PART III: EXHIBITS

OREGON DEPARTMENT OF FORESTRY

TIMBER SALE OPERATIONS PLAN
(See Page 2 for instructions)

Date Received by STATE: _____

(5) State Brand Information (complete):

(1) Contract No.: 341-10-47

(2) Sale Name: Leonard Elk

(3) Contract Expiration Date: October 31, 2012

Project Completion Dates: Project Nos. 1 and 2: October 31, 2011
Project No. 3: October 31, 2010

(4) Purchaser: _____ _____

(6) Purchaser Representatives:

Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____

(7) State Representatives:

Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____

(8) Name of Subcontractors & Starting Dates:

Projects: No(s) _____-_____	Date: _____	Phone: _____	
No(s) _____-_____	Date: _____	Phone: _____	
No(s) _____-_____	Date: _____	Phone: _____	
No(s) _____-_____	Date: _____	Phone: _____	
Logging: Felling _____	Date: _____	Phone: _____	
Yarding: _____	Date: _____	Phone: _____	

(9) Comments: _____

(10) Operations Map: Attach a copy of timber sale Exhibit A or other suitable map which plainly shows the items listed on the instruction sheet.

EXHIBIT B

INSTRUCTION SHEET FOR OPERATIONS PLAN

SUBMIT ONE COPY OF PLAN TO STATE

Operations shall be limited to the work shown in the plan until a revised plan or supplemental plan is submitted covering additional work. Compliance with this plan is not in lieu of compliance with any federal requirements related to the federal Endangered Species Act. If STATE has prepared a required Forest Practices Act (FPA) "Written Plan" for operations, PURCHASER shall comply with all provisions of the Written Plan.

Explanation of Item No. (from Page 1)

(5) All sales require you to use a brand furnished by STATE. If the State brand has not been assigned when the plan is submitted, it will be furnished and assigned later. Complete drawing. If more than one brand is assigned to the sale, complete both drawings.

(6) The contract requires you to have a designated representative available on the sale area or work location who is authorized to receive in your behalf any notice or instruction given by STATE and to take action in regard to performance under the contract. If logging and project work is widely separated, a representative is required for each.

(7) The STATE representative will be designated when your plan is approved and is the person who will inspect and issue instructions regarding performance.

(8) Show names of subcontractors to be used for any or all phases of the operations. If subcontractors are not known, or are changed later, give notification to the STATE representative prior to commencement of work by subcontractor.

Show projected dates for commencement of both projects and logging. If projected dates need to be changed at a later date, notification must be given to the STATE representative by supplemental plan or otherwise, prior to commencement of such operations.

(10) The STATE representative will furnish extra copies of Exhibit A of the contract for your use in preparing the operations map. The map shall use the following legend and show:

1. Landing locations, approximate setting boundaries, and probable sequence of logging the settings. Number the settings in sequence.
2. Locations of spur roads planned for construction, other than those required by the timber sale contract. Provide spur road specifications.
3. Location of proposed tractor yarding roads. Show if and how marked on the ground.
4. Location of temporary stream crossings.
5. List the sequence of performing project work.
6. Location of rock sources - attach pit development plans.

(1)	Cable Landing, with numbers for sequence.
[A]	Tractor Landing with alphabetical sequence.
_ _ _ _ _	Approximate setting boundary.
- - - - - - - -	Spur truck roads.
~~	Tractor yarding roads.
X	Temporary stream crossings.

EXHIBIT B

OPERATIONS PLAN

Completion Timeline

Indicate on the appropriate timeline below, the dates by which you plan to complete the work as required under this contract. The purpose of this section is to develop a plan that will ensure you complete the work as required, and meet the interim completion date(s) and contract expiration date. This plan is incorporated and made a part of the contract. When, in the opinion of STATE, operations are not commencing in a manner that meets the intent of this plan, you may be placed in violation of contract and your operations suspended until an amended plan is submitted and approved by STATE.

Project Nos. 1, and 2,

Month/Year Date __/__	Month/Year Date: __/__	Month/Year Date: __/__	Month/Year Date: __/__	Month/Year Date: /
Work Commences	25%	50%	75%	Project Complete

Project No 3

Month/Year Date __/__	Month/Year Date: __/__	Month/Year Date: __/__	Month/Year Date: __/__	Month/Year Date: __/__
Work Commences	25%	50%	75%	Project Complete

Harvest & Other Requirements

Month/Year Date __/__	Month/Year Date: __/__	Month/Year Date: __/__	Month/Year Date: __/__	Month/Year Date: __/__
Work Commences	25%	50%	75%	Sale Complete

The Federal Endangered Species Act (ESA) prohibits a person from taking any federally listed threatened or endangered species. Taking under the federal ESA may include alteration of habitat. STATE's approval of this plan does not certify that PURCHASER's operation under the plan is lawful under the federal ESA. As provided in the timber sale contract, PURCHASERS must comply with all applicable state, federal, and local laws.

PURCHASER's compliance with this plan is not in lieu of compliance with any federal requirements related to the federal Endangered Species Act.

APPROVED: Date: _____

STATE OF OREGON - DEPARTMENT OF FORESTRY

_____

Title _____

SUBMITTED BY:
PURCHASER

_____

Title _____

Original: Salem
cc: District File
Purchaser

EXHIBIT C

SCALING INSTRUCTIONS -- LOCATION APPROVAL -- BRAND INFORMATION

(1) ORIGINAL REGISTRATION ☐ Date _____
REVISION NUMBER _____ ☐ Date _____
CANCELLATION ☐ Date _____

(2) TO: _____
(Third Party Scaling Organization)

(3) FROM: Astoria (04) Phone (503) 325-5451
(State Forestry District)
Address 92219 Hwy 202, Astoria OR 97103

(4) PURCHASER: _____
Mailing Address: _____
Phone Number: _____

(5) MINIMUM SCALING SPECIFICATIONS			CLASS		
SPECIES	SCALING DIAMETER INCHES	*NET SCALE VOLUME	PER MBF	** SUM	SUB
All Conifer	---	10	X		
All Hardwoods	---	10	X		

* Apply minimum volume test to whole logs over 40' Westside; 20' Eastside.
** Sum (if indicated): see instructions and explain in Item (19).

	YES	NO
(6) WESTSIDE SCALE: Use Region 6 actual taper rule. Logs over 40'.	☒	☐
(7) EASTSIDE SCALE: Use Region 6 actual taper rule. Logs over 40'.	☐	☒
(8) Weight Scale Sample (6) – (8), pink log load receipts	☐	☒
(9) Weight Sale	☐	☒
(10) Per Load (9) and (10), yellow log load receipts	☐	☒

(11) APPROVED SCALING LOCATIONS	Species	Yard	Truck	Weight

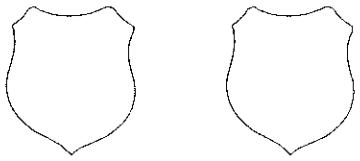
(12) NOTICE OF CANCELLATION OF BRAND:
Effective Date: _____
_____
State Forester's Representative

(13) SALE NAME Leonard Elk
COUNTY Clatsop

(14) STATE CONTRACT NUMBER 341-10-47

(15) STATE BRAND REGISTRATION NUMBER _____

(16) STATE BRAND INFORMATION:
(COMPLETE)



(17) PAINT REQUIRED: YES ☒
COLOR Orange

(18) SPECIAL REQUESTS
PEELABLE CULL (all species) **NO DEDUCTIONS ALLOWED** **FOR MECHANICAL DAMAGE** ADD-BACK VOLUME - Deductions due to delay
OTHER:

(19) REMARKS All Hardwood logs **less** than **30** board feet shall be scaled as **"Utility"**. Hardwood logs greater than or equal to 30 net board feet shall be scaled as a sawlog.

Operator's Name (Optional inclusion by District): _____

(20) SIGNATURES:

_____
Purchaser or Authorized Representative Date

_____
State Forester Representative Date

Notify the District within one hour when branding or painting is inadequate for quick identification, the receipts are missing, not correctly or completely filled out, and/or when logs presented for scaling are impossible to scale accurately.

Distribution: ORIGINAL: Salem / COPIES: TPSO, Approved Scaling Location, Purchaser, District, Mgmt. Unit

EXHIBIT C

INSTRUCTIONS FOR FORM 343-307 (rev. 10/08)

(1) Check appropriate box. REVISION NUMBER requires comments. CANCELLATION requires Item (12). Complete date.

(2) Designate Third Party Scaling Organization (TPSO).

(3) State District office, address and phone.

(4) Enter Purchaser's business name, address, and phone number as it appears on the Contract.

(5) Minimum Scaling Specifications. Review Section 2040 or 2045, "Log Removal," of the Contract. Species, or combined species can be separate entries. Information serves as a basis for scaling (see also Items (16) thru (18)), and is required to show existence on the sale. **SUM** (lump sum material). **SUB** (submerchantable material). SUB, as used by the State, references that material containing at least 10 bf (net) but less than the lower merchantable net volume limit or grade requirements for other merchantable (Per MBF) entries. Per MBF, SUM, and SUB must be indicated by checking the appropriate column. Species with the same specifications and value are combined into one entry. Per MBF and SUB require scaling therefore complete specifications. SUM need not be scaled, hence no specifications. Loads containing only SUM are to be ticketed if so instructed in Item (19). Mixed loads of SUM, Per MBF and/or subspecies will always be scaled.

(6) Westside – Region 6 actual taper segment scale. Check Yes or No. Special Service Rules on file with TPSO. See: Segment Scaling and Grading of Long Logs -- All Species -- State Forestry Department Scaling Practices (Westside).

(7) Eastside – Region 6 actual taper/taper table segment scale. Special Service Rules on file with TPSO. See: Segment Scaling and Grading of Long Logs -- All Species -- State Forestry Department Scaling Practices (Northwest Log Rules Eastside). Items with * follow U.S. Forest Service Eastside rules.

(8) Weight Scale Sample – Check box if sale is to be a Weight Scale Sample. All specifics for handling, scaling and processing will be attached or explained in the Remarks section Item (19).

(9) Weight Sale – Check box if sale is to be sold as a weight sale. Processing procedures from approved locations to TPSO's will be explained in the Remarks section of Item (19).

(10) Per Load – Check box if volumes on sale are per load. Specific instructions for handling and processing will be fully explained in the Remarks section of Item (19).

(11) Show scaling locations only applicable to TPSO. Location name should appear as it does on the ODF Approved Scaling Location web site: http://www.odf.state.or.us/DIVISIONS/management/asset_management/ScalingLocation.asp Locations with scaling and processing directions specific to their location should be on a separate form. Species should be identified if not capable of receiving "all" species. Check appropriate box for either: yard, truck scale, or weight. Refer to the web site listed above for the locations approval status.

(12) When logging and hauling is complete, recall branding hammers, date and sign where indicated, check CANCELLATION box in Item (1), and send to TPSO.

(13) Enter sale name and county

(14) .Enter sale Contract number.

(15) Enter Oregon's State Brand Registry Number (required).

(16) Show brand assigned to timber sale. One brand only. If more than one brand is assigned to the sale: (1) make separate form for each brand and (2) on each form, explain and show other brand(s) in the Remarks section Item (19).

(17) Check yes for Paint Required and designate "Orange" for color. Non required removal volumes may sometimes require blue paint.

(18) Special Requests. These are requests that will be applied to ODF timber sales. If "Other" is indicated, it must contain a description and any necessary comments.

(19) Use this space to designate any weight conversion factors, per load volumes, weight scale sample instructions or any other explanations to clarify scaling or processing requirements. If additional scaling locations are approved, prepare another form showing all (old and new) locations. Check REVISION box at top of form and explain under remarks. Route as indicated.

(20) Require purchaser to sign and date completed form.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SUBGRADE WIDTH	SURFACED WIDTH	POINT TO POINT	STATION TO STATION	DRAINAGE
14 feet	N/A	1A to 1B	0+00 to 6+00	Outsloped
14 feet	N/A	1C to 1D	0+00 to 1+10	Outsloped
16 feet	12 feet	2A to 2B	0+00 to 14+00	Ditch
14 feet	N/A	2A to 2B	14+00 to 19+60	Outsloped
16 feet	12 feet	2C to 2D	0+00 to 3+70	Ditch
16 feet	12 feet	2E to 2F	0+00 to 10+65	Ditch
16 feet	12 feet	2G to 2H	0+00 to 4+20	Ditch
16 feet	12 feet	3A to 3B	0+00 to 9+50	Ditch
16 feet	12 feet	3C to 3D	0+00 to 5+80	Ditch
16 feet	12 feet	I1 to I2	0+00 to 124+00	Ditch
16 feet	12 feet	I3 to I4	0+00 to 27+80	Ditch
16 feet	12 feet	I5 to I6	0+00 to 64+55	Ditch
16 feet	12 feet	I7 to I8	0+00 to 39+30	Ditch

CLEARING. This work shall consist of clearing, removing, and disposing of all trees, Snags, Down Timber, brush, surface objects, and protruding obstructions within the clearing limits.

Where clearing limits have not been marked, the clearing limits shall extend 5 feet back of the top of the cutslope and 5 feet out from the toe of the fill slope, or as directed by STATE. Clearing debris shall not be placed or permitted to remain in or under any road embankment sections. Clearing debris shall not be left lodged against standing trees.

All danger trees, leaners, and Snags outside the clearing limits which could fall and hit the road shall be felled.

GRUBBING. This work shall consist of the removal or digging out of stumps and protruding objects.

All stumps shall be completely removed within the limits of required grubbing. Stumps overhanging cutslopes shall be removed. Grubbing debris shall not be placed or permitted to remain in or under any road embankment sections. Grubbing debris shall not be left lodged against standing trees.

