



**Oregon Department of Forestry**

2600 State St Salem OR 97310

PART III: EXHIBITS

**EXHIBIT B**

**TIMBER SALE OPERATIONS PLAN**

(See page 2 for instructions)

Date Received by State: \_\_\_\_\_

(5) State Brand Information ( Complete)

(1) Contract Number: WO-341-2023-W00993-01

(2) Sale Name: Beaver Believer Thin

(3) Contract Expiration Date: 12/31/2025

(4) Purchaser Name: \_\_\_\_\_

(6) State Representatives:

<u>Name</u>	<u>Circle One</u>	<u>Phone No.</u>	<u>Cell No.</u>	<u>Alt Phone</u>
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			

(7) Purchaser Representatives:

<u>Name</u>	<u>Circle One</u>	<u>Phone No.</u>	<u>Cell No.</u>	<u>Alt Phone</u>
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			

(8) Name of Subcontractors and Start Dates:

<u>Project No.</u>	<u>Subcontractor Name.</u>	<u>Start Date</u>	<u>Completion Date</u>	<u>Cell No.</u>	<u>Alt Phone</u>

	<u>Subcontractor Name.</u>	<u>Start Date</u>	<u>Cell No.</u>	<u>Alt Phone</u>
FELLING				
YARDING				

(9) Comments:

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(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.



# Oregon Department of Forestry

2600 State St Salem OR 97310

PART III: EXHIBITS

## EXHIBIT B

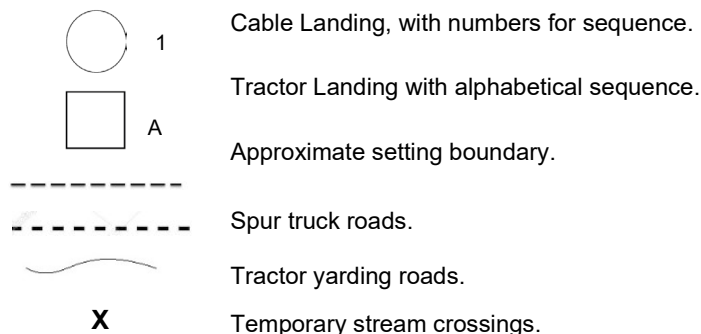
### INSTRUCTION SHEET FOR OPERATIONS PLAN

#### SUBMIT ONE COPY OF PLAN 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.
- (9) 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 required by the timber sale contract. Provide spur road specifications
  3. Locations of proposed tractor yarding roads. Show if and how marked on the ground.
  4. Locations of temporary stream crossings.
  5. List the sequence of performing project work.
  6. Location of rock sources - attach pit development plans.





# Oregon Department of Forestry

2600 State St Salem OR 97310

PART III: EXHIBITS

## 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

Month/Year Date ____/____	Month/Year Date ____/____	Month/Year Date ____/____	Month/Year Date ____/____	Month/Year Date ____/____
_____				
Work Commences	25%	50%	75%	Projects Complete

#### Harvest & Other Requirements

Month/Year Date ____/____	Month/Year Date ____/____	Month/Year Date ____/____	Month/Year Date ____/____	Month/Year Date ____/____
_____				
Work Commences	25%	50%	75%	Sale Complete

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



**Oregon Department of Forestry**  
**EXHIBIT C - SAWMILL GRADE (WESTSIDE SCALE)**  
**SCALING INSTRUCTIONS - LOCATION APPROVAL - BRAND INFORMATION**  
**West Oregon - NWOA**

(1) ORIGINAL REGISTRATION ☐ Date \_\_\_\_\_  
REVISION NUMBER 000 ☐ Date \_\_\_\_\_  
CANCELLATION ☐ Date \_\_\_\_\_

(2) TO: \_\_\_\_\_  
(Third Party Scaling Organization)

(3) FROM: West Oregon Phone (541) 929-3266  
(State Forestry District)  
Address: 24533 ALSEA HWY  
PHILOMATH, OR 97370

(4) PURCHASER: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
Phone Number: \_\_\_\_\_

(5) MINIMUM SCALING SPECIFICATIONS	
SPECIES	MINIMUM NET VOLUME
Conifers	10
Hardwoods	10

\*Apply minimum volume test to whole logs over 40' Westside

(6) WESTSIDE SCALE: \_\_\_\_\_  
Use Region 6 actual taper rule. Logs over 40'.

(8) APPROVED SCALING LOCATIONS (as shown on the ODF Approved Locations web-site )	YES NO		Species	Yard	Truck	Weight
	<input type="checkbox"/>	<input checked="" type="checkbox"/>				

(9) SALE NAME: Beaver Believer Thin  
COUNTY: Lincoln

(10) STATE CONTRACT NUMBER:  
WO-341-2023-W00993-01

(11) STATE BRAND REGISTRATION NUMBER:  
\_\_\_\_\_

(12) STATE BRAND INFORMATION:



(13) PAINT REQUIRED: YES ☒  
COLOR: Orange

(14) SPECIAL REQUESTS (Check applicable)	
PEELABLE CULL (all species).....	<input checked="" type="checkbox"/>
<b>NO DEDUCTIONS ALLOWED FOR MECHANICAL DAMAGE</b> .....	<input checked="" type="checkbox"/>
ADD-BACK VOLUME - Deductions due to delay...	<input checked="" type="checkbox"/>
OTHER :	

(15) REMARKS: "Mule Train" loads require a load ticket for each set of bunks.

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

(16) SIGNATURES:

\_\_\_\_\_  
Purchaser or Authorized Representative Date

\_\_\_\_\_  
State Forester Representative Date

\_\_\_\_\_  
State Forester Representative PRINT NAME

**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.**  
General Distribution: TPSO, Approved Scaling Locations and Purchaser.



**Oregon Department of Forestry**  
**EXHIBIT C - SAWMILL GRADE**  
**INSTRUCTIONS FOR EXHIBIT C**  
**West Oregon - NWOA**

- (1) Check appropriate box. REVISION NUMBER requires comments. CANCELLATION requires logging and hauling to be complete, recall branding hammers.

