	Y	Federally Threatened	Proposed Project – NA
Lahontan Lake tui chub (*Gila bicolor pectinifer)*	N	N	Forest Service Sensitive Species	Proposed Project – NE
Amphibians				
Sierra Nevada yellow-legged frog (*Rana sierrae*)	N	Y	Federally Endangered	Proposed Project – NA
Critical Habitat for Sierra Nevada yellow-legged frog (*Rana sierrae*)	N	N	Federally Endangered Forest Service	Proposed Project – NA
Invertebrates				

Great Basin rams-horn (*Helisoma (Carninifex) newberryi*)	N	N	Forest Service Sensitive Species	Proposed Project – NE
Western bumble bee (*Bombus occidentalis*)	N	Y	Forest Sensitive Species	Proposed Project – MANL
Monarch butterfly (*Danaus plexippus*)	N	Y	Federal Candidate Forest Sensitive Species	Proposed Project – MANL

[1]Legal status:

Federal Candidate = Candidate species for federal listing by the USFWS under the Endangered Species Act.

Federal Threatened = USFWS listed as "Threatened" under the ESA

Forest Service Sensitive = Sensitive species listed by Region 5, US Forest Service. Regional Forester sensitive species list was revised on October 15, 2007.

[2]Determination

U.S. Fish and Wildlife Service listed species:

NA = The project would not affect the species or its designated critical habitat.

MANLAA = May affect but is not likely to adversely affect the (name of species) or its proposed critical habitat

Forest Service sensitive species:

NE = The project would not affect the species.

MANL = May affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability.

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Appendix A - USFWS species list

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Reno Fish And Wildlife Office
1340 Financial Boulevard, Suite 234
Reno, NV 89502-7147
Phone: (775) 861-6300 Fax: (775) 861-6301
http://www.fws.gov/reno/

In Reply Refer To:
Project Code: 2022-0020565
Project Name: Saxon Creek Restoration

March 16, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

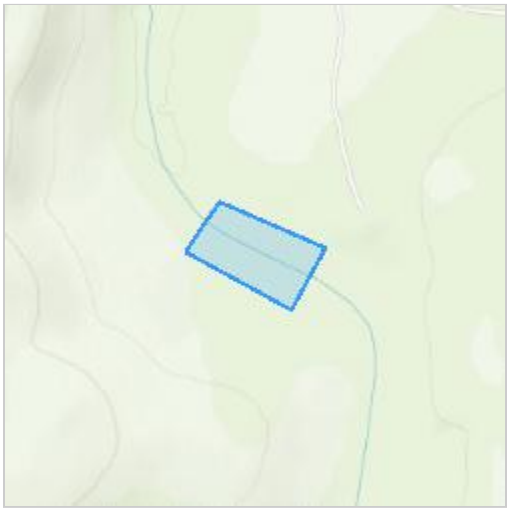
This species list is provided by:

Reno Fish And Wildlife Office
1340 Financial Boulevard, Suite 234
Reno, NV 89502-7147
(775) 861-6300

Project Summary

Project Code: 2022-0020565
Event Code: None
Project Name: Saxon Creek Restoration
Project Type: Restoration / Enhancement - Wetland
Project Description: Restore Saxon Creek for approximately 1 acre downstream of bridge area. Return creek floodplain to elevated status and return sinuosity to creek. Revegetate.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.8718988,-119.98295481310817,14z



Counties: El Dorado County, California

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Amphibians

NAME	STATUS
Sierra Nevada Yellow-legged Frog *Rana sierrae* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/9529	Endangered

Fishes

NAME	STATUS
Lahontan Cutthroat Trout *Oncorhynchus clarkii henshawi* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3964	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Conifers and Cycads

NAME	STATUS
Whitebark Pine *Pinus albicaulis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1748	Proposed Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Cassin's Finch *Carpodacus cassinii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

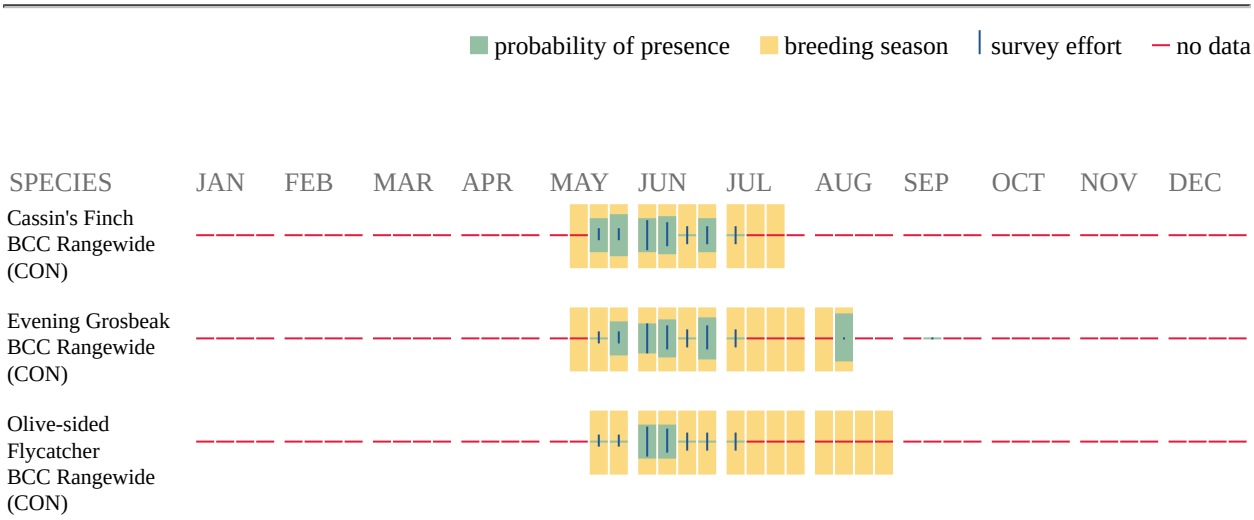
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

IPaC User Contact Information

Agency: Sierra Ecotone Solutions LLC
Name: Garth Alling
Address: PO Box 1297
City: Zephyr Cove
State: NV
Zip: 89448
Email galling@sierraecotonesolutions.com
Phone: 5304162440

Lead Agency Contact Information

Lead Agency: Forest Service

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
LAKE TAHOE BASIN MANAGEMENT UNIT

BIOLOGICAL EVALUATION OF BOTANICAL SPECIES

Saxon Creek Aquatic Organism Passage Project

June 2022

Prepared by: _____ Date: _____
Garth Alling, Biologist, Sierra Ecotone Solutions

Prepared by: _____ Date: _____
Alison Stanton, Botanist

Reviewed by: _____ Date: _____
Emma Williams, Forest Botanist

SUMMARY OF EFFECTS

It is my determination that the Saxon Creek Aquatic Organism Passage Project will not affect the following 28 species: Arabis rigidissima var.demota, *Boechera tiehmii, Boechera tularensis, Botrychium ascendens, Botrychium crenulatum, Botrychium lineare, Botrychium lunaria, Botrychium minganense, Botrychium montanum, Bruchia bolanderi, Dendrocollybia racemosa, Draba asterophora* var. *asterophora, Draba asterophora var. macrocarpa, Draba cruciata, Erigeron miser, Eriogonum umbellatum var. torreyanum, Eriogonum luteolum var. saltuarium, Helodium blandowii, Hulsea brevifolia, Ivesia sericoleuca, Lewisia kelloggii* ssp. *hutchinsonii, Lewisia kelloggii* ssp. *kelloggii, Lewisia longipetala*, *Meesia uliginosa*, *Orthotrichum praemorsum, Peltigera gowardii*, *Pinus albicaulis, and Rorippa subumbellata.* This determination is based on the lack of known occurrences within the Project Area and negligible effects to any suitable habitat.