GRUBBING CLASSIFICATION.

New construction - from the top of the cutslope to the toe of the fill.

Improvements and reconstructions - 5 feet back from the shoulder of the subgrade or ditch, whichever is widest, or as marked in the field.

CLEARING AND GRUBBING DISPOSAL. Scatter in stable locations through openings in the timber outside of the cleared right-of-way, except areas where end-haul is required. In areas where end-haul is required, clearing and grubbing debris shall be fully contained and hauled to a designated waste area. Clearing and grubbing debris shall be left in a stable location, and not left lodged against standing trees.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

EXCAVATION. Excavation and grading shall not be done when weather and/or ground conditions are such that damage will result to existing subgrade or cause excessive erosion.

Excavation shall conform to STATE-specified lines, grades, dimensions, and plans when provided. Plans are available for Project No. 3, between points 0+00 to 2+50 (Stream Crossing Structure) on Road Segment I3 to I4, and for portions of road segments 2A to 2B, and 2C to 2D, and road segments 2E to 2F, and 2G to 2H at the Astoria District Office.

Unless road plans show otherwise, all roads shall be on a balanced cross section, except when the slope is over 50 percent, the road shall be on full bench for the width specified.

Suitable excavated material shall be used for the formation of fills, shoulders, and drainage structure backfills. Embankment materials shall be free of woody debris, brush, muck, sod, frozen material, and other deleterious materials.

Sidecast includes any road generated excess excavation material which is not essential as part of the road prism, is not compacted, and is below the roadway. Sidecast shall not be placed where it will enter a stream course. Leaving sidecast below the road is only permissible if specifically allowed in "Full Bench and End Haul Requirements" in this Exhibit.

All fills shall be machine compacted according to the "Compaction and Processing Requirements" in this Exhibit.

ROAD WIDTH LIMITATIONS. PURCHASER shall obtain advance written approval from STATE to construct the road to a greater width than specified. Extra subgrade width shall be required for:

Fill Widening. Add to each fill shoulder 1 foot for fills 3 feet to 6 feet high; 2 feet for fills over 6 feet high.

Curve Widening. Widen the inside shoulder of all curves as specified in the plans or as follows: 400 divided by the radius of the curve equals the amount of extra width.

DRAINAGE

Subgrade. Subgrade shall be crowned at 4 to 6 percent as shown on the "Forest Road Specifications" table in this Exhibit for roads to be rocked and at 4 to 6 percent outsloped for non-surfaced roads..

Ditch. Construct "V" shaped ditch 3 feet wide and to a depth of 1 foot below subgrade.

Ditchouts. Construct ditchouts to drain away from subgrade at locations marked in the field or as directed by STATE.

TURNOUTS. Increase roadbed width an additional 8 feet for both subgrade and surfacing. Length shall be at least 50 feet, or as staked on the ground, plus 25-foot approaches at each end.

Location: Intervisible but not greater than 750 feet apart and as marked in the field.

SLOPES	Back Slopes	Fill Slopes
Solid Rock	Vertical to ¼ :1	
Fractured Rock	½ :1	
Soil - side slopes 50% and over	¾ :1	1½:1
Soil - side slopes less than 50%	1 :1	1½:1

Top of cutslope shall be rounded.

LANDINGS. Landings shall be constructed as posted in the field, no less than 50 feet wide and no more than 70 feet wide unless otherwise approved by STATE. Surface is to be crowned for drainage with general grade no more than 3 percent. Surface as shown in the "Road Surfacing" table in this Exhibit.

TURNAROUNDS. Increase subgrade width an additional 20 feet for a length of 20 feet at locations marked in the field.

SEASONAL WINTERIZATION. All unsurfaced roads or unfinished subgrades shall be waterbarred in accordance with the specifications in Exhibit J, and blocked from vehicular traffic prior to October 1, annually and as directed by STATE.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD CONSTRUCTION INSTRUCTIONS

(1) Timber Removal. Remove all trees within posted right-of-way boundary as specified in Section 2210, "Designated Timber".

(2) Excavated Materials. Excavated materials shall be utilized for road construction. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Surplus excavated materials and waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with this Exhibit. Excess excavated material not used for embankment shall be sidecast on slopes up to 50) percent or end hauled to waste areas as shown on Exhibit A and marked in the field or be used for fill.

(3) Fill Armor and Energy Dissipator Construction. Where rock is specified for fill armor, rock shall be machine placed and tamped at a 1½:1 slope, beginning at the toe of the fill. Where rock is used for an energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, in accordance with Exhibit G.

(4) Fill Material. For segment 2A to 2B, and 2C to 2D, utilize end haul material from 2A to 2B, or quarry reject material, located at the California Barrel Borrow Site to construct fill and subgrades, as directed by STATE.

(5) Geotextile Road Fabric: Install woven geotextile fabric on Road Segment 2A to 2B, from Station 2+00 to 7+00, and around the footing base on at Stations 1+37.5 and 1+64.5 on I3 to I4 of Project No. 3 in accordance with the specifications in Exhibit I.

(6) Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic-yard, track-mounted excavator.

(7) Subgrade Preparation and Application of Surfacing Rock.

(a) Complete culvert installations, drainage ditches, ditchouts, fill construction, and other specified work prior to the application of surfacing rock.

(b) Subgrade shall be crowned at 4 to 6 percent for surfaced roads and at 4 to 6 percent outsloped on unsurfaced roads.

(c) Upon completion of above required work, apply, process, and compact surfacing rock in accordance with specifications in the "Compaction and Processing Requirements" in this Exhibit. Final road surface shall be crowned at 4 to 6 percent for surface roads and at 4 to 6 percent outsloped on unsurfaced roads.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

Segment	Station	Work Description:
2A to 2B	2+00	Begin subgrade reinforcement and woven geotextile fabric. Utilize 300 cubic yards 6"-0" pit-run rock, and utilize any excess end haul material from Station 14+00 to 18+00.
	7+00	End subgrade reinforcement and woven geotextile fabric.
	14+00	Begin full containment, end haul section, and outsloped subgrade.
	18+00	End full containment and end haul section.
2C to 2D	0+75	Install 30" x 50' ACSP, 16 gauge, and utilize 40 cubic yards of 1½"-0" crushed rock for culvert bedding and 100 cubic yards of 24"-6" riprap for upstream fill armor. Utilize approximately 2,000 cubic yards of end haul material for fill.
2G to 2H	1+83	Remove old fill and install 36" x 55' ACSP, 16 gauge, and utilize 50 cubic yards of 24"-6" riprap for the culvert base, 40 cubic yards of 1½"-0" crushed rock for culvert bedding, and 100 cubic yards of 24"-6" riprap for armor on the inlet and outlet. Utilize approximately 1,000 cubic yards of drifted material for fill.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS

(1) Timber Removal. Remove all trees within posted Right-of-Way Boundary, as specified in Section 2210, Designated Timber.

(2) Excavated Materials. Excavated materials shall be utilized for road construction. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Surplus excavated materials and waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with this Exhibit. Excess excavated material not used for embankment shall be sidecast on slopes up to 50 percent, or end hauled to waste areas as shown on Exhibit A and marked in the field, or be used for fill.

(3) Bank Slough Removal. Dig out all bank slough. Bank slough material shall not be pulled across existing surfacing rock, but shall be placed in nearby waste areas and uniformly sloped and compacted for drainage, as directed by STATE. Waste materials shall be seeded and mulched in accordance with specifications in Exhibit K.

(4) Culvert Replacement, Culvert Installation, Fill Reconstruction, and Fill Removal. Existing culvert geometry shall be modified to provide for optimum drainage and culvert performance. Modifications may include, skewing the culvert and/or installing the culvert at gradients equal to or exceeding the drainage (or ditch) gradient. Where fill reconstruction or culvert replacement is specified, fills shall be excavated to natural stream course levels. All woody debris encountered during fill excavation shall be removed. All waste materials shall be hauled to nearby waste areas and shall be uniformly sloped and compacted for drainage. Waste materials shall be seeded and mulched in accordance with specifications in Exhibit K. Fill reconstruction backfill shall consist of select materials and may be obtained from borrow pits, as directed by STATE. Backfill materials shall be hauled in where necessary and thoroughly compacted in accordance with this Exhibit. Crushed rock shall be used for backfilling excavation trenches less than 3 feet deep. STATE may require the use of crushed rock for culvert bedding. Removed culverts shall be hauled to an approved refuse site off of STATE land.

(5) Drainage Ditches. Restore or construct ditchlines, including ditchouts, as directed by STATE. Clean out all culvert inlets and outlets for a 10-foot radius. Re-establish or construct culvert sediment basins. Waste materials from drainage ditches and sediment basins shall not be pulled across existing surfacing rock, but shall be placed in nearby waste areas and uniformly sloped and compacted for drainage, as directed by STATE. Damaged culvert inlets and/or outlets shall be repaired by opening them with a hydraulic jack, or cutting off the culvert end to allow for free passage of water at peak flow levels. Install a culvert marker at each newly installed culvert and at each existing culvert that is missing a marker that could be reached by a grader blade.

(6) Fill Armor and Energy Dissipator Construction. Where rock is specified for fill armor, rock shall be machine placed and tamped at a 1½:1 slope, beginning at the toe of the fill. Where rock is used for an energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, in accordance with Exhibit G.

(7) Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic yard, track-mounted excavator.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS

(8) Subgrade Preparation and Application of Surfacing Rock.

(a) Complete culvert installations, drainage ditches, fill reconstruction, ditchouts, and other specified work prior to the application of new surfacing rock.

(b) Cut out all potholes and/or washboard sections from the existing surfacing.

(c) Apply required patching and leveling rock, as directed by STATE.

(d) Process (grade and mix) the existing surface and added base rock. Provide for a crown of 4 to 6 percent, and compact in accordance to the "Compaction and Processing Requirements" in this Exhibit.

(e) Upon completion of above required work, apply, process, and compact surfacing rock in accordance to this Exhibit.

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description
I1 to I2	0+00	Bridge maintenance and repair. Utilize 50 cubic yards of 24"-6" riprap and 10 cubic yards of ¾"-0" crushed rock to repair scour and armor stream banks on the South abutment. Place riprap and crushed rock as directed by STATE. Dislodge log jam on downstream side of bridge. Leave all logs in the stream channel. Develop stream channel under the bridge to prevent scouring of abutments. Slope and pullback areas disturbed by the project. Grass seed and mulch as specified in Exhibit K.
	14+60	Begin construction of "Y" junction with road segment I3 to I4. See Exhibit H, Page 4.
	16+00	End construction of "Y" junction with road I3 to I4.
	24+55	Replace culvert with 18" X 40' CPP and utilize 11 cubic yards of 1½"-0" crushed rock for culvert bedding.
	54+70	Install 18" X 40' CPP and Utilize 11 cubic yards of 1½"-0" crushed rock for culvert bedding, and 10 cubic yards of 24"-6" riprap for energy dissipator.
	96+75	Replace culvert with 18" X 30' CPP. Utilize 11 cubic yards of 1½"-0" crushed rock for culvert bedding. Utilize existing dissipator rock on site.
	98+95	Replace culvert with 18" X 30' CPP. Utilize 11 cubic yards of 1½"-0" crushedrock for culvert bedding. Utilize existing dissipator rock on site.
	107+10	Install 18" X 40' CPP, and Utilize 11 cubic yards of 1½"-0" crushed rock for culvert bedding, and 10 cubic yards of 24"-6" riprap for energy dissipator.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description
I3 to I4	0+00	Point I3. Begin road improvement and "Y" junction. Construct "Y" junction according to plans on file at the Astoria District office. "Y" junction finished grade to blend in smoothly with road segment I1 to I2. Begin application of 6"-0" pit-run and ¾"-0" crushed rock.
	1+28	End "Y" junction.
	1+37.5	West abutment of Concrete Box Culvert to be installed as specified in Exhibit H. Concrete Box Culvert span shall be 26 feet 7 inches on a 20° skew, minimum deck width inside curb of 23 feet 4 inches, with a rise of 8 feet. Finished road surface width across the box culvert will be 14 feet. Utilize 18 cubic yards of 6"-0" pit-run for filler tapering east to west allowing for a uniform 12 inch surface depth of 1½"-0" crushed rock. Utilize 23 cubic yards of 1½"-0" crushed rock for concrete box culvert deck surfacing.
	1+64.8	East abutment of Concrete Box Culvert. Begin tapering with 6"-0" pit-run into remaining road improvement surfacing. Utilize 17 cubic yards of 6"-0" pit-run for tapering.
	2+27	End application of 6"-0" pit-run rock.
	2+54	Install 18" X 35' CPP. Utilize 22 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill. Utilize 22 cubic yards of 24"-6" riprap for energy dissipator.
	4+90	Install 18" X 30' CPP. Utilize 11 cubic yards of 1½"-0" crushed rock for culvert bedding.
	8+87	Install 18" X 35' CPP. Utilize 11 cubic yards of 1½"-0" crushed rock for culvert bedding, and 10 cubic yards of 24"-6" riprap for energy dissipator.
	11+15	Install 18" X 35' CPP, and Utilize 11 cubic yards of 1½"-0" crushed rock for culvert bedding.
	10+40	Construct Landing right.
	14+15	Replace culvert with 18" X 30' CPP. Utilize 11 cubic yards of 1½"-0" crushed rock for culvert bedding, and 10 cubic yards of 24"-6" riprap for energy dissipator.
	17+40	Construct Landing right.
	17+75	Install 18" X 45' CPP, and Utilize 11 cubic yards of 1½"-0" crushed rock for culvert bedding.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description
I5 to I6	10+15	Utilize 20 cubic yards of 24"-6" riprap for fill armor on left.
	13+75	Utilize 22 cubic yards of ¾"-0" crushed rock for road surface repair and leveling.
	22+50	Replace culvert with 18" X 30' CPP. Utilize 11 cubic yards of 1½"-0" crushed rock for culvert bedding.
I7 to I8	6+00	Construct Landing right.
	6+25	Replace culvert with 18" X 35' CPP. Utilize 22 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill, and 10 cubic yards of 24"-6" riprap for energy dissipator.
	9+20	Replace culvert with 18" X 40' CPP. Utilize 22 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill, and 10 cubic yards of 24"-6" riprap for energy dissipator, and 40 cubic yards of 24"-6" riprap for fill armor.
	10+85	Replace culvert with 24" X 40' CPP. Utilize 22 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill, and 10 cubic yards of 24"-6" riprap for energy dissipator, and 40 cubic yards of 24"-6" riprap for fill armor.
	12+00	Replace culvert with 24" X 40' CPP. Utilize 22 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill, and 10 cubic yards of 24"-6" riprap for energy dissipator.
	12+70	Replace culvert with 18" X 35' CPP. Utilize 22 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill.
	14+35	Replace culvert with 24" X 40' CPP. Utilize 22 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill, and 10 cubic yards of 24"-6" riprap for energy dissipator, and 40 cubic yards of 24"-6" riprap for fill armor.
	15+25	Replace culvert with 18" X 35' CPP. Utilize 22 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill.
	16+30	Gate.