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

Columbia River Log Scaling & Grading Bureau  
P.O.Box 7002, Eugene, OR 97401  
Phone: (541) 342-6007 Fax: (541) 342-2631  
Email: [services@crls.com](mailto:services@crls.com)

Mountain Western Log Scaling & Grading Bureau  
P.O.Box 580, Roseburg, OR 97470  
Phone: (541) 673-5571 Fax: (541) 672-6381  
Email: [info@mwlsqb.com](mailto:info@mwlsqb.com)

Northwest Log Scalpers Inc.  
6137 NE 63rd St, Vancouver, WA, 98661  
Phone: (360) 553-7212 ext. 4 Fax: (360) 553-7213  
Email: [info@nwlogscalpers.com](mailto:info@nwlogscalpers.com)

Pacific Rim Log Scaling Bureau, Inc.  
8288 28th Court North East, Lacey, WA 98516  
Phone: (360) 528-8710 Fax: (360) 528-8718  
Email: [office@prlsb.com](mailto:office@prlsb.com)

Yamhill Log Scaling & Grading Bureau  
P.O.Box 709, Forest Grove, OR 97116  
Phone: (503) 359-4474 Fax: (503) 359-4476  
Email: [yamhilllog@frontier.com](mailto:yamhilllog@frontier.com)

- (3) State District office, address and phone.
- (4) Enter Purchaser's business name, address, and phone number as it appears on the Contract.
- (5) Minimum Scaling Specifications.
- (6) Westside - Region 6 actual taper segment scale. Check Yes or No. Special Service Rules on file with TPSO. See: Segment Scaling and Grading of Long Logs - All Species - State Forestry Department Scaling Practices (Westside).
- (7) Weight Scale Sample - Check box if sale is to be a Weight Scale Sample. All specifics for handling, scaling and processing will be attached or explained in the Remarks section item (15).
- (8) Show scaling locations only applicable to TPSO. Location name should appear as it does on the ODF Approved Scaling Location web site: [https://apps.odf.oregon.gov/Divisions/management/asset\\_management/scalinglocation.asp](https://apps.odf.oregon.gov/Divisions/management/asset_management/scalinglocation.asp) Locations with scaling and processing directions specific to their location should be on a separate form. Species should be identified if not capable of receiving "all" species. Check appropriate box for either: yard, truck scale, or weight. Refer to the web site listed above for the locations approval status.
- (9) Enter sale name and county.
- (10) Enter sale Contract number.
- (11) Enter Oregon's State Brand Registry Number **(REQUIRED)**.
- (12) Show brand assigned to timber sale. One brand only. If more than one brand is assigned to the sale: (1) make a separate form for each brand and (2) on each form, explain and show other brand(s) in the Remarks section item (15).
- (13) Check yes for Paint Required and designate "Orange" for color. Non required removal volumes may sometimes require blue paint.
- (14) Special Requests. These are requests that will be applied to ODF timber sales. All boxes applicable to the timber sales designated in the Exhibit C form must be "marked". If "Other" is indicated, it must contain a description and any necessary comments.
- (15) Use this space to designate any weight scale sample instructions or any other explanations to clarify scaling, processing and/or mailing requirements. If additional scaling locations are approved, revise original or current form showing all (old and new) locations. Check REVISION box at top of form and explain under remarks. Route as indicated.
- (16) Require purchaser to sign and date completed form in addition to State Forester Representative, sign and print name on the form. Signatures not required on revisions.



**Oregon Department of Forestry  
EXHIBIT C - PULP SORT  
PROCESSING INSTRUCTIONS - LOCATION APPROVAL  
BRAND INFORMATION**

West Oregon, NWOA

(1) ORIGINAL REGISTRATION ☐ Date \_\_\_\_\_  
REVISION NUMBER 000 ☐ Date \_\_\_\_\_  
CANCELLATION ☐ Date \_\_\_\_\_

(2) TO: \_\_\_\_\_  
(Approved Pulp Processing Facility)

(3) FROM: West Oregon Phone (541) 929-3266  
(State Forestry District)  
Address: 24533 ALSEA HWY  
PHILOMATH, OR 97370

(4) PURCHASER: \_\_\_\_\_

(5) Scaling Bureau (TPSO) Processing Weight receipts:

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

Phone Number: \_\_\_\_\_

(9) SALE NAME: Beaver Believer Thin

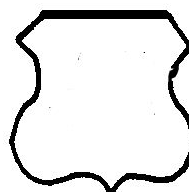
COUNTY: Lincoln

(10) STATE CONTRACT NUMBER:

WO-341-2023-W00993-01

(11) STATE BRAND REGISTRATION NUMBER: \_\_\_\_\_

(12) STATE BRAND INFORMATION:



(13) REMARKS: "Mule Train" loads require a load ticket for each set of bunks.

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

(14) SIGNATURES:

Purchaser or Authorized Representative \_\_\_\_\_ Date \_\_\_\_\_

State Forester Representative \_\_\_\_\_ Date \_\_\_\_\_

State Forester Representative PRINT NAME \_\_\_\_\_

(6) **STATE Definition of Approved Pulp Sort:**

- Top portion of the tree (tops).
- All logs with a diameter (Big End) greater than 8 inches marked with blue paint.

(7) PULP FACILITY PROCESSING INSTRUCTIONS:

- Pulp loads shall be weighed in lieu of scaling.
- One Ton = 2000 lbs (Short Ton).
- Pulp loads shall have a yellow Log Load Receipt attached.
- Gross weight and truck tare weight for each load shall be machine printed on the weight receipt.
- Weigher shall sign the weight receipt.
- Weigher shall record the Log Load Receipt number on the weight receipt.
- Weigher shall attach the Weight receipt to the Log Load Receipt and mail them weekly to the TPSO processing the Weight receipt.

(8) TPSO PROCESSING INSTRUCTIONS

- Submit data files daily (or each day of activity).
- Mail or deliver scale tickets weekly to ODF Headquarters in Salem.

**Notify the District within one hour when branding is inadequate for quick identification, the logs are marked with orange paint, the receipts are missing, not correctly or completely filled out, and/or logs do not meet the specifications of the STATE definition of Approved Pulp Sort.**

**General Distribution: TPSO, Approved Scaling Locations and Purchaser.**



**Oregon Department of Forestry  
EXHIBIT C - PULP SORT  
INSTRUCTIONS FOR EXHIBIT C**

West Oregon, NWOA

- (1) Check appropriate box. REVISION NUMBER requires comments. CANCELLATION requires logging and hauling to be complete, recall branding hammers.
- (2) Approved Pulp Processing Facility. Write in as written in the Approved Log Delivery Location [https://apps.odf.oregon.gov/Divisions/management/asset\\_management/scalinglocation.asp](https://apps.odf.oregon.gov/Divisions/management/asset_management/scalinglocation.asp)
- (3) State District office, address and phone.
- (4) Enter Purchaser's business name, address, and phone number as it appears on the Contract.
- (5) Third Party Scaling Organization that will be processing the weight tickets, mailing address, and phone number.