Summary of TEPS Botanical Species Determinations		
Scientific Names	**Common Name**	**Project Effect**
Arabis rigidissima var.demota	Galena Creek rockcress	WN
Boechera tiehmii	Tiehm's rockcress	WN
Boechera tularensis	Tulare rockcress	WN
Botrychium ascendens	upswept moonwort	WN
Botrychium crenulatum	scalloped moonwort	WN
Botrychium lineare	slender moonwort	WN
Botrychium lunaria	common moonwort	WN
Botrychium minganense	Mingan's moonwort	WN
Botrychium montanum	western goblin	WN
Bruchia bolanderi	Bolander's bruchia	WN
Dendrocollybia racemosa	Dendrocollybia	WN
Draba asterophora var. macrocarpa	Cup Lake draba	WN
Draba cruciata	Mineral King draba	WN
Draba asterophera var. asterophera	Tahoe draba	WN
Erigeron miser	Starved daisy	WN
Eriogonum umbellatum var. torreyanum	Donner Pass buckwheat	WN
Eriogonum luteolum var. saltuarium	Jack's wild buckwheat	WN
Helodium blandowii	Blandow's bogmoss	WN
Hulsea brevifolia	shortleaf hulsea	WN
Ivesia sericoleuca	Plumas Ivesia	WN
Lewisia longipetala	Long petaled lewisia	WN
Lewisia kelloggii ssp. hutchinsonii	Sierra Valley lewisia	WN
Lewisia kelloggii ssp. kelloggii	Kellogg's lewisia	WN
Meesia uliginosa	Broad-nerved hump-moss	WN
Orthotrichum praemorsum	Orthotrichum moss	WN
Peltigera gowardii	Western waterfan	WN
Pinus albicaulis	Whitebark pine	WN
Rorippa subumbellata	Tahoe yellow cress	WN

WN—The project will not affect the species; MA(NL)—The project may affect but is not likely to result in a trend toward (or accelerate) Federal listing or a loss of viability for the species; MA(LL)—The project may affect individuals, and is likely to result in a trend toward (or accelerate) Federal listing or a loss of viability for the species.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1 INTRODUCTION

The purpose of this Biological Evaluation is to provide an analysis of the activities proposed under the Saxon Creek Aquatic Organism Passage Project (Project) to determine whether they have the potential to affect any Federally Endangered, Threatened, Proposed and Candidate, and Forest Service Region 5 Sensitive plant, lichen, and fungi species and their habitats (referred to collectively as TEPCS botanical species or TEPCS).

The Project site is located on land managed by the US Forest Service (USFS) Lake Tahoe Basin Management Unit (LTBMU) near the City of South Lake Tahoe in El Dorado County, California (**Figure 1-Vicinity Map**). This Phase 2 Project is a follow up project to Phase 1, completed in 2018, which replaced a failing road culvert under Fountain Place Road with a bridge and realigned and restored 140 feet of upstream channel. The proposed Phase 2 Project will complete the restoration of an additional 934 feet of channel at the crossing and perform necessary adaptive management on Phase 1 of the restoration to achieve hydrologic and geomorphic continuity and provide suitable passage conditions for target aquatic species through the entire restored reach.

Figure 1. Project Vicinity Map

2 CURRENT MANAGEMENT DIRECTION

2.1 FEDERAL LAW

Endangered Species Act (16USC 1531 et seq.): This biological evaluation is being prepared in accordance with the Endangered Species Act of 1973 as amended (16 USC 1531 et seq.). Under this act, federal agencies must ensure that any action authorized, funded, or carried out by the agency is not likely to (a) jeopardize the continued existence of any listed species or (b) result in the destruction or adverse modification of a listed species' designated critical habitat. Section 7 of the act requires federal agencies to consult the U.S. Fish and Wildlife Service concerning listed (i.e. threatened or endangered) plant species that fall under their jurisdiction.

2.2 FOREST SERVICE DIRECTION

Forest Service Manual, Section 2670 (USDA 2005): provides policy for the protection of sensitive species and calls for the development and implementation of management practices to ensure that species do not become threatened or endangered because of Forest Service actions. It requires a review of all activities or programs that are planned, funded, executed, or permitted for possible effects on federally listed or Forest Service sensitive species (FSM 2672.4, USDA 2005).

A Biological Evaluation (BE) provides the means to conduct this review, analyze the significance of potential adverse effects, and determine how negative impacts will be minimized or avoided for those species whose viability has been identified as a concern. The objectives of a BE are to:

- ensure that Forest Service actions do not contribute to loss of viability of any native or desired nonnative plant or animal species;
- ensure that Forest Service actions do not jeopardize or adversely modify critical habitat of Federally listed species; and
- provide a process and standard through which rare plant species receive full consideration throughout the planning process, reducing negative impacts on species and enhancing opportunities for mitigation.

2.3 REGIONAL AND FOREST PLAN DIRECTION

Tahoe Regional Planning Agency (TRPA) Code of Ordinances (TRPA 2012): directs the agency to conserve threatened, endangered, and sensitive plant species and uncommon plant communities and delineates five plant species as sensitive: *Rorippa subumbellata* (Tahoe yellow cress); *Bochera* (*Arabis) rigidissima var. demota* (Galena Creek rock cress); *Lewisia longipetala* (long-petaled Lewisia); *Draba asterophora var. macrocarpa* (Cup Lake draba); and *Draba asterophora var. asterophora (*Tahoe draba). Projects and activities in the vicinity of sensitive plants and their associated habitat that are likely to harm, destroy or otherwise jeopardize plants or habitat are prohibited, unless their significant adverse effects are fully mitigated.

LTBMU Land Management Plan (LMP) (USDA 2016): directs the LTBMU to manage the viability of sensitive botanical species and to ensure that these species do not become threatened or endangered because of Forest Service activities. The primary purpose of the direction is to assure that existing habitat of these species is adequately protected and that additional habitat is provided to perpetuate the species. This direction implements the protections legislated in the National Forest Management Act and the Endangered Species Act.

3 DESCRIPTION OF THE PROPOSED PROJECT

3.1 PROJECT LOCATION

The Saxon Creek Aquatic Organism Passage Project (Project), is located on land managed by the US Forest Service (USFS) Lake Tahoe Basin Management Unit (LTBMU) near the City of South Lake Tahoe in El Dorado County, California. Saxon Creek is a perennial tributary to Trout Creek and the Upper Truckee River with drainage into Lake Tahoe. The Saxon Creek watershed is forested open space that is primarily used for recreation.

The Project study area is 4.28 acres and located within the lower portion of the Saxon Creek watershed where the creek crosses at Fountain Place Road (FS road 1201) (**Figure 2**- **Project Location**). Fountain Place Road begins at Pioneer Trail just east of the community of Meyers and provides an important access route for the public to National Forest System land. The Project area occurs within the Freel Peak USGS Quadrangle Section 22, Township 12 North, Range 18 East.

3.2 PROJECT BACKGROUND

Historically, juvenile salmonids and Paiute Sculpin (*Cottus beldingi*) have been documented to occur in upper reaches of Saxon Creek (Design memo). This suggests that the Project reach exhibited conditions suitable for passage in the past. However, a 72-inch culvert under Fountain Place Road prevented passage of fish to upstream habitat and salmonids and Paiute Sculpin have not been observed in Saxon Creek for many years.

Phase 1 of the Project, completed in 2018 under NWP14 Action ID:SPK-2000-00365, replaced a failing road culvert under Fountain Place Road with a bridge and realigned and restored 140 feet of upstream channel. While the replacement of the culvert with a free-span bridge represented an improvement for potential fish passage in Saxon Creek, limitations on sediment transport imposed by the culvert caused localized scour or incision throughout Saxon Creek. Incision is more pronounced downstream of the crossing.

The replacement of the crossing with a free-span bridge was intended to arrest on-going incision and minimize continued groundwater lowering. However, the restoration was not sufficient to restore connectivity with the floodplain. Saxon Creek continues to lack a developed floodplain and only overtops the bank under the most extreme flood conditions. Continued degradation of the channel may be a source of fine sediment to Lake Tahoe and may also lower groundwater tables which can lead to encroachment by lodgepole pine (*Pinus contorta*) into nearby meadows.