EXHIBIT D

FULL BENCH AND END-HAUL REQUIREMENTS

POINT TO POINT	STA. TO STA.	CONTAINMENT - SIDECAST	WASTE AREA LOCATION	WASTE AREA TREATMENT
2A to 2B	16+00 to 18+00	1	2, 3, and 4	None
I3 to I4	0+00 to 2+50	1	1	1, 2, & 3

Full Bench and End-Haul Areas General Requirements

Sidecast includes any road generated excess excavation material which is not essential as part of the road prism, is not compacted, and is below the roadway. Material shall not be sidecast unless specified above.

Clearing and grubbing debris shall be end-hauled, or placed in a stable location approved by STATE.

When controlled blasting is required, it shall be accomplished using timing devices, delayed charges, low intensity shots, or other suitable means to contain material within the road prism.

Containment/Sidecast

(1) Full: No excavated material remains below the road

(2) Normal/Incidental: The amount of excavated material lost over the outside edge of the road shall not exceed 1 foot in depth.

(3) Sidecast: Material shall be spread evenly below the road so that it does not build up behind trees, snags or other debris, and shall not exceed 3 feet in depth.

Any amount of material exceeding the containment requirements shall be removed by whatever means necessary and end-hauled to a designated waste area.

Waste Area Location

(1) As shown on Exhibit A and as marked in the field.

(2) Set stumps back from upper slope break. Material shall be set a minimum of 20 feet horizontal measurement.

(3) Use for subgrade and fill construction on Road Segment 2C to 2D Station 0+30 to 2+00 and compact for fill.

(4) Utilize any excess material for subgrade on Road Segment 2A to 2B Station 2+00 to 7+00.

Waste Area Treatment

(1) Deposit at waste area, spread evenly, compact, and provide adequate drainage.

(2) Pile woody debris separate from other waste material.

(3) Mulch and seed all waste areas in accordance with Exhibit K.

EXHIBIT D

ROAD SURFACING

ROAD SEGMENTS	2A to 2B			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A to 2B Volume (CY) per		0+00 to 19+60 Number of		TOTAL VOLUME (CY)
Base Rock	6"-0" pit-run	0+00 to 14+00	9	station	56	stations	14	784
Junctions	6"-0" pit-run	2C	N/A	junction	33	junctions	1	33
Turnouts	6"-0" pit-run	6+50 8+50	N/A	turnout	22	turnouts	2	44
Subgrade reinforcement	6"-0" pit-run	2+00 to 7+00	N/A	N/A	N/A	N/A	N/A	300
Total Rock for Road Segment:			2A to 2B					1,161
ROAD SEGMENT	2C to 2D			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	2C to 2D Volume (CY) per		0+00 to 3+70 Number of		TOTAL VOLUME (CY)
Base Rock	6"-0" pit-run	0+00 to 3+70	9	station	56	stations	3.7	207
Culvert Bedding	1½"-0" crushed	0+75	N/A	culvert	40	culverts	1	40
Fill Armor	24"-6" riprap	0+40 to 1+40	N/A	fill	100	fills	1	100
Landings	6"-0" pit-run	3+70	N/A	landing	50	landings	1	50
Total Rock for Road Segment:			2C to 2D					397
ROAD SEGMENT	2E to 2F			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	2E to 2F Volume (CY) per		0+00 to 10+65 Number of		TOTAL VOLUME (CY)
Base Rock	6"-0" pit-run	0+00 to10+65	9	station	56	stations	10.65	597
Surface Traction Rock	3/4"-0" crushed	0+50 to 8+50	2	station	13	stations	8.00	104
Turnouts	6"-0" pit-run	2+80, 7+00	N/A	turnout	22	turnouts	2	44
Junctions	6"-0" pit-run	2G	N/A	junction	33	junctions	1	33
Landings	6"-0" pit-run	10+65	N/A	landing	50	landings	1	50
Total Rock for Road Segment:			2E to 2F					828
ROAD SEGMENT	2G to 2H			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	2G to 2H Volume (CY) per		0+00 to 4+20 Number of		TOTAL VOLUME (CY)
Base Rock	6"-0" pit-run	0+00 to 4+20	9	station	56	stations	4.2	235
Fill Widening	6"-0" pit-run	1+45 to 1+90	9	fill	20	fills	1	20
Culvert Bedding	1½"-0" crushed	1+80	N/A	culvert	40	culverts	1	40
Culvert Bedding	24"-6" riprap	1+80	N/A	culvert	50	culverts	1	50
Dissipator Rock	24"-6" riprap	1+05, 2+35	N/A	culvert	10	culverts	2	20
Fill Armor-inlet/outlet	24"-6" riprap	1+45 to 1+90	N/A	fill	100	fills	1	100
Landings	6"-0" pit-run	4+20	N/A	landing	50	landings	1	50
Total Rock for Road Segment:			2G to 2H					515

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT	3A to 3B			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	3A to 3B Volume (CY) per		0+00 to 9+50 Number of		TOTAL VOLUME (CY)
Base Rock	6"-0" pit-run	0+00 to 9+50	9	station	56	stations	9.5	532
Junctions	6"-0" pit-run	3C	N/A	junction	33	junctions	1	33
Dissipator Rock	24"-6" riprap	1+50, 7+60	N/A	culvert	10	culverts	2	20
Landings	6"-0" pit-run	6+20, 9+50	N/A	landing	80	landings	2	160
Total Rock for Road Segment:			3A to 3B					745
ROAD SEGMENT	3C to 3D			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	3C to 3D Volume (CY) per		0+00 to 5+80 Number of		TOTAL VOLUME (CY)
Base Rock	6"-0" pit-run	0+00 to 5+80	9	station	56	stations	5.8	325
Dissipator Rock	24"-6" riprap	3+75	N/A	culvert	10	culverts	1	10
Landings	6"-0" pit-run	5+80	N/A	landing	80	landings	1	80
Total Rock for Road Segment:			3C to 3D					415
ROAD SEGMENT	I1 to I2			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	I1 to I2 Volume (CY) per		0+00 to 124+00 Number of		TOTAL VOLUME (CY)
Surface Rock	3/4"-0" crushed	0+00 to 46+00	1	station	6	stations	46.0	276
Surface Rock	3/4"-0" crushed	46+00to124+00	1	station	6	stations	78.0	468
Curve Widening	3/4"-0" crushed	0+00 to 46+00	N/A	curve	11	curves	5	55
Curve Widening	3/4"-0" crushed	46+00to124+00	N/A	curve	11	curves	5	55
Turnouts	3/4"-0" crushed	0+00 to 46+00	N/A	turnout	11	turnouts	6	66
Turnouts	3/4"-0" crushed	46+00to124+00	N/A	turnout	11	turnouts	10	110
Junctions	3/4"-0" crushed	0+00 to 46+00	N/A	junction	22	junctions	5	110
Junctions	3/4"-0" crushed	46+00to124+00	N/A	junction	22	junctions	5	110
Surface Rock on Switchback	3/4"-0" crushed	55+00 to 58+00	2	station	13	stations	3.0	39
Bridge Repair	3/4"-0" crushed	0+00	N/A	project	10	projects	1	10
Bridge Repair	24"-6" riprap	0+00	N/A	project	50	projects	1	50
Culvert Bedding	1½"-0" crushed	See Culvert list	N/A	culvert	11	culverts	5	55
Dissipator Rock	24"-6" riprap	54+70,107+10	N/A	culvert	10	culverts	2	20
Total Rock for Road Segment:			I1 to I2					1,424
ROAD SEGMENT	I3 to I4			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	I3 to I4 Volume (CY) per		2+50 to 27+80 Number of		TOTAL VOLUME (CY)
Surface Rock	1½"-0" crushed	2+50 to 27+80	4	station	19	stations	25.3	481
Curve Widening	1½"-0" crushed		N/A	curve	11	curves	6	66
Turnouts	1½"-0" crushed		N/A	turnout	22	turnouts	4	88
Junctions	6"-0" pit-run	1A	N/A	junction	33	junctions	1	33
Junctions	1½"-0" crushed	1A	N/A	junction	22	junctions	1	22
Culvert Bedding	1½"-0" crushed	See Culvert list	N/A	culvert	11	culverts	6	66
Dissipator Rock	24"-6" riprap	2+54, 8+87, 14+15	N/A	culvert	10	culverts	3	30
Landings	6"-0" pit-run	10+40,17+40, 21+40	N/A	landing	80	landings	3	240
Total Rock for Road Segment:			I3 to I4					1026

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT	I3 to I4	Project No. 3		POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	I3 to I4 Volume (CY) per		0+00 to 2+50 Number of		TOTAL VOLUME (CY)
Base Rock	6"-0" pit-run		10	station	63	stations	2.27	143
Box Culvert and approaches	6"-0" pit-run		10	N/A	25	N/A	0.25	25
"Y" Junction	6"-0" pit-run		10	station	63	stations	0.77	49
Fill Widening	6"-0" pit-run		10	N/A	3	N/A		3
Curve Widening	6"-0" pit-run		10	N/A	63	N/A		63
"Y" Junction (fill in)	6"-0" pit-run		N/A	N/A	N/A	N/A		11
Box Culvert deck	6"-0" pit-run		N/A	deck	14	deck	1	18
Select Backfill (Borrow)	6"-0" pit-run		N/A	N/A	N/A	N/A		481
East Approach	6"-0" pit-run		N/A	N/A	N/A	N/A		17
Surface Rock	1½"-0" crushed		4	station	25	stations	3.02	76
Box Culvert deck	1½"-0" crushed		4	N/A	18	N/A		23
Footing material	3/4"-0" crushed		N/A	footing	n/a	footings	2	28
"Y" Junction	1½"-0" crushed		N/A	N/A	10	N/A		10
Fill Widening	1½"-0" crushed		4	N/A	2	N/A		2
Curve Widening	1½"-0" crushed		4	N/A	25	N/A		25
"Y" Junction (fill in)	1½"-0" crushed		N/A	N/A	5	N/A		5
Footing material	24"-6" riprap		N/A	N/A	N/A	N/A		80
Fill Armor	24"-6" riprap		N/A	N/A	N/A	N/A		88
Channel Riprap	24"-6" riprap		N/A	N/A	N/A	N/A		77
Total Rock for Road Segment:			I3 to I4	Project No. 3				1,224

ROAD SEGMENT	I5 to I6			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	I5 to I6 Volume (CY) per		0+00 to64+55 Number of		TOTAL VOLUME (CY)
Surface Rock	3/4"-0" crushed	0+00 to 64+55	2	station	13	stations	64.6	839
Surface Rock -Y Junction (I5)	3/4"-0" crushed	0+00 to 3+00	2	station	13	stations	3.0	39
Curve Widening	3/4"-0" crushed		N/A	curve	11	curves	6	66
Leveling Rock	3/4"-0" crushed	13+75	N/A	N/A	N/A	N/A	22	22
Turnouts	3/4"-0" crushed		N/A	turnout	11	turnouts	3	33
Junctions	3/4"-0" crushed		N/A	junction	22	junctions	3	66
Junctions	6"-0" pit-run	2A, 2E	N/A	junction	33	junctions	2	66
Culvert Bedding	1½"-0" crushed	22+50	N/A	culvert	11	culverts	1	11
Fill Armor	24"-6" riprap	10+15	N/A	fill	20	fills	1	20
Total Rock for Road Segment:			I5 to I6					1,162

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT	I7 to I8			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	I7 to I8 Volume (CY) per		0+00 to 39+30 Number of		TOTAL VOLUME (CY)
Surface Rock	4"-0" Crushed	0+00 to 16+30	6	station	38	stations	16.3	620
Curve Widening	4"-0" Crushed		N/A	curve	11	curves	4	44
Turnouts	4"-0" Crushed		N/A	turnout	11	turnouts	1	11
Junctions	4"-0" Crushed	3A	N/A	junction	33	junctions	1	33
Culvert Bedding	1½"-0" crushed	See Culvert list	N/A	culvert	22	culverts	7	154
Dissipator Rock	24"-6" riprap	6+25, 9+20, 10+85, 12+00, 14+35	N/A	culvert	10	culverts	5	50
Fill Armor	24"-6" riprap	9+20, 10+85, 14+35	N/A	fill	40	fills	3	120
Landings	6"-0" pit-run	0+50, 6+00		landing	80	landings	2	160
Total Rock for Road Segment:			I7 to I8					1,192

ROCK TOTALS (CY)	24"-6" riprap	6"-0" pit-run	4"-0"	1½"-0"	3/4"-0"
10,088	835	4,886	707	1,164	2,496

Roads shall be uniformly graded, shaped and approved by STATE prior to rocking.

