

PART III: EXHIBITS

State Timber Sale Contract
No. 341-08-52
Summit Stone

EXHIBIT B

Page 1 of 3
629-Form 341-203
Revised 06/97

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.: 341-08-52

(2) Sale Name: Summit Stone

(3) Contract Expiration Date: October 31, 2010

Project Completion Dates: October 31, 2009

(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.



Cable landing, with numbers for sequence.



Tractor landing with alphabetical sequence.



Approximate setting boundary.



Spur truck roads.



Tractor yarding roads.



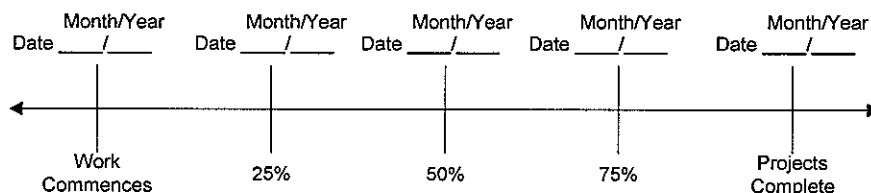
Temporary stream crossings.

EXHIBIT B
 OPERATIONS PLAN

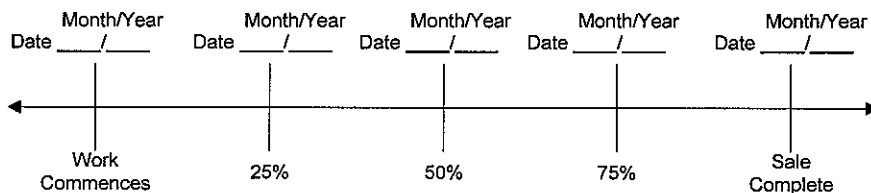
Completion Timeline

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 _____

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

(10) APPROVED SCALING LOCATIONS	Species	Yard	Truck

(11) NOTICE OF CANCELLATION OF BRAND:
 Effective Date: _____

 State Forester's Representative

(12) SALE NAME Summit Stone

COUNTY Clatsop

(13) STATE CONTRACT NUMBER 341-08-52

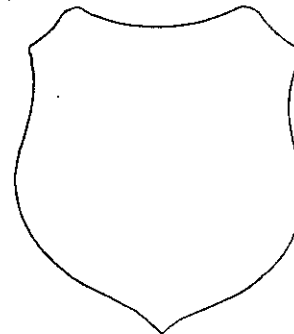
(14) SCALE: westside eastside cubic foot

(15) STATE BRAND REGISTRATION NUMBER _____

(16) BUREAU BRAND CODE NUMBER _____

(17) STATE BRAND INFORMATION:

(COMPLETE) ↓



(18) PAINT REQUIRED: YES
 COLOR Orange

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

(20) 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): _____

(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, 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 (Northwest Log Rules 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
16 feet	12 feet	1A to 1B	0+00 to 21+50	Ditch
16 feet	12 feet	2A to 2B	0+00 to 14+75	Ditch
16 feet	12 feet	2C to 2D	0+00 to 7+60	Ditch
16 feet	12 feet	2E to 2F	0+00 to 8+35	Ditch
16 feet	12 feet	3A to 3B	0+00 to 67+00	Ditch
16 feet	12 feet	3C to 3D	0+00 to 3+00	Ditch
16 feet	12 feet	3E to 3F	0+00 to 1+50	Ditch
14 feet	Dirt	4A to 4B	0+00 to 8+50	Outsloped
14 feet	Dirt	4C to 4D	0+00 to 1+80	Outsloped
16 feet	12 feet	5A to 5B	0+00 to 4+00	Ditch
16 feet	12 feet	7A to 7B	0+00 to 3+15	Ditch
16 feet	12 feet	8A to 8B	0+00 to 19+00	Ditch
16 feet	12 feet	11 to 12	0+00 to 31+90	Ditch
16 feet	12 feet	13 to 14	0+00 to 33+90	Ditch
16 feet	12 feet	15 to 16	0+00 to 16+20	Ditch
16 feet	12 feet	17 to 18	0+00 to 3+93	Ditch
16 feet	12 feet	19 to 110	0+00 to 1+40	Ditch
16 feet	12 feet	111 to 112	0+00 to 10+50	Ditch
16 feet	12 feet	113 to 114	0+00 to 3+45	Ditch
16 feet	12 feet	115 to 116	0+00 to 28+20	Ditch
16 feet	12 feet	117 to 118	0+00 to 2+40	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.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

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 - 4 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. 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 backfills. Embankment materials shall be free of woody debris, brush, muck, sod, frozen material, and other deleterious materials. All fills and drainage structure backfills 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.

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.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

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 ¼ :1	Not steeper
Common - side slopes 50% and over	¾ :1	than 1½:1
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 unrocked roads or 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. Surplus excavated materials and waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with Exhibit D.
- (2) Fill Armor and Energy Dissipator Construction. Where rock is specified for fill armor, rock shall be placed and tamped at a 1½:1 slope, beginning at the fill toes. 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.
- (3) Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic-yard, track-mounted excavator.
- (4) 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 (½ inch per foot).
 - (c) Upon completion of above required work, apply, process, and compact surfacing rock in accordance with specifications in Exhibit D. Final road surface shall be crowned at 4 to 6 percent (½ inch per foot).

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
3A to 3B	0+00	Install culvert across existing rock road. Utilize 20 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill.
	17+00 to 18+00	End haul approximately 500 cubic yards of suitable material and incorporate into road fill construction between Stations 20+50 and 23+50.
	18+40	Begin full bench and full containment.
	20+00	End full bench and full containment.
	20+50 to 23+50	Utilize approximately 1,500 cubic yards of suitable material from Stations 17+00 to 18+00 and 43+90 to 45+80 to incorporate into road fill construction.
	31+00 to 32+25	Drift forward approximately 1,000 cubic yards of suitable material and incorporate into road fill construction near Station 33+50.
	33+00 to 35+10	Utilize approximately 3,000 cubic yards of suitable material generated between Stations 31+00 to 32+25 and 52+50 to 55+50 to incorporate into fill construction. Utilize and place approximately 500 cubic yards of riprap to armor fill construction on left and right sides.
	33+00	Construct Waste Area 3 on right. Move existing rootwads from past vacating project within the new road right-of-way to Waste Area 3.
	35+60	Begin sidecast pullback left, along old road grade.
	36+90	End sidecast pullback left, along old road grade.
	43+90	Begin full bench and full containment.
	45+80	End full bench and full containment.
	43+90 to 45+80	End haul approximately 1,000 cubic yards of suitable material and incorporate into road construction between Stations 20+50 and 23+50.
	49+20	Begin full bench and full containment.
	51+25	End full bench and full containment.
	52+50 to 55+50	End haul approximately 2,000 cubic yards of suitable material and incorporate into road construction between Stations 33+00 and 35+00.
	54+90	Construct Landing and daylight left.
	57+90	Begin full bench and full containment.
	59+80	End full bench and full containment.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS (CONTINUED)

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
3A to 3B	(Continued)	
	57+90 to 62+80	End haul approximately 1,000 cubic yards of suitable material and incorporate into road fill construction near Station 64+20 and the junction of road segment 4C to 4D.
	61+00	Begin full bench and full containment.
	62+80	End full bench and full containment.
	64+20	Point 4C.
	64+60	Construct Landing left.
	65+10	Construct Waste Area 1 south of Landing.
	66+80	Remove existing culvert in rock road to facilitate new construction.
	66+95	Install culvert across existing rock road on left side of new construction. Utilize 20 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill.
	67+00	Install culvert across existing rock road on right side of new construction. Utilize 20 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill.
4C to 4D	0+00 to 0+75	Utilize approximately 1,000 cubic yards of suitable material from road segment 3A to 3B, Stations 57+90 to 62+80 and incorporate into road fill construction.

