



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-341-2020-W00789-01

(2) Sale Name: Rock Fall

(3) Contract Expiration Date: 09/30/2022

(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:

(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.



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PART III: EXHIBITS

EXHIBIT B

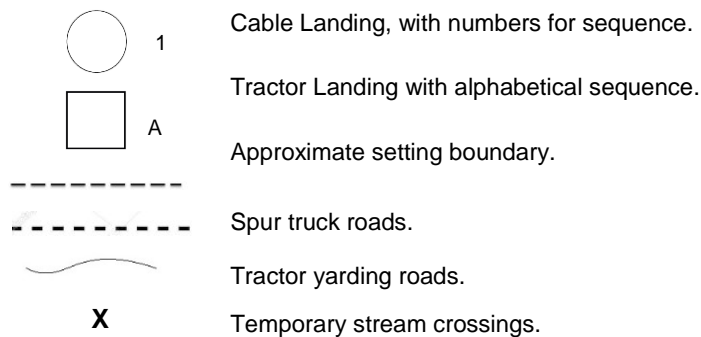
INSTRUCTION SHEET FOR OPERATIONS PLAN

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

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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'.

(7) Weight Scale Sample ☐ YES ☒ NO

(8) APPROVED SCALING LOCATIONS (as shown on the ODF Approved Locations web-site)	Species	Yard	Truck	Weight

(9) SALE NAME: Rock Fall
COUNTY: Lincoln, Polk

(10) STATE CONTRACT NUMBER:
WO-341-2020-W00789-01

(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"/>
NO DEDUCTIONS ALLOWED FOR MECHANICAL DAMAGE	<input checked="" type="checkbox"/>
ADD-BACK VOLUME - Deductions due to delay...	<input checked="" type="checkbox"/>
OTHER :	

(15) REMARKS "Mule Train" loads require a 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



Oregon Department of Forestry
EXHIBIT C - SAWMILL GRADE
INSTRUCTIONS FOR FORM 343-307a (rev. 11/11)
West Oregon - NWOA

- (1) Check appropriate box. REVISION NUMBER requires comments. CANCELLATION requires logging and hauling to be complete, recall branding hammers, date and sign where indicated, write diagonally across page "CANCEL", and send to TPSO.
- (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

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

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

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

Pacific Log Scaling & Grading Bureau, Inc.
P.O.Box 23939, Portland, OR 97281
Phone: (503) 684-5599 Fax: (503) 639-4880
Email: PacLogScale@sol.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: http://www.odf.state.or.us/DIVISIONS/management/asset_management/ScalingLocation.asp Locations with scaling and processing directions specific to their location should be on a separate form. Species should be identified if not capable of receiving "all" species. Check appropriate box for either: yard, truck scale, or weight. Refer to the web site listed above for the locations approval status.
- (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 conversion factors, per load volumes, 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.

Salem Distribution Instructions: Original will be mailed to Salem after it is electronically scanned and placed in the Salem transfer drive \\WPODFFILL01\\Transfer\\ScalingInstructions or e-mailed directly to scaling@odf.state.or.us. Scaling Instructions for each brand should be scanned separately, for each approved TPSO.

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(s), Purchaser, Specific distribution instructions are outlined on the last page of this report: Instructions for Form



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: _____

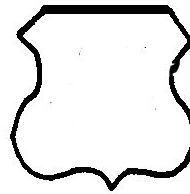
(9) SALE NAME: Rock Fall
COUNTY: Lincoln, Polk

(10) STATE CONTRACT NUMBER:
WO-341-2020-W00789-01

(11) STATE BRAND REGISTRATION NUMBER: _____

(12) STATE BRAND INFORMATION:

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



(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.

Operator's Name (Optional inclusion by District):

(14) SIGNATURES:

Purchaser or Authorized Representative Date

State Forester Representative Date

State Forester Representative PRINT NAME

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.

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



Oregon Department of Forestry
EXHIBIT C - PULP SORT
Instructions for Form 343-307b

West Oregon, NWOA

- (1) **Must Complete.** Check appropriate box. REVISION NUMBER requires comments in the Remarks Section (13). CANCELLATION requires logging and hauling to be complete, recall branding hammers, date and sign where indicated, write diagonally across page "CANCEL", and send to TPSO.
- (2) **Must Complete.** Approved Pulp Processing Facility. Write in as written in the Approved Log Delivery Location http://www.odf.state.or.us/DIVISIONS/management/asset_management/ScalingLocation.asp
- (3) **Must Complete.** State Forestry District and District Phone Number.
- (4) **Must Complete.** Purchaser's business name as it appears on the Contract.
- (5) **Must Complete.** 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

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

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

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

Pacific Log Scaling & Grading Bureau, Inc.
P.O.Box 23939, Portland, OR 97281
Phone: (503) 684-5599 Fax: (503) 639-4880
Email: PacLogScale@sol.com

- (6) **Must Complete.** Big end log not to exceed _____ inches. 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.
- (7) **Must Complete.** Enter sale name and county. If more than one county write in all the counties that the sale is located in.
- (8) **Must Complete.** Enter sale Contract number.
- (9) **Must Complete.** Enter Oregon's State Brand Registry Number **(REQUIRED)**.
- (10) **Must Complete.** 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).
- (11) Use this section to list any special instructions or the reason for any revisions in section item (1).
- (12) **Must Complete.** Purchaser required to sign and date completed form in addition to State Forester Representative, sign and print name on the form.

