



**Langlois Creek Culvert Replacements
Contract Special Provisions**



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INTRODUCTION

These specifications have been developed for the Langlois Creek Culvert Replacements project designed by Environmental Science Associates for the Snoqualmie Valley Watershed Improvement District. The project shall conform to the Washington State Department of Transportation 2024 Standard Specifications except where noted otherwise on the drawings and herein.

DIVISION 1 GENERAL REQUIREMENTS

1-02 BID PROCEDURES AND CONDITIONS

1-02.4(2) Subsurface Information

(February 22, 2011 KC GSP)

In reference to this section, the soils information and subsurface investigation of the site used for study and design of this project is available as an attachment to the bid proposal in the “Geotechnical Letter Report – Langlois Creek Culvert Replacement” prepared by HWA Geosciences, Inc, dated December 2, 2020.”

1-05 CONTROL OF WORK

1-05.4 Conformity With And Deviations From Plans And Stakes

Section 1-05.4 is supplemented with the following:

CONTRACTOR SURVEYING - STRUCTURE

Copies of the Contracting Agency-provided primary survey control data are available for the bidder's inspection at the office of the Engineer.

The Contractor shall be responsible for setting, maintaining, and resetting all alignment stakes, slope stakes, and grades necessary for the construction of box culverts and wing walls. Except for the survey control data provided on the drawings, calculations, surveying, and measuring required for setting and maintaining the necessary lines and grades shall be the Contractor's responsibility.

The Contractor shall inform the Engineer when monuments are discovered that were not identified in the Plans and construction activity may disturb or damage the monuments. All monuments noted on the plans “DO NOT DISTURB” shall be protected throughout the length of the project or be replaced at the Contractor's expense.

Detailed survey records shall be maintained, including a description of the survey work performed and the control points used. The record shall be adequate to allow the survey to be reproduced.

The meaning of words and terms used in this provision shall be as listed in "Definitions of Surveying and Associated Terms" current edition, published by the American Congress on Surveying and Mapping and the American Society of Civil Engineers.

The survey work by the Contractor shall include but not be limited to the following:

1. Verify the primary horizontal and vertical control furnished by the Contracting Agency and expand into secondary control by adding stakes and hubs as well as additional survey control needed for the project. Provide descriptions of secondary control to the Contracting Agency. The description shall include coordinates and elevations of all secondary control points.
2. Establish, by placing hubs and/or marked stakes, the location with offsets of foundation and stream features.
3. Establish offsets to footing centerline of bearing for structure excavation.
4. Establish offsets to footing centerline of bearing for footing forms.

SP-2

5. Establish wing wall, culvert, and channel horizontal and vertical alignment.

Check elevations at culvert inverts, log weir, road surface, trail surface, and wingwalls. The Contractor shall provide the Contracting Agency with copies of any calculations and staking data when requested by the Engineer.

The Contractor shall ensure a surveying accuracy within the following tolerances:

	<u>Vertical</u>	<u>Horizontal</u>
1. Stationing on structures		±0.1 feet
2. Alignment on structures		±0.1 feet
3. Structure elevations	±0.01 feet variation from plan elevation	
4. Grading	±0.05 feet variation from Plan grades.	±0.1 feet

The Contracting Agency may spot-check the Contractor's surveying. These spot-checks will not change the requirements for normal checking by the Contractor.

Contract work to be performed using contractor-provided stakes shall not begin until the stakes are approved by the Contracting Agency. Such approval shall not relieve the Contractor of responsibility for the accuracy of the stakes.

Payment

Payment will be made for the following bid item when included in the proposal:

"Structure Surveying", lump sum.

The lump sum contract price for "Structure Surveying" shall be full pay for all labor, equipment, materials, and supervision utilized to perform the Work specified, including any resurveying, checking, correction of errors, replacement of missing or damaged stakes, and coordination efforts.

1-07 Legal Relations and Responsibilities to the Public

1-07.16(2)A Wetland and Sensitive Area Protection

This section is supplemented with the following:

All construction equipment operating in wetlands or channels shall exclusively use biobased hydraulic fluids. Biobased hydraulic fluids include those made with renewable resources such as natural vegetable oil. All equipment working in wetlands or channels shall be steam-cleaned prior to construction activities to remove contaminants that may otherwise enter the project site.

