

Technical Specifications

For

Conyers Creek Habitat Diversification and Enhancement Project

**Prepared for
Columbia Soil and Water Conservation District**

100% Administrative Draft Submittal

October 12, 2026

**FOR USE IN CONNECTION WITH
STATE OF OREGON, DEPARTMENT OF TRANSPORTATION STANDARD
SPECIFICATIONS FOR CONSTRUCTION, 2024**

**Conyers Creek Habitat Diversification and Enhancement Project
Technical Specifications
100% Submittal**

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SECTION 01 09 10 REFERENCE STANDARDS

1. GENERAL

1.1 QUALITY ASSURANCE

- A. Titles of sections and paragraphs: Captions accompanying specification sections and paragraphs are for convenience of reference only and are not to be used to define the limits of subcontracts.
- B. Applicable publications: Whenever in these Technical Specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the Work is advertised for bids, shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the Drawings shall be waived because of any provision of, or omission from, said standards or requirements.
- C. Without limiting the generality of other requirements of the Technical Specifications, all Work specified herein shall conform to or exceed the requirements of applicable codes and the applicable requirements of the following documents to the extent that the provisions of such documents are not in conflict with the requirements of these Technical Specifications nor the applicable codes.
- D. In case of conflict between codes, reference standards, Drawings and the other Contract Documents, the most stringent requirements shall govern. Conflicts shall be brought to the attention of the Owner's Authorized Representative for written clarification and directions prior to ordering or providing any materials or labor.
- E. Applicable Requirements: The Contractor shall construct the Work specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards, and specifications listed herein (except, that wherever references to "Standard Specifications" are made, the provisions therein for measurement and payment shall not apply).
- F. References herein to "OSHA Regulations for Construction" shall mean Title 29, Part 1926, Construction Safety and Health Regulations, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- G. References herein to "OSHA Standards" shall mean Title 29, Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. The following documents or agencies may be referenced in the contract documents:
 - AA Aluminum Association
 - AASHTO American Association of State Highway and Transportation Officials
 - ACI American Concrete Institute
 - ACOE Army Corp of Engineers

AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ANSI	American National Standards Institute, Inc.
APA	American Plywood Association
API	American Petroleum Institute
APWA	American Public Works Association
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASPA	American Sod Producers Association
ASQC	American Society of Quality Control
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BBC	Basic Building Code, Building Officials and Code Administrators International
BHMA	Builders Hardware Manufacturer's Association
CBM	Certified Ballast Manufacturers
CLFMI	Chain Link Fence Manufacturer's Institute
CMA	Concrete Masonry Association
CRSI	Concrete Reinforcing Steel Institute
CSI	Construction Specifications Institute
DOT	Department of Transportation
EJCDC	Engineer's Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturer's Association
EPA	Environmental Protection Agency
ETL	Electrical Test Laboratories
FSA	Federal Seed Act
IBC	International Building Code
ICBO	International Conference of Building Officials
ICC	Interstate Commerce Commission
IEEE	Institute of Electrical and Electronics Engineers
IMIA	International Masonry Industry All-Weather Council
ISO	International Organization for Standardization
ITE	Institute of Traffic Engineers
MBMA	Metal Building Manufacturer's Association
MTI	Marine Testing Institute
NAAMM	National Association of Architectural Metal Manufacturer's
NACE	National Association of Corrosion Engineers
NBS	National Bureau of Standards
NCCLS	National Committee for Clinical Laboratory Standards
NEBB	National Environmental Balancing Bureau
NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
NESC	National Electric Safety Code
NFPA	National Fire Protection Association
NRCS	National Resources Conservation Service

NWMA	National Woodwork Manufacturers Association
OAC	Oregon Administrative Code
ODOT	Oregon Department of Transportation
OSL	Oregon Seed Law
OSS	Oregon Standard Specifications for Construction (ODOT)
OSSC	Oregon Structural Specialty Code
ODEQ	Oregon Department of Environmental Quality
ORS	Oregon Revised Statute
OSHA	Occupational Safety and Health Administration
SDI	Steel Deck Institute
SJI	Steel Joist Institute
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications for Public Works Construction
TFI	The Fertilizer Institute
UL	Underwriters Laboratories, Inc.
WCLIB	West Coast Lumber Inspection Bureau
WCRSI	Western Concrete Reinforcing Steel Institute
WRI	Wire Reinforcement Institute, Inc.
WWPA	Western Wood Products Association

1.3 SPECIFICATIONS

- A. Where indicated in these Contract Documents, Work shall be in accordance with the referenced sections of the most current edition of the Oregon Standard Specifications for Construction, hereinafter referred to as "Standard Specifications."
- B. The Technical Specifications of the Contract Documents shall supersede any provisions of the Standard Specifications in conflict herewith.
- C. Reference to measurements and payment in the Standard Specifications do not apply to this Contract.
- D. References to department, secretary, State, or other similar terms in the Technical and Standard Specifications shall mean Owner's Authorized Representative.

2. PRODUCTS – NOT USED

3. EXECUTION – NOT USED

4. MEASUREMENT AND PAYMENT – NOT USED

END OF SECTION

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SECTION 01 10 10 SUMMARY OF WORK

1. GENERAL

1.1 SECTION INCLUDES

- A. This Section includes a general description of the Work required for this Contract.

1.2 CONTRACT DOCUMENTS

- A. This Project shall be constructed in accordance with the following:
 - 1. Conyers Creek Habitat Diversification and Enhancement Project – Construction Plans, dated 10/12/2026.
 - 2. Conyers Creek Habitat Diversification and Enhancement Project – Technical Specifications, dated 10/12/2026.
 - 3. Any Addendum included in the Contract Documents.
 - 4. Oregon Standard Specifications for Construction, Current Edition.
 - 5. Standard Plans or Specifications, when referenced in this Project Manual, shall mean Oregon Standard Specifications for Construction, most current Edition; Volume 2; Technical Specifications. A copy of this document shall be on site during construction.

1.3 PROJECT DESCRIPTION

- A. Contractor shall provide all necessary expertise, labor, equipment, materials, incidentals, and permits required to perform the Conyers Creek Habitat Diversification and Enhancement Project including but not limited to:
 - 1. Selective tree harvesting.
 - 2. Project work area isolation and dewatering.
 - 3. Excavation as indicated on the Plans.
 - 4. Install log structure materials in the channel, channel banks, and floodplain.
 - 5. Install fiber rolls along the bank slopes.
 - 6. Seeding.
- B. The Work to be performed under this Contract shall consist of furnishing tools, equipment, materials, supplies, and manufactured articles and for furnishing transportation and services, including fuel, power, water, and essential communications, and for the performance of all labor, work, or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents. Refer to work by Owner in paragraph 1.4 below.

1.4 WORK BY OWNER

- A. The Owner will furnish the following items as noted on the Plans:
 - 1. None.

1.5 LABOR AND SAFETY STANDARDS

- A. All Work shall be done in accordance with these Specifications and requirements of the State of Oregon and OSHA standards.

1.6 TEMPORARY FACILITIES

- A. The Contractor shall furnish all temporary facilities such as portable toilets, job office, security fencing, and temporary power as needed to perform the Work.

1.7 PROJECT CONDITIONS

- A. The Contractor shall coordinate the Work with the Owner's Authorized Representative to minimize disturbance of neighboring property owners.

1.8 WORK AND STORAGE AREA

- A. The primary Work, storage, and staging areas are designated on the Drawings and shall be available to the Contractor for Work including all functions incidental to the Work and storage areas during the construction period. All operations and storage of materials by the Contractor shall be confined to the immediate Work area and other approved areas as directed by the Owner's Representative.

1.9 ACCESS TO THE WORK AREA

- A. The Contractor shall repair any damage to access facilities and roadways for which the Contractor is responsible and shall restore them to conditions at least equaling preconstruction conditions.
- B. The Contractor shall take reasonable measures to limit entry of unauthorized persons and vehicles to the Work areas and to allow for access for employees, agents, etc. required for the performance of this Contract, and to authorized personnel of federal, state, and local agencies, and to others having a right thereto.

1.10 RESTORATION OF EXISTING FACILITIES

- A. The Contractor shall perform all Work to lines, grades, and cross sections shown on the Plans. Final grades shall match existing grades unless otherwise noted on the Drawings. Where final grades are indicated on the Plans, grades shall slope uniformly between elevations shown. All final grades shall be free of hollows which would pond water and sloped to allow for surface drainage. All earthwork shall have finish surfaces which have neat, reasonably uniform appearance.

1.11 EASEMENTS AND RIGHTS-OF-WAYS

- A. Confine construction operations to the immediate vicinity of the locations indicated on Drawings and use due care in placing construction tools, equipment, excavated materials, and pipeline materials and supplies so as to cause the least possible damage to property and interference with traffic.

1.12 PERMITS

- A. The Contractor shall be responsible for obtaining and paying for all permits necessary to complete the Work.

1.13 SUBSTANTIAL COMPLETION

- A. Substantial completion dates are listed in the ITB.

2. PRODUCTS – NOT USED
3. EXECUTION – NOT USED
4. MEASUREMENT AND PAYMENT – NOT USED

END OF SECTION

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SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

1. GENERAL

1.1 SECTION INCLUDES

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Project Coordination.
 - 2. Preconstruction meeting.
 - 3. Progress meetings.
 - 4. Requests for Information (RFI).

1.2 RELATED SECTIONS

- A. Section 01 33 00, Submittal Procedures
- B. Section 01 50 00, Mobilization
- C. Section 01 70 00, Project Closeout

1.3 DEFINITIONS

- A. RFI: Request for information from Contractor seeking information required by or clarifications of the Contract Documents.

1.4 PROJECT COORDINATION

- A. Coordinate scheduling, submittals, and the Work of the various Sections of the Specifications to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later. Maintain a current schedule of proposed activities and submit updates weekly to the Owner's Representative in the form of a Gant chart showing critical path actions, materials deliveries, and mandatory inspections or approvals identified by the Engineer.
- B. Verify that utility requirement characteristics of operating equipment are compatible with available utilities, existing or provided by the Contractor. Coordinate Work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, all such equipment, temporary or permanent.
- C. Coordinate completion and cleanup of Work of separate Sections in preparation for Substantial Completion and for portions of Work designated for Owner occupancy.
- D. After Owner occupancy of site, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner activities.
- E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1.5 SUBMITTALS

- A. Construction Schedule. The Contractor shall provide the following schedules and submit them not later than 7 days after notice to proceed.

1. Contractor's construction schedule:

- a. The Contractor shall prepare and submit to the Owner's Authorized Representative for review an overall construction schedule covering all Work to be performed.
- b. The schedule shall indicate the sequence of the Work, the time of starting and completion of each part, and the installation dates for major items.
- c. The schedule shall be submitted to the Owner's Authorized Representative for review. This schedule shall be revised and resubmitted as necessary until it is acceptable to the Owner's Authorized Representative. Action on payment requests will be contingent upon receipt of an acceptable construction schedule.

2. The construction schedule shall include, but not be limited to the following items:

- a. Material and equipment order, delivery and installation, and check out.
- b. Selective tree harvesting.
- c. Erosion Control
- d. Dewatering.
- e. Grading.
- f. Log structure installation.
- g. Substantial Completion of improvements.
- h. Seeding.
- i. Final cleanup and fence/access repairs.

3. The construction schedule shall be a series of line diagram showing a step-by-step sequence of each construction activity. Construction activities proceeding simultaneously should be shown as parallel lines. Each activity shall be labeled and the estimated number of days to complete the activity shall be shown on the schedule.
4. Should the Contractor fail to meet any critical dates within the schedule, the Contractor shall immediately undertake appropriate action which shall assure an acceptable return to the approved construction schedule.
5. The Contractor accepts the risk of any delays caused by the rate of progress of the Work to be performed under the Contract, and that in the event the Contractor is delayed in the prosecution and completion of its Work because of such conditions; Contractor shall have no claim for damages or contract adjustment.

- B. Contractor's list of subcontractors: Establish the items of Work proposed to be accomplished by subcontractors, the name and address of each proposed subcontractor, and the date proposed to award each subcontract.
- C. The Contractor's list of subcontractors and schedule of submittals shall be based upon the Contractor's progress schedule so that the Work can progress in accordance with the approved progress schedule.
- D. During the term of this Contract, the Owner's Authorized Representative may require any schedule to be modified so that the changes in the Work of this Contract or related contracts (if any) are properly reflected in the schedule.

2. PRODUCTS – NOT USED

3. EXECUTION

3.1 PRECONSTRUCTION MEETING

- A. Owner's Authorized Representative will schedule a meeting after Notice to Proceed.
- B. Attendance Required:
 - 1. Owner's Authorized Representative.
 - 2. Engineer.
 - 3. Contractor.
 - 4. Contractor's Superintendent and 1-2 key staff who will be on site at most times during the work.
 - 5. Major Subcontractors.
 - 6. Major Suppliers when requested,
 - 7. others as appropriate.
- C. Typical Agenda:
 - 1. Introductions.
 - 2. Distribution of Contract Documents.
 - 3. Submission of list of Subcontractors, list of Products, Schedule of Values, and progress schedule.
 - 4. Designation of personnel representing the parties to Contract and Owner.
 - 5. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 - 6. Project overview.
 - 7. Schedule review.
 - 8. Critical work sequencing.
 - 9. Related work by Owner and coordination with Contractor.
 - 10. Owner's requirements.
 - 11. Construction facilities and controls.
 - 12. Security and housekeeping procedures.
 - 13. Procedures for maintaining record documents.
 - 14. Inspection and acceptance of equipment put into service during the construction period.
 - 15. Status of permits and overview of key permits conditions
 - 16. Temporary utilities.
 - 17. Use of premises.
- D. Persons designated by the Contractor to attend and participate shall have all required authority to commit the Contractor to solutions as agreed upon in the meeting.

3.2 PROGRESS MEETINGS

- A. Owner's Authorized Representative will schedule and administer meetings throughout progress of the Work at weekly intervals.
- B. Owner's Authorized Representative will make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.
- C. Attendance Required: Job superintendent, Owner's Authorized Representative, Engineer (or authorized representative) and major Subcontractors and suppliers, as appropriate to agenda topics for each meeting.
- D. Agenda:
 - 1. Corrections to previous minutes.
 - 2. Outstanding old business items.
 - 3. New business items.
 - 4. Submittals.

5. Requests for Information.
 6. Change Order Proposals.
 7. Schedule review.
 8. Permit compliance review.
 9. Record Document review.
- E. Record minutes and distribute copies within two (2) days after meeting to participants, with one copy to Contractor, participants, and those affected by decisions made.
- F. Persons designated by the Contractor to attend and participate shall have all required authority to commit the Contractor to solutions as agreed upon in the meeting.

