# PART III: EXHIBITS

State Timber Sale Contract No. 341-18-49 Pancho EXHIBIT B

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

# **OREGON DEPARTMENT OF FORESTRY**

TIMBER SALE OPERATIONS PLAN

(See Page 2 for instructions)

Date	Received by STATE:	(5) State Brand	Information (complete):	$\sim$
(1)	Contract No.: <u>341-18-49</u>			
(2)	Sale Name: Pancho			÷ ÷
(3)	Contract Expiration Date: October 31, 2020	Project Completio	n Dates: October 31, 2019	)
(4)	Purchaser:			
(6)	Purchaser Representatives:			
(-)			Cell/Other	
	Projects:	Phone:	Phone: Cell/Other	Home:
	Projects:	Phone:		Home:
			Cell/Other	
	Projects:	Phone:		Home:
	Logging	Phone:	Cell/Other	Home:
	Logging:		Phone: Cell/Other	
	Logging:	Phone:		Home:
			Cell/Other	
	Logging:	Phone:	Phone:	Home:
(7)	State Representatives:			
	Projects (Primary):	Phone:	Cell/Other Phone:	Home:
	110jeets (11111al y).	I none	Cell/Other	110me.
	Projects (Alternative) :	Phone:	Phone:	Home:
			Cell/Other	
	Logging (Primary):	Phone:	Phone: Cell/Other	Home:
	Logging (Alternative):	Phone:		Home:
(8)	Name of Subcontractors & Starting Dates:			
	Projects: No(s)	Date:	Phone:	
	No(s)	Date:	Phone:	
	Logging: Felling	Date:	Phone:	
	Yarding:	Date:	Phone:	
(9)	Comments:			

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

# EXHIBIT B

#### INSTRUCTION SHEET FOR OPERATIONS PLAN

# SUBMIT ONE COPY OF PLAN TO STATE

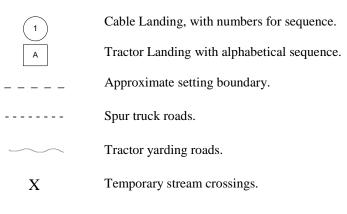
Operations shall be limited to the work shown in the plan until a revised plan or supplemental plan is submitted covering additional work. Compliance with this plan is not in lieu of compliance with any federal requirements related to the federal Endangered Species Act. If STATE has prepared a required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

#### **Explanation of Item No. (from Page 1)**

- (5) All sales require you to use a brand furnished by STATE. If the State brand has not been assigned when the plan is submitted, it will be furnished and assigned later. Complete drawing. If more than one brand is assigned to the sale, complete both drawings.
- (6) The contract requires you to have a designated representative available on the sale area or work location who is authorized to receive in your behalf any notice or instruction given by STATE and to take action in regard to performance under the contract. If logging and project work is widely separated, a representative is required for each.
- (7) The STATE representative will be designated when your plan is approved and is the person who will inspect and issue instructions regarding performance.
- (8) Show names of subcontractors to be used for any or all phases of the operations. If subcontractors are not known, or are changed later, give notification to the STATE representative prior to commencement of work by subcontractor.

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

- (10) The STATE representative will furnish extra copies of Exhibit A of the contract for your use in preparing the operations map. The map shall use the following legend and show:
  - 1. Landing locations, approximate setting boundaries, and probable sequence of logging the settings. Number the settings in sequence.
  - 2. Locations of spur roads planned for construction, other than those required by the timber sale contract. Provide spur road specifications.
  - 3. Location of proposed tractor yarding roads. Show if and how marked on the ground.
  - 4. Location of temporary stream crossings.
  - 5. List the sequence of performing project work.
  - 6. Location of rock sources attach pit development plans.