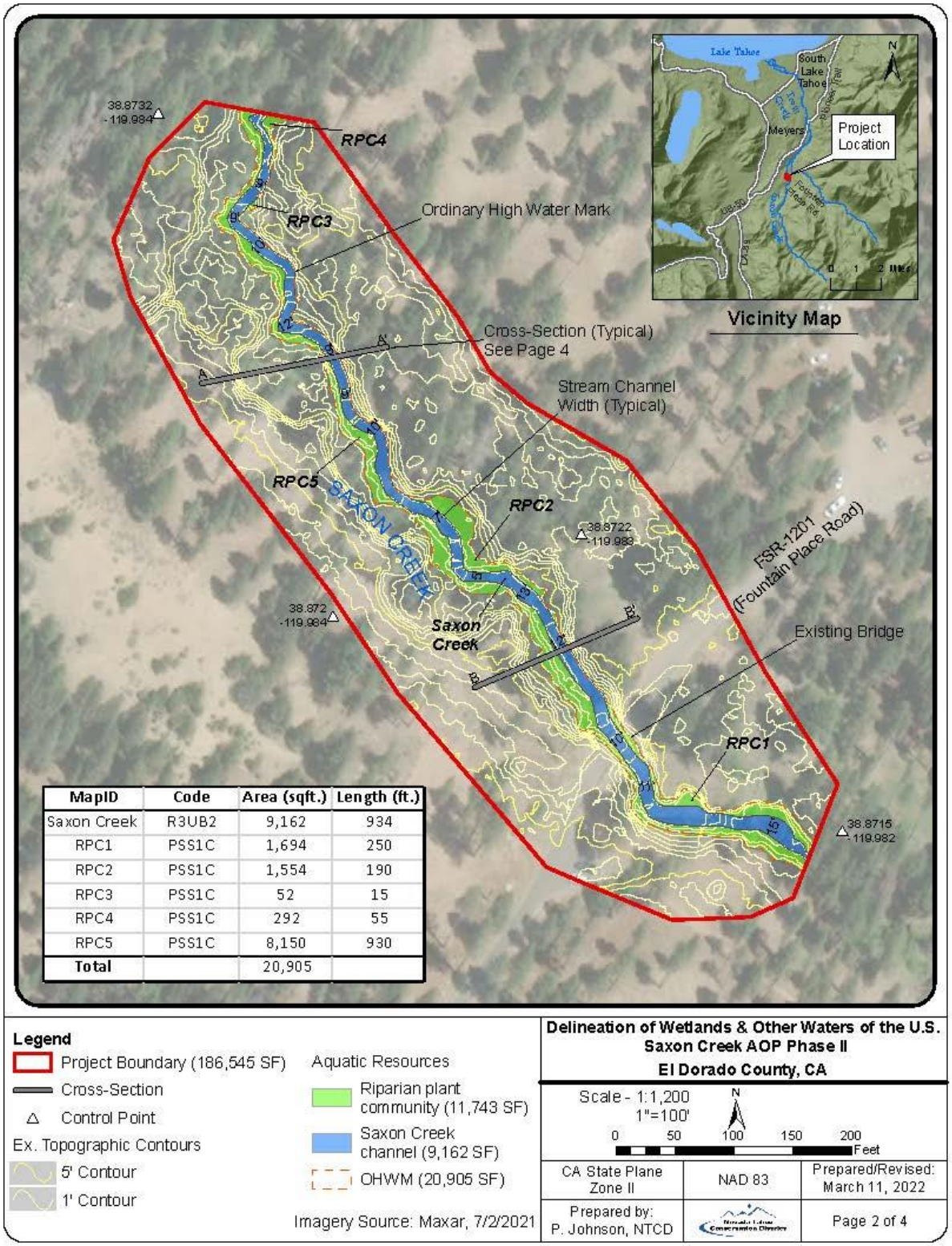


Figure 2. Project Location and Analysis Area

3.3 PROJECT COMPONENTS AND CONSTRUCTION IMPLEMENTATION

The proposed Phase 2 Project will complete the restoration of an additional 934 feet of channel at the crossing and perform necessary adaptive management on Phase 1 of the restoration. This Phase 2 Project is needed to restore a channel that maintains continuity in hydrologic and geomorphic processes and provides for suitable passage conditions for aquatic species through the entire restored reach.

Phase 2 restoration work includes the following components:

- Work performed upstream of Fountain Place Road that includes construction of a hardened access made of natural rock for bicycle and pedestrian access, repairing areas damaged by Caldor fire suppression efforts, and revegetation of the disturbed bank with planting of native plants.
- Realignment of the channel below the bridge to create a pool riffle morphology. This will increase the length of the channel from 934 to 1,130 feet.
- Excavation at steep banks to create inset floodplains and raising the channel bed profile using fill consisting of course sands, gravels, and cobbles.
- Incorporation of wood and rock structures, including larger bed materials like boulders, into the channel design to sustain riffles and facilitate fish passage.
- Use of fiber roll silt barriers, propagated sod mats and harvested sod plugs, and seeding and erosion control blankets to stabilize the site.
- Installation of debris structures including full-span or partial debris jams, log grade controls, and beaver dam analogues.
- Installation of 2 buried boulder sills, one above the bridge and one further downstream, to minimize the potential for knickpoint erosion and headcut migration.
- Removal of approximately 50 lodgepole pines > 12 inch diameter at breast height (dbh) within the riparian zone and use of these trees within the restoration.
- Fish rescue and subsequent dewatering of approximately 1,000 linear feet of channel using a nearby ditch.
- Additional revegetation work including willow staking, willow mattresses, placement of sod and seed, and installation of erosion control blankets.

The following specific conservation benefits would result from the Project:

- Habitat: realignment of the creek and creation of pool riffle morphology would increase the sinuosity of the channel and extend the length of the existing Saxon Creek from 934 feet to 1,130 feet. The incorporation of wood and rock structures into the channel would sustain riffles, facilitate fish passage, and improve access to quality fish habitat for the native salmonids and Paiute sculpin.

- Riparian and Forest Health and Climate Resilience: The Project would expand the riparian plant community by almost 8,000 sq. feet and the area of the Saxon Creek channel by 6,000 sq. feet. The improved channel morphology and increase in hydraulic connectivity would promote overbanking where possible, thereby improving riparian plant populations, reducing conifer encroachment, and promoting groundwater recharge for a more sustainable baseflow.

- Water Quality: the project would reduce the input of sediment to both Trout Creek and Lake Tahoe from channel degradation and aid in the achievement of Lake Tahoe Total Maximum Daily Load (TMDL).

The project could be constructed between August and October 2022 with field verification and field planning efforts such as final survey and assessment beginning in June or July 2022. Once the permitting and design is complete, the Nevada Tahoe Conservation District (NTCD) will advertise the project for public bid, select an implementation contractor, and implement the project. NTCD Engineers will provide oversight of the construction implementation as well as volunteer planting days. Volunteers will be utilized for a portion of the vegetation restoration. NTCD will coordinate with LTBMU personnel throughout implementation.

3.4 Resource Protection Measures

Activities associated with implementation of this project could have localized, short-term effects. Resource Protection Measures (RPM) have been identified for the Proposed Action to minimize or avoid effects on vegetation as follows:

Botanical resources

- Although no sensitive plant species were documented to occur within the project area (Sierra Ecotone Solutions LLC 2021), disturbance will be limited to only that necessary for project access, staging/storage and construction. If during project related activities, sensitive species are observed, the Forest Botanist will be notified and appropriate actions shall be implemented to protect sensitive species.
- In project areas that may impact suitable habitat, native wetland-associated plant species will be revegetated as needed to facilitate channel stabilization, water table maintenance, and erosion prevention.

