Request for Proposals

Elephant Bar Habitat Enhancement

Proposal due February 10th, 2026 by 3:00 pm

Mandatory pre-proposal site showing January 27th, 2026 at 3:00 pm

Contracting Agent: Curry Soil and Water Conservation District
Contact: Kelly Timchak
PO Box 666
Gold Beach, Oregon 97444
Phone 541.373.0057

Engineering Design, Drawings, and Specifications Prepared by

O'Connor Environmental, Inc.

Jan 12th, 2026

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1 SUMMARY, INVITATION, & INSTRUCTIONS

1.1 Project Summary

Two slough channels are to be excavated into Elephant Bar and tidally connected to God Wants You Slough to create new off-channel habitat for coho salmon and other aquatic species. The sloughs total 3,550 ft in length and ~118,400 cubic yards of material will be excavated in their creation over a 10.8-acre area. Most of the excavated sediments will be moved to a nearby spoils area except for approximately 8,400 cubic yards of soil material which will be placed as shallow fill over a 3.2-acre floodplain area. The project site is naturally isolated from tides and flows during the anticipated construction window, however groundwater is present at elevations ranging from approximately 3.5 to 4.5 ft (based on limited summer observations).

Finished thalweg grades range from -1.5 to 1.7 ft and finished intertidal bench grades range from 2.7 to 5.8 ft. Work in God Wants You Slough and in making the final connection to the newly excavated sloughs will be subject to tidal fluctuations where MLLW is 1.9 ft and MHHW is 6.9 ft. Most of the site is relatively free of vegetation except for the lower ~1.4 acres which is heavily vegetated and contains at least nine trees greater than 12" in diameter. Twenty-two large wood structures will be installed and stabilized through partial burial for ballast. The bottom of the wood structures ranges from -2.1 to 1.9 ft with maximum burial depths ranging from 9.2 to 9.8 ft.

1.2 Invitation

Sealed Proposals for the **Elephant Bar Habitat Enhancement Project** will be received via email by Kelly Timchak (kelly@currywatersheds.org) at the Curry Soil & Water Conservation District (SWCD), until **3:00 pm on February 10th, 2026** at which time Proposals will be opened privately. Proposals not received by the indicated time will not be reviewed.

The work consists of, but is not limited to, the following items: access the restoration (Elephant Bar) sites with equipment, work area isolation for in-water work and fish salvage assistance, install large wood habitat structures, excavate floodplain connection channels, place and compact fill in floodplain areas, and restore and stabilize the sites.

The Contractor will be required to comply with permit conditions and environmental protection and general best management practices for in-water work. The SWCD is responsible for obtaining all Federal, State, and County regulatory permits other than ODF permit to use power driven machinery during fire season and Contractor is responsible for this permit, if applicable. The in-water work period established for this project is **July 15 to September 30** as recommended by ODFW South Coast District Fisheries Biologist. Final completion of the project shall be on or before **September 30, 2026.**

All Proposals shall be submitted as described in these documents, and on the Proposal Form provided. No Proposal for a construction contract shall be received or considered unless the Proposer is registered with the Oregon Contractors Board as required by ORS Chapter 701. The SWCD reserves the right to accept the Proposals and award a contract to a responsible and qualified Proposer; to postpone the acceptance of the Proposal and award of contract for a period not to exceed thirty (30) days from aforementioned proposal due date; or to reject any and all Proposals received and further advertise the project for Proposals.

1.1.1 Definitions

CONTRACT DOCUMENTS — Includes the following documents: Invitation, Instructions and Information for Proposers, Project Milestone Schedule, Insurance Certificates and Wages, Proposal Form, General Requirements, Regulatory Permit Conditions, Technical Specifications, Drawings, Contract, and Addenda.

CONTRACTING AGENT (CA) —The Curry Soil & Water Conservation District (SWCD) is authorized to enter and administer this Contract on behalf of the Owners.

CONTRACTOR — The successful Proposer who executes a Contract with the Contracting Agent to perform the work.

REPRESENTATIVE — O'Connor Environmental, Inc. (OEI) is the Contracting Agent's representative who is responsible for project design and will determine that the construction work conforms to the technical requirements and design intent as set forth in the Drawings and Specifications.

OWNER — Restoration site and associated access routes are on privately owned lands.

PROJECT — Refers to work necessary to complete the restoration actions as described in this Document, Drawings and Specifications.

INSPECTOR - O'Connor Environmental, Inc. (OEI) representative who is responsible for providing construction oversight and ensuring the construction work conforms to the technical requirements and design intent as set forth in the Drawings and Specifications.

PROPOSER — Any corporation or entity submitting a responsible proposal under the Contract Documents attached herein.

1.1.2 Mandatory Pre-Proposal Site Showing

A pre-proposal site showing of the restoration sites is required for all interested contractors seeking to submit a proposal and participation is required. The pre-proposal conference and site tour will commence at **3:00 pm on January 27th, 2026** at the Freeman Rock, Inc. just inside the west gate (95437 Jerry's Flat Rd, Gold Beach, OR 97444). The Contracting Agent and Representative will be in attendance to outline the scope of work, schedule, access plan, and lead a tour of the site. Attendees must notify Kelly Timchak (kelly@currywatersheds.org) of their intent to added by **5:00 PM on January 26th, 2026.** Due to access limitations, only one vehicle and no more than two individuals per contractor are allowed to attend the site show. Statements made at the conference are not binding unless confirmed by written addendum.

1.1.3 Minimum Proposer Qualifications

This Project is an aquatic habitat enhancement project and a unique construction endeavor that requires specialized experience and expertise. To be eligible for proposing on this Project, the contractor must demonstrate, through past project experience and references, the following:

1. Work in the river and floodplain environment in active flow conditions, tidal conditions is a plus,
2. Construction of in-stream large wood structures,
3. A minimum of two (2) projects demonstrating work area isolation and turbidity management for large wood placement and floodplain excavations.

References must be provided to verify this required experience. Each project description should be kept to one page per reference project and one project can cover multiple items.

1.1.4 Interpretations and Addenda

All questions about the meaning or intent of the Contract Documents are to be submitted to the Contracting Agent via email. Interpretations or clarifications considered necessary by Contracting Agent in response to such questions will be issued by Addenda and emailed or delivered to all parties who have attended the pre-proposal site showing. Only questions answered by Addenda will be binding and become part of the Contract Documents. Oral and other interpretations or clarifications will be without legal effect.

1.2 Instructions

1.2.1 Proposal Format

The Contractor's Proposal shall be kept to the minimum number of pages while adequately describing required experience and proposed approach. The following items shall be submitted with headings that designate each section in the Proposal as follows:

- **Cover Letter:** Introduce your company and team along with relevant highlights (2 pages maximum)
- **Section 1: Proposal Form** (provided)
- **Section 2: Project Technical Approach** including means, methods, and equipment that will be mobilized and used for this project linked with Proposal Form items as appropriate (4 pages maximum)
- **Section 3: Project Schedule** with milestones (a Gantt chart of project tasks) shall be provided and linked with project technical approach (1 page)
- **Section 4: Organizational Structure** of Proposer and brief description of personnel proposed for this project with their experience and must include all subcontractors (4 pages maximum)
- **Section 5: Experience and References** that demonstrate minimum contractor qualifications. A minimum of three references and two example projects are required with contact names, company, email addresses, and phone numbers (4 pages maximum)
- **Section 6: Acknowledgement of Addenda**, if issued

**** Contractor is NOT responsible for large wood acquisition, fish salvage, revegetation (aside from erosion control), sediment off-hauling/sorting, work area isolation (other than final slough connection), and water quality monitoring.***

1.2.2 Proposal Submission

One electronic copy in PDF format (not to exceed 10 MB file size) of the Proposal must be submitted to Kelly Timchak via email (kelly@currywatersheds.org) by **3:00 PM on February 10, 2026**. The Proposal Form provided in this document must be included.

1.2.3 Ownership of Materials

All materials submitted in response to this RFP will become the property of the Contracting Agent. Neither proposal nor supporting material will be returned to Proposer.

1.2.4 Basis of Award

Submitted proposals may be withdrawn by written request of the Proposer provided the request is received prior to the time set for proposal opening. After that time, no proposal may be withdrawn for a period of thirty (30) working days and at no time after award of proposal.

Acceptance of any proposal does not place the Contracting Agent under any obligation to accept the lowest price proposal submitted. Award will be made to the responsible, responsive Proposer: **(1) whose proposal is**

technically acceptable; (2) has demonstrated required experience with similar projects; and (3) whose technical/cost relationship is the most advantageous to the Contracting Agent.

The Contracting Agent reserves the right to reject any or all proposals or to make award without conducting discussions. Discussions (oral or written) may be conducted as appropriate with all Proposers considered to be within the competitive range. In addition, the Contracting Agent may engage in negotiations with the highest ranked Proposer before making an award. If the negotiations are successful, the Contracting Agent may enter into a contract with this party. In the event the negotiations are not successful, the Contracting Agent may repeat this process with the next highest ranked Proposer, and so on, until a mutually agreeable contract is reached.

1.2.5 Confidentiality or Proprietary Information Statement

The Contracting Agent has no intention or obligation to share information or material with other parties and will respect any documents or materials that Proposer has identified as confidential or proprietary in accord with the requirements of Oregon Public Records Laws. Proposer shall, however, clearly identify pages containing proprietary information; the complete proposal may not be designated in this manner.

1.3 Milestone Schedule

A preferred schedule has been established for the project as summarized in the following table.

RFP issued	January 12, 2026
Pre-proposal site showing	January 27, 2026
Deadline for submitting requests for information	February 5, 2026
Proposal due date	February 10, 2026
Successful Proposer Announced	February 27, 2026
Earliest site access date	June 1, 2026
Earliest date for commencing in-stream work	July 15, 2026
Final completion of Project	September 30, 2026

2 INSURANCE CERTIFICATES & WAGES

2.1 Insurance/ Responsibility for Damages/Hold Harmless

All insurance coverages must be with entities lawfully authorized to do business in Oregon.

1. Contractor shall be responsible for all damage to property, injury to persons and loss, expense, inconvenience and delay that may be caused by or result from the carrying out of the work to be done under this contract, or from any act, omission or neglect of Contractor, its subcontractors, personnel, agents, and the Contract shall defend, indemnify and hold harmless the Owner, Contracting Agent, and Representative against any claims arising from said damage, injury, loss or expense.
2. Contractor shall indemnify, defend, and hold harmless the Owner, Contracting Agent, Representative and their officers, divisions, and employees and members, to the fullest extent allowable under State

law, from all claims, suits or actions of any nature out of or relating to the acts or omissions of Contractor, its officers, subcontractors, agents, employees, or anyone for whose acts the Contractor may be liable under this contract.

3. Primary Coverage. Insurance carried by Contractor under this contract shall be the primary coverage.
4. Commercial General Liability. Contractor shall obtain at Contractor's expense and maintain commercial general liability insurance covering bodily injury and property damage. This insurance shall include personal injury coverage, contractual liability coverage for the indemnity provided for under this contract, and products/completed operations liability. $2 million dollars each occurrence, $4 million aggregate.
5. Pollution liability. Contractor shall obtain at Contractor's expense and keep in effect during the term of this contract, pollution liability. This coverage may be written in combination with the comprehensive or commercial general liability insurance. Combined single limits per occurrence shall not be less than $1 million dollars or the equivalent.
6. Automobile liability. Contractor shall obtain at Contractor's expense and keep in effect during the term of this contract, automobile liability insurance. This coverage may be written in combination with the commercial general liability insurance. Combined single limits per occurrence shall not be less than $1 million dollars or equal to the U.S. Department of Transportation requirements, whichever is greater.
7. Workers' Compensation. The Contractor, its subcontractors, if any, and all employers providing work, labor or materials under this contract are subject employers under the Oregon Workers' Compensation law and shall comply with ORS 656.017, which requires them to provide worker's compensation coverage that satisfies Oregon law for all their subject workers.
8. "Tail" Coverage. If any of the aforementioned liability insurance is arranged on a "claims made" basis, "tail" coverage will be required at the completion of this contract for the duration of 24 months. Contractor will be responsible for furnishing certification of "tail" coverage as described or continuous "claims made" liability coverage for 24 months following contract completion. Continuous "claims made" coverage will be acceptable in lieu of open "tail" coverage, providing its retroactive date is on or before the effective date of this contract. This will be a condition of the final acceptance of work or services and the related warranties, if any.
9. Additional Insured. The liability insurance coverages required for performance of this contract shall include Curry Soil & Water Conservation District (SWCD), landowners, and O'Connor Environmental, Inc. but only with respect to the Contractor's activities to be performed under this contract.
10. Notice of Cancellation or Change. There shall be no cancellation, non-renewal, material change, potential exhaustion of aggregate limits or intent not to renew the insurance coverage without 30 days written notice from the Contractor or its insurer to the Contracting Agent. Any failure to comply with the reporting provisions of this insurance, except for the potential exhaustion of aggregate limits, shall not affect the coverages provided to the Additional Insured.
11. Certificates of Insurance. As evidence of the insurance coverages required by this Contract Documents, the Contractor shall furnish certificate(s) to the Contracting Agent prior to issuance of a notice to proceed. The certificate(s) will specify all of the parties who are additional insureds (or loss payees).

2.2 Prevailing Wage

Prevailing wage rates must be paid by the Contractor and any subcontractor on the Project in accordance with Exhibit G of OWEB Grant No. 225-2006-23953. The contractor, and all subcontractors, must have a public works bond filed with the Construction Contractors Board (CCB) prior to starting work on the Project unless exempt.

3 PROPOSAL FORM

PROPOSER:

ADDRESS.

PHONE: _____ DATE:_____

The work descriptions below are not comprehensive and only provides a description of work items for Proposal purposes only; however, the Proposal shall be for all ancillary items to complete the Project. The Contractor must include adequate provisions in each Proposal price to account for incidentals and other items required to complete the Project and meet the intent of the Contract Documents.

3.1 Lump Sum Proposal

Elephant Bar Habitat Enhancement				
Item No.	Description	Estimated Quantity	Unit	Proposal Price
1.0	**Mobilization** Equipment, materials, and labor to mobilize necessary equipment and facilities to the Elephant Bar restoration site. Includes project general requirements and insurance.	1	Lump Sum	
2.0	**Site Access & Staging** Equipment, materials, and labor to provide site access, pioneer temporary access routes into restoration site to structure locations, and stage equipment and materials.	1	Lump Sum	
3.0	**Best Management Practices** Equipment, materials, and labor to install and maintain through duration of project best management practice (erosion control) measures.	1	Lump Sum	
4.0	**Care of Waters (Work Area Isolation)** Equipment, materials, and labor to isolate project areas from active flow and provide turbidity control primarily with bulk bag deflectors and turbidity curtains or approved equal methods.	1	Lump Sum	
5.0	**Large Wood Structures** Equipment, materials*, and labor to construct twenty-two (22) large wood habitat structures and excavate channels at the direction of Drawing, Specifications, and Project Representative. Isolate	1	Lump Sum	

	and dewater areas around structures as needed to facilitate installation at specified grades.			
6.0	**Grading/Shaping of Benches & Slough Channels** Equipment, materials, and labor necessary to grade sloughs and benches to maintain tidal connection, and place and compact fill in specified floodplain areas as directed by Project Representative, including sorting of materials.	1	Lump Sum	
7.0	**Construction Site Reclamation and Demobilization** Equipment, materials, and labor to reclaim site including removal of all construction equipment and remaining construction debris, reclamation of temporary access routes, and treatment of disturbed surfaces with erosion control seeding.	1	Lump Sum	

**Contracting Agent to procure, deliver, and stockpile woody materials at restoration site as designated in Section 4.7 - Supplied Materials.*

Lump Sum Proposal Total $_____ *(Total amount written in numbers)*

3.2 Equipment and Labor Proposal

Equipment and labor rates are included in the Lump Sum and Unit Price proposals provided in Section 3.1, however, if work outside of the Proposal is necessary, these rates will apply for approved change orders. Add additional equipment or labor not listed, if needed.

Item	Cost	Unit
Excavator - Track mounted excavator, 38,000 pounds GVW, includes operator, fuel, and insurance		Per Hour
Bulldozer - Track mounted bull dozer, approximately 80,000 pounds GVW, includes operator, fuel, and insurance		Per Hour
Dump Truck - Standard dump truck with 10-12 CY capacity, includes operator, fuel, and insurance		Per Hour
Dump Truck (Off Road) - Standard off-road dump truck with 15-20 CY capacity, includes operator, fuel, and insurance		Per Hour
Front End Loader - Rubber tired loader with minimum bucket capacity of 1.5 cubic yards, includes operator, fuel, and insurance		Per Hour
Site Supervisor - On-site project supervisor able to direct labor and equipment		Per Hour
Laborer 1 - Skilled laborer able to operate equipment		Per Hour
Laborer 2 - General laborer for physical labor		Per Hour

Proposer Certifications

The undersigned, hereinafter called the Proposer, declares that the only person(s) interested in this Proposal are those named herein; that the Proposal is in all respects fair and without fraud; and, that it is made without any connection or collusion with any other person making a Proposal on this Project.

The Proposer further declares that he/she has carefully examined the Drawings, Specifications, and Contract Documents, hereinafter referred to as the Document, for construction of the proposed project improvement; has personally inspected the site; is satisfied as to the type and quantities of materials, the types of equipment, the conditions of and the work involved, including the fact that the description of and the quantities of work and materials, the types of equipment, the conditions of and the work involved as included herein, is brief and is intended only to indicate the general nature of the work and to identify the said quantities with the detailed requirements of the Project; and, that this Proposal is made in accordance with the provisions and the terms of the Contract Documents.

The Proposer further agrees that he/she has exercised his/her own judgment regarding the interpretation of all data which they believe pertinent from the Contracting Agent, and Representative, and such other sources of information as they determine appropriate in arriving at their conclusion.

The Proposer agrees that if this Proposal is accepted he/she will within 14 working days, not including Saturdays, Sundays and legal holidays, after notification of acceptance execute the Contract with the Contracting Agent.

The Proposer further agrees, to the extent of this Proposal, to furnish all labor, machinery, tools, apparatus, and other means of construction and do the work and furnish all materials as proposed in the Proposal necessary to complete the work in the manner and schedule proposed and according to the methods as specified in the Contract Documents.

The Proposer further agrees to accept as payment for the work proposed under this project, as herein specified and under the provisions included in the Contract Documents, the lump sum price on the Proposal Form. The Proposer further represents a true measure of the labor and materials required to perform the work including all allowances for overhead and profit for each type of work called for in the Contract Documents and Proposal Form.

The name of the Proposer submitting this Proposal is:

_____

Doing business at:

_____

which is the address to which all communications concerned with the Proposal and with the Contract shall be sent.

In witness whereof, the undersigned Corporation has caused this instrument to be executed and its seal affixed by its duly authorized officers this _____day of_____,2026.

NAME OF CORPORATION: _____

By: _____

Title: _____

Attest: _____

Appendices

4 GENERAL REQUIREMENTS

4.1 Summary of Work

The work consists of, but is not limited to, the following items: work area isolation for in-water work, installation of large wood habitat structures, excavation of channels, creation of benches, placement of fill, and restoration and stabilization of the site. Other incidental work or items required for full performance of work, notwithstanding the same may have been omitted from the plans or not specifically mentioned in the Contract Documents but are expected to be completed to achieve full Project intent. Large wood will be provided and stockpiled near the restoration site.

4.2 Existing Conditions Site Investigation and Representation

The Contractor acknowledges satisfaction as to the nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, access to the sites, disposal, handling and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, ground water elevation, or similar physical conditions at the site and all other matters that can in any way affect the work or the cost thereof under this contract.

Failure by the Contractor to become acquainted with the physical conditions of the site and all the available information shall not relieve the Contractor from the responsibility for properly estimating the difficulty or cost of successfully performing the work. Contractors are responsible for making their own determination of subsurface conditions.

The Contractor warrants that as a result of examination and investigation of all the aforementioned data, the Contractor can perform the work in a good and professional workmanlike manner and to the satisfaction of the Contracting Agent and in full compliance with applicable Federal, State and County permits, codes or requirements. Contractor also represents that it has made all investigations essential to a full understanding of the difficulties, which it may encounter in performing the Contract, and that anything in the Contract Documents or any representations, statements or information made or furnished by Contracting Agent notwithstanding, Contractor will complete the Work for the compensation stated in the Contract.

The Contractor is responsible for verifying the locations of all existing utilities. The Contractor must notify all utility offices that will be affected by construction at least four (4) days in advance. Under no circumstances shall the Contractor expose any utility without first obtaining permission from the appropriate utility company. Once permission has been granted, the Contractor may locate, expose, and provide temporary support for all existing utilities. The Contractor shall reschedule his/her work to allow relocation of any conflicting utility. The Contractor shall not be entitled to additional compensation for delays in the project attributed to the relocation of utilities.

Necessary precautions should be taken to prevent damage to existing structures at the site, whether or not they lie within the limits of construction activities, any associated underground infrastructure (i.e. pipes), and roadways. The Contractor is responsible for any damages caused by construction activities and subsequent repairs. The Contracting Agent shall be notified of any damages caused by Contractor.

An attempt has been made to show major structures on the Drawings. The completeness and accuracy of information shown cannot be guaranteed, and it is presented simply as a guide to avoid known possible difficulties.

Any information obtained by the Contracting Agent regarding site conditions, subsurface information, groundwater elevation, existing construction of site facilities as applicable, and similar data will be available for inspection upon request. Such information is offered as supplementary information only.

4.3 Site Access

Elephant Bar: Site access is through a gated quarry property. Property located at 95437 Jerry's Flat Rd, Gold Beach, OR 97444.

Contractor shall locate temporary access routes to minimize disturbance to existing trees to the maximum extent practicable and shall confine construction operations to the limits of construction access, construction site, rights-of-way, and access areas as shown on the Drawings. Any damage to property shall be the responsibility of the Contractor. If additional access is necessary to complete the project, the Contracting Agent will assist the Contractor to the fullest extent practicable, however, all damages and claims by private parties will be the responsibility of the Contractor.

4.4 Work Coordination and Scheduling

Project Schedule: The selected Contractor shall submit a proposed schedule as part of their Proposal. A detailed work schedule that shows the dates at which the Contractor will start and complete the various parts of the Contract shall be submitted at the pre-construction conference. The scheduled completion date must be the same or earlier than the contractual completion date. The Contracting Agent and Representative will review schedules and if required, Contractor shall resubmit revised schedules within two (2) working days after return of review copy.

Schedules shall be of the Gantt chart type prepared using a computer program. Schedules shall show critical path with logical ties between tasks and at a minimum, the start date, finish date, and planned duration of each task. Schedules shall be updated and resubmitted to the Contracting Agent and Representative if anything has changed, prior to commencing work each week.

Contractor shall provide sufficient safe and proper access at all times for the inspection of the work site by the Contracting Agent, Representative, and regulatory personnel.

4.5 Work Hours

General hours of operation shall be weekdays, 7 am to 7 pm. Work hours outside of this time period may be allowed with prior approval from Contracting Agent.

4.6 Reasonably Implied Work and Incidental Items

Any part of the work that is not mentioned in these Specifications, but is shown on the Drawings, or any part not shown on the Drawings, but described in these Specifications, or any part not shown in the Drawings nor described in the Specifications which is necessary or normally required as a part of such work, or is necessary or required to make each installation satisfactorily operable; shall be performed by the Contractor as incidental work without extra cost to the Contracting Agent.

4.7 Supplied Materials

Woody Materials for Structures: All large wood members; whole small trees and slash/tree-tops; and some small wood members necessary for the construction of large wood habitat structures will be procured and stockpiled at the designated materials stockpile locations at the restoration site **by the Contract Agent**. Anticipated procurement and stockpiling are to occur in May 2026.

Additionally, it is anticipated that the Contractor will likely develop whole small trees and slash/tree-tops during pioneering of temporary access routes, tidal connections, and site preparation actions.

4.8 Change Orders or Work Outside Project Scope

Any work required to carry out the intent of the Contract Document by information not clearly indicated in the Contract Documents, or which cannot be reasonably implied from the intent and meaning of the Contract Documents and which cannot be classified under any of the items for which a lump sum price is listed in the Contractor's Proposal shall be paid for on a unit price account basis based on the Proposal Form rates provided. **All extra work for which the Contractor is requesting payment must be approved in writing by the Contracting Agent and Representative prior to executing the work. Work performed without prior written approval will not be compensated for by the Contracting Agent.** For the work performed, payment will be made for the documented actual cost of labor, materials, expenses, and additional insurance expenses after the work is accepted.

Materials: The cost of materials reported shall be at invoice or the lowest current price at which materials are locally available and delivered to the job in the quantities involved, plus the cost of freight, delivery and storage. If, in the opinion of the Representative, the cost of materials is excessive or the Contractor does not furnish satisfactory evidence of the cost of such material, then the cost shall be deemed to be the lowest current wholesale price for the quantity concerned delivered to the work site less trade discount.

Equipment: The Contractor will be paid for the use of equipment at the rate listed on the Proposal Form or for such equipment not listed, rates shall be as specified in the current edition of the following reference publication: "Rental Rate Blue Book" as published by Dataquest (a company of Dunn and Bradstreet Corporation, 1290 Ridder Park Drive, San Jose, CA 95131). The rental time to be paid for equipment on the work site shall be the time the equipment is in productive operation on the extra work being performed and, in addition, shall include the time required to move the equipment to the work site and return it to its original location if the equipment is used solely for the extra work.

Work Report: In order to be paid for extra work, the Contractor must submit a work report in a format approved by the Contracting Agent that includes a location for signatures from the Contracting Agent and Representative. Failure to complete the work report and submit the form for appropriate signatures by the next working day after extra cost work from the previous day was completed will result in the Contractor's costs for extra work being disallowed.

4.9 Regulatory Permit Conditions

Permits will be issued by Federal, State, and County regulatory agencies to the Contracting Agent. Contractor shall review the provisions of the individual permits from the Contracting Agent prior to any work beginning.. A copy of all permits must be kept on site at all times and be available for inspection in the event that personnel from a regulatory agency enter the site and request inspection of permits and monitoring records.

4.9 Equipment Fluids Requirements

All equipment that will be operated in and adjacent to the stream channel and live water shall use biodegradable lubricants and fluids.

4.10 Protection of Cultural Resources (Inadvertent Archaeological Discoveries)

Comply with all Laws governing preservation of cultural resources. If cultural materials are encountered on the Project site, Disposal site, or in material sources, immediately discontinue operations, protect the cultural resource from disturbance or damage, and notify the Contracting Agent.

Ground-disturbing activities shall be immediately stopped when human remains or potentially significant archaeological materials are discovered and notify the Contracting Agent immediately. Where suspected human burial or skeletal remains are uncovered, the Contracting Agent will be responsible for notifying the appropriate authorities including the Oregon State Police.

4.11 Protection of Fish, Wildlife & Habitat

Comply with the laws and recommendations of the Oregon Department of Fish and Wildlife, National Marine Fisheries Service, and U.S. Fish and Wildlife Service, and the rules and practices developed through the Oregon Plan for Salmon and Watersheds. Conduct operations to avoid any hazards to the safety and propagation of fish and shellfish in waters of the State and U.S. Fish and Wildlife.

Comply with the Migratory Bird Treaty Act (16 U.S.C. 703-712) which protects most species of birds in Oregon and prohibits the removal of nests or vegetation with nests containing eggs and dependent young.

Known locations of any area needing special measures for protection of plants or animals listed as threatened or endangered under the Endangered Species Act of 1973, as amended, are shown on the Drawings and will be identified at the site.

4.12 Right to Terminate Contract

The Contracting Agent, after providing Contractor opportunity for remedy, may without prejudice to any other right or remedy and after giving Contractor and Contractor's surety ten (10) days written notice, terminate the Contract under the conditions including but not limited to those listed below.

1. If Contractor should voluntarily or involuntarily seek protection under the United States Bankruptcy code and its Debtor in Possession or Trustee for the Estate fail to assume the contract within a reasonable time.
2. If Contractor should make a general assignment for the benefit of Contractor's creditors.
3. If a receiver should be appointed on account of Contractor's insolvency.
4. If Contractor should repeatedly refuse or fail to supply an adequate number of skilled workers or proper materials to carry on the Work as required by the contract documents, or otherwise fail to pursue the Work in a timely manner.
5. If Contractor should repeatedly fail to make prompt payment to subcontractors or for material or labor, or should disregard the instructions of the Contracting Agent, Owner, or its representatives.
6. If Contractor is otherwise in material breach of any part of the contract.

At any time that the above occurs, the Contracting Agent may take possession of the Project site and premises and of all materials and finish the work by whatever method the Contracting Agent deems expedient.

In such case, the Contractor shall not be entitled to receive further payment until the work is completed. If the unpaid balance of the contract price shall exceed the cost of finishing the work, such excess shall be paid to the Contractor. If the Contracting Agent's cost of finishing the work exceeds the unpaid balance of the contract price, Contractor shall promptly pay the difference to the Contracting Agent.

4.13 Right to Terminate for Convenience

Contracting Agent may terminate the Contract in whole or in part if the Contracting Agent determines that termination of the contract is in their best interest.

Contracting Agent will provide the Contractor and the Contractor's surety ten (10) days prior, written notice of a termination for public convenience. After such notice, the Contractor and the Contractor's surety shall provide the Contracting Agent with immediate and peaceful possession of 1) the Project site and premises; and 2) materials located on and off the Project site and premises for which the Contractor received progress payment, if any. Compensation for work terminated by the Contracting Agent under this provision shall be made according to the terms of these General Requirements. In no circumstances shall Contractor be entitled to lost profits due to termination.

Action upon Termination: Upon receiving a notice of termination and except as directed otherwise by the Contracting Agent, Contractor shall immediately cease placing further subcontracts or orders for materials, services, or facilities. In addition, Contractor shall terminate all subcontracts or orders to the extent that they relate to the work terminated, and with the prior approval of the Contracting Agent, settle all outstanding liabilities and termination settlement proposals arising from the termination of said constructs and orders.

As directed by the Contracting Agent, Contractor shall, upon termination, transfer and deliver to the Contracting Agent all project documents, information and other property that, if the contract had been completed, would be required to be furnished to the Contracting Agent. Upon termination, Contractor shall take any action necessary or that the Contracting Agent may direct for the protection and preservation of the work and any other property related to the contract that is in the possession of Contractor and in which the Contracting Agent has any interest.

4.14 Suspension of Work for Other than Contracting Agent's Convenience

The Contracting Agent may issue orders to suspend the work wholly or in part for such period of time as deemed necessary because of: (1) weather or ground conditions when further prosecution of the work might cause environmental or resource damage to the project, access roads to the project, or adjacent property. Such action would include but not be limited to instances such as siltation of streams, damage to access roads, rutting of project roads which causes otherwise suitable soils to be muddy or unsuitable; or (2) failure of the Contractor to comply with specifications such as but not limited to performing work prior to prerequisite approvals, operating equipment not meeting fire requirements, or when conditions exist which do not meet safety requirements.

4.15 Payment, Retainage and Schedule of Values

The Project is a **lump sum** Contract; therefore, the Contractor shall provide, at the preconstruction conference, a detailed schedule of values for each part of the work that is linked to the overall project schedule. The value assigned to each part of the work shall consist of labor, equipment, materials costs, and a pro rata contribution to overhead and profit. The sum of all values shall be equal to the total lump sum Proposal price. Upon

acceptance of the schedule of values by the Contracting Agent, it shall become the basis for the Contractor's requests for partial payment.

An unbalanced schedule of values providing for overpayment on items of work which would be performed first will not be accepted. The schedule of values shall be revised and resubmitted until acceptable. Final acceptance by the Contracting Agent shall indicate consent to the schedule of values as a basis for progress payments, and shall not constitute an agreement as to the value of each indicated item.