EXHIBIT D

ROCK ACCOUNTABILITY

PURCHASER shall obtain subgrade approval from STATE prior to rocking. Rocking shall be limited to periods when weather conditions are acceptable to STATE and when sediment will not enter streams. Additional surfacing needed because of construction season or construction practice is not included in the preceding ROAD SURFACING table, and shall be furnished at PURCHASER expense.

Rock accountability shall be determined by the following methods, as directed by STATE. STATE shall be given 24 hours' notice prior to rocking.

Rock Checking. All rock spreading shall be done only when a STATE representative is present. STATE shall issue a receipt for each load delivered, and rock shall be measured without allowance for shrinkage or shakedown during hauling. Total truck measure volume for each road segment shall be as shown on Exhibit D. Deliver at least 600 cubic yards per 8-hour shift, unless otherwise approved by STATE. A penalty of $10 for each 10 cubic yards which are not delivered during a single shift shall be billed, and payment shall be required prior to final acceptance of the project by STATE.

Depth Measurement. Rock shall be spread and compacted according to the depths specified in Exhibit D. Truck measure volumes are given, but shall not limit the amount of rock spread.

Depth shall be determined in the most compacted area of the surface cross section. The depth of compacted aggregates shall not vary more than 1 inch from the depth specified in the "Road Surfacing" table in Exhibit D. The average depth for each road segment shall be the specified depth or greater. If additional rock is required because of insufficient depth, the locations and volumes to be added shall be determined by STATE.

Load Records. Notify STATE before spreading the rock and maintain a record of all rock delivered for spreading. Make the record available for STATE inspection. A report listing the amount of rock delivered the prior month must be submitted no later than the 15th of each month.

EXHIBIT D

COMPACTION AND PROCESSING REQUIREMENTS

Moisture Content: Compaction must take place when moisture content of the materials being compacted is favorable for effective compaction as determined by STATE.

Compaction Pass: A pass is defined as traveling a road section forward and then backward over that same section.

Subgrade. Subgrade surfaces of the road segments listed below shall be graded and compacted prior to rocking. Compaction shall be accomplished by traveling all surfaces from shoulder to shoulder until the surface is smooth and hard and visible deformation ceases. At least 3 passes shall be made over the entire width and length of the road. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

Subgrade shall be crowned at 4 to 6 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All rocked road segments	1

Fills. Embankments and fills shall be placed in (approximately) horizontal layers not more than 8 inches in depth. Each layer shall be separately, and thoroughly, compacted. Compaction equipment shall be operated over the entire width of each layer until visible deformation of the layers ceases. At least 3 passes shall be made over the entire width and length of each layer.

Placing individual rocks or boulders with more depth than the allowed layer thickness shall be permitted, provided the embankment will accommodate them. Such rocks and boulders shall be at least 6 inches below the subgrade. They shall be carefully distributed and the voids filled with finer material, forming a dense and compacted mass. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments..	1, 2, or 3; and 4

Crushed Rock. The rock shall be uniformly mixed and spread in layers on the approved roadbed. Each layer of crushed rock shall be moistened or dried to uniform moisture content suitable for maximum compaction and compacted in layers not to exceed 6 inches in depth. When more than 1 layer is required, each shall be shaped and compacted before the succeeding layer is placed. Any irregularities or depressions that develop during compaction of the top layer shall be corrected by loosening the material at these places and adding or removing material until the surface is smooth and uniform. Each layer shall be compacted with a minimum of 3 passes over the entire width and length of the road until the surface is smooth and hard and visible deformation ceases. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

Rock shall be compacted and processed during the same project period it is spread, unless otherwise approved in writing by STATE.

Rock shall be crowned at 4 to 6 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments requiring crushed rock.	1

EXHIBIT D

COMPACTION AND PROCESSING REQUIREMENTS

Pit-Run Rock. The rock shall be uniformly mixed and spread in layers on the approved roadbed. Each layer of pit-run rock shall be moistened or dried to uniform moisture content suitable for maximum compaction and compacted in layers not to exceed 8 inches in depth. When more than 1 layer is required, each shall be shaped and compacted before the succeeding layer is placed. Any irregularities or depressions that develop during compaction of the top layer shall be corrected by loosening the material at these places and adding or removing material until the surface is smooth and uniform. Each layer shall be compacted with a minimum of 3 passes over the entire width and length of the road. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

Rock shall be crowned at 4 to 6 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
2A-2B (0+00 to 14+00), 2C-2D, 2E-2F, 2G-2H, 3A-3B, and 3C-3D, and I3-I4 (0+00 to 2+50).	5, or 5 & 6

COMPACTION EQUIPMENT OPTIONS

(1) Vibratory Rollers. The drum shall have a smooth surface, a diameter not less than 48 inches, a width not less than 58 inches, and a turning radius of 15 feet or less. (*Vibration frequency shall be regulated in steps to 1400, 1500, and 1600 VPM, corresponding to engine speeds of 1575, 1690, and 1800 RPM. The centrifugal force developed shall be 7 tons at 1600 VPM. It shall be activated by a power unit of not less than 25 horsepower.) The vibratory roller shall be self-propelled and operated at speeds ranging from 0.9 miles to 1.8 miles per hour, as directed by STATE.

(2) Rubber-Tired Skidders. A rubber-tired skidder weighing a minimum of 20,000 pounds shall be operated over the fill layers so that the entire layered surface comes in contact with the tires. Skidders with oversized tires (high flotation) are not acceptable for compaction.

(3) Tampingfoot Compactors. Tampingfoot compactors shall exert a minimum pressure of 250 pounds per square inch on the ground area in contact with the tamping feet. The compactor shall cover a minimum width of 60 inches per pass and weigh a minimum of 16,000 pounds.

(4) Vibratory Hand-Operated or Backhoe-Mounted Tamper. Vibratory hand-held or hydraulic tampers shall be used for compaction of backfill materials around culverts (and/or bridge approach embankment materials around abutments). The tamper shoe dimensions shall be a minimum of 10" X 13" and capable of a centrifugal force of 2,250 pounds.

(5) Vibratory Grid Rollers. Pit run rock shall be processed by grid roller fully equipped with 32,000 pounds or more of ballast weights. Twenty passes shall be made with a grid roller over the entire length and width of the road, unless STATE requires fewer passes. A grader weighing at least 20,000 pounds shall work the pit-run surface during grid rolling so that all pit-run rock comes in contact with the grid roller. Grid rolling shall be performed when the subgrade is dry and firm. Road surface shall be uniformly shaped and graded prior to and during grid rolling.

(6) Dozer. A dozer weighing 40,000 pounds or larger shall be operated over the entire layered road surface to break and compact the rock. All rock shall come in contact with the dozer.

EXHIBIT E

CULVERT SPECIFICATIONS

All culvert materials shall be furnished and installed by PURCHASER, unless otherwise specified in the Contract.

Culverts shall be constructed of corrugated double-walled polyethylene, or corrugated aluminized (Type 2) steel.

Polyethylene culverts shall be double-walled and meet the requirements of AASHTO M-294-06, Type S Culvert.

Aluminized (Type 2) steel culverts shall meet the requirements of AASHTO M-36-03[1].

Polyethylene culverts shall not be used where required culvert diameter is over 24 inches.

Polyethylene joints shall be made with split couplings, corrugated to engage the culvert corrugations, and shall engage a minimum of 4 corrugations, 2 on each side of the culvert joint.

Culverts shall be located according to the alignment and grade as shown on the Plan and Profile, and/or as staked in the field, or as specified in special instructions.

The STATE Representative shall determine final culvert locations and stake the locations in the field prior to installation.

Cross drain culverts on road grades in excess of 3 percent shall be skewed at least 30 degrees from perpendicular to the road centerline, except that cross drain culverts at the low point of dips in roads shall not be skewed.

Cross drain culverts shall be installed at a slope steeper than the incoming ditch grade, but not less than 3 percent or greater than 10 percent.

The foundation and trench walls for all culverts shall be free from logs, stumps, limbs, stones, and other objects which would dent or damage the culvert. The culvert trench shall be excavated 3 culvert diameters wide to permit compaction and working on each side of the culvert. Tamping shall be done in 6-inch lifts, 1 culvert diameter each side of the culvert. Bedrock shall be excavated as required to provide a uniform foundation for the full length of the culvert.

A bedding of crushed rock or rock crusher reject as specified shall be placed to provide a wide band of support and to transmit the load from above evenly over the entire length of the culvert for all stream crossing culverts and all new and replacement culverts installed in existing roads.

Backfill shall consist of crushed rock, or rock crusher reject, or job-excavated soil free of stumps, limbs, rocks, or other objects which would damage the culvert.

Transporting of the culvert shall be done carefully. Dragging or allowing free fall from trucks or into trenches shall not be permitted.

Minimum height of cover over top of culvert to subgrade when road is to be rocked shall be as follows: 12" for culverts 18" to 36" and 18" for culverts 42" to 96", add 6" for roads which will not be rocked. Minimum vertical cover for other designs shall be as specified by STATE.

Lengths of individual culvert sections shall be not less than 10 feet, unless otherwise provided for in special instructions.

EXHIBIT E

CULVERT SPECIFICATIONS

The ends of each culvert shall be free of logs and debris which would restrict the free flow of water.

The intake end of relief culverts shall be provided with a sediment catching basin 3 feet in diameter at the bottom. The outlet end of any culvert which would allow water to erode embankment soil shall be provided with an energy dissipator. Construct lead-off ditches away from culvert outlets where the slope gradients restrict the free flow of water.

Culverts greater than 24 inches in diameter shall have 1:1 beveled inlets.

Compaction by tamping utilizing a Vibratory Hand-Operated or Backhoe-Mounted Tamper is required for all culverts

All culverts scheduled for replacement shall become property of the PURCHASER and be removed from STATE land and hauled to an approved refuse site in the same project period in which replacement occurred.

The intake ends of culverts in fills less than 3 feet to the top of the culvert shall be marked by driving white fiberglass posts within 6 inches of the uphill side of the culvert. Posts shall be a minimum of 6 feet long and 2½ inches wide, with the spade driven 2 feet into the ground.

A manufacturer's certification that the product was manufactured, tested, and supplied in accordance with this specification shall be furnished to STATE upon request.

Following are the minimum standard gauges for steel culvert and coupling bands. Some culverts may require different gauges and may be found in the culvert listing.

	Steel Culvert	Thickness			Band Widths (")	
Dia.	Gauge	Uncoated	Coated	Band Gauges	Annular	Helical
18-24	16	(0.0598")	(0.064")	16	12	12
30-36	16	(0.0598")	(0.064")	16	12	12

CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	MATERIAL TYPE	GAUGE	ROAD SEGMENT POINT TO POINT	STATION
1	18	30	CPP	n/a	2A to 2B	0+50
2	18	30	CPP	n/a	2A to 2B	4+00
3	18	30	CPP	n/a	2A to 2B	7+50
4	18	30	CPP	n/a	2A to 2B	12+00
5	30	50	ACSP	16	2C to 2D	0+75
6	18	30	CPP	n/a	2C to 2D	1+60
7	18	40	CPP	n/a	2E to 2F	0+90
8	18	30	CPP	n/a	2E to 2F	4+10

EXHIBIT E

CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	MATERIAL TYPE	GAUGE	ROAD SEGMENT POINT TO POINT	STATION
9	18	30	CPP	n/a	2E to 2F	8+80
10	18	35	CPP	n/a	2G to 2H	1+05
11	36	55	ACSP	16	2G to 2H	1+80
12	18	30	CPP	n/a	2G to 2H	2+35
13	18	30	CPP	n/a	3A to 3B	1+50
14	18	35	CPP	n/a	3A to 3B	4+25
15	18	30	CPP	n/a	3A to 3B	7+60
16	18	30	CPP	n/a	3A to 3B	3+75
17	18	40	CPP	n/a	I1 to I2	24+55
18	18	40	CPP	n/a	I1 to I2	54+70
19	18	30	CPP	n/a	I1 to I2	96+75
20	18	30	CPP	n/a	I1 to I2	98+95
21	18	40	CPP	n/a	I1 to I2	107+10
22*	26' 7" x 25' x 8'		Concrete	n/a	I3 to I4	1+51
23	18"	35	CPP	n/a	I3 to I4	2+54
24	18"	30	CPP	n/a	I3 to I4	4+90
25	18"	35	CPP	n/a	I3 to I4	8+87
26	18"	35	CPP	n/a	I3 to I4	11+15
27	18"	30	CPP	n/a	I3 to I4	14+15
28	18"	45	CPP	n/a	I3 to I4	17+75
29	18"	30	CPP	n/a	I5 to I6	22+50
30	18	35	CPP	n/a	I7 to I8	6+25
31	18	40	CPP	n/a	I7 to I8	9+20
32	24	40	CPP	n/a	I7 to I8	10+85
33	24	40	CPP	n/a	I7 to I8	12+00
34	18	35	CPP	n/a	I7 to I8	12+70
35	24	40	CPP	n/a	I7 to I8	14+35
36	18	35	CPP	n/a	I7 to I8	15+25

* To be constructed

ACSP = Aluminized Steel, CPP = Polyethylene .

EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

(1) PURCHASER shall prepare a written development plan for the quarry and borrow area. The plan shall be submitted to STATE for approval prior to conducting any operation in quarry or borrow area. The plan shall include, but not be limited to:

- (a) Location of benches and roads to benches.
- (b) Disposal site for woody debris, overburden and reject material.
- (c) Time lines for rock quarry use.
- (d) Erosion Control measures.

(2) PURCHASER shall schedule and coordinate quarry and stockpile usage with other existing or planned activity requiring quarry or stockpile usage. PURCHASER shall notify STATE 5 days prior to the start of quarry or borrow area development activities.

(3) The quarry and borrow site shall be left in a condition free from overburden and debris. Access roads to the quarry, and the quarry floor, shall be cleared at the termination of use. Overburden shall be removed for a distance of 20 feet beyond the developed rock source.

(4) All overburden and reject material shall be hauled to the designated waste area as directed by STATE.

(5) PURCHASER shall conduct the operations relative to the disposal of waste material in such manner that sediment, rock, or debris shall not be washed, conveyed, or otherwise deposited in any stream.

(6) At the Elk Mountain Quarry and Borrow Site, remove all woody debris, including stumps and Slash. Removed material shall be hauled to the designated disposal areas, and piled as directed by STATE.

(7) Controlled blasting techniques shall be utilized for any blasting operations, and shall be accomplished using timing devices, delayed charges, low intensity shots, or other suitable means to contain as much material as possible within the quarry development area. PURCHASER shall maintain a comprehensive blasting log that contains all pertinent data for all blasting operations. The blasting log shall be submitted to the STATE after the completion of all blasting activity. The blasting log is intended for STATE record keeping purposes only.

(8) Benches shall be maintained/constructed at intervals of 40 feet or less in height and shall be a minimum of 20 feet in width. Any gravel or talus slopes shall be left with a working face at an angle of 60 percent or less. There shall be a minimum of one bench with an access road to it. Said bench shall be easily accessible with tractors.

(9) Quarry and Borrow source face shall be developed in a uniform manner. All quarry backslopes shall be left in a stable condition.

(10) Oversized material that is produced or encountered during development shall be broken down and utilized for riprap or pit-run as directed by STATE.

(11) The quarry and borrow site floors shall be developed to provide for drainage away from the rock source. All quarry, borrow site and stockpile site drainage ditches shall be maintained. Borrow site access roads shall be cleared and blocked upon completion of borrow site use as directed by STATE.

(12) Proper winterization and storm-water control measures such as waterbarring, drainage, utilization of filter bales, mulching and/or blocking access shall be constructed and maintained to protect the watershed and Project Work, as directed by STATE.

(13) Apply seed and mulch to the waste area, as specified in Exhibit K.

EXHIBIT F

PIT-RUN and RIPRAP ROCK SPECIFICATIONS

For 6"-0" Pit--Run	Passing	10" sieve	100%
	Passing	6" sieve	60-85%
	Passing	3" sieve	30-50%
	Passing	1/4" sieve	0-20%

For 24"-6" Riprap. A minimum of 50 percent of the material shall measure a minimum of 24 inches, measured in one dimension. Material shall be clean, well graded, and free of 2"-0" fines.

Control of gradation shall be by visual inspection by STATE.

State Timber Sale Contract
No. 341-10-47
Leonard Elk

EXHIBIT G

TYPICAL EMBEDDED ENERGY DISSIPATOR

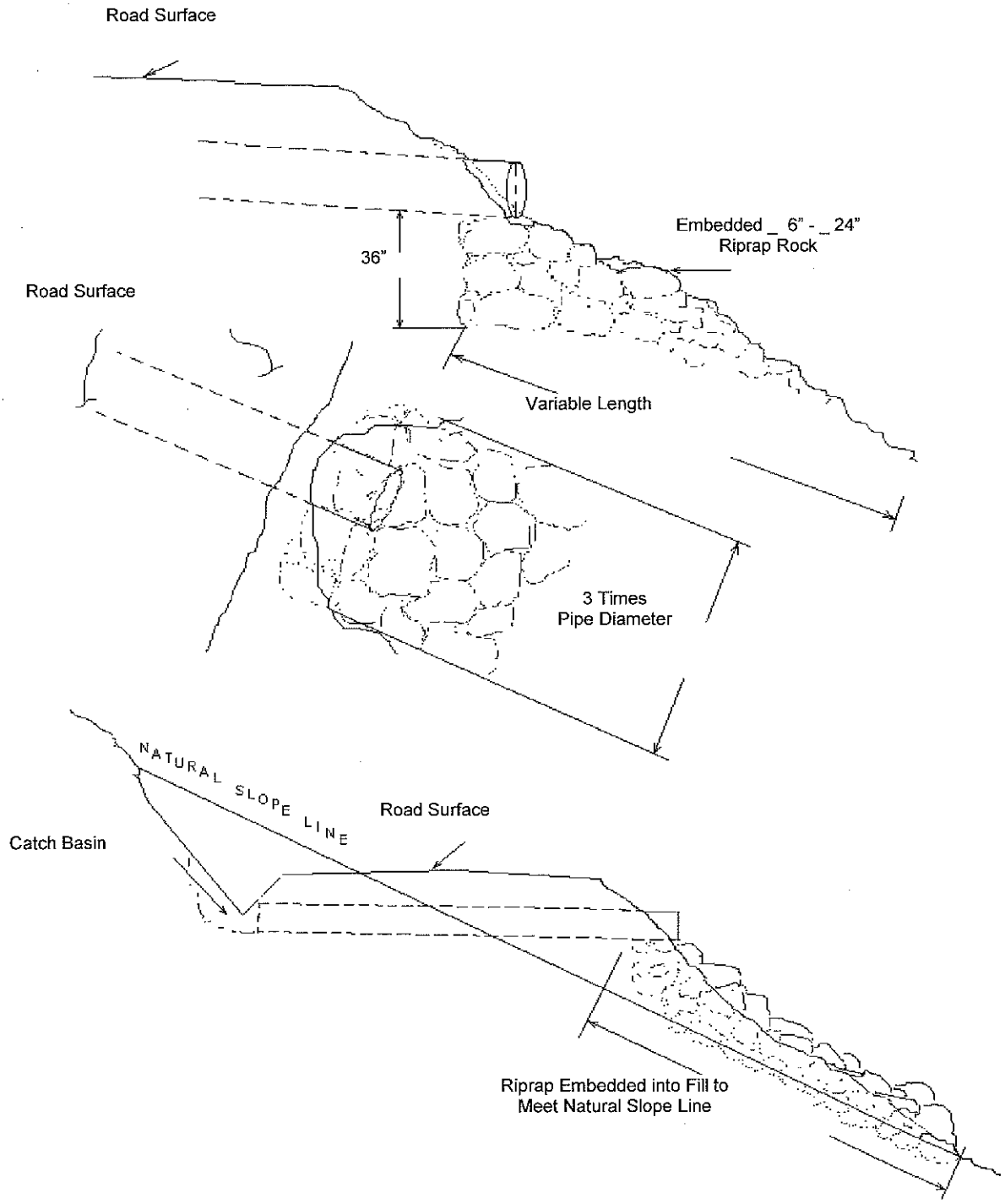


EXHIBIT H

TYPE F STREAM CROSSING STRUCTURE SPECIFICATIONS

Project No. 3

PURCHASER shall design and install a Type F structure. Structure will be a PURCHASER designed open bottom concrete box culvert.

GENERAL TYPE F CONSTRUCTION SPECIFICATIONS

(a) Must allow free passage of fish as provided in the Oregon Forest Practice Rules.

(b) Work shall be conducted only during periods of low water flows and between July 1 and September 15, annually. STATE shall be notified a minimum of 48 hours prior to beginning the work. STATE has prepared FPA "Written Plan" for this work.

(c) Cleared debris shall be scattered on site and excavated materials unsuitable for structure backfill shall be utilized in the construction of the I3-I4 junction with the California Barrel Road, as directed by STATE.

(d) Waste materials shall be sloped for drainage and stability, as directed by STATE. Prior to hauling waste materials, the waste area shall be cleared of large woody debris. The debris shall be piled adjacent to the waste area. All exposed excavation areas and waste materials shall be mulched with straw. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover. Large woody debris shall be redistributed over the waste area after all waste materials have been hauled.

(e) Oil spill response materials shall be on site before the work begins.

(f) A minimum 2 cubic-yard, track-mounted excavator shall be used for all excavation, stream channel development, ecology block and riprap placement. Use of an on-site hydraulic rock hammer may be required for the breaking of rock strata encountered during the development of footing foundations.

(g) Grass seed and straw mulch shall be applied to all exposed areas, bare soils and waste materials in accordance with Exhibit K.

(h) De-watering of the work site shall be accomplished according to PURCHASER'S STATE approved plan and prior to the removal of any excavated material for the development of the footing pad, and stream channel. The work site shall be de-watered by the use of cofferdams, pumps, temporary diversion ditches and/or drainage structures.

(i) Remove any logs or woody debris encountered during footing excavation.

(j) Stream crossing structure excavation, installation, structure backfilling, fill armoring, and structure surfacing shall be consistent with the plans on file and Exhibit D for road segment I3 to I4.

EXHIBIT H

TYPE F STREAM CROSSING STRUCTURE SPECIFICATIONS

OPEN BOTTOM CONCRETE BOX CULVERT CONSTRUCTION INSTRUCTIONS

PURCHASER shall design and construct an open bottom concrete box culvert that is sufficient to provide a clear span of 25' 0" (26' 7" on skew) on road segment I3 to I4 (Station 1+37.5 to 1+64.8), and maintains the present waterway width on centerline of 18.5 feet.

These specifications require a fully engineered prefabricated concrete open bottom box culvert of pre-cast conventionally reinforced concrete construction. Structural members shall be designed in accordance with AASHTO LRFD Bridge Design Specifications, 1998 (Modified). Welding and weld procedure qualification tests shall conform to the provisions of ANSI/AWS D1.1 "Structural Welding Code", 1996 Edition and/or CWB – CSA W59. The structure shall be designed for HS25 vehicle loads with occasional U80 vehicle overload allowance, and up to 42 inches of crushed rock loading on the deck. Subsurface investigations are the responsibility of the Engineer. The design shall be prepared by a Professional Engineer licensed in Oregon and approved by STATE.

The stream crossing structure shall accommodate the alignment of road improvement segment I3 to I4. STATE has performed a site survey for the purposes of displaying the road and stream location, elevations, Footing plan, and Armor/Riprap plan. Retaining curbs shall be designed to accommodate and retain roadway embankments. Footings shall extend a minimum of 2 feet below the predicted natural stream bottom elevation at stream centerline and prevent the scour of any substructure, footing or roadway embankment. Riprap rock shall be utilized to armor and protect road approach embankments and wing walls.

GENERAL INSTRUCTIONS

(a) Structure backfill shall consist of select borrow material from designated borrow site. Backfill shall be compacted as specified in Exhibit D.

(b) All leg and deck joints are to be filled with non-shrink grout. Remaining joints shall be sealed and filled with a construction sealant to prevent material from entering the stream.

(c) PURCHASER'S engineer to provide STATE with bottom of footing coordinates for each footing corner. Engineer will pin each corner prior to footing placement.

(d) PURCHASER'S engineer shall use EDM type survey instrument to establish the location and elevations of Box Culvert footings. Engineer shall verify that placed footing elevations are consistent with approved plans prior to Box Culvert component placement.

(e) PURCHASER shall submit a site specific de-watering plan which provides for 24 hour de-watering from the time of the commencement of footing excavation until the placement of the concrete open bottom slab components.

(f) PURCHASER shall develop and submit for STATE approval an Erosion Control Plan that addresses the prevention of sediment entering the S.F. of the N.F. Klaskanine River during construction.

EXHIBIT H

TYPE F STREAM CROSSING STRUCTURE SPECIFICATIONS

PROJECT PLANS. PURCHASER shall submit plans to STATE for approval, prior to commencement of any work on the project. The plans shall include design calculations, scaled drawings, elevations and section drawings for the structure, including sizes and dimensions of components. The plans shall also include a description of special tools, equipment, the required lifting capacity and the general process to install and connect the components. Plans must contain erosion control measures, site de-watering measures and all information necessary for the administration and inspection of the project by STATE. The plans shall be stamped and signed by a professional engineer licensed in Oregon.

SITE SPECIFIC CONSTRUCTION INSTRUCTIONS

(a) Construct stable foundation bases for footings, and wing walls by utilizing a minimum of 80 cubic yards of 24"-6" riprap. Cap the riprap with 28 cubic yards of ¾"-0" crushed rock enclosed in geotextile fabric. Both the riprap and crushed rock will be compacted in accordance with Exhibit D.

(b) Utilize a minimum of 88 cubic yards of 24"-6" riprap rock for embankment and wing wall armor. Riprap used for embankment armor shall be placed and tamped at a 1½:1 slope for a minimum thickness of 3 feet, beginning at the fill toes. Riprap for wing wall armoring shall be machine placed as directed by STATE.

(c) As directed by STATE, apply, process, and compact surfacing rock in accordance with Exhibit D. Utilize a minimum of 25 cubic yards of 6"-0" pit-run base course rock, and 85 cubic yards of ¾"-0" crushed surface course rock to provide for a minimum road running surface width of 14 feet and to provide for a smooth and uniform transition, 25 feet from each abutment, for the improved roadway across the structure. Surface course rock shall slope at 1½:1 to the box culvert curb.

(d) Construct a concrete open bottom slab culvert which spans 26 feet 7 inches on a 20° skew , has a 8 foot rise, and a minimum inside curb width of 23 feet 4 inches. Approach embankments will be in accordance with approved plans for road segment I3 to I4. Approach embankments (structure backfill) shall consist of approximately 481 cubic yards of select borrow material. Embankment materials shall be thoroughly compacted in accordance with Exhibit D.