Columbia River Log Scaling & Grading Bureau  
P.O.Box 7002, Eugene, OR 97401  
Phone: (541) 342-6007 Fax: (541) 342-2631  
Email: [services@crls.com](mailto:services@crls.com)

Pacific Rim Log Scaling Bureau, Inc.  
8288 28th Court North East, Lacey, WA 98516  
Phone: (360) 528-8710 Fax: (360) 528-8718  
Email: [office@prlsb.com](mailto:office@prlsb.com)

Mountain Western Log Scaling & Grading Bureau  
P.O.Box 580, Roseburg, OR 97470  
Phone: (541) 673-5571 Fax: (541) 672-6381  
Email: [info@mwlsqb.com](mailto:info@mwlsqb.com)

Yamhill Log Scaling & Grading Bureau  
P.O.Box 709, Forest Grove, OR 97116  
Phone: (503) 359-4474 Fax: (503) 359-4476  
Email: [yamhilllog@frontier.com](mailto:yamhilllog@frontier.com)

Northwest Log Scalpers Inc.  
6137 NE 63rd St, Vancouver, WA, 98661  
Phone: (360) 553-7212 ext. 4 Fax: (360) 553-7213  
Email: [info@nwlogscalpers.com](mailto:info@nwlogscalpers.com)

- (6) Big end of log is not to exceed 2 inches greater than the minimum removal specifications in the contract. Example: Minimum removal specifications 6 inches and 20 board feet, then the Big end of log not to exceed 8 inches. When conifer and hardwood removal specifications are different, use the smaller removal diameter to determine this specification.
- (9) Enter sale name and county.
- (10) Enter sale Contract number.
- (11) Enter Oregon's State Brand Registry Number **(REQUIRED)**.
- (12) Show brand assigned to timber sale. One brand only, if more than one brand is assigned to the sale: (1) make a separate form for each brand and (2) on each form, explain and show other brand(s) in the Remarks section Item (13).
- (13) Use this section to list any special instructions or the reason for any revisions in section item (1).
- (14) Require purchaser to sign and date completed form in addition to State Forester Representative, sign and print name on the form. Signatures not required on revisions.

EXHIBIT D  
FOREST ROAD SPECIFICATIONS

SUBGRADE WIDTH	SURFACED WIDTH	POINT TO POINT	STATION TO STATION	DRAINAGE
14 feet	n/a	A to B	0+00 to 3+40	Outsloped
14 feet	n/a	C to D	0+00 to 5+90	Outsloped
14 feet	n/a	E to F	0+00 to 4+10	Outsloped
16 feet	14 feet	1 to 2	0+00 to 337+00	Crowned/ Outsloped
14 feet	12 feet	C to 3	0+00 to 8+40	Outsloped
14 feet	12 feet	4 to 5	0+00 to 3+80	Outsloped
14 feet	12 feet	6 to 7	0+00 to 22+80	Outsloped
14 feet	12 feet	8 to 9	0+00 to 3+00	Outsloped
14 feet	12 feet	10 to 11	0+00 to 2+20	Outsloped
14 feet	12 feet	12 to 13	0+00 to 21+10	Outsloped
14 feet	12 feet	14 to 15	0+00 to 3+70	Outsloped
14 feet	n/a	16 to 17	0+00 to 3+50	Outsloped
14 feet	12 feet	18 to 19	0+00 to 160+50	Outsloped

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.

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

CLEARING CLASSIFICATION.

New Construction - 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.

Improvement - The "Road Brushing Specifications" in Exhibit E shall apply. 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.

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 cut slopes shall be removed.

GRUBBING CLASSIFICATION.

New construction - from the top of the cut slope 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.



## EXHIBIT D

### FOREST ROAD SPECIFICATIONS

CLEARING AND GRUBBING DISPOSAL. Clearing and grubbing debris shall not be placed or permitted to remain in or under any road embankment sections. Clearing and grubbing debris shall be left in a stable location, and not left lodged against standing trees. Clearing and grubbing debris may be scattered through openings in the timber outside of the cleared right-of-way, except for the following areas where debris shall be fully contained and hauled to a designated waste area:

- Where end-haul is required
- On unstable areas
- In any stream channel (Type F, N or D) or where material may enter the stream channel.

Clearing, grubbing, and associated disposal shall be completed prior to subgrade approval.

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

Excavation shall conform to STATE-specified lines, grades, dimensions, and plans when provided.

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

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

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

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

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

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

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

### DRAINAGE

Subgrade. Subgrade shall be crowned at 4 to 6 percent or outsloped at 3 to 4 percent as shown on the "Forest Road Specifications" table in this Exhibit.

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

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

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

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

## EXHIBIT D

### FOREST ROAD SPECIFICATIONS

#### SLOPES

	<u>Cut Slopes</u>	<u>Fill Slopes</u>
Solid Rock	Vertical to $\frac{1}{4}$ :1	
Fractured Rock	$\frac{1}{2}$ :1	
Soil - side slopes 50% and over	$\frac{3}{4}$ :1	$1\frac{1}{2}$ :1
Soil - side slopes less than 50%	1 :1	$1\frac{1}{2}$ :1

Top of cut slope shall be rounded.

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

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

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

#### GENERAL ROAD CONSTRUCTION INSTRUCTIONS:

- (1) Timber Removal. Remove all trees within posted Right-of-Way Boundary as specified in Section 2210, Designated Timber.
- (2) Excavated Materials. Excavated materials shall be utilized for road construction 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 this Exhibit.
- (3) Drainage Ditches. Construct ditchlines, including ditchouts, as directed by STATE. Cut slopes of ditchlines and ditchouts shall not exceed a 1:1 slope. Construct culvert sediment basins. Waste materials from drainage ditches and sediment basins shall be placed in nearby waste areas and uniformly sloped and compacted for drainage, as directed by STATE.
- (4) Equipment. All excavation and riprap placement shall be performed using a minimum  $1\frac{1}{2}$  cubic-yard, track-mounted excavator.
- (5) 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 or outsloped at 3 to 4 percent.
  - (c) Upon completion of above required work, apply, process, and compact surfacing rock in accordance with specifications in the "Compaction and Processing Requirements" in this Exhibit. Final road surface shall be crowned at 4 to 6 percent or outsloped at 3 to 4 percent.

## EXHIBIT D

### FOREST ROAD SPECIFICATIONS

#### SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS (Project No. 1)

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
A to B	0+00 to 3+40	Construct outsloped, unsurfaced spur with dozer. Shape and compact subgrade with grader and vibratory roller. From Sta. 0+00 to Sta. 0+50, apply 10 CY of jaw-run rock to road as transition rock. Spread and compact transition rock with dozer and vibratory roller.
	3+40	At Pt. B, construct 40'x40' Landing with dozer. Shape and compact Landing with grader and vibratory roller.
C to D	0+00 to 5+90	Construct outsloped, unsurfaced spur with dozer. Shape and compact subgrade with grader and vibratory roller. From Sta. 0+00 to Sta. 0+50, Apply 10 CY of jaw-run rock to road as transition rock. Spread and compact transition rock with dozer and vibratory roller.
	0+00 to 1+15	Increase road width by 10 ft to the inside for curve widening. Drift excess material to Waste Area 1. Compact waste area (approximately 130 CY) in accordance with this Exhibit.
	1+15	Construct 30'x30' Landing with dozer. Shape and compact Landing with grader and vibratory roller.
	2+85 to 3+60	From Sta. 2+85 to Sta. 3+30 cut road prism down 1 ft and drift earth (approximately 20 CY) to construct turnaround at Sta. 3+60.
	5+90	At Pt. D, construct 35'x35' Landing with dozer. Shape and compact Landing with grader and vibratory roller.
E to F	0+00 to 4+10	Construct outsloped, unsurfaced spur for jump-up Landings with dozer. Shape and compact subgrade with grader and vibratory roller. Road grade may not exceed 35%.
	2+50	Construct 15'x15' Landing pad with dozer. Shape and compact Landing pad with grader and vibratory roller.
	4+10	At Pt. F, construct 20'x20' Landing pad with dozer. Shape and compact Landing pad with grader and vibratory roller.