Request for payment shall be submitted by the Contractor at the end of each month to the Contracting Agent. The payment request shall include detailed information to be confirmed that the payment request matches the actual work performed and meets the schedule of values. Once the payment request is agreed to by the Contracting Agent, the payment will be processed, and the payment shall be made within 30 calendar days**. A 5% retainage will be held on each payment** until final completion of the project and all requirements have been met by the Contractor. Final completion will be based on a site inspection by the Contracting Agent and Representative as soon as requested by the Contractor after all punchlist items have been completed and the project is compliant with the Contract Documents.

4.16 Curry County Soil & Water Conservation District not Personally Liable

There shall be no personal liability upon the Contracting Agent, their agents or employees, for any act performed in the discharge of any duty imposed or the exercise of any power or authority conferred upon them by, or within the scope of the contract, it being understood that in all such matters they act solely as agents and representatives of the Contracting Agent.

4.17 Claims

Contractor shall proceed diligently with the Work pending final determination of any dispute or claim. Contractor and Contracting Agent agree that any dispute resolution will be governed by the laws of the State of Oregon. With respect to any dispute relating to this Contract, or in the event that a suit, action, or other proceeding of any nature whatsoever is instituted to interpret or enforce the provisions of this Contract, including, without limitation, any proceeding under the U.S. Bankruptcy Code and involving issues peculiar to federal bankruptcy law or any action, suit, or proceeding seeking a declaration of rights or rescission, the prevailing party shall be entitled to recover from the losing party its reasonable attorney fees, paralegal fees, expert fees, and all other fees, costs, and expenses actually incurred and reasonably necessary in connection therewith, as determined by the judge at trial, or other proceeding, or on any appeal or review, in addition to all other amounts provided by law.

4.18 Integration

If any provision in these Contract Documents is invalid or unenforceable in any respect for any reason, the validity and enforceability of such provision in any other respect and of the remaining provisions of this Contract will not be in any way impaired. This Contract (including the documents and instruments referred to in this Contract) constitutes the entire agreement and understanding of the parties with respect to the subject matter of this Contract and supersedes all prior understandings and agreements, whether written or oral, among the parties with respect to such subject matter.

5 TECHNICAL SPECIFICATIONS

The technical specifications that follow are included in and considered a part of the Contract Documents.

Section 01300 Submittals

Section 01320	**Construction Progress Documentation**
Section 01400	**Construction Staking**
Section 01505	**Mobilization and Demobilization**
Section 01510	**Contractor's Utilities**
Section 01550	**Temporary Construction Access Routes**
Section 01560	**Environmental Controls**
Section 01600	**Projection of Materials**
Section 01720	**Record Drawings**
Section 02140	**Work Area Isolation**
Section 02160	**Site Preparation**
Section 02200	**Earthwork**
Section 02900	**Site Reclamation**
Section 05000	**Large Wood Structure**

SECTION 01300 - SUBMITTALS

1.1 SCOPE

A. Submittals covered by these requirements include requested information, work area isolation plans, schedules, test procedures, samples, requests for substitutions, and miscellaneous work-related submittals. Submittals shall also include, but not be limited to, schedules, schedule of values, rock sources, and upland disposal sites. The Contractor shall furnish all drawings, specifications, descriptive data, certificates, samples, tests, methods, and schedules and other instructions as specifically required in the Contract Documents to demonstrate fully that the materials and equipment to be furnished and the methods of work comply with the provisions and intent of the Contract Documents.

1.2 CONTRACTOR'S RESPONSIBILITIES

A. The Contractor shall be responsible for the accuracy and completeness of the information contained in each submittal and shall assure that the material, equipment or method of work shall be as described in the submittal. The Contractor shall verify that all features of all products conform to the specified requirements. Submittal documents shall be clearly edited to indicate only those items which are being submitted for review. All extraneous materials shall be crossed out or otherwise obliterated.

B. The Contractor shall coordinate submittals with the work so that work will not be delayed. He/she shall coordinate and schedule different categories of submittals, so that one will not be delayed for lack of coordination with another. No extension of time will be allowed because of failure to properly schedule submittals. The Contractor shall not proceed with work related to a submittal until the submittal process is complete. This requires that submittals for review and comment shall be returned to the Contractor stamped "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."

C. The Contractor shall certify on each submittal document that he has reviewed the submittal, verified field conditions, and complied with the Contract Documents.

D. The Contractor may authorize in writing a material or equipment supplier to deal directly with the Representative with regard to a submittal. These dealings shall be limited to contract interpretations to clarify and expedite the work.

1.3 STANDARD COMPLIANCE

A. When materials or equipment must conform to the standards of organizations such as, but not limited to, the American National Standards Institute (ANSI) and American Society for Testing and Materials (ASTM) documents showing, or proving, conformance shall be submitted.

B. If an organization uses a label or listing to indicate compliance with a particular standard, the label or listing will be acceptable evidence, unless otherwise specified in the individual Sections. In lieu of the label or listing, the Contractor shall submit a certificate from an independent testing organization, which is competent to perform acceptable tests, and is approved by the Representative. The certificate shall state that the item has been tested in accordance with the specified organization's standard. For materials and equipment whose compliance with organizational standards or specifications is not regulated by an organization using its own listing or label as proof of compliance, a certificate of compliance from the manufacturer shall be submitted for approval. The certificate shall identify the manufacturer, the product, and the referenced standard and shall state that the manufacturer certifies that the product conforms to all requirements of the project Specification and of the referenced standards listed.

1.4 MANUFACTURER'S DATA

A. Submittals for each manufactured item shall be comprised of manufacturer's descriptive literature, drawings, diagrams, performance and characteristic curves, and catalog cuts. Manufacturer's name, trade name, model or catalog number, nameplate data, size, layout dimensions, capacity, project specification references, and any other additional information necessary to establish contract compliance shall be clearly indicated.

1.5 SUBMITTAL PROCEDURE

A. At least seven (7) calendar days prior to the Contractors need for approval, contractor shall forward to the Contracting Agent and Representative all submittals required by the individual Sections of the Specifications.

B. All submittals shall be identified by submittal number and specification section number on the letter of transmittal. Submittals shall be numbered consecutively and resubmittals shall have a letter suffix. For example:

   a. 1st submittal: 2
   b. 1st resubmittal: 2A
   c. 2nd resubmittal: 2B, etc.

1.6 CONTRACTOR SUBMITTALS

A. Items to be submitted are specified below. Submittals that are related to, or affect, each other shall be forwarded simultaneously as a package to facilitate coordinated review. Uncoordinated submittals will be rejected. Do not combine unrelated materials in the same submittal. Items shall be clearly marked with the same identification number as indicated on the drawings or within the Specifications. The Contractor shall include submittal time appropriate within each item of work on the Construction Schedule. The following submittals are required:

   1. Temporary contractor's utilities — **Section 01510**
   2. Temporary access route locations and staging/storage areas plan - **Section 01550**
   3. Pollution and erosion control plan — **Section 01560**
   4. Work area isolation plan — **Section 02140**
   5. Seed supplier and materials data and weed-free straw documentation — **Section 02900**
   6. Large wood structure materials supplier's information **— Section 05000**
   7. Large wood supplier and materials data — **Section 05000**

1.7 REVIEW OF CONTRACTOR'S INFORMATION

A. When review and checking for acceptance is required of any drawing, or information regarding materials and equipment, the Contractor shall prepare or secure, and submit for review, two (2) copies. The Contracting Agent, after taking appropriate action in coordination with Representative, will return (1) marked copy to the Contractor. Within seven (7) calendar days after receipt of said submittal copies, the Contracting Agent will return the marked copies indicating one of the following four (4) actions:

   1. If review and checking indicates no exceptions, copies will be returned marked "NO EXCEPTIONS TAKEN" and work may begin immediately on incorporating the material and equipment covered by the submittal into the work.
   2. If review and checking indicates limited corrections are required, copies will be returned marked "MAKE CORRECTIONS NOTED". Work may begin immediately on incorporating into the work the material and equipment covered by the corrected submittal.

3. If review and checking indicates insufficient, or incorrect data, has been submitted, copies will be returned marked, "AMEND AND RESUBMIT". No work may begin on incorporating the material and equipment covered by this submittal into the work until the submittal is revised, resubmitted, and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED".
4. If review and checking indicates the material and equipment submittal is unacceptable, copies will be returned marked "REJECTED-RESUBMIT". No work may begin on incorporating the material and equipment into the work until a new submittal is made and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED".

B. Approval by the Contracting Agent shall not relieve Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with requirements of this Contract.

1.8 EFFECT OF REVIEW OF CONTRACTOR'S SUBMITTALS

A. Review of contract drawings, methods of work, or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of his responsibility for errors therein and shall not be regarded as an assumption of risks or liability by the Representative or the Contracting Agent, or by any officer or employee thereof, and the Contractor shall have no claim under the contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed. A mark of "NO EXCEPTIONS TAKEN or MAKE CORRECTIONS NOTED" shall mean that the Contracting Agent has no objection to the Contractor, upon his own responsibility, using the plan or method of work proposed, or providing the materials or equipment proposed.

SECTION 01320 - CONSTRUCTION PROGRESS DOCUMENTATION

1.1 SCOPE

The Contractor shall complete a daily field report each work day and submit one copy of a progress report with all appropriate daily field reports to the Contracting Agent and Representative once each week in a format approved by the Agent. Field report to be reviewed by Contracting Agent and Representative and discussed with Contractor prior to starting work the following week. Each topic shall include a brief narrative with use of charts, graphs, etc., as appropriate. The following topics shall be included as applicable:

1. Progress of work and accomplishments for the week,
2. Construction schedule and adherence to project milestones,
3. Estimate of excavated/placed quantities,
4. Potential areas of conflict,
5. Potential project delays,
6. Potential extra work beyond items listed in Contractor's Proposal, and
7. Work to be performed during the next week.

SECTION 01400 - CONSTRUCTION STAKING

1.1 CONSTRUCTION STAKING

A. The Representative will provide construction control and an initial staking of the project in consultation with the Contractor constituting the field control from which the Contractor shall execute the work, and shall be left in place until the Representative approves removal.

B. The Representative will flag the location of temporary construction entrance, access roads, staging and stockpiling areas, and location of sensitive areas to be left undisturbed. Staging, storage, and stockpile areas shall be a minimum of 150 feet from all water bodies.

C. If any construction control or initial stakes have been destroyed or displaced, or are erroneous, the Contractor shall promptly notify the Representative. If these points are destroyed or displaced due to Contractor's negligence or operation, the cost for replacing them will be charged to the Contractor.

1.2 LAYOUT AND MEASUREMENT TO BE PERFORMED BY CONTRACTOR

A. The Contractor shall do all further reference staking to establish the horizontal and vertical control necessary to result in having the finished work comply with the lines and grades shown on the drawings or stated in the specifications, and shall be responsible for all measurements required for the execution of the work.

B. The Contractor shall furnish at the Contractor's own expense, such stakes, equipment, tools, materials, and all labor as required in stakeout of any parts of the work from the control points and initial stakes provided by the Representative.

C. The Contracting Agent and/or Representative may require that work be suspended at any time when stakes established by the Contractor are not reasonably adequate to permit checking of the work.

SECTION 01505 - MOBILIZATION AND DEMOBILIZATION

1.1 MOBILIZATION

A. Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the site; for the establishment of all facilities necessary for work on the project; and for all other work and operations which must be performed, or costs incurred prior to beginning work, on the various items on the project site.

B. Mobilization may also include the construction of temporary ramps and access ways, temporary roads, grading, temporary fencing, and the necessary preparatory work required to allow for the safe and stable movement of all vehicles that are required to construct the improvements outlined in the Contract Documents. Temporary access routes are to be constructed **per Section 01550, Temporary Construction Access Routes** utilizing existing access points to the fullest extent feasible limiting disturbance to existing vegetation.

C. Equipment

1. All construction equipment shall be staged in a location and manner to minimize air, soil and water pollution. All equipment shall be washed prior to mobilization to the site to minimize the introduction of foreign materials and fluids to the project site. All equipment shall be free of oil, hydraulic fluid, and diesel fuel leaks. To prevent invasion of noxious weeds or the spread of whirling disease spores, all equipment shall be power washed or cleaned to remove mud and soil prior to mobilization into the project area. It will be the contractor's responsibility to ensure that adequate measures have been taken.
2. Equipment shall be in a well-maintained condition to minimize the likelihood of a fluid leak. At all times during the construction phase, fluid spill containment equipment shall be present on-site and ready for deployment should an accidental spill occur.
3. Storage of fuel and lubricants - all fuel and lubricants shall be stored in containers and areas that are in conformance with the State Department of Environmental Quality; local, state and federal regulations.
4. Stationary Equipment — all stationary equipment or equipment servicing shall occur over oil absorbing mats.
5. Servicing and refueling equipment - all fuel and lubricants used in the servicing of construction equipment shall be done in a manner that avoids spills and over filling and shall be done at least 150 feet from all waterbodies. The State Department of Environmental Quality shall be notified immediately of any spill and the operator shall contain the spillage.
6. If a spill of chemical pollutants such as fuel or hydraulic fluid should occur, immediately attempt to contain the spilled material. Then notify the Contracting Agent, Representative, and State Department of Environmental Quality. The following procedures shall be followed:
    a) For spillage on land, construct earthen berms or use other suitable barricade material of sufficient size to contain the spill and keep it from spreading.
    b) For spillage on water, attempt to isolate and contain the spilled material. Commercial booms or other suitable materials shall be kept on site during construction to contain fuel and oil spills on water.

c) Sanitary facilities - sanitary facilities such as chemical toilets shall be located at least 150 feet from water bodies to prevent contamination of surface or subsurface water.

1.2 DEMOBILIZATION

A. Demobilization shall consist of work and operations necessary to disband all mobilized items. The removal of all temporary fencing, construction debris including rock chips, wood debris, construction stakes, and other construction-related refuse, and temporary facilities or works and the restoration of surfaces to an equal or better than existing condition shall also be included as part of demobilization.
B. Site reclamation as specified in Section 02900, Site Reclamation.

SECTION 0510 - CONTRACTOR'S UTILITES

1.1 STAGING AREA

Before starting the work, the Contractor shall submit to the Contracting Agent a proposed plan and layout for all temporary offices, sanitary facilities, storage buildings, storage yards, and temporary utility service and distribution within the bounds located by Representative during project stakeout. Vehicle and equipment staging area to be at least 150 feet from any stream, waterbody or wetland. Should the Contractor require space in addition to that available on-site, the Contractor shall plan for storage of materials and equipment in locations off the construction site, and shall provide the Contracting Agent a copy of the letter of authorization for storage from the property owner.

1.2 CONTRACTOR'S OFFICE AT SITE OF WORK

A. During the performance of this contract, the Contractor shall maintain a suitable office or box at or near the site of the work, which shall be the headquarters of his representative authorized to receive drawings, instructions, or other communications or articles. Any communication given to the said representative or delivered at Contractor's office at the site of the work in his absence shall be deemed to have been delivered to Contractor. Copies of the drawings, specifications, and other contract documents shall be kept at Contractor's Field Office for use at all times.
B. No habitation or overnight dwelling by employees of Contractor will be permitted.

1.3 SANITARY FACILITY

The Contractor shall provide toilet facilities for work force at the site of work, and must be made available for authorized visitors use. Sanitary facilities shall comply with applicable laws, ordinances, and regulations pertaining to the public health and sanitation of construction field offices, dwelling, and camps.

1.4 SUBMITTALS

Submit in accordance with Section 01300, Submittals.

1. Temporary contractor's utilities plan.

SECTION 01550 - TEMPORARY CONSTRUCTION ACCESS ROUTES

PART 1 – GENERAL

1.1 SUMMARY

A. The method, means, and equipment required to access the construction areas shall be the responsibility of the Contractor. The Contractor shall become familiar with the existing site conditions; structures; and proposed access routes, and staging and storage areas detailed in the Contract Documents and shown on the Drawings.

B. Temporary access routes may entail the use of both existing roads and the pioneering of temporary access routes. Contractor to submit plan of proposed temporary access routes and staging and storage areas, approximate routes and staging and storage areas are detailed in the Drawings. Said plan to be agreed upon and approved by the Contracting Agent and Representative.

C. Temporary access routes are to be confined to limits staked in the field by Representative and agreed upon by Contractor. Any damage to property shall be the responsibility of the Contractor.

D. Once established the Contractor shall maintain temporary construction access routes within the project boundaries as required, including improvements to existing roads and providing cross drainage to complete the project. Contractor shall conduct its work to interfere as little as possible with public roads. Contractor shall provide and maintain suitable and safe detours, or other temporary expedients, for the accommodation of public and private travel. Contractor shall restore private and public roads to a condition equal or exceeding their original condition.

1.2 SUBMITTALS

Submit in accordance with **Section 01300, Submittals**.

1. Temporary access route locations and staging/storage areas plan

PART 2 - PRODUCTS

2.1 MATERIALS

The Contractor shall provide material sufficient to meet Section 3.2 of this specification

PART 3 - EXECUTION

3.1 PEFORMACE REQUIREMENTS

Performance

1. Access routes shall withstand the effects of hauling equipment, materials, personnel, and all traffic as required to complete the work.
2. Where it is necessary to remove vegetation from along temporary access routes, cut at ground level (no grubbing).

3. Contractor shall protect, shore, brace, support, and maintain all underground pipes, drains, utilities, and other underground construction uncovered or otherwise affected by construction operations. All pavements, streets, roads, highways, parking areas, ditches, embankments, bridges, surfaces, driveway, buildings, utility poles, guy wires, fences and other surface structures, public or private affected by construction operations, shall be restored to their original condition. All replacements shall be made with new materials.
4. Contractor shall make satisfactory and acceptable arrangements with the Contracting Agent concerning damaged property repair or replacement or payment of costs incurred in connection with the damage.

3.3 CLEANUP

After completion of work, restore construction access routes and private/public roadways to preconstruction conditions.

SECTION 01560 - ENVIRONMENTAL CONTROLS

PART 1 - GENERAL

1.1 SITE MAINTENANCE

The Contractor shall keep the work site, staging areas, and Contractor's facilities clean and free from rubbish and debris. Materials and equipment shall be removed from the site when they are no longer necessary. Upon completion of the work and before final acceptance, the work site shall be cleared of equipment, unused materials, and rubbish to present a clean and neat appearance.

1. Clean-Up:
    a. Waste material of any kind will not be permitted to remain on the site of the work or on adjacent roads. Immediately upon such materials becoming unfit for use in the work, they shall be collected, carried off the site, and properly disposed of by the Contractor.
    b. The Contractor shall provide temporary restroom and cleanup facilities for Contractor's employees (and approved visitors) and keep these areas clear of all refuse, rubbish, and debris that may accumulate from any source and shall keep them in a neat condition to the satisfaction of the Contracting Agent.
    c. In the event that waste material, refuse, debris, and/or rubbish are not so removed from the work by the Contractor, the Contracting Agent reserves the right to have the waste material, refuse, debris, and/or rubbish removed and the expense of the removal and disposal charged to the Contractor.

1.2 AIR POLLUTION CONTROL

The Contractor shall not discharge smoke, dust, and other contaminants into the atmosphere that violate the air pollution regulations for the area. The Contractor shall maintain construction vehicles and equipment in good repair. Exhaust emissions that are determined to be excessive by the Contracting Agent shall be repaired or replaced.

1.3 DUST ABATEMENT

A. Contractor shall provide a water truck or similar equipment to manage Project area dust resultant of wind or equipment-caused erosion. Water to be applied at a rate and manner of application that controls dust without creating other detrimental effect.
B. Sequence and schedule work to reduce the exposure of bare soil to wind erosion.

1.4 NOISE CONTROL

A. The Contractor shall comply with all local controls and noise level rules, regulations, and ordinances which apply to any work performed pursuant to the Contract. If the requirements of this Section are more restrictive than those of the local regulations, the requirements of this Section shall govern.
B. Each internal combustion engine, used for any purpose related to this Contract, shall be enclosed and be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler and enclosure.

1.5 VEGETATION PRESERVATION

A. The Contractor shall not remove, deface, injure, or destroy trees, shrubs, or similar natural features not designated for removal. The Contractor shall confine operations to within the clearing limits or other areas designated in the contract documents, and prevent the depositing of rocks, excavated materials, or other debris outside of these limits. Material which falls outside of these limits shall be retrieved, disposed of, or incorporated in the work as directed by the Representative.

B. No objectionable material shall be allowed to enter any stream, river, lake, or other body of water. Material which falls in these areas shall be retrieved and disposed of, or incorporated in the work as directed by the Representative, and damage to vegetation or structures outside the project limits shall be repaired as directed by the Representative.

C. The Contractor shall not operate equipment or otherwise disturb the natural vegetation and soil beyond the areas flagged on the ground or beyond two feet from edge of channel restoration, top of cuts, or toe of fills.

D. The Contractor will make every reasonable attempt to preserve the scenic and natural environment along this construction project.

E. Prior to the start of construction, the Contractor shall submit to the Contracting Agent and Representative for approval a schedule and plan for temporary pollution control measures.

F. Contractor to implement preventative measures (e.g. cleaning of clothing and equipment) to control the spread of invasive species and non-native plants.

.6 WORK AREA ISOLATION PLAN

A. Before starting work on the project, the Contractor shall submit, for acceptance by the Contracting Agent, a "Work Area Isolation Plan" for the God Wants You Slough connection developed in accordance with the Drawings and **Section 02140, Work Area Isolation**. The plan shall be implemented during construction of the project to control water and aquatic organism access to the Project Site.

B. The Contractor shall not perform any excavation, or earthwork of any type on the project until a acceptance of the "Work Area Isolation Plan" has been received from the Contracting Agent. If in the opinion of the Contracting Agent, the plan does not sufficiently address the objectives outlined in this Section and **Section 02140**, the Contractor shall revise the plan accordingly to the satisfaction of the Representative.

C. Full compensation for conforming to the requirements of this Section shall be considered as included in the lump sum price paid for the various items of work, and no additional compensation will be allowed therefore.

1.7 EROSION CONTROL

A. Contractor shall implement the following to prevent pollution related to construction operations:

1. Practices to prevent erosion and sedimentation associated with access routes, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations and staging/storage areas.
2. A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.

3. Practices to prevent construction debris from dropping into any stream or water body, and to remove any material that does drop with a minimum disturbance to the streambed and water quality.

B. Erosion control measures shall be in place prior to commencing construction, including downslope controls to prevent sediment deposition. During construction, all erosion controls shall be inspected by the Contractor daily to ensure they are working adequately.
    1. If inspection shows that the erosion controls are ineffective, work crews will be mobilized immediately to make repairs, install replacements, or install additional controls as necessary.
    2. Sediment must be removed from erosion controls once it has reached 1/3 of the exposed height of the control.
C. Contractor shall provide measures to prevent movement of soil into waterways or wetlands.All vegetative materials shall be sterile with no invasive species or non-native seeds or plant materials.
D. Contractor shall prepare and have on-site a spill containment and control plan with notification procedures, equipment, specific cleanup and disposal instructions for all products used on site.
E. Contractor shall have an emergency supply of sediment control materials on hand (silt fence, straw bales, etc.), an oil adsorbing floating boom, and absorbent pads.
F. Stationary power equipment, such as generators, within 150 feet of the water shall be diapered to prevent leaks.
G. All power equipment within 150 feet of the water shall be inspected daily for fluid leaks and repaired. The contractor must keep daily inspection reports in a diary.

PART 2 - EXECUTION

3.1 DUST ABATEMENT

Application of water shall control dust to prevent excessive loss of soil from exposed surfaces and road materials from equipment traffic and provide for user safety. Provide at a frequency and rate which controls dust such that vehicle tail lights and turn signals remain visible. Vary rates of application as needed but remain low enough to avoid forming rivulets. Accomplish the abatement by sufficient frequency of application without saturating and softening the traveled way.

3.2 MAINTENANCE

Inspect, repair, and replace as necessary erosion control measures during the time period from start of construction to completion of construction.

3.3 FIELD QUALITY CONTROL

Replace or repair failed or overloaded control measures within two (2) days after observation of failure or overload.

3.4 CLEANUP

Dress sediment deposits remaining after fence has been removed to conform to existing grade. Prepare and seed graded area per Section 02900, Site Reclamation.

SECTION 01600 - PROTECTION OF MATERIALS

PART 1 - GENERAL

Contractor furnished materials shall be shipped, handled, stored, and installed in ways that will prevent damage to the items. Damaged items will not be permitted as part of the work, except in cases of minor damage that have been satisfactorily repaired and are acceptable to the Representative.

PART 2 - EXECUTION

3.1 DELIVERY OF MATERIAL

Contracting Agent's and Representative's personnel will not accept material deliveries for the Contractor.

SECTION 01720 - RECORD DRAWINGS

PART 1 - GENERAL

1.1 SCOPE

This section describes requirements for the preparation and maintenance of the project record drawings.

PART 2 - PRODUCTS

2.1 PROJECT RECORD DRAWINGS

The Contractor shall maintain a neat and accurate marked set of record drawings showing the final locations and layout of all excavations, fill, and treatments. Drawings shall be kept current, with all work instructions, change orders, and construction adjustments. Drawings shall be subject to the inspection of the Contracting Agent and/or Representative and progress payments, or portions thereof, may be withheld if drawings are not accurate and current. Prior to acceptance of the work, the Contractor shall deliver to the Contracting Agent one (1) set of neatly marked record drawings, accurately showing all the information required above.

SECTION 02140 - WORK AREA ISOLATION

PART 1 – GENERAL

1.1 DESCRIPTION

A. This section provides performance standards for the means of work area isolation including provisions for care of water.
B. The project will be implemented during the recommended work window provided by the ODFW South Coast District Fishery Biologist.
C. Fish salvage provisions are included in this section.
D. The Contractor shall comply with all federal, state, and local laws and regulations concerning environmental pollution arising from construction activities. All permit conditions must also be adhered to by the Contractor.

1.2 SUBMITTALS

A. Before work area isolation is commenced, the Contractor shall obtain the acceptance of the Contracting Agent and Representative for the method, installation, and details of the proposed work area isolation in God Wants You Slough (GWY). The work area isolation plan shall provide layout and methods of isolating Project Areas from active flow using industry standard techniques. **Wood placement in excavated channels can be completed in the wet and structure excavations do not need to be dry for wood placement. However, it is expected that GWY connection will be done during low tide** and Contractor shall provide a timing schedule accordingly within the isolation plan. The Contractor shall submit plan in accordance with **Section 01300, Submittals**. The work area isolation plans, at a minimum, shall indicate the following:
    1. An adequate work area sufficient to perform connection activities while conforming to means, methods, and material specifications presented in the Drawings and Specifications.
    2. Schedule GWY excavations and connection in relation to predicted tidal conditions. The following link is to the NOAA Tide Predictions at Gold Beach Oregon. (https://tidesandcurrents.noaa.gov/noaatidepredictions.html?id=9431011)
    3. Materials necessary for isolation.
    4. The personnel responsible for monitoring the work area isolation system and isolated work areas.
B. The Contractor's work area isolation plan must be approved by the Contracting Agent and Representative, and those provisions in place, prior to in-water work.

1.3 QUALITY ASSURANCE

A. The Contracting Agent and Representative shall be notified at least 48 hours in advance of commencing isolating activities.
B. The Contracting Agent and Representative shall be present during initial isolation.
C. The Contracting Agent shall be notified at least five (5) working days in advance of commencing fish salvage operations.
D. The Contracting Agent will handle fish salvage operations once coordinated with ODFW staff.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General. Contractor shall be responsible for sizing and design of temporary work area isolation measures. Comply with Drawings and regulatory requirements.

B. Turbidity curtain. Reusable components of the turbidity curtain shall be clean and free of potential exotic species.

PART 3 - EXECUTION

3.1 GENERAL

A. The Contractor shall furnish, install, operate, and maintain all machinery, appliances, and equipment proposed.

B. If the Contractor proposes pumping water, water shall be disposed of so as not to cause injury to public or private property, or to cause a nuisance or menace to the public.

    1. Maintain a fish screen on the pump intake to avoid juvenile fish entrainment (NMFS 2011 or most recent version). NMFS approval is required for pumping that exceeds 3 cfs.

C. Dewatering systems as proposed by the Contractor shall operate continuously until project construction has been completed, or at a minimum, excavation within dewatered area has been completed. When construction is complete, re-water the construction site slowly to prevent loss of surface water downstream, and to prevent a release of suspended sediment.

D. The Contractor shall be fully responsible and liable for all damages which may result from failure to adequately keep excavations isolated from active flow.

3.2 DISPOSAL OF WATER

A. The Contractor shall dispose of water resulting from dewatering operations in a suitable manner without damage to adjacent property and in accordance with all federal, state, and local laws and regulations. Sediment-laden water should be discharged to adjacent ground and not allowed to return to the stream.

3.3 WATER QUALITY

This section applies ONLY to the God Wants You Slough connection.

A. The Contracting Agent or designated representative will be responsible for water quality monitoring and subsequent documentation. Observations are to be collected in a daily log per Oregon DEQ Regional General Permit 4, Aquatic Habitat Restoration in Oregon — 401 Water Quality Certification (WQC) reporting standards and provided to Representative and/or agencies upon request.

B. Contractor is responsible for subsequent modification of BMPs and construction operations to ensure that any increase in suspended sediment meet Oregon DEQ Section 401 Water Quality Certification (WQC) standards.

C. Monitoring observations are to be conducted at locations and frequencies as directed in the Oregon DEQ Regional General Permit 4 depending on monitoring method used. If project caused turbidity is elevated above background, Contractor must implement additional controls and practices, continue monitoring, and possibly cease in-water work as directed by the 401 Certification Conditions. A copy of the 401 WQC can be obtained from the Contracting Agent.

D. Turbidity Control Measures: Implement all reasonably available controls and practices to minimize turbidity during in-water work, which may include, but are not limited to:
    1. Sequence/Phasing of Work — Schedule work activates so as to minimize in-water disturbance and duration of in-water disturbance;
    2. Upland erosion control — Install and maintain measures to prevent erosion of upland materials to waterways;
    3. Bucket control — All in-stream digging and fill using a bucket must be completed so as to minimize turbidity;
    4. Limit number and location of stream-crossing events;
    5. Excavated material must be placed in a manner so that it is isolated from the water edge or wetlands, and not placed where it could re-enter water of the state uncontrolled; and
    6. Apply other effective turbidity control techniques.

SECTION 02160 - SITE PREPARATION

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies site preparation which consists of clearing, grubbing, and disposal of materials.

1.2 JOB CONDITIONS

A. Existing Conditions: The Contractor shall determine the actual condition of the site as it affects this portion of work.

B. Protection of Existing Facilities: Site preparation shall not damage any non-project related existing infrastructure, paved areas, landscaping or vegetation adjacent to the areas designated for site preparation. The Contractor shall repair or replace any damaged property.

PART 2 - EXECUTION

3.1 CLEARING AND GRUBBING

A. General: All areas comprising the work shall be cleared and grubbed in accordance with the requirements of this section.

B. Clearing and Grubbing: Preservation of existing vegetation and trees is of utmost importance. The Representative and Contracting Agent will flag and walk the entire site with the Contractor's representative to clearly mark the clearing limits and vegetation to be saved or salvaged. Within the limits of clearing, the areas below the natural ground surface shall be grubbed to a depth necessary to remove all stumps, large roots, buried logs and all other objectionable material of any kind.

3.2 PROTECTION

The Contractor shall provide protection devices or demarcation of areas outside the project site to be avoided and protected.

3.3 CLEANUP

Debris, rubbish, and excess material resulting from the clearing and grubbing process shall be removed from the site in a manner that will prevent spillage on streets or adjacent areas. Spillage shall be removed from streets and adjacent areas. Federal, State, and local hauling disposal regulations shall be complied with. Cleanup shall be an on-going activity throughout the contract period.