Invasive Plants

- All equipment and vehicles (Forest Service and contracted) used for project implementation must be free of invasive plant material, soil, seeds, vegetative material, or other debris or water that could contain or hold seeds of non-native aquatic invasive species before moving into the project area. Equipment will be considered clean when visual inspection does not reveal soil, seeds, standing water, plant material or other such debris. Cleaning shall occur at a vehicle washing station or steam-cleaning facility before the equipment and vehicles enter the project area.
- When working in known invasive plant infestations or designated weed units, equipment shall be cleaned before moving to other National Forest Service system lands. These areas will be identified on project maps.
- Do not stage equipment, materials, or crews in invasive plant-infested areas.
- Where feasible, invasive plant infestations will be designated as Control Areas—areas where equipment traffic and soil-disturbing project activities would be excluded. If Control Areas are designated, they will be identified on project maps and delineated in the field with flagging.
- Equipment traffic and soil-disturbing project activities would be excluded from invasive plant infestations, unless otherwise specified in the Invasive Plant Management Plan. These areas will be identified on project maps and delineated in the field with flagging.
- Minimize the amount of ground and vegetation disturbance in staging and construction areas. Where feasible, reestablish native vegetation cover on disturbed bare ground to reduce invasive species establishment; revegetation is especially important in staging areas.

- Any additional infestations discovered prior to or during project implementation should be reported to the Forest Botanist or their designated appointee for prioritization and assessment for treatment.
- Erosion control blankets shall be composed of certified weed free processed all-natural fibers (straw is not acceptable) mechanically bound between two all-natural fiber nettings (no plastic netting) to form a continuous matrix. Weed free certification will be provided.
- Wattles or sediment logs will be certified weed free logs that consist of drainage filter made of curled aspen wood excelsior or coir and rolled into a cylindrical shape with a consistent width of fibers evenly distributed throughout the cylinder. Logs will be encased in 100% natural fiber biodegradable netting (no photodegradable or plastic materials). Weed free certification will be provided and locations where off-site materials are used will be monitored two growing seasons following implementation.
- All gravel, fill, or other materials are required to be certified weed-free. Use onsite sand, gravel, rock, or organic matter when possible. Otherwise, obtain weed-free materials from sources that have been certified as weed-free by the LTBMU. If an LTBMU inspector is not available to inspect material source, then the project proponent will provide a NAISMA weed-free certificate for its material source.
- Use certified weed-free mulches and topsoil. Salvage topsoil from project area for use in onsite revegetation, unless contaminated with invasive species. Do not use material (or soil) from areas contaminated by non-native invasive species. Weed free certification will be provided.
- If staging and construction areas cannot be revegetated (active or passive) or rehabilitated within the same growing season as construction, then they will be stabilized until such activities can be accomplished, unless revegetation of the area is deemed unnecessary by a staff hydrologist and botanist. Stabilization options include, but are not limited to, complete cover of wood chip mulch, landscape fabric, or erosion control fabric.
- Infestations prioritized for treatment will be treated in accordance with USFS management direction and the Resource Protection Measures of the LTBMU 2010 Terrestrial Invasive Plant Species Treatment Project Environmental Assessment. Project leader will notify the Forest Botanist or their designated appointee at least one month prior to project initiation to coordinate invasive plant treatment.
- After the project is completed, notify the Forest Botanist of activities implemented within infestations, use of off-site fill or erosion control materials, or other potential sources of introductions or causes of spread so that (as funding allows) the project area can be monitored for invasive plants subsequent to project implementation. Areas with high risk of invasive plant introduction or spread will be monitoring for two growing seasons following completion of the project. Monitoring activities will include treatment, if necessary, in the form of manual pulling and/or herbicide in accordance with the programmatic EA to support herbicide treatment.

<u>Revegetation</u>

- Seed and plant mixes must be approved by the Forest Botanist or their designated appointee who has knowledge of local flora.
- Non-native and invasive species will not be intentionally used in revegetation. Seed lots will be tested for weed seed and test results will be provided to Forest Botanist or their designated appointee.
- Persistent non-natives, such as timothy (*Phleum pretense*), orchardgrass (*Dactylis glomerata*), ryegrass (*Lolium spp.),* or crested wheatgrass (*Agropyron cristatum*) will not be used in revegetation.
- Seed and plant material will be from native, high-elevation sources as much as possible. Plant and seed material should be collected from as close to the project area as possible, from within the same watershed, and at a similar elevation whenever possible.

4 EFFECTS ANALYSIS METHODOLOGY

4.1 GEOGRAPHIC AREA EVALUATED AND SPECIES CONSIDERED

The area analyzed in this document is the Project Area which encompasses approximately 4.28 acres and consists of all proposed Project activities (see Figure 2 Project Location).

The Regional Forester identifies species for which population viability is a concern because of (1) downward population trends and/or (2) diminished habitat capacity that would reduce species distribution (FSM 2672.11, USDA 2005). The R5 Sensitive list was last revised in 2013 (USDA 2013). All listed plants were considered. There are no federally Threatened or Endangered botanical species known to occur or with known suitable habitat within LTBMU. Whitebark pine (*Pinus albicaulis*) is proposed for federal listing as Threatened, but does not occur at the elevation of the Project area.

Table 1 lists Federally Threatened, Proposed and Candidate, and Forest Service Region 5 Sensitive botanical species that are evaluated for the proposed Project. Potential impacts to suitable habitat are analyzed for species that have suitable habitat present within the botany analysis area, but were not found during botanical field surveys. Species not known from the Project area with no suitable habitat in the area are not anticipated to be impacted by the proposed Project either directly, indirectly, or cumulatively and were considered, but dismissed from further effects analysis.

Table 1. List of threatened, endangered, proposed and candidate and Region 5 Forest Service Sensitive botanical species

Sensitive Plant Species Evaluated for the Saxon Creek Aquatic Organism Passage Project

Species	Status*	Habitat Characteristics	Known to occur in action area	Potential habitat in action area
Arabis rigidissima var. *demota*	S, SI	Known from Trinity and Placer County and in Nevada in open, rocky areas along forest edges of conifer and/or aspen stands; usually found on north aspects; 7,500 ft. & above.	NO	No suitable habitat
Boechera tiehmii	S, 1B.3	Rock outcrops and gravelly soils; 10,000 ft. & above. The nearest occurrence is in the Mt. Rose Wilderness.	NO	No suitable habitat
Boechera tularensis	S, 1B.3	Known from the Southern Sierra on rocky slopes, rock-lined streams and seeps, rocky outcrops, saddles, and canyons; 7,800 - 11,000 ft.	NO	No suitable habitat
Botrychium ascendens	S, 2B.3	Suitable habitat for upswept moonwort includes the wet edges of streams. On the LTBMU, this species has been found on shady streams with dense cover among incense cedar (*Calocedrus decurrens*).	NO	YES; Saxon Ck provides marginal habitat with few shady areas but no cedar
Botrychium crenulatum	S, 2B.2	Suitable habitat for scalloped moonwort includes meadows, bogs, fens, marshes, swamps, and seeps in upper and lower	NO	YES; Saxon Ck provides

Table 1. List of threatened, endangered, proposed and candidate and Region 5 Forest Service Sensitive botanical species

Sensitive Plant Species Evaluated for the Saxon Creek Aquatic Organism Passage Project