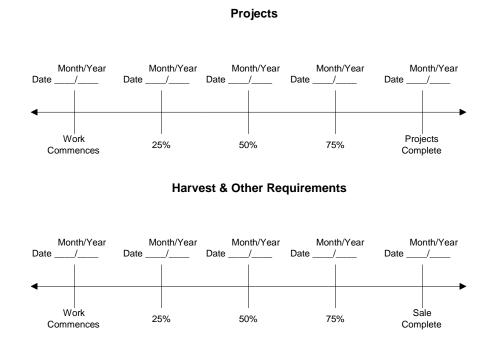


#### EXHIBIT B

#### **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.



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

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

APPROVED: Date:

STATE OF OREGON - DEPARTMENT OF FORESTRY

SUBMITTED BY: PURCHASER

Title

Title

Original: Salem cc: District File Unit Purchaser Operator (Purchaser Representative) \_\_\_

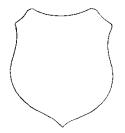
Operations Plan.doc/Jaz B (TS)

#### EXHIBIT C – SAWMILL GRADE (WESTSIDE SCALE)

#### **SCALING INSTRUCTIONS -- LOCATION APPROVAL -- BRAND INFORMATION**

(1)	ORIGINAL		e			(9	
	REVISION	Date					
	CANCELL	ATION	∐ Dat	e		-	(1
(2)	TO:		0			_	、 (1
$\langle \mathbf{O} \rangle$		(Third Party Scalir					(.
(3)	FROM: <u>A</u>	storia (04) Ph State Forestry District)	one <u>(503)</u>	325-5	9451	-	(4
		<u>2219 Hwy. 202, Ást</u>	oria, OR 9	7103		_	(1
(4)	PURCHAS	SER:				_	
		dress:				_	
		mber:				-	
(5	) MINI	MUM SCALING SPE	CIFICAT	IONS			
	SPECIES	MINIMUN	I NET VOLU	JME			
	Conifers		10				(1
	Hardwoods		10				
	* Apply minimum	volume test to whole logs over 40	'Westside				Г
	, apply minimum			YES	NO		-
(6)	WESTSID	E SCALE		$\square$			
(0)		ual taper rule. Logs over 40'.					
	Mainht Ca				$\square$		
(7)	weight Sc	ale Sample			$\square$		
(8		VED SCALING	es	7	¥	ht	(1
``	LOCAT	IONS	Species	Yard	Truck	Weight	
(as	shown on the ODF	Approved Locations web-site)	SI			5	
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							```

- (9) SALE NAME: <u>Pancho</u> COUNTY: Clatsop
- (10) STATE CONTRACT NUMBER: 341-18-49
- (11) STATE BRAND REGISTRATION NUMBER:
- (12) STATE BRAND INFORMATION (COMPLETE):



(13) PAINT REQUIRED: YES X COLOR: <u>Orange</u>

(14) SPECIAL REQUESTS (Check applicable)	
PEELABLE CULL (all species)	
NO DEDUCTIONS ALLOWED FOR	$\square$
MECHANICAL DAMAGE	
ADD-BACK VOLUME - Deductions due to delay	$\square$
OTHER:	

(15) REMARKS\_\_\_\_\_

Operator's Name (Optional inclusion by District):

(16) SIGNATURES:

Purchaser or Authorized Representative

State Forester Representative

Date

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.

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

#### EXHIBIT C – SAWMILL GRADE INSTRUCTIONS FOR FORM 343-307a (rev. 11/11)

- (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: <u>services@crls.com</u>

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

Northwest Log Scalers, Inc. 5526 NE 122<sup>nd</sup> Ave, Portland, OR 97230 Phone: (503) 254-0600 Fax: (503) 408-0919 Email: <u>info@nwlogscalers.com</u> Pacific Rim Log Scaling Bureau, Inc. 8288 28<sup>th</sup> Court North East, Lacey, WA 98516 Phone: (360) 528-8710 Fax: (360) 528-8718 Email: <u>office@prlsb.com</u>

Yamhill Log Scaling & Grading Bureau P.O. Box 709, Forest Grove, OR 97116 Phone: (503) 359-4474 Fax: (503) 359-4476 Email: yamhill@attglobal.net

Pacific Log Scaling & Grading Bureau, Inc. P.O. Box 23939, Portland, OR 97281 Phone: (503) 684-5599 Fax: (503) 639-4880 Email: PacLogScale@aol.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 <u>\\WPODFFILL01\Transfer\ScalingInstructions</u> or e-mailed directly to <u>scaling@odf.state.or.us</u>. 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 Scaling Location, Purchaser, District, Mgmt. Unit