3.4 DISPOSAL OF MATERIALS

All debris, rubbish, and excess material removed during clearing and grubbing work shall become the property of the Contractor and shall be removed from the project site at the Contractor's cost, unless designated as salvageable or useful in site restoration. Contractor shall make his own arrangements for disposing of these materials outside the project site and shall pay all costs involved. Arrangements shall include, but not be limited to, entering into agreements with property owners and obtaining necessary permits, licenses, and environmental clearances. Burning of materials on site is not allowed.

SECTION 02200 – EARTHWORK

PART 1 - GENERAL

1.1 DESCRIPTION

The Contractor shall furnish all labor, materials, equipment, and incidentals necessary to perform all excavation, backfill, grading, hauling, disposal of surplus and unsuitable materials, and compaction required to complete the work shown on the Drawings, and specified herein. The work shall include, but not necessarily be limited to; excavation and grading for structure site access, structure foundation excavation and backfill, excavation and disposal of floodplain soils for the development of connection channels, disposal of surplus and unsuitable materials, and all incidental related work.

1.2 APPLICABLE PUBLICATIONS

Reference Specifications, Codes, and Standards: ASTM D2488-09A, Standard Practice for Description and Identification of Soils, Visual Manual Procedure ASTM D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12400 ft-lbf/ft3).

1.3 QUALITY ASSURANCE

Inspection:

The Representative shall inspect excavation, backfill, and re-graded surfaces, and will either approve or reject grading based on conformance with the Drawings, and these Specifications.

PART 2 - PRODUCTS

2.1 EXCAVATION AND BACKFILL VOLUME ESTIMATES

All volumes reported in the Contract Documents are based on estimates from electronic surface terrain models and typical large wood structure designs which may vary at individual structure locations. Earthwork quantities reported in the Contract Documents do not include adjustment factors to account for moisture or compaction. The Contractor shall use their professional judgement to confirm earthwork quantities.

PART 3 - EXECUTION

3.1 GENERAL

A. Control of Water: See **Section 02140, Work Area Isolation**.

B. Over-excavation of Unsuitable Soils: Where organic materials, yielding subgrade, or other deleterious materials are encountered during excavations, they shall be removed as directed by the Representative and/or Contracting Agent. The resulting excavation shall be backfilled with material approved by the Representative. The Contractor shall promptly notify the Contracting Agent if these materials are encountered and over-excavation shall not proceed without approval of the Representative. Unsuitable soils shall be disposed of as surplus material.

C. Surplus Material: Unless otherwise specified, surplus excavated material shall be disposed of on onsite, after confirming with Contracting Agent on location of disposal. The Contractor shall confirm that there is sufficient material available for the completion of the work before disposing of any material. Shortage

of material, caused by premature disposal of any material by the Contractor, shall be replaced by the Contractor at their expense.

D. Survey Control Protection: Contractor to protect survey control points from excavating equipment and vehicular traffic.
E. Finish Grading: Finish grades and existing or natural grades in the area of work are indicated on the Drawings. The Contractor shall do all grading, filling, or excavating as required to completely grade the site to lines and grades shown. Where finished grade corresponds practically with existing grade, the ground shall be worked up and graded off evenly with existing grade. Filled areas shall be compacted so as to prevent settlements and the Contractor shall be responsible for a period of one year after final acceptance of the project to provide additional fill as necessary to bring to grade any areas which settle below the indicated grades and to replace and repair any planting or work damaged by such settlement.
F. Tolerances: Finished grade shall be to the line and grade shown on the plans to within a tolerance of plus or minus 0.25 ft.
G. Control of Erosion: The Contractor shall protect partially constructed surfaces from erosion.

3.2 EXCAVATION

Excavating operations shall comply with structure details shown in the Drawings. The upper 12" of material within the soil reuse area designated in the Plans will remain onsite and used as fill and as dressing over the high floodplain areas to assist in vegetation taking hold. All other material will be stockpiled at Freeman Rock. Freeman Rock will be responsible for the sorting and subsequent fate of these materials. The boundaries of the reuse area and depth specification may be modified at the discretion of the Project Representative based on the nature of materials encountered during excavation.

3.3 SUBGRADE PREPARATION

Ground surfaces receiving fill shall be prepared by clearing and grubbing as specified in Section 02160, Site Preparation, and by removing soil which is high in organic content and other deleterious material.

3.4 FILLING OPERATIONS

Filling operations shall comply with Construction Notes contained within in the Drawings. Backfill materials shall comply with specified gradations identified in the Drawings and Specifications. Fill operations shall not be done when the ground is frozen, excessively wet, or in a condition that prevents appropriate compaction.

3.5 COMPACTION

Compaction requirements for individual fill components shall comply with specifications listed on the Drawings and in **Section 05000, Large Wood Structure**.

3.6 CLEAN UP

After completing all earthwork, the Contractor shall leave the site in a neat and clean condition, doing such grading as is required by the Drawings. Any existing features, structures, and other facilities damaged or affected by the work shall be replaced, repaired, or restored to their original condition or better.

SECTION 02900 - SITE RECLAMATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section specifies site restoration as it pertains to reclamation of areas disturbed during construction, including temporary access routes and staging/stockpiling areas, to pre-project conditions or better.
    1. All damaged or disturbed streambanks and floodplains are to be restored to a natural slope pattern and profile for establishment of permanent woody vegetation.
    2. All disturbed areas including streambanks, temporary access routes, and staging/stockpiling areas as specified on project drawings are to be treated with an erosion control seed. Reseed each area before the end of the first planting season following construction.

B. This section does not pertain to revegetation beyond initial erosion control seeding which will be completed by the Contracting Agent.

1.2 QUALITY ASSURANCE

A. The Contracting Agent and/or Representative will mark by flags or stakes the outer extent of each reclamation area prior to treatment.

1.3 SUBMITTALS

A. Submit in accordance with **Section 01300, Submittals**.
    1. Seed supplier information and materials data, and
    2. Weed-free certified straw documentation.

PART 2 - PRODUCTS

2.1 EROSION CONTROL SEED

Seed mix and composition must comply with specifications provided on the Drawings.

PART 3 - EXECUTION

3.1 EROSION CONTROL SEEDING

A. Erosion Control seed to be applied per erosion control seeding notes contained within the Drawings.
B. Weed-free certified straw use only.
C. No surface fertilizer application within 50 feet of any wetland or water body.

SECTION 05000 - LARGE WOOD STRUCTURE

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section specifies construction of stabilized large wood structures along banklines for habitat complexity.

B. Wood placement is expected to be completed in the wet and structure excavations do not need to be dry for wood placement, rather they need to be isolated from active flow per **Section 02140, Work Area Isolation.**

1.2 QUALITY ASSURANCE

A. Usage of native materials as structure backfill shall be approved by the Representative prior to structure backfill. Material larger than 12" diameter shall be removed and backfill shall be compacted in lifts to approximately 90% relative compaction.

B. The Representative and Contracting Agent shall be notified at least 48 hours in advance of structure construction.

C. The Representative (or Inspector) shall be present during structure construction.

1.3 APPLICABLE PUBLICATIONS

ASTM Method C-127, Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate.

OAR 629-630-0000, Oregon Department of Forestry, OAR 630 (Harvesting)

PART 2 - PRODUCTS

2.1 LARGE WOOD WITH ROOTWAD

A. Anticipated source: Procured and stockpiled at restoration sites by Contracting Agent

B. Large wood members with rootwads shall be cedar, spruce, hemlock, pine, or fir with limbs and branches intact to the fullest extent possible. Members are to free from rot or other defects that may cause breakage during installation.

C. Rootwads with stems consist of the root fan of the tree with a length of attached stem. The stem length measurement begins where the root fan has tapered to the tree diameter, typically 6-8 feet from the bottom of the root fan.

2.2 LARGE WOOD

A. Anticipated source: Procured and stockpiled at restoration sites by Contracting Agent.

B. Large wood members without rootwads shall be cedar, spruce, hemlock, pine, or fir with limbs and branches intact to the fullest extent possible. Members are to free from rot or other defects that may cause breakage during installation.

C. Large wood members consist of the middle portion of the tree, above the rootwad and below the tree top.

2.

2.3 WHOLE SMALL TREES

A. Anticipated source: Procured and stockpiled at restoration sites by Contracting Agent.
    1. If a sufficient number of whole small trees are not procured by the Contracting Agent, or developed by the Contractor during pioneering of temporary access routes, then limby tree-tops may be used in their place within large wood structure development.
B. Whole small trees shall be cedar, spruce, hemlock, pine, or fir and shall include the trees rootwad, limbs, and branches.
C. Quantity and dimensions of whole small trees to be per material schedules contained within the Drawings.

2.4 LIMBS/TREE-TOPS

A. Anticipated source: Procured and stockpiled near restoration sites by Contracting Agent and/or developed by Contractor during pioneering of temporary access routes and site preparation actions.
B. Limbs and tree-tops shall be (green) cedar, spruce, hemlock, pine, or fir.
C. Quantity and dimensions of members to be per material schedules contained within the Drawings.

2.5 BACKFILL GRAVELS

A. Anticipated source: Salvaged from project excavations and/or purchased and imported to site by Contractor.
B. Backfill gravels shall primarily be natural excavated materials free from organic materials, wood, and deleterious materials. Material larger than 12” diameter shall be removed.

PART 3 - EXECUTION

3.1 DELIVERY AND STORAGE

Materials shall be delivered to the site and stored in a manner that preserves the size, type, and integrity of each material to be incorporated into the work.

3.2 WOOD MEMBER END TREATMENT

Exposed butt ends of all large wood shall be roughened and broken. Exposed sawed butt ends are not acceptable.

3.3 SITE PREPARATION

A. Prepare structure sites per Section 02160, Site Preparation. Trees and shrubs shall be removed with rootwad/ball intact and stockpiled for re-planting during backfill.
B. Isolated structure site from active flow per Section 02140, Work Area isolation and Fish Salvage. Structure site should be adequately isolated to allow for wood and backfill placement and subsequent inspection by the Representative.
C. Excavate full footprint of Large Wood Structure prior to placement of individual members per Section 02200, Earthwork. All side slopes shall comply with OSHA requirements. Excavated gravels conforming to size specifications presented in Drawings shall be stockpiled for use as backfill gravels. Excavation for structure installation and handling of excess material are incidental to work.

3.4 PLACEMENT

Log placement and orientation shall be in general conformance with orientation shown on the Drawings. Wood placement is subject to the direction of the Representative. Burial depths may exceed those shown on the plans by up to 6 inches but must not be less than shown.

3.5 BACKFILL

A. Backfill should use retained alluvium and stockpiled mineral soils below grade if of adequate size, with topsoil placed at the ground surface to permit establishment of vegetation.
B. Backfill shall be "washed-in" with water to ensure adequate filling of void space within the structure and then compacted with an excavator bucket. Topsoil once placed over the backfill should be compacted with an excavator bucket and then roughened with the buckets' teeth prior to seeding the exposed surface.

3.6 LIMBS/TOPS TREATMENT

Limbs and tops shall be incorporated into the structure per the Drawings and at the direction of the Representative.

6 DRAWINGS

The following drawings were developed for the Project design and are part of the Contract Documents:

- **Elephant Bar Habitat Enhancement drawing set dated 12/23/2025 developed by O'Connor Environmental, Inc. (14 drawings)**

Elephant Bar Habitat Enhancement
Gold Beach, OR

Project Description

Two slough channels are to be excavated into Elephant Bar and tidally connected to God Wants You Slough to create new off-channel habitat for coho salmon and other aquatic species. Large wood structures will be installed and stabilized through partial burial for ballast. Approximately 3.9 and 7.5 acres of new habitat will be created at MLLW and MHHW respectively.

Construction Quantities

Soil Volumes

cut: 118,400 cubic yards (10.8 acres)
fill: 8,400 cubic yards (3.2 acres)
export: 110,000 cubic yards

Large Wood

(30) 40-ft long 2-ft diam. w/ rootwads
(28) 35-ft long 2-ft diam. w/ rootwads
(8) 30-ft long 2-ft diam. w/ rootwads
(58) 20-ft long 1-ft diam. whole trees/tops

Vegetation

(5,810) native trees
(8,730) native shrubs

General Construction Notes

Construction shall comply with all federal, state, and county regulations and permits and provisions provided by the Lower Rouge Watershed Council.

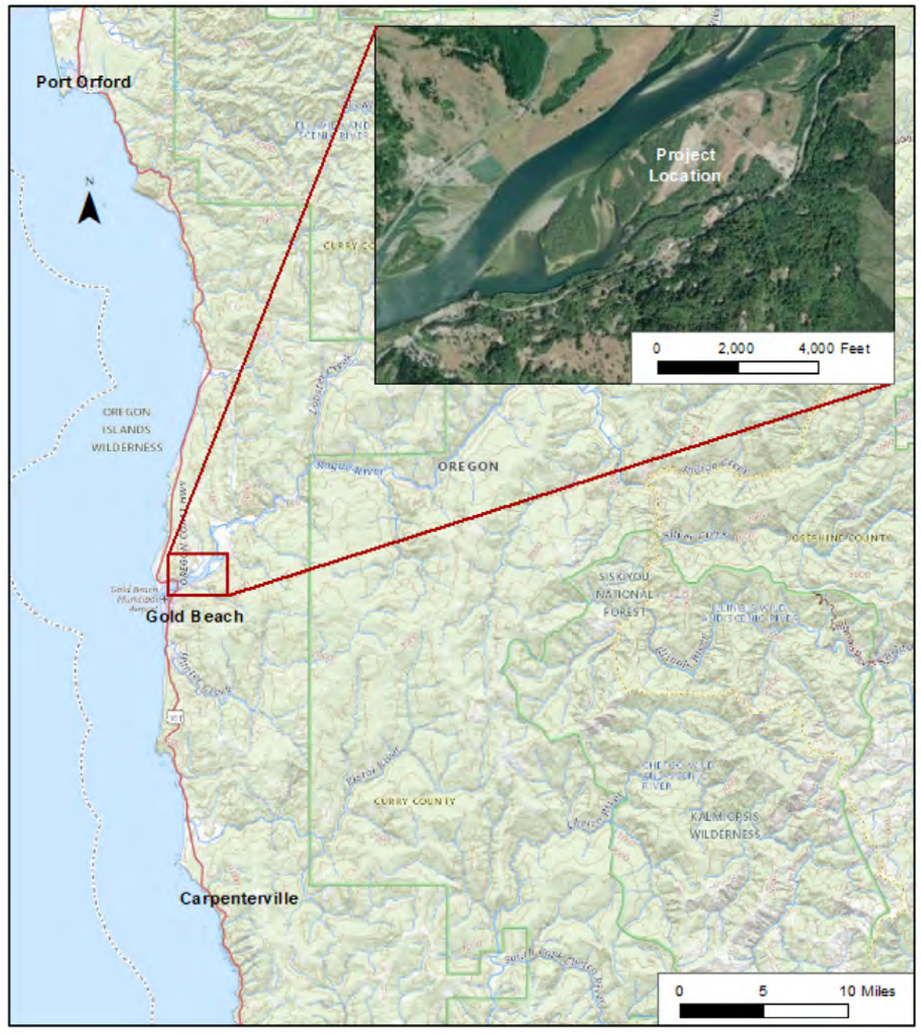
Construction contractor shall assume sole and complete responsibility for job site conditions during the course of construction, including safety of all persons and property and traffic control if necessary.

It is the contractor's responsibility to determine locations of all existing underground utilities through coordination with the property owner, Underground Service Alert, and utility companies.

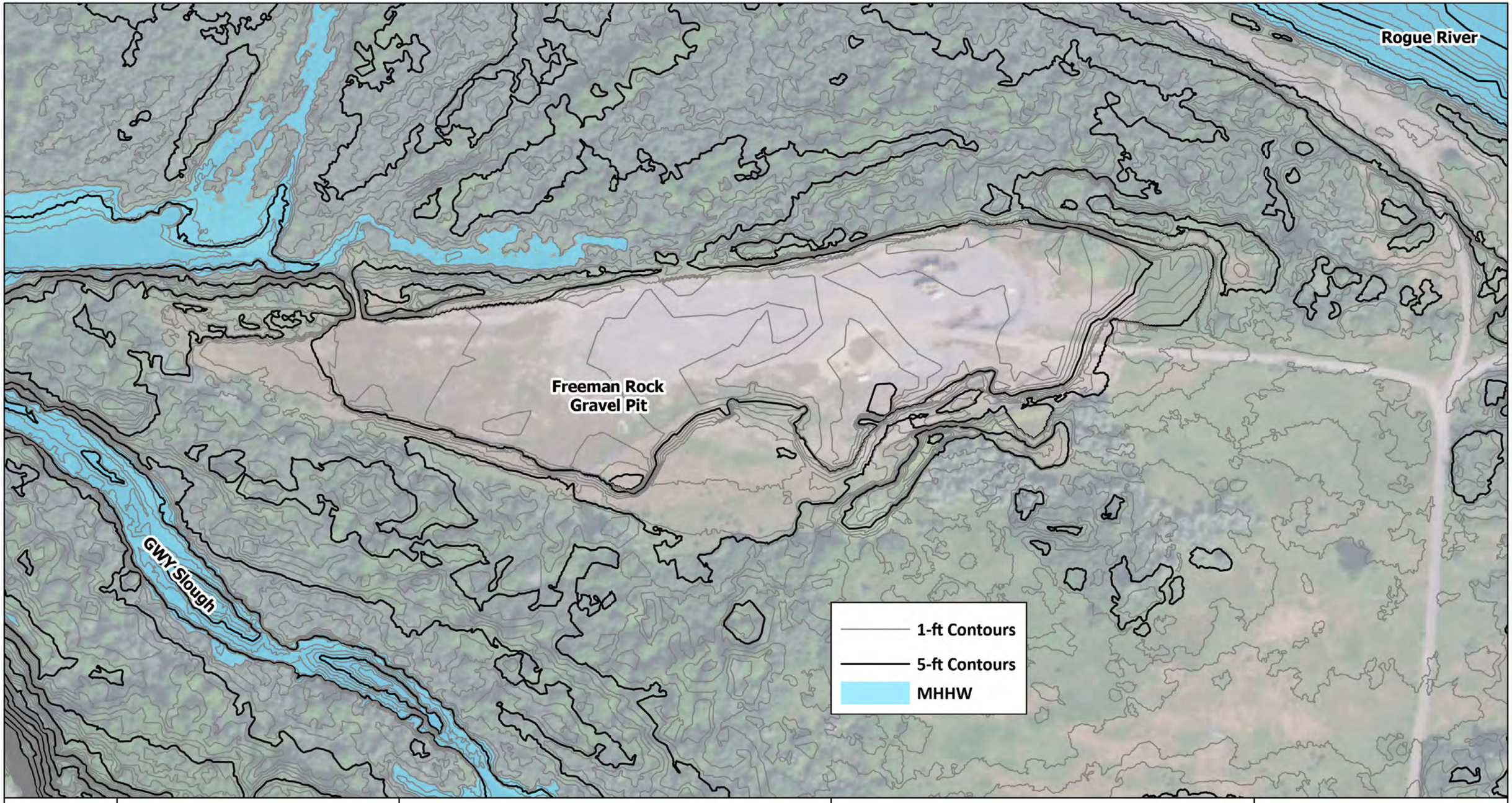
It is the contractor's responsibility to verify quantities shown for bidding purposes.

Drawing Index

Sheet 1 - Cover Sheet & Notes
Sheet 2 - Existing Conditions
Sheet 3 - Proposed Grading
Sheet 4 - Proposed Grading (detail-lower)
Sheet 5 - Proposed Grading (detail-upper)
Sheet 6 - Profiles
Sheet 7 - Cross Sections
Sheet 8 - Proposed Habitat Features
Sheet 9 - Large Wood Structure Details
Sheet 10 - Vegetation Plan
Sheet 11 - Site Access & Staging
Sheet 12 - Dewatering Plan
Sheet 13 - Best Management Practices
Sheet 14 - Construction Notes



Sheet 1 of 14	100% DESIGN 1/12/2026	COVER SHEET & NOTES Elephant Bar Habitat Enhancement Gold Beach, OR	O'Connor Environmental, Inc. 6670 NW Poverty Bend Road McMinnville, OR 97128 (971) 241-1971 www.oe-i.com



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100% Design

1/12/2026

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EXISTING CONDITIONS TOPOGRAPHY

Elephant Bar Habitat Enhancement

Gold Beach, OR

O'Connor Environmental, Inc.
6670 NW Poverty Bend Road
McMinnville, OR 97128
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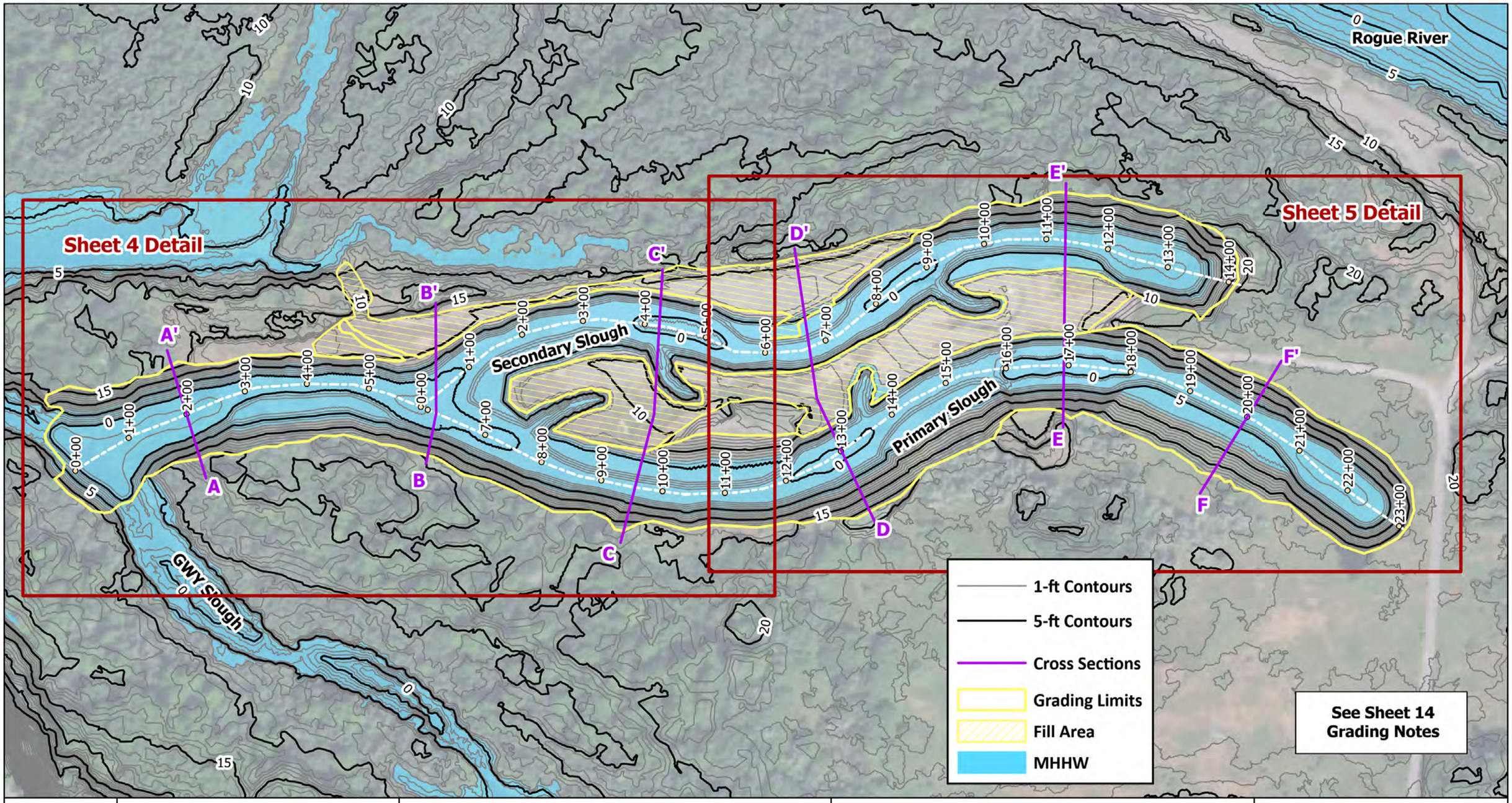

Sheet 3 of 14

100% DESIGN

1/12/2026

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PROPOSED CONDITIONS TOPOGRAPHY

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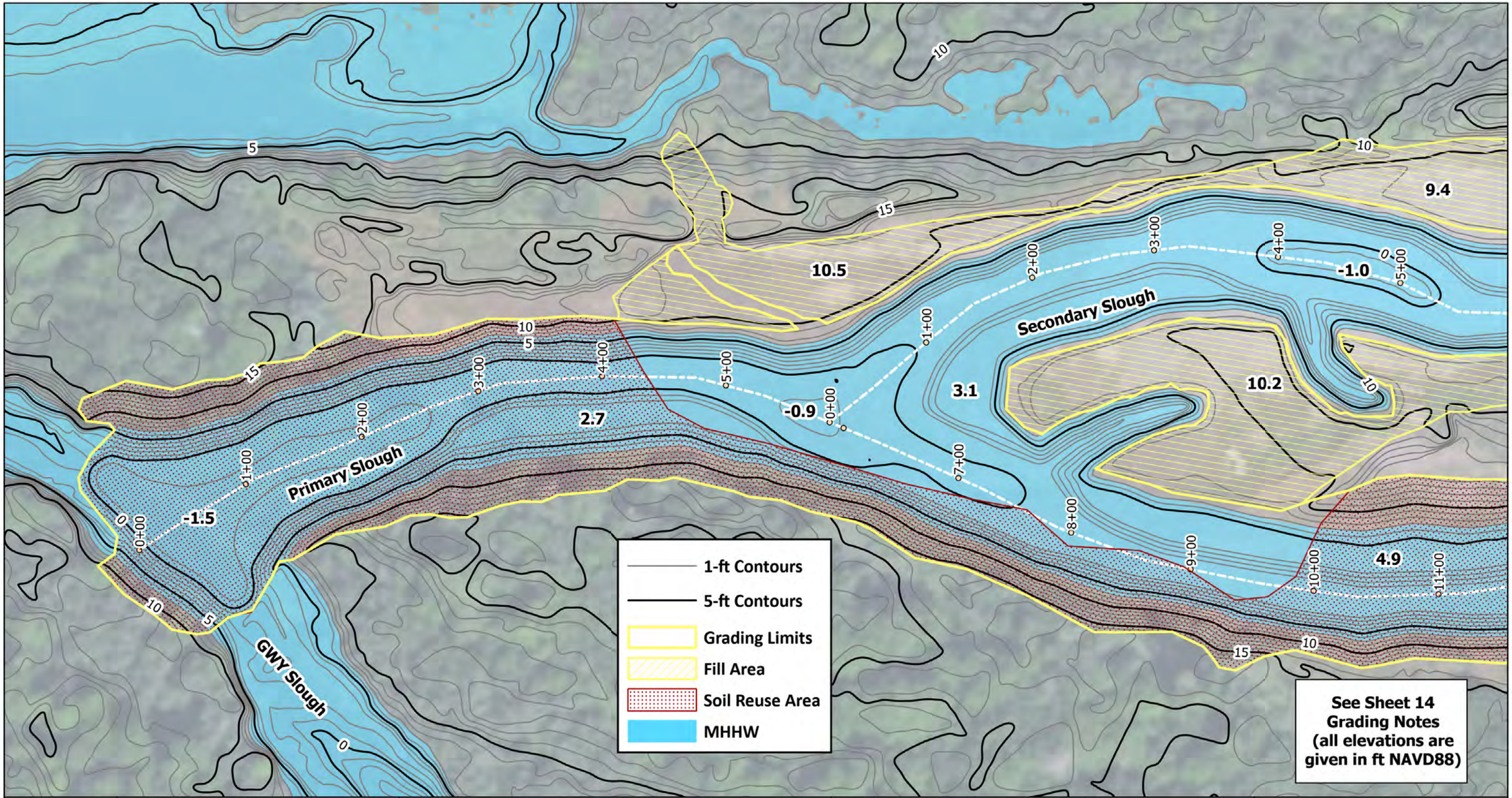

Sheet 4 of 14

100% DESIGN

1/12/2026

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PROPOSED CONDITIONS TOPOGRAPHY

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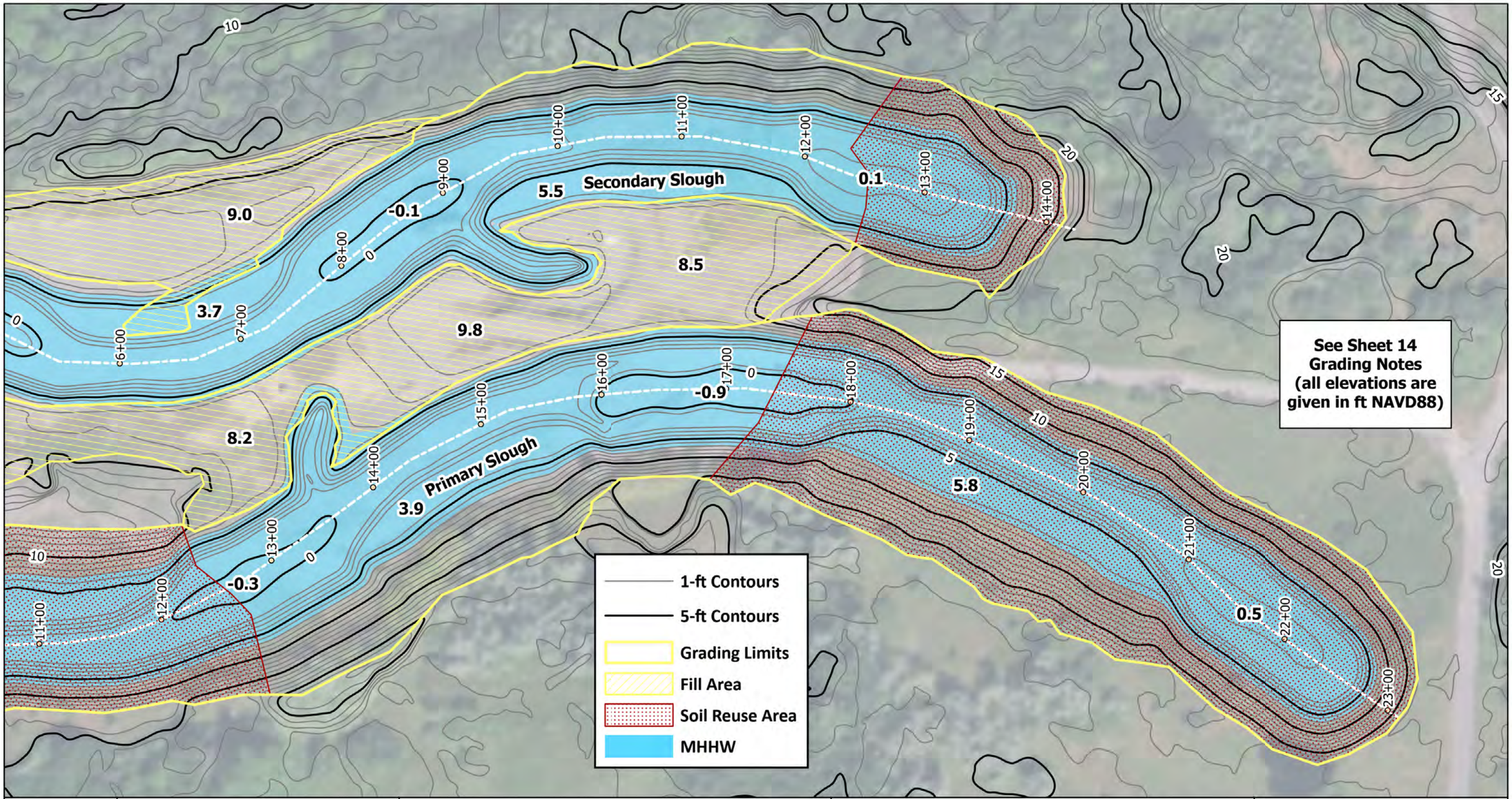