3.3 PROJECT CLOSEOUT CONFERENCE

- A. Owner's Authorized Representative will schedule and conduct a Project closeout conference, at a time convenient to Owner, but no later than 30 days prior to the scheduled date of Substantial Completion.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 2. Attendees: Owner's Authorized Representative, Engineer (or authorized representative) and Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Typical Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of record documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Preparation of Contractor's punch list.
 - d. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - e. Responsibility for removing temporary facilities and controls.
 4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

3.4 REQUESTS FOR INFORMATION (RFIS)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, prepare and submit an RFI in the form specified.
1. RFIs shall originate with Contractor. Owner's Authorized Representative will return RFIs submitted to Owner's Authorized Representative by other entities controlled by Contractor with no response.
 2. Limit topics on each RFI to a single topic to expedite response. If more than a single topic is covered in an RFI the Contractor accepts full responsibility for any and all cost or schedule delays if RFI is not answered in a timely manner.
 3. Coordinate and submit RFIs in a prompt manner to avoid delays in Contractor's work or work of subcontractors.
 4. Coordinate Work in field and ensure Work involving RFIs being reviewed by the Owner's Authorized Representative does not proceed without direction from the Owner's Authorized Representative. Costs for corrective Work shall be the responsibility of the Contractor.

5. If Contractor disagrees with Owner's Authorized Representative response to Contractor's RFI, Contractor shall notify Owner's Authorized Representative within seven (7) days of receipt of response. Lack of such notification shall be understood to mean that Contractor agrees with response.
- B. Content of the RFI: Include a detailed, legible description of item needing information, or interpretation and the following:
1. Date.
 2. RFI number, numbered sequentially.
 3. RFI subject.
 4. Specification Section number and title and related paragraphs, as appropriate.
 5. Drawing number and detail references, as appropriate.
 6. Field dimensions and conditions, as appropriate.
 7. Contractor's suggested resolution. If proposed solution impacts the Contract Time or the Contract Sum, state impact in the RFI.
 8. The following statement:

"This reply is not an authorization to proceed with work involving additional cost, time or both. If any reply requires a change to the Contract Documents, a Change Order must be executed in accordance with the Contract Documents prior to implementation of the reply. Proceeding with the Work in accordance with this RFI response indicates Contractor's acknowledgement that there will be no change in the Contract Sum or Contract Time."
 9. Contractor's signature.
 10. Attachments: Include sketches, descriptions, measurements, photos, Product data, shop drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
- C. Contractor shall utilize the Owner's Authorized Representative email to submit and receive RFIs and their responses.
- D. Owner's Authorized Representative will review each RFI, determine action required, and respond. Allow seven (7) working days for Owner's Authorized Representative response for each RFI. RFIs received by Owner's Authorized Representative after 1:00 p.m. will be considered as received the following working day.
1. The following RFIs will be returned without action:
 - a. Requests for approval of substitutions (Submit Substitution Request).
 - b. Requests for adjustments in the Contract Time or the Contract Sum (Change Order).
 - c. Incomplete RFIs or inaccurately prepared RFIs.
 2. Owner's Authorized Representative action may include a request for additional information, in which case Owner's Authorized Representative time for response will date from time of receipt of additional information.
 3. Owner's Authorized Representative action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit a Change Order Request according to the General Conditions.

- a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Owner's Authorized Representative in writing within ten (10) days of receipt of the RFI response.
 - b. A response to an RFI is not direction or approval of a change to either Contract Time or Contract Sum.
 - c. Proceeding with the Work in accordance with an RFI response, without such written notification and an approved Change Order, indicates Contractor's acknowledgement that there is no change to the Contract Time or the Contract Sum.
- E. On receipt of Owner's Authorized Representative action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Owner's Authorized Representative within three (3) days if Contractor disagrees with response.

4. MEASUREMENT AND PAYMENT – NOT USED

END OF SECTION

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SECTION 01 33 00 SUBMITTAL PROCEDURES

1. GENERAL

1.1 SUBMITTAL REQUIREMENTS

A. General:

1. All submittals shall be transmitted via email with attachments as PDFs or JPGs.
2. All submittals shall be identified by Project title and number and shall include Contractor's name, date, and revision date. In addition, shop drawings, product data and samples shall include names of subcontractor and supplier, applicable specification section number and Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements, and compliance with Contract Documents.
3. All submittals shall be accompanied by a submittal transmittal form. Equipment numbers shall be listed for items being submitted. A separate form shall be used for each specific item, class of material, equipment, and items specified in separate, discrete sections, for which the submittal is required. Submittals for various items shall be made with a single form when the items taken together constitute a manufacturer's package or are so functionally related that expediency indicates checking or review of the group or package as a whole.
4. A unique number, sequentially assigned, shall be noted on the transmittal form accompanying each item submitted. Original submittal numbers shall have the following format: "###"; where "###" is the sequential number assigned by the Contractor. Resubmittal shall have the following format: "###-Y"; where "###" is the originally assigned submittal number and "Y" is a sequential letter assigned for resubmittals; i.e., A, B, or C being the 1st, 2nd, and 3rd resubmittals, respectively. Submittal 25B, for example, is the second resubmittal of Submittal 25.

B. Product Data: Submit electronic copies of each item of product data required by the Specifications. Modify product data by deleting information which is not applicable to the Project or by marking each copy to identify pertinent products. Supplement standard information, if necessary, to provide additional information applicable to Project. It is recognized that in some cases manufacturer's product data will be adequate and further shop drawings as stated in the Specifications may not be required, unless requested by the Owner.

C. Review Procedure: Unless otherwise specified, the Owner will review and return the submittal within 7 working days after receipt of the submittal. The returned submittal will indicate one of the following actions:

1. If the review indicates that the material, equipment, or work method is in general conformance with the design concept and complies with the Plans and Specifications, submittal copies will be marked "NO EXCEPTION TAKEN". In this event the Contractor may begin to implement the work method or incorporate the material or equipment covered by the submittal.
2. If the review indicates that limited corrections are required, copies will be marked "MAKE CORRECTIONS NOTED". The Contractor may begin implementing the work method or incorporating the material and equipment covered by the submittal in accordance with the noted corrections. Where submittal information will be incorporated in O&M data, a corrected copy shall be provided; otherwise, no further action is required.

3. Submittal Completeness: Submittals which do not have all the information required to be submitted are not acceptable and will be marked "SUBMIT SPECIFIED ITEM". Except at its own risk, the Contractor shall not undertake Work covered by this submittal until the attached comments have been either confirmed by a separate written communication or the submittal has been revised, resubmitted, and returned marked with "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."
 4. If the review reveals that the submittal is insufficient or contains incorrect data, copies will be marked "REVISE AND RESUBMIT". Except at its own risk, the Contractor shall not undertake Work covered by this submittal until the attached comments have been either confirmed by a separate written communication or the submittal has been revised, resubmitted, and returned marked with "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."
 5. If the review indicates that the material, equipment, or work method is not in general conformance with the design concept or in compliance with the Plans and Specifications, copies of the submittal will be marked "REJECTED". Except at their own risk, the Contractor shall not undertake Work covered by such submittals until a new submittal is made and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."
- D. Effects of Review of Contractor's Submittals: Review of Plans, method of work, or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of its responsibility for errors therein and shall not be regarded as an assumption of risks or liability by the Owner, 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 RCD has no objection to the Contractor, upon the Contractor's own responsibility, using the plan or method of work proposed, or providing the materials or equipment proposed.

1.2 RELATED SECTIONS

- A. Section 01 31 00, Project Management and Coordination
- B. Section 01 50 00, Mobilization
- C. Section 01 57 13, Temporary Erosion Control and BMPs
- D. Section 01 57 13.01, Fiber Roll
- E. Section 01 70 00, Closeout
- F. Section 01 71 23.16, Construction Surveying
- G. Section 31 13 13, Selective Tree Harvest
- H. Section 31 23 19, Dewatering
- I. Section 31 23 23, Fill
- J. Section 32 92 00, Seeding
- K. Section 35 42 00, Log Structures

1.3 SCHEDULE OF SUBMITTALS

- A. Schedule of Submittals: Establish for each item for which shop drawings, product data, or samples are required, the date that submission will be made, and the date approval is required for the installation to be completed in accordance with the Construction Schedule.

- B. The Contractor shall immediately advise the Owner of any proposed changes in his submitted schedules. If, in the opinion of the Owner, any submitted schedule is inadequate to ensure completion of Work within the time limit, or is otherwise not in accordance with the Specification, or if the Work is not being adequately or properly prosecuted in any respect, the Owner shall have the right to require the Contractor to submit new schedules providing for proper and timely completion of the Work.

2. PRODUCTS – NOT USED

3. EXECUTION – NOT USED

4. MEASUREMENT AND PAYMENT – NOT USED

END OF SECTION

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SECTION 01 35 13 PROJECT PROCEDURES

1. GENERAL

1.1 SUMMARY

- A. Provide coordination of Work.
 - 1. Project Supervisor: Employee that has authority to give instruction to others, be held responsible for the Work and actions of others, and to make decisions on behalf of the General Contractor. Project supervisor is to be onsite during all times when Work is being performed on the Project either by Contractor's crew or subcontractors.
 - 2. Pre-construction conference.
 - 3. Detailed Construction Progress Schedule.
 - 4. Monthly meetings; distribute minutes.
 - 5. Other meetings.
- B. Prior to start of construction, submit a construction progress schedule for the entire construction process from start to final occupancy. Schedule can be in any standard format such as Gantt chart, bar chart, CPM flowcharts, or other acceptable format. Contractor shall review and update this schedule weekly.
- C. Prepare submittal schedule.
- D. Submit schedule of values consisting of a line item valuation for each section of Work.
- E. Submit and post a list of emergency telephone numbers and address for individuals to be contacted in case of emergency.
- F. Submit record of changes from construction Plans and Specifications; to be maintained and annotated by Contractor as work progresses.
- G. Perform quality control during installation.
- H. Clean and protect the Work.

2. PRODUCTS – NOT USED

3. EXECUTION – NOT USED

4. MEASUREMENT AND PAYMENT – NOT USED

END OF SECTION

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SECTION 01 50 00 MOBILIZATION

1. GENERAL

1.1 DESCRIPTION

- A. The work covered by this Section shall consist of compensation for bonds, insurance, required permits and fees, shop drawings, project phasing, supervision, traffic control, temporary chain link or other fencing and gates, temporary power and water (unless otherwise noted), temporary construction entrances and tracking control, coordination of concurrent work with other contractors, meetings, pre-construction documentation of project area (photos and video), "as-built" plans or record drawings, cleanup of the work area, movement of personnel, equipment, supplies, and incidentals to and from the project site; for the establishment of all other facilities necessary for work on the project; for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items of work on the project site; and work and improvements called for or implied by the Contract Documents, which are not included in the other bid items but are required to complete the Work.
- B. Demobilization shall consist of work and operations necessary to disband all mobilized items and clean up the site. The removal of all temporary crossings, ramps, access ways, roads, signs, and fencing; dewatering facilities; 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.

1.2 RELATED SECTIONS

- A. Section 01 31 00, Project Management and Coordination
- B. Section 015713, Temporary Erosion Control and BMPs
- C. Section 015713.01, Fiber Roll
- D. Section 311100, Clearing and Grubbing
- E. Section 31 13 13, Selective Tree Harvest
- F. Section 312316, Excavation
- G. Section 31 23 19, Dewatering
- H. Section 31 23 23, Fill

1.3 REFERENCES

- A. Oregon Standard Specifications for Construction, Oregon Department of Transportation, current edition.
- B. Oregon Temporary Traffic Control Handbook, Oregon Department of Transportation, current edition.
- C. Manual on Uniform Traffic Control Devices for Streets and Highways – Oregon Supplement to the 11th Edition", Oregon Transportation Commission.
- D. Manual on Uniform Traffic Control Devices (MUTCD), United States Department of Transportation, Federal Highway Administration.

1.4 SUBMITTALS

- A. Hazardous Materials and Spill Prevention Plan.
- B. Pre-construction video documentation of existing improvements to be protected.

2. PRODUCTS – NOT USED

3. EXECUTION

3.1 CONTRACTOR'S PLANT AND EQUIPMENT:

- A. Security. Contractor shall, at all times, be responsible for security of their plant and equipment. Owner shall not be responsible for missing or damaged equipment, tools, or personal belongings.
- B. Water & Power. Contractor shall provide all water and electrical power necessary for construction as specified. Generators shall produce less than 65 decibels. Generators used outside working hours shall be enclosed in acoustic panels or equivalent, if requested by the Owner's Authorized Representative.
- C. Communication Facilities. Contractor shall be responsible for providing sufficient communication facilities to construct the work.
- D. Storage Facilities.
 - 1. Provide storage facilities for the protection of materials and supplies from weather and keep the facilities clean and in proper order at all times.
 - 2. Provide a storage area for lubricants, oils, and hazardous materials with sufficient means to contain spills. Facilities, handling, and any required cleanup will comply with all current local, state, and federal standards. Petroleum products stored on the site shall be secured from vandalism.
- E. Sanitary Facilities. Maintain adequate toilet facilities at or near the work site.
- F. Solid Waste Handling. Provide sufficient solid waste handling facilities to maintain site in a clean, orderly condition.

3.2 MOBILIZATION AND DEMOBILIZATION

- A. General. Perform mobilization and demobilization activities in accordance with the Drawings, and as specified.

3.3 SITE ACCESS AND HAUL ROUTES

- A. General. Contractor access to the Project Site shall be limited to the locations and routes shown on the Plans. No access, ingress/egress, or equipment travel shall occur outside of these designated areas unless approved in writing by the Owner's Authorized Representative. In the event of a conflict, the Plans shall govern for access locations, haul routes, and phasing limits.
- B. Deviations. Any proposed deviation from designated access locations or routes shall be submitted in writing and approved by the Owner's Authorized Representative prior to implementation.
- C. Protection. Contractor shall confine operations to designated access routes and staging areas and shall protect adjacent areas, including vegetation, wetlands, and private property, from disturbance. Contractor shall install and maintain temporary erosion and sediment control BMPs along access routes in accordance with Section 01 57 13, Temporary Erosion Control and

BMPs. Damage resulting from unauthorized access shall be repaired at the Contractor's expense. Access outside designated areas may violate permit conditions and property agreements and will not be approved except under extraordinary circumstances. Contractor shall assume that off-plan access is prohibited for bidding purposes.