GENERAL ROAD IMPROVEMENT INSTRUCTIONS

- (1) Timber Removal. Remove all trees within the posted Right-of-Way Boundary or individually marked with an orange "C", as specified in Section 2210, "Designated Timber."
- (2) 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.
- (3) 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 L. 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.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS (CONTINUED)

- (4) 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.
- (5) 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. Material used for fill armoring shall be 24"-6" riprap rock and shall meet the specifications in Exhibit F. Where armoring is specified, placed armor material shall start with a base width of 3 feet and taper up to a top of 2 feet. 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 G.
- (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, 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 ½ inch per foot in road width (4 to 6 percent), and compact in accordance to Exhibit D.
 - (e) Upon completion of above required work, apply, process, and compact surfacing rock in accordance to Exhibit D.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
I1 to I2	5+00	Construct Ditchout left
	12+30	Install Culvert. Utilize 20 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize and place 10 cubic yards of 24"-6" riprap rock for energy dissipator.
	19+40	Install Culvert. Utilize 20 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize and place 10 cubic yards of 24"-6" riprap rock for energy dissipator.
	28+00	Install Culvert. Utilize 20 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize and place 10 cubic yards of 24"-6" riprap rock for energy dissipator.
I5 to I6	0+00	Install Culvert. Utilize 20 cubic yards of 1½"-0" crushed rock for bedding and backfill.
	4+20	Install Culvert. Utilize 20 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize and place 10 cubic yards of 24"-6" riprap rock for energy dissipator.
	5+50	Construct Ditchout right.
I7 to I8	0+00	Begin fill slope shaping left.
	0+60	End fill slope shaping left.
	2+70	Begin fill armoring left. Utilize 560 cubic yards of 24"-6" riprap rock in fill armoring left.
	3+86	End fill armoring left.
I9 to I10	0+00	Begin ditch reconstruction right. End-haul waste materials to the Waste Area 3 shown on Exhibit A. Utilize 122 cubic yards of 24"-6" riprap rock to replace toe of slope adjacent to ditch.
	1+40	End ditch reconstruction right.
I11 to I12	2+35	Install Culvert. Utilize 20 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize and place 10 cubic yards of 24"-6" riprap rock for energy dissipator.
	8+45	Construct Ditchouts on left and right sides.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS (CONTINUED)

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
I13 to I15	0+00	Begin fill slope shaping right.
	0+75	End fill slope shaping right.
	2+60	Begin fill armoring left. Utilize 240 cubic yards of 24"-6" riprap rock on fill armoring - right.
	3+40	End fill armoring right.
I15 to I16	3+65	Replace Culvert. Utilize 20 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize and place 10 cubic yards of 24"-6" riprap rock for energy dissipator.
	5+50	Replace Culvert. Utilize 20 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize and place 10 cubic yards of 24"-6" riprap rock for energy dissipator.
	6+50	Install Culvert. Utilize 20 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize and place 10 cubic yards of 24"-6" riprap rock for energy dissipator.
	13+30	Replace Culvert. Utilize 20 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize and place 30 cubic yards of 24"-6" riprap rock for energy dissipator.
	17+00	Replace Culvert. Utilize 20 cubic yards of 1½"-0" crushed rock for bedding and backfill.
	18+50	Construct landing - right. Utilize 60 cubic yards of 4"-0" crushed rock.
	21+30	Replace Culvert. Utilize 20 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize and place 40 cubic yards of 24"-6" riprap rock for energy dissipator.
	23+50	Replace Culvert. Utilize 20 cubic yards of 1½"-0" crushed rock for bedding and backfill.
	28+20	Construct turnaround. Utilize 10 cubic yards of 4"-0" crushed rock.
I17 to I18	0+00	Install Culvert. Utilize 20 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize and place 10 cubic yards of 24"-6" riprap rock for energy dissipator.
	0+00 to 1+00	Reconstruct junction.

EXHIBIT D
 END-HAULING REQUIREMENTS

POINT TO POINT	STA. TO STA.	CONTAINMENT	WASTE AREA OR ROAD LOCATION	WASTE AREA TREATMENT
3A to 3B	17+00 to 18+00	Full	1 and 6	1, 2, and 3
3A to 3B	18+40 to 20+00	Full	1 and 6	1, 2, and 3
3A to 3B	43+90 to 45+80	Full	1 and 6	1, 2, and 3
3A to 3B	52+50 to 55+50	Full	2 and 6	1, 2, and 3
3A to 3B	57+90 to 59+08	Full	3 and 4	1, 2, and 3
3A to 3B	61+00 to 62+80	Full	3 and 4	1, 2, and 3
I13 to I14	0+00 to 1+40	Full	5	1, 2, and 3

End-Haul Areas General Requirements

Material shall not be intentionally side cast.

Clearing and grubbing debris shall be end-hauled.

Containment

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.

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 or Road Location: Utilize suitable material along segments near these road locations. Surplus materials and non-suitable materials shall be hauled to the designated Waste Areas.

- (1) Road Segment 3A to 3B, Stations 20+50 to 23+50.
- (2) Road Segment 3A to 3B, Stations 33+00 to 35+10.
- (3) Road Segment 4C to 4D, Stations 0+00 to 0+75.
- (4) Waste Area 1 as shown on Exhibit A and as marked in the field.
- (5) Waste Area 2 as shown on Exhibit A and as marked in the field.
- (6) Waste Area 3 as shown on Exhibit A and as marked in the field.

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 L.

EXHIBIT D
 ROAD SURFACING

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 Volume (CY) per		0+00 to 21+50 Number of		
Base Rock	4"-0" Crushed	0+00 to 21+50	9	Station	49	Stations	21.50	1,054
Turnouts	4"-0" Crushed	10+75	9	Turnout	22	Turnouts	3	66
Curve Widening	4"-0" Crushed		9	Curve	11	Curves	3	33
Total Rock for Road Segment: 1A to 1B								1,153
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 Volume (CY) per		0+00 to 14+75 Number of		
Base Rock	4"-0" Crushed	0+00 to 14+75	8	Station	43	Stations	14.75	634
Turnouts	4"-0" Crushed	3+75, 8+50	8	Turnout	19	Turnouts	2	38
Curve Widening	4"-0" Crushed		8	Curve	10	Curves	2	20
Junction	4"-0" Crushed	11+06, 14+24	8	Junction	30	Junctions	2	60
Total Rock for Road Segment: 2A to 2B								752
ROAD SEGMENT	2C to 2D			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	2C to 2D Volume (CY) per		0+00 to 7+60 Number of		
Base Rock	4"-0" Crushed	0+00 to 7+ 60	8	Station	43	Stations	7.60	327
Turnouts	4"-0" Crushed	3+15	8	Turnout	19	Turnouts	1	19
Turnaround	4"-0" Crushed		8	Turnaround	11	Turnarounds	1	11
Landings	6"-0" Pit-run	7+60	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment: 2C to 2D								407
ROAD SEGMENT	2E to 2F			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	2E to 2F Volume (CY) per		0+00 to 8+35 Number of		
Base Rock	4"-0" Crushed	0+00 to 8+35	8	Station	43	Stations	8.35	359
Turnouts	4"-0" Crushed	2+50, 6+35	8	Turnout	19	Turnouts	2	38
Curve Widening	4"-0" Crushed		8	Curve	12	Curves	2	24
Turnaround	4"-0" Crushed		8	Turnaround	11	Turnarounds	1	11
Landings	6"-0" Pit-run	8+35	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment: 2E to 2F								482