# **EXHIBIT C – PULP SORT**

# PROCESSING INSTRUCTIONS -- LOCATION APPROVAL -- BRAND INFORMATION

(1)	ORIGINAL REGISTRATION       Date         REVISION NUMBER       Date	(9)	SALE NAME: <u>Pancho</u> COUNTY: <u>Clatsop</u>
(2)	CANCELLATION Date TO: (Approved Pulp Processing Facility)	(10)	STATE CONTRACT NUMBER: <u>341-18-49</u>
(3)	(Approved Pulp Processing Facility) FROM: <u>Astoria (4)</u> Phone <u>(503)325-5451</u>	(11)	STATE BRAND REGISTRATION NUMBER
(4)	(State Forestry District) PURCHASER:	(12)	STATE BRAND INFORMATION: (COMPLETE BELOW)
( <del>1</del> ) (5)	Scaling Bureau (TPSO) Processing Weight receipts:		
	Mailing Address: Phone Number:		
(6)	<ul> <li>STATE Definition of Approved Pulp Sort:</li> <li>Top portion of the tree (tops).</li> <li>All logs with a diameter (Big End) greater than <u>8</u> inches marked with blue paint.</li> </ul>	(13)	REMARKS:
(7)	<ul> <li><u>PULP FACILITY PROCESSING INSTRUCTIONS</u>:</li> <li>Pulp loads shall be weighed in lieu of scaling.</li> <li>One Ton = 2000 lbs (Short Ton).</li> <li>Pulp loads shall have a yellow Log Load Receipt</li> </ul>	Oper	ator's Name (Optional inclusion by District):
	<ul> <li>attached.</li> <li>Gross weight and truck tare weight for each load shall be machine printed on the weight receipt.</li> <li>Weigher shall sign the weight receipt.</li> <li>Weigher shall record the Log Load Receipt</li> </ul>	(14)	SIGNATURES:
	<ul> <li>Weigher shall record the Log Load Receipt number on the weight receipt.</li> <li>Weigher shall attach the Weight receipt to the Log Load Receipt and mail them weekly to the TPSO processing the Weight receipt.</li> </ul>		Purchaser or Authorized Representative     Date       State Forester Representative     Date
(8)	TPSO PROCESSING INSTRUCTIONS		

- Mail to ODF weekly.
- Convert to mbf using 10 tons per mbf.

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

# EXHIBIT C – PULP SORT

#### INSTRUCTIONS FOR FORM 343-307b (rev. 11/11)

- 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 <u>http://www.odf.state.or.us/DIVISIONS/management/asset\_management/ScalingLocation.asp</u>
- (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: <u>services@crls.com</u>

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

 Northwest Log Scalers, Inc
 .

 5526 NE 122<sup>nd</sup> Ave, Portland, OR 97230

 Phone: (503) 254-0600
 Fax: (503) 408-0919

 Email: info@nwlogscalers.com

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

Yamhill Log Scaling & Grading Bureau P.O. Box 709, Forest Grove, OR 97116 Phone: (503) 359-4474 Fax: (503) 359-4476 Email: <u>yamhill@attglobal.net</u>

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

- (6) Must Complete. Big end log not to exceed <u>8</u> 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 <u>8</u> inches. When conifer and hardwood removal specifications are different, use the smaller removal diameter to determine this specification.
- (9) **Must Complete**. Enter sale name and county. If more than one county write in all the counties that the sale is located in.
- (10) Must Complete. Enter sale Contract number.
- (11) Must Complete. Enter Oregon's State Brand Registry Number (REQUIRED).
- (12) **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).
- (13) Use this section to list any special instructions or the reason for any revisions in section item (1).
- (14) **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 \\WPODFFILL01\Transfer\ScalingInstructions or e-mailed directly to <a href="mailto:scaling@odf.state.or.us">scaling@odf.state.or.us</a>. Scaling instructions for each brand should be scanned separately, for each approved TPSO.