- D. Temporary Stream Crossings. Temporary stream crossings, where shown on the Plans or as directed by the Owner's Representative, shall not be installed until isolation and aquatic organism removal from within the crossing area has been completed and temporary water management features have been installed in accordance with technical specification Section 31 23 19, Dewatering.

3.4 EXCAVATION

- A. The Contractor, and any subcontractor, is required to notify U.S.A. forty-eight hours in advance of performing excavation work, by calling the toll-free number (800) 332-2344.

3.5 PROTECTIVE BARRIERS

- A. Refer to Section 01 57 13, Temporary Erosion Control and BMPs.

3.6 STAGING AREAS

- A. General. Staging areas at the project site are provided for the Contractor's use. Contractor shall be solely responsible for all activities within staging areas, including subcontractors and suppliers. By making this area available to the Contractor, the Engineer, and any other person or agency connected with the properties shall in no way be responsible or liable for any activity of the Contractor, subcontractors, or any individual or organization connected with the project.
- B. Alternative Staging Areas. Alternative sites must be acceptable to Owner, and the Contractor must make all arrangements for their use at the Contractor's expense, and in accordance with all local, State and Federal regulations.
- C. Additional Storage Areas. Should the Contractor require space in addition to that available on-site, the Contractor shall make arrangements for storage of materials and equipment in locations off the construction site and shall provide the Owner's Authorized Representative a copy of the letter of authorization for storage from the Owner.
- D. Spoils. Do not place spoils over vegetation or in locations where they could be mobilized and enter a stream or other sensitive habitat, unless specifically shown on the Plans. Spoils shall be immediately hauled offsite or temporarily stockpiled in an upland location as shown on the Plans. Temporary stockpiles shall be stabilized and protected in accordance with Section 01 57 13, Temporary Erosion Control and BMPs.

3.7 PARKING

- A. General. Limited parking shall be available alongside the roadway in the vicinity of the work area. Parking shall be restricted to only those spaces identified by the Engineer during the pre-bid walk.

3.8 DUST CONTROL

- A. Refer to Section 01 57 13, Temporary Erosion Control and BMPs.

3.9 HAZARDOUS MATERIALS CONTROL AND SPILL PREVENTION PLAN

- A. General. Before starting work on the project, the Contractor shall submit for acceptance by the Engineer a Hazardous Materials Controls and Spill Prevention Plan. The Plan shall include:
 - 1. Names and contact information for personnel responsible for spill response or general site cleanup and maintenance.
 - 2. Written description of proposed provisions for preventing hazardous materials from contaminating soil or entering water courses.
 - 3. Written narrative of proposed Spill Prevention and Countermeasure Plan.
- B. Facilities. Provide staging and storage areas for equipment, as required to contain contaminants away from water courses. Provide a contained, locked storage facility for fuels, lubricants, construction chemicals and other hazardous materials and supplies stored at site.
- C. Equipment Maintenance. Clean and maintain equipment to prevent any leakage of fuel and lubricants. Establish a designated equipment refueling area. All fueling and maintenance of vehicles and other equipment and staging area shall occur at least 75 feet from any riparian habitat or water body.
- D. Spills Countermeasures. Isolate work areas during in-water construction activities by using oil containment booms. Maintain a supply of oil booms, sorbent pads and other supplies to contain and clean spills. Contain and cleanup any hazardous material spills immediately and notify Engineer.
- E. Equipment over Drip Pans. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the stream and riparian areas shall be positioned over drip-pans.
- F. Check Equipment for Leaks. Any equipment or vehicles driven and/or operated adjacent to the stream and riparian corridor shall be checked and maintained daily to prevent leaks of materials that if introduced to water could be deleterious to aquatic life, wildlife or riparian habitat. Vehicles shall be moved away from the stream prior to refueling and lubrication.

3.10 CONSTRUCTION SITE HOUSEKEEPING

- A. Remove rubbish, trash, and debris from site on a regular basis. Transport and dispose of all rubbish and debris in accordance with all local regulations. Maintain staging area in an orderly manner. Regularly clean mud and debris, resulting from work at the site, from roadways. Cleanup and dispose of all concrete debris and washings offsite at an appropriate facility when concrete work is complete.

3.11 PROTECTION OF EXISTING IMPROVEMENTS

- A. Existing facilities, utilities, and property shall be protected from damage resulting from the Contractor's operations. Roadways and other improved surfaces shall be protected from damage by vehicles with tracks or lugs. Any damage resulting from the Contractor's operations shall be repaired by the Contractor to the condition which existed prior to the damage, and to the satisfaction of the Engineer, at no additional cost to the Owner.
- B. Contractor shall video the site prior to mobilization and submit to the Engineer video documentation of all pre-existing damage to pavements, trees, or other improvements that may be affected by the work. Unless this information is provided, prior to mobilization, the Contractor may be held responsible for damages discovered during work or project closeout/punch list walk that appear to be caused by Contractor's activities.

3.12 RESTORATION OF STRUCTURES AND SURFACES

- A. Structures, Equipment, and Pipework. The Contractor shall remove such existing structures, equipment, and pipework as may be necessary for the performance of the work, and shall rebuild, or replace, the items thus removed in as good a condition as found. Contractor shall repair any existing structures that were damaged as a result of the Work.
- B. Roads and Streets. Roadways used by the Contractor for hauling materials, equipment, supplies, etc., shall be cleaned and repaired if the condition of the roadway is damaged, or otherwise affected, due to the Contractor's operations.
- C. Curbs, Gutters, Driveways, and Sidewalks. All curbs, gutters, driveways, sidewalks, and similar structures that are broken, or damaged, by the installation of the work shall be reconstructed by the Contractor. Reconstruction shall be of the same kind of materials with the same finish, and in not less than the same dimensions as to original work. Repairs shall be made by removing and replacing the entire portions between joints or scores, and not merely refinishing any damaged part. All restoration work shall match the appearance of the existing improvements, as nearly as possible.
- D. Cultivated Areas and Other Surface Improvements. All cultivated and natural areas, either agricultural or lawns, and other surface improvements which are damaged by actions of the Contractor, shall be restored, including soil decompaction, as nearly as possible, to their original conditions, or as directed by the Owner's Representative.

3.13 STORAGE OF MATERIALS AND EQUIPMENT

- A. Materials and equipment shall be stored so as to ensure the preservation of their quality and fitness for the work. Stores of equipment and materials shall be located so as to facilitate inspection. The Contractor shall be responsible for all damages that occur in connection with the care and protection of all materials and equipment, supplied by the Contractor, until completion and final acceptance of the Work by the Owner.

3.14 TRAFFIC CONTROL

- A. General. The Contractor shall be responsible for public safety and traffic control at all times.
- B. The Contractor shall furnish, install, and maintain temporary construction warning signs, flaggers, barricades, and other devices necessary to safeguard the general public and the work, and to provide for the safe and proper routing of all vehicular and pedestrian traffic within and through the limits of the project during the performance of the work.
- C. Maintain Access. Contractor shall generally maintain access to existing roads and driveways at all times. Temporary road closures for materials or equipment delivery shall be limited to 20 minutes.
- D. Work includes furnishing, placing, maintaining, and removing signs and temporary supports or barricades for the signs; posting parking restrictions; pilot car including driver, radios, and any other equipment and labor required to operate a pilot car; furnishing and operating the flashing arrow sign trucks, including drivers and any other equipment or labor required to operate the flashing arrow sign trucks; barricades, flaggers, temporary pavement, trench plates, and temporary facilities required for the safe handling of pedestrian and vehicular traffic for 24 hours per calendar day in accordance with the "Oregon Temporary Traffic Control Handbook for Operation of Three Days or Less", the "Manual on Uniform Traffic Control Devices for Streets and Highways – Oregon Supplement to the 2026 Edition", and the approved project traffic control plans for the duration of the Work, complete. If, due to a change in the Contractor's work schedule a change in sign posting is required, all labor, equipment, and

materials required for second and subsequent postings shall be furnished at the Contractor's sole expense. Obtain any temporary road closure permits from Columbia County prior to Work.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Mobilization under this section will be measured for payment on a lump sum basis for all Work except for work associated with Selective Tree Harvest.

4.2 PAYMENT

- A. The lump sum contract price for Mobilization will include full compensation for the furnishing of all labor, materials, tools, equipment, administrative costs, and incidentals for mobilization; demobilization; and temporary facilities and controls.
- B. No separate payment will be made for Selective Tree Harvest Mobilization. Full costs associated with this work shall be included in the contract price for 31 13 13, Selective Tree Harvest.
- C. Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Mobilization	Lump Sum (LS)

END OF SECTION

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SECTION 01 57 13

TEMPORARY EROSION CONTROL AND BMPS

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SECTION 01 57 13

TEMPORARY EROSION CONTROL AND BMPS

1. GENERAL

1.1 DESCRIPTION

- A. This work shall consist of all temporary erosion control and water or air quality control measures, devices, and BMPs shown on the Erosion and Sediment Control Plan, specified in the Contract Documents, Project Permit(s), Standard Specifications, these Technical Specifications, or required to control erosion and protect air and water quality during the life of the contract, and that are not separately measured for payment within other sections.
- B. These measures shall typically include, but not be limited to:
 - 1. Berms, dikes, dams, sediment basins,
 - 2. Stabilized Construction Entrance
 - 3. Gravel or rock surfacing,
 - 4. Mulches, grasses,
 - 5. Temporary slope drains
 - 6. Filtration devices,
 - 7. Dust control,
 - 8. Temporary Fiber roll (where not measured independently for payment)
 - 9. Temporary Compost Sock (where not measured independently for payment)
 - 10. Tree protection,
 - 11. Slope protection fabric not shown on the Plans,
 - 12. Plastic covers or tarps, or other devices or methods required to control water or air pollution or otherwise reduce impacts to air or water quality or natural resources.
- C. Temporary erosion control measures and other BMPs will be required within the work area and at temporary staging, storage, and access areas utilized during project construction. Said work is intended to provide prevention, control, and abatement of water and air pollution and to minimize damage to the work, adjacent properties, vegetation proposed to remain, receiving streams or other bodies of water.
- D. The erosion control elements shown on the Plans serve as a minimum for the requirements of erosion control during construction. Contractor has the ultimate responsibility for providing adequate erosion control and water quality throughout the duration of the project. Therefore, if the provided plan is not working sufficiently to protect project areas, then the Contractor shall provide additional as required to obtain the required protection. Contractor shall include in the bid price for Temporary Erosion Control and BMPs a minimum of all items shown on the Erosion and Sediment Control Plans or specified and any additional items that may be needed to control erosion and water or air pollution.
- E. Installation and maintenance of temporary erosion control measures, devices and BMPs shall conform to the requirements as shown on the Erosion and Sediment Control Plans stated within these Technical Specifications, and as required by all permit conditions. In the event of conflict between these requirements and erosion and pollution control laws, rules, or regulations of other Federal, State, or local agencies, the more restrictive laws, rules, or regulations shall apply.

- F. An Oregon Department of Environmental Quality 1200-C Construction Stormwater Permit is required for this project. The Owner will be responsible for submitting the 1200-C permit application to DEQ along with all associated fees. The Contractor shall be responsible for providing supporting documentation of staff qualifications, work schedules, etc. to include in the Erosion and Sediment Control Plan (ESCP) associated with this permit. Once the permit has been issued by DEQ, the Owner will transfer ownership of the permit to the Contractor. The Contractor shall be responsible for administration of all aspects of the permit during construction, including providing a qualified erosion control inspector, recordkeeping, and closing out the permit at the conclusion of construction.
- 1. The Contractor shall be responsible for turbidity monitoring and reporting as required by permit conditions.

1.2 RELATED SECTIONS

- A. Section 01 33 00, Submittal Procedures
- B. Section 01 50 00, Mobilization
- C. Section 01 57 13.01, Fiber Roll
- D. Section 31 11 00, Clearing and Grubbing
- E. Section 31 23 19, Dewatering
- F. Section 32 92 00, Seeding

1.3 REFERENCES

- A. Oregon Standard Specifications for Construction, Oregon Department of Transportation, current edition.

1.4 SUBMITTALS

- A. Submit the following for review by the Engineer:
 - 1. Product data for all proposed imported BMP materials, including rock, geotextile fabric, stockpile covers, fencing, rope, or other items, whether shown on the Plans, specified herein, or proposed by the Contractor.
 - 2. Schedule and sequencing plan for Temporary Erosion Control.
- B. Submit turbidity monitoring results to Owner at substantial completion of the project.

2. PRODUCTS

- A. Refer to material specifications on the Plans.
- B. Seed: All seed shall conform to Section 32 92 00, Seeding, and be approved by the Engineer prior to installation.
- C. Fertilizer and soil conditioners, if used, shall be approved by Engineer and in accordance with local regulations prior to installation.
- D. Rocked Construction Entrance. Rocked Construction Entrance shall conform to the material properties for Standard Specification 00280.16(a) Construction Entrances.

3. EXECUTION

3.1 GENERAL

- A. Provide temporary soil stabilization for water pollution control in all disturbed work areas that are considered inactive (i.e., excess of 14 days) or before forecast storm events. Should any temporary erosion control of this nature be required elsewhere as directed by the Engineer and/or regulatory agencies, install them within 48 hours of notification. Where applicable and upon acceptance of the Engineer, furnish and apply/install temporary mulch, temporary hydraulic mulch, temporary erosion control blankets, or temporary covers in conformance with the Standard Specifications and these Technical Specifications. Materials and construction methods shall comply with the Standard Specifications and these Technical Specifications.
- B. Continuously maintain a temporary cover on all stockpiles at all times and install and maintain appropriate BMPs (fiber rolls or wattles, filter fence, check dams, etc.) around the perimeter at the base of stockpile to control the potential runoff of any loose sediments and pollutants. Whenever a temporary cover is removed to perform other work, replace, and secure the temporary cover within one (1) hour of stopping work.

