

# PART III: EXHIBITS

State Timber Sale Contract  
No. 341-06-53  
Steeple Chase

Page 1 of 3

## 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.: 341-06-53

(2) Sale Name: Steeple Chase

(3) Contract Expiration Date: \* \_\_\_\_\_

Project Completion Dates: \_\_\_\_\_

(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.

**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.

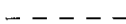
- (10) The STATE representative will furnish extra copies of Exhibit A of the contract for your use in preparing the operations map. The map shall use the following legend and show:
  1. Landing locations, approximate setting boundaries, and probable sequence of logging the settings. Number the settings 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.



Cable landing, with numbers for sequence.



Tractor landing with alphabetical sequence.



Approximate setting boundary.



Spur truck roads.



Tractor yarding roads.



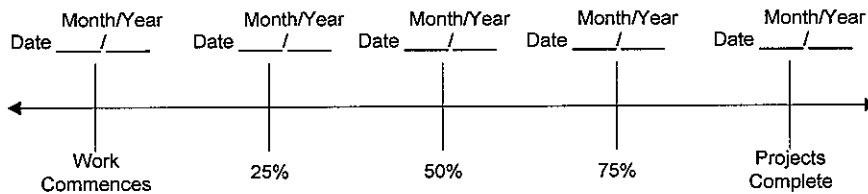
Temporary stream crossings.

EXHIBIT B  
 OPERATIONS PLAN

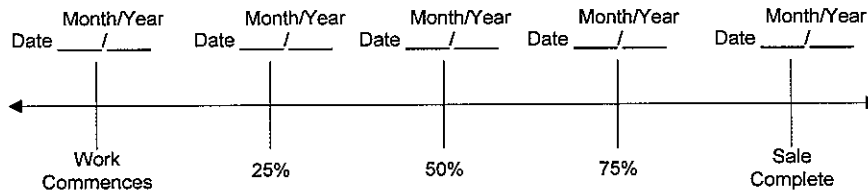
**Completion Timeline**

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.

**Projects**



**Harvest & Other Requirements**



**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: \_\_\_\_\_

SUBMITTED BY:  
 PURCHASER

STATE OF OREGON - DEPARTMENT OF FORESTRY

\_\_\_\_\_  
 Title \_\_\_\_\_

\_\_\_\_\_  
 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: \_\_\_\_\_  
 Address \_\_\_\_\_

(12) SALE NAME Steeple Chase

COUNTY Clatsop

(13) STATE CONTRACT NUMBER 341-06-53

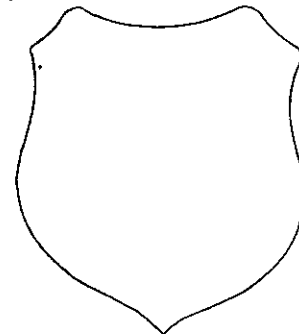
(14) SCALE: westside  eastside  cubic foot

(15) STATE BRAND REGISTRATION NUMBER \_\_\_\_\_

(16) BUREAU BRAND CODE NUMBER \_\_\_\_\_

(17) STATE BRAND INFORMATION:

(COMPLETE)



MINIMUM SCALING SPECIFICATIONS			CLASS		
SPECIES	SCALING DIAMETER INCHES	*NET SCALE VOLUME	PER MBF	** SUM	SUB
Conifers	--	10	X		
Hardwoods	--	10	X		

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

(6) WESTSIDE SCALE: YES  NO   
 Actual taper all logs over 40' scaling length

(7) EASTSIDE SCALE: YES  NO   
 \*Actual taper butt logs over 40' scaling length

(8) PENCIL BUCK YES  NO   
 back to Minimum Scaling Diameter \_\_\_\_\_

(9) ADD-BACK VOLUME -- YES  NO   
 Deductions due to delay

(18) PAINT REQUIRED: YES   
 COLOR Orange

(19) SPECIAL SCALES
PEELABLE CULL (all species)
UTILITY/PULP (all species)
<b>NO DEDUCTIONS ALLOWED FOR MECHANICAL DAMAGE</b>
OTHER: _____
OTHER: _____

(10) APPROVED SCALING LOCATIONS	Species	Yard	Truck

(20) REMARKS: All hardwood logs shall be scaled as sawlogs unless they meet **either** of the following requirements: (1) contain less than 30 net board feet, or (2) are smaller than 7 inches in gross scaling diameter. All hardwood logs that meet **either** requirement shall be scaled as "Utility."

(11) NOTICE OF CANCELLATION OF BRAND:  
 Effective Date: \_\_\_\_\_

\_\_\_\_\_  
 State Forester's Representative

Operator's Name (Optional inclusion by District): \_\_\_\_\_

(21) 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 (4), Purchaser, Operator, District, Mgmt. Unit

EXHIBIT C

INSTRUCTIONS FOR FORM 343-307 (rev. 5/01)

- (1) Check appropriate box. REVISION NUMBER requires comments. CANCELLATION requires Item (21). Complete date.
- (2) Designate Third Party Scaling Organization (TPSO). Send 4 copies to TPSO, 1 to purchaser, 1 to Salem, and keep such copies as to district needs.
- (3) State District office, address and phone.
- (4) Enter Purchaser's business name and address 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 (13) thru (17)), and is required to show existence on the sale. **PerM** (per MBF). **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 (PerM) entries. PerM, SUM, and Sub must be indicated by checking the appropriate column. Species with the same specifications and value are combined into one entry. PerM 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, PERM and/or subspecies will always be scaled.
- (6) Westside -- 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 -- 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 (Eastside). Items with \* follow U.S. Forest Service Eastside rules.
- (8) Pencil Buck. Check NO if a westside sale, optional for eastside sales.
- (9) Add-Back Volume. Add-Back is normally checked YES. Scaler records deductions (sap rot, weather checks, etc.) caused by an abnormal delay in removal. Enter separately on scale ticket. TPSO provides State with summaries that include this as a net volume by species. Salvage sales and certain other circumstances may require that "NO" be checked.
- (10) Show scaling locations only applicable to TPSO. Not necessary to list markets. If all species are scaled at same location, enter "ALL."
- (11) When logging is complete, recall branding hammers, date and sign where indicated, check CANCELLATION box at top of form, and send to TPSO.
- (12) Enter sale name and county.
- (13) Enter sale Contract number.
- (14) Check Westside or Eastside log scale. Cubic foot refers to Northwest Log Rules Cubic Foot Scale.
- (15) Oregon Forest Products Brand Registry Number (optional).
- (16) DO NOT USE -- TPSO will fill in when applicable.
- (17) Show one brand only. Complete drawing. 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) under REMARKS, Item 19.
- (18) Check YES and designate orange.
- (19) Special Scales. These are the Special Scales that will be applied. If "Other" is indicated, please describe. Give comments in Item (19).
- (20) Use this space to designate weight conversion factors, or any other explanations to clarify scaling 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.
- (21) 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 24+90	OUTSLOPED
14 feet	N/A	1C to 1D	0+00 to 7+75	OUTSLOPED
16 feet	12 feet	2A to 2B	0+00 to 1+00	DITCH
14 feet	N/A	3C to 3D	0+00 to 2+90	OUTSLOPED
14 feet	N/A	3E to 3F	0+00 to 13+00	OUTSLOPED
14 feet	N/A	3G to 3H	0+00 to 4+25	OUTSLOPED
16 feet	12 feet	4B to 4C	0+00 to 1+10	DITCH
16 feet	12 feet	4D to 4E	0+00 to 0+90	DITCH
16 feet	12 feet	I1 to I2	0+00 to 118+68	DITCH
16 feet	12 feet	I3 to I4	0+00 to 16+25	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 staked, 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 CLASSIFICATION.** New construction – From the top of the cutslope to the toe of the fill.

**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. Do not place clearing and grubbing debris on side slopes exceeding 50 percent. Grubbing debris shall be left in a stable location, and not left lodged against standing trees.

**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-engineered lines, grades, dimensions, and plans when provided.

All suitable excavated material shall be used where possible for the formation of fills, shoulders, and drainage structure backfill. Embankment materials shall be free of woody debris, brush, muck, sod, frozen material, and other deleterious materials. All fills and drainage structure backfill shall be machine compacted according to the specifications in Exhibit D.

Unless road design 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.

Excess excavation shall not be sidecast where material will enter a stream course or where material will accumulate in areas deemed a high landslide hazard location by STATE.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

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 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 ( $\frac{1}{2}$  inch per foot).

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

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

Outslope. Road subgrade shall be outsloped at 4 to 6 percent.

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.

GRADING

	<u>Back Slopes</u>	<u>Fill Slopes</u>
Rock	Vertical to 1/4:1	Not steeper
Common - side slopes 50% and over	3/4:1	than 1 1/2:1
Common - side slopes less than 50%	1:1	
Common - turnpike (level) section	2:1	

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. Surface is to be crowned for drainage, with general grade no more than 3 percent. Surface as shown on Exhibit D.

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

SEASONAL WINTERIZATION. All unfinished subgrades shall be waterbarred in accordance with Specifications in Exhibit H, and blocked from vehicular traffic prior to October 1, annually and as directed by STATE

GENERAL ROAD CONSTRUCTION INSTRUCTIONS:

- (1) Excavated Materials. Excavated materials shall be utilized for road construction and hauled in where necessary. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with Exhibit D. Full bench road construction shall be performed in accordance with Exhibit D.

EXHIBIT D  
FOREST ROAD SPECIFICATIONS

- (2) Borrow Source. Suitable material required to complete the fill improvement at station 37+58 on road Segment I1 to I2 may be borrowed from the source indicated on Exhibit A. Borrow source shall be developed as follows:
- (a) Clear and Grub the Borrow source in accordance with Exhibit D, "Forest Road Specifications," for Clearing and Grubbing.
  - (b) Dispose of Cleared and Grubbed material in accordance with Exhibit D, "Forest Road Specifications."
  - (c) Upon completion of the Borrow Source, use the remaining back slope shall be in accordance with Exhibit D, "Forest Road Specifications, Grading."
  - (d) Maintain the spur leading to the Borrow source as directed by STATE.

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
1A to 1B	15+00	Begin 50-foot radius curve.
	15+30	Waste Area right side of road.
	16+33	End 50-foot radius curve.
	18+20	Construct landing on right side of road.
	22+34	Beginning of end-haul segment.
	24+40	End of end-haul segment.



EXHIBIT D  
END-HAULING REQUIREMENTS

POINT TO POINT	STATION TO STATION	CONTAINMENT	WASTE AREA LOCATION	WASTE AREA TREATMENT
1A to 1B	22+34 to 24+40	1	1 and 2	1, 2, and 3

End-Haul Areas General Requirements

Material shall not be intentionally sidecast.

Clearing and grubbing debris shall be end-hauled.

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

Containment

- (1) Full containment: The amount of material lost over the outside edge of the road shall not exceed 6 inches in depth measured perpendicular to the natural ground slope. Pioneer excavation shall be removed by digging, loading, and hauling rather than by pushing or scraping methods.
- (2) Trees and stumps may have up to 12 inches of material directly above them. 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) Stations 15+60 to 21+50 on Road Segment 1A to 1B.
- (2) Waste Area No. 2 is located on Road Segment 1A to 1B as shown on Exhibit A.