The Contractor shall implement applicable Best Management Practices from the King County Manual of Best Management Practices for Maintenance of Agricultural Waterways in King County, April 2012 (the "ADAP Manual"). If there are conflicts between the Plans and Specifications and the ADAP Manual, the Plans and Specifications shall govern.

1-07.17 Utilities and Similar Facilities

This section is supplemented with the following:

Known utilities within the project limits are shown in the drawings and are based on the best available information. The Contractor is responsible for verifying utility locations prior to excavation.

The fiber optic cable buried beneath the Snoqualmie Valley Trail is to be protected in place by the AT&T Company. The Contractor shall coordinate with the designated representative of AT&T for installation and removal of the fiber optic cable temporary support system by AT&T's contractor. AT&T will put this work out to bid separately from the rest of the project work. This coordination shall include but is not limited to sequence of operations, schedule, staging, notifications and communications. This coordination shall start upon contract award so that sufficient lead times are established for Contractor and AT&T to complete the required tasks. The Contractor is not responsible for providing the fiber optic cable temporary support system.

AT&T'S Engineering Department Contact Information:

Manager of West Coast Operations, Siena Engineering Group, Inc.:

Ed Burton, 978-430-3252

Project Manager, Siena Engineering Group, Inc.:

Louie Vanhollebeke, 425-896-9850

The Contractor shall maintain a minimum 15' safe clearance from overhead electrical transmission lines and a minimum 10' clearance from electrical distribution lines. The Contractor may temporarily disconnect the distribution lines with approval from Puget Sound Energy.

Any temporary disruption to utilities shall be communicated to the Contracting Agency and affected property owners with no less than 14 calendar days of notice of the pending disruption. Temporary utilities shall be provided as required to affected property owners, including maintaining power and water service to the homes proximate to culvert #933063.

Measurement for "Utility Coordination and Temporary Relocation" will be per lump sum.

The lump sum payment for "Utility Coordination and Temporary Relocation" shall include coordination with utility companies, their contractors, property owners, and the Contracting Agency; furnishing and installing all materials necessary to temporarily relocate and restore utilities; and developing Contractor-designed systems to maintain and protect utilities where needed.

DIVISION 2: EARTHWORK

2-01 Clearing, Grubbing, and Roadside Cleanup

2-01.3(1) Clearing

This section is supplemented with the following:

Contractor shall flag limits of clearing for approval by the Engineer. Clearing limits shall be approved before starting work.

2-02 Removal of Structures and Obstructions

2-02.1 Description

This section is supplemented with the following:

All materials removed and not specified to be re-installed shall become the property of the Contractor and shall be disposed of at a Contractor-provided waste site meeting the requirements of Section 2-01.2(2) to be obtained and paid for by the Contractor.

Known structures on-site consist of:

1. Culverts – 1 x 24” diameter steel pipe and 1 x 48” diameter corrugated metal pipe.
2. Overflow Culvert pipes- 2, x 48” diameter concrete pipes. The Contractor may opt to cap and abandon in place.
3. Piping – PVC 4-inch water line pipes. To be protected or restored in-kind post-construction.
4. Roadway guardrail – 24” diameter log at edge of road.
5. Fencing – Wood privacy fencing and barbed wire fencing, approximately 140 linear feet in total. To be protected or restored in-kind post-construction.
6. Underground Utility Lines – Locations approximate. To be protected – See Plans.
7. Overhead Power Lines – Puget Sound Energy lines run along Private Road, parallel to the Snoqualmie Valley Trail. Safety clearance required – see Plans.
8. Fiber Optic Cable – Cable runs beneath Snoqualmie Valley Trail. To be protected in place – see Plans

Other unmapped utilities may exist on site. Contractor shall be responsible for field verifying all utilities.

2-02.3 Construction Requirements

2-02.3(2) Removal of Bridges, Box Culverts and Other Drainage Structures

The following is added at the end of this section:

Existing overflow culvert pipes beneath the Snoqualmie valley trail shall be removed if they are within the Contractor's zone of structural excavation. For portions that are not within excavation zone, remaining pipes shall be cut and capped (plugged) per WSDOT Standard Spec 7-08.3(4). The

contractor shall notify the engineer if existing steel culvert is to remain and the engineer will determine the extent of the plugs needed based on the condition of the pipe(s).