Species	Status*	Habitat Characteristics	Known to occur in action area	Potential habitat in action area
		montane coniferous forest from 4,100 to 10,800 ft.		marginal habitat
Botrychium lineare	S, 1B.1	There are no known occurrences of this species on the LTBMU. The nearest known locations are from high elevations near Dunderberg Peak in Mono Co. and Mono Hot Springs in Fresno, Co.	NO	NO; the elevation of the analysis area is likely too low
Botrychium lunaria	S, 2B.3	There are no known occurrences of this species on the LTBMU. In CA, this species is known from several occurrences in Lee Vining Creek from the 1980's and herbaria records.	NO	NO; the elevation of the analysis area is likely too low
Botrychium minganense	S, 2B.2	Suitable habitat for Mingan moonwort includes bogs, fens, meadows or riparian corridors in upper and lower montane coniferous forests; 5,100 to 10,300 ft.	NO	YES; Saxon Ck provides marginal habitat but is likely too dry
Botrychium montanum	S, 2B.1	Suitable habitat for western goblin includes meadows, seeps and riparian corridors; 3,200 to 9,000 ft. On the LTBMU, this species has been found in seasonally wet areas among incense cedar.	NO	YES; Saxon Ck provides marginal habitat with few shady areas but no cedar
Bruchia bolanderi	S, 4.2	Occurs in disturbed areas and openings on the edges of meadows and stream banks; 5,500 to 9,200 ft. Also on bare, slightly eroding soil where competition is minimal.	YES	YES; Saxon Ck has eroding areas
Dendrocollybia racemosa	S	On old decayed or blackened mushrooms or occasionally in coniferous duff that has a source of moisture retention, usually within old growth stands.	NO	NO; there is no duff layer or old growth in the analysis area
Draba asterophora var. *asterophora*	S, SI, 1B.2	Known from the Lake Tahoe Basin on Mt. Rose, Freel Peak, Relay Peak, and Heavenly Resort on rock crevices and open granite on north-east slopes; 8,000-10,200 ft.	NO	No suitable habitat
Draba asterophora var. *macrocarpa*	S, SI, 1B.1	Known only from Cup Lake, outside of the LTBMU on steep, gravelly or rocky slopes; 8,400- 9,300 ft.	NO	No suitable habitat
Draba cruciata	S, 1B.3	Known only from the southern Sierra in subalpine gravelly or rocky slopes, ridges,	NO	No suitable habitat

Table 1. List of threatened, endangered, proposed and candidate and Region 5 Forest Service Sensitive botanical species

Sensitive Plant Species Evaluated for the Saxon Creek Aquatic Organism Passage Project

Species	Status*	Habitat Characteristics	Known to occur in action area	Potential habitat in action area
		crevices, cliff ledges, sink holes, boulder and small drainage edges; 7,800-13,000 ft.		
Erigeron miser	S, 1B.3	Known from rocky outcrops in conifer forest; 6,200- 7,500 feet.	NO	No suitable habitat
Eriogonum luteolum var saltuarium	S, 1B.2	Sandy granitic flats and slopes, sagebrush communities, montane conifer woodlands; 5,600-7,400 ft.	NO	No suitable habitat
Eriogonum umbellatum var. *torreyanum*	S, 1B.2	Known mainly from El Dorado, Placer, and Nevada County in sandy, gravelly places in conifer forest; 5,900-8,000 feet.	NO	No suitable habitat
Helodium blandowii	S, 2B.2	Bogs, fens, wet meadows, and along streams under willows.	NO	No suitable habitat
Hulsea brevifolia	S, 1B	Known only from the Southern Sierra in red fir, but also in mixed conifer forests; found on gravelly soils; 4,900- 8,900 ft.	NO	No suitable habitat
Ivesia sericoleuca	S, 1B.2	Associated with seasonally wet meadows, meadow ecotones, terraces and toeslopes on soils which are primarily volcanic in origin. The plant has not been located on granitic soils.	NO	No suitable habitat
Lewisia kelloggii spp. hutchisonii	S, 3.2	Decomposed granite, slate, volcanic rubble in yellow pine or red fir forest; 5,000-7,000 ft.	NO	No suitable habitat
Lewisia kelloggii ssp. kelloggii	S, 3.2	Decomposed granite, volcanic ash, rubble in yellow pine or red fir forest; 4,500-7,700 ft.	NO	No suitable habitat
Lewisia longipetala	S, SI, 1B.3	Alpine fell fields; often found near snow bank margins in wet soils; 8,000-12,500 ft.	NO	No suitable habitat
Meesia uliginosa	S, 2B.2	Bogs and fens, but also very wet meadows.	NO	No suitable habitat
Orthotrichum praemorsum	S	Shaded, moist habitats of east side of Sierra Nevada rock outcrops; up to 8,200 ft.	N0	No suitable habitat
Peltigera gowardii	S	This aquatic lichen grows attached to rock in cold unpolluted streams in mixed conifer forests.	N0	No; Saxon Ck lacks rocky substrate and is likely too warm in the summer
Pinus albicaulis	S, PT	Subalpine and at timberline on rocky, well-drained granitic or volcanic soils.	NO	No suitable habitat
Rorippa subumbellata	S, SI, SE, 1B	Known only from the sandy shores of Lake Tahoe below the high-water line.	NO	Lake Tahoe is not in the Project area

Source: USDA Forest Service, List of Sensitive Species of the LTBMU 2013; Tahoe Regional Planning Agency, Environmental Thresholds. CNDDB, March 2022;

* Status Codes:

CNPS 1B, 2, 3 = Plants listed as rare, threatened or endangered in California and elsewhere by the California Native Plant Society. Plants on this list meet the definitions of Section 1901, Chapter 10 (Native Plant Protection) of the California Department of Fish and Game Code and are eligible for state listing.

PT = USFWS Proposed Threatened under ESA

S = U.S. Forest Service LTBMU Sensitive Species, Regional Forester's Sensitive Species List, Amended 2013

SI = TRPA Special Interest Species, Regional Plan for The LTBMU: Goals and Policies (1986) and Code of Ordinances (1987)

SE = State Endangered in California and/or Nevada

4.2 Field Surveys

Field surveys were conducted within the Project Area for the proposed Saxon Creek Aquatic Organism Passage Project in July 2021. Alison Stanton, Botanist, M.S. walked the 4.28-acre Project area searching for TES plant species and habitat. Noxious weeds and non-native were also targets in the search. The timing of the field surveys coincided with the flowering period and ecology of the TES with potential to occur. No sensitive plant species were found within the botany analysis area. The spatial survey data has been provided to the LTBMU. A plant list was compiled and is included in **Appendix A**

5 Effects of the Proposed Project

5.1 Direct Indirect and Cumulative Effects Of the Proposed Project

Those species present or with suitable habitat within the botany analysis area are anticipated to have the highest potential to be impacted by the proposed project activities. Conversely, species outside of the analysis area are not anticipated to be impacted by the proposed project either directly, indirectly, or cumulatively.

As described in Table 1, the Project Area does not support suitable habitat for the following 23 species: Arabis rigidissima var. demota, *Boechera tiehmii, Boechera tularensis, Botrychium lineare, Botrychium lunaria, Dendrocollybia racemosa, Draba asterophora* var. *asterophora, Draba asterophora var. macrocarpa, Draba cruciata, Erigeron miser, Eriogonum umbellatum var. torreyanum, Eriogonum luteolum var. saltuarium, Helodium blandowii, Hulsea brevifolia, Ivesia sericoleuca, Lewisia kelloggii* ssp. *hutchinsonii, Lewisia kelloggii* ssp. *kelloggii, Lewisia longipetala*, *Meesia uliginosa*, *Orthotrichum praemorsum, Peltigera gowardii*, *Pinus albicaulis, or Rorippa subumbellata.*

As also described in Table 1, the Project area contains suitable habitat for the following 5 species: *Botrychium ascendens, Botrychium crenulatum, Botrychium minganense, Botrychium montanum, Bruchia bolanderi.*

Suitable habitat for these species within the Project Area is limited to the banks of Saxon Creek. Prior to the Phase 1 Project and the removal of the 72-inch culvert under Fountain Place Road, abundant sediment deposition occurred upstream of the road, likely as a result of backwatering during high flows. Limitations on sediment transport imposed by the culvert caused localized scour or incision throughout Saxon Creek. The incision is most pronounced downstream of the Fountain Place Road crossing within the Project Area. The degraded channel conditions and ongoing erosion provide marginal to low quality

habitat for the Botrychium species known to occur in riparian areas within the LTBMU: *B. ascendens, B. crenulatum, B. minganense, B. montanum.* While the Project may result in the temporary loss of suitable habitat for the above species, the restoration goal of the Project is to restore the channel to appropriate morphology that exhibits hydrologic connectivity with a floodplain under bank-full flows. The resulting shallow gradient channel banks are very likely to provide much more suitable habitat conditions for these species in the future.

No sensitive plant species were found within the Project Area during floristic surveys conducted in July 2021. The records search for the species listed in Table 1 resulted in no known recent or historic occurrences of any sensitive plant species in the vicinity of the proposed Project. Therefore, no direct, indirect, or cumulative effects will occur as a result of the proposed Project.