3.2 MAINTENANCE

- A. Contractor shall be responsible for maintaining temporary erosion control measures as specified in the Plans, Permits, and Contract Documents until such time as Work has been accepted by Owner. Maintain all temporary erosion control measures, devices, and/or BMPs placed in the work for the duration of the project.
- B. Maintenance shall follow all Manufacturer's recommendations, and includes but is not limited to the following actions during project implementation phase:
 - 1. Inspect temporary erosion control devices and/or BMPs routinely, immediately after each rainfall event, and at least daily during prolonged rainfall events.
 - 2. Immediately repair, upon discovery, damage to any temporary erosion control devices and/or BMPs at the Contractor's expense.
 - 3. Inspect construction limit and tree protection fencing daily and repair, secure, and/or replace as necessary to maintain and preserve its intended purpose.
 - 4. Routinely inspect all signage as required for the project and repair or replace upon discovery of damage, vandalism, and/or missing parts.
 - 5. If BMP materials decompose or become ineffective prior to the end of the expected usable life and while still necessary, replace promptly.
 - 6. Replace single or group of gravel bag(s) when the bag material is ruptured or when the yarn has failed, allowing the bag contents to spill out.
 - 7. Routinely inspect stakes and/or rope used to secure fiber rolls in place and repair as necessary if found to be loose or ineffective.
 - 8. Remove sediment deposits and other debris when they reach approximately one-half the height of any sediment barrier (or as recommended by the Manufacturer) and dispose of sediments in a manner acceptable to the Engineer, and in conformance with project permits.
 - 9. Remove and dispose of all sediment deposits remaining in place after the temporary erosion control measure and/or BMPs is no longer required in a manner acceptable to the Engineer, and in conformance with the project permits.

3.3 PROTECTION OF ADJACENT PROPERTIES

- A. Properties adjacent to the site of a land disturbance shall be protected from sediment deposition.
- B. In addition to the erosion control measures required on the Plans, perimeter controls may be required if damage to adjacent properties is ongoing or likely (in the opinion of the Engineer), and may include, but is not limited to:
 - 1. Vegetated buffer strip around the lower perimeter of the land disturbance. a. Vegetated buffer strips may be used only where runoff in sheet flow is expected and should be at least twenty (20) feet in width.
 - 2. Sediment barriers such as erosion logs, compost filter sock and fiber rolls.
 - 3. Sediment basins and porous landscape detention ponds.
 - 4. Exclusion or tree protection fencing
 - 5. Combination of above measures.

3.4 CONSTRUCTION ACCESS ROUTES

- A. Wherever construction vehicles enter or leave a construction site onto a public road, a Stabilized Construction Entrance is required. Refer to details on the Plans.
- B. Where sediment is transported onto a public road surface, the roads shall be cleaned thoroughly at the end of each day.
- C. Sediment shall be removed from roads by shoveling or sweeping and be transported to a sediment-controlled disposal area.
- D. Street washing shall be allowed only after sediment is removed in this manner.

3.5 STABILIZED CONSTRUCTION ENTRANCE

- A. Construct Rocked construction entrance/exit pads for each phase of the work at each entrance and exit access road onto the project site as shown on the Erosion and Sediment Control Plans. Work under this item shall consist of clearing and grubbing, excavation, furnishing and placing reinforcement mat and rock at each entrance/exit access road, maintenance (i.e., removal of large quantities of captured sediment, and/or placement of additional rock during course of construction), removal, disposal of excess materials, and restoration of disturbed area.
- B. Each Rocked construction entrance/exit shall be of adequate size to prevent the tracking of sediment and materials onto any public right-of-way. At a minimum, show the size of each Rocked construction entrance/exit on the Project Plans.
- C. Maintain each Rocked construction entrance/exit to minimize tracking of soil and sediment onto existing public roads and rights-of-way. While the Rocked construction entrance/exit is in use, clean pavement and remove sediment at least once a day and as often as necessary when directed by the Engineer. Soil and sediment or other extraneous material tracked onto existing pavement shall not be allowed to enter any existing or proposed drainage facilities.
- D. In the event the Contractor's operations are causing excessive tracking of materials, the Engineer may direct the Contractor to replace the Rocked construction entrance/exit, expand the size (area – length and/or width) of the Rocked construction entrance/exit, and/or expand the depth of the Rocked construction entrance/exit. In the event this is required the Contractor will not be entitled to any additional payment.

- E. When no longer required as shown on the Project Plans or as determined by the Engineer (where applicable to each Phase of the work), each Rocked Construction Entrance/exit shall become the property of the Contractor and be removed and disposed of in conformance with the Contract Documents, Standard Specifications, and these Technical Specifications. Under no circumstance shall any of the materials used for Rocked construction entrance/exit be re-used on the project. Grade and restore all areas disturbed by the placement and use of each Rocked construction entrance/exit to its pre-existing condition, including any provisions for revegetation found elsewhere in these Technical Specifications.

3.6 DUST CONTROL

- A. General. The Contractor shall be responsible for the control of dust within the limits of the project at all times. The Contractor shall take whatever steps are necessary to eliminate the nuisance of blowing dust. Responsibility for any damage to property, crops, or orchards from dust caused by the Contractor's operations shall be borne by the Contractor.
- B. Dust Control. Periodically, water or otherwise treat access roads, or graded areas as required to suppress dust. Cover or control water content of earthen materials being hauled, as required to control dust emissions. Cover or otherwise stabilize soil stockpiles to prevent erosion by wind.
- C. Cleanup. The Contractor shall keep all streets, roadways, and easements, as well as all ground adjacent to the project site, clean and free of dust, mud and debris resulting from the Contractor's operations. Daily cleanup throughout the project shall be required as the Contractor progresses with the work. Spillage of earth, gravel, concrete, asphalt, or other materials resulting from hauling operations along or across any public street or private driveway or access road shall be removed immediately by the Contractor.

3.7 HAZARDOUS MATERIALS CONTROL AND SPILL PREVENTION PLAN

- A. General. Refer to Section 01 50 00, Mobilization.

3.8 CONSTRUCTION SITE HOUSEKEEPING

- A. Remove rubbish, trash, and debris from site on a regular basis. Transport and dispose of all rubbish and debris in accordance with all local regulations. Maintain staging area in an orderly manner. Regularly clean mud and debris, resulting from work at the site, from roadways; sweeping and washing construction site sediment tracked onto roadways into roadside ditches is a violation. Cleanup and dispose of all concrete debris and washings when concrete work is complete.

3.9 DISPOSITION OF TEMPORARY MEASURES

- A. All temporary erosion and sediment control measures shall be disposed of within thirty (30) days after final site stabilization is achieved or after the temporary measures are no longer needed as determined by Owner's Authorized Representative.
- B. Trapped sediment and other disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion.

3.10 TURBIDITY MONITORING AND REPORTING

- A. In addition to permit requirements to monitor the receiving stream to identify water quality issues, during Work in Waters of the State or U.S., implement best management practices (BMPs) to minimize turbidity, and monitor turbidity using a turbidity meter that has been maintained and calibrated according to the manufacturer's specifications and according to the following:
1. Measure up current and down current turbidity at two-hour intervals and perform work based on turbidity measurements according to the following:
 - a. Take upcurrent samples at a location representative of background turbidity approximately 100 feet from the work area.
 - b. Take downcurrent samples at a location approximately 100 feet from the work area at approximately mid-depth of the water body and within any visible turbidity plume.
 - c. If the downcurrent reading is less than 5 nephelometric turbidity units (NTU) higher than the upcurrent reading, continue to Work and take readings every two hours.
 - d. If the downcurrent reading is greater than or equal to 5 and less than 30 NTU higher than the upcurrent reading, modify work procedures and repair or upgrade BMPs, continue Work, and continue to take readings every two hours. If after four hours the downcurrent reading is still greater than or equal to 5 NTU higher than the upcurrent reading, stop all work in water and repair or upgrade BMPs. Resume work in water only after the downcurrent reading is less than 5 NTU above the upcurrent reading.
 - e. If the downcurrent reading is greater than or equal to 30 and less than 50 NTU higher than the upcurrent reading, modify work procedures, repair or upgrade BMPs and continue Work. If, at the subsequent two-hour reading, the downcurrent reading is still more than 30 NTU higher than the upcurrent reading, stop all work in water and repair or upgrade BMPs. Resume work in water only after the downcurrent reading is less than 5 NTU above the upcurrent NTU reading.
 - f. If the downcurrent reading is 50 NTU or more higher than the upcurrent reading, stop all work in water, repair or upgrade BMPs, and inform the Engineer. Resume work in water only after the downcurrent reading is less than 5 NTU above the upcurrent NTU, as determined by continued readings made no more than two hours apart.
 - g. Document all turbidity monitoring observations on ODOT form 734-2755, "Turbidity Monitoring Report", or another form approved by the Engineer. Submit reports to the Engineer weekly during work in water and keep copies of the reports at the Project Site.
 - h. Meter turbidity monitoring may be temporarily suspended if all of the following conditions are met:
 - i. Temporary water management and work area isolation measures have been installed and are functioning as designed.
 - ii. The Engineer, after consultation with DEQ, has authorized the suspension of turbidity monitoring. The Engineer will provide information to be documented on the turbidity monitoring form, including the date of the DEQ authorization and the name of the DEQ employee providing the authorization.
- B. Resume the turbidity monitoring protocol if Work during a temporary suspension of meter turbidity monitoring causes a release of a visible turbidity plume.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Temporary Erosion Control and BMPs will be measured on lump sum basis.

4.2 PAYMENT

- A. The lump sum contract price for Temporary Erosion Control and BMPs will include full compensation for the furnishing of all labor, materials, tools, equipment, administrative costs, and incidentals for temporary erosion control measures, devices, and BMPs, including but not limited to stockpile management, dust control, sweeping, installation maintenance and - where appropriate - removal of all such water pollution control measures that may be shown on the Erosion and Sediment Control Plans, and as specified in the Contract Documents, Project Permit(s), Standard Specifications, these Technical Specifications, and as directed by the Engineer, and no additional compensation shall be allowed therefore.

- B. Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Temporary Erosion Control and BMPs	Lump Sum (LS)

END OF SECTION

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FIBER ROLL

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SECTION 01 57 13.01 FIBER ROLL

1. GENERAL

1.1 DESCRIPTION

- A. Work under this Section includes furnishing all labor, materials, equipment, and incidentals to install, maintain, remove and dispose of Fiber Roll, as shown on the Plans, as specified in the Permits, as specified herein, or as otherwise directed by the Engineer.

1.2 RELATED SECTIONS

- A. Section 01 33 00, Submittal Procedures
- B. Section 01 50 00, Mobilization
- C. Section 01 57 13, Temporary Erosion Control and BMPs
- D. Section 31 23 16, Excavation
- E. Section 31 23 19, Dewatering
- F. Section 31 23 23, Fill
- G. Section 32 92 00, Seeding

1.3 REFERENCES

- A. Oregon Standard Specifications for Construction, Oregon Department of Transportation (current edition)

1.4 SUBMITTALS

- A. Submit to the Engineer, for review, the following:
 - 1. A certificate stating the name of the Fiber Roll manufacturer, product name, style compositions of filaments or yarns and other pertinent information to fully describe the geotextile, along with the manufacturer's certification of compliance with the material specifications contained herein.

2. PRODUCTS

2.1 MATERIALS

- A. Fiber Roll materials may generally be either of the two types indicated below, unless compost filter socks are specifically specified on the Plans or Permits. Where compost filter socks are indicated on the Plans or Permits, straw wattles will not be allowed as a substitute.
- B. Compost Filter Sock. Compost Filter Sock shall be:
 - 1. Filter sock material. Filter sock material 5-millimeters thick 12-inch diameter woven tubular mesh netting with 1/8 to 3/8-inch openings made from 100% biodegradable mesh netting per Standard Specification Section 00280.16(f). The use of plastic/photodegradable netting shall not be allowed for permanent applications. The netting shall be secured tightly at each end of the roll.

2. Compost shall be 100% weed-free commercially manufactured coarse compost material per Standard Specification Sections 00280.16(f) and 03020.
 3. Stakes. Wood stakes shall be a minimum of 2" x 2" x 24". Wood stakes shall be untreated fir, redwood, cedar, or pine and cut from sound timber. They shall be straight and free of loose or unsound knots and other defects which would render them unfit for the purpose intended. Metal stakes shall not be used.
 4. Imported Rock. Use only clean washed gravel to fill sandbags. Sand will not be allowed.
- C. Straw Wattles. Straw Wattles shall be:
1. Straw Wattles shall conform to Standard Specification Section 00280.15(a) Type 2 for all permanent installation applications. Plastic netting shall only be approved for temporary applications and shall be removed at the conclusion of Work.
 2. Stakes. Wood stakes shall be a minimum of 1" x 1" x 24" for Type 1 installation or a minimum of 1" x 2" x 24" with notches for twine for Type 2 installation. Wood stakes shall be untreated fir, redwood, cedar, or pine and cut from sound timber. They shall be straight and free of loose or unsound knots and other defects which would render them unfit for the purpose intended. Metal stakes shall not be used.
 3. Rope. Rope shall be biodegradable, such as sisal or manila, with a minimum diameter of 1/4 inch.
 4. Imported Rock. Use only clean washed gravel to fill sandbags. Sand will not be allowed.

3. EXECUTION

3.1 INSTALLATION

A. Compost Filter Sock

1. Compost Filter Socks installed on soil shall be installed as follows:
 - a. Type 1: Stakes shall be driven through the center of the roll (perpendicular to the finished grade) at 36 inches apart along the length of the Compost Filter Sock and stopped at 12 inches from each end of the rolls. Stakes shall be driven to between three and four inches above the top of the roll.
 - b. Compost Filter Sock shall be placed 25 feet apart along the slope for slope inclination (horizontal:vertical) of 2:1 and steeper, 50 feet apart along the slope for slope inclination between 2:1 and 5:1, 100 feet apart along the slope for slope inclination between 5:1 and 10:1, 125 feet apart along the slope for slope inclination between 10:1 and 50:1, and a maximum of 250 feet apart along the slope for slope inclination of 50:1 and flatter.
 - c. The bedding area for the Compost Filter Sock shall be cleared of obstructions including rocks, clods, and debris greater than one inch in diameter before installation. Fiber Roll shall be installed approximately parallel to the slope contour and the terminus of rows shall be angled up-slope at 45 degrees for a distance of two feet. Where fiber rolls meet, provide an overlap of one foot, with adjacent rolls tightly abutting each other in accordance with the Standard Specifications and Oregon Standard Drawing RD1032, Sediment Barrier Type 8.
2. Compost Filter Socks installed on compacted gravel or pavement shall be installed in accordance with the Standard Specifications and Oregon Standard Drawing RD1010, Inlet Protection Type 7.