Sheet 5 of 14

100% DESIGN

1/12/2026

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PROPOSED CONDITIONS TOPOGRAPHY

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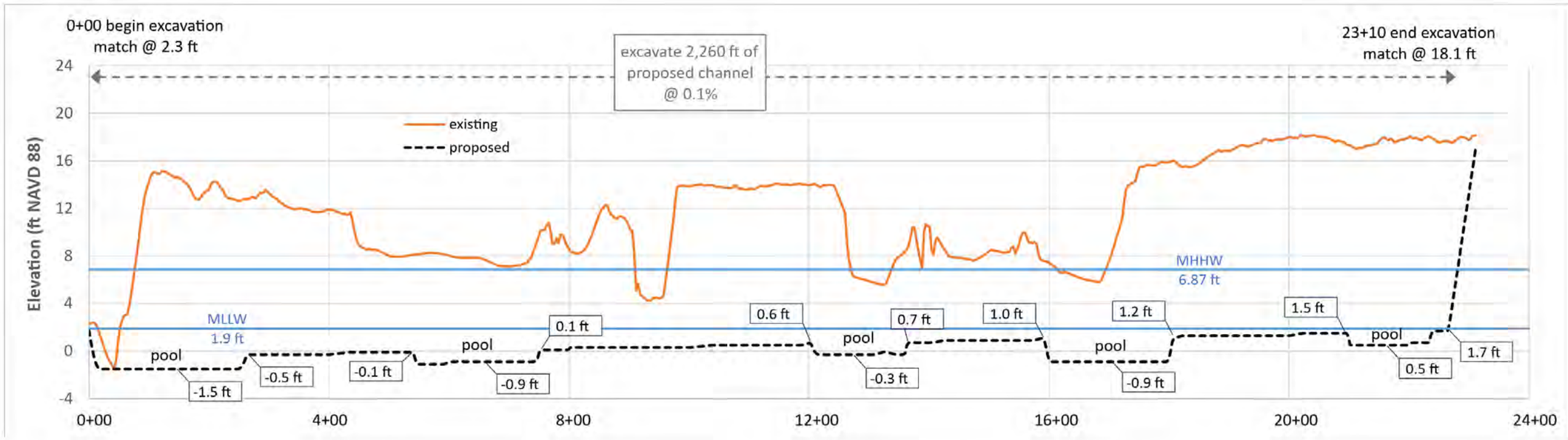
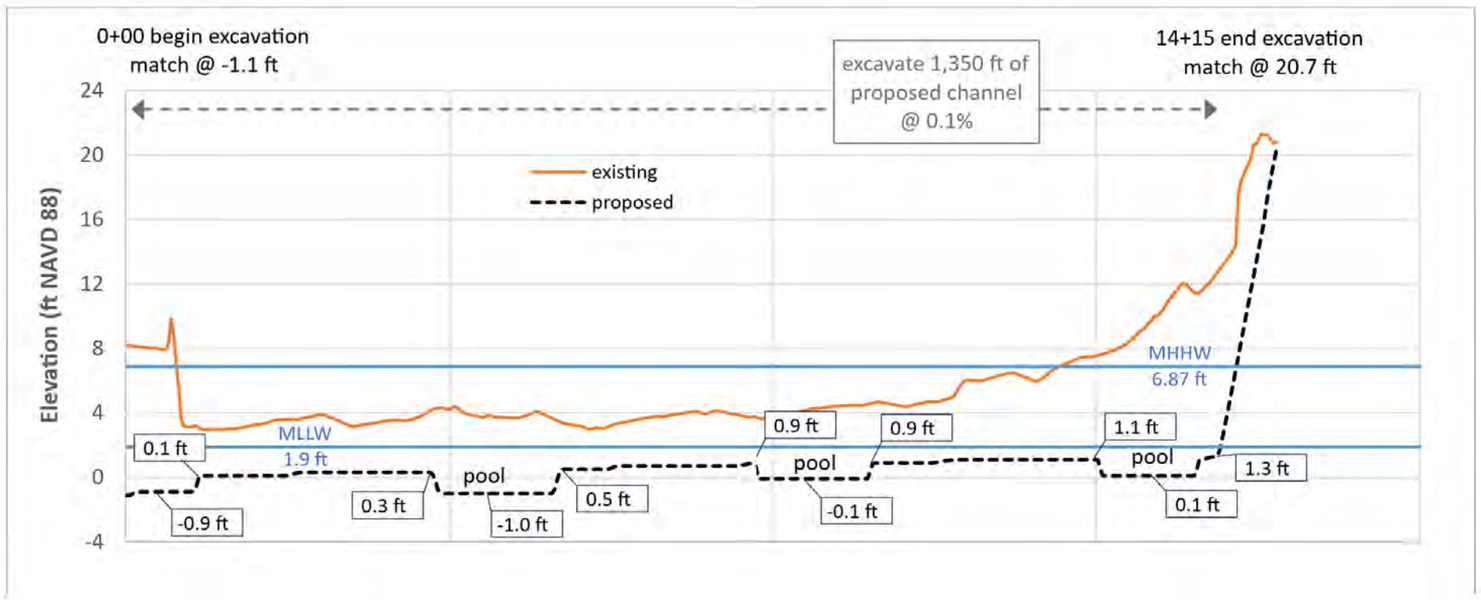
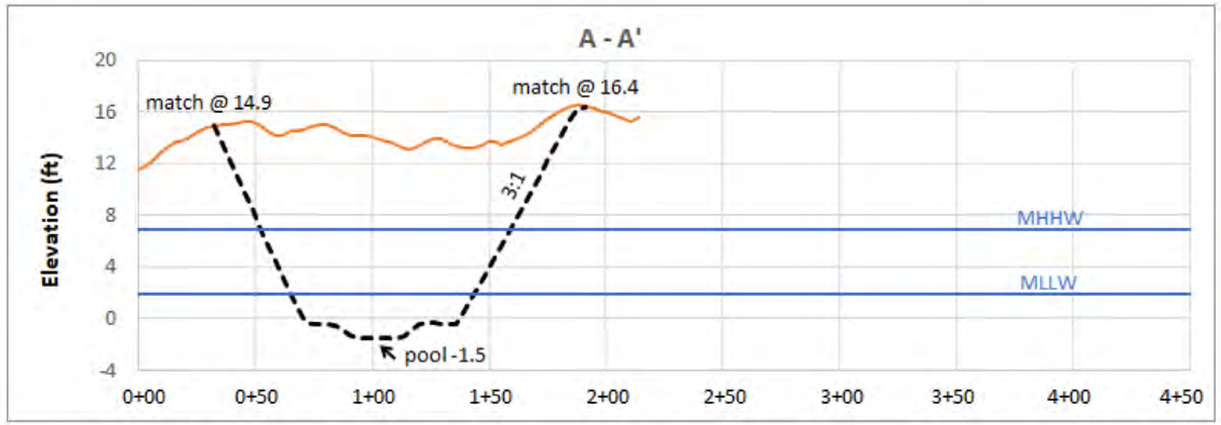


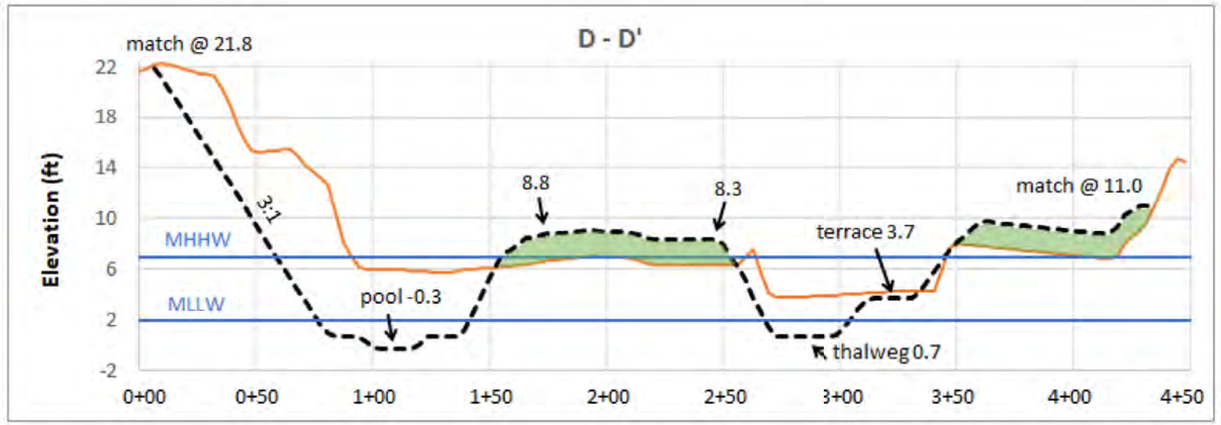
Proposed Primary Slough Channel Profile

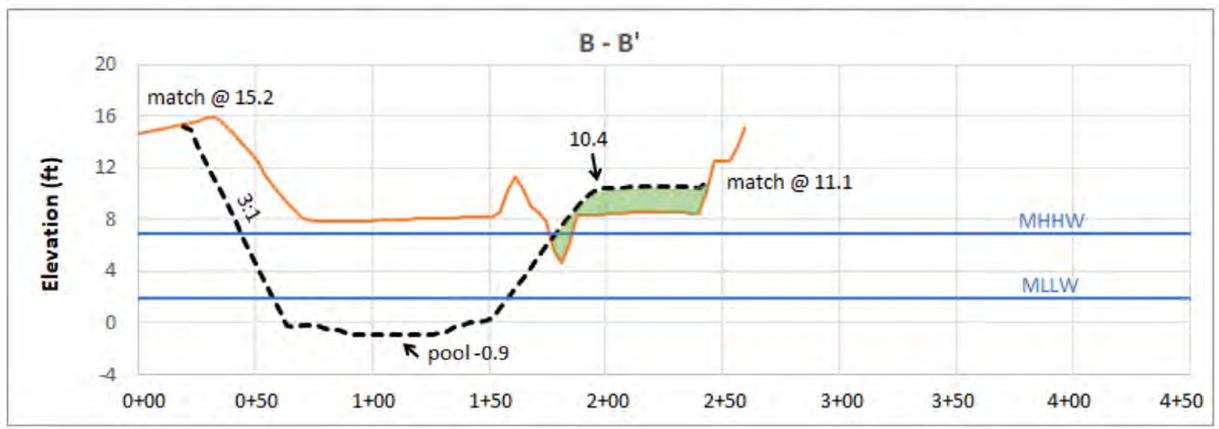


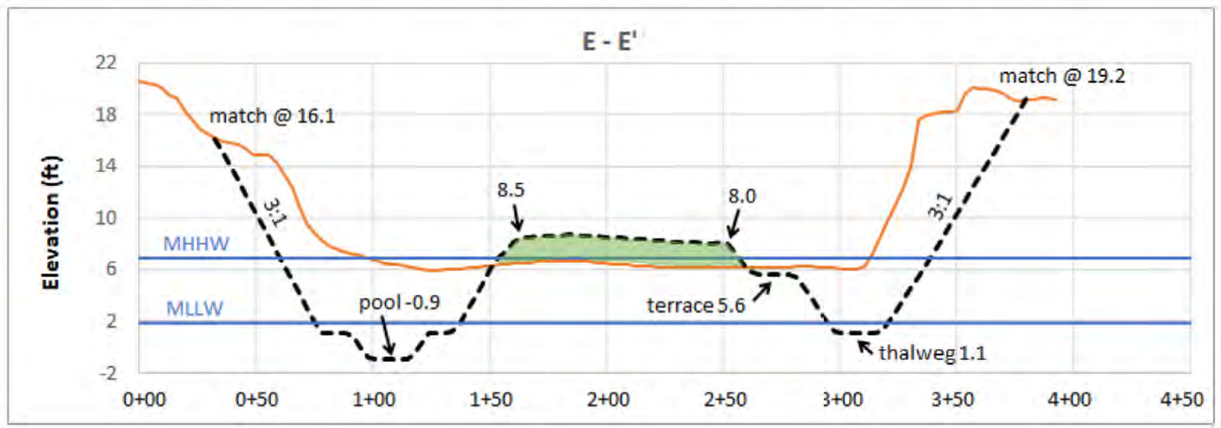
Proposed Secondary Slough Channel Profile

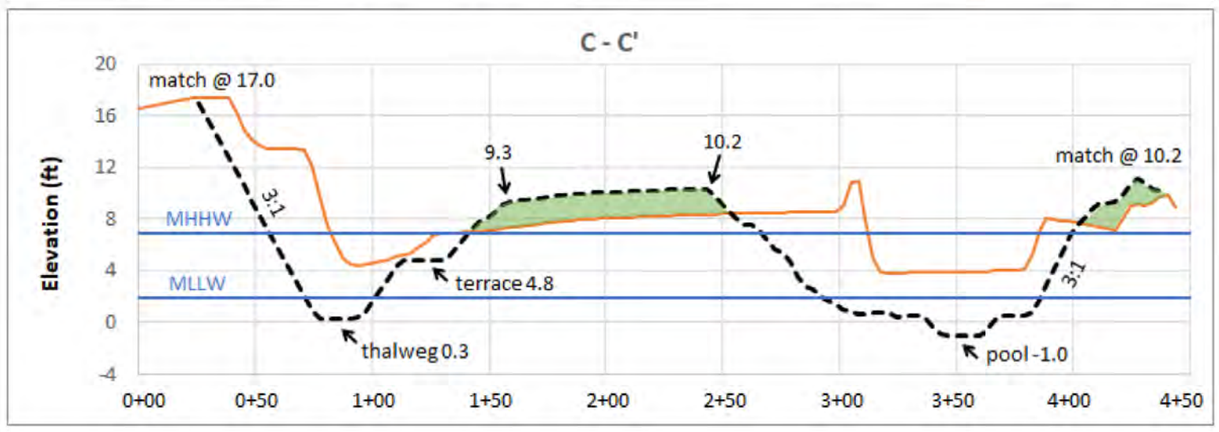
Sheet 6 of 14	100% DESIGN 1/12/2026	PROPOSED CONDITIONS Elephant Bar Habitat Enhancement Gold Beach, OR	PROFILES (20x vertical exaggeration)	O'Connor Environmental, Inc. 6670 NW Poverty Bend Road McMinnville, OR 97128 (971) 241-1971 www.oe-i.com

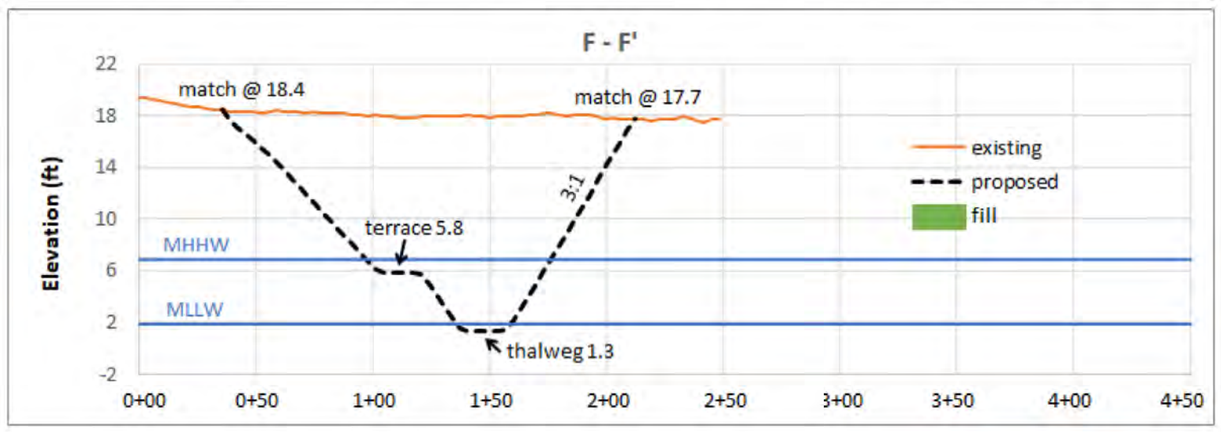












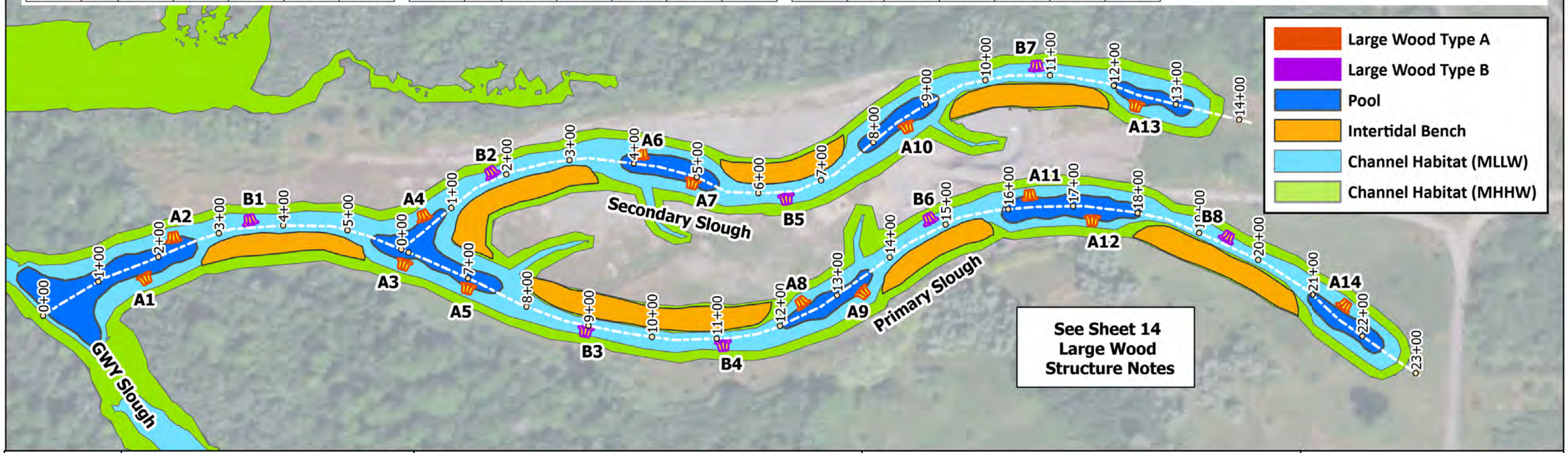
Sheet 7 of 14	100% DESIGN 1/12/2026	PROPOSED CONDITIONS Elephant Bar Habitat Enhancement Gold Beach, OR	CROSS SECTIONS (3x vertical exaggeration)	O'Connor Environmental, Inc. 6670 NW Poverty Bend Road McMinnville, OR 97128 (971) 241-1971 www.oe-i.com

Structure ID	Log #	Length (ft)	Lowest Elevation (ft)	Minimum Burial Length (ft)	Minimum Burial Depth (ft)	Thalweg Elevation (ft)
A1	1	35.0	-0.1	20.0	9.8	-1.0
	2	40.0	-1.1	23.0	9.5	-1.0
	3	35.0	-0.1	20.0	9.8	-1.0
A2	1	35.0	-0.1	20.0	9.8	-1.0
	2	40.0	-1.1	23.0	9.5	-1.0
	3	35.0	-0.1	20.0	9.8	-1.0
A3	1	35.0	-0.1	20.0	9.8	-1.0
	2	40.0	-1.1	23.0	9.5	-1.0
	3	35.0	-0.1	20.0	9.8	-1.0
A4	1	35.0	0.5	20.0	9.8	-0.4
	2	40.0	-0.5	23.0	9.5	-0.4
	3	35.0	0.5	20.0	9.8	-0.4
A5	1	35.0	0.7	20.0	9.8	-0.2
	2	40.0	-0.3	23.0	9.5	-0.2
	3	35.0	0.7	20.0	9.8	-0.2
A6	1	35.0	-0.2	20.0	9.8	-1.1
	2	40.0	-1.2	23.0	9.5	-1.1
	3	35.0	-0.2	20.0	9.8	-1.1

Structure ID	Log #	Length (ft)	Lowest Elevation (ft)	Minimum Burial Length (ft)	Minimum Burial Depth (ft)	Thalweg Elevation (ft)
A7	1	35.0	-0.2	20.0	9.8	-1.1
	2	40.0	-1.2	23.0	9.5	-1.1
	3	35.0	-0.2	20.0	9.8	-1.1
A8	1	35.0	0.9	20.0	9.8	0.0
	2	40.0	-0.1	23.0	9.5	0.0
	3	35.0	0.9	20.0	9.8	0.0
A9	1	35.0	0.8	20.0	9.8	-0.1
	2	40.0	-0.2	23.0	9.5	-0.1
	3	35.0	0.8	20.0	9.8	-0.1
A10	1	35.0	0.9	20.0	9.8	0.0
	2	40.0	-0.1	23.0	9.5	0.0
	3	35.0	0.9	20.0	9.8	0.0
A11	1	35.0	0.2	20.0	9.8	-0.7
	2	40.0	-0.8	23.0	9.5	-0.7
	3	35.0	0.2	20.0	9.8	-0.7
A12	1	35.0	0.3	20.0	9.8	-0.6
	2	40.0	-0.7	23.0	9.5	-0.6
	3	35.0	0.3	20.0	9.8	-0.6

Structure ID	Log #	Length (ft)	Lowest Elevation (ft)	Minimum Burial Length (ft)	Minimum Burial Depth (ft)	Thalweg Elevation (ft)
A13	1	35.0	1.9	20.0	9.8	1.0
	2	40.0	0.9	23.0	9.5	1.0
	3	35.0	1.9	20.0	9.8	1.0
A14	1	35.0	1.8	20.0	9.8	0.9
	2	40.0	0.8	23.0	9.5	0.9
	3	35.0	1.8	20.0	9.8	0.9
B1	1	40.0	-2.1	22.5	9.7	-0.4
	2	30.0	-2.1	17.5	9.2	-0.4
	3	40.0	-2.1	22.5	9.7	-0.4
B2	1	40.0	-1.4	22.5	9.7	0.3
	2	30.0	-1.4	17.5	9.2	0.3
	3	40.0	-1.4	22.5	9.7	0.3
B3	1	40.0	-1.4	22.5	9.7	0.3
	2	30.0	-1.4	17.5	9.2	0.3
	3	40.0	-1.4	22.5	9.7	0.3
B4	1	40.0	-1.6	22.5	9.7	0.1
	2	30.0	-1.6	17.5	9.2	0.1
	3	40.0	-1.6	22.5	9.7	0.1

Structure ID	Log #	Length (ft)	Lowest Elevation (ft)	Minimum Burial Length (ft)	Minimum Burial Depth (ft)	Thalweg Elevation (ft)
B5	1	40.0	-1.2	22.5	9.7	0.5
	2	30.0	-1.2	17.5	9.2	0.5
	3	40.0	-1.2	22.5	9.7	0.5
B6	1	40.0	-1.6	22.5	9.7	0.1
	2	30.0	-1.6	17.5	9.2	0.1
	3	40.0	-1.6	22.5	9.7	0.1
B7	1	40.0	-0.5	22.5	9.7	1.2
	2	30.0	-0.5	17.5	9.2	1.2
	3	40.0	-0.5	22.5	9.7	1.2
B8	1	40.0	-0.3	22.5	9.7	1.4
	2	30.0	-0.3	17.5	9.2	1.4
	3	40.0	-0.3	22.5	9.7	1.4



Sheet 8 of 14

100% DESIGN

1/12/2026

0 50 100 200 300 Feet

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PROPOSED HABITAT FEATURES

Elephant Bar Habitat Enhancement

Gold Beach, OR

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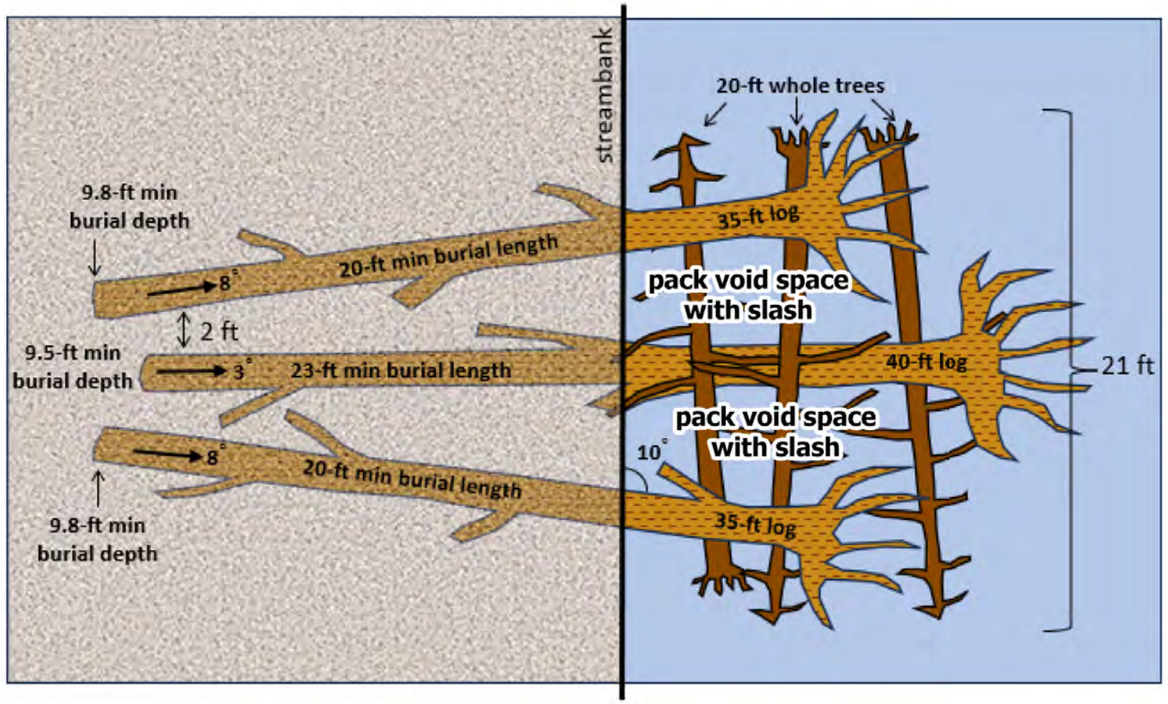
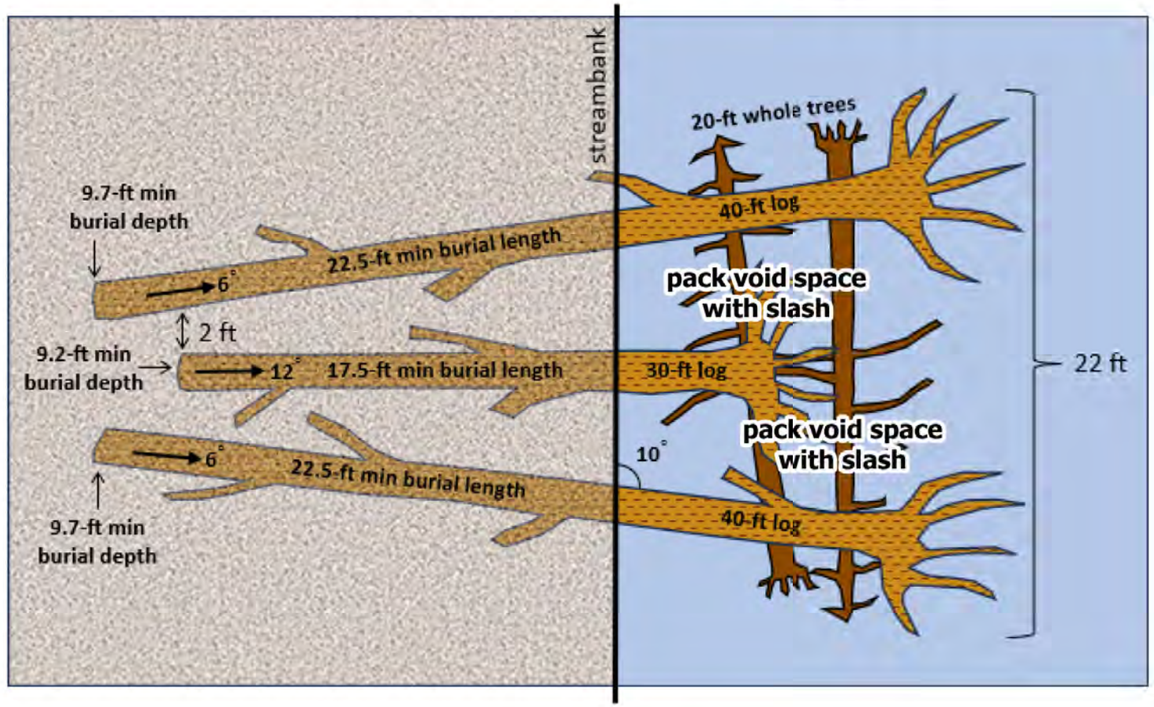
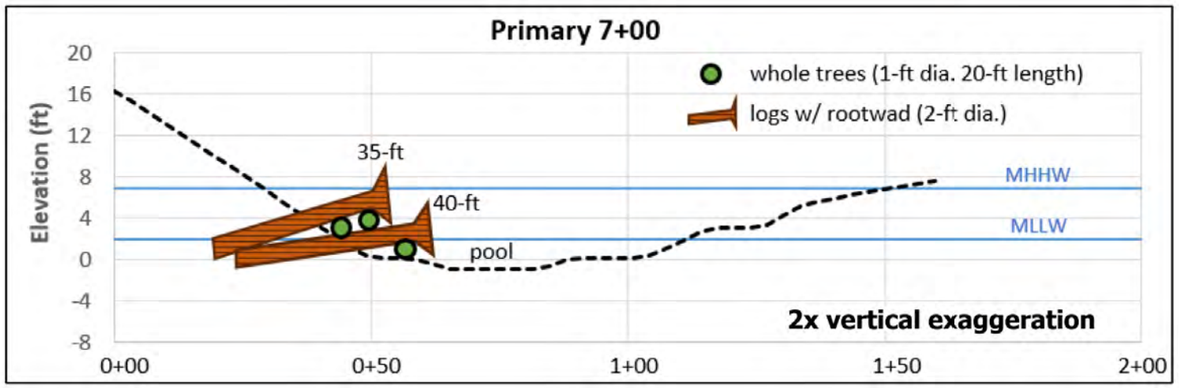
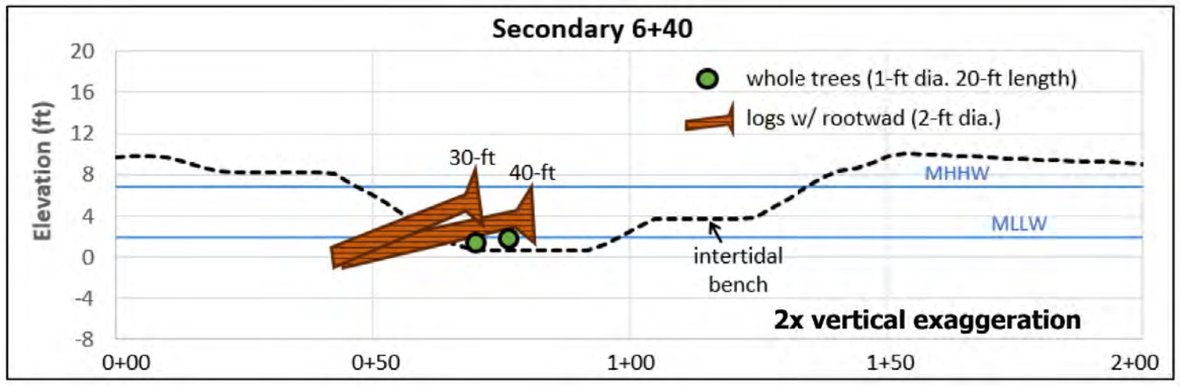
Typical Proposed Large Wood Structure A