2-02.3(3) Removal of Pavement, Sidewalks, and Curbs

The following is added at the end of this section:

Removal shall be accomplished by making a neat longitudinal vertical cut along the boundaries of the area to be removed. Cutting shall be accomplished with a self-propelled saw capable of cutting to a 12-inch depth. The use of pneumatic hammers or punches will not be permitted.

2-03 Roadway Excavation and Embankment

2-03.1 Description

This section is supplemented with the following:

Soils on site are a mix of native organic-rich soils and imported, gravelly fill. Native organic-rich soils, as identified by the Engineer, shall be stockpiled and reused on site as “Topsoil Type B”. Existing alluvial soils with high organic or high silt content should be used in landscaping areas only and are not suitable for use as structural fill.

2-09 Structure Excavation

2-09.3 Construction Requirements

2-09.3(1)C Removal of Unstable Base Materials

This section is supplemented with the following:

The Contractor shall notify the Engineer 5 working days prior to subgrade excavation activities for inspection by the Contractor Representative.

If unsatisfactory foundation material or unsuitable organic soils are found for placing wall subgrades upon excavating two feet below the base of wall, the foundation material shall be excavated up to two additional feet, and the unsatisfactory material shall be replaced with 2 to 4-inch diameter compacted crushed quarry spalls.

If unsatisfactory foundation material or unsuitable organic soils, as determined by the Engineer, for placing the culvert base are encountered for culvert subgrades upon excavating one foot below the culvert base, the foundation material shall be excavated up to two additional feet and the unsatisfactory material replaced with 2 to 4-inch compacted crushed quarry spalls.

2-09.4 Measurement

This section is supplemented with the following:

Only one determination of the original ground elevation will be made on this project. Measurement for excavation will be based on the original ground elevations recorded previous to the award of this contract. The Contractor shall set control stakes for their use in field-verify subgrade and finish grade elevations of excavations and embankments as shown on the Plans.

If discrepancies are discovered in the ground elevations which will materially affect the quantities of earthwork, the Contractor may submit a request to adjust the earthwork quantities accordingly for Engineer's approval.

Earthwork quantities will be computed, either manually or by means of electronic data processing equipment, by use of the average end area method or by the finite element analysis method utilizing digital terrain modeling techniques.

Upon award of the contract, copies of the original ground cross-sections will be provided to the successful bidder.

2-09.5 Payment

This section is replaced with the following:

All excavation and embankment compaction required to complete the work as shown will be paid for as "Structure Excavation Class A" per cubic yard. Payment shall include all labor and equipment to haul and dispose of material off-site or temporarily stockpile on-site to be placed as Gravel Borrow.

Over excavation of unsuitable subgrade soils will be paid for in accordance with 'Unsuitable Foundation Excavation Incl. Haul' per Section 2-03.5.

DIVISION 5: SURFACE TREATMENTS AND PAVEMENT

5-04 Hot Mix Asphalt

5-04.2 Materials

In reference to this section, the grade of paving asphalt shall match the existing condition.

5-04.3(2) Hauling Equipment

The second sentence of the first paragraph of this section is deleted and replaced with the following:

Haul trucks shall be tarped at all times no matter the weather or travel distance to the project, the canvas cover shall be securely attached to protect the HMA. The trucks and trailers shall remain covered until the HMA is transferred to the paving machine.

5-04.3(4) Rollers

The following is added at the end of this section:

Use of rollers in the vibratory mode compacting downhill is prohibited unless approved by the Engineer.

5-04.3(5)A Preparation of Existing Surface

The third paragraph of this section is deleted and replaced with the following:

Equipment shall not operate on tacked surfaces until the tack has broken and cured. If the Contractor's operation or weather damages the tack coat it shall be repaired, at no cost to the Contracting Agency, prior to placement of the HMA.

DIVISION 6: STRUCTURES

6-20 Buried Structures

6-20.1 Description

This section is supplemented with the following:

The SVWID has pre-ordered culverts from OldCastle for the 933063 and 101SC-07 Langlois Creek crossings. Delivery of the culvert sections will be coordinated by the Contractor through the Snoqualmie Valley Watershed Improvement District. The Contractor is responsible for receiving and offloading the culverts during delivery from the supplier at the stockpiling location, the transport of the pre-ordered culverts from the stockpiling location to the crossing sites, and the installation of the culverts. Suggested staging areas are shown on the Drawings.