Waste Area Treatment

- (1) Use suitable excavated material for use in subgrade/fill construction between Stations 15+60 to 21+50 on Road 1A to 1B.
- (2) Place excess excavated materials, end haul materials, and clearing and grubbing debris in the waste areas shown on Exhibit A. All waste materials shall be deposited in stable locations as directed by STATE, spread evenly, compacted, and adequate drainage established. Pile woody debris on top of waste area.
- (3) Grass seed and mulch all waste areas in accordance to Exhibit K.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

- (1) Excavated Materials. Excavated materials shall be utilized for road and fill construction and hauled in where necessary. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with Exhibit D.
- (2) 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 pipe 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 Exhibit D. 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.
- (3) 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.
- (4) Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic yard, track-mounted excavator.
- (5) Subgrade Preparation and Application of Surfacing Rock.
  - (a) Complete culvert installations, drainage ditches, fill reconstruction, bridge construction, 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 surfacing and added base rock. Provide for a crown of 4 to 6 percent, (½ inch per foot), and compact in accordance with Exhibit D. Subgrade shall be crowned at 4 to 6 percent. Subgrade shall be crowned at 4 to 6 percent.
  - (e) Upon completion of above required work, apply, process, and compact surfacing rock in accordance with specifications in Exhibit D.
- (6) Riprap Rock Use: Where rock is used for fill armor, rock shall be placed and tamped at a 1½ : 1 slope, beginning at the fill toes. When 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 I.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

I1 to I2	0+00	Begin road improvement. Finished surface width shall be 14 feet wide.
	37+08	Begin Type F fill improvement. Begin application of 4"-0" crushed rock base course and ¾"-0" crushed rock surface course. Utilize 116 cubic yards of 4"-0" crushed rock for base course restoration and 47 cubic yards of ¾"-0" crushed rock for surface course.
	37+58	Remove existing culvert and fill, develop stream channel, and install culvert in accordance with specifications in Exhibit D and H. Embed 120 cubic yards of 24"-6" riprap rock for fill armor. Utilize 20 cubic yards of 24"-6" riprap rock at the outlet of the new culvert to allow additional stream sediment materials to settle in the barrel of the culvert. Utilize 132 cubic yards of ¾"-0" crushed rock for culvert bedding and backfill.
	49+65	Designated Waste Area.

EXHIBIT D

ROAD SURFACING – PROJECT NO. 1

ROAD SEGMENT: 1A to 1B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	1A to 1B		0+00 to 24+90		
				Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	0+50	N/A	station	50	stations	0.5	24
Junctions	¾"-0 Crushed		8	Junction	24	Junctions	1	24
Total Rock for Road Segment:				1A to 1B				48
ROAD SEGMENT: 1C to 1D				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	1C to 1D		0+00 to 7+75		
				Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	0+50	N/A	station	50	stations	0.5	24
Junctions	¾"-0 Crushed		8	Junction	24	Junctions	1	24
Total Rock for Road Segment:				1A to 1B				48
ROAD SEGMENT: 2A to 2B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A to 2B		0+00 to 1+00		
				Volume (CY) Per		Number of		
Base Rock	4"-0" Crushed	2A-2B	8	Station	50	Stations	1	50
Junctions	4"-0" Crushed	0+00	N/A	Junction	24	Junctions	1	24
Landings	6"-0" Pit-run		N/A	Landing	50	Landings	1	50
Total Rock for Road Segment:				2A to 2B				124
ROAD SEGMENT: 3E to 3F				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	3E to 3F		0+00 to 13+00		
				Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	0+50	N/A	station	50	stations	.05	24
Junctions	4"-0" Crushed		8	Junction	24	Junctions	1	24
Total Rock for Road Segment:				3E to 3F				48
ROAD SEGMENT: 4B to 4C				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	4B to 4C		0+00 to 1+10		
				Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	4B to 4C	8	station	50	stations	1.10	55
Junctions	4"-0" Crushed		8	Junction	24	Junctions	1	24
Landing Rock	6"-0" Pit-run		N/A	Landing	50	Landings	1	50
Total Rock for Road Segment:				4B to 4C				129
ROAD SEGMENT: 4D to 4E				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	4D to 4E		0+00 to 0+90		
				Volume (CY) per		Number Of		
Base Rock	4"-0" Crushed	4D to 4E	8	station	50	stations	.90	45
Junctions	4"-0" Crushed		8	Junction	24	Junctions	1	24
Landing Rock	6"-0" Pit-run		N/A	Landing	50	Landings	1	50
Total Rock for Road Segment:				4D to 4E				119

EXHIBIT D

ROAD SURFACING – PROJECT NO. 1

ROAD POINTS: 2C, 4A, and 4F				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	2C, 4A, and 4F		n/a		
				Volume (CY) per	Number of			
Landing Rock	6"-0" Pit-run	2C, 4A, 4F	N/A	Landing	50	Landings	3	150
Total Rock for Road Points:				2C, 4A, and 4F				150
ROAD SEGMENT: I1 to I2				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	I1 to I2		0+00 to 118+68		
				Volume (CY) per	Number of			
Leveling Rock	3/4"-0" Crushed	I1 to I2	N/A	Station	N/A	Stations		600
Total Rock for Road Segment:				I1 to I2				600
ROAD SEGMENT: I3 to I4				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	I3 to I4		0+00 to 16+25		
				Volume (CY) per	Number of			
Base Rock	4"-0" Crushed	I2 to I3	6	Station	38	Stations	16.25	618
Turn Around	4"-0" Crushed		6	turnarounds	20	Turnarounds	1	20
Total Rock for Road Segment:				I3 to I4				638

Total Rock for Project No. 1

6"-0"	4"-0"	3/4"-0"	TOTAL
300	956	648	1,904

EXHIBIT D

ROAD SURFACING – PROJECT NO. 3

ROAD SEGMENT: I1 to I2 (Project 3)				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	37+58 Volume (CY) per		n/a Number of		
Culvert Bedding	¾"-0" Crushed	37+58	n/a	culvert	66	culverts	1	66
Culvert Bedding Reinforcement	4"-0" Crushed		n/a	culvert	66	culverts	1	66
Culvert Backfill	¾"-0" Crushed		n/a	culvert	348	culverts	1	348
Fill Armor	24"-6" Riprap		n/a	culvert	120	culverts	1	120
Dissipater	24"-6" Riprap			culvert	20	culverts	1	20
Base Rock	4"-0" Crushed		10	station	116	stations	1	116
Surfacing	¾"-0" Crushed		4	station	47	stations	1	47
Total Rock for Road Segment:				I1 to I2 (Project 3)				783

Total Rock for Project No. 3

24"-6"	4"-0"	¾"-0"	TOTAL
140	182	461	783

Roads shall be uniformly graded and approved by STATE prior to rocking. For typical cross section, see Forestry Department Drawing Nos. 351-C and 351-D at the Forestry Department district office.

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 sediments will not enter streams.

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. If additional rock is required because of insufficient depth, it shall be added by truck measure to those areas that were slighted. The conversion from compacted yardage to truck yardage is 1.3 multiplied by the compacted yardage equals truck yardage.

The depth of compacted aggregates shall not vary more than 1 inch from the depth specified in Exhibit D. The average depth for each road segment shall be the specified depth or greater. Surfacing areas shall be staked 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

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 visible deformation ceases, or in the case of a sheepsfoot roller, the roller "walks out." A minimum of 3 passes shall be made over the entire width and length of the road. A pass is defined as traveling a road section in one direction and then back over that same section again. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments that require rock surfacing.	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 or, in the case of a sheepsfoot roller, the roller "walks out." At least of 3 passes shall be made over the entire width and length of each layer. A pass is defined as traveling a fill layer in one direction and then back over that same layer again.

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 a 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. A pass is defined as traveling a road section in one direction and then back over that same section again. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

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



EXHIBIT D

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 mile 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 or sheepsfoot 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.

EXHIBIT E  
CULVERT SPECIFICATIONS

All culvert materials shall be furnished and installed by PURCHASER, unless otherwise specified in the Contract. All culverts shall be constructed of double-walled polyethylene, or corrugated aluminized Type 2 steel, except for Culvert No. 3, which shall be constructed of corrugated aluminized Type 2 steel. All culverts shall conform to the material and fabricating requirements of the "Standard Specifications for Highway Construction" prepared by the Highway Division of the Oregon State Department of Transportation. Corrugation types and shapes other than those meeting the above minimum Highway requirements, shall be approved in writing by STATE.

Culvert No. 3 is 96 inches in diameter and shall be step-beveled on the inlet and outlet.

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 stipulated in special instructions.

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

Culvert grade shall slope away from ditch grade at least 5 percent unless otherwise specified.

The foundation and trench walls for all culverts shall be free from logs, stumps, limbs, stones over 3 inches, and other objects which would dent or damage the pipe during installation or use. The culvert trench shall be excavated wide enough to permit compaction and working on each side of the pipe. Tamping shall be done in 6-inch lifts, 1 pipe diameter each side of the pipe to 95 percent density or over. Bedrock shall be excavated as required to provide a uniform foundation for the full length of the culvert.

A bedding of granulated material or crushed rock 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 pipe.

Backfill shall consist of granulated material, crushed rock, or job-excavated soil free of stumps, limbs, rocks, or other objects which would damage the pipe.

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

Joining shall be done with bands of like material and corrugations. Manufacturers' instructions shall be followed for prefabricated pipe assembly.

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

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

Fill heights, if not shown on a road plan and profile, shall be in accordance with those shown in Drawing No. 2094, "Fill Height Tables", prepared by the Highway Division of the Oregon State Department of Transportation. Any deviation must be approved by STATE.

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.

EXHIBIT E  
 CULVERT SPECIFICATIONS

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

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. Construct lead-off ditches away from culvert outlets where the slope gradients restrict the free flow of water.

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

DIA.	Pipe Gauge	Band Widths (" )				Hugger Band Widths (" )	
		Band Gauges	Annular	Helical	Dimpled	Annular	Helical
18	16	16	12	12	12	13 1/8	10 1/2
90-120	12	16	26	26	N/A	N/A	N/A

Culverts larger than 60" in diameter shall have 3" x 1" corrugations.

The intake ends of culverts in fills less than 3 feet shall be marked by driving white fiberglass posts within 6 inches of the downgrade side. Posts shall be a minimum of 6 feet long and 2 1/2 inches wide, with the spade driven 2 feet into the ground.

Tamping is required.

All removed culverts shall be hauled to an approved refuse site off of STATE land.

CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)		ROAD SEGMENT POINT TO POINT	STATION
1	18	40	CPP	2A to 2B	0+00
2	18	40	CPP	4B to 4C	0+00
3	96	108	CSP al. ctd.	I1 to I2	37+58

EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

- (1) PURCHASER shall prepare a written development plan for the quarry area. The plan shall be submitted to STATE for approval prior to conducting any operation in the quarry area. The plan shall include, but not be limited to:
  - (a) Location of benches and roads to benches.
  - (a) Disposal site for debris and overburden.
  - (b) Time lines for rock quarry use.
  - (c) Erosion Control measures.
- (2) PURCHASER shall schedule and coordinate quarry usage in all quarries and stockpiles with other existing or planned STATE contracts requiring quarry usage.
- (3) PURCHASER shall notify STATE 5 days prior to the start of quarry development activities.
- (4) Quarry 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. All overburden material shall be hauled to the designated waste area, as directed by STATE.
- (5) 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.
- (6) PURCHASER shall conduct the operations relative to the disposal of waste material in such manner that silt, rock, debris, dirt, or clay shall not be washed, conveyed, or otherwise deposited in any stream.
- (7) Benches shall be 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 degrees or less. Said bench shall be easily accessible with tractors.
- (8) Quarry face shall be developed in a uniform manner.
- (9) Oversized material that is produced or encountered during development shall be broken down and utilized for crushing.
- (10) Proper winterization and storm-water control measures such as waterbarring, drainage, utilization of filter bales, mulching and/or blocking access shall be utilized and such measures maintained to protect the watershed and project work, as directed by STATE.
- (11) All quarry backslopes shall be left in a stable condition.
- (12) The quarry floor shall be developed to provide for drainage away from the quarry. All quarry and stockpile site drainage ditches shall be maintained. Quarry bench access road shall be cleared, waterbarred and blocked upon completion of quarry use as directed by STATE.