(e) Develop stream channel as directed by STATE. Utilize 77 cubic yards of 24"-6" riprap for stream bank riprap.

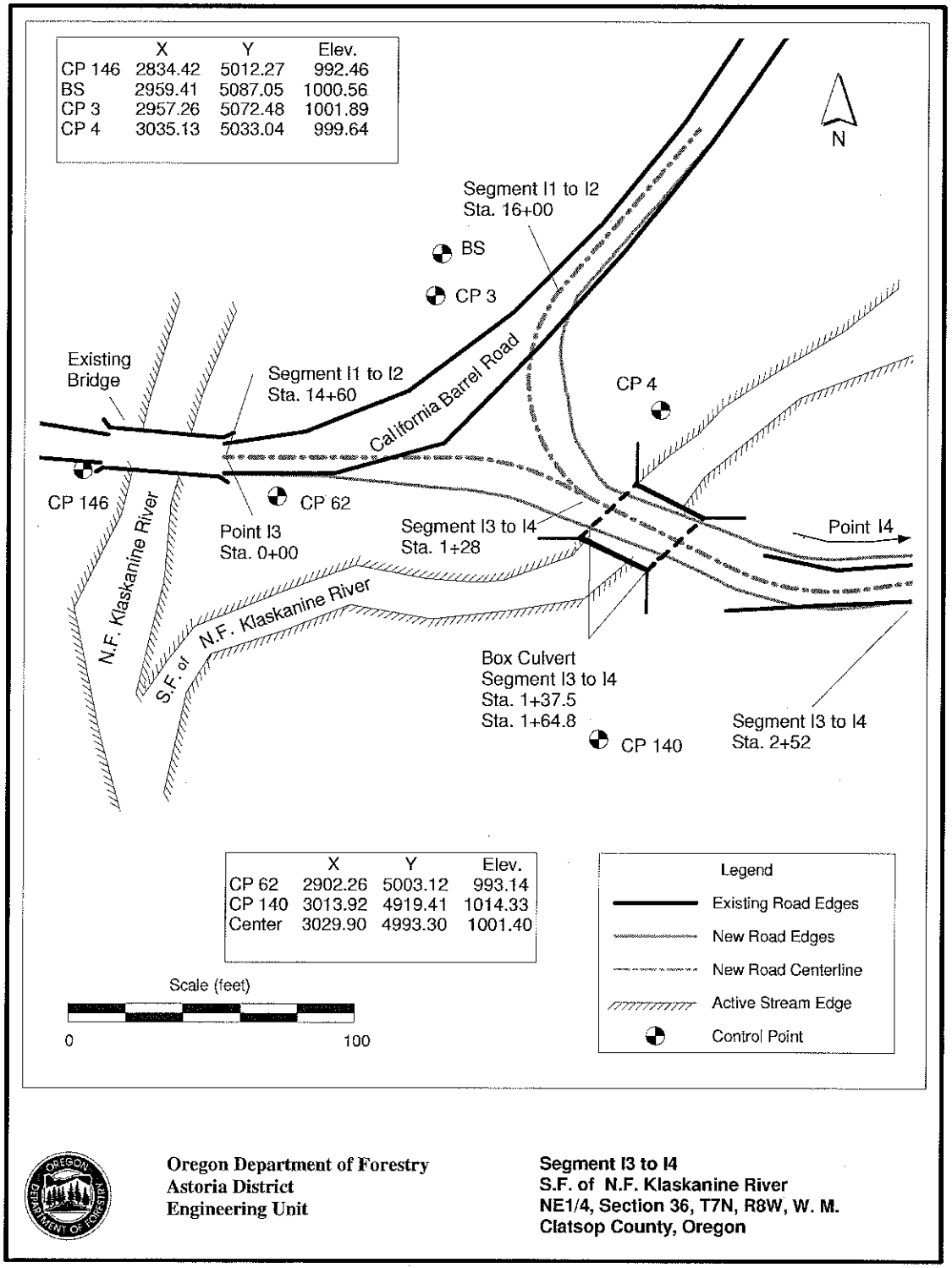
(f) Cobble encountered during footing excavation shall be placed back in the stream channel as directed by STATE.

(g) Bottom tier of the wing walls shall be at the same elevation as the bottom of the footings.

The Engineer shall supervise and inspect the construction work and issue STATE written certification upon completion of the project.

EXHIBIT H

TYPE F STREAM CROSSING STRUCTURE SPECIFICATIONS



Oregon Department of Forestry
Astoria District
Engineering Unit

Segment I3 to I4
S.F. of N.F. Klaskanine River
NE1/4, Section 36, T7N, R8W, W. M.
Clatsop County, Oregon

EXHIBIT H

TYPE F STREAM CROSSING STRUCTURE SPECIFICATIONS

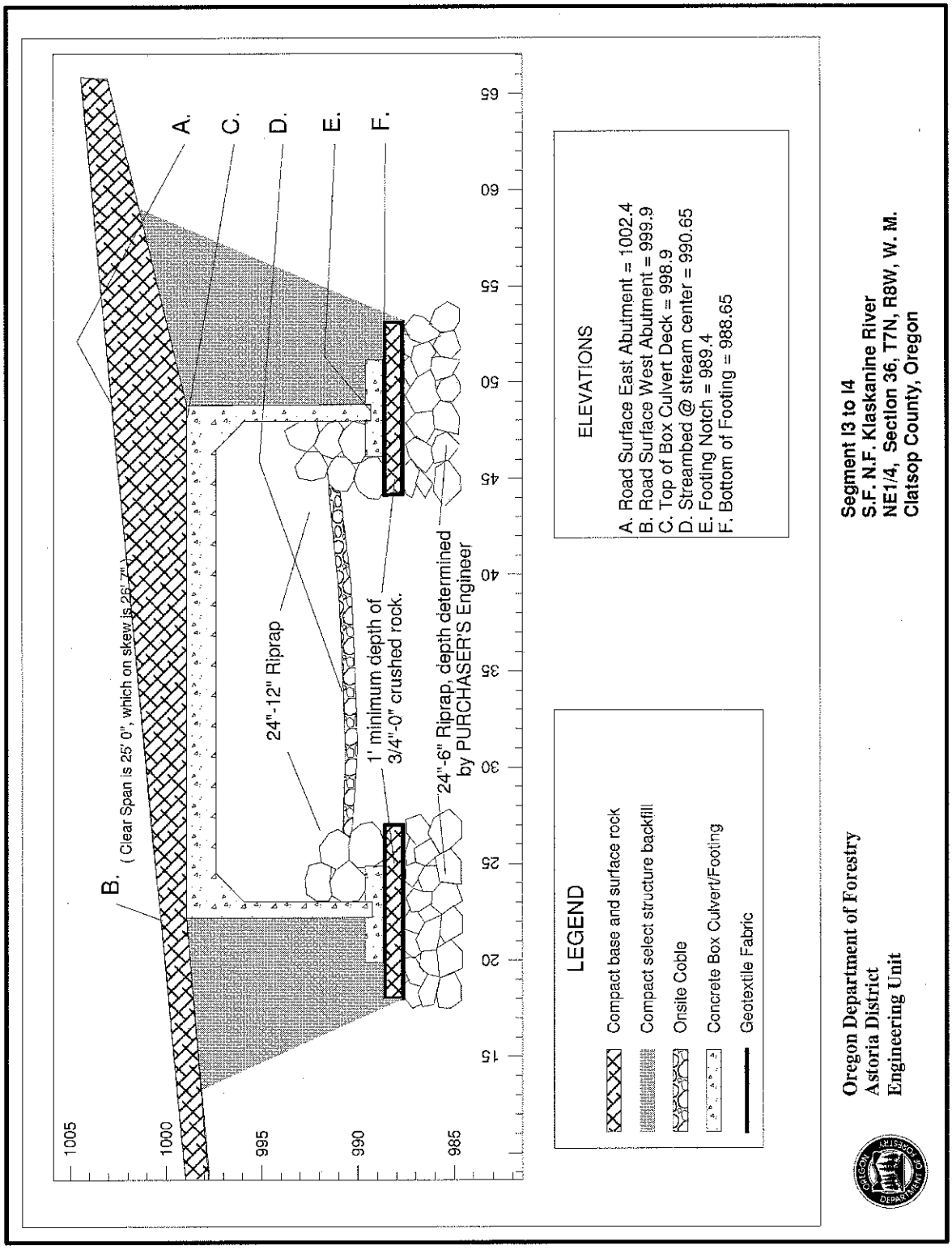
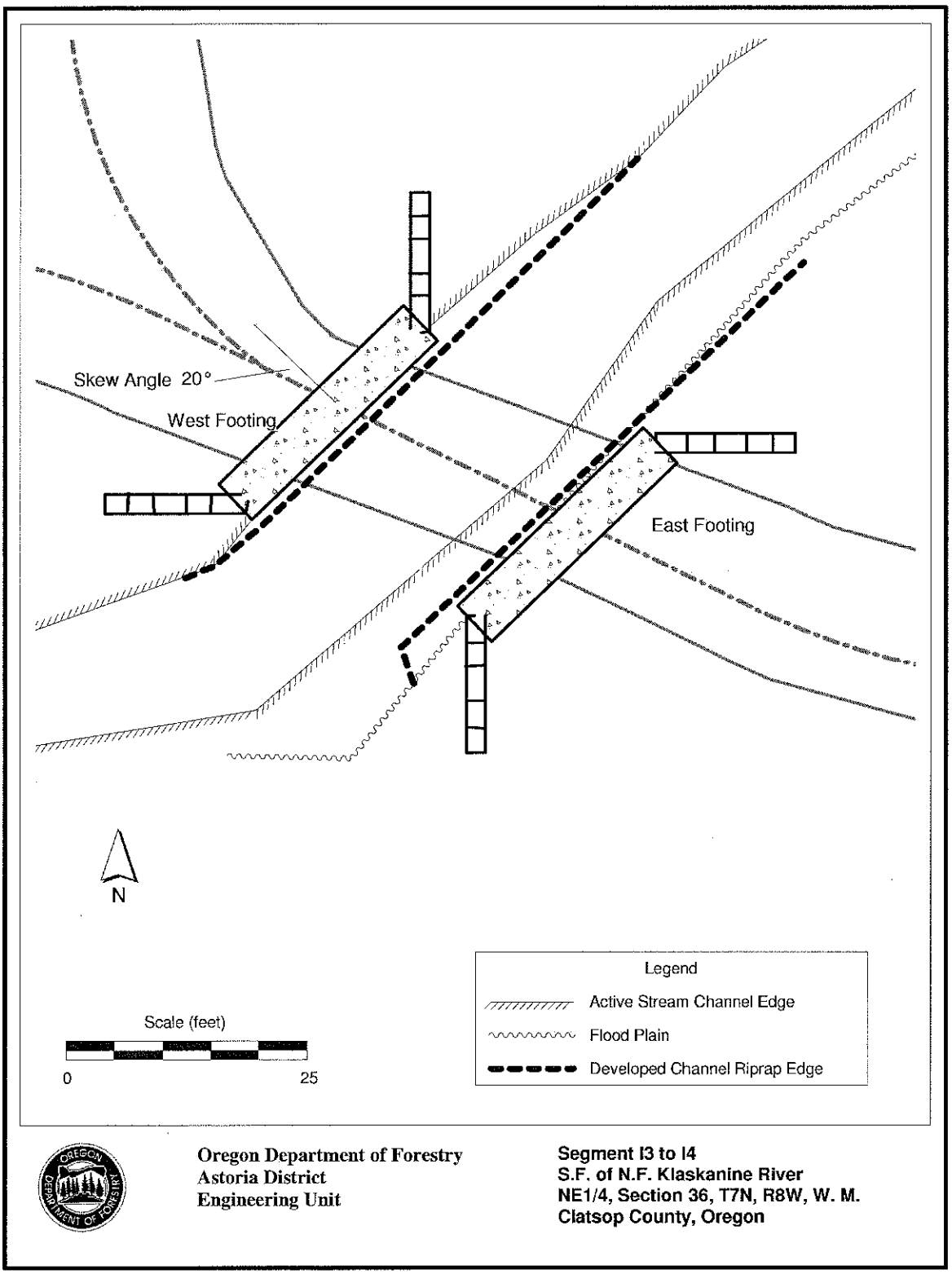