Salem Distribution Instructions: Original will be mailed to Salem after it is electronically scanned and placed in the Salem transfer drive \\WPODFILL01\Transfer\ScalingInstructions or e-mailed directly to scaling@odf.state.or.us. Scaling instructions for each brand should be scanned separately, for each approved TPSO.

Distribution(See specific instructions on pg.2): ORIGINAL: Salem/ COPIES: TPSO, Approved Pulp Processing Location, Purchaser, District, Mgmt. Unit

EXHIBIT D
FOREST ROAD SPECIFICATIONS

POINT TO POINT	STATION TO STATION	SUBGRADE WIDTH	BASE ROCK WIDTH	SURFACED WIDTH	DRAINAGE
A to B	0+00 to 21+40	14 feet	None	None	Outsloped
C to D	0+00 to 0+80	14 feet	None	None	Outsloped
E to F	0+00 to 2+80	20 feet	13 feet	12 feet	Crowned
E to F	2+80 to 8+60	14 feet	13 feet	12 feet	Crowned
E to F	8+60 to 15+20	14 feet	None	None	Outsloped
G to H	0+00 to 1+20	14 feet	None	None	Outsloped
I to J	0+00 to 2+00	14 feet	None	None	Outsloped
K to L	0+00 to 7+90	14 feet	None	None	Outsloped
1 to 2	0+00 to 64+50	16 feet	13 feet	12 feet	Crowned
3 to 4	0+00 to 45+00	16 feet	13 feet	12 feet	Crowned
5 to 6	0+00 to 7+10	14 feet	13 feet	12 feet	Crowned
7 to 8	0+00 to 8+00	14 feet	13 feet	12 feet	Crowned

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 - 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 debris shall not be placed or permitted to remain in or under any road embankment sections.

GRUBBING CLASSIFICATION.

New construction - from the top of the 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 side slopes exceeding 50 percent
- 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.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

TURNOUTS. Increase roadbed width an additional (12) 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.

<u>SLOPES</u>	<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 outsloped or 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 22 feet for a length of 22 feet at locations marked in the field.

SEASONAL WINTERIZATION. All unsurfaced roads or unfinished subgrades shall be waterbarred in accordance with the specifications with this Exhibit, and blocked from vehicular traffic prior to October 31, annually and as directed by STATE.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

GENERAL ROAD CONSTRUCTION INSTRUCTIONS:

- (1) Timber Removal. Remove all trees within posted right-of-way boundary as specified in Section 2210, "Designated Timber."
- (2) Excavated Materials. Excavated materials shall be utilized for road construction 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) Culvert Installation. Fill construction backfill shall consist of select materials and may be obtained from borrow pits or, as approved and directed by STATE. Backfill materials shall be hauled in where necessary and thoroughly compacted in accordance with this Exhibit. STATE may require the use of crushed rock for culvert bedding according to the Specific Road Construction Instructions.
- (5) Fill Armor and Energy Dissipator Construction. Where rock is specified for fill armor, rock shall be machine placed and tamped at a 1½:1 slope, beginning at the toe of the fill. Where rock is used for an energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, in accordance with in this Exhibit.
- (6) Controlled Blasting. Controlled blasting techniques shall be utilized for any blasting operations, and shall be accomplished using timing devices, delayed charges, low intensity shots, or other suitable means to contain material within the road prism.
- (7) Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic yard, track-mounted excavator.
- (8) Waste areas shall be uniformly sloped and compacted for drainage.
- (9) Subgrade Preparation and Application of Surfacing Rock.
 - (a) Complete sod removal, roadside brushing, 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 at 3 to 4 percent, and compact in accordance to the "Compaction and Processing Requirements" in this Exhibit.

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	Junction to the right off Spur 1 to 2 (station 15+60) and begin new construction for a 14' wide outsloped subgrade road. Begin to place 20 CY of 3"-0" crushed rock at road junction.
	0+50	End placement of 3" -0" crushed rock and continue to construct a 14' wide outsloped subgrade road ahead.
	6+94	Construct a truck turnaround on the left side of the road.
	9+25	Junction to the right for Spur C to D station 0+00.
	11+80	Install an 18" x 30' culvert. Place 10 CY of 1 ½"-0" rock to bed pipe and to backfill over pipe in 8" lifts. Place ~ 5 CY of pitrun for an outlet dissipator
	13+55	Remove existing culvert and dispose of off of State property at an approved refuse site. Install an 18" x 30' culvert. Place 10 CY of 1 ½"-0" rock to bed pipe and to backfill over pipe in 8" lifts. Place ~ 5 CY of pitrun for an outlet dissipator.
	14+10	Remove the big leaf maple tree and stump from the road cutbank.
	14+41	Begin fullbench section, shift road over into the cutbank ahead. Endpush all excavated material (~250 CY) ahead to station 16+80 to help widen the curve.
	16+65	End fullbench section and endpush ahead and to the right to widen the curve and Landing at station 16+80.
	17+55	Construct a truck turnaround on the right side of the road.
	18+15	Begin to daylight left side of the road and endpush ahead to station 19+65 for a finished subgrade of 14' wide minimum.
	19+05	End daylighting of the left side of the road.
	21+40	Construct an 80' x 80' Landing at Point B.
C to D	0+00	Junction right off Spur A to B (sta 9+25). Begin to construct a 14' wide outsloped subgrade road.
	0+80	Construct an 80' x 80' landing at Point D.
E to F	0+00	Same as station 29+12 (Spur 1 to 2). Begin road realignment, (see engineering plans). Reclaim the existing road rock and stockpile out of the way at Waste Area 4 (~100 CY). Begin to place 3"-0" crushed rock (280 CY) 13' wide with a 6" compacted depth and top with ¾"-0" crushed rock (100 CY) 12' wide with a 2" compacted depth.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS (continued)