EXHIBIT D
 ROAD SURFACING

ROAD SEGMENT	3A to 3B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	3A to 3B		0+00 to 67+00		
				Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	0+00 to 67+00	9	Station	49	Stations	67.00	3,283
Turnouts	4"-0" Crushed	3+30, 14+65, 17+90 24+65,29+60,32+15 45+90,49+95,59+25	9	Turnout	22	Turnouts	9	198
Curve Widening	4"-0" Crushed	13+50 to 15+40	9	Curve	20	Curve	1	20
Curve Widening	4"-0" Crushed	20+55 to 21+40	9	Curve	16	Curve	1	16
Curve Widening	4"-0" Crushed	37+55 to 38+80	9	Curve	13	Curve	1	13
Curve Widening	4"-0" Crushed	49+00 to 50+10	9	Curve	14	Curve	1	14
Curve Widening	4"-0" Crushed	53+70 to 55+70	9	Curve	21	Curve	1	21
Curve Widening	4"-0" Crushed	56+40 to 57+50	9	Curve	12	Curve	1	12
Curve Widening	4"-0" Crushed	58+40 to 59+90	9	Curve	16	Curve	1	16
Curve Widening	4"-0" Crushed	63+70 to 65+50	9	Curve	19	Curve	1	19
Junctions	4"-0" Crushed	0+00, 6+20, 7+50, 16+35, 28+80, 38+84, 40+30, 64+21	9	Junction	30	Junctions	8	240
Junctions	4"-0" Crushed	67+00	9	Junction	60	Junction	1	60
Junctions	1½"-0" Crushed	0+00	4	Junction	22	Junctions	1	22
Junctions	1½"-0" Crushed	67+00	4	Junction	44	Junctions	1	44
Culvert Backfill	1½"-0" Crushed	0+00, 66+95, 67+00	N/A	Culvert	20	Culverts	3	60
Fill Armor (both sides)	24"-6" Riprap	33+00 to 35+10	N/A					500
Dissipator Rock	24"-6" Riprap	27+00, 37+00	N/A	Dissipator	10	Dissipators	3	30
Landings	6"-0" Pit-run	54+90, 64+60	N/A	Landing	50	Landings	2	100
Total Rock for Road Segment: 3A to 3B								4,658
ROAD SEGMENT	3C to 3D			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	3C to 3D		0+00 to 3+00		
				Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	0+00 to 3+00	8	Station	43	Stations	3.00	129
Landings	6"-0" Pit-run	3+00	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment: 3C to 3D								179
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 1+50		
				Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	0+00 to 1+50	8	Station	43	Stations	1.50	65
Landings	6"-0" Pit-run	1+50	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment: 3E to 3F								115

EXHIBIT D
 ROAD SURFACING

ROAD SEGMENT	5A to 5B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	5A to 5B		0+00 to 4+00		
				Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	0+00 to 4+00	8	Station	43	Stations	4.00	172
Turnouts	4"-0" Crushed		8	Turnout	19	Turnouts	1	19
Turnaround	4"-0" Crushed		8	Turnaround	11	Turnarounds	1	11
Landings	6"-0" Pit-run	4+00	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment:				5A to 5B				252
ROAD SEGMENT	7A to 7B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	7A to 7B		0+00 to 3+15		
				Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	0+00 to 3+15	8	Station	43	Stations	3.15	230
Junctions	4"-0" Crushed	0+00	8	Junction	30	Junction	1	30
Junctions	1½"-0" Crushed	0+00	4	Junction	22	Junctions	1	22
Landings	6"-0" Pit-run	3+15	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment:				7A to 7B				332
ROAD SEGMENT	8A to 8B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	8A to 8B		0+00 to 19+00		
				Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	0+00 to 19+00	8	Station	43	Stations	19.00	817
Turnouts	4"-0" Crushed	2+95, 5+40, 8+20, 13+70	8	Turnout	19	Turnouts	4	76
Turnaround	4"-0" Crushed	17+50	8	Turnaround	11	Turnarounds	1	11
Landings	6"-0" Pit-run	19+00	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment:				8A to 8B				954
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 31+90		
				Volume (CY) per		Number of		
Leveling Rock	4"-0" Crushed							110
Turnouts	4"-0" Crushed	2+25, 7+70, 13+10, 18+80, 29+00, 31+90	6	Turnout	14	Turnouts	8	112
Junctions	4"-0" Crushed	15+90, 25+00	6	Junction	22	Junctions	2	44
Turnaround	4"-0" Crushed	31+90	6	Turnaround	11	Turnaround	1	11
Culvert Backfill	1½"-0" Crushed	12+30, 19+40, 28+00	N/A	Culvert	20	Culverts	3	60
Dissipator	24"-6" Riprap	12+30, 19+40, 28+00	N/A	Dissipator	10	Dissipators	3	30
Total Rock for Road Segment:				I1 to I2				367

EXHIBIT D
 ROAD SURFACING

ROAD SEGMENT 13 to 14				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	13 to 14		0+00 to 33+90		
				Volume (CY) per		Number of		
Leveling Rock	1 1/2"-0" Crushed		N/A					66
Surface Rock	1 1/2"-0" Crushed	21+10 to 32+25	3	Station	16	Stations	11.15	178
Turnouts	1 1/2"-0" Crushed	14+95, 20+70	3	Turnout	22	Turnouts	2	44
Junctions	1 1/2"-0" Crushed	33+90	3	Junction	11	Junctions	1	11
Total Rock for Road Segment:				13 to 14				299
ROAD SEGMENT 15 to 16				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	15 to 16		0+00 to 16+20		
				Volume (CY) per		Number of		
Leveling Rock	4"-0" Crushed		N/A					110
Base Rock	4"-0" Crushed	4+10 to 6+10	6	Station	33	Stations	2.00	66
Turnouts	4"-0" Crushed	11+05	6	Turnout	14	Turnouts	1	14
Turnaround	4"-0" Crushed	15+25	6	Turnaround	11	Turnaround	1	11
Culvert Backfill	1 1/2"-0" Crushed	0+00, 4+20	N/A	Culvert	20	Culverts	2	40
Dissipator	24"-6" Riprap	4+20	N/A	Dissipator	10	Dissipators	1	10
Total Rock for Road Segment:				15 to 16				251
ROAD SEGMENT 17 to 18				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	17 to 18		0+00 to 3+93		
				Volume (CY) per		Number of		
Surface Rock	3/4"-0" Crushed	2+63 to 3+93	5	Station	27	Stations	1.30	35
Fill Armor	24"-6" Riprap	2+70 to 3+86	N/A					560
Total Rock for Road Segment:				17 to 18				595
ROAD SEGMENT 19 to 110				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	19 to 110		0+00 to 1+40		
				Volume (CY) per		Number of		
Slope Armor	24"-6" Riprap	0+00 to 1+40	N/A					122
Total Rock for Road Segment:				19 to 110				122
ROAD SEGMENT 111 to 112				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	111 to 112		0+00 to 10+50		
				Volume (CY) per		Number of		
Leveling Rock	4"-0" Crushed			Location	11	Locations	2	22
Base Rock	4"-0" Crushed		6	Station	33	Stations	10.50	346
Turnouts	4"-0" Crushed	4+65, 8+50	6	Turnout	14	Turnouts	2	28
Culvert Backfill	1 1/2"-0" Crushed	2+35	4	Culvert	20	Culverts	1	20
Dissipator	24"-6" Riprap	2+35	N/A	Dissipator	10	Dissipators	1	10
Total Rock for Road Segment:				111 to 112				426