EXHIBIT H

TYPE F STREAM CROSSING STRUCTURE SPECIFICATIONS

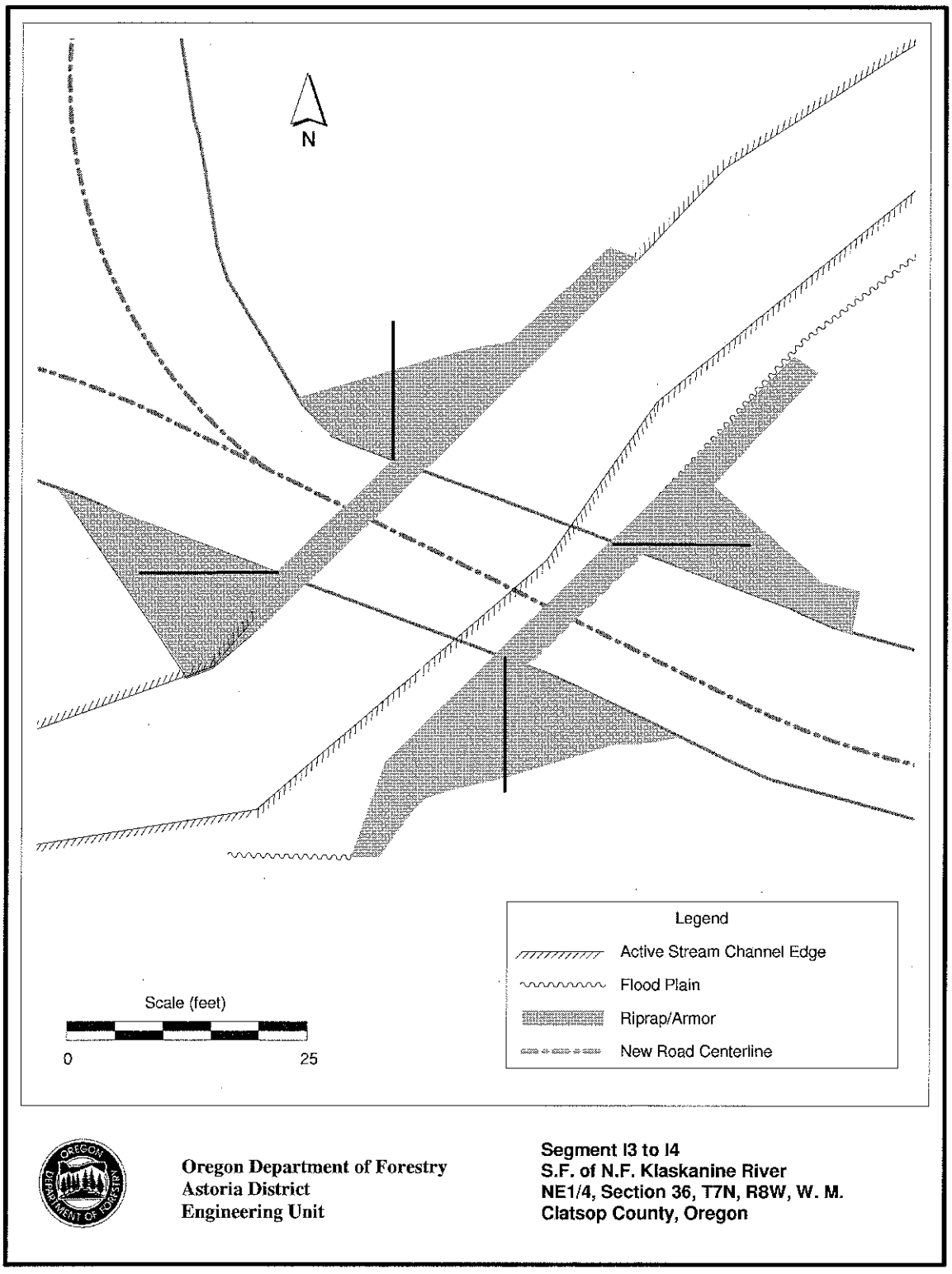


Oregon Department of Forestry
Astoria District
Engineering Unit

Segment I3 to I4
S.F. of N.F. Klaskanine River
NE1/4, Section 36, T7N, R8W, W. M.
Clatsop County, Oregon

EXHIBIT H

TYPE F STREAM CROSSING STRUCTURE SPECIFICATIONS

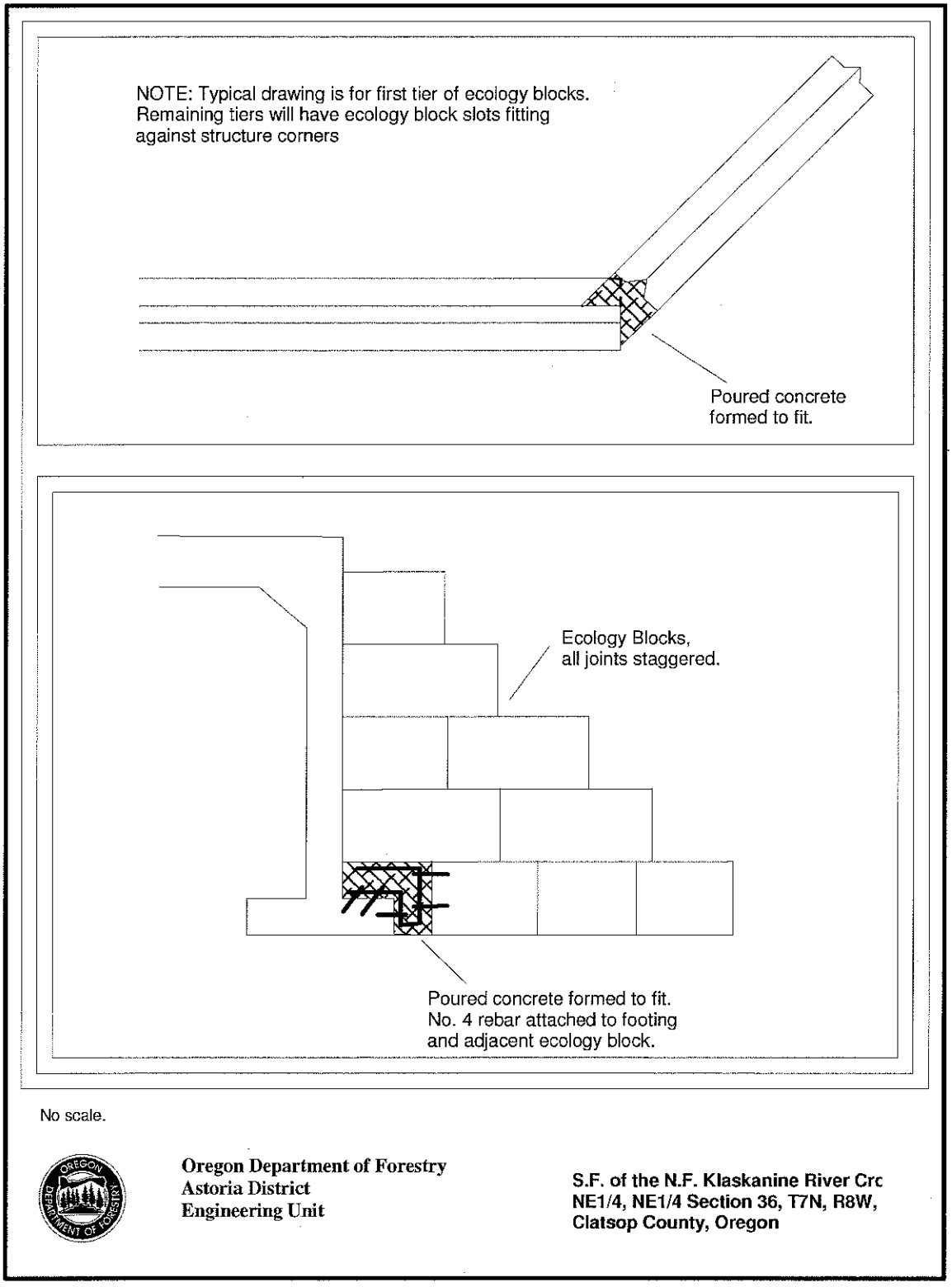


Oregon Department of Forestry
Astoria District
Engineering Unit

Segment I3 to I4
S.F. of N.F. Klaskanine River
NE1/4, Section 36, T7N, R8W, W. M.
Clatsop County, Oregon

EXHIBIT H

TYPE F STREAM CROSSING STRUCTURE SPECIFICATIONS



No scale.

Oregon Department of Forestry
Astoria District
Engineering Unit

S.F. of the N.F. Klaskanine River Crc
NE1/4, NE1/4 Section 36, T7N, R8W,
Clatsop County, Oregon

EXHIBIT I

GEOTEXTILE SPECIFICATIONS

GEOTEXTILE SPECIFICATIONS - shall be woven geotextile fabric designed for forest road subgrade surfacing purposes and shall meet or exceed the following requirements, unless otherwise approved in writing by STATE:

1.	Grab Tensile	300 lbs.	ASTM D4623
2.	Puncture strength	110 lbs.	ASTM D4833
3.	Mullen Burst	600 lbs.	ASTM D3786
4.	Width – 12.5 feet		

INSTALLATION REQUIREMENTS - fabric shall be installed according to the following requirements:

1. Subgrade surface shall be leveled and smoothed to remove humps and depressions which exceed 6 inches in height and depth. Small pieces of woody debris shall be removed. Light vegetation (grass, weeds, leaves, and fine woody debris) may be left in place.

2. Fabric shall be installed directly on the prepared surface. Longitudinal and traverse joints shall be overlapped at least 3 feet.

3. Surfacing course material shall be placed to the designated thickness in one lift and spread in the direction of fabric overlap. Hauling and spreading equipment shall not be operated on the fabric until the total thickness of surfacing course material is placed.

4. Torn, punctured, or separated sections of the fabric shall be repaired by installing a fabric patch over the break prior to placing the surfacing course material. The patch shall be at least 4 feet larger in horizontal dimensions than the break to be repaired.

5. Fabric failures resulting after rock placement and as evidenced by subgrade pumping or roadbed distortion shall be corrected. Correction measures shall consist of: (1) removing at least three-quarters the depth of surfacing course material in the affected area, (2) placing a fabric patch over the affected area with a minimum 4-foot overlap around the circumference of the area, and (3) replacing enough rock to cover the patch and blend in with the rest of the road.

6. Should STATE determine that installation of woven fabric on roads or portions of roads is not necessary, PURCHASER shall deliver an equivalent amount of woven road fabric to STATE.

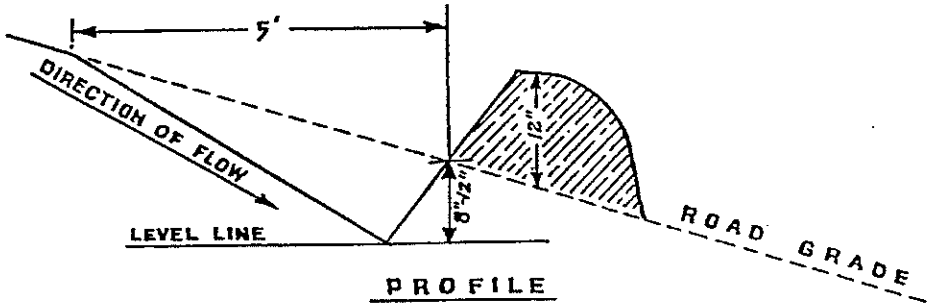
7. Fabric locations:

Road Segment	Location	Road Segment	Location
2A to 2B	2+00 to 7+00	I3 to I4	1+37.5, & 1+64.5

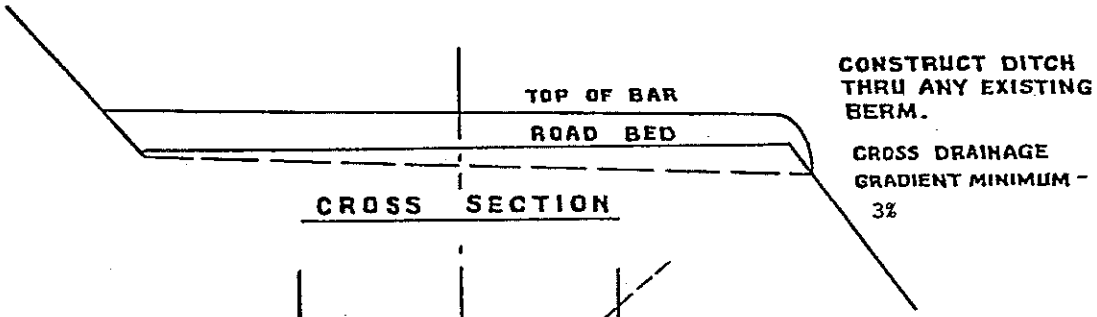
State Timber Sale Contract
No. 341-10-47
Leonard Elk

EXHIBIT J

WATERBAR SPECIFICATIONS



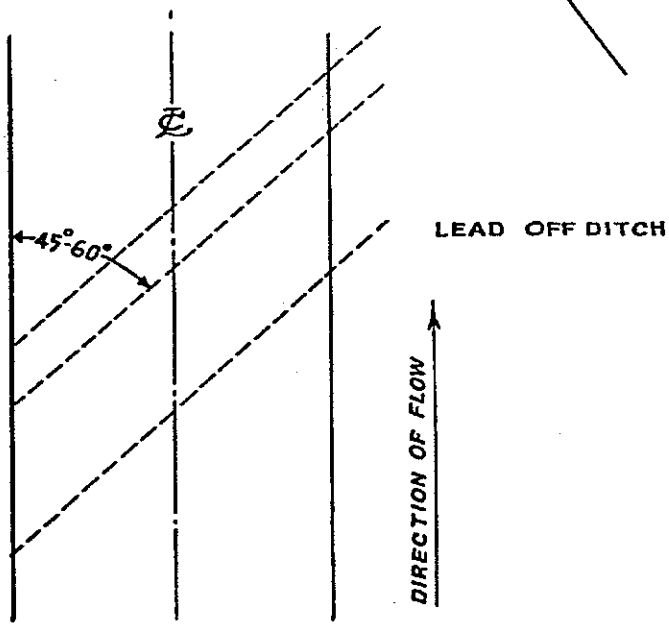
PROFILE



CROSS SECTION

SPACING OF WATERBARS

ROAD GRADE	DISTANCE
≤ 5%	400'
6-10%	200'
11-15%	150'
16-20% or greater	100'



PLAN VIEW

WATERBAR SPECIFICATIONS
FOR CROSS DITCHING #298

State Timber Sale Contract
No. 341-10-47
Leonard Elk

EXHIBIT K

SEEDING AND MULCHING

This work shall consist of preparing seedbeds and furnishing and placing required seed, fertilizer, and straw mulch. Straw mulch shall consist of straw that is free of noxious weeds. Apply seed, fertilizer, and straw mulch to all waste areas, and bare soils resulting from Project No. 3.