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
	2+20	Daylight to the right and construct roadside Landing / turnout. Apply 20 CY of jaw-run rock. Blend the new road grade into the existing road grade. Endpush the excavated material ahead and to the waste area at station 3+20 and Landing at station 3+60.
	3+60	Construct 60' x 60' Landing on the left side of the road. Spread 40 CY of jaw-run at center of Landing area. Continue the road subgrade on the right side of the ridge. Do not exceed 20% adverse road grade ahead.
	8+60	Begin to Construct 60' x 60' Landing. End placement of 3"-0" and ¾"-0" crushed rock. Spread 40 CY of jaw-run at the center of the Landing area.
	8+60 to 15+20	Continue road construction of 14' wide unsurfaced road. Construct turnout at station 13+05.
	15+20	Construct a 60' x 60' Landing at Point F. Contain sidecast and do not fill on sideslopes greater than 50%.
G to H	0+00	Proceed straight ahead at Point 3 for 10+00 stations to the beginning of Spur G to H. Begin to construct a 30' wide outsloped subgrade road for a two-way junction. Begin to place 20 CY of 3"-0" crushed rock at road junction.
	0+50	End placement of 3" -0 crushed rock and continue to construct a 14' wide unsurfaced outsloped subgrade road ahead.
	1+20	End new construct road at Point H.
I to J	0+00	Junction to the right off Spur 3 to 4 (station 8+67). Begin to construct a 30' wide outsloped subgrade road for a two-way junction. Begin to place 20 CY of 3"-0" crushed rock at road junction.
	0+50	End placement of 3" -0" crushed rock and continue to construct a 14' wide unsurfaced outsloped subgrade road ahead.
	2+00	Construct a 60' x 60' Landing at Point J.
K to L	0+00	Junction to the left off Spur 3 to 4 (station 3+30). Begin to construct 30' wide outsloped subgrade for a two-way junction. Begin to place 20 CY of 3"-0" crushed rock at road junction.
	0+50	End placement of 3" -0" crushed rock and continue to construct a 14' wide unsurfaced outsloped subgrade road ahead.
	7+90	Construct a 60' x 60' Landing at Point L.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

- (1) Timber Removal. Remove all trees within posted Right-of-Way Boundary as specified in Section 2210 "Designated Timber". If the right-of-way boundary is not marked, remove all trees and stumps a minimum of 16' both sides of the road centerline. On side slopes greater than 50% the width of the right-of-way will vary depending on the steepness of the side slope.
- (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. Surplus excavated materials and waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with Exhibit D.
- (3) 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.
- (4) Culvert Replacement, Culvert Installation, Fill Reconstruction, and Fill Removal. Existing culvert geometry shall be modified to provide for optimum drainage and culvert performance. Modifications may include, skewing the culvert and/or installing the culvert at gradients equal to or exceeding the drainage (or ditch) gradient. Where fill reconstruction or culvert replacement is specified, fills shall be excavated to natural stream course levels. All woody debris encountered during fill excavation shall be removed. Fill reconstruction backfill shall consist of select materials and may be obtained from borrow pits, as directed by STATE. Unsuitable backfill material shall be hauled to the designated waste areas as marked in the field and/or designated on Exhibit A. Backfill materials shall be hauled and compacted with this Exhibit.
- (5) Drainage Ditches. Restore or construct ditchlines, including ditchouts, as directed by STATE. Clean out all culvert inlets and outlets for a 10-foot radius. Re-establish or construct culvert sediment basins. Waste materials from drainage ditches and sediment basins shall not be pulled across existing surfacing rock, but shall be placed in nearby waste areas.
- (6) Fill Armor and Energy Dissipator Construction. Where rock is specified for fill armor, rock shall be machine placed and tamped at a 1½:1 slope, beginning at the toe of the fill. Where rock is used for an energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet.
- (7) Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic yard, track-mounted excavator.
- (8) Waste areas shall be uniformly sloped and compacted for drainage.
- (9) Subgrade Preparation and Application of Surfacing Rock.
 - (e) Complete sod removal, roadside brushing, culvert installations, drainage ditches, fill reconstruction, ditchouts, and other specified work prior to the application of new surfacing rock.
 - (f) Cut out all potholes and/or washboard sections from the existing surfacing.
 - (g) Apply required patching and leveling rock, as directed by STATE.
 - (h) Process (grade and mix) the existing surface and added base rock. Provide for a crown of 4 to 6 percent or outslope at 3 to 4 percent, and compact in accordance to the "Compaction and Processing Requirements" in this Exhibit.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS (Project No.2)