#### FOREST ROAD SPECIFICATIONS

SUBGRADE WIDTH	SURFACED WIDTH	POINT TO POINT	STATION TO STATION	DRAINAGE
16 feet	12 feet	1A to 1B	0+00 to 1+00	Crowned/Ditch
14 feet	N/A	3A to 3B	0+00 to 9+00	Outsloped
16 feet	12 feet	4A to 4B	0+00 to 31+60	Crowned/Ditch
16 feet	12 feet	4C to 4D	0+00 to 11+50	Crowned/Ditch
14 feet	12 feet	4E to 4F	0+00 to 8+50	Outsloped
16 feet	12 feet	I1 to I2	0+00 to 199+00	Crowned/Ditch
16 feet	12 feet	I2 to I3	0+00 to 43+90	Crowned/Ditch
16 feet	12 feet	14 to 15	0+00 to 30+20	Crowned/Ditch
16 feet	12 feet	l6 to 17	0+00 to 3+30	Crowned/Ditch
16 feet	12 feet	18 to 19	0+00 to 2+40	Crowned/Ditch
16 feet	12 feet	110 to 111	0+00 to 43+65	Crowned/Ditch

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

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

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

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

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

#### **GRUBBING CLASSIFICATION.**

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

Improvements and reconstructions - 4 feet back from the shoulder of the subgrade or ditch, whichever is widest, or as marked in the field.

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

#### Page 2 of 13

# EXHIBIT D

# FOREST ROAD SPECIFICATIONS

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

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

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 or where material will accumulate in areas deemed a high-risk site by STATE.

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

<u>ROAD WIDTH LIMITATIONS</u>. 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.

<u>Curve Widening</u>. 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

<u>Subgrade</u>. Subgrade shall be crowned/outsloped at 4 to 6 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.

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

<u>TURNOUTS</u>. 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.

<u>SLOPES</u>	Back Slopes	Fill Slopes
Solid Rock	Vertical to 1/4 :1	-
Fractured Rock	1⁄2 :1	
Soil - side slopes 50% and over	<sup>3</sup> ⁄ <sub>4</sub> :1	1½:1
Soil - side slopes less than 50%	1 :1	1½:1

Top of cutslope shall be rounded.

<u>LANDINGS</u>. 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.

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

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

#### FOREST ROAD SPECIFICATIONS

#### GENERAL ROAD CONSTRUCTION INSTRUCTIONS:

<u>1. Timber Removal</u>. Remove all trees within posted right-of-way boundary or individually marked with an orange "C", as specified in Section 2210, "Designated Timber".

<u>2. Excavated Materials</u>. Excavated materials shall be utilized for road construction. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Surplus excavated materials and waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with this Exhibit.

<u>3. Drainage Ditches</u>. 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.

<u>4. Culvert Installation</u>. Culverts in live streams shall be installed with the inlet and outlet on grade with the stream bottom, unless otherwise specified in writing. Fill construction 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. STATE may require the use of crushed rock for culvert bedding.

<u>5. Equipment</u>. All excavation and riprap placement shall be performed using a minimum 1<sup>1</sup>/<sub>2</sub> cubic-yard, track-mounted excavator.

#### 6. 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/outsloped at 4 to 6 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/outsloped at 4 to 6 percent.

#### SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS:

<u>Segment</u>	Station	Work Description
4A to 4B	0+00	Begin machine clearing and reconstruction of existing subgrade.
	2+80	Construct turnout left. Construct ditchout left.
	3+50	Install 18" x 30' CPP.
	7+30	Construct ditchout right. End clearing and reconstruction of existing subgrade. Begin new road construction.
	8+00	Install 18" x 30' CPP.
	8+50	Construct turnout right.
	13+30	Construct ditchout right.