For this project, Culvert 101SC-07 refers to Structure No. 1. and Culvert 933063 refers to Structure No. 2 and

6-20.4 Measurement

This section is replaced with the following:

Agency Designed Buried Structure No. ___ will be measured per each structure installed.

6-20.5 Payment

This section is supplemented with the following:

The lump sum Contract price for “Agency Designed Buried Structure No. ___” shall be full pay for performing the Work as specified, including but not limited to receiving, transporting, and installing precast box culvert, footings, headwalls, wingwalls, and wing wall drainage.

DIVISION 8: MISCELLANEOUS CONSTRUCTION

8-02 Roadside Restoration

8-02.3(4)B Topsoil Type B

Section 8-02.3(4)B is supplemented with the following:

Topsoil Type B shall be placed to a 60%-80% compacted depth of six (6) inches.

8-02.3(5) Planting Area Preparation

Section 8-02.3(5) is supplemented with the following:

Do not cultivate within a six-foot (6') radius of the driplines of existing trees to remain or in areas with extensive tree roots. Extensive tree roots are one inch (1") diameter or more.

8-02.3(10) Fertilizers

Section 8-02.3(10) is replaced with the following:

Fertilizers shall not be used.

8-02.3(11)A Mulch for Seeding Areas

Section 8-02.3(11)A is supplemented with the following:

Mulch for all seeding areas shall be Hydraulically Applied Erosion Control Product (HECP) Long Term Mulch.

8-02.4 Measurement

Section 8-02.4 is supplemented with the following:

“Topsoil Type B” will be measured by the cubic yard in the haul conveyance at the point of delivery.

“Fine Compost” will be measured by the cubic yard in the haul conveyance at the point of delivery.

“Wood Chip Mulch” will be measured by the cubic yard in the haul conveyance at the point of delivery.

8-02.5 Payment

Section 8-02.5 is supplemented with the following:

“Topsoil Type B”, per cubic yard

“Fine Compost”, per cubic yard

“Wood Chip Mulch- 3 Foot Rings”, per cubic yard

8-11 Guardrail

8-11.2 Materials

The following is added at the end of this section:

Timber guardrail shall use pressure treated rough sawed timber, epoxy coated reinforced rods, and concrete bases per the drawing. Cuts and drilled holes in pressure treated timber shall be treated with preservative designed for such application in accordance with manufacturer recommendations.

8-11.4 Measurement

The following is added at the end of this section:

“Guardrail” shall be measured by the linear foot.

8-11.5 Payment

The unit contract price of “Guardrail” shall include all materials, hardware, labor, equipment, and handling to install guardrail as specified on the Plans.

8-30 Water Crossings

8-31 Temporary Stream Diversion

8-31.1 Description

This section is supplemented with the following:

This work applies to Langlois Creek. This stream is classified as fish bearing and requires fish removal and fish exclusion netting.

8-31.3 Construction Requirements

8-31.3(2) Temporary Stream Diversion Plan

8-31.3(2)B Plan Requirements

This section is supplemented with the following:

The TSD Plan does not require an engineer’s stamp. All associated computations shall be performed using industry standard procedures and practices to demonstrate correct sizing of the system. The plan shall be submitted to the Contract Representative who will send it to the Engineer. This submittal is for record purposes only and shall not be construed as a detailed analysis for adequacy of the stream diversion system, nor shall it be construed as relieving the Contractor of the overall liability and responsibility for the work.

8-31.3(2)C Stream Flows

This section is added:

The Engineer recommends the following for stream diversion. The Contractor is responsible for determining diversion flows needed to meet project permit requirements, construction requirements, and maintain site safety:

The stream diversion system shall be sized to pass 2-year flows or greater during the period of construction.

The contractor assumes all responsibility for estimating flows, designing stream diversion, and managing water during construction. Actual conditions are anticipated to vary. During all phases of the bypass installation and decommissioning, the Contractor shall maintain flows downstream of the project site.

8-31.3(4) Dewatering Work Areas

This section is replaced with the following:

8-31.3(4)A Description

This section specifies performance of dewatering required to lower and control ground water table levels and hydrostatic pressures to permit excavation, backfill, and construction to be performed in the dry and without heave at the subgrade elevation for the box culverts.