EXHIBIT F  
ROCK QUARRY DEVELOPMENT AND USE

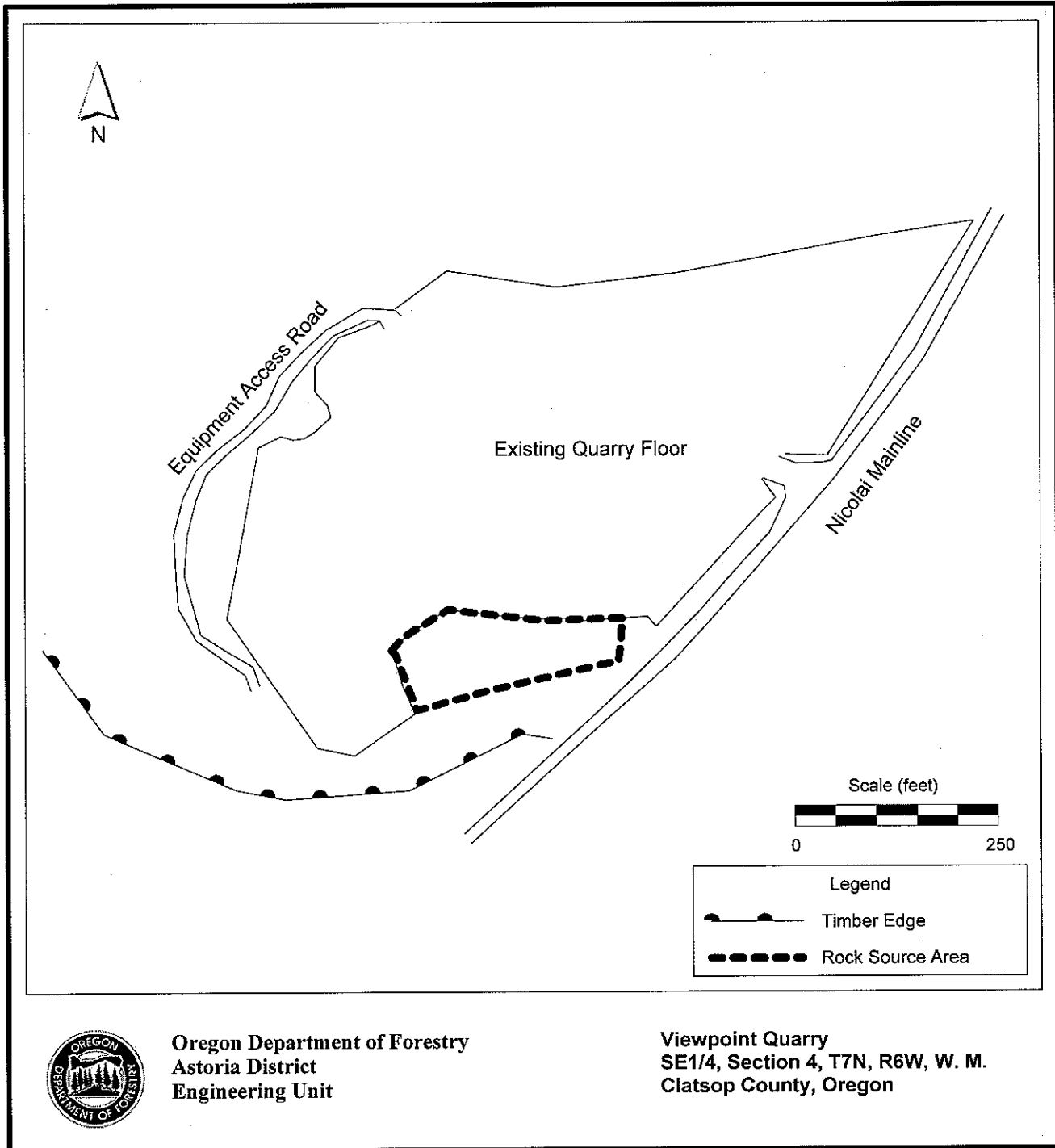


EXHIBIT G

CRUSHED ROCK SPECIFICATIONS

Materials. The material shall be fragments of rock or other hard, durable particles crushed to the required size and a filler of finely crushed stone, sand, or other finely divided mineral matter. The material shall be free from vegetation and lumps of clay. STATE may require screening and/or rejecting of materials utilized for production of crushed rock for the purpose of removing excess fines or dirt.

Quality and Grading Requirements. The stone base materials shall be crushed rock, including sand. River gravel shall not be used.

The material from which base material is produced or manufactured shall conform to the general requirements of Section 2630 of the "Standard Specifications for Highway Construction" prepared by the Highway Division, Oregon Department of Transportation, and shall meet the following test requirements:

Hardness - Test Method AASHTO T 96 35% Maximum

Durability - Test Method OSHD Standard  
Passing No. 20 Sieve: 30% Maximum  
Sediment Height: 3" Maximum

<u>For 3/4"-0"</u>	Passing	1" sieve	100%
	Passing	3/4" sieve	90-100%
	Passing	3/8" sieve	55-75%
	Passing	1/4" sieve	40-60%

Of the fraction passing 1/4" sieve, 40% to 60% shall pass the No. 10 sieve.

<u>For 1 1/2"-0"</u>	Passing	2" sieve	100%
	Passing	1 1/2" sieve	95-100%
	Passing	3/4" sieve	60-90%
	Passing	1/4" sieve	35-50%

Of the fraction passing 1/4" sieve, 40% to 60% shall pass the No. 10 sieve.

<u>For 2"-1"</u>	Passing	2 1/2" sieve	100%
	Passing	2" sieve	90-100%
	Passing	1 1/2" sieve	35-70%
	Passing	1" sieve	0-15%

<u>For 4"-0"</u>	Passing	5" sieve	100%
	Passing	4" sieve	90-100%
	Passing	2" sieve	60-90%
	Passing	1/4" sieve	15-35%

The referenced sieve shall have square openings as set forth in AASHTO M 92, Woven Cloth Series. The determinations of size and gradings shall be as set forth in AASHTO T 27.

EXHIBIT G

PIT-RUN AND RIPRAP ROCK SPECIFICATIONS

<u>For 6"-0" Pit-Run</u>	Passing	10" sieve	100%
	Passing	6" sieve	65%

Control of gradation shall be by visual inspection by STATE.

For 24"-6" Riprap A minimum of 50 percent or more of the material shall measure at least 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.

EXHIBIT H

TYPE F STREAM CROSSING

Type F stream fill reconstruction must allow free passage of fish as provided in the Oregon Forest Practice Rules. Modifications of the existing culvert geometry shall be required to allow free passage of fish.

Work shall be conducted only during periods of low water flows and between July 1 and August 31, annually. STATE shall be notified a minimum of 48 hours prior to beginning work. STATE has prepared "Written Plans" for this work. A pre-work meeting will be held on-site prior to commencement of work on the project. Oil spill response materials shall be on site before the work begins.

A track-mounted excavator rated a minimum of 1½ cubic yard shall be used for all excavation, stream channel development, and riprap placement.

Excavated debris and soil materials unsuitable for fill construction shall be hauled to the Waste Area located on the Vesper Road, as shown on Exhibit A. The existing culvert shall be hauled to an approved refuse site off of STATE land.

Waste materials shall be sloped for drainage and compacted for stability, as directed by STATE. Large woody debris shall be redistributed over the waste area after all waste materials have been hauled.

Grass seed and straw mulch shall be applied to all exposed areas, bare soils and waste materials as directed by STATE in accordance with Exhibit K.

De-watering of the work site shall be accomplished prior to the removal of any fill material below the top or along the flanks of the culvert, removal of the existing culvert, or the development of the culvert bed and stream channel. The work site shall be de-watered by the use of cofferdams, pumps, temporary diversion ditches and/or drainage structures. De-watering once begun shall be continual until such time that the stream has been released into the new culvert, as directed by STATE.

Remove existing fill, culvert, and any logs or woody debris.

Coordinates for the inlet and outlet of the new culvert are on page 3 of 4 of this exhibit.

Develop the stream channel for a distance of 25 feet upstream of the inlet of the culvert and 15 feet downstream of the outlet, as directed by STATE. The stream channel width will be 8 feet and stream channel banks shall be sloped at 2:1.

Native (excavated) stream sediment material (cobble) shall be placed in the culvert barrel to a depth of 38.4 inches, as directed by STATE.

Streambed Retention Boulders: Excavated boulders or riprap rock (24"-6" material) shall be placed and embedded starting at the outlet of the culvert for a distance of 15 feet downstream to allow additional stream sediment materials to settle in the barrel of the pipe and to prevent the flushing of material placed per item 11 above as directed by STATE. The elevation of this material shall be 38.4 inches above the culvert invert. Placement of this material shall be immediately after sufficient backfill material has been placed over the culvert to support Excavator weight.



EXHIBIT H

TYPE F STREAM CROSSING

Fill reconstruction backfill shall consist of select materials obtained from crushed rock from the Viewpoint Quarry, the existing fill, or the borrow site on the Vesper Road as shown on Exhibit A. Backfill and embankment materials shall be hauled in where necessary and thoroughly compacted in accordance with Exhibit D.

Utilize 66 cubic yards of 4"-0" crushed rock bedding reinforcement material, 66 cubic yards of ¾"-0" crushed rock bedding material, and 348 cubic yards of ¾"-0" crushed rock backfill material.