#### FOREST ROAD SPECIFICATIONS

# SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS:

- Segment Station Work Description
- 4A to 4B 14+90 Install 18" x 30" CPP, utilize 33 cubic yards of 1 ½"-0" crushed rock for culvert bedding and backfill. Remove existing CMP. Construct ditchout away from culvert outlet.
  - 15+25 End new road construction. Connect right hand ditchline to new waterbar at V1. Begin machine clearing and reconstruction of existing subgrade.
  - 16+50 Construct turnout right.
  - 19+40 Replace existing CMP with 18" x 40' CPP, utilize 33 cubic yards of 1 ½"-0" crushed rock for culvert bedding and backfill. Reconstruct existing fill.
  - 20+25 Install 18" x 30' CPP, utilize 33 cubic yards of 1 ½"-0" crushed rock for culvert bedding and backfill.
  - 22+00 Construct turnout right.
  - 25+00 Replace existing CMP with 18" x 30' CPP, utilize 33 cubic yards of 1 <sup>1</sup>/<sub>2</sub>"-0" crushed rock for culvert bedding and backfill.
  - 29+30 Construct truck turnaround right.
  - 31+60 End clearing and reconstruction of existing subgrade.

# FOREST ROAD SPECIFICATIONS

#### GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

<u>1. Timber Removal</u>. Remove all trees within posted Right-of-Way Boundary or individually marked with an orange "C", as specified in Section 2210, Designated Timber.

<u>2. Excavated Materials</u>. Excavated materials shall be utilized for road construction. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Surplus excavated materials and waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with this Exhibit.

<u>3. Bank Slough Removal</u>. Excavate all bank slough. Bank slough material shall not be pulled across existing surfacing rock, but shall be placed in nearby waste areas and uniformly sloped and compacted for drainage, as directed by STATE. Waste materials shall be seeded and mulched in accordance with specifications in Exhibit L.

<u>4. Culvert Replacement, Culvert Installation, Fill Reconstruction, and Fill Removal</u>. 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. Culverts in live streams shall be installed with the inlet and outlet on grade with the stream bottom, unless otherwise specified in writing. All woody debris encountered during fill excavation shall be removed. All waste materials shall be hauled to nearby waste areas and shall be uniformly sloped and compacted for drainage. Waste materials shall be seeded and mulched in accordance with specifications in Exhibit L. Fill reconstruction backfill shall consist of select materials and may be obtained from borrow pits, as directed by STATE. Backfill materials shall be hauled in where necessary and thoroughly compacted in accordance with 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.

<u>5. Drainage Ditches</u>. Restore or construct ditchlines, including ditchouts, as directed by STATE. Cut slopes of ditchlines and ditchouts shall not exceed a 1:1 slope. Clean out all culvert inlets and outlets for a 10-foot radius. Re-establish or construct culvert sediment basins. Waste materials from drainage ditches and sediment basins shall not be pulled across existing surfacing rock, but shall be placed in nearby waste areas and uniformly sloped and compacted for drainage, as directed by STATE. Damaged culvert inlets and/or outlets shall be repaired by opening them with a hydraulic jack, or cutting off the culvert end to allow for free passage of water at peak flow levels. Install a culvert marker at each newly installed culvert and at each existing culvert that is missing a marker that could be reached by a grader blade.

<u>6. Equipment</u>. All excavation and riprap placement shall be performed using a minimum 1½ cubic yard, track-mounted excavator.