The specification sections below are related to the work of this section. Other sections not referenced below may also be related to the proper performance of this work.

- Section 1-07.6 Permits and Licenses
- Section 1-02.4(2) Subsurface Information
- Division 2 Earthwork
- Section 8-01 Erosion Control and Water Pollution Control

8-31.3(4)B Materials

All materials shall be detailed in the Contractor's Temporary Dewatering, Shoring, and Excavation Plan.

8-31.3(4)B Construction Requirements

8-31.3(4)B.1 General

The Contractor shall design, provide, test, operate, monitor, and maintain a dewatering system of sufficient scope, size, and capacity to control ground-water flow into culvert and wall excavations and permit construction to proceed on dry, stable bases. This work includes:

1. Provide an adequate system to lower and control groundwater to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Install sufficient dewatering equipment to drain water-bearing strata above and below bottom of culvert and wall foundations, and other excavations.
2. Wells are not a requirement of the contract. If wells are used for dewatering and/or observation of groundwater levels, follow all applicable state, local, and federal regulations.
3. Reduce hydrostatic head in water-bearing strata below subgrade elevations for culvert and wall foundations.
4. Maintain piezometric water level in the underlying confined aquifer a minimum of 24 inches below surface of excavations.
5. Maintaining dewatering operations continuously to ensure stability of excavations and constructed slopes are maintained, and flooding of excavation and damage to structures are prevented.
6. Prevention of surface water from entering excavations by grading, dikes, or other means.
7. Accomplish dewatering without damaging existing buildings and/or roadways adjacent to excavation.
8. Handling and disposing of the groundwater.
9. Removing dewatering system when no longer needed.

8-31.3(4)B.2 Submittals

The Contractor shall develop a plan for dewatering, shoring, and excavation in consideration of the geotechnical information prepared for this Project and included in the Contract Documents. The Plan shall be submitted to the Engineer and approved prior to dewatering and construction of walls and other related improvements. The Plan shall meet all federal, state, and local requirements.

The Contractor shall submit a Temporary Dewatering, Shoring, and Excavation Plan in accordance with the requirements for a Type 2 Working Drawing and these Specifications. The Plan shall show the method, installation, and details of a dewatering system including arrangement, locations, and details of pumps, sumps, and/or wells; locations of headers and discharge lines; and means of discharge and disposal of water. This submittal is for record purposes only and shall not be construed as a detailed analysis of adequacy of the dewatering system, nor shall it be construed as relieving the Contractor of the overall liability and responsibility for the work.

The plan shall include:

1. A written report outlining control procedures to be adopted if dewatering problems arise or emergencies occur, including loss of power.
2. Shop Drawings showing the system components and a plan of the dewatering system.

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3. A method to monitor that groundwater is maintained at least 24 inches below excavations.
 4. The Dewatering Plan will comply with drilling and water disposal requirements of authorities having jurisdiction.
 5. Shoring systems required to complete the work as shown.
 6. Excavation plan showing temporary slopes and extents of excavation required to complete the work as shown.

8-31.3(4)B.3 Installation and Operation

The Contractor's dewatering operation will, as a minimum, include the following:

1. Initial test pit to determine if groundwater elevation is within 24" of the subgrade excavation elevation.
2. Install a dewatering system adequate to assure the integrity of the finished product.
3. Before excavating below groundwater level, place system into operation to lower water to specified levels and then operate it continuously until all below grade work is completed and backfilled to final grade.
4. Dispose of water removed from excavations in a manner to avoid endangering public health, property, and portions of work under construction or completed. The handling and disposal of water from the excavations shall be the responsibility of the Contractor, and all applicable local, state, and federal regulations must be followed. The Contractor must obtain written permission from the applicable local jurisdiction prior to discharging the water into a storm drainage system or open ditch. Discharge of this water to any drainage facility shall not negatively impact a fisheries stream.
5. Provide standby equipment on-site, installed, and available for immediate operation, to maintain dewatering on a continuous basis if any part of system becomes inadequate or fails, including power failures. If dewatering requirements are not satisfied due to the inadequacy or failure of dewatering system, restore damaged structures and foundation soils.
6. Damages: Promptly repair damages to adjacent facilities caused by dewatering operations at the cost of the Contractor.
7. Install observation system and:
 - a. Observe and record daily elevations of groundwater.
 - b. Repair or replace, within 24 hours, observation system that become inactive, damaged, or destroyed. Suspend construction activities in areas where observation systems are not functioning properly until reliable observations can be made.