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
1 to 2	0+00	Begin road improvement by roadside brushing, cleaning ditches, inlets and outlets of the existing culverts (1). Scrape the grass and woody debris off the existing rocked road. Endhaul or scatter excess material to pre-approved waste area. Begin applying 200 CY of 1 ½"-0" crushed spot rock as marked between Point 1 to Point 2.
	3+24	Spread one load of 1 ½"-0" crushed rock (10 CY).
	5+90	Remove existing culvert and dispose of off of State property at an approved refuse site. Install a 24" x 30' culvert. Place 20 CY of 1 ½"-0" crushed rock to bed and backfill over culvert in 8" lifts. Place outlet dissipator rock (10 CY pit-run).
	15+60	Junction to the right for Spur A to B station 0+00. Begin pulling ditch and scattering of waste material or endhaul as needed.
	18+91	Junction to the right for Spur 5 to 6, station 0+00.
	29+12	Same as Point E (station 0+00). Begin road realignment for a 14' wide crowned road ahead. The road rock and excavation is accounted for on Spur E to F.
	31+72	Junction to the right for Spur E to F station 2+80. See plans for Spur E to F. Continue to match road subgrade ahead. After junction with Spur E to F, Place a 6" lift of 3"-0" base rock (60 CY) for the curve widening and first 100' after junction. Place reclaimed rock (~100 CY) on top of new base rock.
	36+19	Begin to excavate the cut bank on the left side of the road and round the cutslope (~100 CY). Remove the overhanging trees and stumps within Right of Way tags. Endhaul to the fill section on Spur E to F (station 3+20) see plans for Spur E to F, or to waste area. Compact waste material in 8" lifts. Begin placement of 1 ½"-0" crushed rock 12' wide with a 3" compacted depth (30 CY).
	38+22	End cut bank removal and cutslope rounding. End pulling ditch and scattering of waste material or endhaul as needed. End placement of 1 ½"-0" crushed rock.
	56+76	Junction left for Spur 7 to 8, station 0+00.
	64+50	Clear the brush off the existing road to make a truck turnaround and end road improvement at Point 2.
3 to 4	0+00	Begin road improvement by roadside brushing. Scrape the grass and woody debris off the existing rocked road. Endhaul or scatter excess material to pre-approved waste area. Apply 80 CY of 1 ½"-0" crushed spot rock as marked from Point 3 to Point 4.
	3+30	Junction left for Spur K to L, station 0+00.
	8+67	Junction right for Spur I to J, station 0+00.
	45+00	End road improvement at Point 4.
5 to 6	0+00	Junction to the right off of Spur 1 to 2 (station 18+91). Begin roadside brushing and sod removal. Clear off the woody debris from road surface.
	7+10	End roadside brushing and sod removal at Point 6.
7 to 8	0+00	Junction to the left off of Spur 1 to 2 (station 56+76). Begin roadside brushing and sod removal. Clear off the woody debris from road surface.
	8+00	End roadside brushing and sod removal at the chains across the road. (Property line)

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 this Exhibit.

ROAD SEGMENT	SUBGRADE COMPACTION OPTIONS
A to B, C to D, E to F, G to H, I to J, K to L, 1 to 2	(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
A to B, C to D, E to F, G to H, I to J, K to L, 1 to 2 and 3 to 4	(1)

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 this Exhibit.

ROAD SEGMENT	CRUSHED COMPACTION OPTIONS
All road segments requiring crushed rock	(1)

EXHIBIT D

COMPACTION AND PROCESSING REQUIREMENTS

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

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

ROAD SEGMENT	JAW-RUN & PIT-RUN COMPACTION OPTIONS
A to B, E to F and 1 to 2	(1) (7)

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) Tampingfoot Compactors. Tampingfoot compactors shall exert a minimum pressure of 250 pounds per square inch on the ground area in contact with the tamping feet. The compactor shall cover a minimum width of 60 inches per pass and weigh a minimum of 16,000 pounds.
- (3) 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.
- (7) Dozer. A dozer/track-type tractor weighing a minimum of 45,000 pounds as directed by STATE shall be operated over the pit-run or jaw-run rock so that the entire surface comes in contact with the tracks.

**EXHIBIT D
ROAD SURFACING**

ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL VOLUME (TONS) 1.35 TONS PER CY
Application	Rock Size and Type	Location	Depth of Rock (inches)	A to B		0+00 to 21+40			
				Volume (CY) per		Number of			
Junction Rock	3''-0''	0+00 to 0+50	N/A	40	Station	.5	Stations	20	27
Culvert Bedding & Backfill	1 ½''-0''	11+80, 13+55	Varies	10	Culvert	2	Culverts	20	27
Outlet Dissipator	Pit-run	11+80, 13+55	Varies	5	Dissipator	2	Dissipators	10	14
Total Rock for Road Segment		A to B						50	68

ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL VOLUME (TONS) 1.35 TONS PER CY
Application	Rock Size and Type	Location	Depth of Rock (inches)	E to F		0+00 to 8+60			
				Volume (CY) per		Number of			
Base Rock	3"-0"	0+00 to 8+60	6"	33	Station	8.6	Stations	280	378
Surface Rock	¾"-0"	0+00 to 8+60	2"	11	Station	8.6	Stations	100	135
Turnout Rock	Jaw-run	2+20	Varies	20	Turnout	1	Turnout	20	27
Landing rock	Jaw-run	3+60, 8+60	Varies	40	Landing	2	Landings	80	108
Total Rock for Road Segment		E to F						480	648

Note: Station 0+00 on Spur E to F is the same as Station 29+12 on Spur 1 to 2.

ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL VOLUME (TONS) 1.35 TONS PER CY
Application	Rock Size and Type	Location	Depth of Rock (inches)	G to H		0+00 to 1+20			
				Volume (CY) per		Number of			
Junction rock	3''-0''	0+00 to 0+50	N/A	40	Station	0.50	Stations	20	27
Total Rock for Road Segment		G to H						20	27

**EXHIBIT D
ROAD SURFACING**

ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL VOLUME (TONS) 1.35 TONS PER CY
Application	Rock Size and Type	Location	Depth of Rock (inches)	I to J		0+00 to 2+00			
				Volume (CY) per		Number of			
Junction rock	3"-0"	0+00 to 0+50	N/A	40	Station	0.50	Stations	20	27

Total Rock for Road Segment

I to J

20

27

ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL VOLUME (TONS) 1.35 TONS PER CY
Application	Rock Size and Type	Location	Depth of Rock (inches)	K to L		0+00 to 7+90			
				Volume (CY) per		Number of			
Junction rock	3"-0"	0+00 to 0+50	N/A	40	Station	0.50	Stations	20	27

Total Rock for Road Segment

K to L

20

27

ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL VOLUME (TONS)
Application	Rock Size and Type	Location	Depth of Rock (inches)	1 to 2		0+00 to 64+50			
				Volume (CY) per		Number of			
Spot Rock	1 ½"-0"	0+00 to 64+50	N/A	210				210	284
Base Rock	3"-0"	31+72 to 32+72 & CW	6"	60				60	81
Surface Rock	1 ½"-0"	36+19 to 38+22	3"	15	Station	2	Stations	30	41
Culvert Bedding & Backfill	1 ½"-0"	5+90	Varies	20	Culvert	1	Culverts	20	27
Outlet Dissipator	Pit-run	5+90	Varies	10	Dissipator	1	Dissipator	10	14

Total Rock for Road Segment

1 to 2

330

447

**EXHIBIT D
ROAD SURFACING**

ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL VOLUME (TONS) 1.35 TONS PER CY
Application	Rock Size and Type	Location	Depth of Rock (inches)	3 to 4		0+00 to 40+00			
				Volume (CY) per		Number of			
Spot Rock	1 ½"-0"	0+00 to 40+00	N/A	80				80	108
Total Rock for Road Segment		K to L						80	108

TOTAL ROCK VOLUME for Projects 1 and 2							
Rock Size	¾" - 0"	1 ½"-0"	3"-0"	Jaw-run	Pit-Run		
Rock Totals CY	100	360	420	100	20		
Rock Totals TONS	135	486	567	135	27		

Maintenance Rock Volumes in CY							
Rock Size	¾" - 0"	1 ½"-0"	3"-0"	Pit run			
Rock Totals CY	0	240	0	0			
Rock Totals TONS	0	324	0	0			

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.

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

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

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

EXHIBIT D

DURABLE CRUSHED ROCK SPECIFICATIONS

Grading Requirements

<u>For 3/4"-0"</u>	Passing	1" sieve	100%
	Passing	3/4" sieve	90-100%
	Passing	3/8" sieve	55-75%
	Passing	1/4" sieve	40-60%
	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	3/4" sieve	60-90%
	Passing	1/4" 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	3/4" sieve	40-60%
	Passing	1/4" 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 6"-0" Pit-Run</u>	Passing	10" sieve	100%
	Passing	6" sieve	60-85%
	Passing	3" sieve	30-50%
	Passing	1/4" sieve	0-20%

For 6"-8" Drain Rock A minimum of 50 percent of the material shall measure a minimum of 8 inches, measured in one dimension. Material shall be clean, well graded, and free of 6"-0" fines.

Control of gradation shall be by visual inspection by STATE.

EXHIBIT D

CULVERT SPECIFICATIONS

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

Culverts 24 inches in diameter and smaller shall be constructed of corrugated polyethylene. Culverts larger than 30 inches in diameter shall be constructed of corrugated aluminized Type 2 steel. Polyethylene culverts shall be double-walled and meet the requirements of AASHTO M-294-11, Type S, or ASTM F2648. Aluminized (Type 2) steel culverts shall meet the requirements of AASHTO M-36-03¹.

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.

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.

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 1½"-0" crushed rock 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 on road improvement segments.

Backfill shall consist of smaller than or equal to 1½"-0" crushed rock.

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

EXHIBIT D

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" and (18") for culverts 42" to 96" [add 6" for roads which will not be rocked]. Minimum vertical cover for other designs shall be as specified by STATE.

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

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

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 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.

Half rounds, Energy Dissipators or Setting Ponds shall be installed within 72 hours of culvert installation, unless otherwise approved in writing by STATE.