Seeding Seasons. Seeding shall be performed only from March 1 through June 15 and August 15 through October 31. Seeding materials shall not be applied during windy weather or when the ground is excessively wet or frozen. Areas of disturbed soil shall be seeded by the end of the project period in which work was started.

APPLICATION METHODS FOR SEED AND FERTILIZER

Dry Method. Mechanical seeders, seed drills, landscape seeders, cultipacker seeders, fertilizer spreaders, or other approved mechanical seeding equipment shall be used to apply the seed and fertilizer in the amounts and mixtures specified. Hand-operated seeding devices may be used when seed and fertilizer are applied in dry form.

APPLICATION RATES FOR SEED AND FERTILIZER

The seed mixture listed below shall be applied at 100 lbs. per acre. The seed mixture shall be comprised of the following:

SPECIES	MIXTURE	PURE LIVE SEED	GERMINATION
Annual Rye	26%	95%	>90%
Orchard Grass	25%	95%	>90%
New Zealand White Clover	17%	95%	>90%
Perennial Rye	15%	95%	>90%
Birdsfoot Trifoil	07%	95%	>90%
Red Clover	06%	95%	>90%
Alsike Clover	04%	95%	>90%

Fertilizer: Chemical analysis shall be 16-20-0 and shall be applied at the rate of 200 pounds per acre. Fertilizer shall not be applied within 100 feet of streams.

Mulching Period. Straw mulch shall be applied within 24 hours of spreading grass seed and fertilizer.

APPLICATION RATES FOR MULCH
Place straw mulch to a reasonably uniform thickness of 1½ to 2½ inches. This rate requires between 2 and 3 tons of dry mulch per acre.

APPLICATION LOCATIONS:

Road Segment	Location	Road Segment	Location
2C – 2D	0+30 to 3+70	2G – 2H	1+40 to 2+00
I1 to I2	0+00	I3 – I4	0+00 to 2+50
Waste Area	0+00 to 37+00		

PART IV: OTHER INFORMATION

FOREST PRACTICES ACT "WRITTEN Plan"
Leonard Elk Timber Sale Type F Crossing

Landowner: Oregon Department of Forestry
92219 Hwy 202
Astoria, OR 97103
(503) 325-5451

Protected Resources:

Road Segment I1 to I2, (Sta. 0+00): South Fork of the North Fork Klaskanine River, a medium Type F fisheries resource, located in the NE 1/4, Section 36, T7N, R8W, W.M., Clatsop County, Oregon.

Road Segment I3 to I4, (Sta.1+37.5 – 1+64.8)**:** South Fork of the North Fork Klaskanine River, a medium Type F fisheries resource, located in the NE 1/4, Section 36, T7N, R8W, W.M., Clatsop County, Oregon.

A written plan is required for any activity within 100 feet of any Type F stream.

Situation:

Road Stement I1 to I2 (Sta. 0+00): Minor scouring has occured on the South abutment of the existing bridge. Riprap armor is necessary to repair the scouring and prevent further damage. A log jam downstream approximately 30 feet of the bridge will be dislodged and the stream channel developed under the bridge to protect the structure.

Road Segment I3 to I4 (Sta. 1+37.5 – 1+64.8)**:** There is no structure at this crossing. The previous structure failed in the mid 1990's. Resource management objectives for this stream crossing project include providing cost effective long-term access, meeting or exceeding FPA requirements, maintaining present fisheries habitat, and protection of water quality and riparian areas.

Drainage Area and Structure Design (Road Segment I3 to I4) (Sta. 1+37.5 – 1+64.8)**:** The stream crossing structure will be an open-bottom concrete box culvert which will provide a 14 foot wide waterway under the structure.

Existing Stream Gradient:	5½%
Size of Watershed:	843 acres
Average Stream Width:	14.0 feet
Average Stream Width w/Flood Plain:	16.1 feet
Structure clear span width:	26.6 feet on 20° skew
Stream Bed Material:	Cobble, Sand, Gravel, Bedrock
50-Year Peak Flow/Mi.^{2} :	300 cfs
50-Year Peak Flow:	395 cfs
Flow Capacity of Existing Structure:	n/a cfs
Flow Capacity of New Structure:	2006 cfs
	155 ft^2 wetted cross sectional area
	62.4 ft wetted perimeter (w/ 3 ft clearance)

FOREST PRACTICES ACT "WRITTEN Plan"
Leonard Elk Timber Sale Type F Crossings

Resource Protection Measures:

- Machine activity in stream channels will be minimized. All existing fill, footing excavation, and rip rap rock placement will be performed using a minimum 2 cubic-yard track-mounted excavator.
- In-stream work, including, excavation, box culvert installation, and riprap rock placement will be conducted from July 1 to September 15.
- A dewatering plan will be developed and followed from the start of excavation until the structure is in place and water flowing.
- An erosion-control plan will be developed and followed to prevent sediment from entering the stream during construction work.
- Excavated materials will be utilized in the construction of the "Y" junction for road segment I7 to I8. Waste clearing debris will be scattered on-site in stable locations.
- A combination of pre-cast open-bottom concrete culvert components and/or riprap rock will be used to construct back walls, and stream deflectors to protect the structure, road approaches/embankments, and stream banks from erosion.
- For the box culvert, use of pre-cast concrete components will prevent contamination of water from mixing and pouring concrete on site.
- Oil spill response materials shall be on site before the work begins.

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of Type F streams. I agree to the protection measures listed on this plan.

Submitted _____ _____
Purchaser/Operator/Contract Representative Date

Attachments: Exhibit A and H.

Original: Salem
CC: Operator, Purchaser, District File, Engineering Unit, Sunset Unit

FPA "Written Plan" for Operating within 100 Feet of Type F Streams
Leonard Elk Timber Sale

Portions of Section 26, T7N, R8W, W.M., Clatsop County, Oregon

Landowner: **Oregon Department of Forestry**
92219 Highway 202
Astoria, Oregon 97103
Phone: (503) 325-5451

Protected Resources:

1. Two Unnamed Tributaries of the North Fork of the South Fork of the North Fork of the Klaskanine River
2. North Fork of the South Fork of the North Fork of the Klaskanine River
3. South Fork of the North fork of the Klaskanine River
4. South Fork of the South Fork of the North Fork of the Klaskanine River

Specific Site Characteristics:

1. Unnamed Tributary one of the North Fork of the South Fork of the N. F. of the Klaskanine River (Medium to Small, Type F) – This stream (approximately 1 to 2 feet wide) runs along the west and south sale boundaries of Area 2 for approximately 1,100 feet. The stream channel has moderate short slopes with alder and conifer.

2. Unnamed Tributary two of the North Fork of the South Fork of the N. F. of the Klaskanine River (Small, Type F) – This stream (approximately 1 to 2 feet wide) runs approximately 1600 feet within Area 2, and approximately 900 adjacent to the timber sale boundary along the northwest side. The stream channel has moderate short slopes with alder and conifer.

3. North Fork of the South Fork of the North Fork of the Klaskanine River (Large, Type F) – is not adjacent to the Timber Sale Area but cable lines may pass over this stream. This stream (approximately 10 to 25 feet wide) flows along the northwest side of the timber sale boundary of Area 1 for approximately 900 feet and is approximately 100 to 200 feet away, outside of the Timber Sale Area.

4. South Fork of the North Fork of the Klaskanine River (Large to Medium Type F) –This stream (approximately 10 to 25 feet wide) flows along the north side of the timber sale boundary of Area 1 for approximately 3,100 feet and is approximately 100 feet away, outside of the Timber Sale Area.

5. South Fork of the South Fork of the North Fork of the Klaskanine River (Medium Type F) – This stream (approximately 10 to 20 feet wide) flows along the south and southwest side of the timber sale boundary of Area 1 for approximately 1,650 feet and is approximately 100 feet away, outside of the Timber Sale Area.

Tree and Vegetation Retention:
Vegetation within the buffers consists of a combination of conifers, hardwoods, and shrubs.
All posted Type F buffers along or within cut units are approximately 100 feet. During cable yarding operations, it is anticipated that cable skylines will cross some of the above listed streams. It is not anticipated that any logs will pass over the Type F streams or buffers.

Resource Protection Practices:
Along all of the above-mentioned streams, as well as any live streams, the following practices are required, under the timber sale contract, to protect the streams and streamside areas:

1. No trees will be felled within posted stream buffers (RMA's) except were needed for corridors.

2. Trees that fall or slide into Type F RMA's shall not be removed without prior approval from STATE.

3. Trees adjacent to the posted stream buffers (RMA's) will be felled away from or parallel to the streams to prevent trees from entering the aquatic areas.

4. When cable logging is conducted nearby the RMA's, logging lines may cross, but will not be lowered into the RMA's during yarding, except during rigging. During rigging, the lines must be pulled out of the RMA's when changing corridors.

5. Logs shall be fully suspended when yarding across all stream buffers (RMA's).

6. Cable corridors must be at least 100 feet apart where they cross the RMA's.

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practice Act regarding the operations conducted within 100 feet of streams. I agree to the protection measures listed in this plan.

Submitted by: _____ Date: _____
Operator/PURCHASER

Attachment: Exhibit A map

Original: Salem
XC: Operator, Purchaser, District File, Engineering Unit, Sunset Unit

State Timber Sale Contract
No. 341-10-47
Leonard Elk

OREGON DEPARTMENT of FISH and WILDLIFE

FISH SCREENING PROGRAM

SMALL PUMP SCREEN SELF CERTIFICATION

The Oregon Water Resources Department in coordination and cooperation with the Oregon Department of Fish and Wildlife includes screen requirements on pumps to protect fish as a condition of many surface water and/or reservoir water right permits. This is done in accordance with ORS 537.153.

The Oregon Department of Fish and Wildlife does not usually inspect small pump screens at pumped diversions less than 225 GPM (Gallons per Minute), but furnishes the following fish screening criteria information to the water right permit tee:

Screen material open area must be at least 27% of the total wetted screen area.
Perforated plate: Openings shall not exceed 3/32 or 0.0938 inches (2.38 mm).
Mesh/Woven wire screen: Square openings shall not exceed 3/32 or 0.0938 inches (2.38mm) in the narrow direction, e.g., 3/32 inch x 3/32 inch open mesh.
Profile bar screen/Wedge wire: Openings shall not exceed 0.0689 inches (1.75 mm) in the narrow direction.

Screen area must be large enough to cause fish impact. Wetted screen area depends on the water flow rate and the water approach velocity. **Approach velocity** is the water velocity perpendicular to and approximately three inches in front of any part of the screen face.

An Active pump screen is a self cleaning screen that has a proven cleaning system. The **screen approach velocity for active pump screens** shall not exceed 0.4 fps (feet per second) or 0.12 mps (meters per second). The wetted screen area in square feet is calculated by dividing the maximum water flow rate in cubic feet per second (1 cfs = 449 gpm) by 0.4 fps.

A Passive pump screen is a screen that has no cleaning system other than periodic manual cleaning. **Screen approach velocity for passive pump screens** shall not exceed 0.2 fps or 0.06 mps. The wetted screen area in square feet is calculated by dividing the maximum water flow rate by 0.2 fps.

For further information on fish screening please contact:
Bernie Kepshire, Oregon Department of Fish and Wildlife,
7118 NE Vandenberg Avenue, Corvallis, OR 97330-9446 (541) 757-4186 x 255

As evidence of having met fish screen installation requirements, please sign the certification and send to: Oregon Water Resources Department, Water Rights Section, 725 Summer St. NE, Suite A, Salem, OR 97301-1271.

Certification: I certify that my small pumped diversion of less than 225 gpm meets fish screening criteria, and that I will maintain it to comply with regulatory criteria. I also understand that should fish screening standards change, I may be required to modify my installation to meet applicable standards.

Applicant Signature:_____ Date:___/___/___ WRD File #

Printed Name and Address: _____

Phone: (_____)_____ Fax: (_____) _____

bmk
3/11/99
PUMPCERT.doc

NB: ODFW logo is 129% of logo on HQ mail label

NOTICE OF TRANSFER OF STATE TIMBER

Instructions **629:-Form-301-010**

Complete Section 1. Mark the box which applies to you/your company in Section 2. Complete Section 3 and obtain signatures.

SECTION 1

On _____, state timber sale purchaser (Transferor)
_____, sold, exchanged or otherwise transferred to
_____, (Transferee) state timber originating from State
Timber Sale Contract No. _____.

Transferee hereby certifies that they:

(a) Will not export the unprocessed state timber which is the subject of this transaction;

(b) Will not sell, transfer, exchange or otherwise convey the unprocessed timber which is the subject of this transaction to any other person without first obtaining a like certification from that person.

(c) Are not prohibited by OAR's 629-31-005 through 045 from purchasing state timber or logs directly from the State Forester, or this is a sale of Western Red Cedar for domestic processing.

SECTION 2

☐ Have not exported unprocessed timber originating from private lands in Oregon in the last 24 months.
☐ This is a sale of hardwood logs for domestic processing.
☐ This is a sale of Western Red Cedar for domestic processing.
☐ This is a sale of pulp logs or cull logs processed at domestic pulp mills, domestic chip plants or other domestic operations for the purpose of conversion of the logs into chips.

SECTION 3

The parties understand that falsely entering into this certification, or failure to comply with the terms of this certification is a violation of the Forest Conservation and Shortage Relief Act of 1990 and OAR Chapter 629, Division 31, and is subject to any and all penalties contained therein.

Transferor:	Transferee:
_____ Signed	_____ Signed
_____ Title	_____ Title
_____ Dated	_____ Dated

[Note: For the purpose of this form, the definition of unprocessed timber is the same as in OAR 629-31-005]

Mail To: State Forester
2600 State Street
Salem, OR 97310