5.2 DETERMINATION

It is my determination that the Saxon Creek Aquatic Organism Passage Project will not affect the following 28 species: Boechera rigidissima, *Boechera tiehmii, Boechera tularensis, Botrychium ascendens, Botrychium crenulatum, Botrychium lineare, Botrychium lunaria, Botrychium minganense, Botrychium montanum, Bruchia bolanderi, Dendrocollybia racemosa, Draba asterophora* var. *asterophora, Draba asterophora var. macrocarpa, Draba cruciata, Erigeron miser, Eriogonum umbellatum var. torreyanum, Eriogonum luteolum var. saltuarium, Helodium blandowii, Hulsea brevifolia, Ivesia sericoleuca, Lewisia kelloggii* ssp. *hutchinsonii, Lewisia kelloggii* ssp. *kelloggii, Lewisia longipetala*, *Meesia uliginosa*, *Orthotrichum praemorsum, Peltigera gowardii*, *Pinus albicaulis, Rorippa subumbellata.* This determination is based on the lack of known occurrences within the Project Area and negligible effects to any suitable habitat.

6 COMPLIANCE WITH CURRENT MANAGEMENT DIRECTION

7 REFERENCES

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APPENDIX A PLANT LIST

Saxon Creek Plant List - 16 July 2021

Scientific name	Common name	Wetland
Abies concolor	White fir	
Pinus contorta ssp. murrayana	Lodgepole pine	FAC
Alnus incana ssp. tenuifolia	Mountain alder	FACW
Artemisia tridentata	Common sagebrush	
Lonicera involucrata var. involucrata	Twinberry	FAC
Ribes inerme var. inerme	White stemmed gooseberry	FAC
Ribes nevadense	Mountain pink currant	FAC
Rosa woodsii	Woods' rose	FACU
Rubus parviflorus	Thimbleberry	FAC
Salix exigua	Narrowleaf willow	FACW
Salix lasiandra var. caudata	Shining willow	FACW
Salix lemmonii	Lemmon's willow	FACW
Sambucus mexicana	Elderberry	FACW
Achillea millefolium	Yarrow	FACU
Arnica longifolia	Seep spring arnica	FACW
Artemisia douglasiana	California mugwort	FACW
Barbarea orthoceras	Winter cress	FACW
Chamerion angustifolium ssp. circumvagum	Fireweed	FACW
Cirsium scariosum var. scariosum	Elk thistle	FAC
Cirsium vulgare	Bullthistle	FACU
Cryptantha intermedia	Common cryptanth	FACU
Descurainia pinnata	Yellow tansy mustard	FACU
Drymocallis glandulosa	Sticky cinquefoil	FAC
Epilobium ciliatum ssp. ciliatum	Willow herb	FACW
Epilobium glaberrimum	Smooth willowherb	FACW
Equisetum arvense	Common horsetail	FACW
Equisetum laevigatum	Smooth scouring rush	FACW
Fragaria virginiana	Mountain strawberry	FACU
Galium aparine	Goose grass	FACU
Galium bifolium	Low mountain bedstraw	FACU
Galium triflorum	Sweet bedstraw	FACU
Gayophytum diffusum ssp. diffusum	Diffuse gayophytum	
Gayophytum humile	Dwarf groundsmoke	FAC
Gnaphalium palustre	Lowland cudweed	
Lepidium densiflorum	Common pepper grass	FAC
Lilium parvum	Sierra tiger lily	OBL
Lupinus breweri	Brewer's lupine	
Lupinus latifolius	Broad leaf lupine	FAC
Mentha arvensis	American wild mint	FACW
Mimulus guttatus	Yellow monkey flower	OBL
Mimulus primuloides	Primrose monkeyflower	FACW
Monardella lanceolata	Mustang mint	FACU
Nasturtium officinale	Watercress	OBL

Phacelia hastata var. hastata		
Plantago major	Common plantain	FAC
Polemonium occidentale	Great polemonium	FACW
Pteridium aquilinum	Western brackenfern	FACU
Rorippa curvisiliqua	Curvepod yellow cress	OBL
Senecio triangularis	Arrowleaf groundsel	FACW
Sidalcea oregana	Oregon checker mallow	FACW
Sphenosciadium capitellatum	Ranger's buttons	FACW
Symphyotrichum ascendens	Western aster	FAC
Symphyotrichum spathulatum var. spathulatu	Western mountain aster	FAC
Thalictrum fendleri	Fendler's meadow rue	FAC
Trifolium longipes	Long stalked clover	FACW
Trifolium monanthum	Carpet clover	FAC
Veronica americana	American brooklime	OBL
Veronica serpyllifolia	Thymeleaf speedwell	OBL
Viola glabella	Stream violet	FAC
Viola macloskeyi	Macloskey's violet	OBL
Agrostis idahoensis	Colonial bentgrass	FACW
Agrostis scabra	Rough bentgrass	FAC
Alopecurus aequalis var. aequalis	Shortawn foxtail	OBL
Bromus carinatus var. marginatus	Mountain brome	
Carex amplifolia	Ample leaved sedge	OBL
Carex arthrostachya	Slender leaved sedge	FACW
Carex douglasii	Douglas sedge	FAC
Carex fracta	Fragile sheathed sedge	FAC
Carex nebrascensis	Nebraska sedge	OBL
Carex rossii	Ross' sedge	
Dactylis glomerata	Orchardgrass	FACU
Deschampsia cespitosa	Tufted hair grass	FACW
Elymus elymoides	Squirreltail	FACU
Elymus glaucus	Blue wildrye	FACU
Elymus triticoides	Beardless wild rye	FACU
Hordeum brachyantherum	Meadow barley	FAC
Juncus balticus	Wire rush	FACW
Juncus bufonius	Common toad rush	FACW
Juncus nevadensis	Sierra rush	FACW
Juncus occidentalis	Slender juncus	FACW
Muhlenbergia filiformis	Slender muhly	FACW
Poa annua	Annual blue grass	FAC
Poa secunda	Pine bluegrass	FACU
Scirpus microcarpus	Mountain bog bulrush	OBL
Stipa occidentalis var. californica	California needle grass	

INVASIVE PLANT RISK ASSESSMENT
2022 SAXON CREEK AQUATIC ORGANISM PASSAGE PROJECT

LAKE TAHOE BASIN MANAGEMENT UNIT
USDA FOREST SERVICE

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TABLE OF CONTENTS

1 INTRODUCTION

The United States Forest Service has identified invasive species as one of four critical threats to the nation's ecosystems. Invasive plants pose a significant threat to ecological function due to their ability to displace native species, alter nutrient and fire cycles, decrease the availability of forage for wildlife, and degrade soil structure. Infestations can also reduce the recreational or aesthetic value of native habitats.

Forest management activities can contribute to the introduction and spread of invasive plants by creating suitable environmental conditions for establishment and by acting as vectors for spread. The following risk assessment has been prepared to evaluate the risk associated with invasive plant introduction and spread as a result of the proposed project.

1.1 ANALYSIS FRAMEWORK: PERTINENT LAWS, POLICIES, AND DIRECTION

A comprehensive summary of principal statutes governing the management of invasive plants on the National Forest System is available in FSM 2900. A brief summary of the pertinent laws, policies, and direction is provided below.

1.1.1 Federal Laws and Executive Orders

Executive Order 13112 (1999)—directs federal agencies to prevent the introduction of invasive species; detect and respond rapidly to control such species; and to minimize the economic, ecological, and human health impacts from invasive species on public lands.

1.1.2 Forest Service Policies and Direction

Forest Service Manual 2080 (1995)—Was replaced by FSM 2900 in 2011. FSM 2080 revised USFS national policy on noxious weed management to emphasize integrated weed management, which includes prevention and control measures, cooperation, and information collection and reporting.