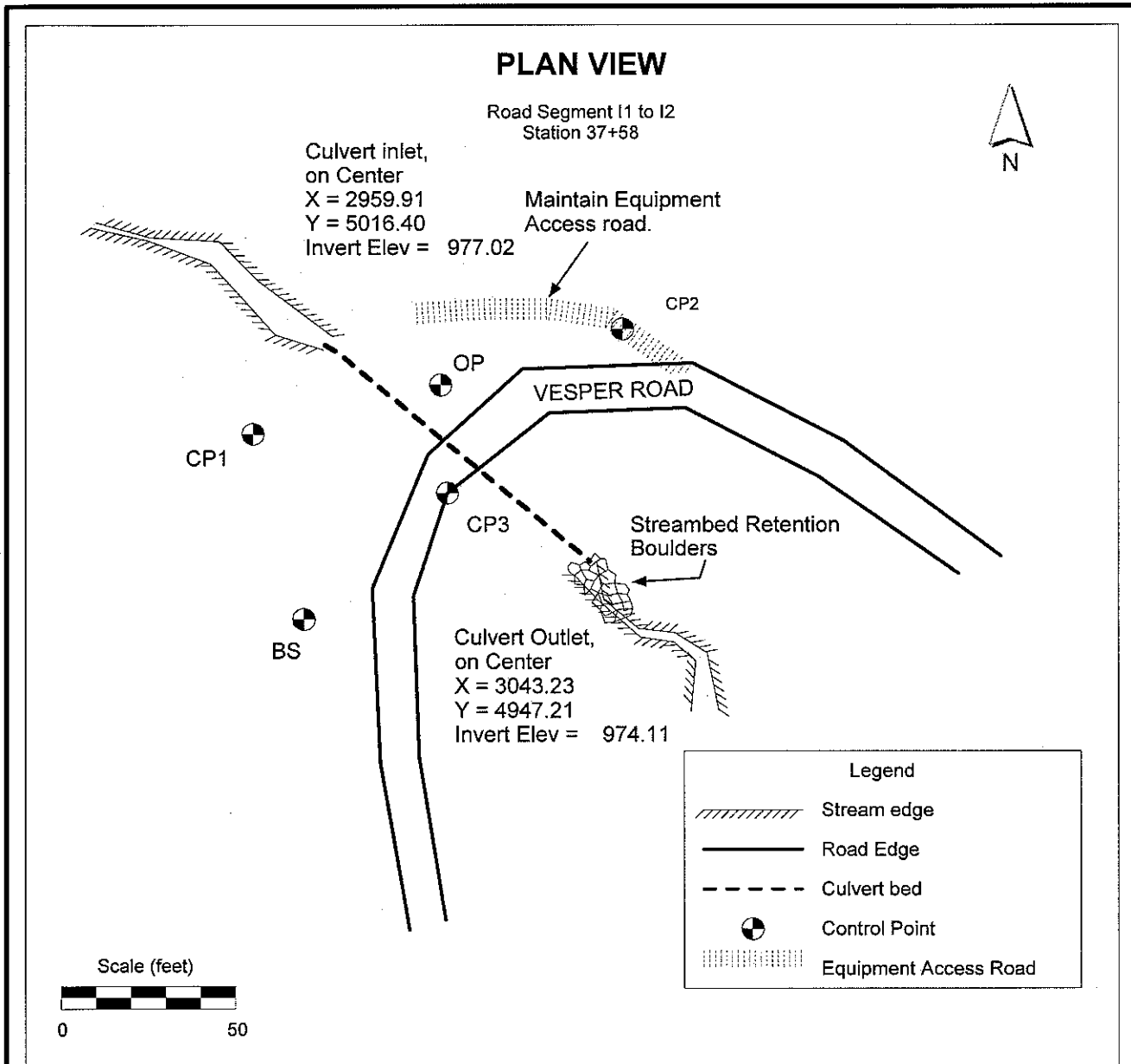
Utilize 120 cubic yards of 24"-6" riprap rock for fill armor placed and tamped at a 1½":1 slope for a minimum thickness of 2 feet beginning at the toes.

Finished subgrade width shall be 26 feet, with 10 feet to the outside of road centerline and 16 feet to the inside of road centerline. Finished surface width shall be 22 feet, with 8 feet to the outside of road centerline and 14 feet to the inside of road centerline.

Dissipator/Cofferdam material shall be 24"-6" riprap rock placed as directed by STATE. Placement of this material shall be immediately after sufficient backfill material has been placed over the culvert to support Excavator weight.

Maintain the existing equipment access road as located on the Plan View on page 3 of 4 of Exhibit H. Access road is to be left in a condition that allows for excavator access to Grub Creek.

EXHIBIT H



Oregon Department of Forestry  
 Astoria District  
 Engineering Unit

Grub Creek Type F Crossing  
 E1/2, Sec 24, T6N R6W, W.M.  
 Clatsop County, Oregon

EXHIBIT H

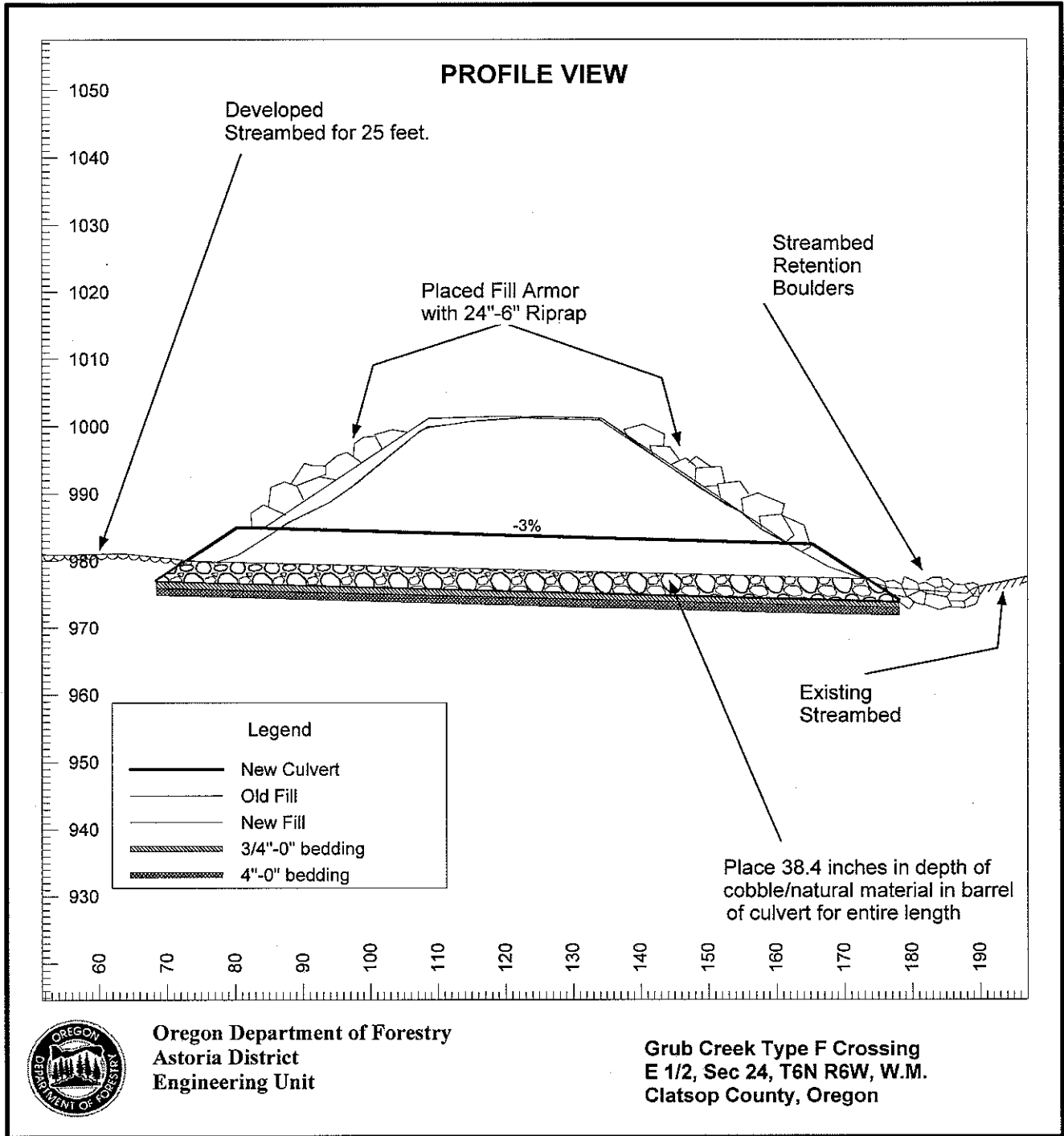


EXHIBIT I  
TYPICAL EMBEDDED ENERGY DISSIPATOR

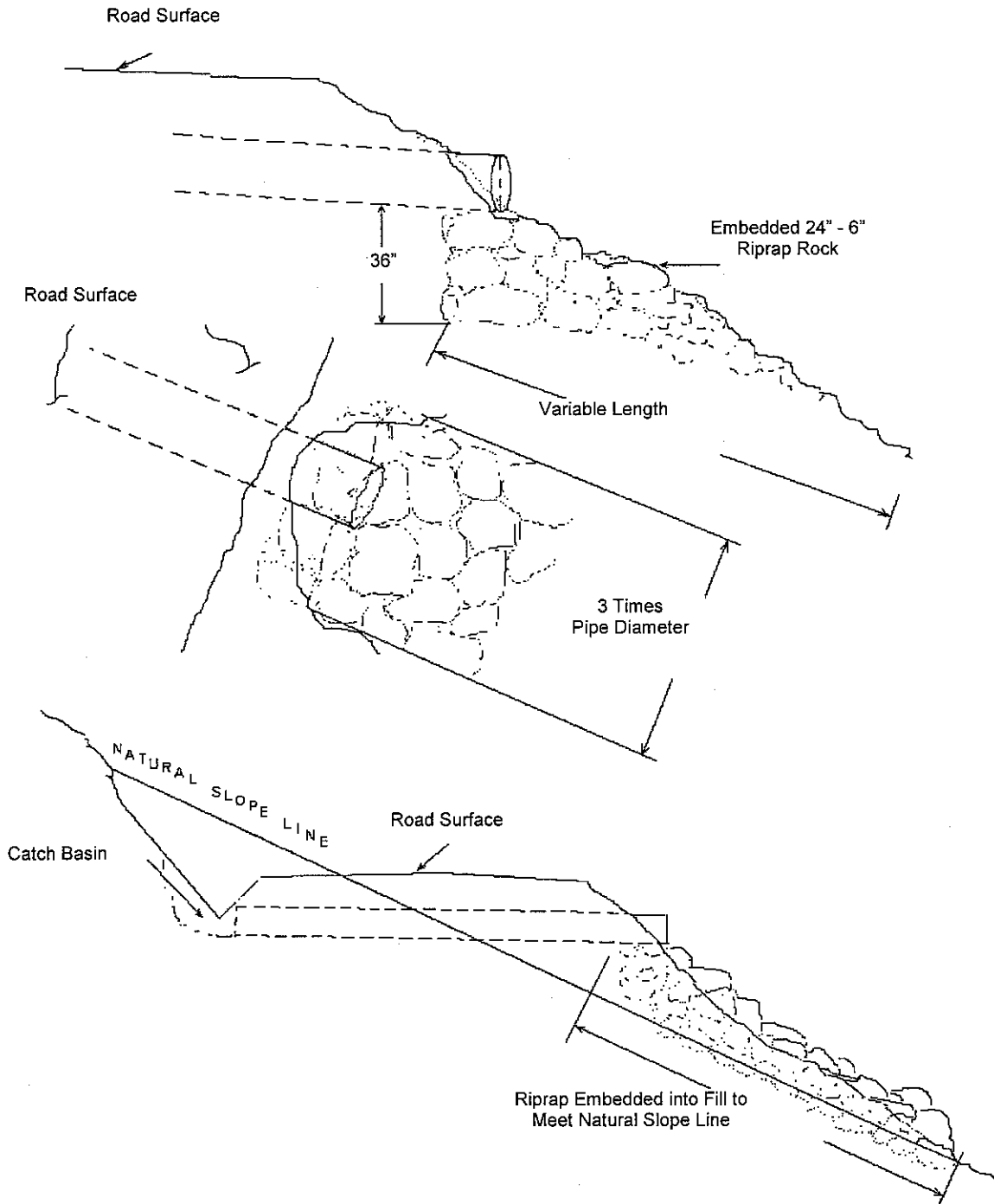
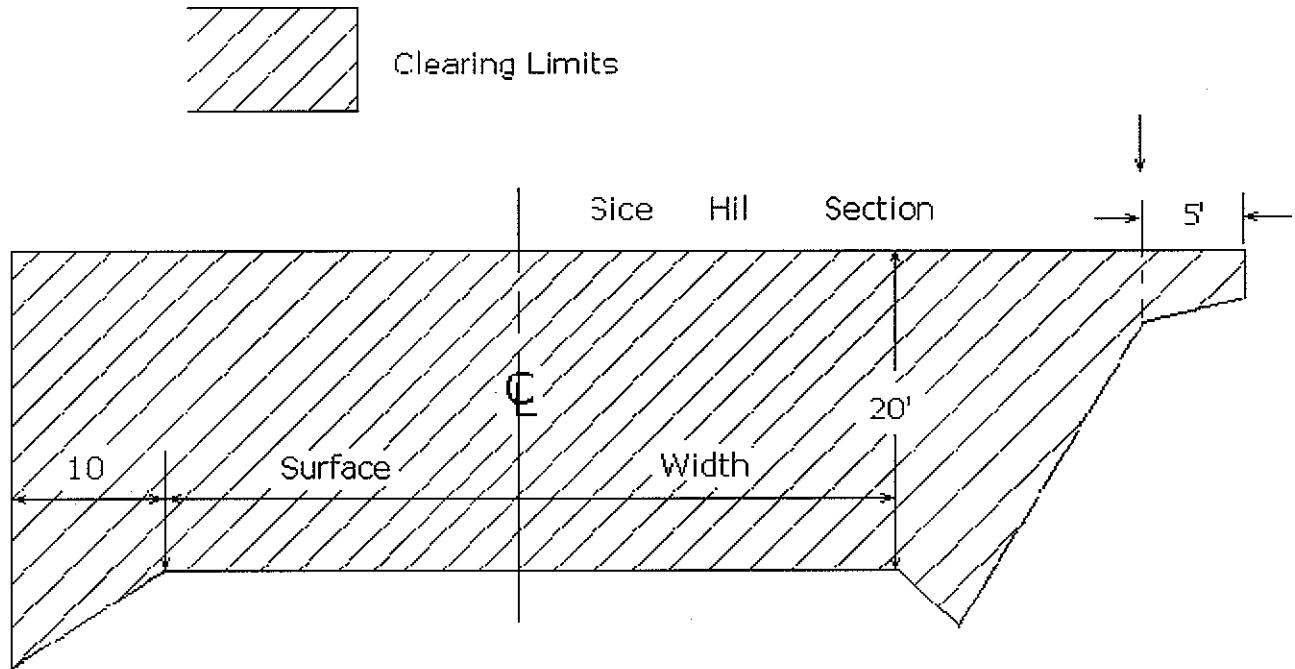