## EXHIBIT D

### FOREST ROAD SPECIFICATIONS

#### GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

- (1) Timber Removal. Remove all trees within posted Right-of-Way Boundary or individually marked with an orange "CUT", as specified in Section 2210, Designated Timber.
- (2) Roadside Brushing. Conduct roadside brushing as specified in Exhibit E.
- (3) 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. Surplus excavated materials and waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with this Exhibit.
- (4) Bank Slough Removal. Excavate all bank slough. Bank slough material shall not be pulled across existing surfacing rock. Excavated material shall be hauled to the designated waste areas as marked in the field and/or designated on Exhibit A.
- (5) 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. Excess waste materials shall be hauled to nearby waste areas and shall be uniformly sloped and compacted for drainage. Fill reconstruction backfill shall consist of select materials and may be obtained from borrow pits, as directed by STATE. Backfill materials shall be hauled in where necessary and thoroughly compacted in accordance with this Exhibit. Crushed rock shall be used for backfilling excavation trenches less than 3 feet deep. STATE may require the use of crushed rock for culvert bedding. Removed culverts shall be hauled to an approved refuse site off of STATE land. Install a culvert marker at each newly installed culvert.
- (6) Culvert Cleaning and Repairs. Remove all debris from inside all existing culverts on the road improvement segment, 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.
- (7) 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.
- (8) Sod Removal. Remove/separate sod from crushed rock surfacing as directed by STATE. Sod material shall be scattered in stable locations through openings in the timber outside of the cleared right-of-way. In areas where sod cannot be scattered in a stable location, material shall be end hauled to designated waste areas as shown on Exhibit A, or other stable locations as directed by STATE.
- (9) Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic yard, track-mounted excavator.
- (10) Waste areas shall be uniformly sloped and compacted for drainage.

## EXHIBIT D

### FOREST ROAD SPECIFICATIONS

#### GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

- (11) Subgrade Preparation and Application of Surfacing Rock.
- (a) Complete culvert installations, drainage ditches, fill reconstruction, ditchouts, and other specified work prior to the application of new surfacing rock.
  - (b) Cut out all potholes and/or washboard sections from the existing surfacing.
  - (c) Apply required patching and leveling rock, as directed by STATE.
  - (d) Process (grade and mix) the existing surface and added base rock. Provide for a crown of 4 to 6 percent or outslope of 3 to 4 percent, and compact in accordance to the "Compaction and Processing Requirements" in this Exhibit.
  - (e) Upon completion of above required work, apply, process, and compact surfacing rock in accordance to this Exhibit.

#### SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS (Project No. 2)

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
1 to 2	0+00 to 337+00	Brush road according to Exhibit E and remove sod and brushing debris from road from Sta. 316+30 to Pt. 2 with grader (approx. 20.7 stations). Apply 70 CY of 1½"-0" spot rock from Pt. 1 to Sta. 269+45 and process and compact with grader and vibratory roller. Apply 150 CY of 1½"-0" spot rock from Sta. 269+45 to Sta. 330+10 and process and compact road with grader and vibratory roller.
	259+40 to 262+60	Daylight road by removing trees marked with "CUT" in orange paint (approximately 10 trees). Deck trees in a stable location.
	269+45 to 330+10	Process and compact road with grader and vibratory roller.
	286+50 to 337+00	From Pt. 12 to Pt. 2 daylight road by removing trees marked with "CUT" in orange paint (approximately 26 trees). Deck trees in a stable location.
	315+15 to 316+30	At Sta. 315+15, install an 18"x30' CPP culvert. Utilize 10 CY of 1½"-0" rock as bedding and backfill. From Sta. 315+15 to Pt. C, construct ditchline with grader and scatter waste on site with excavator (approximately 1.2 stations).
	330+10	Apply 40 CY of jaw-run rock to Landing. Spread and compact Landing rock with dozer and vibratory roller.
C to 3	0+00 to 8+40	Reopen Landing at Pt. 3 with dozer and brush road according to Exhibit E. Remove sod and brushing debris from road with grader.
4 to 5	0+00 to 3+80	Reopen road with dozer and brush according to Exhibit E. Remove sod and brushing debris from road with grader.
6 to 7	0+00 to 22+80	Brush road according to Exhibit E and remove sod and brushing debris from road with grader. Daylight road by removing trees marked "CUT" in orange paint (approx. 31 trees). Deck trees in a stable location. Apply 90 CY of 1½"-0" spot rock. Process and compact road with grader and vibratory roller.

## EXHIBIT D

### FOREST ROAD SPECIFICATIONS

#### SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS (Project No. 2) (cont.)

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
6 to 7 (cont.)	7+95 to 12+85	From Pt. 8 to Sta. 12+85, round cutslope with excavator (approximately 4 stations). End haul waste (approximately 20 CY) to Landing at Station 12+85 and waste on Northwest end of Landing.
	12+85 & 22+80	At Sta. 12+85, apply 50 CY of jaw-run rock to Landing. At Sta. 21+15, apply 40 CY of jaw-run rock to Landing. Spread and compact Landing rock with dozer and vibratory roller.
8 to 9	0+00 to 3+00	Brush road according to Exhibit E and remove sod and brushing debris from road with grader.
10 to 11	0+00 to 2+20	Brush road according to Exhibit E and remove sod and brushing debris from road with grader.
12 to 13	0+00 to 21+10	Brush road according to Exhibit E and remove sod and brushing debris from road with grader. Daylight road by removing trees marked "CUT" in orange paint (approximately 37 trees). Deck trees in a stable location. Apply 50 CY of 1½"-0" spot rock to road. Process and compact road with grader and vibratory roller.
	0+00	At Pt. 12, widen curve by excavating cutbank 3 feet to the inside of the road. Remove 5 trees and deck separately from STATE timber in a stable location. Place excavated material on nearby bank and compact with excavator bucket. Shape and compact subgrade with grader and vibratory roller. Apply 20 CY of 3"-0" to inside of curve and 20 CY of 3"-0" rock to the outside curve shoulder. Process and compact rock with grader and vibratory roller.
	0+90	Apply 20 CY of 3"-0" rock for in-road Landing. Process and compact Landing rock with grader and vibratory roller. Remove one tree marked "CUT" in orange paint and deck separately from STATE timber in a stable location.
	5+70	Excavate 20 CY of road berm material and end haul to Waste Area 2. Apply 20 CY of jaw-run rock to Landing. Spread and compact Landing rock with dozer and vibratory roller.
	7+85	Apply 20 CY of jaw-run rock to Landing. Spread and compact Landing rock with dozer and vibratory roller.
	7+85 to 21+10	From Sta. 7+85 to Pt. 13, utilize 60 CY of ¾"-0" rock as traction rock as directed by STATE. Compact traction rock with vibratory roller.
	11+70 (Pt. 14)	Utilize 10 CY of jaw-run rock to widen surface width leading to road segment Pt. 14 to Pt. 15.
	11+70 to 15+80	Round cutslope with excavator (approximately 4 stations) and end haul waste (approximately 20 CY) to Waste Area 2.
	15+80	Apply 10 CY of jaw-run rock to Landing. Spread and compact Landing rock with dozer and vibratory roller.
	21+10	Re-open Landing at Pt. 13 and apply 40 CY of jaw-run rock to Landing. Spread and compact Landing rock with dozer and vibratory roller.