EXHIBIT D
 ROAD SURFACING

ROAD SEGMENT I13 to I14				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	I13 to I14		0+00 to 3+45		
				Volume (CY) per		Number of		
Surface Rock	3/4"-0" Crushed	2+55 to 3+45	5	Station	27	Stations	0.90	25
Fill Armor	24"-6" Riprap	2+60 to 3+40	N/A					240
Total Rock for Road Segment:				I13 to I14				265
ROAD SEGMENT I15 to I16				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	I15 to I16		0+00 to 28+20		
				Volume (CY) per		Number of		
Leveling Rock	4"-0" Crushed		N/A	Location	11	Locations	8	88
Surface Rock	1 1/2"-0" Crushed	0+00 to 19+00	3	Station	16	Stations	19.00	304
Turnouts	4"-0" Crushed	10+30	6	Turnout	14	Turnouts	1	14
Turnouts	1 1/2"-0" Crushed	10+30	3	Turnout	7	Turnouts	1	7
Turnaround	4"-0" Crushed	28+20	6	Turnaround	10	Turnaround	1	10
Landing	4"-0" Crushed	18+50	N/A	Landing	60	Landings	1	60
Culvert Backfill	1 1/2"-0" Crushed	3+65, 5+50, 6+50, 13+30, 17+00, 21+30, 23+50	N/A	Culvert	20	Culverts	7	140
Dissipator	24"-6" Riprap	3+65, 5+50, 6+50	N/A	Dissipator	10	Dissipators	3	30
Dissipator	24"-6" Riprap	13+30	N/A	Dissipator	30	Dissipators	1	30
Dissipator	24"-6" Riprap	21+30	N/A	Dissipator	40	Dissipators	1	40
Total Rock for Road Segment:				I15 to I16				723
ROAD SEGMENT I17 to I18				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	I17 to I18		0+00 to 2+40		
				Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	0+00 to 1+50	8	Station	43	Stations	1.5	65
Junctions	4"-0" Crushed	0+00	8	Junction	30	Junction	1	30
Junctions	1 1/2"-0" Crushed	0+00	4	Junction	22	Junctions	1	22
Culvert Backfill	1 1/2"-0" Crushed	0+00	N/A	Culvert	20	Culverts	1	20
Dissipator Rock	24"-6" Riprap	0+00	N/A	Dissipator	10	Dissipators	1	10
Total Rock for Road Segment:				I17 to I18				147

ROCK TOTALS (CY)	24"-6"	6"-0"	4"-0"	1 1/2"-0"	3/4"-0"
12,478	1,602	450	9,306	1,060	60

Roads shall be uniformly graded 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 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." At least 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:

Subgrade shall be crowned at 4 to 6 percent unless otherwise specified.

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 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 uniform moisture content suitable for maximum compaction and compacted in layers not to exceed 9 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:

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 unless otherwise specified.

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 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 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 18 inch diameter culverts shall be constructed of corrugated double-walled polyethylene, or corrugated aluminized steel. Polyethylene culverts shall meet the requirements of AASHTO M-294-901, Type S. This specification applies to high density polyethylene corrugated pipe with an integrally formed smooth interior. Aluminized steel culverts 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.

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 2 percent unless otherwise specified.

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 pipe. The culvert trench shall be excavated 3 pipe diameters wide 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.

EXHIBIT E
CULVERT SPECIFICATIONS

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" (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.

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, half round, or other approved slope protection device. 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.

<u>Dia.</u>	<u>Steel Pipe Gauge</u>	<u>Band Gauges</u>	<u>Band Widths (")</u>			<u>Hugger Band Widths (")</u>	
			<u>Annular</u>	<u>Helical</u>	<u>Dimpled</u>	<u>Annular</u>	<u>Helical</u>
12-15	16 (0.0598")	16	7	12	12	13 1/8	10 1/2
18-24	16 (0.0598")	16	12	12	12	13 1/8	10 1/2

Tamping is required.

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

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.

EXHIBIT E
 CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	MATERIAL TYPE	ROAD SEGMENT POINT TO POINT	STATION
1	18	30	CPP	2A to 2B	14+75
2	18	30	CPP	2C to 2D	6+50
3	18	40	CPP	3A to 3B	0+00
4	18	30	CPP	3A to 3B	4+00
5	18	30	CPP	3A to 3B	16+00
6	18	30	CPP	3A to 3B	27+00
7	18	30	CPP	3A to 3B	37+00
8	18	30	CPP	3A to 3B	39+50
9	18	35	CPP	3A to 3B	64+00
10	18	40	CPP	3A to 3B	66+95
11	18	40	CPP	3A to 3B	67+00
12	18	30	CPP	8A to 8B	17+30
13	18	30	CPP	I1 to I2	12+30
14	18	30	CPP	I1 to I2	19+40
15	18	30	CPP	I1 to I2	28+00
16	18	35	CPP	I5 to I6	4+20
17	18	30	CPP	I11 to I12	2+35
18	18	30	CPP	I15 to I16	3+65
19	18	30	CPP	I15 to I16	5+50
20	18	35	CPP	I15 to I16	6+50
21	18	30	CPP	I15 to I16	13+30
22	18	35	CPP	I15 to I16	17+00
23	24	30	CPP	I15 to I16	21+30
24	18	30	CPP	I15 to I16	23+50
25	18	30	CPP	I17to I18	0+00

CPP = Polyethylene

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 quarry 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 development activities.
- (3) 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.
- (4) PURCHASER shall conduct the operation 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.
- (5) Quarry face shall be developed in a uniform manner.
- (6) Benches shall be maintained 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.
- (7) Proper winterization and storm-water control measures such as water barring, 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.
- (8) All quarry backslopes shall be left in a stable condition.
- (9) 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 access roads shall be cleared and blocked upon completion of quarry use as directed by STATE.
- (10) 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.

PIT-RUN AND RIPRAP ROCK SPECIFICATIONS

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

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.