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	GAUGE	ROAD SEGMENT POINT TO POINT	STATION
1	18	30	cpp	n/a	A to B	11+80
2	18	30	cpp	n/a	A to B	13+75
3	24	30	cpp	n/a	1 to 2	5+90

ACSP = Aluminized, CPP = Polyethylene

EXHIBIT D

TYPICAL EMBEDDED ENERGY DISSIPATOR

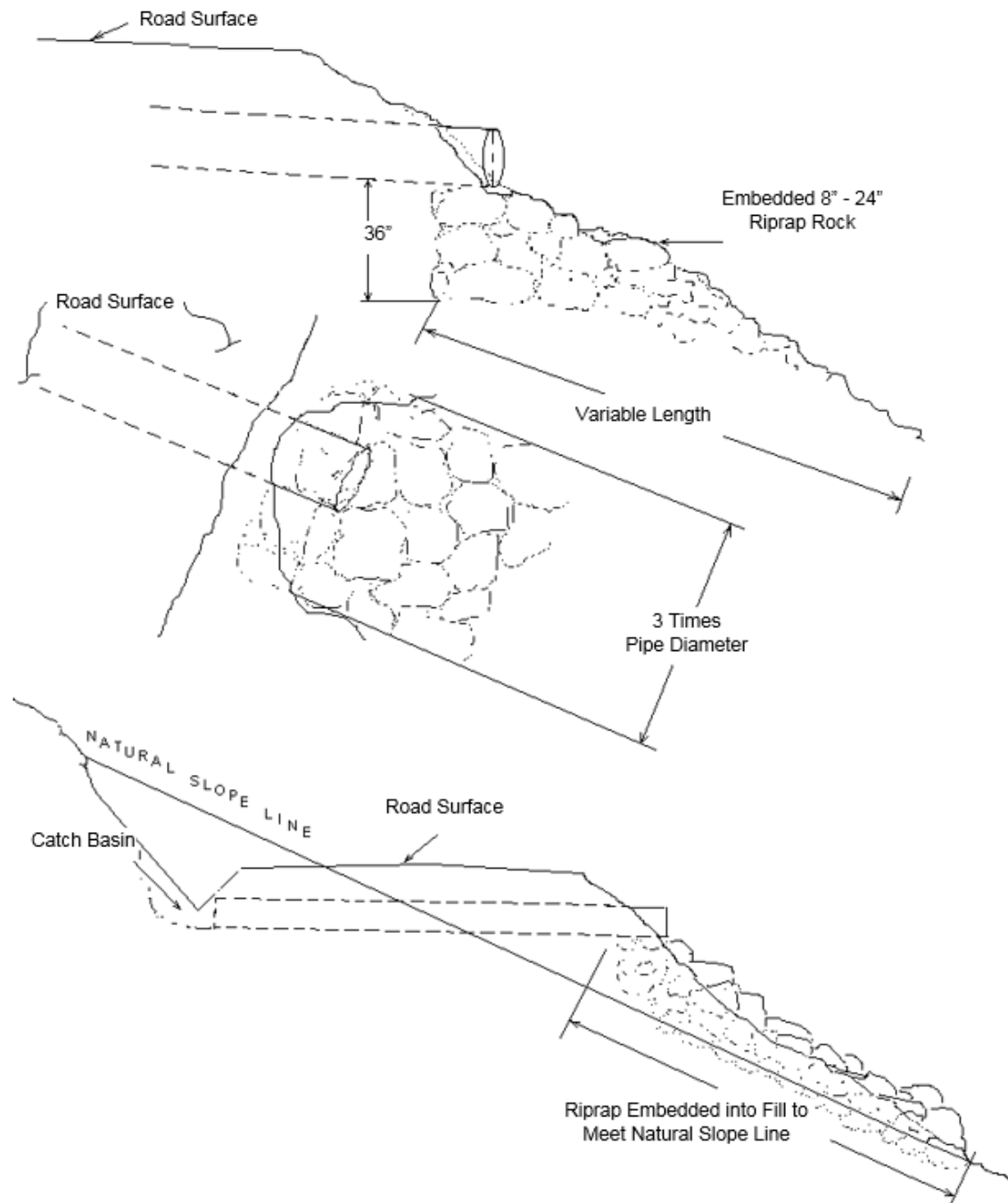
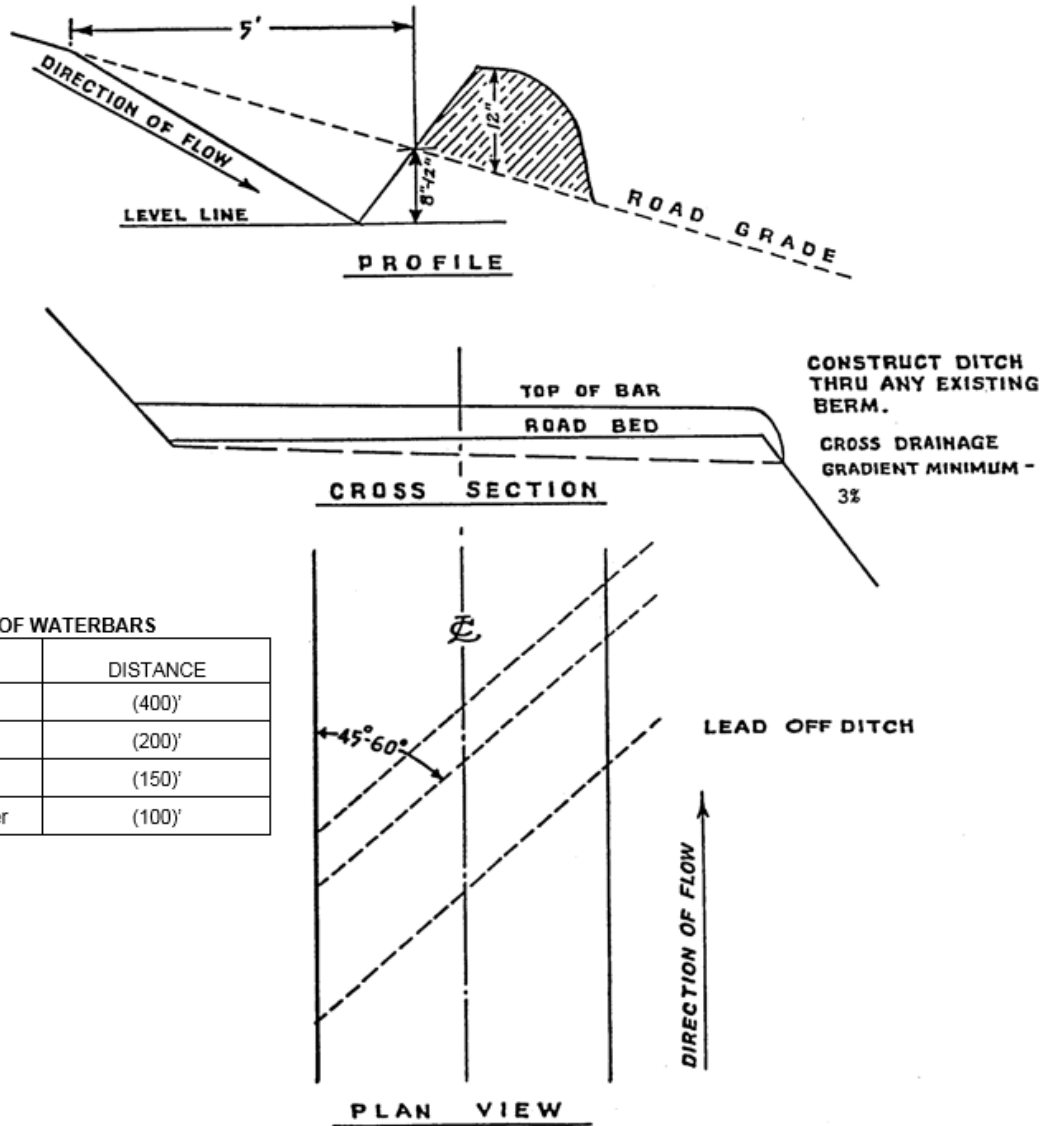