Typical Proposed Large Wood Structure B



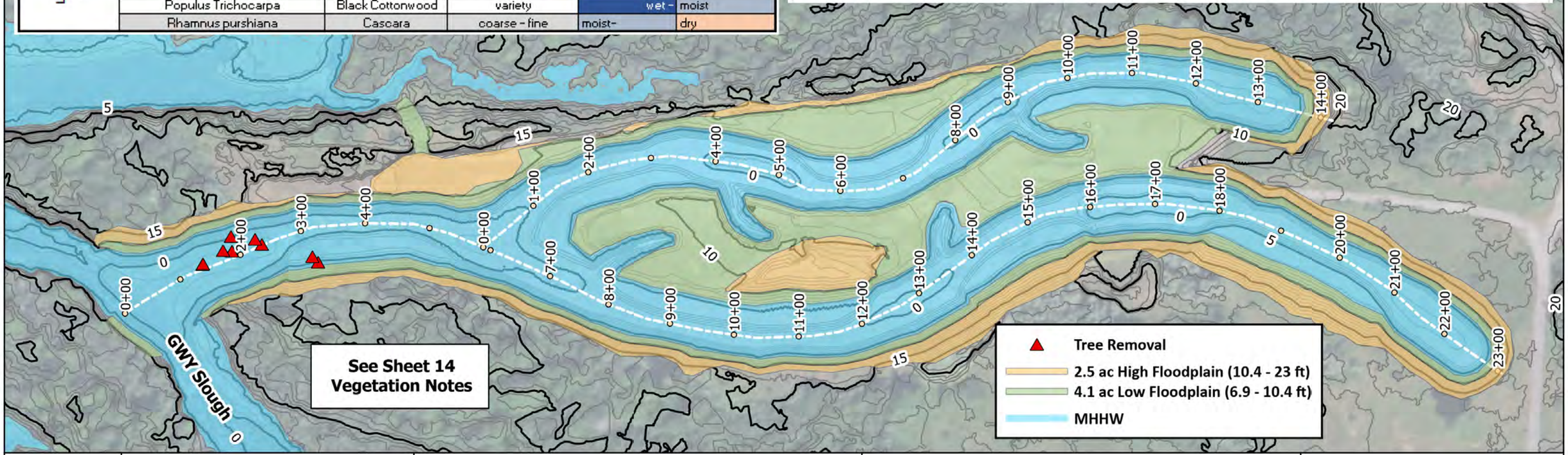




Sheet 9 of 14	100% DESIGN 1/12/2026	PROPOSED CONDITIONS Elephant Bar Habitat Enhancement Gold Beach, OR	LARGE WOOD STRUCTURE DETAILS	O'Connor Environmental, Inc. 6670 NW Poverty Bend Road McMinnville, OR 97128 (971) 241-1971 www.oe-i.com

Habitat Zone	Species		Soil Type	Moisture Requirement	
	Latin Name	Common Name			
Low Floodplain 5,430 Shrubs	Physocarpus capitatus	Pacific Ninebark	coarse - fine	Wet -	moist
	Holodiscus Discolor	Oceanspray	medium - fine	moist -	dry
	Lonicera involucrata	Black Twinberry	coarse - clay	Wet -	moist
	Cornus sericea	Red Osier Dogwood	variety	seasonally wet -	dry
	Spirea douglasii	Spirea	coarse - clay	moist	
	Oemleria cerasiformis	Indian Plum	coarse - fine	moist -	dry
	Philadelphus lewisii	Mock Orange	well drained	moist	
	Rosa nutkana	Nootka Rose	medium - fine	moist -	dry
	Salix spp.	Willow	variety	Wet -	moist
	Salix lucida	Tree-form Willow	variety	Wet -	moist
	Symphoricarpus Albus	Snowberry	variety, heavy clays	moist	
Low Floodplain 3,610 Trees	Thuja plicata	Western Red Cedar	well drained	moist	
	Chamaecyparis lawsoniana	Port Orford Cedar	sandy - fine	moist	
	Picea sitchensis	Sitka Spruce	well drained	moist	
	Sequoia sempervirens	Coast Redwood	gravelly - sandy loam	moist	
	Alnus rubra	Red Alder	gravel - silty loam	moist	
	Acer macrophyllum	Big Leaf Maple	gravel - silty loam	moist	
	Malus fusca	Oregon Crabapple		wet -	moist
	Populus Trichocarpa	Black Cottonwood	variety	wet -	moist
	Rhamnus purshiana	Cascara	coarse - fine	moist-	dry

Habitat Zone	Species		Soil Type	Moisture Requirement	
	Latin Name	Common Name			
High Floodplain 3,300 Shrubs	Physocarpus capitatus	Pacific Ninebark	coarse - fine	Wet -	moist
	Holodiscus Discolor	Oceanspray	medium - fine	moist -	dry
	Lonicera involucrata	Black Twinberry	coarse - clay	Wet -	moist
	Cornus sericea	Red Osier Dogwood	variety	seasonally wet -	dry
	Oemleria cerasiformis	Indian Plum	coarse - fine	moist -	dry
	Philadelphus lewisii	Mock Orange	well drained	moist	
	Rosa nutkana	Nootka Rose	medium - fine	moist -	dry
	Salix spp.	Willow	variety	Wet -	moist
	Salix lucida	Tree-form Willow	variety	Wet -	moist
	Symphoricarpus Albus	Snowberry	variety, heavy clays	moist	
High Floodplain 2,200 Trees	Thuja plicata	Western Red Cedar	well drained	moist	
	Chamaecyparis lawsoniana	Port Orford Cedar	sandy - fine	moist	
	Picea sitchensis	Sitka Spruce	well drained	moist	
	Pseudotsuga menziesii	Douglas Fir	well drained	moist -	dry
	Sequoia sempervirens	Coast Redwood	gravelly - sandy loam	moist	
	Populus Trichocarpa	Black Cottonwood	variety	Wet -	moist
	Alnus rubra	Red Alder	gravel - silty loam	moist	
	Acer macrophyllum	Big Leaf Maple	gravel - silty loam	moist	



Sheet 10 of 14

100% DESIGN

1/12/2026

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VEGETATION PLAN

Elephant Bar Habitat Enhancement

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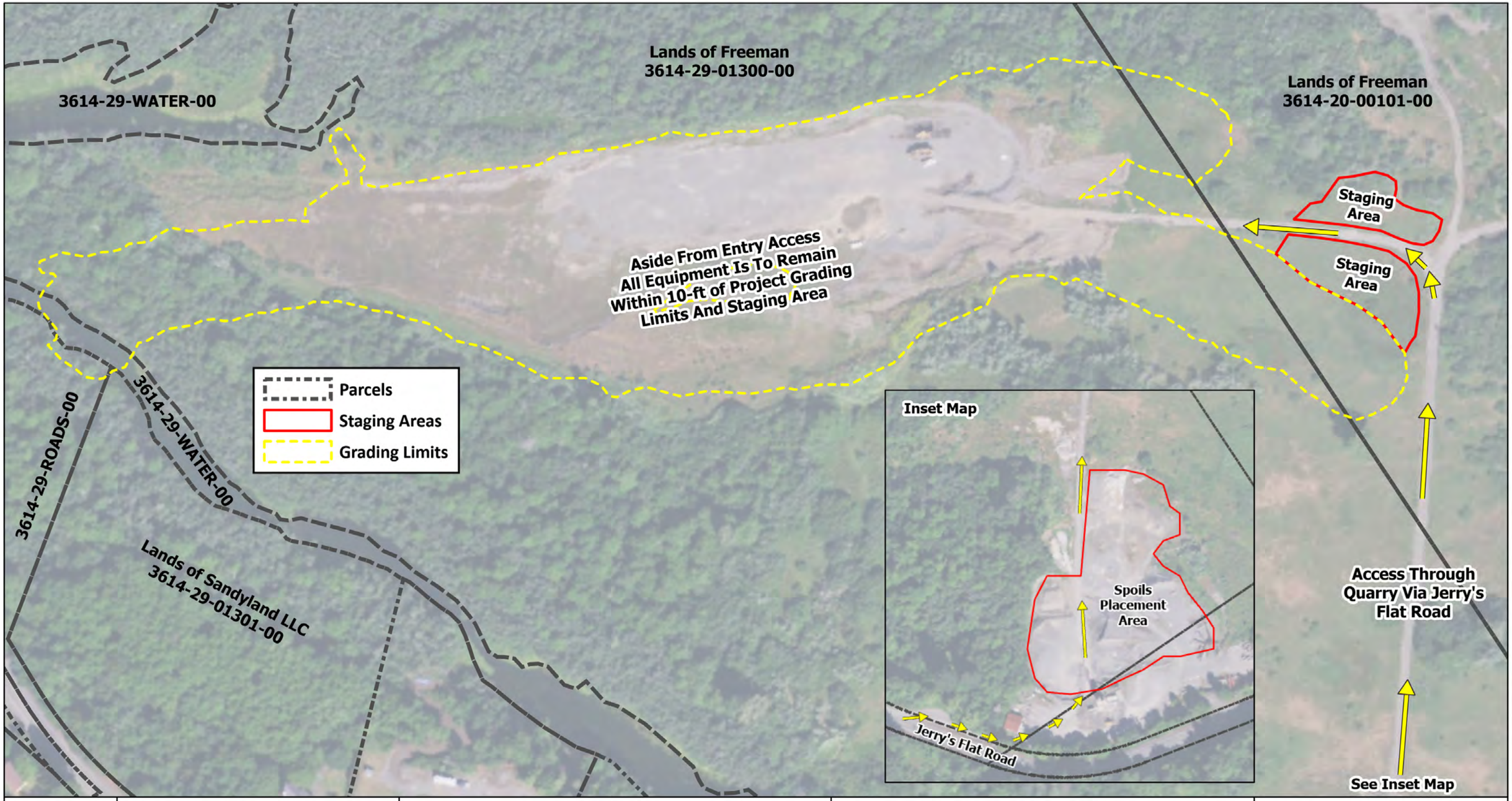
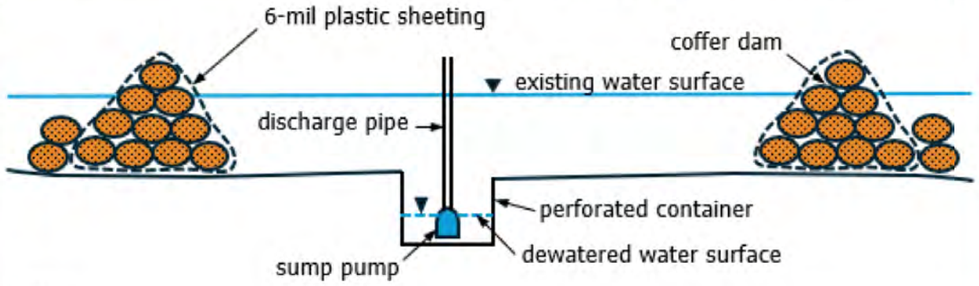
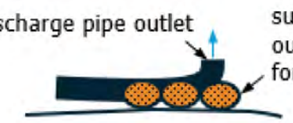


Sheet 11 of 14	100% DESIGN 1/12/2026	0 50 100 200 300 Feet 1:1,800	SITE ACCESS & STAGING Elephant Bar Habitat Enhancement Gold Beach, OR	O'Connor Environmental, Inc. 6670 NW Poverty Bend Road McMinnville, OR 97128 (971) 241-1971 www.oe-i.com



Notes:
1. Coffer dams installed to dewater intervening channel reaches for large wood installation using gravel bags and plastic sheeting or water filled coffer dams
2. Top of coffer dam elevations shall be a minimum of 2' above the existing water surface
3. Install gravel bags on top of plastic, then wrap plastic over stacked gravel bags at 2:1 minimum side slopes. Place gravel bags over plastic sheeting on outboard side of dam.

(1) Dewatering System



Notes:
1. Install 90 degree bend and gravel bag energy dissipators at all pipe outlets in the dewatering system to eliminate surface erosion.

(2) Outlet Energy Dissipator

Rogue River

Retain Crest At Existing Grade Until Completion Of All Upstream Work

Secondary Discharge Area

Secondary Discharge Area

Primary Discharge Area

Primary Discharge Area

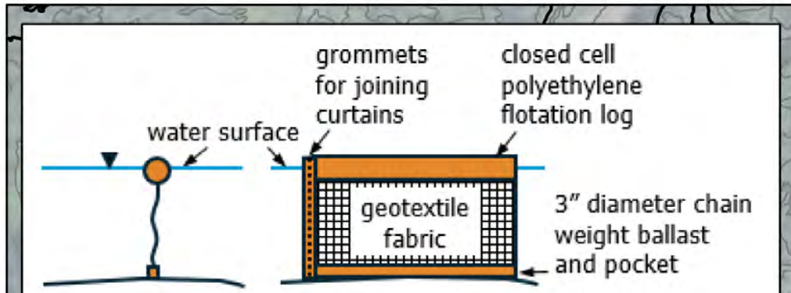
Primary Discharge Area

GWY Slough

Coffer Dams
Sediment Plug
Large Wood Structures
Intertidal Benches

See Sheet 14 Isolation & Dewatering Notes

Sheet 12 of 14	100% DESIGN 1/12/2026	0 50 100 200 300 Feet 1:1,800	DEWATERING PLAN Elephant Bar Habitat Enhancement Gold Beach, OR	O'Connor Environmental, Inc. 6670 NW Poverty Bend Road McMinnville, OR 97128 (971) 241-1971 www.oe-i.com



Notes:

1. Install floating silt curtains made from high-strength, high-filtration fabric designed to retain fine sediments.
2. Float and bottom sleeve shall be constructed from UV-stable, high-strength polyethylene.
3. Join multiple curtains with grommets as needed.

① **Turbidity Curtain**

Rogue River

Seed and Mulch per Sheet 14 Erosion Control Notes

Seed and Mulch per Sheet 14 Erosion Control Notes

Seed and Mulch per Sheet 14 Erosion Control Notes

Maintain Work Area Isolation by Retaining Crest At Existing Grade During Upstream Work

Staging Area

Staging Area

GWY Slough

Sediment Plug
Erosion Control Area
MHHW
Fish Screens
Turbidity Curtains

See Sheet 14 Fish Salvage & Erosion Control Notes

Sheet 13 of 14	100% DESIGN 1/12/2026	0 50 100 200 300 Feet 1:1,800	BEST MANAGEMENT PRACTICES Elephant Bar Habitat Enhancement Gold Beach, OR	O'Connor Environmental, Inc. 6670 NW Poverty Bend Road McMinnville, OR 97128 (971) 241-1971 www.oe-i.com

Fish Salvage Notes

The Contracting Agent shall coordinate with Oregon Department of Fish and Wildlife (ODFW) to remove existing fish in the affected portion of God Wants You Slough prior to isolation and construction activities. Fish salvage to be conducted per ODFW and NOAA requirements by trained fisheries biologists. If possible, fish will be allowed to migrate out of the work area and if necessary, a backpack electroshocker or seine net may be used. For the period between capture and release, all captured aquatic life will be immediately placed in clean dark colored five gallon buckets filled with clean river water. Fish species and life stages will be documented and fish will be released in a safe environment determined by ODFW biologists.

Isolation & Dewatering Notes

A sediment plug will be retained downstream of station 1+50 to isolate the majority of the work area from active flow until all upstream construction activities have been completed. Once upstream construction is complete, excavation of God Wants You Slough (GWYS) will occur followed by removal of the sediment plug. Prior to excavation, fish will be removed and excluded from the affected reach of GWYS with ODFW-approved fish screens and turbid water will be contained within the affected reach with turbidity curtains per Sheet 13 and drawing 1.

Following completion of grading activities, cofferdams will be used to dewater reaches of the proposed slough channels for installation of large wood structures per Sheet 12 and drawing 1. Groundwater elevations are expected to vary between ~3.5 and 4.5-ft NAVD 88 based on limited site monitoring data. Locations of cofferdams may be adjusted as needed to account for higher or lower than anticipated rates of groundwater inflow encountered during construction. Pumped water will be discharged using energy dissipators as specified in Sheet 13 drawing 2 at locations that prevent surface flow from entering GWY slough or the slough channel to the northwest of the project work area.

Large Wood Structure Notes

Install 14 Type A large wood structures consisting of one 40-ft long 2-ft diameter log with rootwad, two 35-ft long 2-ft diameter logs with rootwads, three 20-ft long 1-ft diameter whole trees/tree tops, and 22 yards of slash consisting of 2 to 6-inch diameter branches or trees. Install 8 Type B large wood structures consisting of one 30-ft long 2-ft diameter log with rootwad, two 40-ft long 2-ft diameter logs with rootwads, two 20-ft long 1-ft diameter whole trees/tree tops, and 28 yards of slash consisting of 2 to 6-inch diameter branches or trees.

Structures are stabilized by soil ballast from partial burial of logs with rootwads. Burial depths and lengths shall be equal to or no more than 6" greater than those specified in Sheet 8. Each 20-ft long whole tree shall be woven into structures such that they are pinned against the channel bed or underlying log. Slash shall consist of green tree tops with intact branches and shall be tightly packed into structures. Excavated materials shall be stockpiled and re-used as backfill which will be compacted to 90% or greater in lifts using an excavator bucket and once fully-buried a 5,000 pound or greater tracked vehicle. Clasts larger than 12" will be removed from fill and water may be needed to obtain proper compaction.

Vegetation Notes

The Contracting Agent shall be responsible for re-vegetation which will occur during the first rainy season following project construction (December - March), though some livestakes may be installed in the late summer/early fall following project grading if the opportunity arises while excavators are still on site. All species other than willow and cottonwood will be sourced commercially as bareroot stock. Availability will dictate the species, size, and age of commercially-sourced plants, but 24"-36" and 1+1 or 2+1 stock will be preferred. Willow and cottonwood will be harvested as livestake cuttings from source plants adjacent to the project area and soaked for 3-5 days prior to planting. Bareroot stock will be planted using planting shovels and livestakes will be installed using a waterjet stinger or other appropriate means.

Erosion Control Notes

Following project grading and just prior to the onset of the rainy season, all disturbed areas above MHHW shall be broadcast seeded with a native grass seed mix at a rate of 8-12 lbs/ac. Seed shall be raked one quarter of an inch into the soil and compacted with a 5,000 pound or less tracked vehicle and then covered with weed-free straw placed at 5 tons per acre. Seed mix will be provided by the contracting agent and shall contain spike bentgrass, slender hairgrass, and annual hairgrass.

Grading Notes

All slopes shall be graded at an angle of 3:1. Grading limits will be staked and trees to be removed (>12" diameter) will be flagged by Project Representative prior to start of work. All vegetation within the project grading limits shall be cleared and grubbed. Vegetation within 10-ft of grading limits will only be removed as needed for access. Woody vegetation shall be re-used as salvage wood in large wood structures to the extent possible and all other wood shall be disposed of off-site. All blackberry remnants and rootballs shall be mechanically removed from soil and off-hauled. The upper 12" of material within the soil reuse area shown on Sheets 4 and 5 will remain onsite and be used as fill. The boundaries of the reuse area and depth specification may be modified at the discretion of the Project Representative based on the nature of materials encountered during excavation. Any additional soil materials will be placed as dressing over the high floodplain areas to assist in vegetation taking hold. All other material will be stockpiled in areas shown on Sheet 11 or nearby areas designated by Freeman Rock, LLC (Freeman). Freeman will be responsible for the sorting and subsequent fate of these materials. Placed fill will be compacted with a 5,000 pound or greater tracked vehicle.

Inspection/Construction Review

A pre-construction site meeting will be held with the Contractor, Contracting Agent, Representative, and landowner (Freeman) to discuss construction methods, schedule, staging areas, observation and inspection points and frequency. Project Representative shall provide construction review related to all work shown on this plan set. Progress reports shall be compiled by the Contractor and submitted to the Contracting Agent and Representative once per week and shall include a summary of work completed for the week and forecast of the following weeks' activities. Prior to finalizing installation of each wood structure and each major topographic element (e.g. benches, pools), the Project Representative shall verify that all plan specifications have been met with finished grades within 0.25-ft of specified grades. Project Biologist shall conduct and oversee biological protection according to permit conditions.

100% DESIGN

1/12/2026

0 50 100 200 300 Feet

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CONSTRUCTION NOTES

Elephant Bar Habitat Enhancement

Gold Beach, OR

O'Connor Environmental, Inc.
6670 NW Poverty Bend Road
McMinnville, OR 97128
(971) 241-1971
www.oe-i.com

Basis of Design Report for:
Elephant Bar Habitat Enhancement,
Gold Beach, OR

Curry Watersheds Partnership &
Lower Rogue Watershed Council
29286 Ellensburg Ave.
Gold Beach, OR 97444

Prepared by:

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Senior Hydrologist, O'Connor Environmental, Inc.

Matthew O'Connor, PhD
President, O'Connor Environmental, Inc.

November 12, 2024

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Introduction

This project was completed by O'Connor Environmental, Inc. (OEI) for the Curry Watersheds Partnership (CWP) and the Lower Rogue Watershed Council (LRWC) and consists of constructing new tidal and intertidal slough channel salmonid habitat on Elephant Bar located within the Rogue River Estuary. The project site is owned and operated as a gravel mining operation by Freeman Rock, Inc. and is located between the Rogue River and God Wants You (GWY) Slough along the south bank of the river near River Mile 2.6 (Figure 1). This report was developed based on 90% level plans and minor changes to the project not reflected in this report may occur. Please refer to the 100% design plans for final design details and specifications.

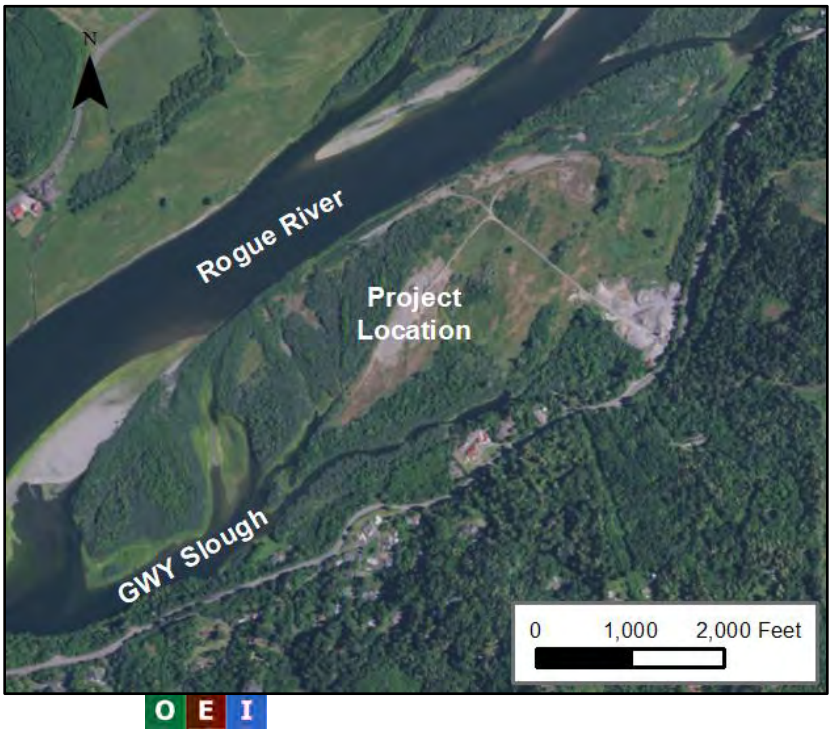
Existing Conditions

Existing conditions at the site were characterized from prior assessment of the Rogue River Estuary completed by OEI (Kobor & O'Connor, 2023) and from field reconnaissance and topographic surveying completed in 2023. The prior assessment work included development of a detailed 2-dimensional hydraulic model of the estuary, geomorphic and sediment transport assessment, and salmonid habitat mapping and analysis.

Topography

The central feature of the project site is an ~7-acre northeast to southwest-oriented gravel mining pit with bottom elevations ranging from 5 to 8.5 ft NAVD 88 (Figure 2). The pit is excavated 6 to 10 ft below the surrounding floodplain which generally lies at elevations of 14 to 18 ft. The pit is largely free of vegetation and is surrounded by a mixture of shrubs (dominated by Himalayan blackberry) and riparian trees (primarily willow and alder). God Wants You Slough lies ~750 ft south of the pit and an unnamed secondary slough channel borders the pit along its western edge. A small connector channel at ~8 ft elevation was previously excavated between the pit and the secondary slough to reduce stranding risk for fish that may occupy the pit during high flow events (Figure 2).

Figure 1: Project location map.



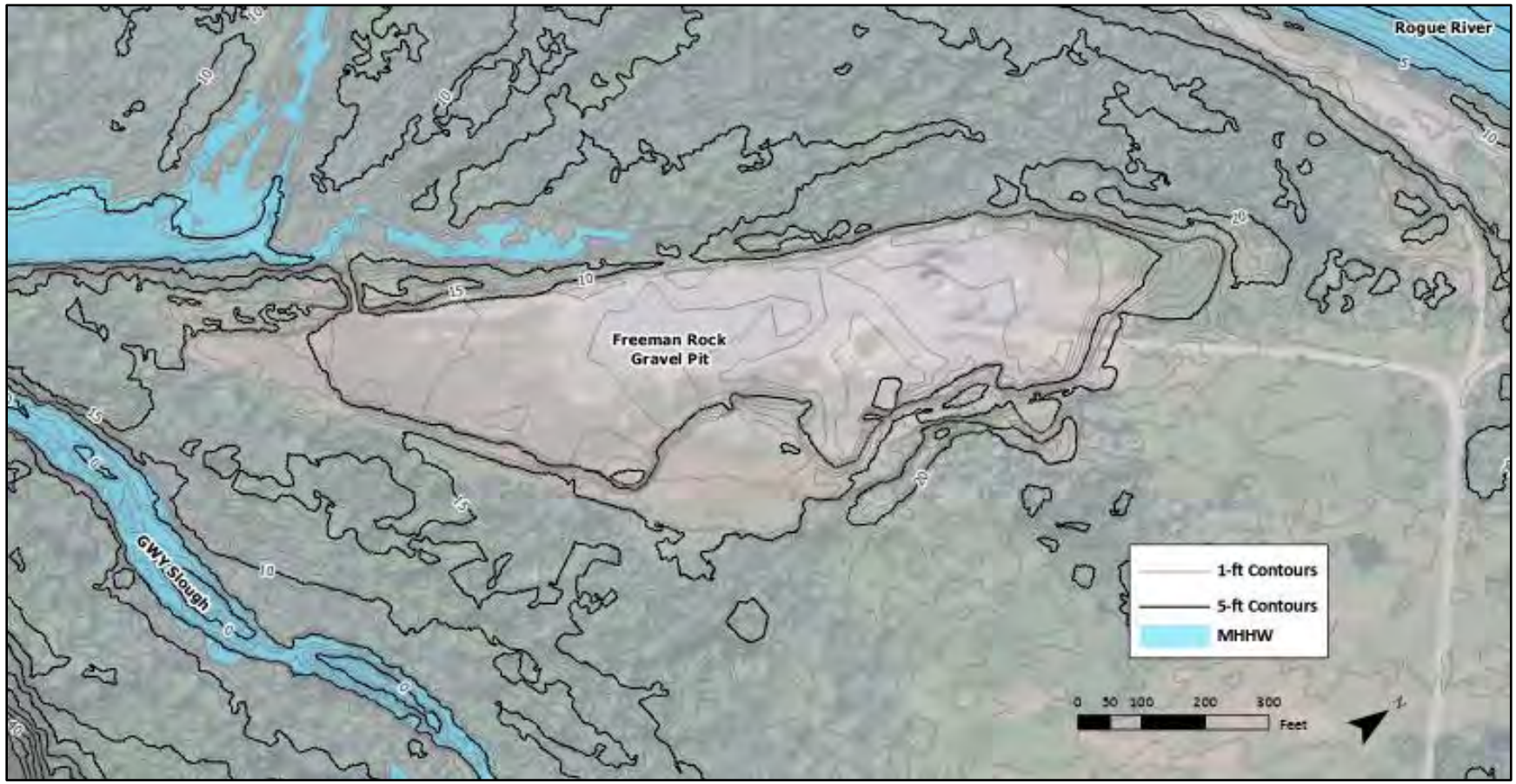


Figure 2: Existing conditions topography at the project site.

Hydrology & Hydraulics

Hydrologic conditions were evaluated in detail as part of the prior regional analysis (Kobor & O'Connor, 2023) providing estimates of flows ranging from mean summer baseflow to a 100-yr flood event (Table 1). Five flow conditions were simulated: mean summer baseflow (2,250 cfs), mean winter baseflow (8,800 cfs), a small flow event from February 2021 (51,150 cfs, 3% winter exceedance flow), a February 1999 event (140,920 cfs, 1.7-yr flood), and a 100-yr flood (scaled January 1997 flood, 453,000 cfs). Based on this hydraulic modeling, the slough channels bounding the site are not connected to the pit or to the river at their upstream ends at summer and winter baseflows (Figure 3). The pit becomes connected to the secondary slough through the connector channel at ~45,000 cfs (equivalent to a 5% winter exceedance flow). A high flow channel connecting Saunders Slough to GWY Slough upstream of the project site activates at ~69,000 cfs (~0.5-yr flood event). At ~120,000 cfs (~1-yr flood event) a high flow path develops between the river and the upstream end of the pit and at ~145,000 cfs (~2-yr flood event) virtually all of Elephant Bar is inundated. During the 1.7-yr flood, water depths in the pit range from 9.5 to 13 ft and the surrounding floodplain is inundated to depths of 1 to 4 ft. These patterns are illustrated by the results from the 3% winter exceedance and 1.7-yr flood as shown in Figures 4 & 5. At summer and winter baseflows, velocities are very low (<0.5 ft/s) throughout GWY Slough and the secondary slough channel. During flows ranging from the 3% winter exceedance flow to the 1.7-yr flood event, velocities in the sloughs range from 0.5 to 2 ft/s (Figures 6-8).

Table 1: Recurrence interval and winter exceedance flow percentile estimates for the Rouge River Estuary from Kobor and O'Connor (2023).

		Discharge (cfs)
Recurrence Interval (yrs)	100	453,000
	50	411,000
	20	326,000
	10	262,000
	5	212,000
	2	147,000
	1	124,000
	0.5	70,000
Winter Ex. Percentile	5%	42,000
	10%	29,000
	25%	16,000
	50%	8,800
	80%	4,200

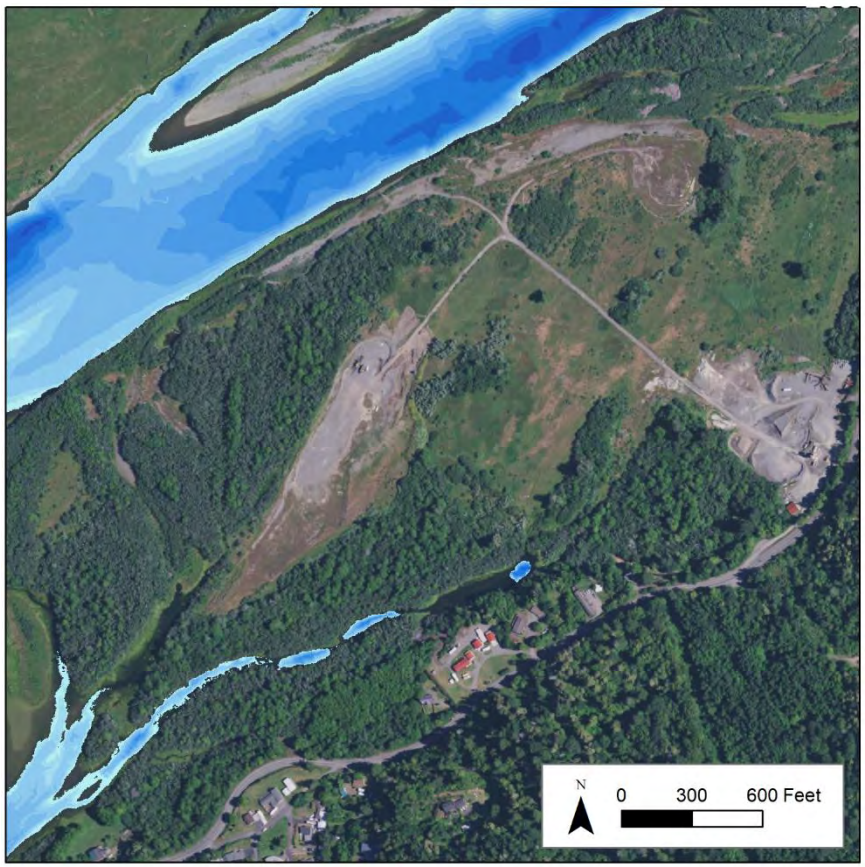


Figure 3: Existing conditions water depths at summer baseflow and low tide (MLLW) as simulated with the Rogue River Estuary hydraulic model.