EXHIBIT G

TYPICAL EMBEDDED ENERGY DISSIPATOR

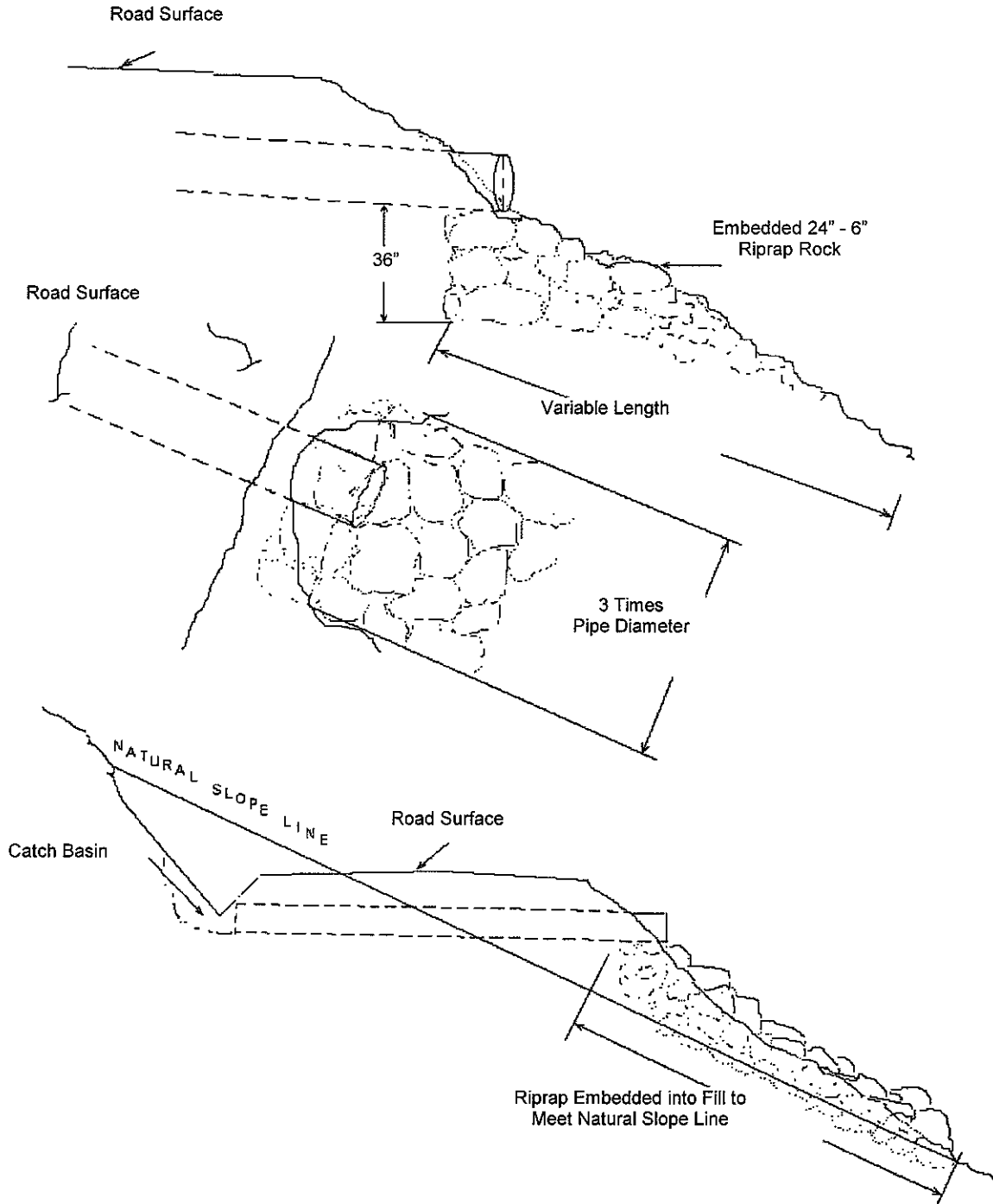
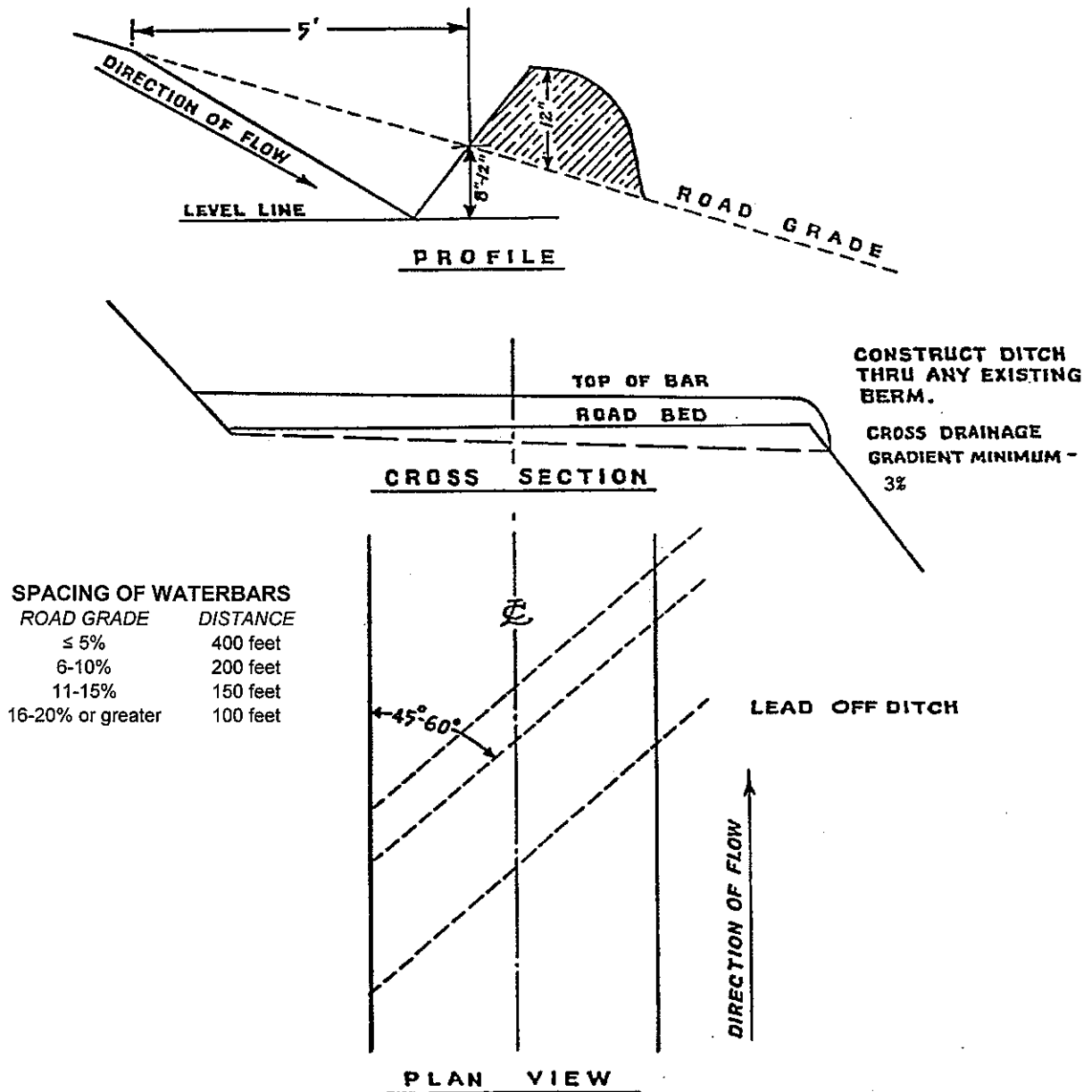


EXHIBIT H
 WATERBAR SPECIFICATIONS



**WATERBAR SPECIFICATIONS
 FOR CROSS DITCHING #298**

EXHIBIT I

ROAD VACATING SPECIFICATIONS

PURCHASER shall vacate between the following points: V1 to V2. Specific objectives for this project include:

- Fill removal and stream channel development.
- Culvert removal.
- Restoration of natural contours by outsloping of the road prism.
- Sidecast pullback.
- Minimize disturbance of existing vegetation.