8-31.4(4)B.4 Removal

Remove dewatering system from project site on completion of dewatering. Decommission all wells according to Department of Ecology regulations.

The release of groundwater to its static level shall be performed in such a manner as to maintain the undisturbed state of the natural foundation soils, prevent disturbance of compacted backfill and prevent flotation or movement of structures, or pipelines.

Decommission observations wells and piezometers according to Department of Ecology regulations when dewatering is completed.

8-31.4 Measurement

This section is added:

Groundwater Dewatering will be measured as lump sum.

8-31.5 Payment

Payment will be made for each of the following Bid items when they are included in the Proposal.

“Groundwater Dewatering”, lump sum.

The lump sum price shall include all costs of designing, preparing the Temporary Dewatering, Shoring, and Excavation Plan, implementing, operating, maintaining, and removing the dewatering system, and control and disposal of water extracted from the ground during dewatering. The unit contract price shall cover additional labor, equipment, and materials needed to install additional monitoring wells as needed to ensure adequate groundwater conditions during construction.

8-32 Large Wood Structures

This section is included in these contract documents as a special provision.

8-32.1 Description

This work consists of furnishing all materials, equipment, and labor necessary to construct large wood structures as shown on the plans.

8-32.2 Materials

1. Logs

Logs removed during construction shall be prioritized for reuse as habitat structures before offsite materials are procured. The Engineer shall approve all salvaged Logs for use prior to placement.. Logs shall meet all requirements specified in Table 1 (below). Measurement of log diameter shall be at breast height for the standing tree. Measurement of log length shall not include the root wad. Logs shall consist of Douglas Fir, Western Red Cedar, or Alder (Footer log only) that are free from rot or decay.

Table 1. Large Wood Requirements

Table 1	Requirements
Key Logs	<ul style="list-style-type: none"> a. Douglas Fir or Western Red Cedar b. Log length, 15-foot Minimum to 25-foot Maximum c. Log diameter, 12-18 inches DBH d. Root wad intact with the majority of roots a minimum of 2” diameter and a minimum fan diameter of 3 feet e. Condition, free from rot or decay
Pier Logs	<ul style="list-style-type: none"> a. Douglas Fir, Hemlock, Western Red Cedar b. Log length, 15-foot Minimum c. Log diameter, 12-15 inches DBH d. No root wad
Footer log	<ul style="list-style-type: none"> a. Douglas Fir, Western Red Cedar, and Alder b. Log length, 15-foot Minimum to 25-foot Maximum c. Log diameter, 12-15 inches DBH d. No root wad

2. Select Native Backfill Material

Select native backfill includes native silt, sand, and gravel soils, free of roots, debris and other biodegradable components. All select native backfill to be approved by Owner’s Representative prior to placement. No saturated materials shall be used. Materials that are determined to be saturated may be dewatered or dried and may be utilized as select native backfill if the moisture content can be reduced to a moisture content that is below the saturated limit and is approved by the Owner’s Representative.

8-32.3 Construction

The Engineer shall be given five (5) days’ notice prior to the installation of logs to be on site during installation. Logs shall not be installed without field verification by the Engineer.

1. Excavation and constructed streambed shall be complete prior to placement of logs.
2. Log placement shall be in the general locations and orientations shown on the Plans with the final locations and orientations approved in the field by the Engineer.
3. Install Logs by excavating a trench such that minimum embedment requirements are met as shown on the plans and as directed by the Engineer.
4. After log has been placed, backfill per Plan:
 - a. Place and compact backfill material around log till its flush with the top of log.
5. When backfilling with select native backfill use a maximum 12-inch thick layer that is firmly compacted prior to placing the next layer. For all other materials use the backfill requirements associated with that materials specification.
6. Contractor may request to place logs in a different manner such as sharpening the end of the log and pushing it into place. The contractor must submit a request in writing to the Engineer a minimum of five (5) days prior to installing the log. The Contractor must receive permission from the Engineer, in writing, prior to using an alternative installation method.