## EXHIBIT D

### FOREST ROAD SPECIFICATIONS

#### SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS (Project No. 2) (cont.)

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
14 to 15	0+00 to 3+70	Reopen road with grader and brush according to Exhibit E. Remove sod and brushing debris from road with grader. Daylight road by removing trees marked "CUT" in orange paint (approximately 3 trees). Deck trees in a stable location. Apply a 2" lift (40 CY) of 1½"-0" rock to road. Process and compact road with grader and vibratory roller.
	1+80	Reopen Landing with grader and apply 10 CY of jaw-run rock to Landing. Spread and compact Landing rock with dozer and vibratory roller.
	3+70	Re-construct Landing at Pt. 15 with excavator and shape and compact subgrade with grader and vibratory roller. Apply 30 CY of jaw-run rock to Landing and spread and compact Landing rock with dozer and vibratory roller.
16 to 17	0+00 to 3+50	Reopen road with dozer and brush according to Exhibit E. Remove sod and brushing debris from road with grader. Shape and compact with grader and vibratory roller. From Sta. 0+00 to Sta. 0+50, apply 10 CY of 3"-0" rock to road as transition rock. Spread and compact transition rock with grader and vibratory roller.
	3+50	At Pt. 17, reopen Landing with dozer. Shape and compact Landing with grader and vibratory roller.
18 to 19	0+00 to 152+70	Remove sod from road with grader.
	7+10, 8+30, 20+75, 62+20, 83+50, 104+60 & 114+65	Apply 10 CY of 1½"-0" spot rock on top of each culvert location (70 CY total). Process and compact culvert rock with grader and vibratory roller.
	128+45 to 152+70	Apply 100 CY of 1½"-0" spot rock to road. Process and compact road with grader and vibratory roller.
	133+05	Construct Waste Area 3.
	137+30 to 138+00	Widen curve by 2 feet to the inside with excavator. Utilize clean waste (approximately 20 CY) to fill in turnout at Sta. 138+00 until level with road subgrade. Shape and compact fill with grader and vibratory roller. Apply 20 CY of jaw-run rock to turnout and spread and compact rock with dozer and vibratory roller.
	140+80 to 143+00	Widen road by 2 feet into the cutslope with excavator. End haul waste to Waste Area 3 (approximately 20 CY).
	143+00 to 160+50 (Pt. 19)	From Sta. 143+00 to Pt. 19, clean out toe of cutslope with excavator (approximately 17.5 stations). End haul waste to Waste Area 3 (approximately 90 CY).
	149+05	Apply 20 CY of 3"-0" rock to road for Landing. Process and compact Landing rock with grader and vibratory roller.

# EXHIBIT D

## FOREST ROAD SPECIFICATIONS

### SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS (Project No. 2) (cont.)

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
18 to 19 (cont.)	152+70 to 160+50 (Pt. 19)	Reopen unsurfaced road with grader and compact with vibratory roller.
	160+50 (Pt. 19)	At Pt. 19, reopen Landing with grader and compact with vibratory roller.

### ROAD SURFACING

				Point to Point		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL WEIGHT (TONS)
Application	Rock Size and Type	Location	Depth of Rocks (inches)	A to B		0+00 to 3+40			
				Volume (CY) per		Number of			
Transition Rock	Jaw-Run	0+00 to 0+50	n/a	10	Load	1	Load	10	14
Total Rock for Road Segment			A to B				10		14

				Point to Point		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL WEIGHT (TONS)
Application	Rock Size and Type	Location	Depth of Rocks (inches)	C to D		0+00 to 5+90			
				Volume (CY) per		Number of			
Transition Rock	Jaw-Run	0+00 to 0+50	n/a	10	Load	1	Load	10	14
Total Rock for Road Segment			C to D				10		14

				Point to Point		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL WEIGHT (TONS)	
Application	Rock Size and Type	Location	Depth of Rocks (inches)	1 to 2		0+00 to 337+00				
				Volume (CY) per		Number of				
Spot Rock	1½"-0"	0+00 to 330+10	n/a	10	Load	22	Loads	220	297	
Landing Rock	Jaw-Run	330+10	n/a	40	Ldg.	1	Ldg.	40	54	
Bedding and backfill	1½"-0"	315+15	n/a	10	Culvert	1	Culvert	10	14	
Total Rock for Road Segment			1 to 2						270	365



EXHIBIT D  
ROAD SURFACING

				Point to Point		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL WEIGHT (TONS)
Application	Rock Size and Type	Location	Depth of Rocks (inches)	6 to7		0+00 to 22+80			
				Volume (CY) per		Number of			
Spot Rock	1½"-0"	0+00 to 22+80	n/a	10	Load	9	Loads	90	122
Landing Rock	Jaw-Run	12+85 & 21+10	n/a	10	Load	9	Loads	90	122
Total Rock for Road Segment			6 to 7				180		243

				Point to Point		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL WEIGHT (TONS)
Application	Rock Size and Type	Location	Depth of Rocks (inches)	12 to 13		0+00 to 21+10			
				Volume (CY) per		Number of			
Spot Rock	1½"-0"	0+00 to 21+10	n/a	10	Load	5	Loads	50	68
Curve Widening Rock	3"-0"	0+00	n/a	10	Load	4	Loads	40	54
Landing Rock	3"-0"	0+90	n/a	20	Ldg.	1	Ldg.	20	27
Landing Rock	Jaw-Run	5+70, 7+85, 15+80 & Pt. 13	n/a	10	Load	9	Loads	90	122
Traction Rock	¾"-0"	7+85 to Pt. 13	n/a	10	Load	6	Loads	60	81
Surface Widening Rock	Jaw-Run	11+70	n/a	10	Load	1	Load	10	14
Total Rock for Road Segment			12 to 13				270		365

				Point to Point		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL WEIGHT (TONS)
Application	Rock Size and Type	Location	Depth of Rocks (inches)	14 to 15		0+00 to 3+70			
				Volume (CY) per		Number of			
Surface Rock	1½"-0"	0+00 to 3+70	2	11	Station	4	stations	40	54
Landing Rock	Jaw-Run	1+80 & Pt. 15	n/a	10	Load	4	Loads	40	54
Total Rock for Road Segment			14 to 15				80		108