EXHIBIT D

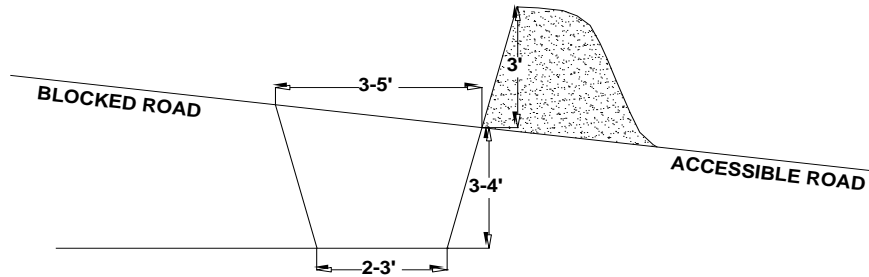
WATERBAR SPECIFICATIONS



**WATERBAR SPECIFICATIONS
FOR CROSS DITCHING #298**

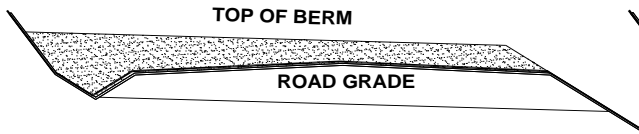
EXHIBIT D TANK TRAP SPECIFICATIONS

PROFILE **DITCHED AND OUTSLOPED**

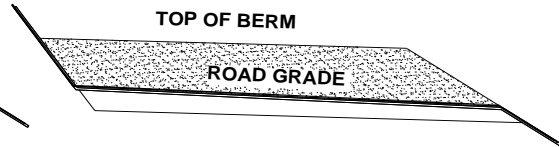


CROSS SECTION

DITCHED



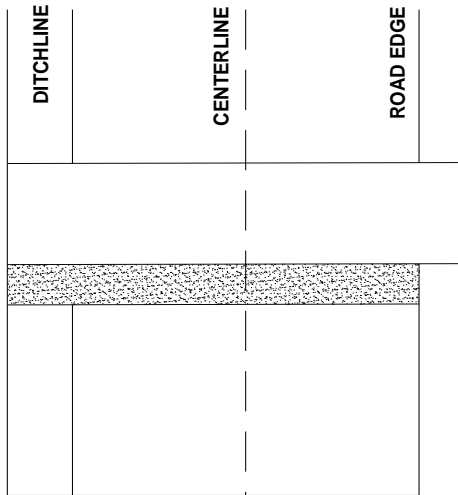
OUTSLOPED



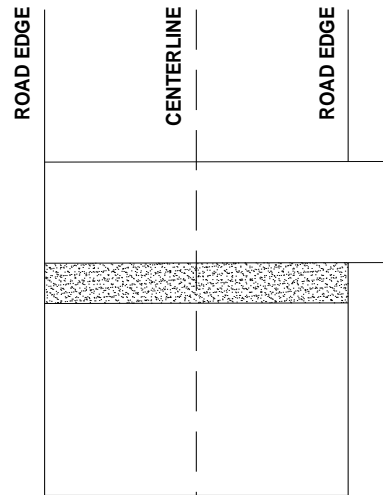
CONSTRUCT DITCHOUT THRU ANY EXISTING BERM.
CROSS DRAINAGE GRADIENT MINIMUM 3%

PLAN VIEW

DITCHED

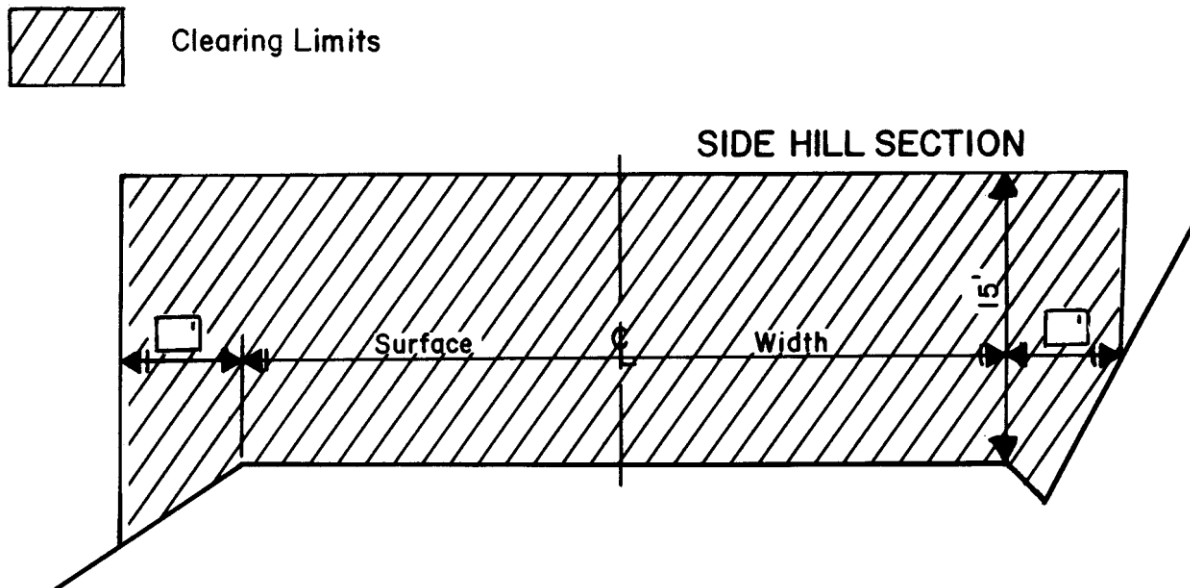


OUTSLOPED



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



REQUIREMENTS

The minimum height of clearing shall be 15 feet from the road surface, and the minimum width of clearing on the cutslope side(s) of the road shall be 10 feet horizontal distance from the shoulder of the road and 10 feet horizontal on the down slope side from the road shoulder. In situations where site distance is an issue, brushing heights on the cutslope may vary from the drawing, as directed by STATE.

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

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

Trees larger than 6 inches in diameter at stump height, located within clearing limits but outside of the ditchline or shoulder, shall not be cut down, but shall be limbed for road visibility. Planted or established conifers, located within brushing limits but outside of the ditchline or shoulder, shall not be cut down, but shall be limbed for road visibility unless otherwise directed by STATE.

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.

EXHIBIT E

ROAD BRUSHING SPECIFICATIONS

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 assessed a damage fee of \$25 per marker.

FPA Written Plan for Timber Harvest

Rock Fall Timber Sale

Portions of Section 6, T10S, R08W, W.M., Lincoln County, Oregon.

Protected Resources: A small unnamed Type F stream, which is a tributary to Big Rock Creek.

Situation: Approximately 600 feet of a small, Type F stream is adjacent to the timber sale boundary in Area 1. Harvest operations will not occur within 100 feet of this stream, however, skylines may pass over this stream.

Resource Protection Measures:

1. An average 100 foot horizontal distance no-harvest stream buffer has been established along all portions of the Type F stream.
2. Trees adjacent to the stream buffer shall be felled so that they do not enter into the buffer.
3. Skyline corridors passing over the stream will be spaced a minimum of 100 feet apart.
4. Where the logging system requires the skyline to pass over the stream, cables will be pulled out of the streamside vegetation prior to rigging the next yarding road.

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

PURCHASER REPRESENTATIVE

DATE

STATE REPRESENTATIVE

DATE