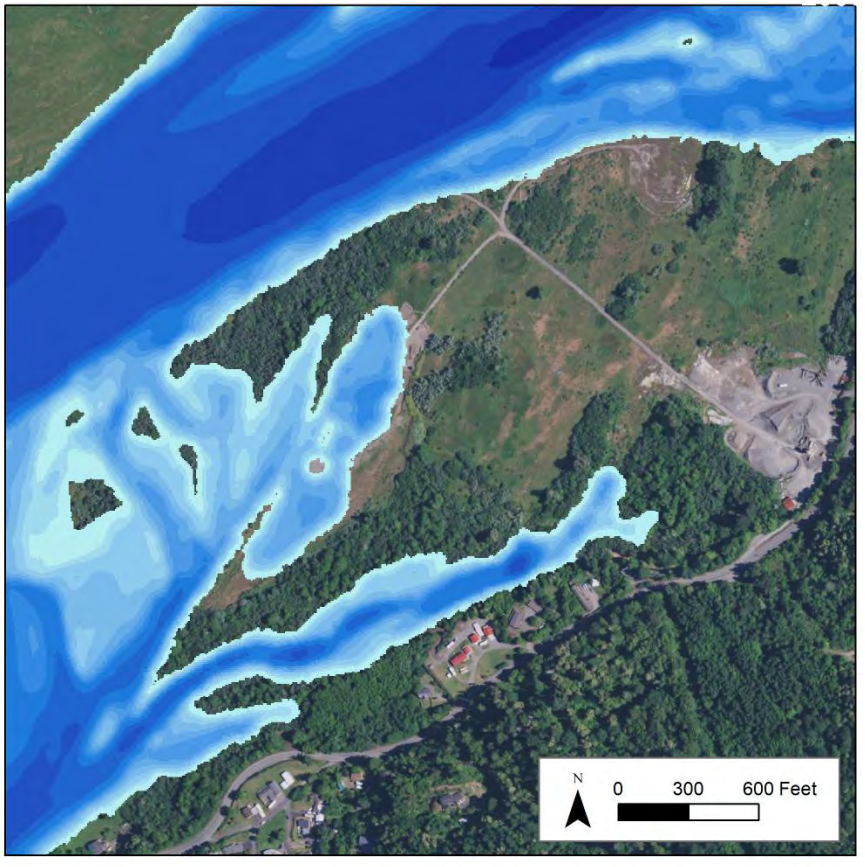


Figure 4: Existing conditions water depths for the 3% winter exceedance flow as simulated with the Rogue River Estuary hydraulic model.

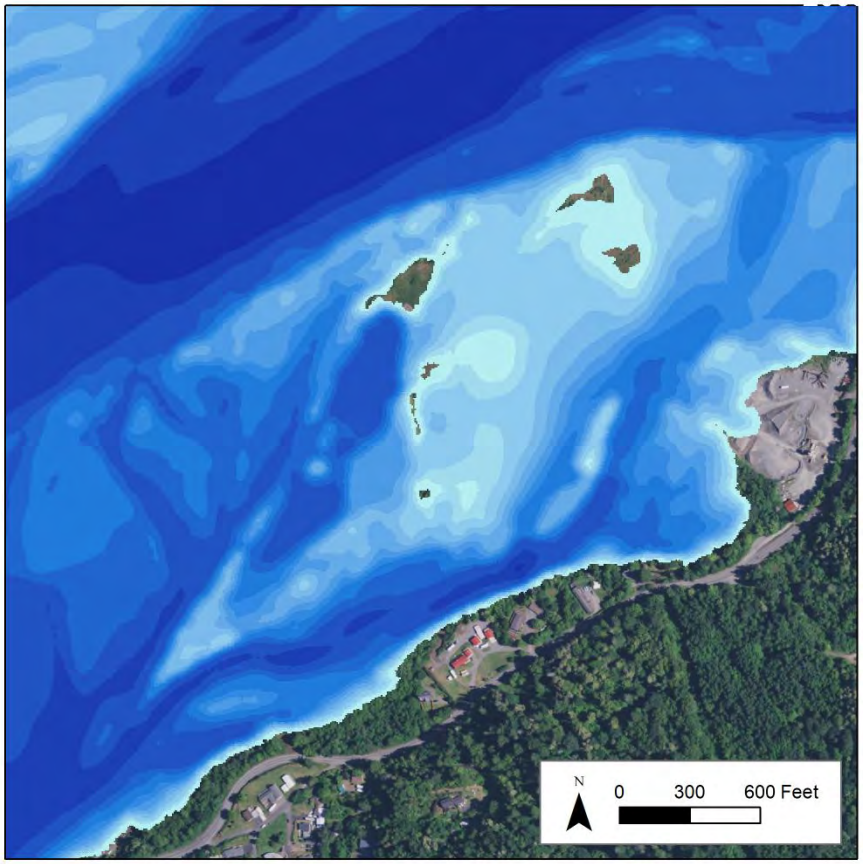


Figure 5: Existing conditions water depths for the 1.7-yr flood as simulated with the Rogue River Estuary hydraulic model.

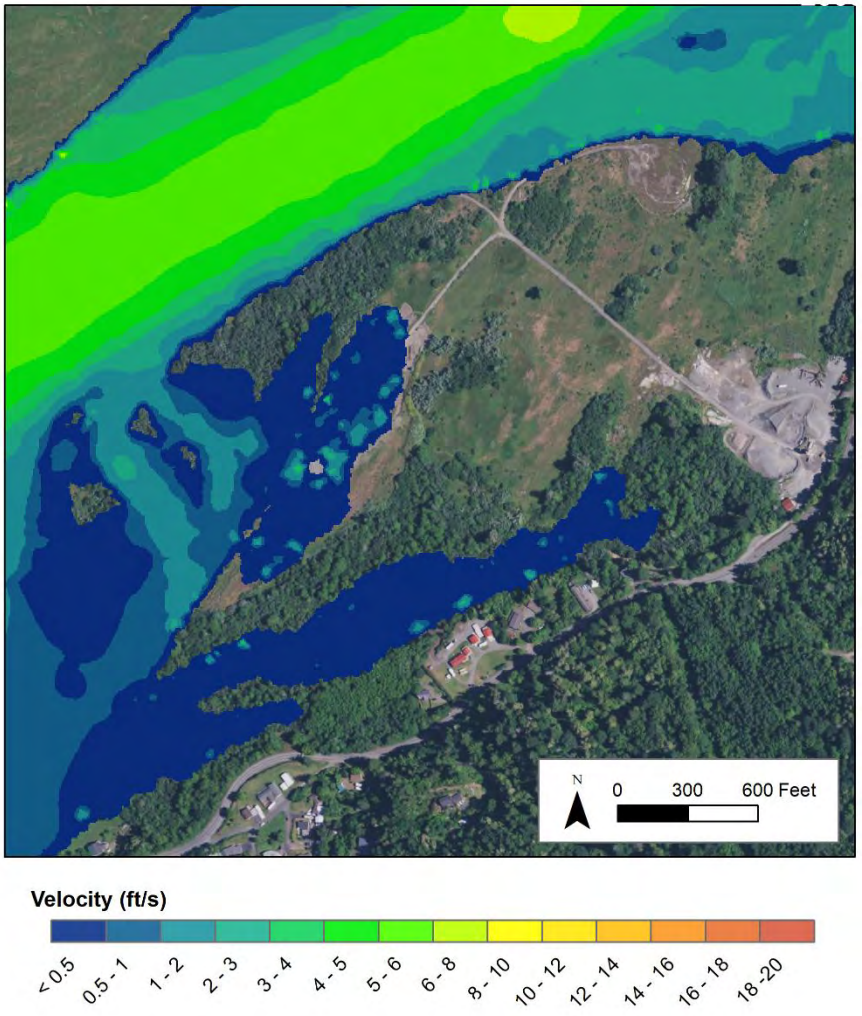


Figure 6: Existing conditions velocities for the 3% winter exceedance flow as simulated with the Rogue River Estuary hydraulic model.

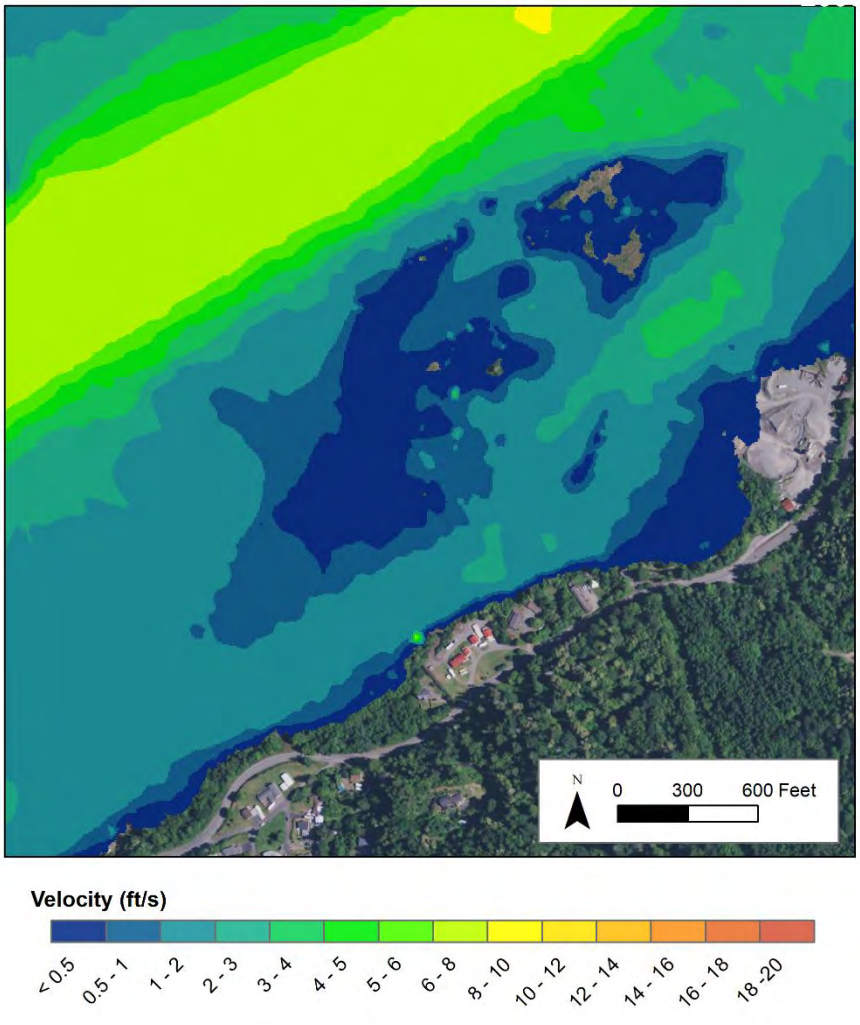


Figure 7: Existing conditions velocities for the 1.7-yr flood as simulated with the Rogue River Estuary hydraulic model.

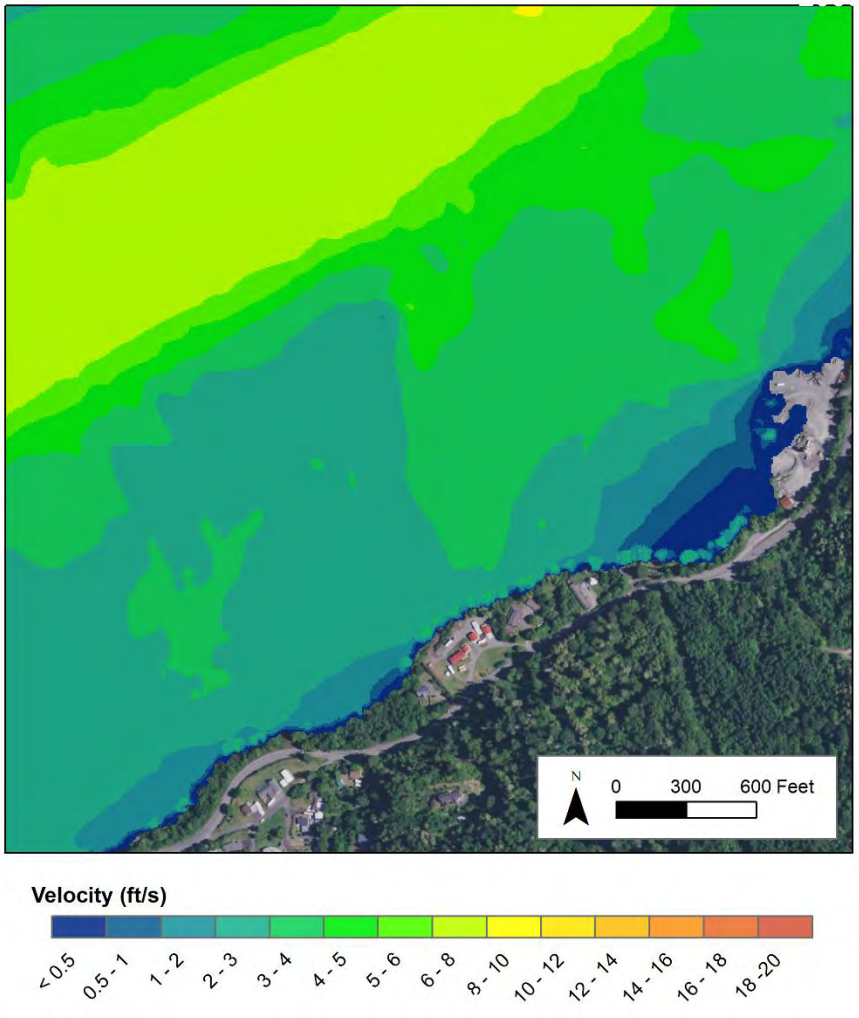


Figure 8: Existing conditions velocities for the 100-yr flood as simulated with the Rogue River Estuary hydraulic model.

Tides

The prior hydraulic modeling (Kobor & O'Connor, 2023) indicated that at baseflow conditions, high tides in GWY Slough and the secondary slough are approximately equivalent to those reported by the NOAA for the mouth of the river, however low tides are amplified by the effects of riverine flows and slough channel elevations. A pressure transducer was placed in GWY Slough south of the downstream portion of the gravel pit and water levels in the slough were compared to the NOAA tide data (Figures 9-10). This exercise confirmed the model findings and revealed that over a range of observed river flows of 5,500 to 13,000, high tides in GWY Slough are very similar to tidal conditions at the mouth and low tides are no lower than 1.9-ft even during strongly negative tides. Above ~13,000 cfs, both high and low tides are amplified by the effects of riverine flows (Figure 9). Note that riverine flows are estimated from data from the U.S. Geological Survey's Rogue River at Agness gauge based on scaling factors determined through prior analyses (Kobor & O'Connor, 2023).

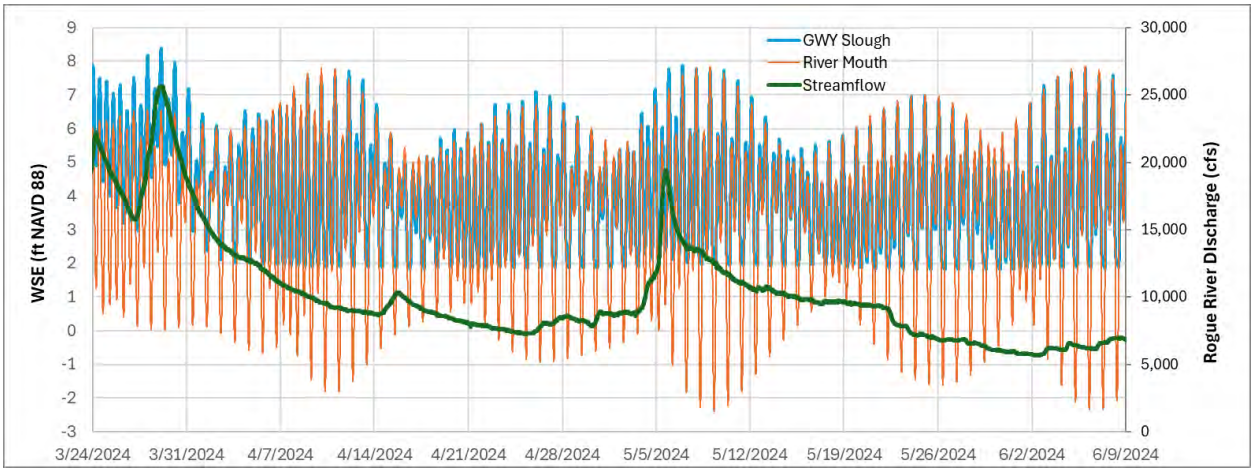


Figure 9: Comparison of water levels in GWY Slough and at the river mouth and associated discharges observed during March-June 2024.

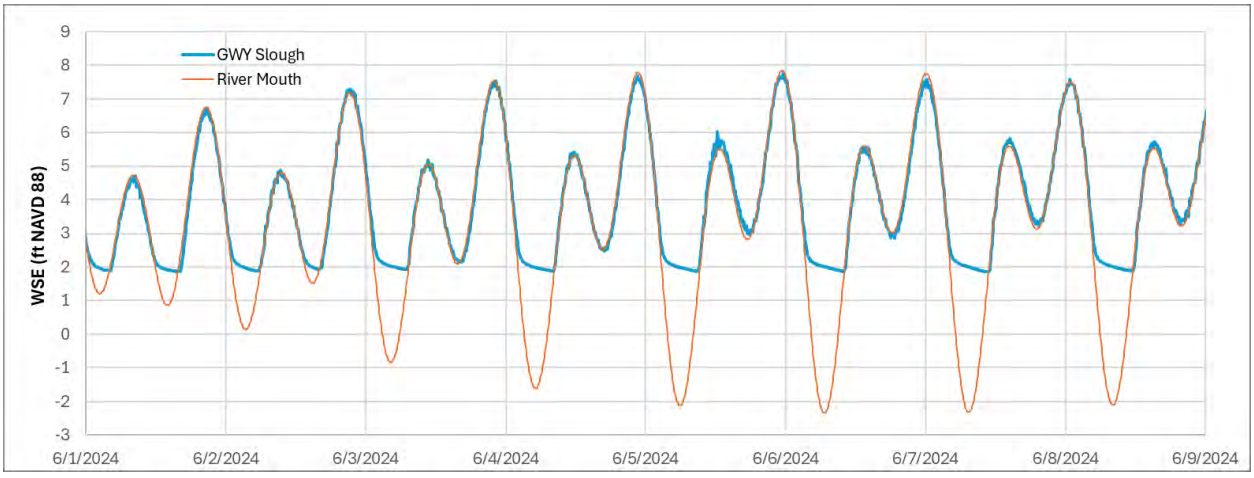


Figure 10: Comparison of water levels in GWY Slough and at the river mouth for June 1-8, 2024.

Fish Habitat

Native fish utilizing GWY slough include juvenile Chinook and steelhead and both juvenile and adult cutthroat and coho (Timchak & Myers, 2015). The estuarine reach of the Rogue River plays a critical role in the growth and survival of these species as well as of green and white sturgeon and Pacific lamprey. Insufficient suitable rearing habitat for juveniles is considered the most significant limiting factor for recovery of coho (NMFS, 2014). The principal recommendations from the federal coho recovery plan include the need to reconnect and restore wetland and backwater habitats, increase instream structure through addition of large wood and re-establishment of riparian forests for wood recruitment and water temperature reduction (NMFS, 2014).

Based on hydraulic modeling of water depths and velocities and associated habitat suitability criteria curves (Beecher et al., 2002), GWY Slough and the secondary slough provide excellent habitat for juvenile coho at flows ranging from summer baseflow to the 3% winter exceedance flow (Figures 11-13). Elevations in GWY Slough are significantly lower than in the secondary slough resulting in habitat persisting throughout the tidal cycle in GWY Slough and habitat that is intertidal in the secondary slough (Figures 11 & 12). At higher flows such as the 1.7-yr flood, the sloughs and Elephant Bar provide marginal coho habitat (Figure 14) and at the 100-yr flood, velocities become too high to provide suitable coho habitat. At baseflows, velocities and depths within the slough channels are generally too low to provide high value habitat for juvenile Chinook. Habitat suitability for juvenile Chinook increases at higher flows such as the 3% winter exceedance flow and 1.7-yr flood, however suitability decreases during larger flows such as the 100-yr flood (Kobor & O'Connor, 2023).

Geomorphology

Examination of historical aerial photography reveals that present-day GWY Slough was a side channel of the Rogue River in 1939 and was formed sometime prior to 1969 as a result of deposition at the head of the side channel (Bartlett, 2019). By 1994, the secondary slough channel had formed and an avulsion of the main channel of the river occurred during the 1997 flood, redirecting the river's energy away from Elephant Bar and towards the north bank (Kobor & O'Connor, 2023). This initiated a period of bar stabilization and associated growth and spread of riparian vegetation which continues to the present day. Based on comparison of LiDAR topography (Figure 15), aggradation has been occurring between 2008 and 2020 both along the bank of the river adjacent to Elephant Bar and at the head of the high-flow channel upstream of GWY Slough (Kobor & O'Connor, 2023).

Although, the photo and LiDAR analysis indicates that Elephant Bar has been a relatively stable feature over the past 20-30 years, significant erosion has been occurring in the downstream portion of Ferry Hole Bar (west of the high-flow channel entrance to GWY Slough). The comparative LiDAR analysis indicates that bank retreat in this area is occurring at a rate of ~20 ft/yr (Figure 15) which is progressively shifting the energy of the river to the east (Kobor & O'Connor, 2023). As this process proceeds, the current depositional regime at the head of Elephant Bar may switch to an erosional regime and eventually the river may re-occupy GWY Slough through the current high flow path. Geomorphic evolution is an inherently uncertain process, and the recent period of relative stability suggests that habitat enhancement features constructed on Elephant Bar may remain stable for some time, however it should be acknowledged that large channel-forming events can occur at any time and potentially alter or degrade any designed habitat features.

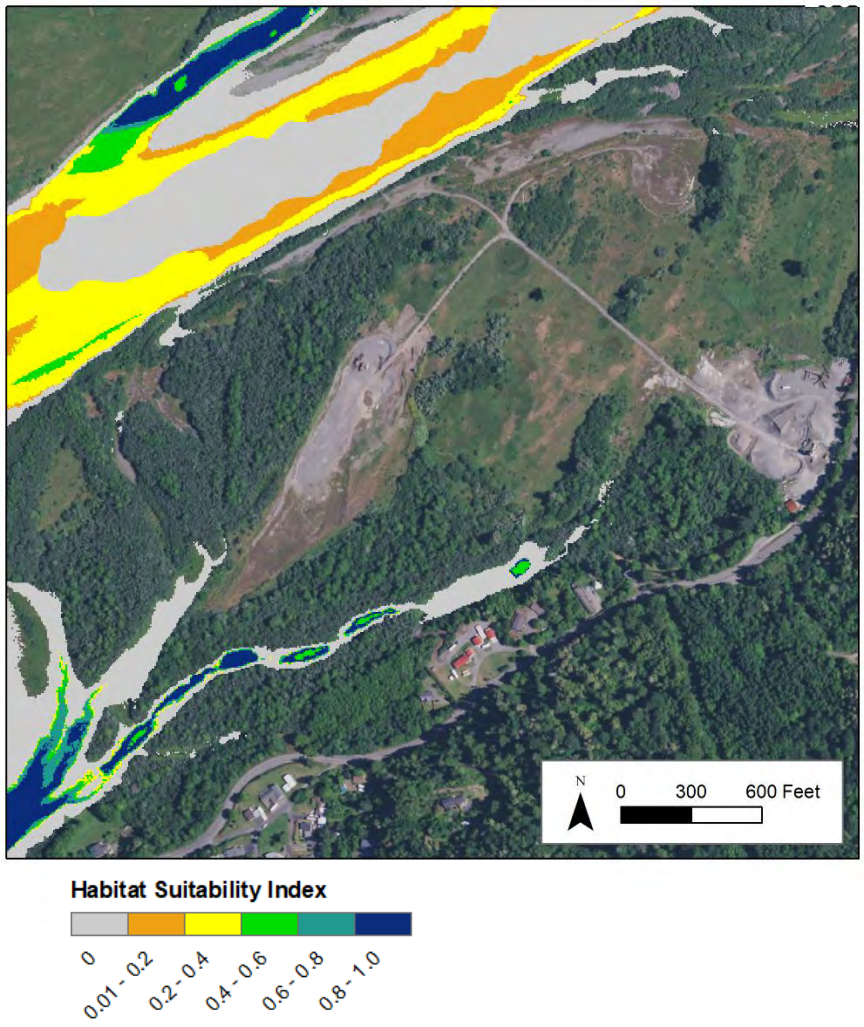


Figure 11: Existing conditions juvenile coho habitat suitability at summer baseflow and low tide (MLLW) as simulated with the Rogue River Estuary hydraulic model.

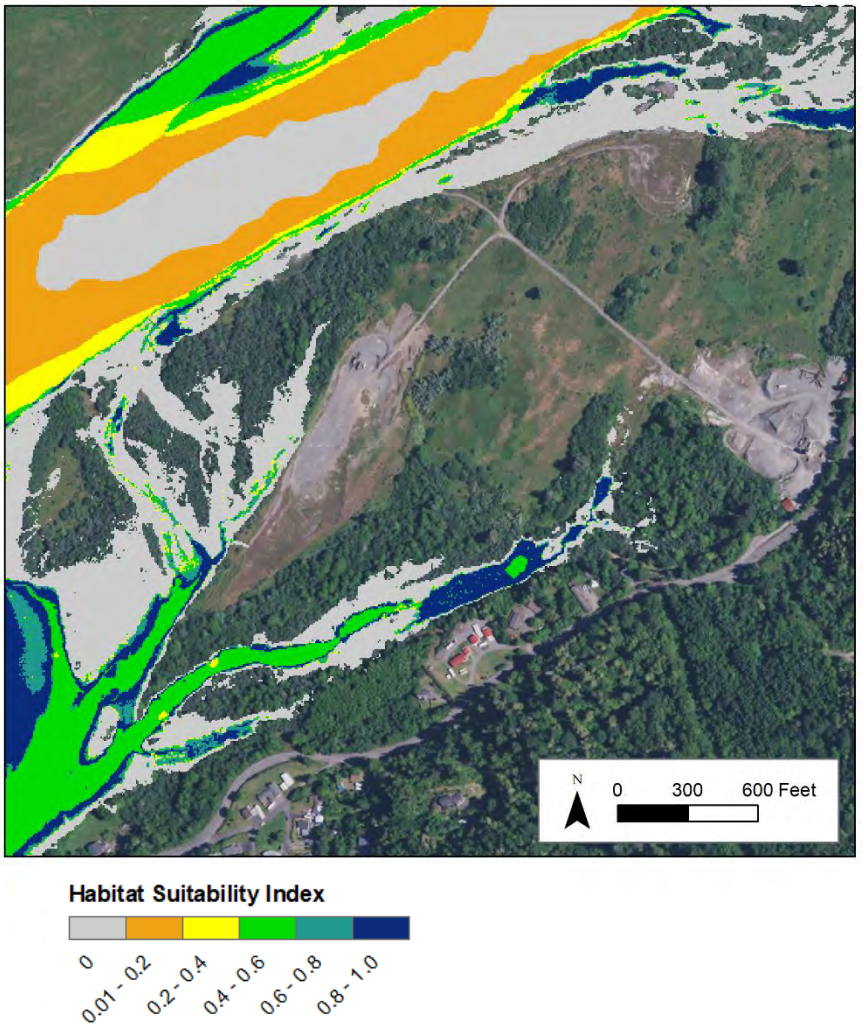


Figure 12: Existing conditions juvenile coho habitat suitability at summer baseflow and high tide (MHHW) as simulated with the Rogue River Estuary hydraulic model.

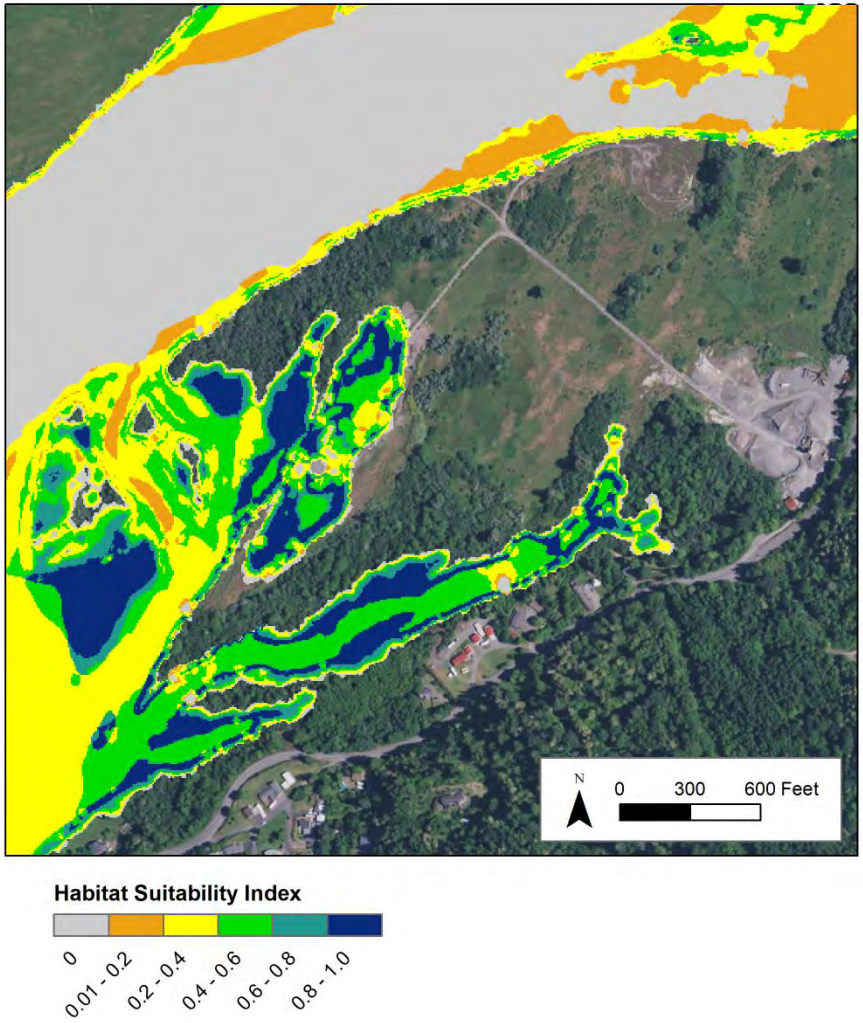


Figure 13: Existing conditions juvenile coho habitat suitability for the 3% winter exceedance flow as simulated with the Rogue River Estuary hydraulic model.