EXHIBIT J

LOGGING ROAD BRUSHING SPECIFICATIONS



REQUIREMENTS

The minimum height of clearing shall be 15 feet from the road surface, and the minimum width of clearing on the cutslope side(s) of the road shall be 15 feet horizontal distance from the shoulder of the road and 10 feet horizontal on the down slope side from the road shoulder. For cutslopes less than 6 feet in height, brushing shall extend 5 feet beyond the top of cutslope. For cutslopes greater than 6 feet in height, brushing shall extend 15 feet horizontal distance from the road shoulder.

Brush and trees shall be cut to a maximum height of 6 inches above the ground surface or obstructions such as rocks or existing stumps.

Debris resulting from the brushing operation shall be removed from the roadway, cutslope, ditches, water courses, culvert inlets and outlets and sediment catching basins. Debris shall be mulched or scattered downslope from the road or placed in other stable locations. Large debris, 6 inches or larger in diameter, shall be mulched or cut into lengths 6 feet or less to facilitate rapid decay, unless otherwise approved by STATE.

Trees larger than 6 inches in diameter at stump height, located within clearing limits but outside of the ditchline or shoulder, shall not be cut down, but shall be limbed for road visibility.

EXHIBIT K

GRASS SEEDING AND MULCHING

This work shall consist of furnishing and placing required grass seed, and straw mulch.

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. Work shall be performed during each specified seeding season on all completed and previously untreated sections. PURCHASER shall notify STATE 24 hours prior to seeding.

Application Methods for Grass Seed

Dry Method. Hand-operated seeding devices may be used when seed is applied in dry form.

APPLICATION RATES FOR SEED

Seed listed below shall be applied at the following rate per acre: 100 lbs.

SPECIES	MIXTURE	PURE LIVE SEED	POISON AND/OR REPELLENT	GERMINATION
Annual Rye	26%	95%	0	>90%
Orchard Grass	25%	95%	0	>90%
New Zealand White Clover	17%	95%	0	>90%
Perennial Rye	15%	95%	0	>90%
Birdsfoot Trifol	07%	95%	0	>90%
Red Clover	06%	95%	0	>90%
Alsike Clover	04%	95%	0	>90%

Seeding and Mulching:

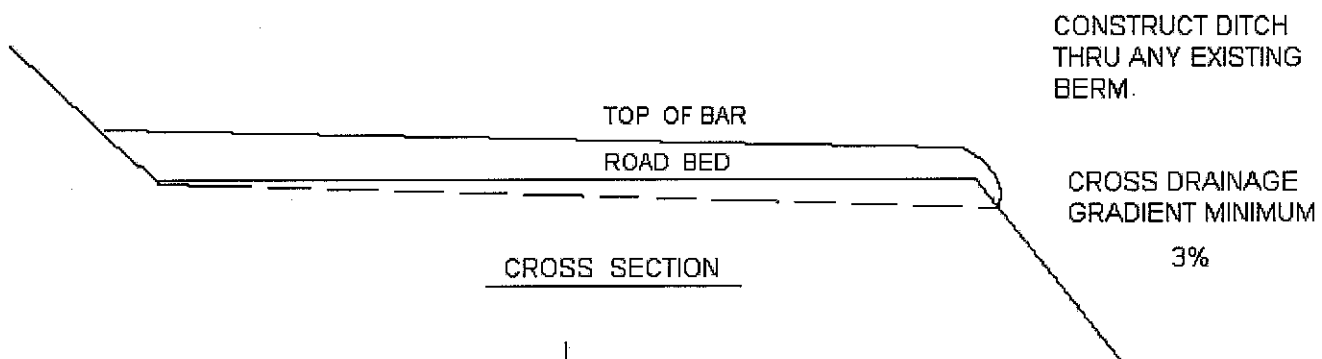
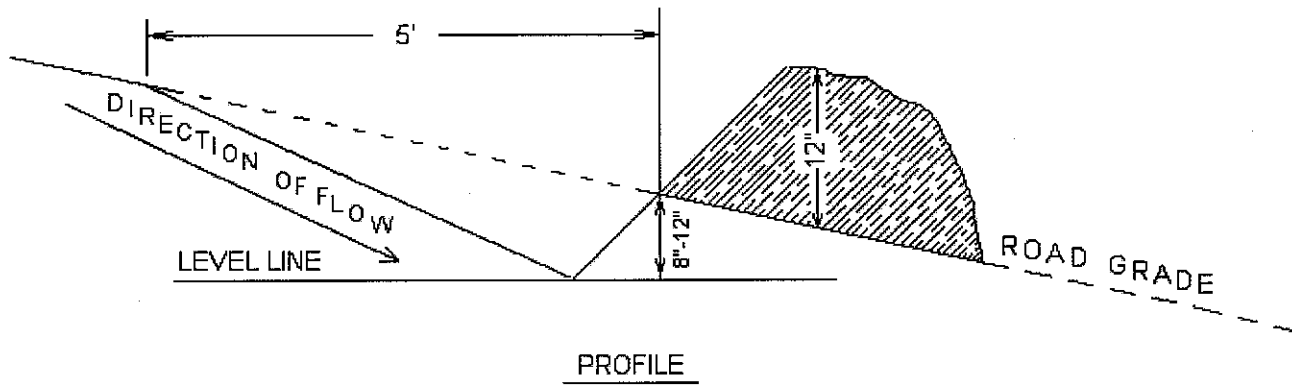
Apply grass seed and straw mulch to all waste areas resulting from Project Nos. 1 and 3.

Apply grass seed and straw mulch to all bare soils resulting from Project Nos. 4 and 5.

Applied straw mulch shall be a minimum of 2 inches deep and provide a uniform cover.

EXHIBIT L

WATERBAR SPECIFICATIONS



CONSTRUCT DITCH  
THRU ANY EXISTING  
BERM.