PROJECT REQUIREMENTS AND GENERAL SPECIFICATIONS

- (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 4 feet in width. Developed stream banks shall be sloped at natural contours or no steeper than 1½:1, as directed by STATE.
- (3) Culvert Removal. Remove drainage structures and culverts. Removed culverts shall be hauled to an approved refuse site off of STATE land.
- (4) Outslope Road. Outslope road to restore natural contours or establish a minimum of 10% slope for drainage at designated locations. If the road grade exceeds 10%, outslope of the road shall be 2% greater than the road grade.
- (5) Sidecast Pullback. Excavate/pullback previously sidecast materials below the road at designated locations. Developed slopes shall be pulled back to a 1½:1 slope or to natural ground contours. The beginning position for sidecast pullback shall be no greater than 20 feet vertical distance from the existing road surface, in accordance with Exhibit J.
- (6) Use of Excavated Materials.
 - (a) Fill Excavation and Sidecast Pullback. 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. Any excess material will be hauled to a designated waste area, as directed by STATE.
 - (b) Woody Debris may be incorporated in embankment material.
 - (c) Block Roads. Use excavated material from fill removals to block roads from vehicle access, as directed by STATE.
- (7) Erosion Control. Erosion control shall be completed in a progressive manner. Grass seed and straw mulch shall be applied for every 500 feet of road vacated, prior to continuing work.
All excavated material and bare soil shall utilize grass seed and straw mulch approved by STATE and in accordance with the specifications in Exhibit L. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.
- (8) Construct Waterbars as directed by STATE. Construct waterbars according to the specifications in Exhibit H.
- (9) Equipment. A minimum 1½ 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.

EXHIBIT I

ROAD VACATING SPECIFICATIONS

- (10) Dry Conditions. All work shall be performed during dry conditions acceptable to STATE.
- (11) Support. Transport, other equipment, replacements, supplies, maintenance and repairs shall be furnished as required to complete the project and shall be furnished without cost to STATE, other than as agreed under the contract terms.

SPECIFIC INSTRUCTIONS/SPECIFICATIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
V1 to V2	0+00	Begin waterbarring. Construct roadblock.
	2+00	Begin sidecast pullback.
	6+65	End sidecast pullback.
	8+33	Begin fill removal.
	9+30	End fill removal.
	11+25	Point V2. End waterbarring.

EXHIBIT J

TYPICAL CROSS SECTION VIEW OF ROAD VACATING SIDECAST PULLBACK

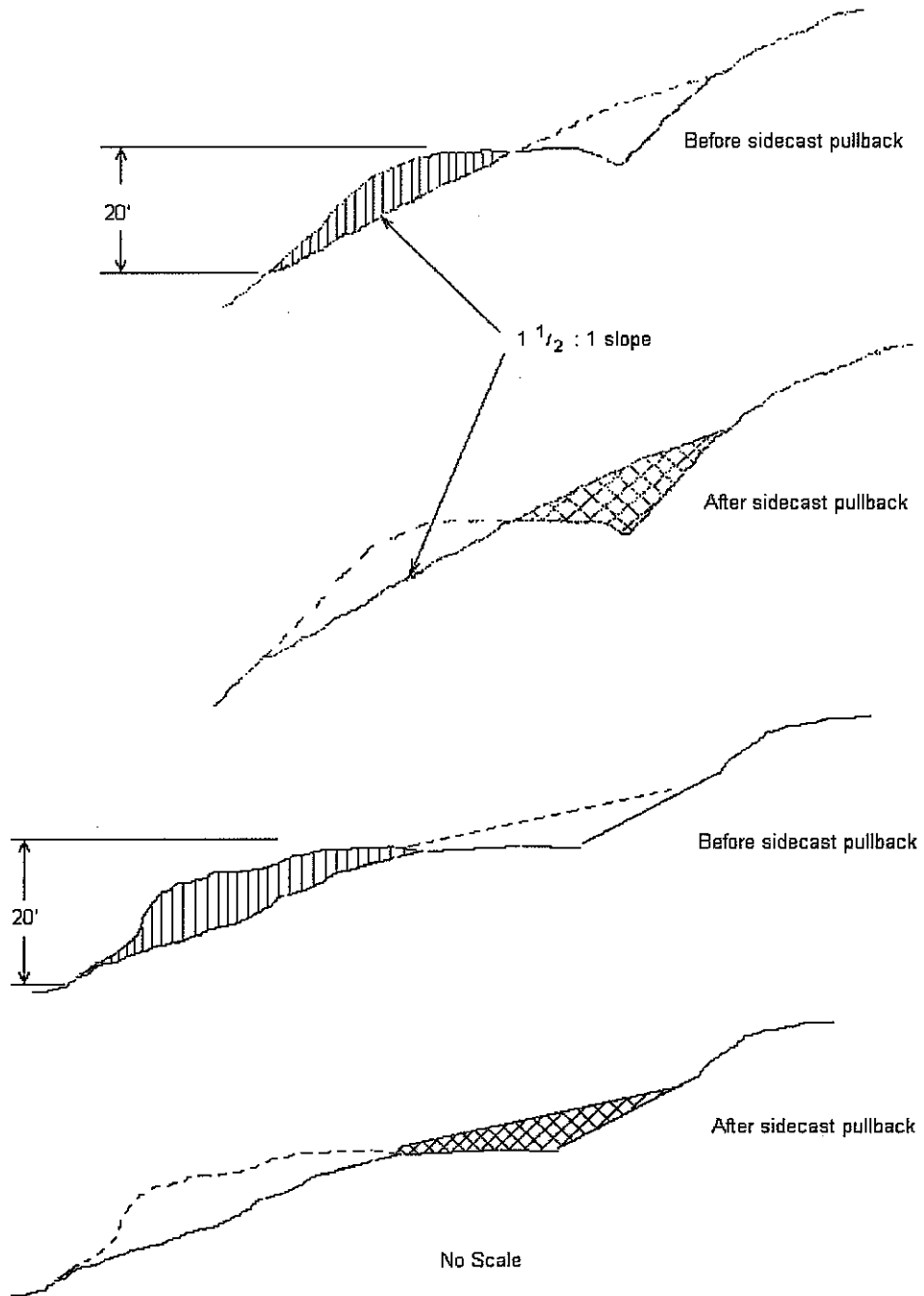


EXHIBIT K
STREAM ENHANCEMENT

GENERAL INSTRUCTIONS

- (a) Work shall be conducted only during periods of low water flows and between July 1 and September 15, 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 obtained from sale area, locations along the road, as marked in the field, or at other locations acceptable to STATE. Tree for SE7 shall be obtained from Area 8A, as marked in the field. Tree is marked "Bridge Tree" in red paint.
- (d) 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.
- (e) A 1½ cubic-yard, track-mounted excavator or log loader shall be used for all placement. A rubber tired grapple skidder or other approved method shall be used to transport trees from the staging area to the sites.
- (f) 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, waterbarred, de-compacted, and mulched upon completion, as directed by STATE.

SPECIFIC INSTRUCTIONS

<u>Location</u>	<u>Work Description</u>
SE1	One tree. The stream channel is undermining a large spruce tree adjacent to the bridge over the East Fork of Soapstone Creek. A faller will fall this tree along the upstream side of the bridge along the west bank of the stream.
SE2	Five trees located above the road bank next to the bridge over the East Fork of Soapstone Creek are to be removed and placed south of the bridge below the adjacent side stream on the west side of the creek. Access will be from the existing road and equipment will need to stay on the road. If possible root wads shall be left attached to the trees. The trees should be at least 50 feet long. The tops of the trees may be logged as part of the timber sale or placed in the structure. Logs will be placed into the stream in a complex configuration with at least one end on the stream bank as to simulate natural placement and as directed by the STATE to construct an in-stream log structure similar to that shown in the attached diagram. Where possible wedge the top of the trees into riparian trees to increase stability.
SE3 to SE6	Work shall be completed at 3 of the 4 specified sites as shown on Exhibit A. Structures shall be at least 100 feet apart and have a minimum of 5 conifer trees or logs and when possible root wads shall be attached. Trees or logs shall be at least 16 to 18 inches in diameter at the large end and at least 50 feet in length, and can have branches and rootwads attached if possible. Trees or logs will be obtained from the timber sale area only. Logs will be placed into the stream in a complex configuration with at least one end on the stream bank as to simulate natural placement and as directed by the STATE to construct an in-stream log structure similar to that shown in the attached diagram. Where possible wedge the top of the trees into riparian trees to increase stability.