# FOREST ROAD SPECIFICATIONS

#### GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

#### 7. Road Grading, Subgrade Preparation, and Application of Surfacing Rock.

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

#### FOREST ROAD SPECIFICATIONS

#### SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS:

Work Description Segment Station 11 to 12 0+00Begin spot grading to remove pot holes, reestablish crown. Add  $1 \frac{1}{2}$ "-0" leveling rock as directed by STATE. Begin spot watering and compacting. Begin spot ditchline vegetation clearing. Full grading and water, process and compact not intended. 29+50 Install culvert marker 61+80 Install culvert marker 100 + 80Replace existing culvert. Utilize 33 cubic yards 1 1/2"-0" crushed rock for bedding and backfill. Reuse existing culvert marker. 195+90 Install culvert marker 199+00 End spot grading. End spot watering and compacting. End spot ditchline vegetation clearing. 12 to 13 0+00Begin road improvement as specified above in the General Instructions and below in the Specific Instructions. Add 1 1/2"-0" leveling rock as directed by STATE. Begin spot ditchline vegetation clearing. 43+90 End road improvement. 14 to 15 Begin road improvement as specified above in the General Instructions and below in 0+00the Specific Instructions. Add 1 <sup>1</sup>/<sub>2</sub>"-0" and 5"-0" leveling rock as directed by STATE. Begin spot ditchline vegetation clearing. Place 44 cubic yards of 6"-0" pit-run rock for landing improvement. End road 30+20 improvement. 16 to 17 0+00 Begin road improvement as specified above in the General Instructions and below in the Specific Instructions, Add 5"-0" leveling rock as directed by STATE. Begin 4 inch lift of 5"-0" crushed rock. Begin spot ditch line vegetation clearing. 3 + 30Place 44 cubic yards of 6"-0" pit-run rock for landing improvement. End road improvement. 18 to 19 0+00 Begin road improvement as specified above in the General Instructions and below in the Specific Instructions. Place 44 cubic yards of 6"-0" pit-run rock for landing improvement. End road 2+40improvement. 110 to 111 Begin spot grading to remove pot holes, reestablish crown. Add  $1 \frac{1}{2}$ "-0" leveling rock 0+00as directed by STATE. Begin spot watering and compacting. Begin spot ditchline vegetation clearing. Full grading and water, process and compact not intended. 6 + 70Install culvert marker. 11 + 20Install culvert marker. 17+20 Install culvert marker. 43 + 65End spot grading. End spot watering and compacting. End spot ditchline vegetation clearing.