CROSS DRAINAGE  
GRADIENT MINIMUM  
3%

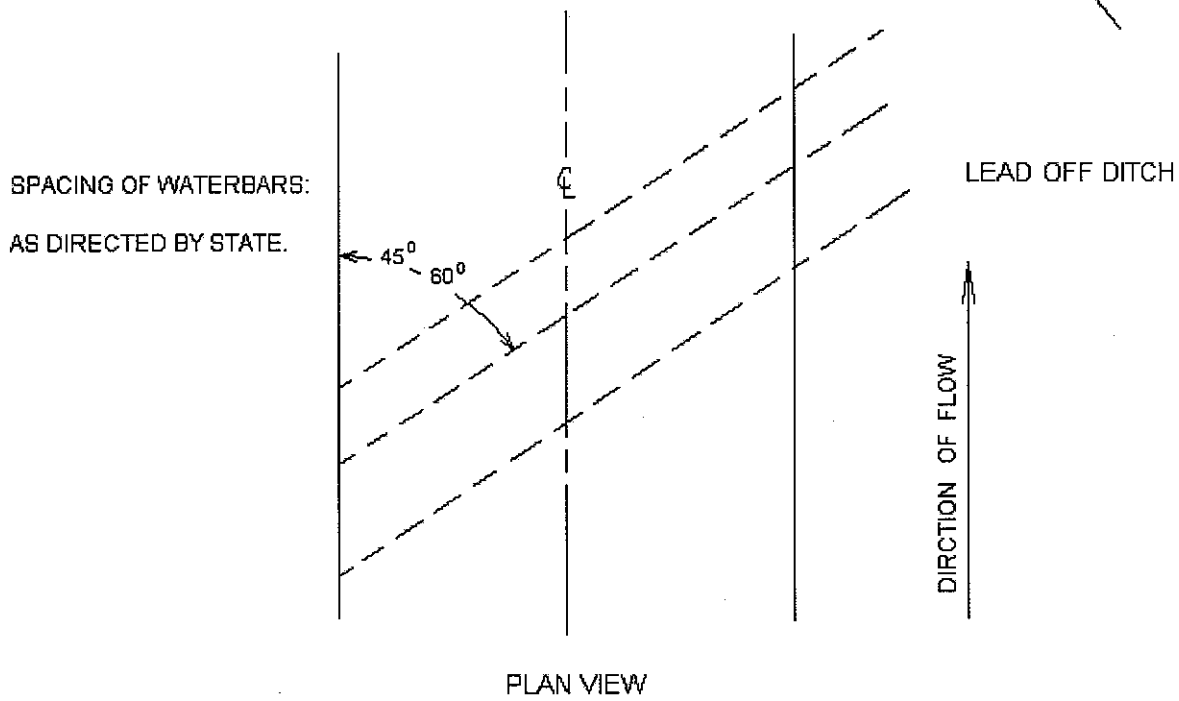


EXHIBIT M

ROAD VACATING AND FILL REMOVAL INSTRUCTIONS: V1 to V2

- (1) Tree Removal. Cut or remove all trees necessary to access the project area and to facilitate vacating operations, as directed by STATE. Timber shall NOT be removed as designated timber, unless located within posted timber sale boundaries or right-of-way boundaries.
- (2) Fill Removal and Stream Channel Development. Remove fills to the natural stream course level(s). Stream channel(s) shall be excavated/developed to specified widths. Developed stream banks shall be sloped at natural contours or no steeper than 1 ½:1, as directed by STATE.
- (3) Use of Excavated Materials.
  - (a) Fill Excavation. Excavated materials shall be placed on the interior (cut) side of the road, and utilized to restore the cutslope to natural contours, or to a minimum 10% outsloped surface for drainage. Excavated materials shall be placed and compacted a minimum of 10 feet from the top of the developed stream bank. Any excess material will be hauled to a designated waste area, as directed by STATE.
  - (b) Woody Debris may be incorporated in embankment material.
- (4) Erosion Control. All excavated material and bare soil shall utilize grass seed and straw mulch approved by STATE and in accordance with the specifications in Exhibit K. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.
- (5) Construct Waterbars as directed by STATE. Construct waterbars according to the specifications in Exhibit L.
- (6) Block roads/landings using root wads, stumps, and/or logs spread in a uniform manner, as directed by STATE.
- (7) Equipment. A minimum 1 ½ cubic-yard, track mounted excavator shall be used for all excavation, culvert removal, streambed preparation, road blocking, and waterbarring, unless otherwise approved in writing by STATE.
- (8) Dry Conditions. All work shall be performed during dry conditions acceptable to STATE.

FPA Written Plan. STATE has prepared the required FPA Written Plan for this work and the Plan is on file at the Astoria District, Oregon Department of Forestry. Fill removal, stream channel development, and/or in-stream work shall be conducted only between July 1 and August 1, annually.

SPECIFIC INSTRUCTIONS/SPECIFICATIONS:

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
V1 to V2	0+00	Construct roadblock.
	4+30	Fill removal. Develop a minimum 4-foot wide stream channel. Excavated material shall be placed on the interior (cut) side of the road on both sides of the fill, as directed by STATE.
	11+25	Fill removal. Re-establish natural drainage contours.
V3	0+00	Block access to roadside landing using rootwads/stumps from Area 4 road construction.



STEEPLE CHASE STREAM ENHANCEMENT INSTRUCTIONS

General Instructions:

- (a) Work shall be conducted only during periods of low water flows and between July 1 and August 31, annually unless otherwise approved in writing by STATE. STATE shall be notified a minimum of 48 hours prior to beginning work. STATE has prepared the required FPA "Written Plan" for this work.
- (b) Stream crossings will be limited to those necessary to access the sites and whenever possible equipment will operate from the banks to minimize stream disturbance. Turbidity shall not exceed 10% above natural stream turbidities as a result of work. The turbidity may be exceeded for a limited duration (per OAR 340-41), provided all practicable erosion control measures have been implemented. Oil spill response materials will be on site before work begins.
- (c) Trees required for stream enhancement work shall be conifers obtained from the timber sale area or at other locations acceptable to STATE. Trees can have defects such as double tops, crooked trunks, heart rot etc. as long as they meet the required size dimensions.
- (d) Trees shall be uprooted as needed, cut to length, and delivered to the project site, as directed by STATE. Trees will be transported by log truck, or other means so that roads are not damaged (i.e. trees cannot be dragged on road surface).
- (e) Access routes will be selected to minimize disturbance to the riparian area, and equipment transporting trees to the sites will take care to avoid damage to existing in-stream logs, riparian or other trees. Trees that are cleared to gain access will be placed in the creek or used to block access trails.
- (f) A minimum 1½ cubic-yard, track-mounted excavator shall be used for all placement.
- (g) All areas of bare or disturbed soils shall be seeded with an approved grass seed mix. Fertilizer shall not be used. All access trails will be thoroughly blocked to prevent access using large woody debris or boulders, water barred, de-compacted, and mulched upon completion, as directed by STATE.

Specific Instructions:

<u>Location</u>	<u>Work Description</u>
Site No. 1	Work: Place the root wad end of two trees into the stream channel with the tops extending onto the banks. Place the three logs between and upstream of these trees as directed by the STATE, with the five tree tops between and around the five previously placed trees. Materials: Two trees with a DBH of at least 20 inches and at least 50 foot long with attached root wads, and three logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of five tree tops at least 30 feet long.
Site No. 2	Work: Place the root wad end of two trees into the stream channel with the tops extending onto the banks. Place the three logs between and upstream of these trees as directed by the STATE, with the five tree tops between and around the five previously placed trees. Materials: Two trees with a DBH of at least 20 inches and at least 50 foot long with attached root wads, and three logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of five tree tops at least 30 feet long.
Site No. 3	Work: Place the root wad end of two trees into the stream channel with the tops extending onto the banks. Place the three logs between and upstream of these trees as directed by the STATE, with the five tree tops between and around the five previously placed trees. Materials: Two trees with a DBH of at least 20 inches and at least 50 foot long with attached root wads, and three logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of five tree tops at least 30 feet long.

EXHIBIT O

SPECIFICATIONS FOR BRUSH AND SLASH SHOVEL PILING

Areas designated for work under the contract shall be treated according to the specifications given below:

Clearing - Brush, logging slash, and other debris shall be cleared from planting sites and piled in windrows or piled so that 80 percent or more of the soil organic layer is exposed. All woody vegetation (other than conifer trees) is defined as brush in this exhibit.

Piles - shall be located at least 75 feet apart and shall be no more than 75 feet long. Piles shall be located inside the project area designated for piling and shall be more than 75 feet from any edge or standing conifer tree. Piles shall be built to a height of 3 to 4 feet and then covered to prevent water from reaching the slash. STATE shall supply the materials used for covering the slash. Additional woody debris shall be piled on top of the covered piles to complete the piling, as directed by STATE. Logs and chunks which are suitable for firewood shall be piled separately from slash, near roads and landings and alongside the road in locations designated by STATE.

Conifer Trees - shall be saved, unless otherwise directed by STATE.

Skid Trails - shall be ripped to a depth of 12 inches.

Residual Logs - An average of 600 cubic feet of hard conifer logs per acre. Log shall contain a minimum of 10 cubic feet of volume and be no shorter than 6 feet in length. Two logs per acre shall be at least 24 inches in diameter, on the large end, where available. Hard conifer logs must be in decay class one or two as indicated by intact bark and original wood color. Trees or logs shall be left well distributed across the unit.

Protective Measures - shall comply with Oregon Forest Practice Rules issued per ORS 527.610 to 527.992. Examples of protective measures are: (1) waterbarring tractor trails where necessary to prevent runoff toward streams; (2) not windrowing in streams or streamways; and (3) leaving stream buffers along designated streams.

Work specifications may be modified or waived only upon written notice from STATE.

EXHIBIT O

SPECIFICATIONS FOR BRUSH AND SLASH SHOVEL PILING

Equipment Type, Equipment Operation, and Conduct of Work

The specifications given below are requirements for equipment type, equipment operation, and conduct of work under the contract.

Shovel - shall be a track-mounted machine with a ground-pressure rating of not more than 6.8 PSI and a net horsepower of 85 or more. The machine shall be capable of a minimum horizontal reach of 26 feet and a minimum vertical reach of 16 feet.

- Excavator - shovel: Bucket shall be a hydraulically controlled, 4 to 5-foot wide, "clamshell-style bucket with rake arms," with a 360-degree continuous rotation, and tooth length on rake arm shall be greater than 14 inches long, unless otherwise approved in writing by STATE. "Clamshell-style bucket with rake arms" shall be hydraulically controlled to operate bucket in a horizontal position (**fixed position: positive control**) for piling slash.
- Log Loader - shovel: Bucket shall be a hydraulically controlled, 4 to 5 foot wide, "clamshell-style bucket with rake arms," with a 360-degree continuous rotation, and tooth length on rake arm shall be greater than 14 inches long, unless otherwise approved in writing by STATE. "Clamshell-style bucket with rake arms" shall be hydraulically controlled to operate bucket in a vertical position (**free swinging**) for piling slash.

Equipment	Rate	Hours	Appraised Value
Excavator	\$ 120.00 / hour	40.0	\$ 4,800
Log Loader	\$ 87.50 / hour	54.9	\$ 4,800

Operator - must be experienced in operating similar equipment on land clearing operations, be able to operate the equipment proficiently, and pile the debris on the area as directed by STATE.

Support - including transport, other equipment, replacements, supplies, maintenance, and repairs shall be furnished as required to complete work; and shall be furnished without cost to STATE, other than as agreed under the contract terms.

Work Scheduling - work shall be accomplished only during dry weather conditions, and started within 14 calendar days after completion of yarding activities on Area 4. Operations shall provide for continual operation until contract work is completed, unless interrupted by poor weather, fire closures, or other uncontrollable circumstances. Equipment breakdowns shall be repaired without undue delay, and provision shall be made for replacement of equipment to prevent prolonged delays. Piling operation shall not be allowed when operations might damage sites or affect stream flows. Any exception to these instructions must be authorized in writing by STATE.

STATE Representative - shall provide directions for the conduct of work according to specifications.

**PART IV: OTHER INFORMATION**  
**FOREST PRACTICES ACT "WRITTEN PLAN"**  
**For Harvest of Steeple Chase Timber Sale 341-06-53**

**Landowner:**

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

**Protected Resources:**

The following streams are located in Section 13 and 24 of T6N, R6W, W.M., Clatsop County, Oregon.

Area 1 There are no Type F streams within Area 1. The eastern portion of Area 1 borders Grub Creek a medium Type F stream for approximately 1,100 feet. The northern boundary of Area 1 is adjacent to a small Type F tributary to Grub Creek for approximately 2,000 feet.

Area 2 There are no Type F streams within Area 2. A portion of the northern boundary of Area 2 is adjacent to Fishhawk Creek a large Type F stream for approximately 200 feet.

Area 3 There are no Type F streams within or adjacent to Area 3.

Area 4 There are no Type F streams within Area 4. The southeastern portion of Area 4 is within 500 feet of the end of fish use for an unnamed Type F stream.

**Specific Site Characteristics:**

Grub Creek (Area 1): The streambed is approximately 5 to 12 feet wide with moderate stream-bank slopes. Streamside vegetation is dominated by mature red alder and bigleaf maple. There is a significant component of conifer trees located above the flood plain.

Fishhawk Creek (Area 2): The streambed is approximately 10 to 20 feet wide with gentle stream-bank slopes. Streamside vegetation is dominated by mature red alder and bigleaf maple. There is a significant component of conifer trees located above the flood plain.

Unnamed Type F (Area 4): The streambed is approximately 3 to 6 feet wide with moderate stream-bank slopes. Streamside vegetation is dominated by mature red alder and bigleaf maple. There is a significant component of conifer trees located above the flood plain.

**Tree and Vegetation Retention:**

The timber sale boundary for Areas 1 and 2 (partial cuts) are posted at least 25 feet from the Type F streams. There are several Type N streams throughout the sale area that are tributaries to these streams. These Type N streams have 25 foot unposted stream buffers. A minimum of 110 ft<sup>2</sup> basal area will be left within the partial cut areas.