- B. Straw Wattles shall be installed as follows:
1. Furrows shall be constructed to a depth between three inches and four inches, and to a sufficient width to hold the Straw Wattle. Soil excavated from the trench shall be placed on the uphill or flow side of the roll to prevent water from undercutting the wattle. Rope and notched stakes shall be used to restrain the Straw Wattle against the slope. Stakes shall be driven into the slope until the notch is even with the top of the Fiber Roll. Rope shall be double-knotted at each stake and laced between stakes. After installation of the rope, stakes shall be driven into the slope such that the rope will hold the Straw Wattle tightly to the slope.
 - d. Straw Wattles shall be placed 10 feet apart along the slope for slope inclination (horizontal:vertical) of 2:1 and steeper, 15 feet apart along the slope for slope inclination between 2:1 and 4:1, 20 feet apart along the slope for slope inclination between 4:1 and 10:1, and a maximum of 50 feet apart along the slope for slope inclination of 10:1 and flatter.
 - e. The bedding area for the Fiber Roll shall be cleared of obstructions including rocks, clods, and debris greater than one inch in diameter before installation.
 - f. Straw Wattles shall be installed approximately parallel to the slope contour and the terminus of rows shall be angled up-slope at 45 degrees for a distance of three feet. Where fiber rolls meet, provide an overlap of two feet, with adjacent rolls tightly abutting each other.
 - g. Straw Wattles shall be installed prior to seeding where used without slope protection fabric.
 - h. Straw Wattles shall be installed over fabric (after seeding) where slope protection fabric is specified.

3.2 MAINTENANCE

- A. The Contractor shall inspect all Compost Filter Sock and Straw Wattles at the frequency listed in the Permits. Any deficiencies shall be immediately corrected by the Contractor.
- B. The Contractor shall also make a daily review of the location of Compost Filter Sock and Straw Wattles in areas where construction activities have altered the natural contour and drainage runoff to ensure that the Fiber Rolls are properly located for effectiveness. Where deficiencies exist as determined by the Engineer, additional Fiber Rolls shall be installed as directed by the Engineer.
- C. Damaged or otherwise ineffective Compost Filter Sock and Straw Wattles shall be repaired or replaced promptly. Fiber Roll shall be maintained to disperse concentrated water runoff and to reduce runoff velocities. Split, torn, or unraveling rolls shall be repaired or replaced. Broken or split stakes shall be replaced. Sagging or slumping Fiber Roll shall be repaired with additional stakes or replaced. Locations where rills and other evidence of concentrated runoff have occurred beneath the rolls shall be corrected. Fiber Roll shall be repaired or replaced within 24 hours of identifying the deficiency.

3.3 REMOVAL

- A. Permanent Straw Wattles shown on the Plans shall remain in place after project completion, unless otherwise specified, and be allowed to naturally degrade.

- B. When Temporary Fiber Rolls are no longer required, as determined by the Engineer, it shall be removed and disposed of in conformance with the provisions in Section 00290.20(c) of the Standard Specifications, except when reused as provided in this section.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Permanent Straw Wattles will be measured by the linear foot of Permanent Straw Wattles installed at the locations indicated on the Plans, as specified, or as directed by the Engineer.
- B. Temporary Fiber Roll will not be separately measured for payment.

4.2 PAYMENT

- A. Permanent Straw Wattles will be paid for at the contract price per linear foot, which price will be payment in full for furnishing all labor, materials, tools, equipment, and incidentals necessary to install, maintain throughout the construction, and, where specified, to remove Straw Wattles after site stabilization.
- B. No separate payment will be made for Temporary Fiber Roll. Full compensation for all costs associated with this work shall be included in the contract price for Section 01 57 13, Temporary Erosion Control and BMPs.
- C. Payment shall be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Permanent Compost Filter Sock	Linear Foot (LF)
Permanent Straw Wattles	Linear Foot (LF)

END OF SECTION

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SECTION 01 70 00 PROJECT CLOSEOUT

1. GENERAL

1.1 RELATED SECTIONS

- A. Section 01 31 00, Project Management and Coordination
- B. Section 01 33 00, Submittal Procedures

1.2 SUBSTANTIAL COMPLETION

- A. General: When the Contractor considers that the Work, or a designated portion thereof which is acceptable to the Owner's Authorized Representative, is substantially complete, the Contractor shall prepare for submission to the Owner's Authorized Representative a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with Contract Documents. When the Owner's Authorized Representative on the basis of an inspection determines that the Work or designated portion thereof is substantially complete, he will then prepare a certificate of Substantial Completion which shall establish the date of substantial completion.

1.3 FINAL CLEANUP

- A. Completion of the Work: At the completion of the Work, leave the site of Work in a neat, unobstructed condition.
- B. Removal: Remove all tools, appliances, materials, and equipment from the site of Work as soon as possible, upon completion of the Work of the Contract.

2. PRODUCTS – NOT USED

3. EXECUTION – NOT USED

4. MEASUREMENT AND PAYMENT – NOT USED

END OF SECTION

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CONSTRUCTION SURVEYING

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SECTION 01 71 23.16 CONSTRUCTION SURVEYING

1. GENERAL

1.1 DESCRIPTION

- A. The work required under this Section shall include, but is not limited to, all labor, tools, materials, equipment and incidentals required to perform construction surveying necessary to establish the lines and grades of the proposed work, as shown on the Plans, as specified, or as directed by the Engineer.
- B. The Engineer of record will provide survey control points and specific reference stakes, as detailed below. The Contractor shall preserve and protect all project survey control, construction stakes and reference points shown on the Plans and located outside the limits of disturbance. Monuments or control points disturbed by the Contractor shall be reestablished by the Contractor at their sole expense. The Contractor shall be responsible for procuring professional land surveying services as necessary to provide additional surveying or grade-setting required to construct this project.
- C. If the existing survey control network is disturbed, the Contractor's replacement of control points shall be performed by an Oregon licensed Land Surveyor, or Civil Engineer authorized to practice land surveying as defined in the Professional Land Surveyors Act.
- D. The Contractor's surveyor will be provided with the northing, easting and elevation of the control points existing in the field, as shown on the Plans. In addition, the Engineer of Record will also provide the Contractor's surveyor with the final linework file developed in AutoCAD Civil 3D. The Contractor's surveyor will be required to access AutoCAD in order to use the electronic files.
- E. The Contractor shall be solely responsible for the protection and maintenance of all existing and Contractor-established survey marks and monuments.
- F. The Engineer's provision of survey control and/or construction reference stakes does not relieve the Contractor of their sole responsibility to construct all work to the specified lines and grades.

1.2 RELATED SECTIONS

- A. Section 01 33 00, Submittal Procedures
- B. Section 31 23 16, Excavation
- C. Section 31 23 23, Fill

1.3 REFERENCES

- A. Oregon Standard Specifications for Construction, Oregon Department of Transportation (current edition).

1.4 SUBMITTALS

- A. Submit to the Engineer for review, the following:

1. The Contractor shall provide the name, license number, and documentation for the required minimum qualifications of the Land Surveyor to be employed by the Contractor for the Project, prior to any work being completed by the Contractor or Surveyor.

1.5 QUALITY ASSURANCE

- A. All Work must be performed to the satisfaction of the Engineer.
- B. The Engineer may, at their sole discretion, perform their own surveys for: Verification of project control points, verification of lines and grades, and inspection of survey monument preservation. Contractor shall provide unrestricted access for the Engineer to spot-check the work. This does not relieve the Contractor of their responsibility to perform additional independent surveying, as need to complete the work.
- C. In the event that the construction staking reveals a design inconsistency or error, Contractor shall notify the Engineer immediately and shall not proceed with the work until directed by the Engineer.

2. PRODUCTS (NOT USED)

3. EXECUTION

- A. The Engineer will establish the following reference points for the work shown on the Plans.
 1. Staking to identify Staging Area limits.
 2. Staking to identify the limits of bank laybacks, log structures, and BDAs.
 3. Offset stakes for referencing the side channels.
- B. These points will be set once.
- C. Staking diagrams will be provided to the Contractor (.pdf) showing the location and elevation of all reference monuments.
- D. From this information, the Contractor shall establish all additional detailed surveys and measurements and establish markings or monuments necessary for their construction of the work, as dimensioned on the Plans.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Construction Surveying will not be independently measured for payment.

4.2 PAYMENT

- A. No separate payment will be made for the work covered under this section. Full compensation for all costs in connection with Construction Surveying shall be included in the contract price for related work.
- B. In the event that that Owner is required to replace control points disturbed by the Contractor in order to verify the accuracy of the Contractor's work, the cost of establishing and verifying control points disturbed by the Contractor will be borne by the Contractor. The cost of any such verification or replacement of bench marks and/or control survey points will be deducted from any monies due to the Contractor. The Contractor will not be allowed any adjustment in working days for such verification or replacement of survey control points.

END OF SECTION

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CLEARING AND GRUBBING

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SECTION 31 11 00 CLEARING AND GRUBBING

1. GENERAL

1.1 DESCRIPTION

- A. The work covered by this section consists of furnishing all labor, equipment, and materials necessary to perform the clearing and grubbing, the removal or disposal of all cleared and grubbed materials, and the filling of all grubbing holes, as specified, as shown on the Plans, or as directed by the Engineer.

1.2 RELATED SECTIONS

- A. Section 01 50 00, Mobilization
- B. Section 01 57 13, Temporary Erosion Control and BMPs
- C. Section 31 13 13, Selective Tree Harvest
- D. Section 31 23 16, Excavation
- E. Section 31 23 23, Fill
- F. Section 35 42 00, Log Structures

1.3 REFERENCES

- A. Oregon Standard Specifications for Construction, Oregon Department of Transportation (current edition).

2. PRODUCTS (NOT USED)

3. EXECUTION

3.1 CLEARING

General. All work shall comply with Section 01 57 13, Temporary Erosion Control and BMPs, and Section 00320, Clearing and Grubbing of the Standard Specifications.

- A. All trees, stumps, down timber, snags, brush, vegetation, old piling, stone, concrete rubble, abandoned structures, and similar debris shall be cleared within the limits of the construction extents, unless otherwise shown on the Plans or directed by the Engineer.
- B. In areas where grubbing is not required, the clearing operations shall consist of the complete removal of all obstructions above the ground surface.
- C. Contractor shall flag all vegetation to be removed for approval by Owner's Representative prior to its removal. Once the flagging is completed, Owner's Representative will walk the vegetation removal areas and approve them prior to Contractor initiating clearing and grubbing activities.
- D. Trees. Where trees are approved by the Owner's representative for removal, trees shall be felled in such a manner as to avoid damage to trees left standing, to the existing structures and installations, as well as with due regard for the safety of employees and others. Stumps shall be removed to minimum depth of 4 feet, or to a point where remaining roots are less than 1.5

inches in diameter, whichever depth is greater. Trees located beyond the limits for clearing and grubbing that are not marked for removal, shall be protected from damage, as indicated on the Plans and as specified.

- E. Vegetation. Vegetation to be removed shall consist of all heavy growth of brush and woody vegetation, unless shown otherwise on the Plans or directed by the Engineer.
- F. Debris Removal. Abandoned foundations, rip rap, drainage materials, debris, and other unsuitable material and any other debris designated for removal on the Plans shall be removed and disposed of in accordance with this section.

3.2 GRUBBING

- A. General. Grubbing shall consist of the removal of all stumps, roots, buried logs, old piling, old paving, concrete, abandoned utilities, timbers, fencing, and other objectionable matter encountered.
- B. Limits. Except as noted on the Plans, the entire area within the limits of the footprint of proposed grading work shall be thoroughly grubbed.
- C. Filling of Holes. All holes caused by grubbing operations, except in borrow areas, shall be excavated with 3 to 1 (horizontal to vertical) side slopes in conformance with Section 31 23 16, Excavation. The excavation shall then be backfilled with compacted Embankment Fill material in conformance with Section 31 23 23, Engineered Fill.

3.3 DISPOSAL OF DEBRIS

- A. Cleared and Grubbed Materials. Except as hereinafter specified or otherwise indicated on the Plans, all logs, brush, strippings, concrete, asphalt, timbers, slash, and other non-organic debris which are the products of the clearing and grubbing operations shall be disposed of. Remove any or all of the products of clearing and grubbing operations from the site and dispose of the material at other locations or through other sources arranged for, by, and at the expense of the Contractor, in accordance with applicable laws and ordinances.
- B. Clean woody plant material products of the clearing and grubbing operations not designated for salvage may be salvaged for use as slash material in the log structures shown on the Plans, or as specified by the Engineer, subject to approval of the Owner.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Clearing and Grubbing will be measured as a lump sum pay item.
- B. Tree removal for Selective Tree Harvest will not be separately measured for payment.

4.2 PAYMENT

- A. Clearing and Grubbing will be paid for at the lump sum contract price, which price will be payment in full for furnishing all labor, materials, tools, equipment and incidentals, and doing all work necessary to complete the clearing and grubbing operation as specified, including disposal or salvage of materials, and restoration of ground surfaces.
- B. No separate payment will be made for Selective Tree Harvest. Full compensation for all costs associated with this work shall be included in the contract price for Section 31 13 13, Selective Tree Harvest.

C. Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Clearing and Grubbing	Lump Sum (LS)

END OF SECTION

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SECTION 31 13 13 SELECTIVE TREE HARVEST

1. GENERAL

1.1 DESCRIPTION

- A. The work covered by this section consists of furnishing all labor, equipment, and materials necessary to perform the harvesting of select trees with rootwads and stockpiling for use in log structures, as specified, as shown on the Plans, or as directed by the Engineer.

- 1. Work also includes all seeding and erosion control following harvesting activities.

1.2 RELATED SECTIONS

- A. Section 01 50 00, Mobilization
- B. Section 31 11 00, Clearing and Grubbing
- C. Section 31 23 23, Fill
- D. Section 32 92 00, Seeding
- E. Section 34 42 00, Log Structures

1.3 REFERENCES

- A. Oregon Standard Specifications for Construction, Oregon Department of Transportation (current edition).
- B. Oregon Forest Practices Act (FPA) – Oregon Revised Statutes (ORS) Chapter 527.
- C. Oregon Administrative Rules (OAR) Chapter 629, Divisions 600 through 669 (Oregon Department of Forestry).

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Harvest Meeting: Attend a mandatory on-site meeting at least 7 days before operations begin. Attendees shall include the Owner's Representative, Owner, Contractor, and the local ODF Stewardship Forester, if required.
- B. Notifications: No harvesting operations shall begin until an electronic Notification of Operations has been successfully submitted by the Contractor and acknowledged via the ODF Forest Activity Electronic Reporting and Notification System (FERNS).

1.5 SUBMITTALS

- A. Submit the following:
 - 1. ODF Written Plan: Copy of the approved ODF Written Plan required for operations within 100 ft of Type F or D streams.
 - 2. Operations Plan: Logging sequence map indicating proposed landings, skid trails, cable corridors, and equipment wash stations.
 - 3. Contractor Qualifications: Proof of current Oregon Professional Logger (OPL) certification.