# EXHIBIT D

## ROAD SURFACING

				Point to Point		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL WEIGHT (TONS)
Application	Rock Size and Type	Location	Depth of Rocks (inches)	16 to 17		0+00 to 3+50			
				Volume (CY) per		Number of			
Transition Rock	3"-0"	0+00 to 0+50	n/a	10	Load	1	Load	10	14

Total Rock for Road Segment

16 to 17

10

14

				Point to Point		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL WEIGHT (TONS)
Application	Rock Size and Type	Location	Depth of Rocks (inches)	18 to 19		0+00 to 160+50			
				Volume (CY) per		Number of			
Culvert Spot Rock	1½"-0"	7+10, 8+30, 20+75, 62+20, 83+50, 104+60 & 114+65	n/a	10	Culvert	7	Culverts	70	95
Spot Rock	1½"-0"	128+45 to 152+70	n/a	10	Load	10	Loads	100	135
Turnout Rock	Jaw-Run	138+00	n/a	10	Load	2	Loads	20	27
Landing Rock	3"-0"	149+05	n/a	20	Ldg.	1	Ldgs.	20	27

Total Rock for Road Segment

18 to 19

210

284

Total Rock Volumes				
Rock Size	¾"-0"	1½"-0"	3"-0"	Jaw-Run
Rock Totals CY	60	580	90	310
Rock Totals TONS	81	783	122	419

Maintenance Rock Volumes				
Rock Size	¾"-0"	1½"-0"	3"-0"	Jaw-Run
Rock Totals CY	-	300	-	-
Rock Totals TONS	-	405	-	-

CY to TONS Conversion Factors				
Size	¾"-0"	1½"-0"	3"-0"	Jaw-Run
Tons/CY	1.35	1.35	1.35	1.35

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

## EXHIBIT D

### ROCK ACCOUNTABILITY

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

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

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 15<sup>th</sup> of each month.

## EXHIBIT D

### COMPACTION AND PROCESSING REQUIREMENTS

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

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

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

Subgrade shall be crowned at 4 to 6 percent or outsloped at 3 to 4 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

ROAD SEGMENT	SUBGRADE COMPACTION 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. At least 3 passes shall be made over the entire width and length of each layer.

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

ROAD SEGMENT	FILLS COMPACTION OPTIONS
All road segments.	1 and 2

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

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

Rock shall be crowned at 4 to 6 percent or outsloped at 3 to 4 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

ROAD SEGMENT	CRUSHED COMPACTION 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) Vibratory Hand-Operated or Backhoe-Mounted Tamper. Vibratory hand-held or hydraulic tampers shall be used for compaction of backfill materials around culverts and 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 D

### CRUSHED ROCK SPECIFICATIONS

#### Grading Requirements

<u>For ¾"-0"</u>	Passing	1" sieve	100%
	Passing	¾" sieve	90-100%
	Passing	⅜" sieve	55-75%
	Passing	¼" sieve	40-60%
	Passing	No. 10 sieve	20-40%
	Passing	No. 40 sieve	8-16%
<u>For 1½"-0"</u>	Passing	2" sieve	100%
	Passing	1½" sieve	90-100%
	Passing	¾" sieve	60-90%
	Passing	¼" sieve	30-50%
	Passing	No. 10 sieve	15-30%
	Passing	No. 40 sieve	7-15%
<u>For 3"-0"</u>	Passing	4" sieve	100%
	Passing	3" sieve	90-100%
	Passing	1½" sieve	60-90%
	Passing	¾" sieve	40-60%
	Passing	¼" sieve	20-40%
	Passing	No. 10 sieve	5-20%
<u>For Jaw-Run</u>	Passing	6" sieve	100%
	Passing	3" sieve	45-65%
<u>For Pit-Run</u>	Passing	10" sieve	100%
	Passing	6" sieve	60-85%

## EXHIBIT D

### CULVERT SPECIFICATIONS

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

Culverts 36 inches in diameter and smaller shall be constructed of corrugated polyethylene, unless otherwise specified in the Contract. Polyethylene culverts shall be double-walled and meet the requirements of AASHTO M-294-11, Type S, or ASTM F2648.

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

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

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

Culverts in live streams shall be installed with the inlet and outlet on grade with the stream bottom, unless otherwise specified in writing.

#### Cross Drain Culverts

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

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

#### Disconnect Culverts

The culvert inlet shall be located as close to the channel that it is disconnecting, while the culvert outlet shall be located as far from the channel as possible; discharge culvert outflow on the forest floor, allowing for filtration before the water enters the disconnected channel.

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

A bedding of crushed rock as specified shall be placed to provide a wide band of support and to transmit the load from above evenly over the entire length of the culvert for all culverts.

Backfill shall consist of crushed rock on improvement segments.

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

Minimum height of cover over top of culvert to subgrade when road is to be rock shall be as follows: 12" for culverts 18" to 36". The finished subgrade shall match the subgrade of the road prior to installation.

Lengths of individual culvert sections shall be not less than 10 feet, unless otherwise provided for in special instructions. The shortest culvert section length shall be placed at the inlet end.

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

## EXHIBIT D

### CULVERT SPECIFICATIONS

The intake end of cross drain and disconnect 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.

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

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

The intake ends of culverts in fills less than 3 feet to the top of the culvert shall be marked by driving white fiberglass posts within 6 inches of the downgrade side. Posts shall be a minimum of 6 feet long and 2½ inches wide, with the spade driven 2 feet into the ground. Install a culvert marker at each existing culvert that is missing a marker that could be reached by a grader blade.