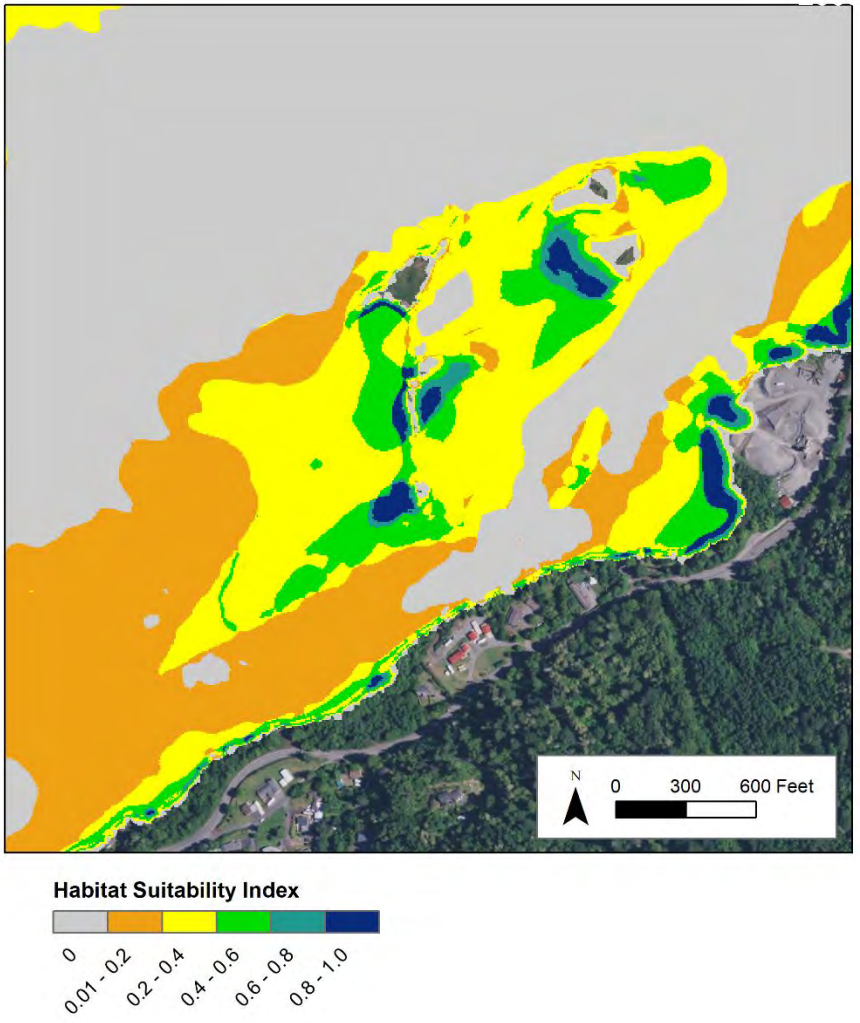


Figure 14: Existing conditions juvenile coho habitat suitability for the 1.7-yr flood as simulated with the Rogue River Estuary hydraulic model.

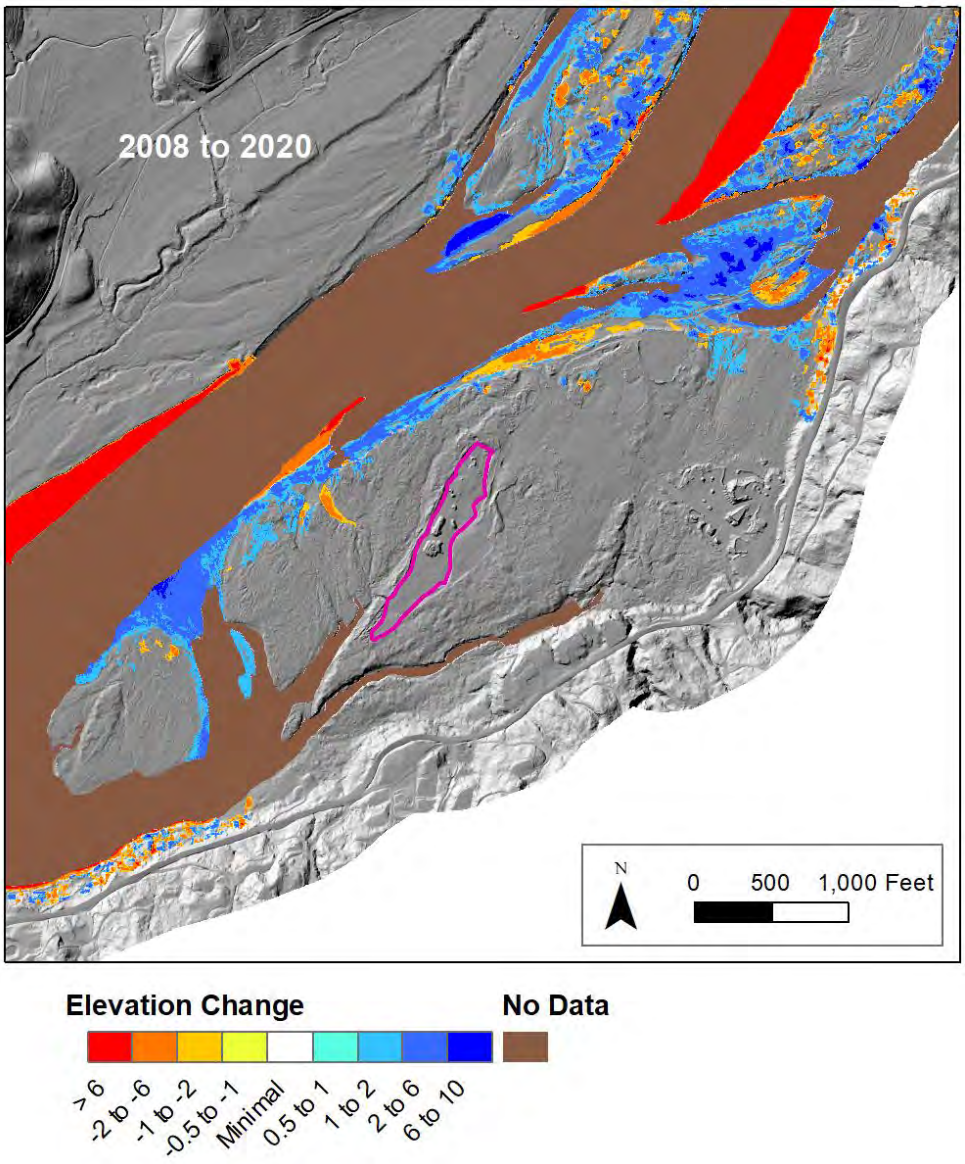


Figure 15: Change in elevation between 2020 and 2008 based on repeated LiDAR analysis (from Kobor & O'Connor, 2023). Areas coded "No Data" were submerged at the time of LiDAR collection.

Proposed Conditions

Restoration Goals

The portion of Elephant Bar occupied by the gravel mining pit currently experiences flow only during winter runoff events and is almost completely lacking in vegetation cover or large wood. In contrast, the adjacent GWY Slough provides excellent low-velocity rearing habitat for juvenile salmonids, contains good riparian cover, and has some natural large wood elements as well as numerous large wood structures that were installed by the LRWC as part of a previous restoration project (Bartlett, 2019). The principal goal of this project is to extend the high-value habitat of GWY Slough into the central portion of Elephant Bar through excavation of new slough channels. Instream structure, complexity, and shelter will be created through development of diverse geomorphic features and incorporation of large wood structures, and a

diverse assemblage of riparian vegetation will be established which will promote shading and cooler water temperatures. Additional project goals are to ensure continued connectivity and fish passage between created slough channels and GWY Slough and to avoid post-project habitat degradation due to excessive erosion or deposition to the extent possible.

Grading

The proposed slough channels could be connected to either the secondary slough channel west of the gravel pit, to GWY Slough, or both. Connection to the secondary slough has the advantage of requiring less grading and vegetation disturbance, however elevations of this slough are significantly higher than those of GWY Slough and as such connecting only to this slough would allow for creation of intertidal habitat but not of tidal habitat. Given the desire to create both new intertidal and tidal habitat, it was deemed advisable to connect the new habitat features to GWY Slough. Additionally, the secondary slough has a more direct connection to the Rogue River and connecting to it would pose an increased risk of slough channel capture and associated loss of desirable off-channel habitat characteristics.

The central feature of the design is the excavation of 2,200 ft of new primary and 1,350 ft of new secondary slough channels (Figure 16). The channels were sited primarily within the existing gravel pit to minimize the required excavation depths and disturbance to existing vegetation. The connection to GWY Slough was sited to maximize tidal exchange in the new sloughs by connecting in as far downstream as possible and at a location with an existing pool. The design plans call for further excavation of this pool to ensure that the connection remains open for the foreseeable future (Figure 16).

Overall channel widths and slopes were loosely modeled after the geometry of GWY Slough. The created sloughs have an average slope of 0.001% and are comprised of four primary geomorphic/habitat units: tidal channels, intertidal benches, shallow pools, and alcoves (Figure 17). Complexity was added by varying the tidal channel width from up to 64-ft in reaches with pools to as little as 22-ft in reaches with intertidal benches. The benches are generally ~25-ft wide and are set at a variety of elevations ranging from 3 to 6 ft which will translate to a variety of tidal inundation durations and associated diversity of habitats (Figure 16). Pool depths were designed to vary from 1 to 2-ft because deeper pools result in low tide water depths less suitable for coho and because the channels provide ample low-velocity habitat and in many ways function as pools would in a riverine system. Additionally, deeper excavations become increasingly complex and costly due to dewatering needs and potential stability issues. Alcoves were added to provide smaller-scale habitat features consisting of 6 to 10 ft wide channels extending 90 to 130 ft into the central floodplain.

The excavated area covers ~11.0 acres where ~126,300 cubic yards of material will be removed. Material will be sorted on site and ~7,200 cubic yards of fine-grained sediments and solarized topsoil will be placed as fill in an ~2.7-acre area between and adjacent to the slough channels. The purpose of the placed fill is to increase the elevations of this floodplain area above MHHW and provide more suitable soil for establishment of riparian vegetation.

Large Wood Structures

Although natural large wood accumulations are generally considered to be transient features, it is desirable for the designed large wood structures to be relatively stable such that they can provide habitat benefits for the foreseeable future. Soil ballast is the primary means of stabilization and there is a balance to be struck between providing stability and maximizing habitat benefits since the more a log is buried, the more stable it will be but the less it will project into the channel and provide habitat value. The

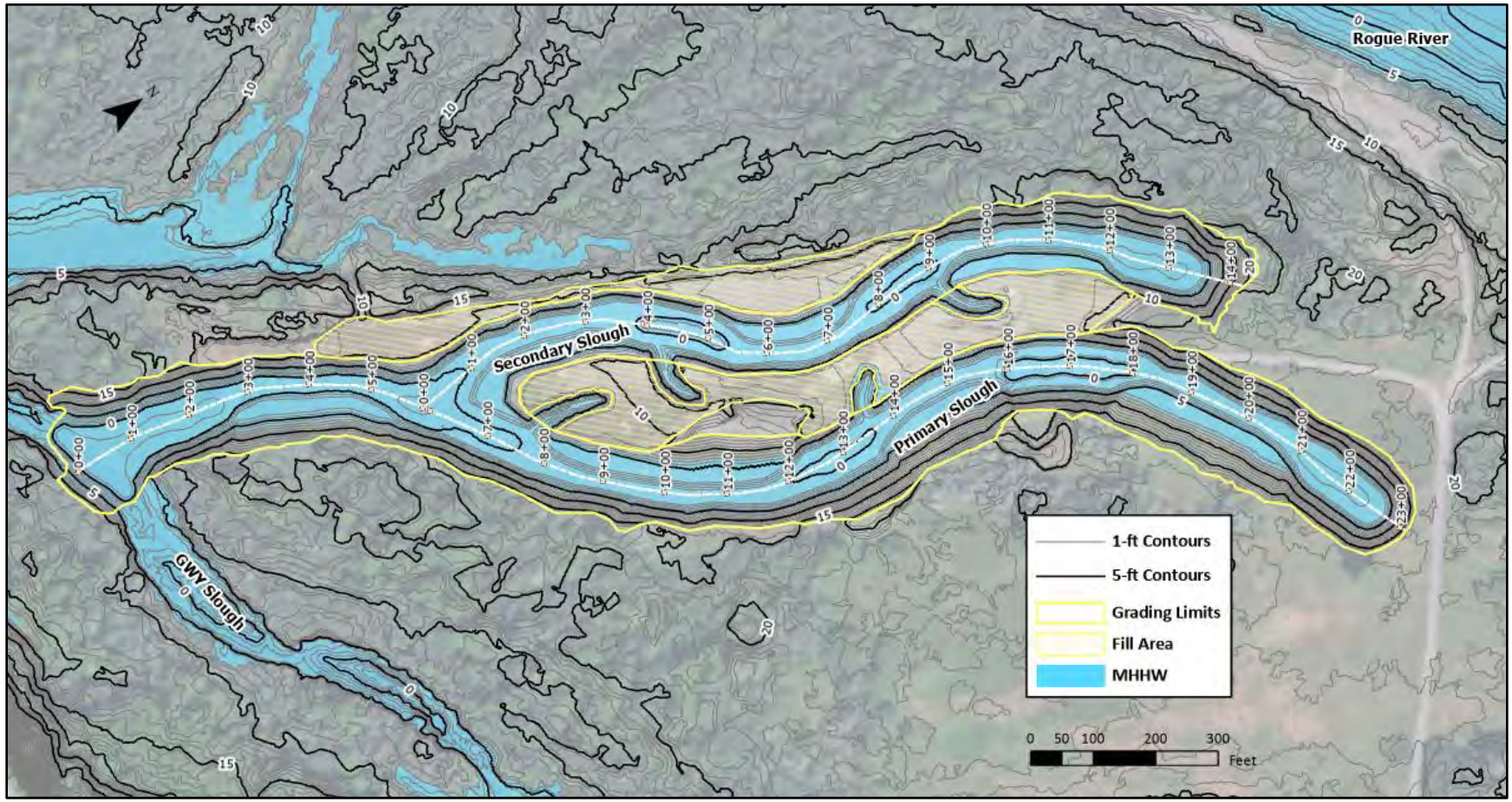


Figure 16: Proposed topography at the project site.

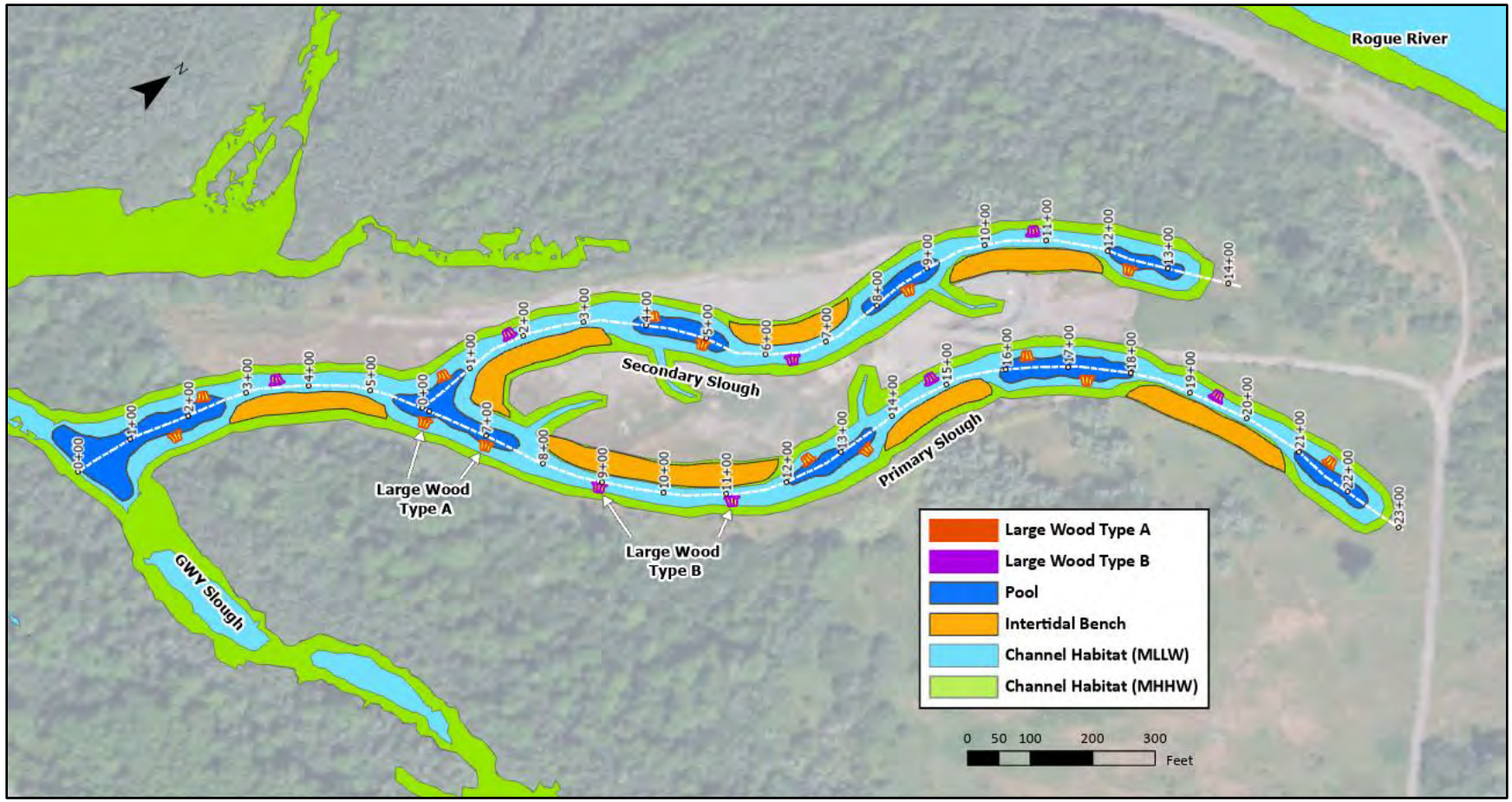


Figure 17: Proposed habitat features.

National Large Wood Manual (USBR & ERDC, 2016) recommends selecting a Factor of Safety (FOS) based on an assessment of the level of risk at a given site. Given the lack of infrastructure in the vicinity of the project site and its location away from the center of recreation and boat traffic in the primary channel of the Rogue River, the project site is considered to be a low-risk area where a FOS of 1.5 is recommended. Stability calculations were performed using the computational design tool developed by Rafferty (2016). Velocities are very low at the project site; therefore, the most challenging aspect of stabilization is resistance to buoyancy. The proposed structures as described below achieve a FOS of 1.5 against buoyancy, a FOS >2 against moment forces, and a FOS >17 against horizontal forces.

Large wood structures consist of three 30 to 40-ft logs with rootwads buried into the slough channel banks to maximum depths of 9 to 10-ft for ballast (Figure 18). Logs are angled upwards towards the channel 3 to 12 degrees. Central logs are oriented perpendicular to flow and are flanked by upstream and downstream logs angled 10 degrees upstream and downstream. The design consists of two structure types, 14 Type A structures located in reaches with pools and 8 Type B structures located in reaches with terraces (Figure 17). Type A structures utilize one 40-ft central log pinning a 20-ft long, 1-ft diameter whole tree and two 35-ft logs pinning two additional whole trees. Approximately 22 yards of slash consisting of 2 to 6-inch diameter branches or trees will be packed into the structure. Type B structures utilize one 30-ft central log and two 40-ft logs pinning two 20-ft long 1-ft diameter whole trees. Approximately 28 yards of slash consisting of 2 to 6-inch diameter branches or trees will be packed into the structure. The completed structures extend ~17-ft from the banks and include wood at a wide variety of elevations from -1 to 9-ft (Figure 18).

Vegetation

The vegetation plan for this project is guided by the findings of previous vegetation surveys in the Rogue River estuary (Timchak & Myers, 2015), publicly available data regarding historic vegetation (Hawes et al. 2018), recent observations of similar habitats in the Rogue River estuary, available guidance for restoring Oregon Coast estuarine habitats, and expected physical and hydrologic conditions resulting from the elevation grading associated with the implementation of this project. Four vegetation zones were delineated based on their elevations relative to tidal levels, subtidal areas below 1.9-ft elevation, intertidal areas with elevations between 1.9 (MLLW) and 6.9 ft (MHHW), low floodplain areas with elevations within 4-ft of MHHW and high floodplain areas with elevations more than 4-ft above MHHW.

Subtidal and intertidal habitats will be left to colonize naturally through transference of species located in adjacent and connected sloughs. Native plant species documented in intertidal habitats in the vicinity of the project area include: western grasswort (*Lilaeopsis occidentalis*), common spikerush (*Eleocharis palustris*), tufted hairgrass (*Deschampsia cespitosa*), and pacific silverweed (*Potentilla anserina ssp. Pacifica*).

Both the 4.1-acre low floodplain and 2.5-acre high floodplain areas will be planted with trees and shrubs. Re-vegetation will occur during the first rainy season following project construction (December - March), though some live stakes may be installed in the late summer/early fall following project grading if the opportunity to plant arises while excavators are still on site. All species other than willow and cottonwood will be sourced commercially as bareroot stock. Availability will dictate the species, size, and age of commercially sourced plants, but 24"-36" and 1+1 or 2+1 stock will be preferred. Willow and cottonwood will be harvested as live stake cuttings from source plants adjacent to the project area and soaked for

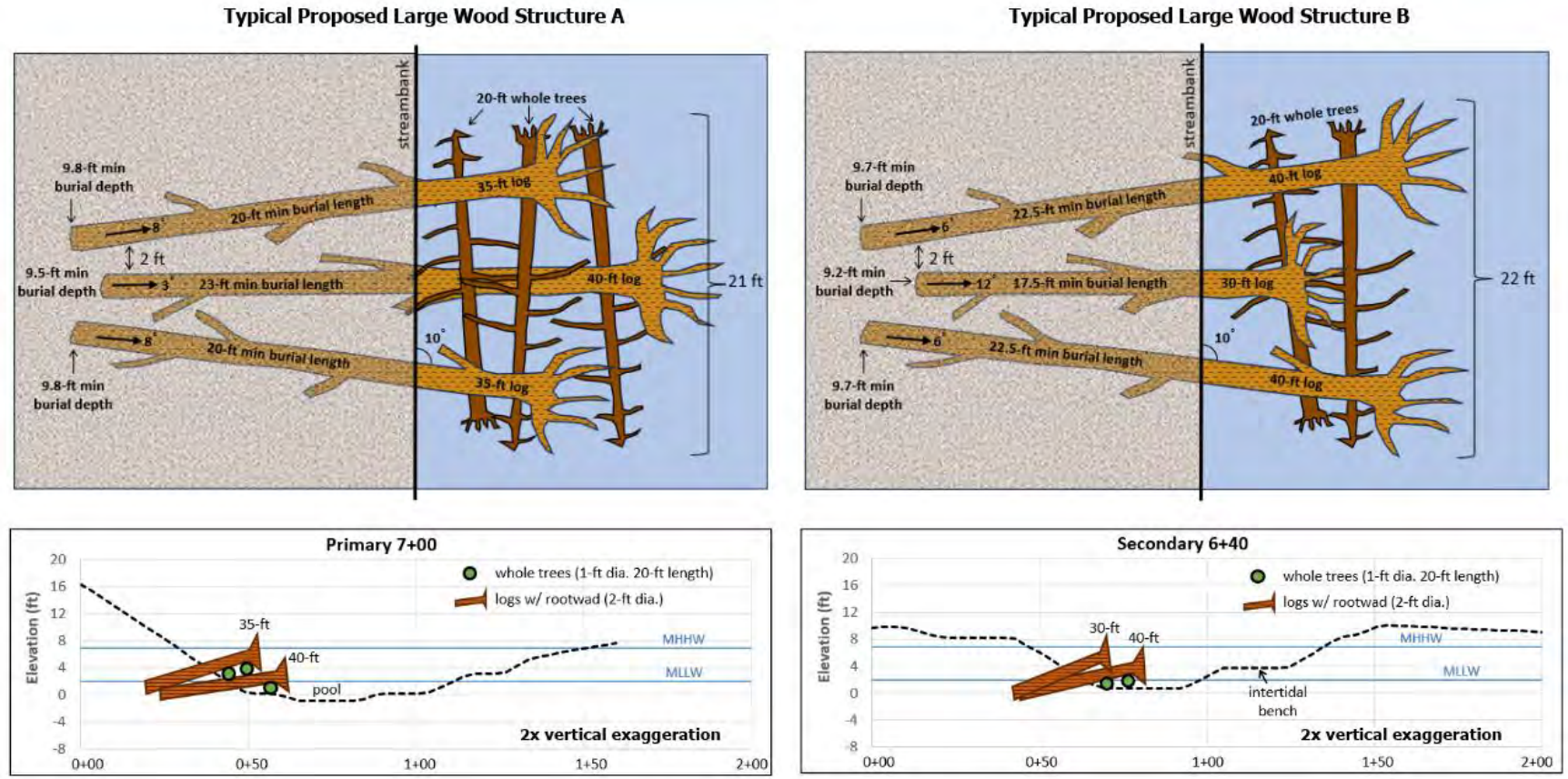


Figure 18: Proposed large wood structure details.

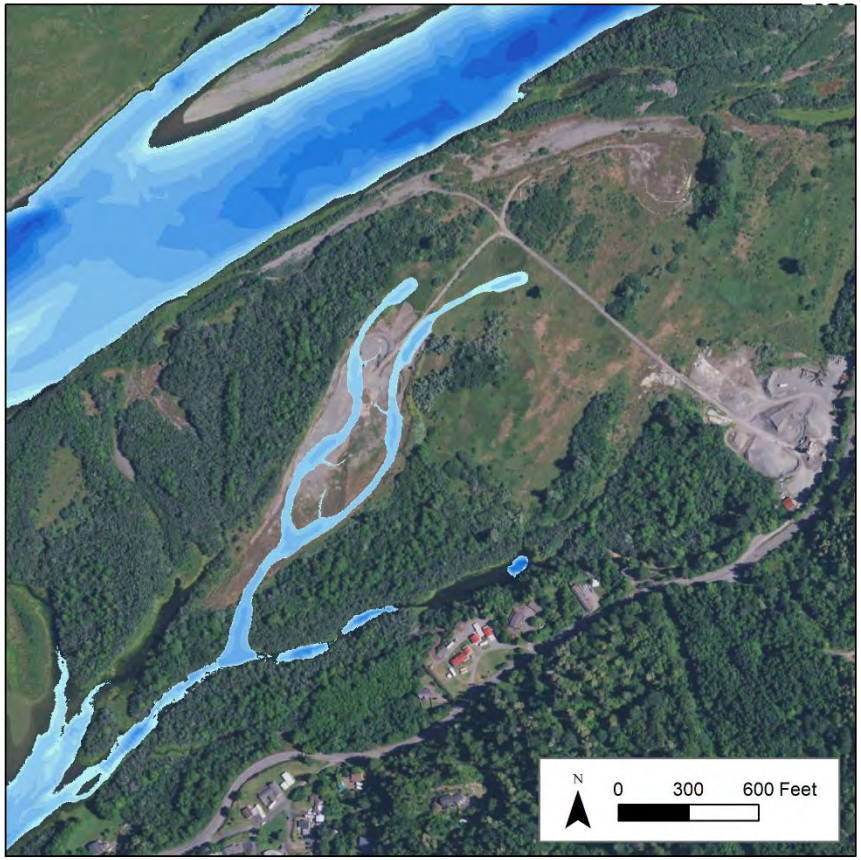
3-5 days prior to planting. Bareroot stock will be planted using planting shovels and live stakes will be installed using a waterjet stinger or other appropriate means.

Low floodplain species will include those natives observed in the vicinity of the project including willow (*Salix spp.*), twinberry (*Lonicera involuncrata*), cottonwood (*Populus trichocarpa*), and red alder (*Alnus rubra*). High floodplain species will include cottonwood (*Populus trichocarpa)*, red alder (*Alnus rubra)*, sitka spruce (*Picea sitchensis*), elderberry (*Sambucus canadensis*), red flowering currant (*Ribes sanguineum*), twinberry (*Lonicera involucrate*), osoberry (*Oemleria cerasiformis*), cascara (*Rhamnus purshiana*), gooseberry (*Ribes uva-crispa*), and snowberry (*Symphoricarpus albus*). A comprehensive list of species is provided on Sheet 7 of the design plans.

Hydraulic and Habitat Conditions

Riverine flows do not appreciably affect conditions at the project site below ~13,000 cfs and therefore conditions are very similar during both summer and winter baseflow where they are driven almost entirely by tidal fluctuations. At low tides (MLLW 1.9 ft), the constructed slough channels, pools, and alcoves are connected to GWY Slough and inundated to depths of 0.5 to 2 ft in the channels and alcoves and depths of 2 to 3 ft in the pools (Figure 19). At high tides (MHHW 6.87 ft), pool depths increase to 7 to 8 ft, channel and alcove depths increase to 5.5 to 7 ft, and the intertidal benches become inundated to depths of 1 to 4 ft (Figure 20). At the 3% exceedance flow, slough depths increase to 9 to 10.5 ft and intertidal benches are inundated to depths of 4.5 to 7.5 ft. The secondary constructed slough channel becomes connected to the existing secondary slough and the central floodplain between the constructed channels is inundated to depths of 1 to 5 ft (Figure 21). During the 1.7-yr flood, nearly all of Elephant Bar is inundated with depths of 16.5 to 18 ft in the slough channels and 8 to 12 ft in the floodplain between the channels (Figure 22). At summer and winter baseflows, velocities remain below 0.5 ft/s throughout the project area (Figures 23 & 24). During the 3% exceedance flow and 1.7-yr flood, velocities also remain below 0.5 ft/s in most areas with some areas experiencing velocities of up to 2 ft/s (Figures 25 & 26).

During baseflow conditions, the constructed sloughs, alcoves, and pools provide suitable habitat for juvenile coho across the full tidal range. At low tide habitat suitability is very high, particularly in the lower portions of the project area (Figure 27). At high tide, the channels provide moderately high suitability habitat, and the intertidal benches provide very high suitability habitat (Figure 28). At the 3% exceedance flow, the entire project area provides suitable habitat with very high suitability conditions in the floodplain areas and moderate suitability in the channels (Figure 29). During the 1.7-yr flood, most of the project area provides marginally suitable habitat with localized areas of high and very high suitability habitat (Figure 30). Across the range of evaluated flow conditions, habitat suitability in the constructed habitat areas is generally similar or higher than the existing habitat in GWY Slough which is indicative of a successful project design given that the primary design goal was intended to extend and mimic the existing high value habitat in GWY Slough. Approximately 3.9 and 7.5 acres of new perennial habitat will be created at MLLW and MHHW respectively.



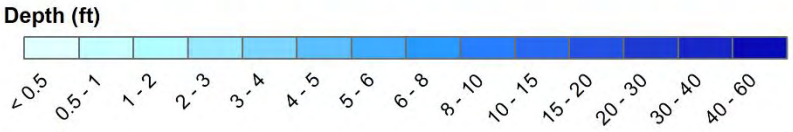
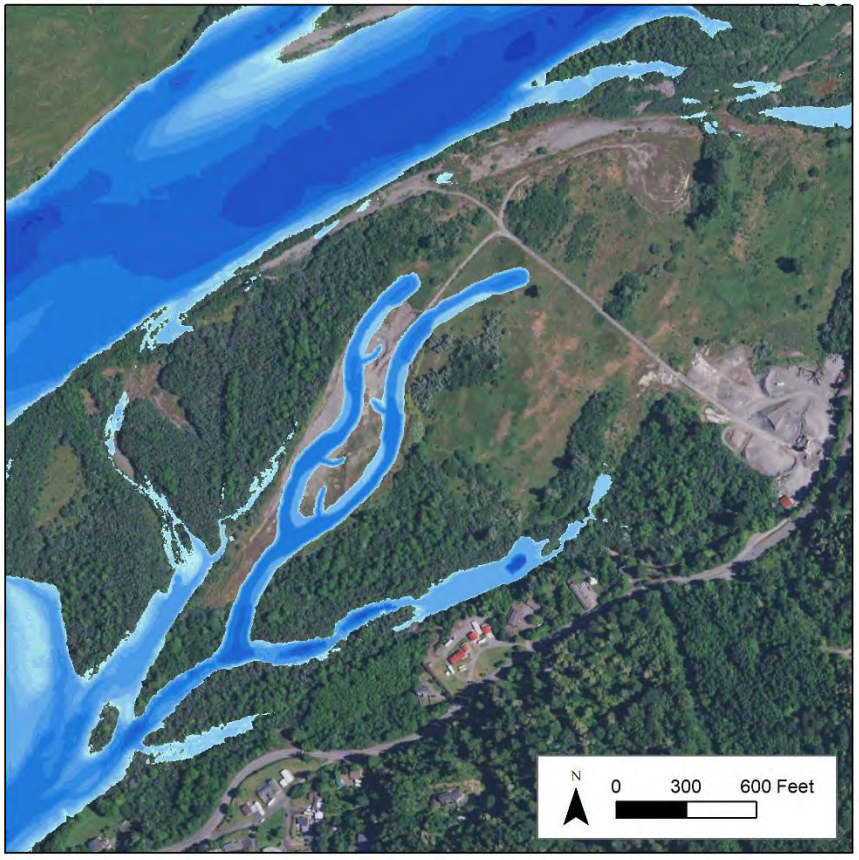


Figure 19: Proposed conditions water depths at summer baseflow and low tide (MLLW) as simulated with the Rogue River Estuary hydraulic model.