1.6 QUALITY ASSURANCE

- A. Operator Qualifications: The logging contractor shall be fully licensed, bonded, and insured in the State of Oregon, utilizing crews experienced in partial-retention and thinning operations.

2. PRODUCTS (NOT USED)

3. EXECUTION

3.1 HARVEST TREE MARKING

- A. Trees designated for removal will be marked with temporary, high-visibility forestry flagging or tree marking paint applied at eye level and at the stump base. Markings will be done by the Owner's Representative prior to the Pre-Harvest Meeting.

3.2 SITE CONDITION VERIFICATION

- A. Verify that all boundaries, stream buffers, and high-risk slopes are flagged on-site as indicated on the ODF Operations Plan before mobilizing equipment to the project site.

3.3 HARVESTING OPERATIONS

- A. Felling and Bucking
 - 1. Directionally fell designated trees away from RMAs, stream channels, leave-tree groups, and remaining young growth to minimize residual stand damage.
 - 2. Trees shall be felled with the rootwad attached to the truck.
 - 3. Trees shall be limbed and bucked before yarding to minimize the footprint of ground disturbance.
 - 4. Bucked trees and associated slash shall be stockpiled at designated locations as shown in the Plans, or as directed by the Owner's Representative.
- B. Wet Weather Restrictions. Cease ground-based operations and log hauling immediately if soil moisture conditions lead to rutting deeper than 6 inches or if visible turbid runoff enters waters of the state.

3.4 CLEANING AND SITE RESTORATION

- A. Backfill holes created by tree felling operations with Fill per technical specification Section 31 23 23, Fill.
- B. Scarify all temporary access roads and seed in accordance with these technical specifications and the Plans.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Selective Tree Harvest will be measured as a lump sum pay item.

4.2 PAYMENT

- A. Selective Tree Harvest will be paid for at the lump sum contract price, which price will be payment in full for furnishing all labor, materials, tools, equipment and incidentals, and doing all work necessary to complete the selected tree harvest operation as specified, including stockpiling or salvage of materials, and restoration of ground surfaces.
- B. Payment will be made under:

Pay Item

Selective Tree Harvest

Pay Unit

Lump Sum (LS)

END OF SECTION

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EXCAVATION

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SECTION 31 23 16 EXCAVATION

1. GENERAL

1.1 DESCRIPTION

- A. The work covered by this section consists of furnishing all labor, equipment, materials, and performing all operations necessary to complete Excavation, as specified, as shown on the Plans, or as directed by the Engineer. Work includes, but is not limited to the following:
 - 1. Construction Staking
 - 2. Unsuitable material and rock excavation (as necessary).
 - 3. Control of groundwater during excavation.
 - 4. Channel Excavation
 - 5. Other miscellaneous excavation incidental to the construction of the improvements.

1.2 RELATED SECTIONS

- A. Section 01 50 00, Mobilization
- B. Section 01 57 13.01, Fiber Roll
- C. Section 01 71 23.16, Construction Surveying
- D. Section 31 11 00, Clearing and Grubbing
- E. Section 31 23 19, Dewatering
- F. Section 31 23 23, Fill
- G. Section 32 92 00, Seeding
- H. Section 35 42 00, Log Structures

1.3 REFERENCES

- A. Oregon Standard Specifications for Construction, Oregon Department of Transportation (current edition).
- B. Surveys. Refer to Section 01 71 23.16, Construction Surveying.
- C. Occupational Safety and Health Administration
 - 1. 1926 Subpart P - Excavations
 - 2. 1926 Subpart P Appendix A – Soil Classification
 - 3. 1926 Subpart P Appendix B – Benching and Sloping

1.4 QUALITY ASSURANCE

- A. Comply with all applicable permits, OSHA requirements, and other regulations.
- B. Contractor shall provide necessary construction staking and references points, as required to meet the specified tolerances for the work.

2. PRODUCTS (NOT USED)

3. EXECUTION

3.1 GENERAL

- A. The Contractor shall protect existing utilities in performing any excavation work.
- B. The Contractor shall comply with all permit conditions in performing any excavation work.
- C. Contractor shall perform an independent earthwork estimate for the purpose of preparing bid prices for earthwork. Quantities indicated on the Plans are approximate estimates provided only for permitting purposes, do not represent all efforts required to complete the work, and are not suitable for bidding purposes.
- D. The bid price shall include costs for any necessary export and proper disposal of excess or unsuitable earth materials off-site, at locations to be arranged and paid for by the Contractor.

3.2 EXCAVATION

- A. General. Excavations shall extend into firm, undisturbed native soils. Excavation shall consist of removal of material for embankment foundation preparation, mass excavation and finish grading of the channel and slope improvements, and other miscellaneous excavations to the lines and grades shown on the Plans, or as directed by the Engineer.
- B. Control of Water. Water control shall be performed in accordance with project permit conditions, and Section 31 23 19, Dewatering, of these Specifications. When water is encountered, either ground water or surface runoff, the Contractor shall furnish, install, maintain, and operate all necessary machinery and equipment required to keep the excavation reasonably free from water, as approved by the Engineer, until the placement of concrete or backfill material has been completed, inspected, and approved, and all danger of flotation and other damage is removed. Water pumped from the excavation shall be disposed of in such manner as will not cause injury to public or private property, or constitute a nuisance or menace to the public, and the disposal method shall be subject to the approval of the Engineer. Water shall be controlled until work is complete.
- C. Excess Excavation. Care shall be exercised by the Contractor not to excavate below the grades shown on the Plans, except as specified herein, and as directed by the Engineer. All excavations extending below the grades shown on the Plans, which are not directed by the Engineer, shall be backfilled with compacted embankment at the Contractor's expense, per Section 31 23 23, Fill.
- D. Temporary Excavations. With exposure and drying, on-site soils may experience progressive sloughing if excavated near vertical and left un-shored during construction. Engineer suggests that the soils on-site should be considered Type C when applying OSHA regulations.
- E. Tolerances. The excavation tolerance shall typically be +0.1 feet to -0.2 feet from the grades shown on the Plans, except within the low flow channel, where excavation tolerance shall be +0.1 feet to -0.1 feet from the elevations shown on the Plans.

3.3 UNCLASSIFIED EXCAVATION

- A. Unclassified Excavation. Unclassified excavation shall consist of the excavation and disposal of all material, regardless of its nature, which is not otherwise classified and paid for under Unsuitable Material or Rock Excavation described below. Unclassified Excavation includes excavation required to reach finished grade. Over-excavation for the placement of materials (e.g., Log Structures) or the removal of unsuitable materials, as described below under Excavation of Unsuitable Materials, is not included in Unclassified Excavation.

3.4 SOIL STOCKPILE

- A. All excess material excavated at the project site shall be hauled to a permanent stockpile location as shown on the Plans or directed by the Owner's Representative. This includes material generated to reach finished grade and excess material generated during any over-excavation required for project construction. Contractor shall make all arrangements and pay all fees associated with this work.
- B. Adequately cover haul trucks to protect against the generation of dust and spillage onto private or public roadways.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Excavation and Stockpiling. Excavation and Stockpiling will be measured by the cubic yard of Unclassified Excavation, based on the Dimensions shown on the Plans. This is a neat-line quantity and does not take into account the loose volume of the excavated material. Excavation and Stockpiling is a Final Pay Item based on dimensions shown in the Plans and will not be field verified. Where the dimensions of any portion of the work are revised by the Engineer, or a portion of the work is eliminated, the change will be measured by the cubic yard.
- B. Other Miscellaneous Excavations. All other excavations will not be measured for payment.

4.2 PAYMENT

- A. Excavation and Stockpiling, measured as specified above, will be paid for at the contract unit price per cubic yard of Unclassified Excavation, which price will be payment in full for furnishing all labor, materials, tools, equipment and incidentals, and doing all work necessary to complete Unclassified Excavation, as specified, including mass excavation and finish grading of channel banks and floodplains, to the lines and grades shown on the Plans and placement of Soil Stockpile.
- B. No separate payment will be made for other miscellaneous grading incidental to the work. All costs in connection with this work will be considered incidental to the cost of construction of associated improvement.

C. Payment will be made under:

Pay Item

Excavation and Stockpiling

Pay Unit

Cubic Yard (CY(F))

END OF SECTION

INDEX **SECTION 31 23 19** **DEWATERING**

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31 23 19 DEWATERING

1. GENERAL

1.1 DESCRIPTION

- A. Furnish all labor, materials, equipment, and incidentals necessary to perform fish relocation work and to design, construct, operate, maintain, and remove all diversion and dewatering elements, including but not limited to, pipes, cofferdams, flumes, shoring, turbidity curtains, filtration systems and/or other measures, including pumping, to dewater the construction site, temporary excavations and drilled shafts, and to divert streamflow and other surface waters and groundwater through or around the project area 24 hours a day during the entire field construction period, as shown on the Plans, as specified, or as directed by the Engineer.
- B. Dewatering details on the Plans (if provided) are schematic. The design and implementation of the Dewatering Plan is solely the responsibility of the Contractor. Contractor shall make their own independent evaluation of water sources (surface and groundwater) in preparing their Dewatering Plan. Flow estimates provided to the Contractor by the Owner, Engineer, or others are solely for informational purposes and do not relieve the Contractor of the sole responsibility to determine appropriate flow estimates for design purposes and to adjust to changing site conditions, Contractor's schedule, and Contractor's chosen means and methods of construction.
- C. Dewatering shall comply with all project permit conditions, applicable laws and local ordinances.

1.2 RELATED SECTIONS

- A. Section 01 10 10, Summary of Work
- B. Section 01 33 00 Submittal Procedures
- C. Section 01 50 00, Mobilization
- D. Section 01 57 13, Temporary Erosion Control and BMPs
- E. Section 01 57 13.01, Fiber Roll
- F. Section 31 23 16, Excavation
- G. Section 31 23 23, Fill
- H. Section 35 42 00, Log Structures

1.3 REFERENCES

- A. NRCS Specification 411 – Removal of Water
- B. NOAA Fisheries West Coast Region Anadromous Salmonid Passage Design Manual, NMFS, NOAA, Portland, Oregon, June 2022, Addendum Issue Date February 22, 2023.
- C. ORS 498.321.

1.4 SUBMITTALS

- A. The Contractor shall submit the following for review and approval of the Engineer:

1. A Fish Removal and Dewatering Plan (hereafter Dewatering Plan) listing materials, method of work, equipment to be used, methods for disposal of pumped water, provisions to prevent scour and erosion, and the proposed schedule shall be submitted to the Engineer. The Dewatering Plan shall include a site map with the location of all proposed diversion and dewatering elements. If the project is phased, include separate maps for each phase of dewatering. Approval of the Engineer and Owner's Representative shall be required before the Contractor proceeds with water control measures. Engineer and/or Owner's approval of Contractor's proposed Dewatering Plan does not relieve the Contractor of their sole responsibility for design, implementation, and maintenance of the Dewatering Plan.
2. Product data for:
 - a. Pumps (primary and secondary, if required)
 - b. Electrical service
 - c. Silt control filter fabric
 - d. Washed rock
 - e. Impervious liners
 - f. Cofferdam material
 - g. Other materials used in dewatering
- B. Block nets for excluding fish

1.5 QUALITY ASSURANCE

- A. Comply with all applicable permits and regulations and NRCS Construction Specification 411 - Removal of Water.
- B. Comply with scheduling requirements set forth in the approved Plans, the Permits, and the Dewatering Plan. Note, the SWPPP does not apply to areas covered by the CWA Section 401 Certification.
- C. Comply with approved Hazardous Materials Control and Spill Prevention Plan, in accordance with Section 01 50 00, Mobilization.
- D. Notify Engineer at least 5 working days in advance of installation of temporary cofferdam(s) or diversion.
- E. Notify Engineer at least 5 working days in advance of removal of temporary cofferdam(s) or diversion.
- F. Where the maintenance of water quality is dependent on pumping to bypass or filter water, the Contractors shall be required to maintain on-site a fully redundant power source and standby pump(s), capable of deployment if the primary system fails. These materials shall be included in the Dewatering Plan submittal, as outlined below.

2. PRODUCTS

2.1 MATERIALS

- A. Pipe. Pipe used for the clearwater diversion must meet or exceed the minimum dimensions shown on the Plans and shall have water-tight joints. Single-walled corrugated HDPE pipe with split couplers will not be accepted. The pipe dimensions shown on the Plans represent the minimum allowable size of any single pipe, not an indication of the required diversion capacity.
- B. Sandbags. Comply with Standard Specification Section 00280.15(a).

- C. Imported Rock. Use only clean washed gravel to fill sandbags. Sand will not be allowed.
- D. Dewatering Facilities. Provide and operate dewatering facilities of suitable size and capacity. The use of equipment shall be consistent with the manufacturer's recommendations.
- E. Block Nets. Block Nets shall be 1/4-inch opening nylon mesh net.

3. EXECUTION

3.1 GENERAL

- A. Contractor is solely responsible for the design, construction, and maintenance and monitoring of the diversion and dewatering facilities. Comply with the Plans, the Permits, Specifications, and applicable permit conditions.
- B. Unless otherwise specified, equipment shall never be allowed to operate in flowing water.

3.2 FISH REMOVAL

- A. Contractor is responsible for providing Fish Removal by a qualified fisheries biologist as specified on the Plans and as outlined in the project permits.
- B. Contractor shall maintain block nets during construction by removing accumulations of sediment and/or debris generated from the watershed or the work area. Notify fisheries biologist if nets become dislodged or otherwise compromised for the intended purpose.

3.3 SEDIMENT CONTROL

- A. General. Comply with all applicable permit conditions.
- B. Cofferdam Construction. During construction of the cofferdams within flowing water, install silt barrier(s) along the water side of the installation, as necessary to minimize mobilization and entrainment of disturbed soils within the active flowing channel, to a level in accordance with the permit conditions.
- C. Discharge of diverted flow. Unless otherwise specified, a diversion must discharge into the same natural drainage way in which its headworks are located. Where feasible, discharge to existing pools or onto bedrock or otherwise erosion resistant surfaces. Construct energy dissipators at diversion outlets, where necessary to prevent scour at point of discharge.
- D. Discharge of Seepage/Groundwater. Discharge water from the dewatered construction site either by gravity or pumping in a manner to prevent excessive turbidity from entering the receiving waters and to prevent scour and erosion outside of the construction site. Pumped water should be pre-filtered with a gravel pack around sumps for subsurface flows and a sediment barrier or approved equivalent around pumps for surface flow.
- E. Discharge clean (i.e., sediment free) pumped water into the clearwater diversion or downstream of the work area.
- F. Discharge turbid water into adjacent gravel bars, isolated local depressions, or temporary sediment basins, as shown on the Plans. Where discharge of pumped water will create excessive turbidity in receiving waters, route water through a sediment interceptor, filter, or other facilities to remove sediment from water.