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

### CULVERT LIST

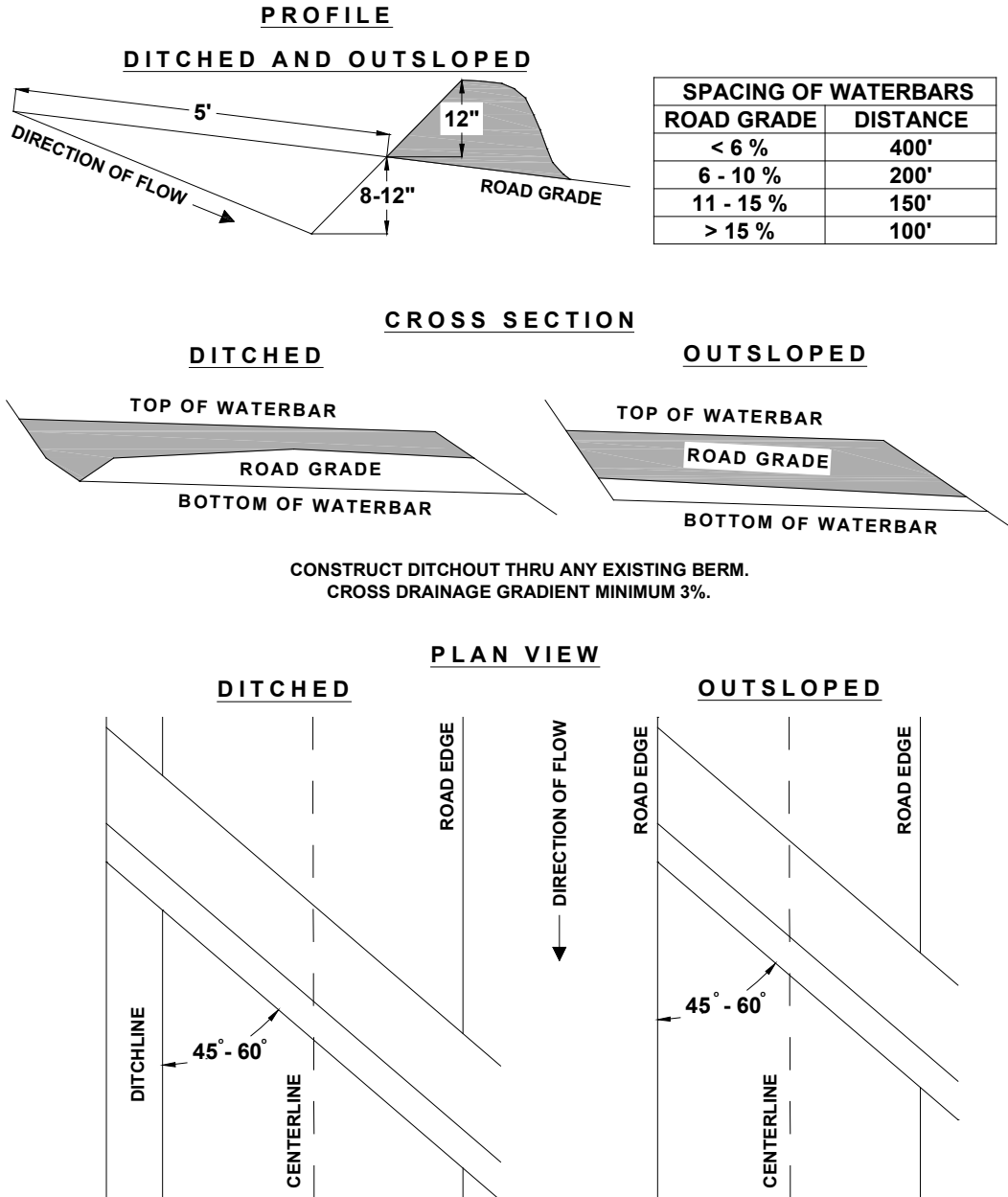
CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	MATERIAL TYPE	ROAD SEGMENT POINT TO POINT	STATION
1	18	30	CPP	Pt. 1 to Pt. 2	315+15

CPP = Polyethylene



## EXHIBIT D

### WATERBAR SPECIFICATIONS



## EXHIBIT D

## PROFILE



## CROSS SECTION



TOP OF BERM

### ROAD GRADE

OUTSLOPED

**TOP OF BERM**

## ROAD GRADE

**CONSTRUCT DITCHOUT THRU ANY EXISTING BERM.  
CROSS DRAINAGE GRADIENT MINIMUM 3%**

### PLAN VIEW



## DITCHLINE

## CENTERLINE

ROAD EDGE

↓ DIRECTION OF FLOW

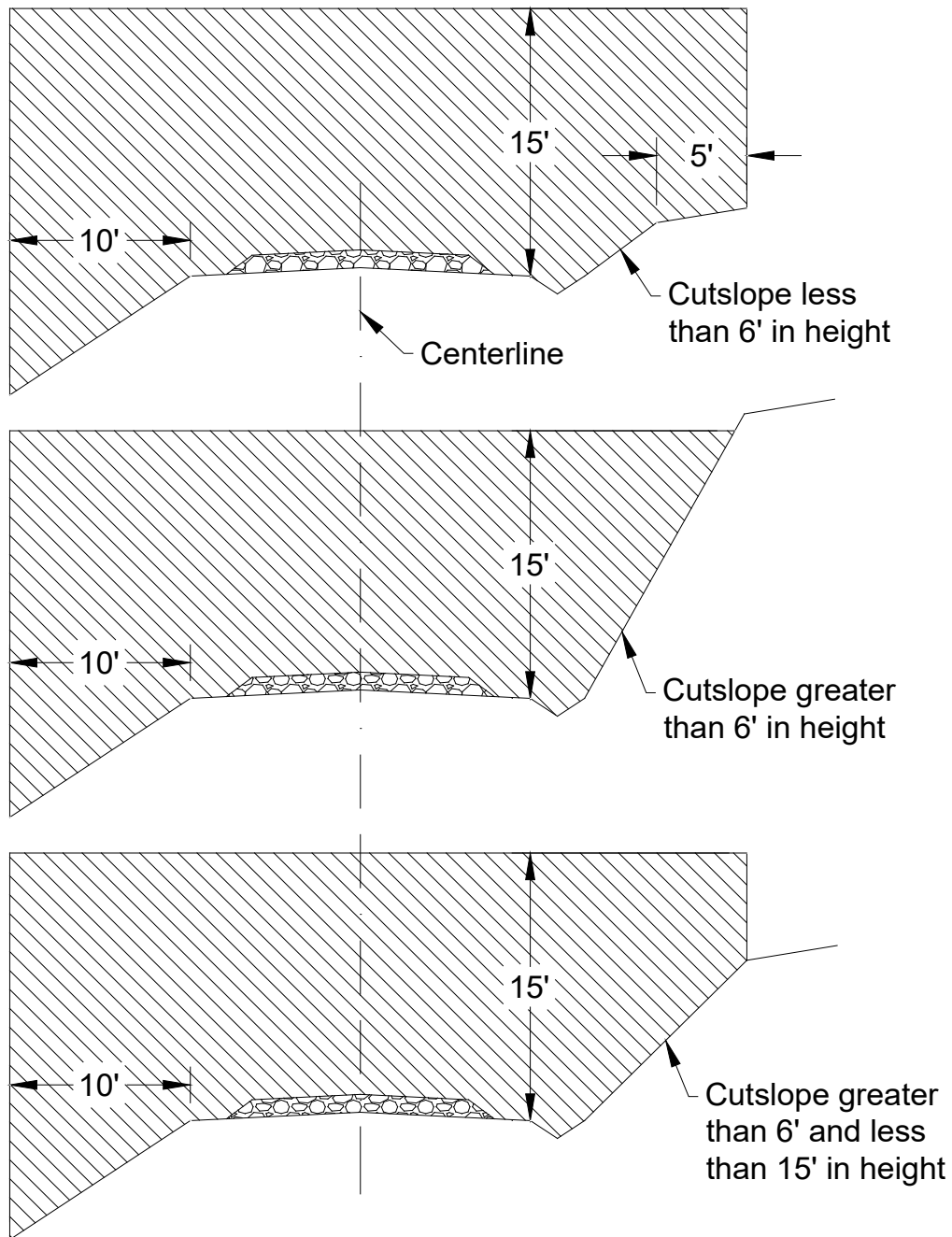
ROAD EDGE

## CENTERLINE

ROAD EDGE

It should be sloped to drain with a relief ditch through the down slope edge of the road. The trench shall be behind the berm for approaching traffic.