The timber sale boundary for Area 4 (modified clearcut) is posted at least 100 feet wide for approximately 500 feet above the fish use section of the stream. The stream is buffered an average of 50 feet beyond this point.

**Practices:**

Along the above mentioned Type F streams that are adjacent to Areas 1, and 2, as well as all other perennial Type N streams not listed, the following practices are required under the timber sale contract:

- No trees will be felled within stream buffers (RMA's), except where required by cable corridors.
- Trees adjacent to the stream buffers (RMA's) will be felled away from or parallel to the streams to prevent trees from entering the aquatic areas.
- No ground based logging equipment will be permitted within the RMA's.

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.

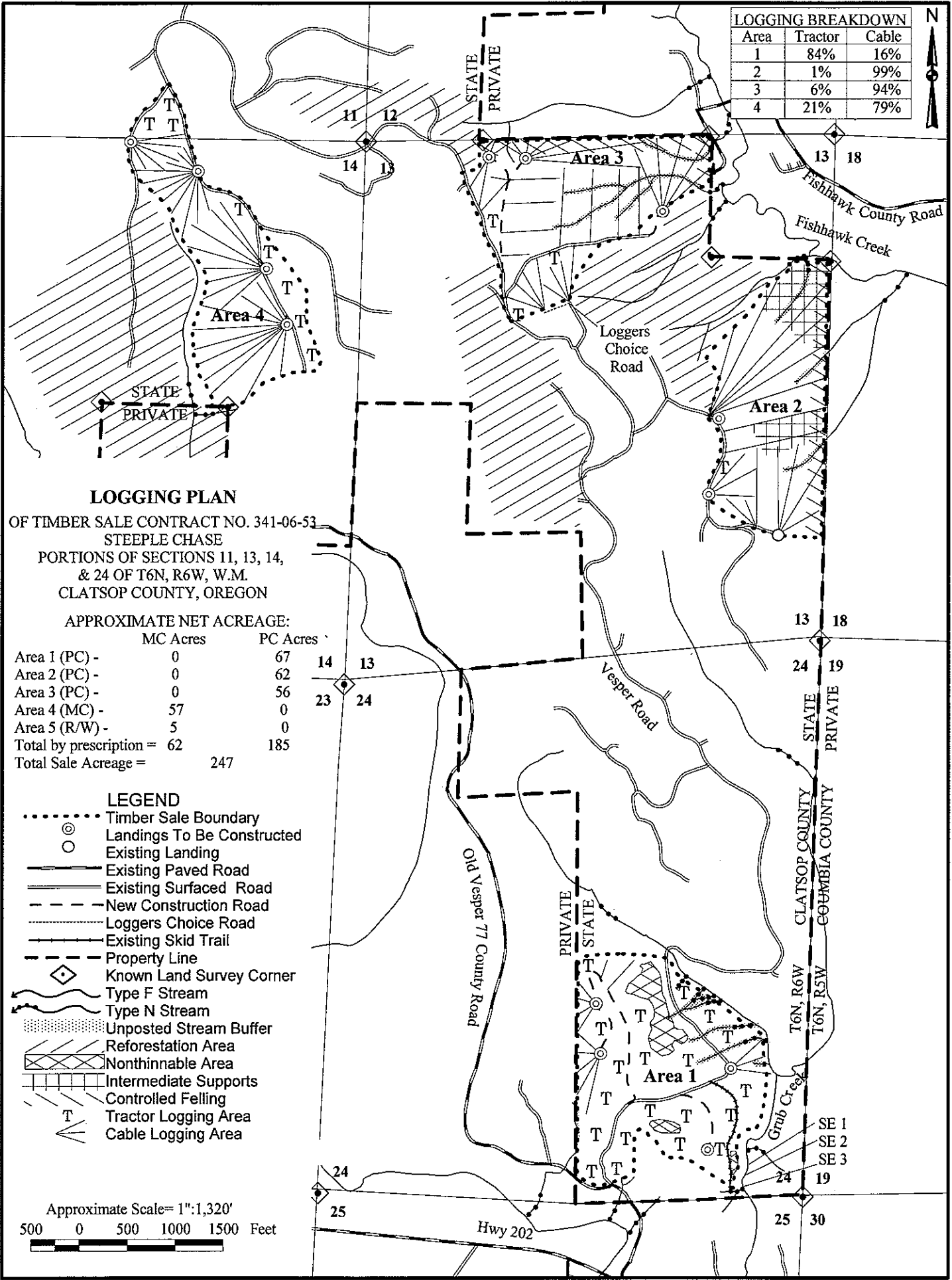
I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of Type F streams. I agree to the protection measures listed on this plan:

Submitted: \_\_\_\_\_  
Purchaser/Operator Contract Representative

Date: \_\_\_\_\_

**Attachments:** Logging Plan Map

LOGGING BREAKDOWN		
Area	Tractor	Cable
1	84%	16%
2	1%	99%
3	6%	94%
4	21%	79%



**LOGGING PLAN**

OF TIMBER SALE CONTRACT NO. 341-06-53  
 STEEPLE CHASE  
 PORTIONS OF SECTIONS 11, 13, 14,  
 & 24 OF T6N, R6W, W.M.  
 CLATSOP COUNTY, OREGON

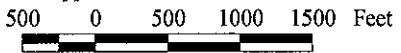
APPROXIMATE NET ACREAGE:

	MC Acres	PC Acres
Area 1 (PC) -	0	67
Area 2 (PC) -	0	62
Area 3 (PC) -	0	56
Area 4 (MC) -	57	0
Area 5 (R/W) -	5	0
Total by prescription =	62	185
Total Sale Acreage =	247	

**LEGEND**

- ..... Timber Sale Boundary
- ⊙ Landings To Be Constructed
- Existing Landing
- Existing Paved Road
- Existing Surfaced Road
- - - New Construction Road
- ..... Loggers Choice Road
- ..... Existing Skid Trail
- - - Property Line
- ◊ Known Land Survey Corner
- ~ Type F Stream
- ~ Type N Stream
- ▨ Unposted Stream Buffer
- ▩ Reforestation Area
- ▧ Nonthinnable Area
- ▤ Intermediate Supports
- ▥ Controlled Felling
- T Tractor Logging Area
- ▧ Cable Logging Area

Approximate Scale= 1":1,320'



**FOREST PRACTICES ACT "WRITTEN PLAN"**  
**For Project No. 4, Stream Enhancement**  
**Steeple Chase Combination Timber Sale 341-06-53**

**Landowner:**

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

**Protected Resources:**

The following streams are located in Section 35 of T6N, R6W, W.M., Clatsop County, Oregon.

Area 1: Grub Creek is designated as a medium, Type F stream 8 to 12 feet wide, where it runs parallel along the eastern and northeastern sale boundary of Area 1 for approximately 1,100 feet.

**Specific Site Characteristics:**

Grub Creek: The streambed is approximately 8 to 12 feet wide with moderate stream-bank slopes. Streamside vegetation is dominated by mature red alder and bigleaf maple. There is a significant component of conifer trees located above the flood plain.

**Tree and Vegetation Retention:**

FPA defines the RMA width of a medium Type F stream as 70 feet. The timber sale boundary for Area 1 is posted at least 25 feet from the Type F stream.

**Practices:**

Area 1: Three stream enhancement structures will be constructed at points SE1, SE2, and SE3 as shown on Exhibit "A"

- SE1     Materials: Two trees with a DBH of at least 20 inches and at least 50 foot long with attached root wads, and three logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of five tree tops at least 30 feet long.  
Place the root wad end of two trees into the stream channel with the tops extending onto the banks. Place the three logs between and upstream of these trees as directed by the state. With the five tree tops between and around the five previously placed trees.
- SE2     Materials: Two trees with a DBH of at least 20 inches and at least 50 foot long with attached root wads, and three logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of five tree tops at least 30 feet long.  
Place the root wad end of two trees into the stream channel with the tops extending onto the banks. Place the three logs between and upstream of these trees as directed by the state. With the five tree tops between and around the five previously placed trees
- SE3     Materials: Two trees with a DBH of at least 20 inches and at least 50 foot long with attached root wads, and three logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of five tree tops at least 30 feet long.  
Place the root wad end of two trees into the stream channel with the tops extending onto the banks. Place the three logs between and upstream of these trees as directed by the state. With the five tree tops between and around the five previously placed trees.

Stream Enhancement structures must be created by the PURCHASER for stream improvement as recommended by ODFW fisheries biologist. Each structure will be created by placing 5 conifer logs in the Type F stream. Structures shall be at least 100 feet apart. Trees can have branches and root wads attached and may have defects such as double tops, crooked trunks, heart rot, etc. The logs will be lowered into the stream at locations specified by STATE, and with consultation from an ODFW fisheries biologist. All conifer logs will be taken from the sale area and not from within the stream buffer. These structures will be created using 5 logs at each location. This work will take place during the instream work period (July 1 – August 31) if possible. If the work cannot be done during the designated instream work

**FOREST PRACTICES ACT "WRITTEN PLAN"**  
**For Project No. 4, Stream Enhancement**  
**Steeple Chase Combination Timber Sale 341-06-53**

period an ODFW fisheries biologist will be consulted to field verify any fish habitat concerns and approve any work to be conducted outside the designated period.

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:

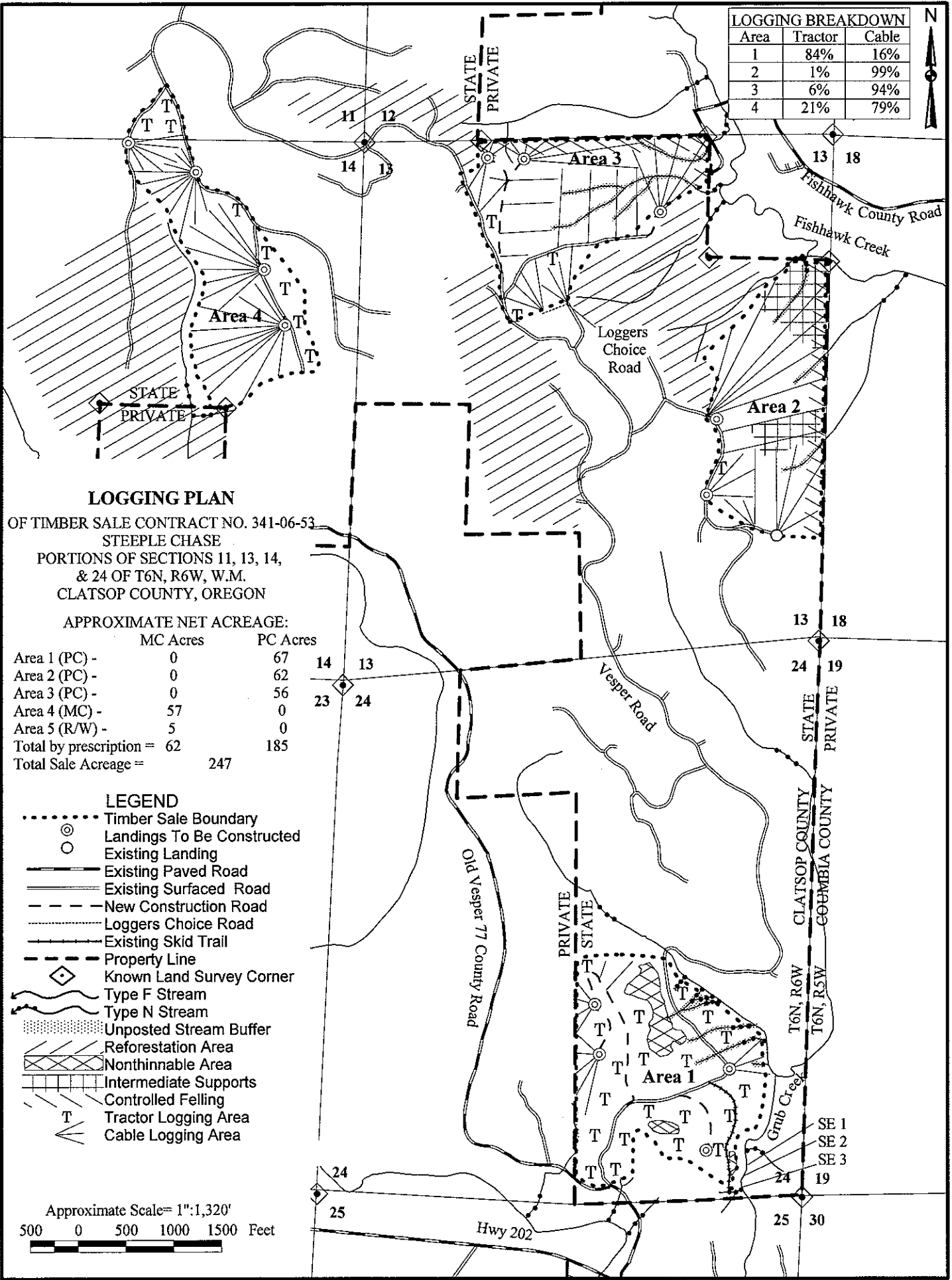
Submitted: \_\_\_\_\_  
Purchaser/Operator Contract Representative