- G. Isolation of Construction Area. Where feasible, limit water quality impacts by isolating the work area from surface waters using coffer dams.

3.4 HAZARDOUS MATERIAL CONTROL

- A. General. Comply with the approved Hazardous Materials Control and Spill Prevention Plan (HMC&SPP) in accordance with Section 01 50 00, Mobilization.
- B. Equipment and Lubricants. Steam-clean all equipment prior to its use. Inspect all equipment for cleanliness and fluid leaks prior to use and monitor during its use. Maintain equipment as required. Equipment refueling shall only take place in a designated, contained area.
- C. Isolation of Construction Area. Prior to performing work within flowing water, outside of cofferdams, install oil containment booms downstream of the work area. Maintain booms until completion of the work within the channel is complete.
- D. Spills. Maintain a supply of oil spill booms, sorbent pads, and other supplies to contain and clean spills. Comply with approved HMC&SPP should spills occur.

3.5 COFFERDAMS

- A. General. The Contractor is solely responsible for the design, construction, maintenance, and monitoring of cofferdams, dikes and other isolation facilities. Cofferdams with an exposed height greater than 6 feet shall be designed by a Professional Engineer registered in the State of Oregon, based on available soil data.
- B. Configuration. Cofferdam alignments, as shown on the Plans, reflect the maximum allowable encroachment into the channel. Construct cofferdam alignments as shown on the Plans, unless otherwise approved by Engineer. Provide cofferdams high enough to account for water surface fluctuations.
- C. Secondary Dikes/Seepage Control. Secondary dikes within the isolated construction area can be used to control seepage and groundwater around excavations, provided all dike materials are removed from the exposed channel upon completion, prior to re-watering the work area.

3.6 FLOW BYPASS

- A. Capacity. Bypass water around construction site using a cofferdam and bypass pipe as shown on the Plans or equivalent facility, as approved by the Engineer. The bypass system shall be capable of passing the flows present at the time construction begins, with a minimum of 12 inches of freeboard (measured vertically from water surface to lowest point on dam). Gravity flow bypass pipe(s) shall have a minimum diameter of 10 inches to minimize the likelihood of clogging by debris.
- B. Storm Events. During the designated period for instream work, the Contractor shall be solely responsible for the integrity of the dewatering system. If rain is predicted, the Contractor shall perform flood fighting activities as directed by the Engineer and regulatory agencies.
- C. The diversion system may require adjustment to accommodate the sequence of work. No additional compensation shall be provided for any adjustments, revisions, or reinstallations of diversion elements.

- D. The diversion and dewatering shall result in conditions that allow the required compaction to be achieved and shall prevent sediment-laden water that exceeds the effluent discharge limits from entering the drainage ways.
- E. Unless otherwise specified, a diversion must discharge into the same natural drainage way in which its headworks are located.

3.7 DEWATERING

- A. General. Remove water from construction area using pumping, well points, drains, or other approved methods. Discharge of water shall comply with Section 3.3, Sediment Control. Turbid water from active construction areas shall be retained on site and allowed to infiltrate or routed through sediment interceptors or other facilities to remove contaminants and sediment. Excavated slopes in the saturated soils may need to be retained, tied back, or otherwise stabilized. Refer to the Geotechnical Report.
- B. Well Points. Well points shall be designed to preclude the loss of fine soil by gravel packing or other suitable means.
- C. Pump Screening. All pump intakes shall be screened to prevent the entrainment of aquatic species, in accordance with project permit conditions, Oregon Revised Statutes (ORS) 498.321 Screening or By-Pass Standards, NOAA Fisheries WCR Anadromous Salmonid Design Manual, or latest updates to those guidelines. Pump intakes shall be covered with mesh, to prevent potential entrainment of fish or other aquatic species that could not be removed from the area to be dewatered. If a waterbody is to be temporarily dewatered by pumping, intakes will be completely screened. Where fry-sized salmonids are present, wire mesh openings no larger than 3/32 inch [2.38 mm] for woven wire or perforated plate screens, or 0.0689 inch [1.75 mm] for profile wire screens, with adequate screen area to limited approach velocities per to avoid entrainment or impingement of larval amphibians. The intake shall be placed in a perforated bucket or similar method to attenuate suction, and to prevent animals from entering the pump system. Water will be returned to the water body when diversions or cofferdams are removed and flow is restored.
- D. Pumps and discharge piping shall be suitable for the type of service provided and shall be a sufficient size and capacity to satisfactorily dewater work areas. Engines shall be muffled to limit sound to 65 DBA, or shall be fitted with enclosures to limit sound to this level.
- E. Power Supply. Consider the availability and reliability of power sources for dewatering operation in dewatering system design and make provisions for temporary or backup power supply as deemed necessary. Where the primary diversion is operated by pumping, provide a backup system with automatic controls capable of starting the backup upon failure of the primary system. Generators shall be limited to a maximum of 65 dBA, or shall be fitted with enclosures to limit sound to this level. Where electrical power is provided by the owner, Contractor shall assume all responsibility for related safety precautions and perform necessary investigations to evaluate suitability, reliability, and safety of source.
- F. Groundwater. Dewatering shall maintain water surfaces below the base of temporary excavations or trenches as necessary to ensure groundwater does not flow through disturbed areas, or as required to allow for visual inspection of the work by the Engineer. This requirement shall apply continuously, including nights, weekends, or periods when work is stopped. Lower groundwater tables within excavations for

structures to a minimum of two (2) feet below foundations or as otherwise required to establish a firm, stable foundation. Control groundwater within excavation until completion of backfill operations.

3.8 WATER LEVELS DURING THE CONSTRUCTION PERIOD

- A. The Contractor shall be responsible for making an independent evaluation of site conditions. The Contractor's Dewatering Plan shall address all potential sources of surface and groundwater, including but not limited to streamflow (natural or managed), backwatering of the channel from downstream blockages, domestic water lines, storm drain outfalls, irrigation tailwater, industrial discharges, seepage, and direct rainfall.

3.9 CLEANUP

- A. Thoroughly clean up area to remove debris and contaminated materials. Remove fine sediments and restore disturbed area prior to removal of the dewatering facilities. Clean and round river run gravels or cobbles, if used in cofferdam construction, may be spread in the creek channel in lieu of removal, provided grading will not interfere with facility operation.

3.10 REMOVAL OF DEWATERING FACILITIES

- A. Prior to removal of the dewatering facilities, complete the following activities:
 - 1. Complete required tests and inspections.
 - 2. Thoroughly cleanup work site.
 - 3. Perform final walkthrough with Engineer.
- B. Prior to removal of cofferdams and diversion, equalize the water surface levels on both sides of the dams.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Dewatering will be measured on a Lump Sum basis.
- B. Fish Removal will not be separately measured for payment.

4.2 PAYMENT

- A. Dewatering will be paid for at the lump sum contract price for Dewatering, which price will include payment in full for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the dewatering operations, as specified, including temporary cofferdams, pumping, silt control, filter fabric, sediment control, erosion control, removal of muck, disposal of materials, and removal of dewatering facilities.
- B. No separate payment will be made for Fish Removal. Full compensation for all costs associated with this work, as shown on the Plans, or as specified, shall be paid for under Dewatering.

Pay Item

Dewatering

Pay Unit

Lump Sum (LS)

END OF SECTION

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SECTION 31 23 23
FILL

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SECTION 31 23 23

FILL

1. GENERAL

1.1 DESCRIPTION

- A. The work covered by this section consists of furnishing all plant, labor, and materials, and performing all operations necessary for the construction of Fills, including surveying, subgrade preparation, furnishing, loading, and on-site hauling of materials, processing, screening placement and compaction of Fill materials, construction of ramps, and other incidental earthwork as may be necessary to complete the Fills, as shown on the Plans, as specified, or as otherwise directed by the Engineer.
- B. All earthwork shall comply with these Technical Specifications and with applicable sections of the Standard Specifications. In the event of discrepancy between the report and the notes herein, the report shall prevail. It shall be the responsibility of the Contractor to visit the site and make their own interpretations about materials, methods and equipment necessary to perform the work required for this project.
- C. Temporary erosion control and BMPs shall be installed and approved by the Engineer prior to beginning Fill Construction.
- D. The Contractor is responsible to locate, identify, and protect all existing utilities from damage.

1.2 RELATED SECTIONS

- A. Section 01 33 00, Submittal Procedures
- B. Section 01 50 00, Mobilization
- C. Section 01 57 13, Temporary Erosion Control and BMPs
- D. Section 01 57 13.13, Fiber Roll
- E. Section 01 71 23.16, Construction Surveying
- F. Section 31 11 00, Clearing and Grubbing
- G. Section 31 13 13, Selective Tree Harvest
- H. Section 31 23 16, Excavation
- I. Section 31 23 19, Dewatering
- J. Section 32 92 00, Seeding
- K. Section 35 42 00, Log Structures

1.3 REFERENCES

- A. Oregon Standard Specifications for Construction, Oregon Department of Transportation, current edition.
- B. Surveys. All construction staking shall be performed by the Contractor. Survey control points are shown on the Plans.

2. PRODUCTS

2.1 MATERIALS

- A. Water. Refer to Section 01 50 00, Mobilization.
- B. General Fill Materials. To the extent they are needed, all suitable materials from the specified excavations shall be used in the construction of required permanent Unclassified Fill. The suitability of materials for specific purposes will be subject to the approval of the Engineer, in conformance with these specifications. Materials used for Unclassified Fill shall conform to the quality and gradation requirements for Standard Specification 00330.13 Selected General Backfill.
- C. Streambed Sediments. Material in bed of stream immediately adjacent to proposed improvement.
- D. Stream Substrate Material. Predominately granular soil materials comprised of cobbles, gravels and fines generated from excavation activities.
- E. Surplus Materials. All surplus or unsuitable excavated materials will be designated as waste and shall be disposed in accordance with Section 31 23 16, Excavation.

3. EXECUTION

3.1 FILL CONSTRUCTION

- A. General. Compacted Fill in Fills shall be placed in the dry and compacted as specified herein.
- B. Subgrade Preparation. Following Clearing and Grubbing, the subgrade surfaces shall be graded to remove surface irregularities and shall be scarified parallel to the axis of the fill and loosened to a minimum depth of 2 inches. The moisture content of the loosened material shall be controlled as specified for the Fill, and the surface materials of the subgrade shall be compacted and bonded with the first layer of Fill.
- C. Prepared subgrade surface shall be free of loose, uncompacted earth in excess of two inches in depth normal to the slope and shall be at such a moisture content that the Fill can be compacted against it ensure a good bond between the Fill and the subgrade. Subgrade surfaces shall not be steeper than 1 horizontal to 1 vertical.
- D. Fill shall not be placed until the required subgrade preparation has been completed.
- E. Fill shall not be placed on or in standing water, nor upon a frozen surface, nor shall snow, ice, or frozen material be incorporated in the fill.

3.2 FINISH

- A. The finished grades shall transition naturally into adjacent existing grades to provide a functional and naturalistic finished surface. Due to the complex nature of the project and the desired aesthetic and functional features, not all details can be accurately represented on the Plans. As a result, the Contractor may be directed by the Engineer to make minor adjustments to finish grades to best achieve these results. These adjustments may include smoothing or rounding conforms, or changing slope angles or daylight points as necessary to conform to the variable geometry inherent in natural topography. Compensation for this work shall be considered as included in the price paid for the various contract items of work involved, and no additional compensation will be allowed.

- B. After the placement of the Fills and spoils, the sides and top shall be dressed by final passage of compaction equipment or by dragging to give a smooth surface. The surface area shall be graded to provide surface drainage to flow to desired locations.

3.3 ROADS AND RAMPS

- A. Maintain Access. At locations where access roads to existing facilities are destroyed because of the work required under this contract, the Contractor shall provide temporary roads, if directed by the Engineer, to give access to fields and buildings during the construction period. Such facilities shall be removed to the extent required by the Engineer.
- B. Temporary Haul Roads. Temporary haul roads shall be constructed as required to transport materials from borrow source or excavation to Fill site. Temporary ramps to be constructed for the Contractors convenience need not comply with these foundation preparation and Fill construction requirements. Unless otherwise directed by the Engineer, temporary ramps shall be removed prior to completion of the work and original grades and conditions restored.
- C. Refer to Section 01 50 00, Mobilization, for additional requirements related to establishment of temporary access.

3.4 GRADE TOLERANCES

- A. General. Fills shall be constructed to the net grade and cross section shown on the Plans.
- B. Grade Tolerances. At all points a tolerance of 0.2 (two-tenths) foot above, and 0.1 (zero) foot below the prescribed grade will be permitted in the final dressing, provided that any excess material is so distributed that the crown of the Fill drains in the desired direction and that there are no abrupt humps or depressions in surfaces. However, this tolerance above grade may be modified at locations where, in the opinion of the Engineer, such modifications will not impair the design or appearance of the project.

3.5 SPECIAL MEASURES

- A. Measures and construction methods shall be incorporated as needed and practical that enhances fish and wildlife values. Special attention shall be given to protecting visual resources and maintaining key shade, food, and den trees.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Fill. Fill will not be separately measured for payment.
- B. Streambed Sediments. Streambed Sediments will not be separately measured for payment.
- C. Stream Substrate Material. Stream Substrate Material will not be separately measured for payment.

4.2 PAYMENT

- A. No separate payment will be made for Fill. All costs associated with furnishing labor, materials, tools, equipment and incidentals, and doing all work necessary to construct

and compact Fill as specified will be considered incidental to cost of associated improvements, Section 31 23 16, Excavation, and Section 31 13 13, Selective Tree Harvest.

- B. No separate payment will be made for Streambed Sediments. All costs associated with furnishing labor, materials, tools, equipment and incidentals, and doing all work necessary to construct and compact Streambed Sediments as specified will be considered incidental to Section 35 42 00, Log Structures.
- C. No separate payment will be made for Stream Substrate Material. All costs associated with furnishing labor, materials, tools, equipment and incidentals, and doing all work necessary to construct and place Stream Substrate Material as specified will be considered incidental to Section 35 42 00, Log Structures.

END OF SECTION

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SECTION 32 92 00

SEEDING

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SECTION 32 92 00 SEEDING

1. GENERAL

1.1 DESCRIPTION

- A. Work covered under this section consists of furnishing all labor, tools, materials, equipment and incidentals required to perform Seeding, as specified, as shown on the Plans, or as directed by the Engineer.