8-32.3(1) Hardware Bolted Connection

In order for structures to function as an integral unit and resist external forces without breaking apart, pier logs shall use a mechanical fastener. All hardware used for fastening shall be stainless steel or natural untreated steel.

The following requirements for the threaded rod fastener shall be required:

1. Use equipment or other temporary restraints as needed to hold logs in place prior to installing the threaded rod connection.
2. At the locations indicated on the Plans, drill a pilot hole through the log member using air drills equipped with extended-shaft auger bits capable of drilling through stacked logs.
3. Through the pre-drilled pilot holes, fasten the two logs together using a 1" diameter Grade 8 threaded rod anchoring (ASTM A 193 B8) with 3" square washers and two nuts on each end.
4. Tighten end nut by the Turn-of-Nut tightening method in accordance with WSDOT Section 6-03.3(33).
5. All exposed threads shall be sprayed with rust inhibiting paint.

8-32.4 Measurement

Large wood structures will be measured per each structure installed of each type.

8-32.5 Payment

Payment will be made for the following Bid items that are included in the Proposal:

- “Large Wood Structure- Type 1”, Per Each
- “Large Wood Structure- Type 2”, Per Each

The Contract payment shall be full compensation for handling and installing logs as shown on the plans, including all labor, materials, equipment, needed to furnish, excavate, install, and backfill logs. The unit contract price shall include mechanical hardware and any incidental materials required. The Contractor is responsible for supplying logs on-site, which shall be visually inspected by the Engineer for approval.

DIVISION 9: MATERIALS

9-03 Aggregates

9-03.8(2) HMA TEST REQUIREMENTS

The following is added at the beginning of this section:

ESAL's

The number of ESAL's for the design and acceptance of the HMA shall be 1 million.

9-13 Riprap, Quarry Spalls, Slope Protection, and Rock for Erosion and Scour Protection and Rock Walls

9-03.1(5) Quarry Spalls

The following is added at the end of this section:

Quarry spalls used for subgrade stabilization shall be size 2" – 4".

9-14 Erosion Control and Roadside Planting

9-14.3 Seed

Section 9-14.3 is supplemented with the following:

Restoration Seed Mix

The seed dealer shall mix the seed only. The Contractor shall furnish the Engineer with a dealer's guaranteed statement of the composition, mixture, and the percentage of purity and germination of each variety. Restoration Seed Mix shall be composed of the varieties mixed in the proportions indicated in the Plans.

All seed mixes shall be certified as 99% weed-free and 90% viable seeds by germination tests and by age specifications by species. Application rate: 1 lb. per 1,000 square feet.

9-14.5(3) Bark or Wood Chip Mulch

Section 9-14.5(3) is supplemented with the following:

Mulch shall be Wood Chip Mulch composed of medium grade fir, pine, or hemlock species. Mulch shall be of uniform color, free from weeds, seed, sawdust, and splinters.

The wood chips shall not contain resin, tannin, or other compounds detrimental to plant life. The mulch shall not contain resin, tannin, wood fiber or other compounds detrimental to plant life. The moisture content of bagged mulch shall not exceed 22%. All mulch shall pass through a 1-inch mesh screen.

9-14.7(3) Handling and Shipping

Section 9-14.7(3) is supplemented with the following:

All plant material shall be transported to planting locations with care to prevent damage. Tie back branches as necessary and protect bark from chafing with burlap bags. Do not drag plant materials

along ground without proper protection of roots and branches. Protect rootballs from environmental or mechanical damage and water as necessary to keep roots moist.

9-14.7(4) Tagging

Section 9-14.6(4) is supplemented with the following:

All plant material shall be legibly tagged. Tagging may be by species or variety with minimum of one tag per ten trees, shrubs, groundcovers. Remove all tagging prior to final acceptance.

9-14.7(7) Temporary Storage

Section 9-14.6(7) is supplemented with the following:

Cold storage of plants shall not be permitted. If planting is delayed more than 24 hours after delivery, set balled and burlapped plants on the ground, well protected with soil or wet peat. Adequately cover all roots of bare root material with soil or wet peat. Protect rootballs from freezing, sun, drying winds or mechanical damage. Water plant material as necessary until planted.

Plants shall not be stored for more than one week. Longer storage period at project site will result in rejection of plant materials by the Contracting Agency.