EXHIBIT E  
ROAD BRUSHING SPECIFICATIONS



## EXHIBIT E

### ROAD BRUSHING SPECIFICATIONS

#### CUTTING REQUIREMENTS:

Purchaser shall conduct roadside brushing on the road points as listed in Section 2610 of this Contract. The minimum height of brushing shall be for all situations 15 feet from the road surface, and the minimum width of brushing on the down slope side of the road shall be 10 feet horizontal distance. The minimum width of brushing on the cutslope side of the road shall be dictated by the height of the cutslope as indicated in the three drawings above. In situations where site distance is an issue, brushing heights on the cutslope may vary from the above drawings, as directed by STATE. All turnouts and turnarounds encountered shall be brushed.

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. All vegetation on the road surface shall be cut flush to the road surface. Stumps greater than three inches on the road shoulder and ditchline, shall be cut flush to the surface.

#### CLEAN-UP and DEBRIS REMOVAL:

Debris resulting from the brushing operation shall be removed from the roadway, cutslope, ditches, water courses, culvert inlets/outlets, and sediment catch 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 brushing limits but outside of the ditchline or shoulder, shall not be cut down, but shall be limbed for road visibility.

Existing debris on the roadway, cutslope, ditchline, or catch basin shall be removed and treated. Debris shall be mulched or scattered downslope from the road or placed in other stable locations. Large non-merchantable 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.

Merchantable blown down trees encountered shall be bucked in lengths as directed by STATE, and placed in locations acceptable to STATE, or pushed out of the road prism.

When spur roads to be brushed end with a landing, the landing is to be brushed as directed by STATE.

CULVERT AND ROAD MARKER DAMAGES: Culvert and road markers damaged, or any portion of a marker damaged from PURCHASER activities shall be replaced.

PART IV: OTHER INFORMATION

**FPA WRITTEN PLAN for Timber Harvest within 100 feet of a Type F stream  
Beaver Believer Thin Timber Sale**

**Location:** Portions of Section 20, T11S, R09W, W.M, Lincoln County Oregon

**Landowner:** Oregon Department of Forestry  
24533 Alsea Hwy  
Philomath OR, 97370  
(541) 929-3226

**Protected Resources:** Two unnamed streams, small Type F, which are tributaries to Beaver Creek, a Medium Type F.

**Situation:** Approximately 1750 feet of an unnamed stream runs through Unit 1 and approximately 1,050 feet of an unnamed stream is adjacent to the timber sale boundary in Unit 2. Thinning harvest operations will occur within 100 feet of the streams and yarding may occur over stream buffers. This is a commercial thinning sale, an average of 130 square feet of basal area will be left in the harvest areas after logging is completed.

**Resource Protection Measures:**

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

- A minimum 25 foot horizontal buffer is required on each side of all perennial streams.
- No trees will be felled within stream buffers, except as necessary in cable corridors. Felled trees may not be removed from stream buffers.
- Trees that fall or slide into Type F streams shall not be removed without prior approval from STATE.
- Trees adjacent to the stream buffers will be felled away from or parallel to the streams to prevent trees from entering the aquatic areas.
- When cable logging is conducted nearby the streams, logging lines may cross, but will not be lowered into the stream buffers during yarding, except during rigging
- During rigging the lines must be pulled out of the stream buffers when changing corridors.
- Logs shall be fully suspended when yarding through all stream buffers.
- Cable corridors must be at least 100 feet apart where they cross the streams.
- Ground equipment may not operate within 50 feet of any Type F or perennial stream.

**I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the harvest of timber within 100 feet of a Type F stream. I agree to the protection measures listed on this plan:**

\_\_\_\_\_  
Purchaser/Operator Contract Representative

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

\_\_\_\_\_  
State Representative

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

**FPA WRITTEN PLAN for Timber Harvest within 300 feet of a Sensitive Wildlife Site**

**Beaver Believer Thin Timber Sale**

**Location:** Portions of Section 20, T11S, R09W, W.M, Lincoln County Oregon

**Landowner:** Oregon Department of Forestry  
24533 Alsea Hwy  
Philomath OR, 97370  
(541) 929-3226

**Protected Resource:** The Middle Beaver Creek Marbled Murrelet Management Area (MMMA).

**Situation:** A portion of Unit 2 lies within the non-habitat buffer for the Middle Beaver Creek MMMA. Thinning operations will occur within the non-habitat buffer but will not occur with the occupied habitat. The use of Tailholds within occupied habitat may be allowed with STATE approval.

**Resource Protection Measures:**

- 1) The following shall not be allowed within the MMMA buffer from April 1 through August 5 and from August 6 through September 15 between two hours before sunset and two hours after sunrise, unless otherwise approved in writing by STATE.
  - a) Cable yarding operations.
  - b) Use of mechanized equipment, including chainsaws.
- 2) Use of Tailholds in the MMMA will have the following restrictions:
  - a) Consultation with STATE and approval of each Tailhold and cable line placement is required before Tailholding is allowed in this area. A lead time of two weeks is required to schedule a field consultation between STATE, PURCHASER, the Operator, and the person responsible for Tailhold selection and cable rigging. Consultation will include identification of nesting platforms and cover trees.
  - b) The following trees within the Designated Occupied Habitat of the MMMA will not be selected for Guyline or Tailhold anchors:
    - i) Trees with potential nest platforms or immediately surrounding trees that provide cover to the potential nest platforms, as determined by STATE.
    - ii) If feasible, the largest trees in the areas where the number of large trees is limited.
    - iii) If feasible, minor conifer species not commonly found in the stand.
  - c) Cables located within the MMMA will be located so that raising, lowering or use of the line will not damage trees considered to have suitable nesting platforms or associated cover trees.
  - d) Lines that may damage, in the opinion of the ODF Area Biologist or authorized representative, potential or existing nesting platforms or associated cover trees must be removed and relocated.
  - e) Any plans to Guyline or Tailhold in the MMMA must be addressed in the Operations Plan and at the Pre-Operations meeting.
- 3) Human food trash will be policed and removed from all project areas, Landings, and roadways on a daily basis. Food items and food waste will be stored inside appropriate containers or vehicles.

**I, the undersigned, submit this written plan in compliance with the requirements of the Forest Practices Act, regarding operations conducted within 300 feet of an endangered species nesting site. I agree to the protection measures listed in this plan.**

\_\_\_\_\_  
Purchaser/Operator Contract Representative

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

\_\_\_\_\_  
State Representative

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