EXHIBIT K
STREAM ENHANCEMENT

SPECIFIC INSTRUCTIONS:

<u>Location</u>	<u>Work Description</u>
SE7	Structure shall consist of one log (obtained from Area 8A and marked "Bridge Tree" in red paint) and shall be at least 20 inches at the small end and 50 feet in length. Access route to SE7 shall be flagged by PURCHASER and approved by STATE prior to operating.

LOG PLACEMENT DIAGRAM (SE2, SE3 – SE6)

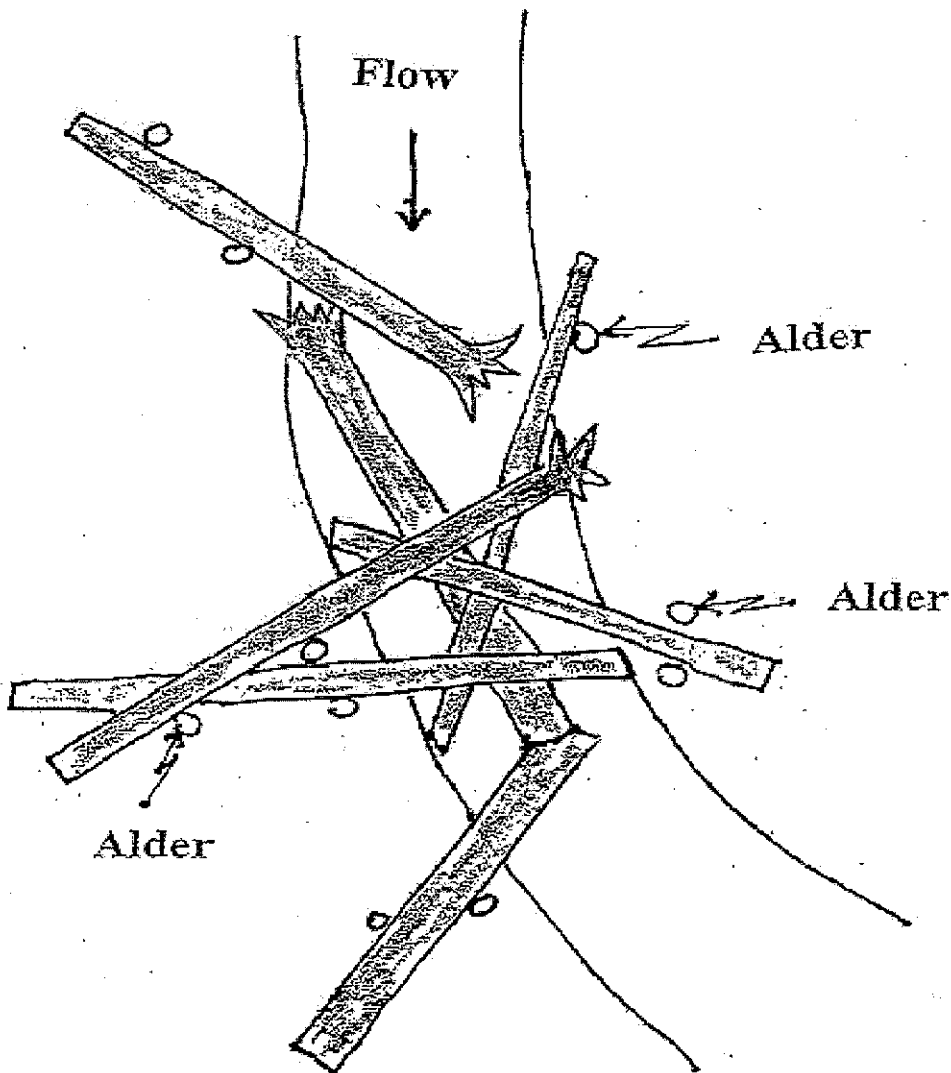


EXHIBIT L

SEEDING AND MULCHING

This work shall consist of preparing seedbeds and furnishing and placing required seed, and straw mulch. Straw mulch shall consist of straw that is free of noxious weeds. Apply seed and straw mulch to all waste areas, and all bare soils resulting from Project Nos. 3, 4, and 5. In addition apply seed and straw mulch to all fill slopes greater than 6 feet in height resulting from Project No. 1.

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

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

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

SPECIES	MIXTURE (percent)	PURE LIVE SEED (percent)	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%

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

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.

EXHIBIT M

SPECIFICATIONS FOR BRUSH AND SLASH SHOVEL PILING

Description of Work to be Done

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 containing less than 10 cubic feet which are suitable for firewood shall be piled separately from slash, near open roads and landings and alongside the road in locations designated by STATE.

Logs and chunks of logs that contain 10 cubic feet or more, and are at least 6 feet in length, shall be scattered in the area for down wood and not included in firewood piles.

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

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

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 M

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	36	\$4,320.00
Log Loader	\$ 87.50 / hour	49.4	\$4,320.00

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

State Timber Sale Contract
No. 341-08-52
Summit Stone

Page 1 of 3

FOREST PRACTICES ACT "WRITTEN Plan" For Stream Enhancement Work Summit Stone Timber Sale 341-08-52

Landowner:

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

Protected Resources:

The following streams are located in Sections 10 and 11, T4N, R9W, W.M., Clatsop County, Oregon.

Type F Streams: West Fork of Soapstone Creek (a large, Type F stream) flows along the west boundary of Area 9, the main fork of Soapstone Creek (a large, Type F stream) flows along the southern boundary of Area 8A and the East Fork of Soapstone Creek (a medium, Type F stream) flows along the eastern boundaries of Areas 8 and 8A.

Specific Site Characteristics:

West Fork of Soapstone Creek: The streambed is approximately 10 to 15 feet wide with gentle to moderate stream-bank slopes. Streamside vegetation is dominated by mature red alder and conifers. There is a significant component of conifer trees located above the flood plain.

Soapstone Creek: The streambed is approximately 8 to 15 feet wide with gentle stream-bank slopes. Streamside vegetation is dominated by mature red alder and conifers. There is a significant component of conifer trees located above the flood plain.

East Fork of Soapstone Creek: The streambed is approximately 5 to 10 feet wide with moderate stream-bank slopes. Streamside vegetation is dominated by mature red alder and conifers. There is a significant component of conifer trees located above the flood plain.

Tree and Vegetation Retention:

FPA defines the RMA width of a large Type F stream as 100 feet and a medium Type F stream as 70 feet. The timber sale boundary for Area 8, 8A and 9 are posted at least 100 feet from the Type F streams.

Practices:

- (a) Work shall be conducted only during periods of low water flows and between July 1 and September 15 annually unless otherwise approved in writing by STATE.
- (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 obtained from sale area, locations along the road, as marked in the field, or at other locations acceptable to STATE. Tree for SE7 shall be obtained from Area 8A, as marked in the field. The tree marked "Bridge Tree" in orange paint.