Date: \_\_\_\_\_

**Attachments:** Logging Plan Map

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LOGGING BREAKDOWN		
Area	Tractor	Cable
1	84%	16%
2	1%	99%
3	6%	94%
4	21%	79%



**LOGGING PLAN**

OF TIMBER SALE CONTRACT NO. 341-06-53  
 STEEPLE CHASE  
 PORTIONS OF SECTIONS 11, 13, 14,  
 & 24 OF T6N, R6W, W.M.  
 CLATSOP COUNTY, OREGON

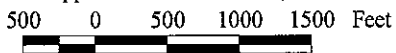
APPROXIMATE NET ACREAGE:

	MC Acres	PC Acres
Area 1 (PC) -	0	67
Area 2 (PC) -	0	62
Area 3 (PC) -	0	56
Area 4 (MC) -	57	0
Area 5 (R/W) -	5	0
Total by prescription =	62	185
Total Sale Acreage =	247	

**LEGEND**

- ..... Timber Sale Boundary
- ⊙ Landings To Be Constructed
- Existing Landing
- Existing Paved Road
- Existing Surfaced Road
- - - New Construction Road
- Loggers Choice Road
- Existing Skid Trail
- - - Property Line
- ◊ Known Land Survey Corner
- ~ Type F Stream
- ~ Type N Stream
- ▨ Unposted Stream Buffer
- ▧ Reforestation Area
- ▩ Nonthinnable Area
- ▧ Intermediate Supports
- ▧ Controlled Felling
- T Tractor Logging Area
- C Cable Logging Area

Approximate Scale= 1":1,320'





**FOREST PRACTICES ACT "WRITTEN PLAN" For Culvert Replacement**  
**Steeple Chase**

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

**Protected Resources:**

A small Type F stream located in the E1/2, Section 24, T6N, R6W, W.M., Clatsop County, Oregon. A "written plan" is required for any activities within 100 feet of any Type F stream, and before constructing any stream crossing fill over 15 feet deep.

**Situation:**

An existing culvert stream crossing structure, located on Vesper Road at station 37+58 is undersized and in a deteriorating condition. The existing structure is a partial blockage to fish passage upstream.

**Drainage Area and Stream Crossing Design:** The existing culvert will be replaced with an 96" x 108', 12 gage aluminized steel round culvert pipe, embedded 38.4", with both ends beveled. The stream crossing will utilize a streambed simulation strategy and preserve a natural stream channel (waterway), a minimum of 8 feet wide. The stream crossing meets and exceeds the requirements of the FPA for Type F stream crossings. It will take sufficient time and flow conditions for the predicted stream bed to develop inside and above the stream crossing. The new fill height will be 23 feet, to match the existing road.

Existing Stream Gradient:	3%
Size of Watershed:	66 acres
Existing Channel Width	Braided and approximately 8 feet
Developed Waterway Width:	8 feet
Stream Bed Materials:	Fines, Gravel, Cobbles
50 - Year Peak Flow/Mile <sup>2</sup> :	175 cfs
50 - Year Peak Flow:	18 cfs
Flow Capacity of Structure:	220 cfs

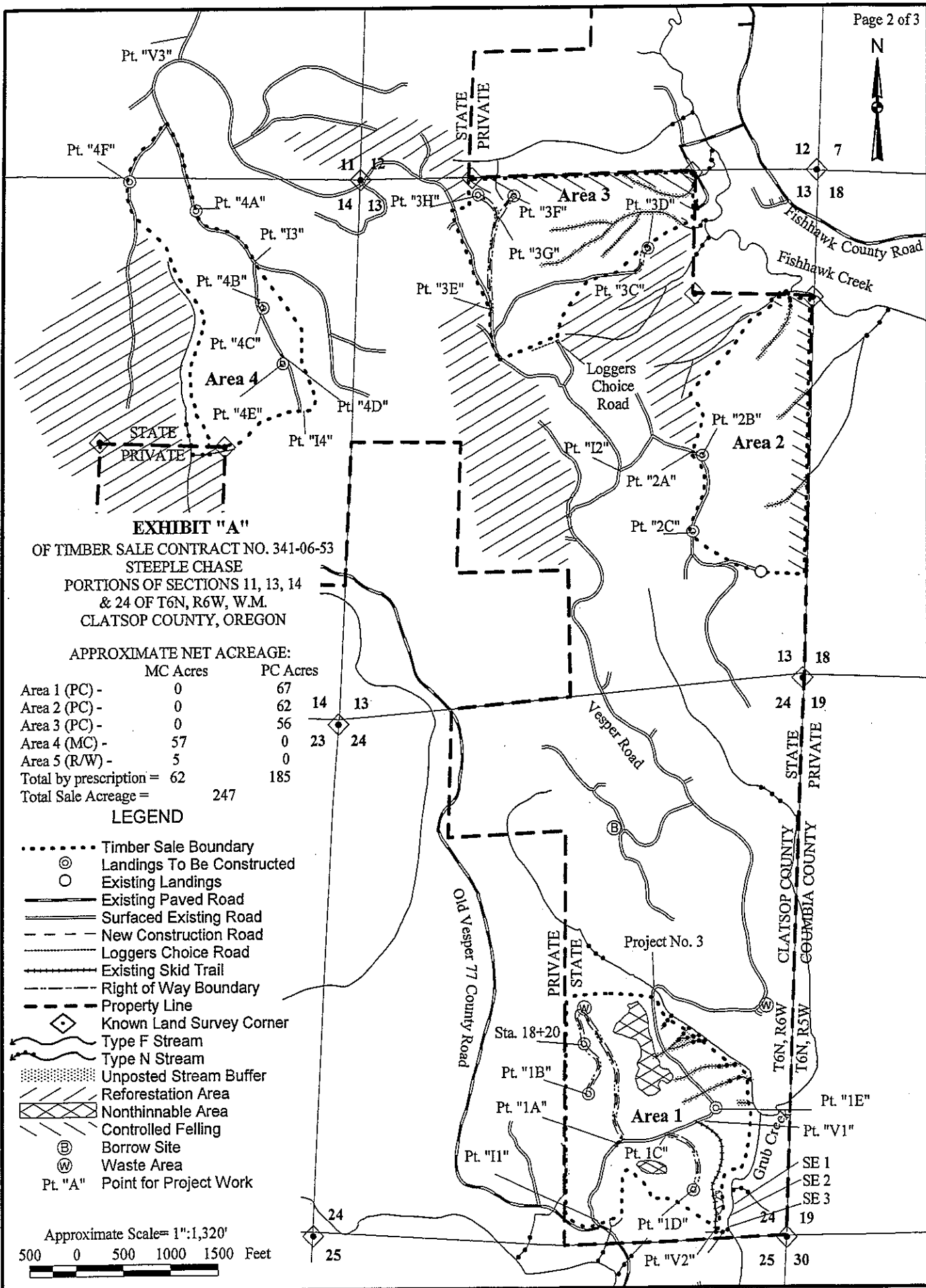
**Resource Protection Measures:**

- Machine activity in stream channels will be minimized.
- In stream work shall be conducted during periods of low water flows and between July 1 and August 31, annually.
- Minimum 1½ cubic yard track mounted excavator type equipment shall be used for all excavation, stream channel development, and riprap placement.
- Excavated embankment materials will be hauled to approved waste areas, sloped for drainage and left in a stable condition.
- Erosion control measures shall be applied to all exposed excavation areas, bare soils and waste materials.
- Riprap rock will be used to armor embankments and stream banks.
- Native (excavated) stream sediment materials (fines, cobble) shall be placed in the culvert barrel to facilitate the development of the stream channel inside the barrel of the pipe arch culvert.
- Excavated boulders or riprap rock shall be placed in the culvert barrel, and placed and embedded starting at the outlet of the culvert for a distance of 15 feet downstream to allow additional stream sediment materials to settle in the barrel of the pipe and to prevent the flushing of placed material.
- The de-watering of the installation area during development of the pipe arch bed and stream channel will be accomplished by use of cofferdams, temporary diversion ditches, and/or drainage structures. De-watering once begun will be continual until such time that the stream has been released into the new culvert.
- Oil spill response materials will be on the project site.

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



**EXHIBIT "A"**

OF TIMBER SALE CONTRACT NO. 341-06-53  
 STEEPLE CHASE  
 PORTIONS OF SECTIONS 11, 13, 14  
 & 24 OF T6N, R6W, W.M.  
 CLATSOP COUNTY, OREGON

APPROXIMATE NET ACREAGE:

	MC Acres	PC Acres
Area 1 (PC) -	0	67
Area 2 (PC) -	0	62
Area 3 (PC) -	0	56
Area 4 (MC) -	57	0
Area 5 (R/W) -	5	0
Total by prescription =	62	185
Total Sale Acreage =	247	

**LEGEND**

- ..... Timber Sale Boundary
- ⊙ Landings To Be Constructed
- Existing Landings
- Existing Paved Road
- Surfaced Existing Road
- - - New Construction Road
- Loggers Choice Road
- Existing Skid Trail
- Right of Way Boundary
- - - Property Line
- ◊ Known Land Survey Corner
- ~ Type F Stream
- ~ Type N Stream
- ▨ Unposted Stream Buffer
- ▧ Reforestation Area
- ▩ Nonthinnable Area
- ▧ Controlled Felling
- ⊕ Borrow Site
- ⊗ Waste Area
- Pt. "A" Point for Project Work

Approximate Scale= 1":1,320'