# ROAD SURFACING

1A to 1B			POINT TO	POINT	Sta. to	Sta.	
		Depth of	1A to	1B	0+00 to	1+00	TOTAL
Rock Size		Rock	Volume	e (CY)	Numb	ber	VOLUME
and Type	Location	(inches)	pe	r	of		(CY)
5"-0" crushed	0+00 to 1+00	8	station	50	stations	1	50
1 1/2"-0" crushed	0+00	3	junction	11	junctions	1	11
6"-0" pit-run	1B	N/A	landing	110	landings	1	110
		1A to 1B					171
Pt. 2A					Sta. to	Sta.	
		Depth of	Pt. 2	?A	0+0	0	TOTAL
Rock Size		Rock	Volume	e (CY)	Numb	ber	VOLUME
and Type	Location	(inches)	pe	r	of		(CY)
1 1/2"-0" crushed	0+00	3	junction	11	junctions	1	11
6"-0" pit-run	0+00	N/A	landing	88	landings	1	88
nent:		Pt. 2A					99
3A to 3B			POINT TO	POINT	Sta. to	Sta.	
		Depth of			0+00 to	9+00	TOTAL
Rock Size		Rock	Volume	e (CY)	Numb	ber	VOLUME
and Type	Location	(inches)	per	r	of		(CY)
1 1/2"-0" crushed	0+00	3	junction	11	junctions	1	11
5"-0" crushed	ЗA	8	junctions	22	junctions	1	22
nent:		3A to 3B					33
4A to 4B			POINT TO	POINT	Sta. to	Sta.	
		Depth of	4A to	4B	0+00 to 3	31+60	TOTAL
Rock Size		Rock	Volume	e (CY)	Numb	ber	VOLUME
and Type	Location	(inches)	per	r	of		(CY)
5"-0" crushed	0+00 to 31+60	8	station	50	stations	31.6	1,580
5"-0" crushed	0+00	8	junction	22	junctions	1	22
1 1/2"-0" crushed	0+00	3	junction	11	junctions	1	11
	2+80, 8+50,						
5"-0" crushed	16+50, 22+00	8	turnout	22	turnouts	4	88
5" 0" 1 1	20,20			22	turne en europade	4	
5"-0" crushed	29+30	0	turnaround	~~	turnarounds	1	22
5"-0" crushed		0	turnaround	22	turnarounds	1	22
	14+90, 19+40,					4	
1 1/2"-0" crushed	14+90, 19+40,	N/A 4A to 4B	turnaround culvert	33	culverts		132
1 1/2"-0" crushed nent:	14+90, 19+40,	N/A	culvert	33	culverts	4	
1 1/2"-0" crushed	14+90, 19+40,	N/A 4A to 4B	culvert	33 POINT	culverts Sta. to	4 Sta.	132 1,855
1 1/2"-0" crushed nent: 4C to 4D	14+90, 19+40,	N/A 4A to 4B Depth of	culvert POINT TO 4C to	33 • <b>POINT</b> 4D	Culverts Sta. to 0+00 to	4 <b>Sta.</b> 11+50	132 1,855 <b>TOTAL</b>
1 1/2"-0" crushed nent: 4C to 4D Rock Size	14+90, 19+40, 20+25, 25+00	N/A 4A to 4B Depth of Rock	culvert POINT TO 4C to Volume	33 <b>POINT</b> 4D <b>(CY)</b>	culverts Sta. to	4 <b>Sta.</b> 11+50	132 1,855 TOTAL VOLUME
1 1/2"-0" crushed nent: 4C to 4D Rock Size and Type	14+90, 19+40, 20+25, 25+00	N/A 4A to 4B Depth of Rock (inches)	culvert POINT TO 4C to Volume per	33 <b>POINT</b> 4D <b>(CY)</b>	Culverts Sta. to 0+00 to 1 Numb of	4 Sta. 11+50 per	132 1,855 TOTAL VOLUME (CY)
1 1/2"-0" crushed nent: 4C to 4D Rock Size and Type 6"-0" pit-run	14+90, 19+40, 20+25, 25+00 Location 9+50 to 11+50	N/A 4A to 4B Depth of Rock (inches) 10	culvert POINT TO 4C to Volume per station	33 <b>POINT</b> 4D <b>(CY)</b> 62	culverts Sta. to 0+00 to 1 Numb of stations	4 Sta. 11+50 per 2	132 1,855 <b>TOTAL</b> VOLUME (CY) 124
1 1/2"-0" crushed nent: 4C to 4D Rock Size and Type 6"-0" pit-run 5"-0" crushed	14+90, 19+40, 20+25, 25+00 Location 9+50 to 11+50 0+00 to 11+50	N/A 4A to 4B Depth of Rock (inches) 10 8	culvert POINT TO 4C to Volume station station	33 <b>POINT</b> 4D <b>(CY)</b> 62 50	Culverts Sta. to 0+00 to 1 Numb of stations stations	4 Sta. 11+50 per 2 11.5	132 1,855 TOTAL VOLUME (CY) 124 575
1 1/2"-0" crushed nent: 4C to 4D Rock Size and Type 6"-0" pit-run 5"-0" crushed 1 1/2"-0" crushed	14+90, 19+40, 20+25, 25+00 Location 9+50 to 11+50 0+00 to 11+50 0+00	N/A 4A to 4B Depth of Rock (inches) 10 8 3	culvert POINT TO 4C to Volume station station junction	33 <b>POINT</b> 4D <b>(CY)</b> 62 50 11	Culverts Sta. to 0+00 to 7 Numb of stations stations junctions	4 <b>Sta.</b> 11+50 <b>Der</b> 2 11.5 1	132 1,855 <b>TOTAL</b> <b>VOLUME</b> (CY) 124 575 11