Forest Service Manual 2900 (2011)—directs the Forest Service to manage invasive species with an emphasis on integrated pest management and collaboration with stakeholders, to prioritize prevention and early detection and rapid response actions, and ensure that all Forest Service management activities are designed to minimize or eliminate the possibility of establishment or spread of invasive species on the NFS or to adjacent areas.

Forest Service Manual 2070 (2008)—provides guidelines for the use of native material on National Forest System lands. It restricts the use of persistent, non-native, non-invasive plant materials and prohibits the use noxious weeds for revegetation, rehabilitation and restoration projects. It also requires that all revegetation projects be reviewed by a trained or certified plant material specialist for consistency with national, regional, and forest policies for the use of native plant materials.

The Forest Service National Strategic Framework for Invasive Species Management (2011) provides a consistent, agency-wide approach to the prevention, detection, and control of invasive insects, pathogens, plants, wildlife, and fish. The Framework provides broad and consistent strategic direction across all Forest Service Deputy Areas and agency programs. It also describes how National and Regional Invasive Species Issue Teams (NISIT and RISIT) will coordinate activities with the Forest Service and with Federal, State, and local partners. National priorities will be reviewed at least once every 5 years and adjusted as needed. RISITs will assess and adjust their regional invasive species priorities for their

respective ecosystems at least once every 5 years. The Framework incorporates the Invasive Species Systems Approach (ISSA) developed by the Forest Service to respond to threats over the next 5 to 10 years and supersedes the National Strategy and Implementation Plan for Invasive Species Management (2004). The ISSA identifies the elements and actions of the Framework that all programs and units within the National Forest System, Research and Development and State and Private Forestry should take, as appropriate, in addressing invasive species.

Region 5 Noxious Weed Management Strategy and Action Plan (**USDA Forest Service 2000**). In response to national direction and regional needs, the region has developed this plan that is tiered to the national strategy. The Regional strategy emphasizes actions necessary to: promote the overall management of noxious weeds; to prevent the spread of weeds; control existing stands of weed infestations; promote the integration of weed issues into all Forest Service (FS) activities.

1.1.3 Forest Plan Direction

LTBMU Land and Resource Plan (USDA Forest Service 1988)—Does not specifically address invasive plants (except the removal of noxious plants in grazing allotments), though it does provide for the protection and enhancement of threatened and sensitive plant habitat. It is amended by 2004 Sierra Nevada Forest Plan Amendment (SNFPA) to address invasive plant management.

Sierra Nevada Forest Plan Amendment (USDA Forest Service 2004b)—Establishes goals, standards, and guidelines for invasive plant (noxious weed) management for the Sierra Nevada forests. It emphasizes prevention and integrated weed management. It establishes the following invasive plant management prioritization: 1) prevent the introduction of new invaders; 2) conduct early treatment of new infestations; 3) contain and control established infestations. It also requires forests to conduct an invasive plant risk assessment to determine risks for weed spread (high, moderate, or low) associated with different types of proposed management activities and develop mitigation measures for high and moderate risk activities with reference to the weed prevention practices in the Regional Noxious Weed Management Strategy.

Sierra Nevada Forest Plan Amendment (USDA 2004)—Establishes goals, standards, and guidelines for invasive plant (noxious weed) management for the Sierra Nevada forests. It emphasizes prevention and integrated weed management. It establishes the following invasive plant management prioritization: 1) prevent the introduction of new invaders; 2) conduct early treatment of new infestations; 3) contain and control established infestations. It also requires forests to conduct an invasive plant risk assessment to determine risks for weed spread (high, moderate, or low) associated with different types of proposed management activities and develop mitigation measures for high and moderate risk activities with reference to the weed prevention practices in the Regional Noxious Weed Management Strategy.

2 PROJECT DESCRIPTION

2.1 PROPOSED ACTIVITIES

Saxon Creek is a perennial tributary to Trout Creek and the Upper Truckee River with drainage into Lake Tahoe. The Saxon Creek watershed is forested open space that is primarily used for recreation. Phase 1 of the Saxon Creek Aquatic Organism Passage Project (Project) was completed in 2018. Phase 1 replaced a failing 72-inch culvert under Fountain Place Road with a free-span bridge and realigned and restored 140 feet of channel upstream of the bridge. While the replacement represented an improvement for potential fish passage in Saxon Creek, limitations on sediment transport imposed by the culvert caused

localized scour or incision throughout Saxon Creek. Incision continues to be more pronounced downstream of the crossing.

The proposed Phase 2 Project will complete the restoration of an additional 934 feet of channel at the crossing and perform necessary adaptive management on Phase 1 of the restoration. This Phase 2 Project is needed to restore a channel that maintains continuity in hydrologic and geomorphic processes and provides for suitable passage conditions for aquatic species through the entire restored reach.

Phase 2 restoration work includes the following components:

- Adaptive management upstream of Fountain Place Road that includes construction of a hardened access made of natural rock for bicycle and pedestrian access, repairing areas damaged by Caldor fire suppression efforts, and revegetation of the disturbed bank with planting of native plants.
- Realignment of the channel below the bridge to create a pool riffle morphology. This will increase the length of the channel from 934 to 1,130 feet.
- Excavation at steep banks to create inset floodplains and raising the channel bed profile using fill consisting of course sands, gravels, and cobbles.
- Incorporation of wood and rock structures, including larger bed materials like boulders, into the channel design to sustain riffles and facilitate fish passage.
- Use of fiber roll silt barriers, propagated sod mats and harvested sod plugs, and seeding and erosion control blankets to stabilize the site.
- Installation of debris structures including full-span or partial debris jams, log grade controls, and beaver dam analogues.
- Installation of 2 buried boulder sills, one above the bridge and one further downstream, to minimize the potential for knickpoint erosion and headcut migration.
- Removal of approximately 50 lodgepole pines > 12-inch diameter at breast height (dbh) within the riparian zone and use of these trees within the restoration.
- Fish rescue and subsequent dewatering of approximately 1,000 linear feet of channel using a nearby ditch.
- Backfilling the dewatering ditch after restoration completion to match the adjacent grades.
- Additional revegetation work including willow staking, willow mattresses, placement of sod and seed, and installation of erosion control blankets.

For a detailed project description of the proposed action please refer to the 2022 Saxon Creek Aquatic Organism Passage Project BE prepared for the project on file at the USDA Lake Tahoe Basin Management Unit Forest Service Supervisors Office.

2.2 LOCATION AND EXTENT

The Project site is located on land managed by the US Forest Service (USFS) Lake Tahoe Basin Management Unit (LTBMU) near the City of South Lake Tahoe in El Dorado County, California (**Figure 1-Vicinity Map**). The Project study area is 4.28 acres and located within the lower portion of the Saxon Creek watershed where the creek crosses at Fountain Place Road (FS road 1201).

Figure 1. Project Vicinity Map

3 Non-Project Dependent Factors

3.1 Surveys and Existing Data

Field surveys were conducted within the Project Area for the proposed Saxon Creek Aquatic Organism Passage Project in July, 2021. A repeat survey was conducted in June, 2022. Alison Stanton, Botanist, M.S. walked the 4.28-acre Project area searching for TES plant species and habitat, and noxious weed infestations. The timing of the field surveys coincided with the flowering period and ecology of the TES with potential to occur. No sensitive plant species were found within the botany analysis area. The spatial survey data has been provided to the LTBMU. Field surveys of the proposed project are sufficient to complete the analysis.

3.2 Known Invasive Plants

A few bull thistle (*Cirsium vulgare*) plants were observed in the July, 2021 surveys, but were not observed in the June, 2022 survey. Heavy flooding occurred on Saxon Creek in October, 2021 that likely scoured many areas and also downed many trees into the channel. No other species on the LTBMU 2021 List of Invasive Plants of Management Concern (**Appendix A**) were detected in either year. Other non-native species that were detected in the Project area include wooly mullein (*Verbascum thapsus*) and

common dandelion (*Taraxacum officinale*). Cheat grass (*Bromus tectorum*) is present in localized areas of Fountain Place Road.