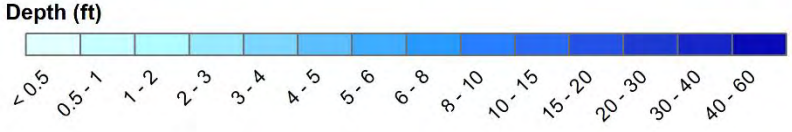


Figure 20: Proposed conditions water depths at summer baseflow and high tide (MHHW) as simulated with the Rogue River Estuary hydraulic model.

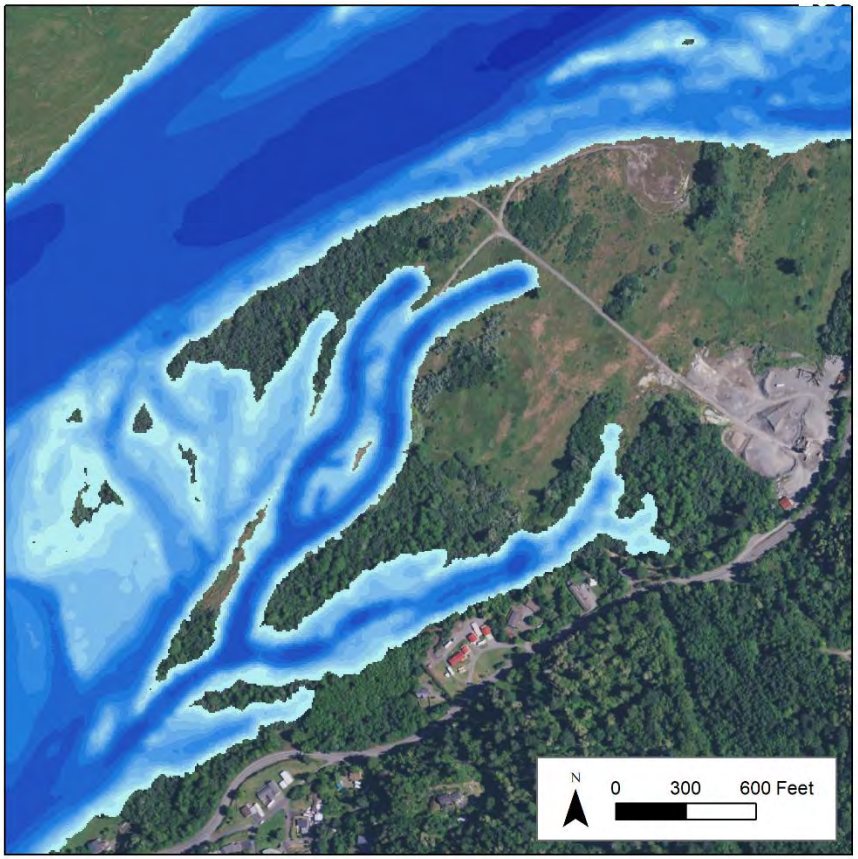


Figure 21: Proposed conditions water depths for the 3% winter exceedance flow as simulated with the Rogue River Estuary hydraulic model.

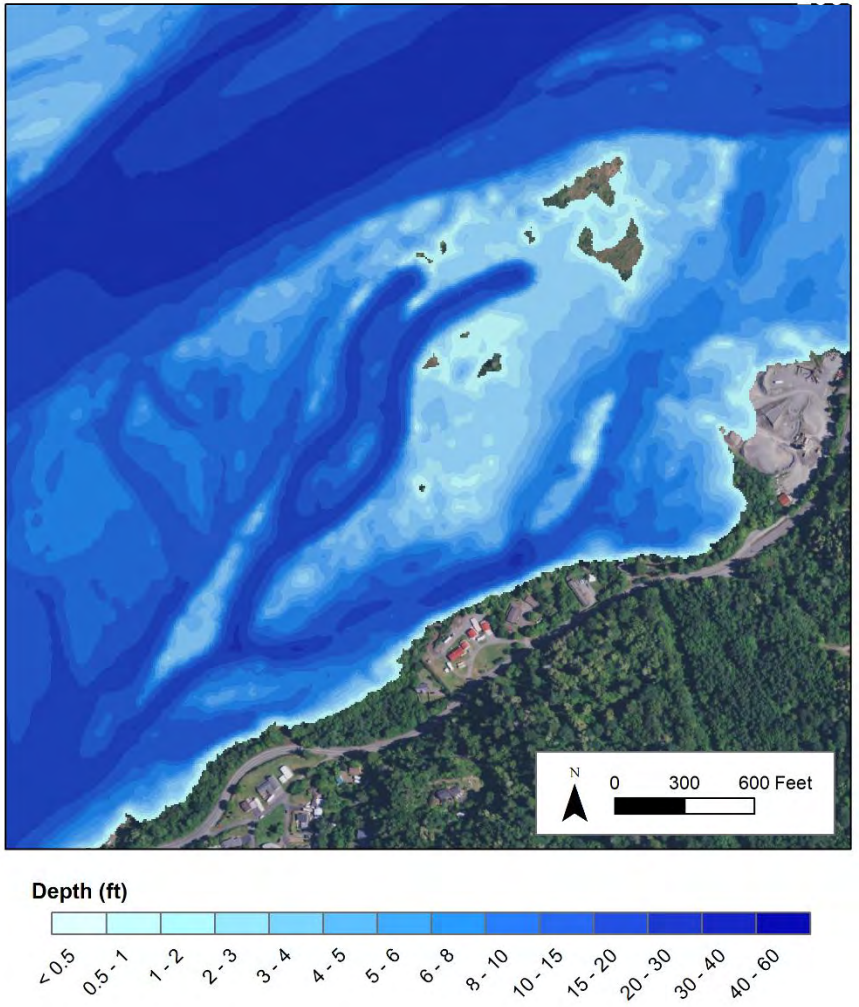


Figure 22: Proposed conditions water depths for the 1.7-yr flood as simulated with the Rogue River Estuary hydraulic model.

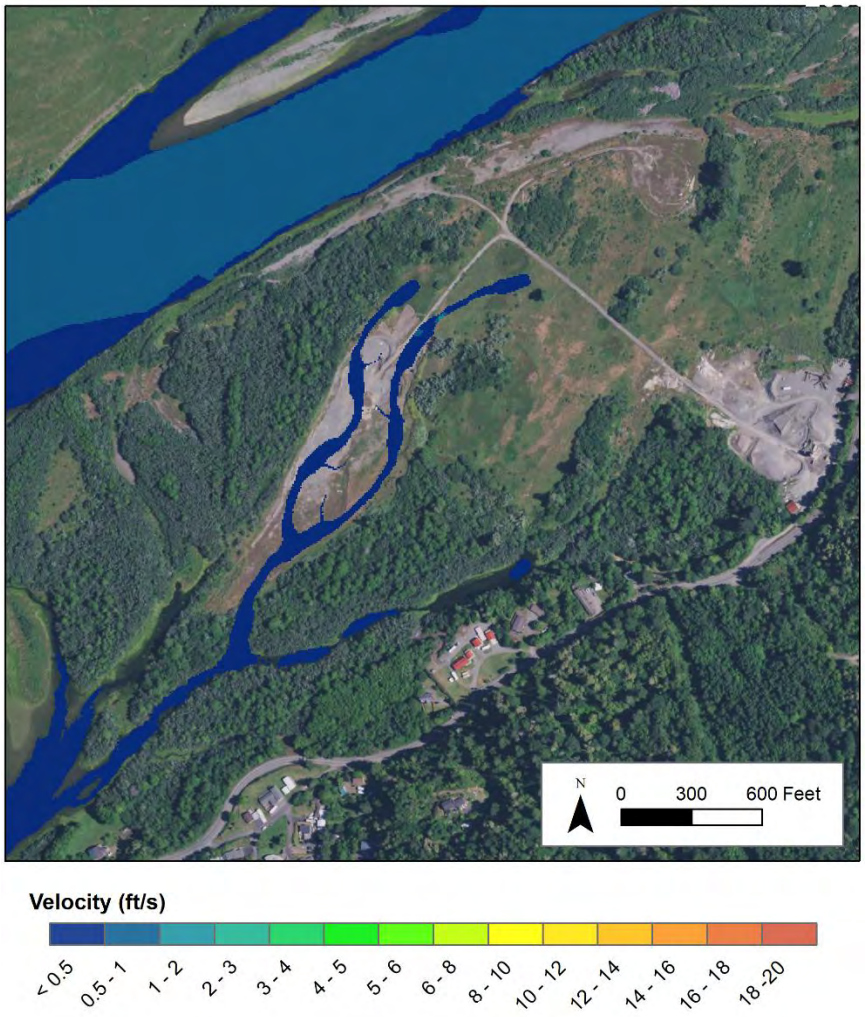


Figure 23: Proposed conditions velocities at summer baseflow and low tide (MLLW) as simulated with the Rogue River Estuary hydraulic model.

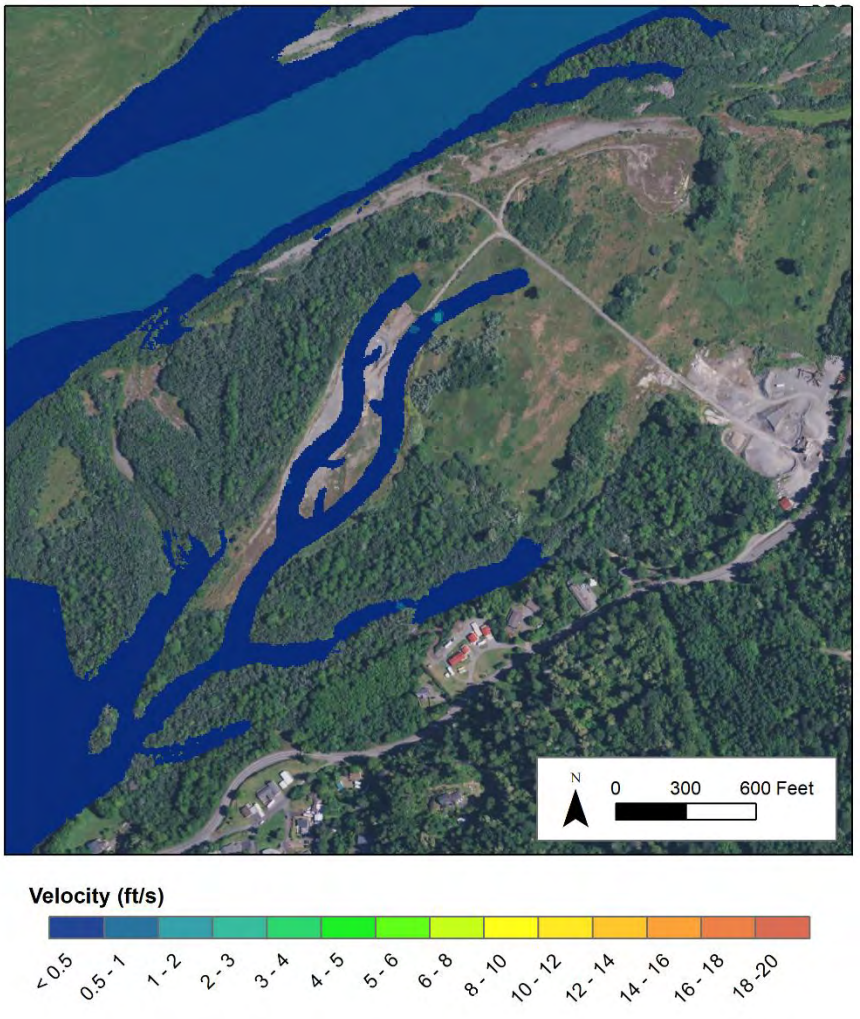


Figure 24: Proposed conditions velocities at summer baseflow and high tide (MHHW) as simulated with the Rogue River Estuary hydraulic model.

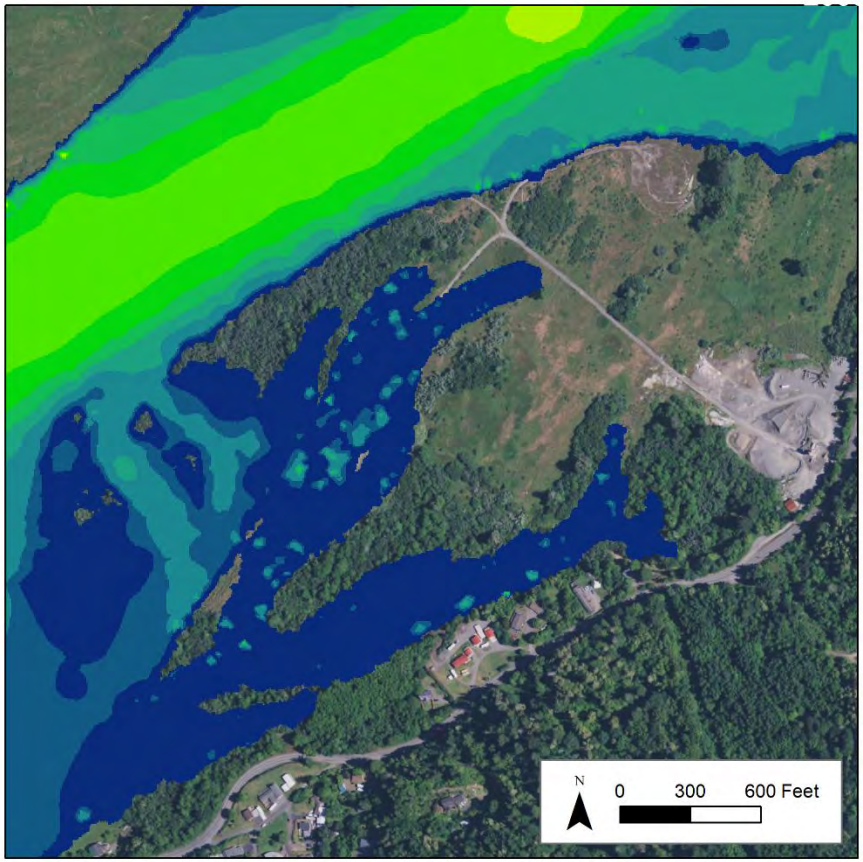


Figure 25: Proposed conditions velocities for the 3% winter exceedance flow as simulated with the Rogue River Estuary hydraulic model.

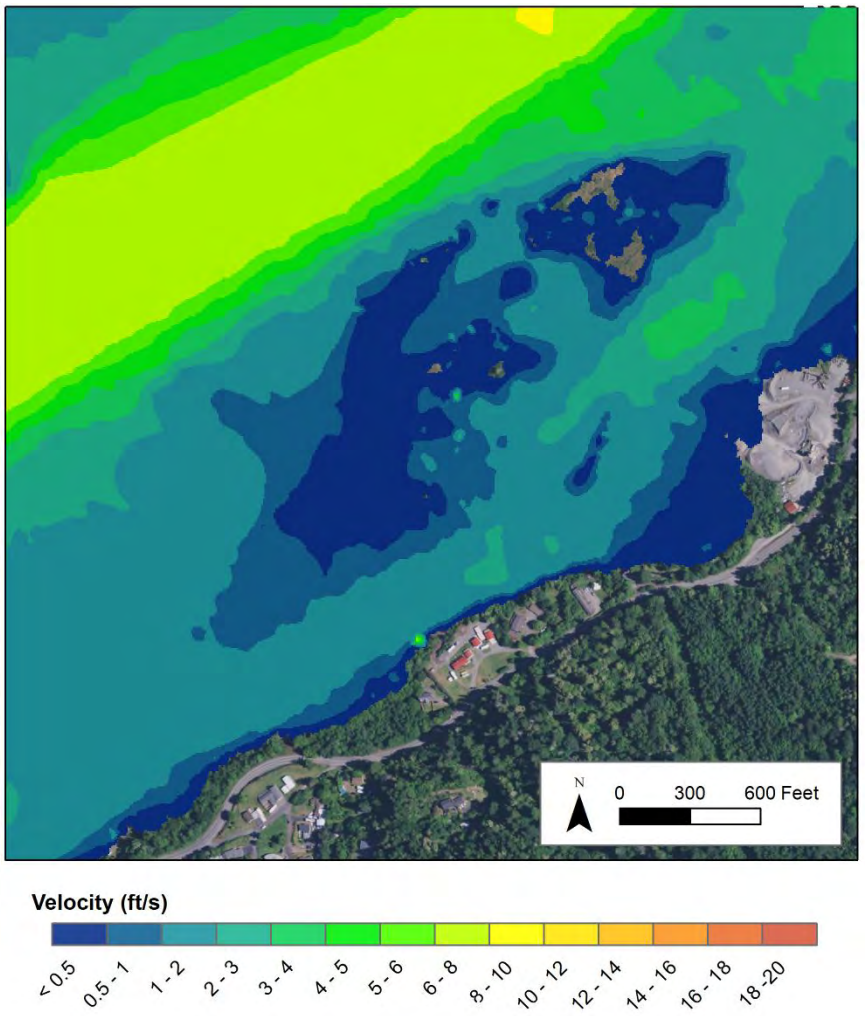


Figure 26: Proposed conditions velocities for the 1.7-yr flood as simulated with the Rogue River Estuary hydraulic model.

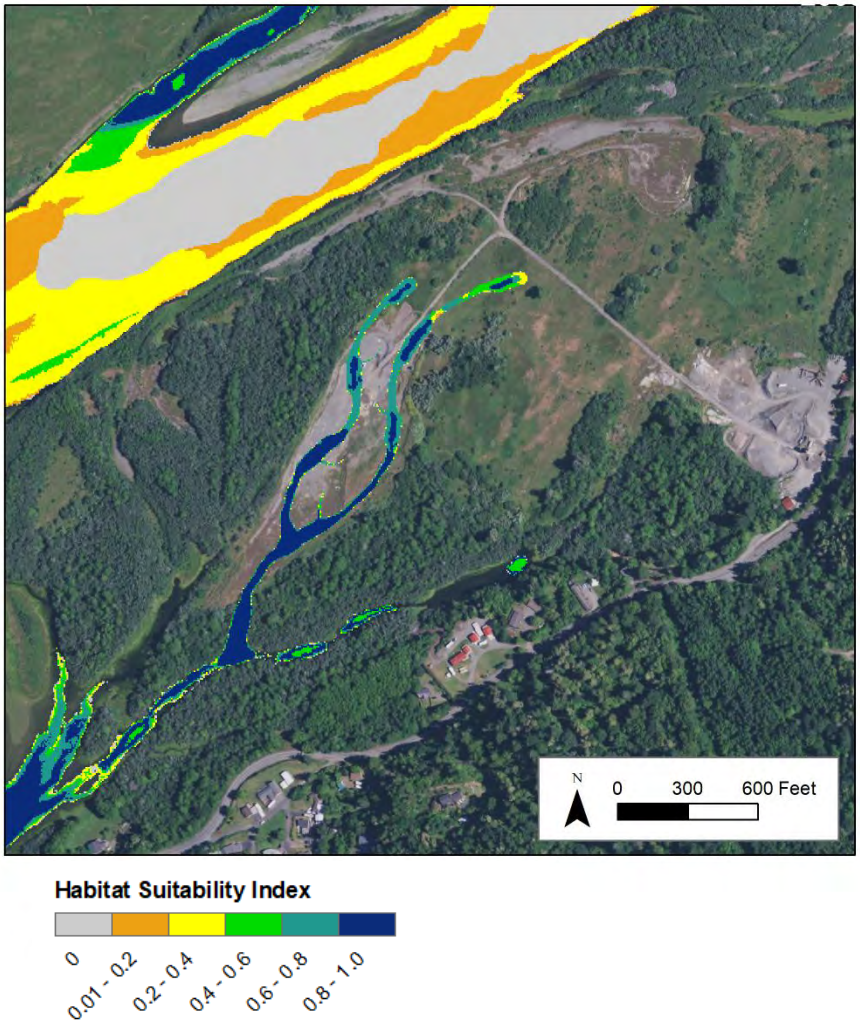


Figure 27: Proposed conditions juvenile coho habitat suitability at summer baseflow and low tide (MLLW) as simulated with the Rogue River Estuary hydraulic model.

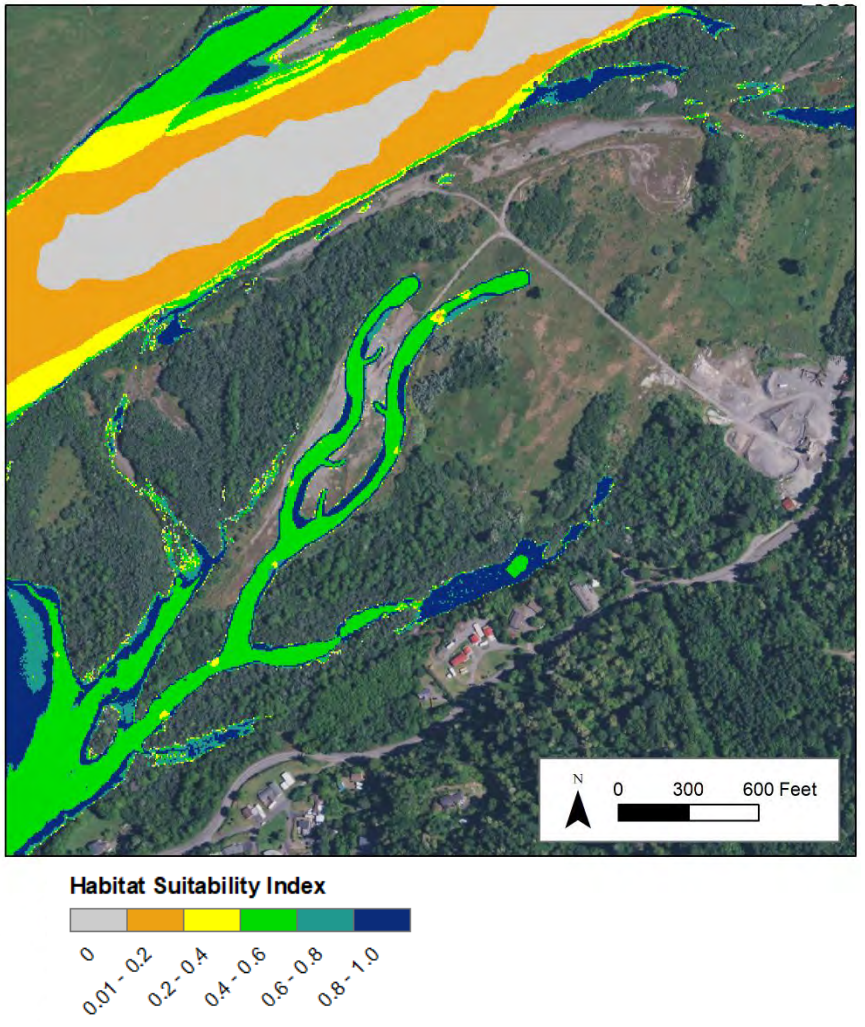


Figure 28: Proposed conditions juvenile coho habitat suitability at summer baseflow and high tide (MHHW) as simulated with the Rogue River Estuary hydraulic model.

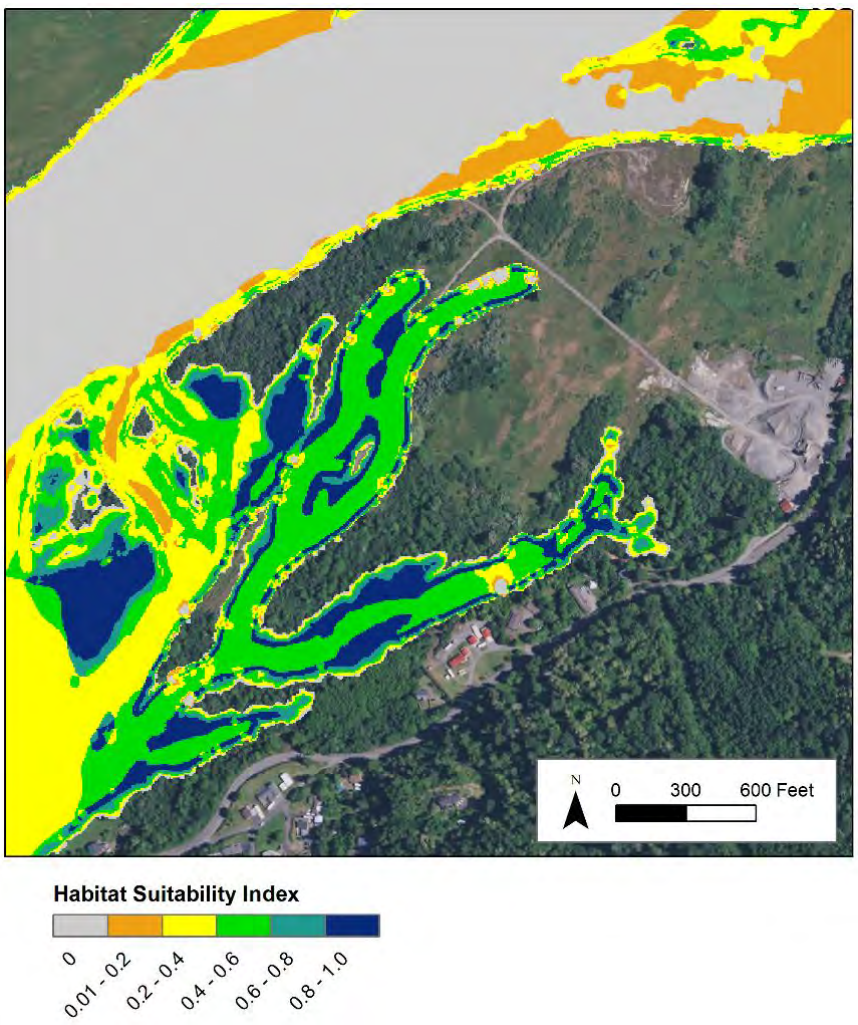


Figure 29: Proposed conditions juvenile coho habitat suitability for the 3% winter exceedance flow as simulated with the Rogue River Estuary hydraulic model.

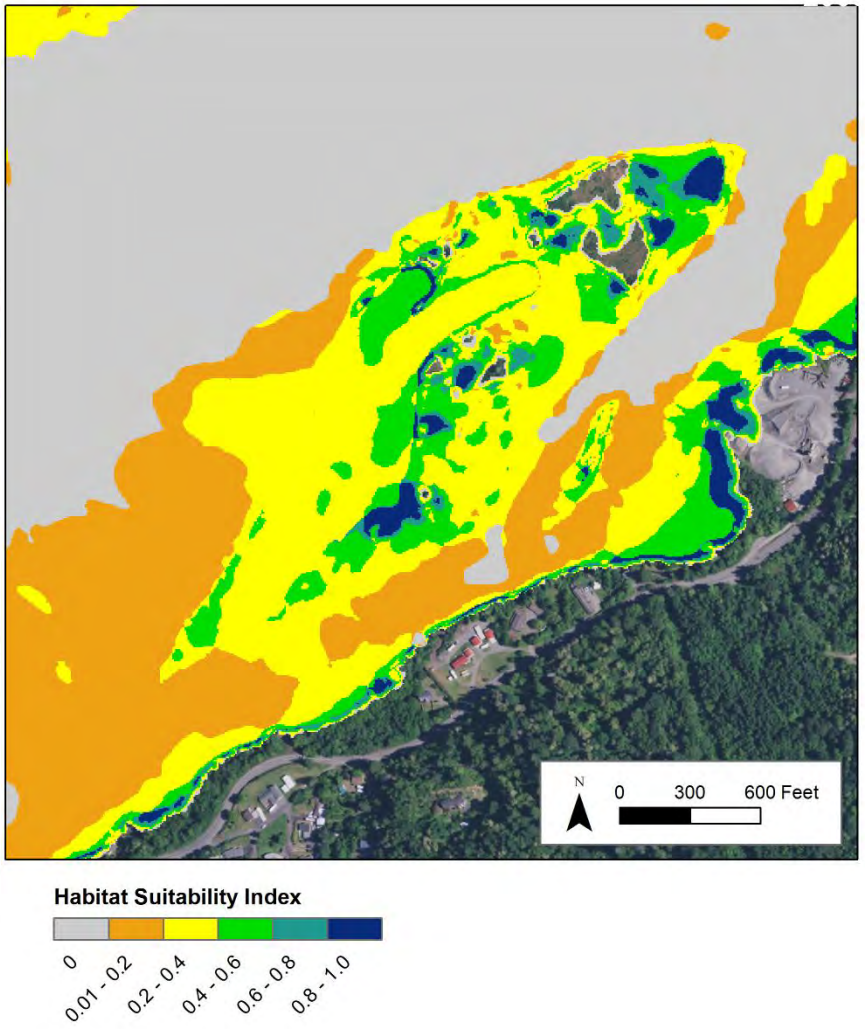


Figure 30: Proposed conditions juvenile coho habitat suitability for the 1.7-yr flood as simulated with the Rogue River Estuary hydraulic model.

References

Bartlett, R., 2019. Lower Rogue River Estuary and Indian Creek Off-channel Enhancements, Final Design Report, prepared by River Design Group, Inc. for the Curry Watershed Partnership, 25 pgs.

Beecher, H.A., Caldwell, B.A., and S.B. Demond, 2002. Evaluation of Depth and Velocity Preferences of Juvenile Coho Salmon in Washington Streams, North American Journal of Fisheries Management 22: 785-795.

Hawes, S.M., J.A. Hiebler, E.M. Nielsen, C.W. Alton, J.A. Christy, and P. Benner, 2018. Historical Vegetation of the Pacific Coast, Oregon, 1855-1910, ArcMap shapefile, version 2018_01, Oregon Biodiversity Information Center, Portland State University, https://inr.oregonstate.edu/historical-vegetation-mapping/available-maps#Oregon.

Kobor, J., and M. O'Connor, 2023. Rogue River Estuary Assessment and Enhancement Plan, prepared by O'Connor Environmental, Inc.; River Docs, LLC; Oregon State University Extension Service/Oregon Sea Grant; and River Research and Design, Inc., 122 pgs.

National Marine Fisheries Service (NMFS), 2014. Final Recovery Plan for the Southern Oregon/Northern California Evolutionary Significant Unit of Coho Salmon, 1,841 pgs.

Rafferty, M., 2016. Computational Design Tool for Evaluating the Stability of Large Wood Structures, Technical Note TN-103.1, Fort Collins, CO: U.S. Department of Agriculture, Forest Service, National Stream & Aquatic Ecology Center, 27 pgs.

Timchak, K.L., and C.R. Myers, 2015. Rogue River Estuary Strategic Plan, Lower Rogue River Watershed Council, 38 pgs.

Unites States Bureau of Reclamation and United States Army Engineer Research and Development Center (USBR & ERDC), 2016. National Large Wood Manual: Assessment, Planning, Design, and Maintenance of Large Wood in Fluvial Ecosystems: Restoring Process, Function, and Structure, 628 pgs.