**FOREST PRACTICES ACT "WRITTEN Plan"
For Stream Enhancement Work
Summit Stone Timber Sale 341-08-52**

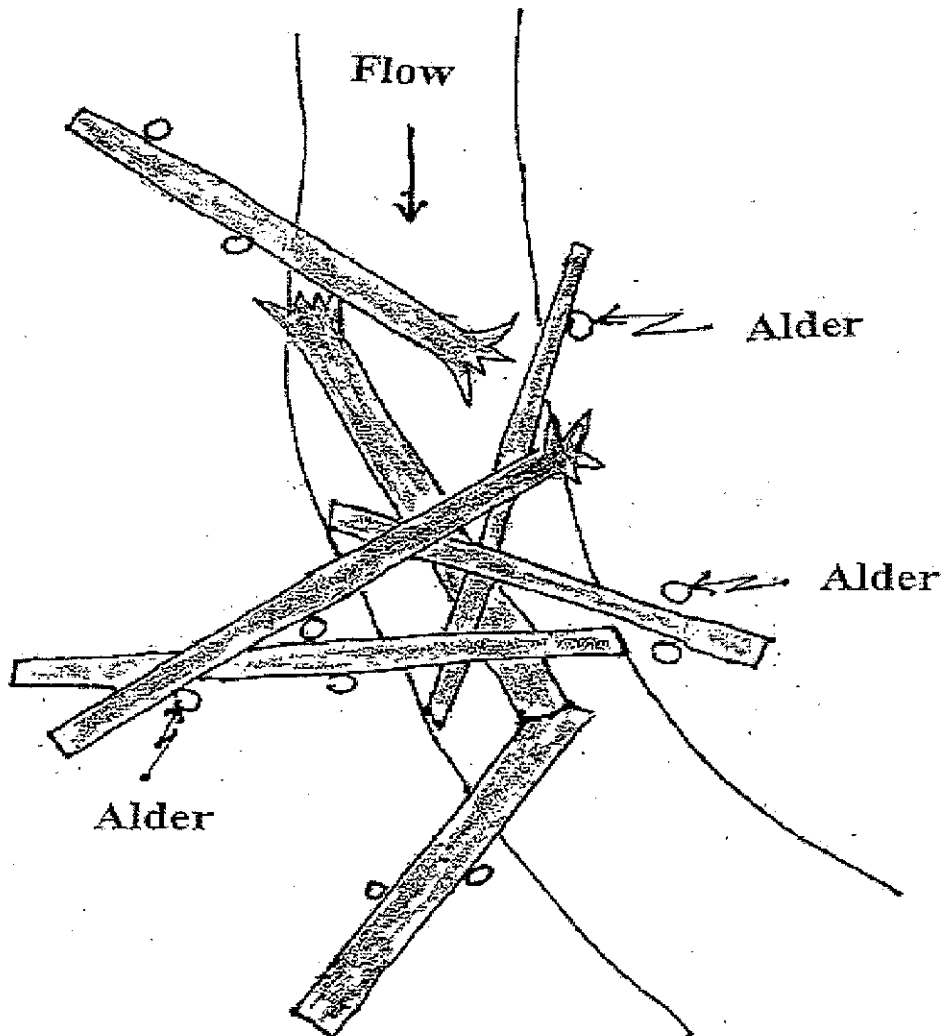
- (d) Access routes will be selected to minimize disturbance to the riparian area, and equipment transporting trees to the sites will take care to avoid damage to existing in-stream logs, riparian or other trees. Trees that are cleared to gain access will be placed in the creek or used to block access trails.
- (e) A 1½ cubic-yard, track-mounted excavator or log loader shall be used for all placement. A rubber tired grapple skidder or other approved method shall be used to transport trees from the staging area to the sites.
- (f) 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>
SE1	One tree. The stream channel is undermining a large spruce tree adjacent to the bridge over the East Fork of Soapstone Creek. Tree shall be felled along the upstream side of the bridge along the west bank of the stream.
SE2	Five trees located above the road bank next to the bridge over the East Fork of Soapstone Creek shall be removed and placed south of the bridge below the adjacent side stream on the west side of the creek. Access will be from the existing road and equipment will need to stay on the road. If possible, root wads shall be left attached to the trees. The trees should be at least 50 feet long. The tops of the trees may be logged as part of the timber sale or placed in the structure. Logs will be placed into the stream in a complex configuration with at least one end on the stream bank as to simulate natural placement and as directed by the STATE to construct an in-stream log structure similar to that shown in the attached diagram. Where possible wedge the top of the trees into riparian trees to increase stability.
SE3 -SE6	Work shall be completed at three of these four sites, shown on Exhibit A. Structures shall be at least 100 feet apart and have a minimum of 5 conifer trees or logs and when possible root wads shall be attached. Trees or logs shall be at least 16 to 18 inches in diameter at the large end and at least 50 feet in length, and can have branches and rootwads attached if possible. Trees or logs will be obtained from the timber sale area only. Logs will be placed into the stream in a complex configuration with at least one end on the stream bank as to simulate natural placement and as directed by the STATE to construct an in-stream log structure similar to that shown in the attached diagram. Where possible wedge the top of the trees into riparian trees to increase stability.
SE7	Access to SE7 shall be flagged by PURCHASER and approved by STATE prior to operating. Structure shall consist of one log, and shall be at least 20 inches in diameter at the small end and 50 feet in length. Logs will be placed into the streamside area, as directed by STATE.

**FOREST PRACTICES ACT "WRITTEN Plan"
For Stream Enhancement Work
Summit Stone Timber Sale 341-08-52**

LOG PLACEMENT DIAGRAM (SE2, SE3 - SE6)



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: _____ Date: _____
Purchaser/Operator Contract Representative

Attachments: Exhibit A (page 3 of 3)
Logging Plan Map (page 2 of 2)

State Timber Sale Contract
No. 341-08-52
Summit Stone

**FPA "Written Plan" for Operating within 100 Feet of Type F Streams
Summit Stone**

Portions of Section 35, T5N, R9W, and Portions of Section 2, T4N, R9W, W.M., Clatsop County, Oregon

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

Protected Resources:

1. Joe Creek
2. North Fork of the Nehalem

Specific Site Characteristics:

1. Joe Creek (Small, Type F) – This stream (approximately 2 to 5 feet wide) marks the area boundary between Areas 1 and 2 for approximately 2,00 feet. The stream channel has moderate slopes with alder and conifer above the flood plain.
2. North Fork of the Nehalem (Small, Type F) - This stream (approximately 2 to 6 feet wide) flows along the area boundary between Areas 2 and 3 for approximately 700 feet, and is located just north of the boundaries of Areas 3 and 4 for approximately 3,200 feet and is about 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.

PARTIAL HARVEST (Areas 1, 2, and 3): All posted Type F buffers along or within partial cut units exceed 25 feet. The streamside tree retention within the FPA defined RMA width of 50 feet will range from 120 to 140 square feet of basal area per acre (minimum required basal for small, Type F stream is 40 square feet per 1,000 feet of stream). These stands are young plantation conifer with some hardwood 35 to 55 years old. Logging equipment must stay at least 50 feet from all Type F streams.

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:

- No trees will be felled within posted stream buffers (RMA's).
- Trees that fall or slide into Type F RMA's shall not be removed without prior approval from STATE.
- 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.
- Logs shall be fully suspended when yarding across all stream buffers (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: _____
Operator/PURCHASER

Date: _____

Attachments: Logging Plan Map

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: (____) _____