3.3 Habitat Vulnerability

The riparian plant community is highly susceptible to invasive species that require mesic conditions such as Himalayan blackberry (*Rubus armeniaceus*). However, there are currently no known infestations in the Project vicinity. Flooding on Saxon Creek can create eroded banks and bare soil that would increase vulnerability to aggressive invaders. However, infestations of upland weeds that might occur in the surrounding forest would not be likely to spread into the riparian zone. The riparian habitat has moderate vulnerability to some of the common weeds, such as annual grasses or forbs like filaree (*Erodium cicutarium*), that might be transported on human shoes and pets

3.4 Non-Project Dependent Vectors

Vectors such as roads, trails, utility lines can spread invasive plants through the transport of weed seed. Fountain Place Road is a moderately used recreation access route that is the primary vector in the area. Vehicles travelling by for fuels reduction projects and repair work for the Caldor fire could be vectors. A bike trail is located just outside of the Project area on the west side of Saxon Creek and parking is available right at the bridge. Cyclists access the creek in the summer, but use is concentrated at the bridge. The risk of spread from these non-project dependent vectors is low due to the low recreation intensity and the low number of invasive plant occurrences within the project area.

3.5 Increased Vectors as a Result of Project construction

During construction of the proposed Project, non-native invasive species on equipment, imported fill, or erosion control materials pose the greatest risk of introduction. However, the project does not propose to import fill. Vehicles and equipment are required to be cleaned prior to accessing the site and the Project plans specify that all erosion control materials are certified weed-free.

3.6 Management Measures

To prevent the spread of invasive plant species, the following measures and BMPs will be implemented:

- Construction vehicles, including off-road vehicles, will be cleaned when they come into the Basin or come from a known invasive plant infested area. Equipment will be considered clean when visual inspection does not reveal soil, seeds, plant material, or other such debris.
- Equipment will be staged in weed-free areas to prevent vehicles from introducing or spreading invasive species.
- Earth-moving equipment, gravel, fills, or other materials are required to be weed-free. Onsite sand, gravel, rock, or organic matter will be used when possible or weed-free materials from gravel pits and fill sources that have been determined to be weed-free by the Forest Service Noxious Weed Coordinator will be used.
- Minimize the amount of ground and vegetation disturbance in the construction areas. Upon completion of construction, vegetation will be reestablished to minimize weed establishment after the removal.

- Topsoil from disturbance will be saved and put back to use in onsite revegetation, unless contaminated with noxious weeds. All activities that require seeding or planting should use locally collected native seed sources whenever possible. Collections should come from as close to the project area as possible, from within the same watershed, and at a similar elevation whenever possible. Seed mixes should be approved by Forest Service Botanists.
- Weed infestations identified before project implementation that are within the project area should be treated or "flagged and avoided" according to the species present and project constraints.
- Construction areas should be monitored post-project if off-site fill is used, erosion control materials do not meet design criteria, or existing invasives cannot be avoided.

3.6.1 Assessment summary

The invasive plant management measures - materials inspection, vehicle washing, and post-project monitoring, are sufficient to reduce the low risk of weed introduction and spread during construction.

4 Anticipated Weed Response to Proposed Action

Little to no weed response to Project implementation is expected because there are no known infestations of priority management species in the project area and there is a low risk of spread during construction.

5 References

United States Department of Agriculture (USDA). 2016. Lake Tahoe Basin Management Unit Land and Resource Management Plan. USDA Forest Service, Lake Tahoe Basin Management Unit, South Lake Tahoe, CA.

USDA. 2012. Region 5 Noxious Weed Management Strategy and Action Plan. USDA Forest Service, Pacific Southwest Region. Vallejo, CA.

USDA. 2004a. National Strategy and Implementation Plan for Invasive Species Management. USDA Forest Service, Washington Office, Washington D.C.

USDA. 2004b. Sierra Nevada Forest Plan Amendment Record of Decision. USDA Forest Service, Pacific Southwest Region, Vallejo, CA.

USDA. 2005. Pacific Northwest Region, Invasive Plant Program; Preventing and Managing Invasive Plants. U.S.D.A. Forest Service. Final Environmental Impact Statement.

APPENDIX A. Invasive Species of Management Concern on the Lake Tahoe Basin Management Unit

Table 1: 2021 Invasive Plants of Management Concern. All species from the Terrestrial Invasive Plant Species (TIPS) Environmental Assessment (EA) (2010) are included in this list regardless of observations in the on LTBMU. Species in bold are not included in the TIPS EA (2010) and therefore their treatment options on LTBMU land may be limited.

Scientific Name	Common Name	USDA Plant Code	LTBMU Priority	NDA	CDFA	Cal-IPC	LTBWCG
Acroptilon repens	Russian knapweed	ACRE3	Medium	B	A	Moderate	Group 1
Ailanthus altissima	tree of heaven	AIAL	High		C	Moderate	Group 1
Berteroa incana	**Hoary alyssum**	**BEIN2**	**High**		**B**	**Watch**	
Bromus tectorum	cheatgrass	BRTE	Low			High	
Carduus nutans	nodding plumeless thistle	CANU4	High	B	A	Moderate	Group 1
Centaurea calcitrapa	purple starthistle	CECA2	Medium	A	B	Moderate	Group 1
Centaurea diffusa	diffuse knapweed	CEDI3	High	B	A	Moderate	Group 1
Centaurea solstitialis	yellow starthistle	CESO3	Medium	A	C	High	Group 1
Centaurea stoebe ssp. *micranthos*	spotted knapweed	CESTM	High		A	High	Group 2
Centaurea virgata ssp. *squarrosa*	squarrose knapweed	CEVIS2	High	A	A	Moderate	
Chondrilla juncea	rush skeletonweed	CHJU	High	A	A	Moderate	Group 1
Cirsium arvense	Canada thistle	CIAR4	High	C	B	Moderate	Group 1
Cirsium vulgare	bull thistle	CIVU	Low		C	Moderate	Group 2
Conium maculatum	poison hemlock	COMA2	Low	C		Moderate	
Convolvulus arvensis	Common bindweed	COAR4	Low		C		
Cytisus scoparius	Scotch broom	CYSC4	Medium		C	High	Group 2
Dipsacus fullonum	teasel	DIFU2	Low			Moderate	Group 1
Dittrichia graveolens	stinkwort	DIGR3	Low			Moderate ; Alert	Group 1
Elymus caput-medusae	Medusa head	TACA8	High			High	Group 1
Elymus repens	quackgrass	ELRE4	Low		B		
Hydrilla verticillata	**hydrilla**	**HYVE3**		**A**	**A**	**High**	
Hypericum perforatum	common St. Johnswort	HYPE	Medium	A	C	Limited	Group 2
Isatis tinctoria	dyer's woad	ISTI	High	A	B	Moderate	Group 1
Lepidium appelianum	hairy whitetop	CAPU6 or LEAP7	Medium		B		Group 1
Lepidium draba	whitetop	CADR or LEDR	Medium		B	Moderate	Group 1
Lepidium latifolium	perennial pepperweed	LELA2	High	C	B	High	Group 2
Leucanthemum vulgare	oxeye daisy	LEVU	Low			Moderate	Group 2
Linaria dalmatica ssp. *dalmatica*	Dalmatian toadflax	LIDAD	High	A	A	Moderate	Group 2
Linaria vulgaris	yellow toadflax	LIVU2	High	A		Moderate	Group 2
Lythrum salicaria	purple loosestrife	LYSA2	High	A	B	High	Group 1
Myriophyllum spicatum	**Eurasian watermilfoil**	**MYSP2**		**A**		**High**	
Onopordum acanthium	Scotch thistle	ONAC	High	B	A	High	Group 1
Phalaris arundinacea	Reed canary grass	PHAR3	Low				
Potamogeton crispus	**curly pondweed**	**POCR3**				**Moderate**	
Potentilla recta	sulfur cinquefoil	PORE5	Medium	A			Group 1
Rubus armeniacus	Himalayan blackberry	RUAR5	Medium			High	
Tamarix chinensis, T. ramosissima, and *T. parviflora*	tamarisk	TACH2, TARA and TAPA4	High	C		High	Group 1