1.2 RELATED SECTIONS

- A. Section 01 33 00, Submittal Procedures
- B. Section 01 57 13, Temporary Erosion Control and BMPs
- C. Section 01 57 13.01, Fiber Roll
- D. Section 31 13 13, Selective Tree Harvest
- E. Section 31 23 16, Excavation
- F. Section 31 23 23, Fill

1.3 REFERENCES

- A. Oregon Standard Specifications for Construction, Oregon Department of Transportation (current edition).
- B. Oregon Seed Law
- C. Federal Seed Act

1.4 SUBMITTALS

- A. Provide submittals for all materials in accordance with Section 01 33 00, Submittal Procedures.
- B. Seed. At least 30 days before seed application, submit proof that the order for seed required for the Contract has been placed and accepted by the seed vendor. Include the seed's botanical names, quantity ordered, and the anticipated date of delivery.
- C. Submit a copy of the analysis report for each seed species before application.
- D. Submit seed labels, showing the following:
 - 1. Seed variety including botanical name and common name
 - 2. Lot number or other lot identification
 - 3. Origin
 - 4. Net weight
 - 5. Percent pure live seed
 - 6. Percent total viability
 - 7. Percent by weight inert matter
 - 8. Percent by weight other crop seed
 - 9. Percent by weight weed seed
 - 10. Name of restricted noxious weed seed by number per pound of seed

11. Name and address of the supplier or grower responsible for the analysis.

1.5 QUALITY ASSURANCE

- A. All seed shall be labeled in accordance with the Oregon Seed Law and Federal Seed Act and shall be delivered to the site in sealed individual, unmixed bags with the vendor's certificate attached. Seed shall be sampled and tested in accordance with the State Standard Specifications, Section 01030. Seed treated with mercury compounds shall not be used.
- B. Seed which has become wet, moldy, or otherwise damaged in transit or in storage, will not be acceptable.

2. PRODUCTS

2.1 MATERIALS

- A. Seed Source. Seed shall be collected or propagated from source populations within the Pacific Northwest.
- B. Quantities shown on the Plans represent pure live seed (pls).
- C. Seed shall be mixed on-site in the presence of the Engineer. At no time shall the seed mix contain noxious weed seed. Seed shall be maintained in optimal health and be protected at all times from animal damage; vandalism; inclement weather conditions, including drought, wind, and frost; toxic water; sunlight; moisture; or contact with vehicles, equipment, and tools and any other conditions that would damage or reduce the viability of the seed.
- D. Seed Mix. The seed mix and application rates are as shown on the Plans. No substitutions are allowed without written consent of the Engineer.
- E. Fiber. Fiber shall comply with State specification 01030.15 Erosion Control (Hydroseed), as modified below. Fiber shall be colored with a water-soluble, biodegradable, nontoxic green coloring agent free from copper, mercury, and arsenic, to provide a visual gauge for metering of material over the ground surfaces. Fiber shall be produced from natural or recycled (pulp) fiber, such as wood chips or sawdust. Newsprint, chipboard, or corrugated cardboard shall NOT be allowed. Fiber shall be free of synthetic or plastic materials.
- F. Tackifier. Tackifier shall comply with Section 01030.16 of the Standard Specifications.
- G. Compost Mulch. Compost mulch comply with Section 03020 of the Standard Specifications.
- H. Straw Mulch. Straw mulch for non-hydroseeding applications shall meet Section 01030.15.b of the Standard Specifications.
- I. Hydromulch Fiber. Fiber for hydroseeding applications shall meet Section 01030.15.a of the Standard Specifications.
- J. Stabilizing Emulsion (Tackifier). Tackifier shall meet Section 01030.16 (dry or liquid) of the Standard Specifications.
- K. Water. Water shall be furnished by the Contractor and shall be free of chemicals detrimental to the seed mixture.

3. EXECUTION

3.1 PREPARATION

- A. General. Seed the areas disturbed by construction activities, as specified herein or as directed by the Engineer.
- B. Debris Removal. Prior to ground surface preparation operations remove and dispose of all wire, rubbish, stones, and other material which might hinder proper grading, and subsequent maintenance.
- C. Surface Preparation. Surfaces which are too hard or smooth to accept the seeding, as determined by the Engineer, shall be broken up to a minimum depth of 3 inches, by disking or other methods approved by the Engineer, until the condition of the soil is acceptable. When conditions are such, by reason of excessive moisture or other factors, that satisfactory results are not likely to be obtained, the work shall be stopped and shall be resumed only when directed. Slopes in excess of 25% shall be prepared by track-walking or equivalent method approved by the Engineer.

3.2 APPLICATION OF SEED

- A. Existing Features. During seeding operations, care shall be taken to avoid damaging existing facilities, vegetation to remain, or any other items on or around the planting areas. This includes cautiously moving hoses and not coating plants to remain with hydroseed slurry.
- B. Seeding Areas: Apply seed to areas indicated on the Plans, or as directed by the Engineer.
- C. Time of Seeding: Perform all seeding between September 1st and October 31st of the year construction begins. The seeding operation shall be halted when, in the opinion of the Engineer, conditions of high winds, excessive moisture or other factors are not conducive to satisfactory results. Upon written request of the Contractor, and upon written approval of the Engineer, seeding may be done during off seasons provided that:
 - 1. The resulting stand of grass shall be at least equal to the stand that might be expected from planting during the normal season; and
 - 2. The establishment period shall be lengthened, as required, to produce the above specified stand at no additional cost to the Owner.
 - 3. Perform seeding prior to placement of erosion control fabric, where erosion control fabric is specified.

3.3 METHOD OF SEEDING

- A. Seeding may be performed mechanically in a dry condition or with hydro-seeding equipment, at the Contractor's option.
 - 1. Hydro-seeding. Hydro-seeding shall be performed in accordance with Standard Specification Section 01030.18(a).
 - 2. Broadcast Seeding. Broadcast seeding may be used in lieu of hydro-seeding or to reseed any previously hydro-seeded areas disturbed during planting operations. Seed shall be dry-applied in accordance with Standard Specification Section 01030.48 (b).

3.4 REPAIR

- A. General. When any portion of the ground surface becomes gullied or otherwise damaged following seeding within the period of Contractor's responsibility, repair the affected portion to re-establish the condition and grade of the soil prior to planting and then reseed as specified for initial , all at no cost to the Owner.
- B. Reseeding. When it becomes evident that the seeding has been unsuccessful, the Engineer will require that these areas be reseeded with the same seed and quantity as specified for the

initial seeding. Complete reseeding within fifteen (15) days following notification and these areas shall be maintained by watering, as specified above, until the successful grass is established. Prepare the area to be reseeded as directed by the Engineer, to receive the reseeding.

3.5 FIELD QUALITY CONTROL

- A. During the course of work or upon completion of the project, a check of the quantities of materials will be made against the areas treated, and if the minimum rates of application have not been met, the Engineer will require the distribution of additional quantities of those materials to make up the minimum applications specified.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Seeding will be measured for payment on a lump sum basis.
- B. Fiber, mulch, tackifier, and other materials used for seeding activities will not be separately measured for payment.
- C. Areas disturbed by the Contractor and requiring seeding outside the designated limits of disturbance shall not be measured for payment.

4.2 PAYMENT

- A. The lump sum contract price for Seeding will include full compensation for the furnishing and installation of seed, which price will include furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the Seeding as specified, as shown on the Plans, or as directed by the Engineer.
- B. The cost of seeding areas outside the designated limits of disturbance shall be solely borne by the Contractor.
- C. Payment will be made under:

Pay Item

Seeding

Pay Unit

Lump Sum (LS)

END OF SECTION

INDEX **SECTION 35 42 00** **LOG STRUCTURES**

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SECTION 35 42 00 LOG STRUCTURES

1. GENERAL

1.1 DESCRIPTION

- A. Work within this section includes furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the Log Structures, complete in place, including excavation, and backfilling, connection hardware and installation, log and BDA Post supply, preparation, and placement, and backfill of voids, as specified, as shown on the Plans, or as otherwise directed by the Engineer.

1.2 RELATED SECTIONS

- A. Section 01 33 00, Submittal Procedures
- B. Section 31 11 00, Clearing and Grubbing
- C. Section 31 13 13, Selective Tree Harvest
- D. Section 31 23 16, Excavation
- E. Section 31 23 23, Fill
- F. Section 31 23 19, Dewatering

1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. A29 – Standard Specification for General Requirements For Steel bars, Carbon and Alloy, Hot-Wrought
 - 2. A36 - Standard Specification For Carbon Structural Steel
 - 3. A153 – Standard Specification for Zinc Coating (Hot-Dip) On Iron and Steel Hardware
 - 4. A193 – Standard Specification for Alloy Steel and Stainless Steel Bolting for High Temperature or Pressure Service and Other Special Purpose Applications
 - 5. A194 – Standard Specification for Carbon Steel, Alloy Steel, and Stainless Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both
 - 6. A615 – Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
 - 7. B695 – Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel

1.4 SUBMITTALS

- A. Submit to the Engineer, for review and approval, the following, prior to delivering materials to the work site:
 - 1. Product data sheet for and connection hardware
 - 2. Photos of all BDA Posts. Each post shall be tagged with a number, referenced in the photos.

2. PRODUCTS

2.1 MATERIALS

- A. Stream Substrate Material. Conform to the material requirements of Section 31 23 23, Fill.
- B. Threaded Rod and Nuts. Threaded Rod and shall be composed of one of the following at the Contractor's option:
 - 1. Grade 75 all-thread rebar conforming to ASTM A615, bar designation #8. Nuts shall be H1F heavy hex nuts conforming to ASTM 194 Grade 2H.
 - 2. B12 Coil Rod conforming to ASTM A29, diameter 1 inch. Nuts shall be B25 heavy coil nuts.
- C. Steel Plates. Steel plates shall conform to ASTM A36 and meet the dimensions shown on the Plans.
- D. Backfill. Backfill shall consist of either "Stream Substrate Material," "Fill", or "Streambed Sediments", to match surrounding surface treatments shown on the Plans.

3. EXECUTION

3.1 GENERAL

- A. Prior to the start of work, the Engineer shall designated representatives authorized to observe the Contractor's placement of Log Structures. Contractor shall notify the authorized representative 72 hours prior to placement of Log Structures. Construct all Log Structures in the presence of the authorized representative.
- B. Log structure designs are shown conceptually due to the inherent variability of material properties. The design requires that the Engineer or their designated representative continuously observe construction of the log structures to ensure the intent of the design is met. Observations must include log and boulder selection, placement, connections for ballasting, and placement of backfill. Any log structures constructed without the Engineer or their designated representative present may result in rejection of the work by the Engineer and reconstruction by the Contractor at no additional cost to the Owner.
- C. The construction of Log Structures requires equipment which can place logs in precise locations. An excavator of a suitable size and containing a thumb is suggested.
- D. Pile logs shall be driven into the ground with the narrower end of the log oriented downward to the depths shown in the Plans. Exposed pile log ends shall be roughened by splintering the ends.
- E. BDA Posts shall be driven into the ground with the sharpened end of the post oriented downward to the depths shown in the Plans. ~~Exposed pile log ends shall be roughened by splintering the ends.~~
- F. Placement of the foundation logs is critical to the success of the Log Structures. To ensure proper placement, the Contractor shall provide a portable pump or other method to de-water excessive ground water from the excavation, as necessary.
- G. Log to Log connections. Each threaded bar connection shall be secured with plates and nuts on either side, tightened until the plate is sunken into the log. Trim excess bar 3 inches from nut and score nut with a chisel (or equivalent approved method) to prevent nut backing off.
- H. Log Placement. Log placement locations shown on the Plans are approximate. Exact locations shall be as approved by the Engineer, or his authorized representative.

- I. Place rootwads at an elevation where the majority of the root mass is below ordinary low water, as approved by the Engineer.
- J. Log Salvage. Comply with Section 31 13 13, Selective Tree Harvest.

3.2 FIELD QUALITY CONTROL

- A. Tolerances. Log placements shown are approximate. Final location and orientation shall be as directed by the Engineer.
- B. BDA Posts. All posts shall be inspected for approval by the Engineer, prior to installation.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Lateral Jam Log Structure Installation will be measured by the number of Lateral Jam Log Structures installed, as shown on the Plans, as specified, and as directed by the Engineer.
- B. Toe Log Structure Installation will be measured by the number of Toe Log Structures installed, as shown on the Plans, as specified, and as directed by the Engineer.
- C. Alcove Habitat Log Installation will be measured by the number of Alcove Habitat Logs installed, as shown on the Plans, as specified, and as directed by the Engineer.
- D. Floodplain Log Structure Installation will be measured by the number of Floodplain Log Structures installed, as shown on the Plans, as specified, and as directed by the Engineer.
- E. Supply and Install BDA Posts will be measured by the number of BDA Posts installed, as shown on the Plans, as specified, and as directed by the Engineer.

4.2 PAYMENT

- A. Lateral Jam Log Structure Installation will be paid for at the contract unit price for each Lateral Log Jam Structure installed including all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in installing each Lateral Log Jam Structure, complete in place, including excavation and backfill and connections, as shown on the Plans, as specified herein, or as directed by the Engineer.
- B. Toe Log Structure Installation will be paid for at the contract unit price for each Toe Log Structure installed including all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in installing each Toe Log Structure, complete in place, including excavation and backfill, as shown on the Plans, as specified herein, or as directed by the Engineer.
- C. Alcove Habitat Log Installation will be paid for at the contract unit price for each Alcove Habitat Log installed including all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in installing each Alcove Habitat Log, complete in place, including excavation and backfill, as shown on the Plans, as specified herein, or as directed by the Engineer.
- D. Floodplain Log Structure Installation will be paid for at the contract unit price for each Floodplain Log Structure installed including all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in installing each Floodplain Log Structure, complete in place, including excavation and backfill and connections, as shown on the Plans, as specified herein, or as directed by the Engineer.
- E. Supply and Install BDA Posts will be paid for at the contract unit price for each BDA Post installed including all labor, materials, tools, equipment, and incidentals, and for doing all the

work involved in installing each BDA Post, complete in place, including excavation and backfill, rock placement, and connections, as shown on the Plans, as specified herein, or as directed by the Engineer.

F. Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Lateral Jam Log Structure Installation	Each (EA)
Toe Log Structure Installation	Each (EA)
Alcove Habitat Log Installation	Each (EA)
Floodplain Log Structure Installation	Each (EA)
Supply and Install BDA Posts	Each (EA)

END OF SECTION