1 1/2"-0" crushed nent: 4C to 4D Rock Size and Type 6"-0" pit-run 5"-0" crushed 1 1/2"-0" crushed 5"-0" crushed	14+90, 19+40, 20+25, 25+00 Location 9+50 to 11+50 0+00 to 11+50 0+00 0+00	N/A 4A to 4B Depth of Rock (inches) 10 8 3 8	Culvert POINT TO 4C to Volume station station junction junction	33 <b>POINT</b> 4D <b>(CY)</b> 62 50 11 22	Culverts Sta. to 0+00 to Numb of stations stations junctions junctions	4 <b>Sta.</b> 11+50 <b>Der</b> 2 11.5 1 1	132 1,855 <b>TOTAL</b> <b>VOLUME</b> (CY) 124 575 11 22
1 1/2"-0" crushed nent: 4C to 4D Rock Size and Type 6"-0" pit-run 5"-0" crushed 1 1/2"-0" crushed 5"-0" crushed 1 1/2"-0" crushed	14+90, 19+40, 20+25, 25+00 <b>Location</b> 9+50 to 11+50 0+00 to 11+50 0+00 8+50 to 11+50	N/A 4A to 4B Depth of Rock (inches) 10 8 3 8 2	culvert POINT TO 4C to Volume station station junction station	33 <b>POINT</b> 4D <b>e</b> (CY) 7 62 50 11 22 13 3	Culverts Sta. to 0+00 to 7 Numb of stations stations junctions junctions stations stations	4 <b>Sta.</b> 11+50 <b>Der</b> 2 11.5 1 1 4	132 1,855 TOTAL VOLUME (CY) 124 575 11 22 52 52
1 1/2"-0" crushed nent: 4C to 4D Rock Size and Type 6"-0" pit-run 5"-0" crushed 1 1/2"-0" crushed 5"-0" crushed 1 1/2"-0" crushed 5"-0" crushed	14+90, 19+40, 20+25, 25+00 <b>Location</b> 9+50 to 11+50 0+00 to 11+50 0+00 8+50 to 11+50 8+50	N/A 4A to 4B Depth of Rock (inches) 10 8 3 8 2 8 8	culvert POINT TO 4C to Volume station station junction junction station turnout	33 <b>POINT</b> 4D <b>6</b> 2 50 11 22 13 22	culverts Sta. to 0+00 to Numb of stations stations junctions junctions stations turnouts	4 <b>Sta.</b> 11+50 <b>Der</b> 2 11.5 1 1 4 1	132 1,855 <b>TOTAL</b> <b>VOLUME</b> (CY) 124 575 11 22 52 22
1 1/2"-0" crushed nent: 4C to 4D Rock Size and Type 6"-0" pit-run 5"-0" crushed 1 1/2"-0" crushed 5"-0" crushed 1 1/2"-0" crushed 5"-0" crushed 5"-0" crushed 5"-0" crushed	14+90, 19+40, 20+25, 25+00 <b>Location</b> 9+50 to 11+50 0+00 to 11+50 0+00 0+00 8+50 to 11+50 8+50 8+50	N/A 4A to 4B Depth of Rock (inches) 10 8 3 3 8 2 8 8 8 8 8	culvert POINT TC 4C to Volume station station junction junction station turnout turnout	33 <b>POINT</b> 4D <b>6</b> 2 50 11 22 13 22 22	culverts Sta. to 0+00 to Numb of stations stations junctions junctions stations turnouts turnounds	4 <b>Sta.</b> 11+50 <b>ber</b> 2 11.5 1 1 4 1 1 1	132 1,855 <b>TOTAL</b> <b>VOLUME</b> (CY) 124 575 11 22 52 22 22 22
1 1/2"-0" crushed nent: 4C to 4D Rock Size and Type 6"-0" pit-run 5"-0" crushed 1 1/2"-0" crushed 5"-0" crushed 5"-0" crushed 5"-0" crushed 5"-0" crushed 5"-0" crushed 6"-0" pit-run	14+90, 19+40, 20+25, 25+00 <b>Location</b> 9+50 to 11+50 0+00 to 11+50 0+00 8+50 to 11+50 8+50	N/A 4A to 4B <b>Depth of</b> <b>Rock</b> (inches) 10 8 3 3 8 2 8 8 8 8 8 8 8 N/A	culvert POINT TO 4C to Volume station station junction junction station turnout	33 <b>POINT</b> 4D <b>6</b> 2 50 11 22 13 22	culverts Sta. to 0+00 to Numb of stations stations junctions junctions stations turnouts	4 <b>Sta.</b> 11+50 <b>Der</b> 2 11.5 1 1 4 1	132           1,855           TOTAL           VOLUME           (CY)           124           575           11           22           52           22           22           22           88
1 1/2"-0" crushed nent: 4C to 4D Rock Size and Type 6"-0" pit-run 5"-0" crushed 1 1/2"-0" crushed 5"-0" crushed 5"-0" crushed 5"-0" crushed 5"-0" crushed 5"-0" crushed 6"-0" pit-run nent:	14+90, 19+40, 20+25, 25+00 <b>Location</b> 9+50 to 11+50 0+00 to 11+50 0+00 0+00 8+50 to 11+50 8+50 8+50	N/A 4A to 4B Depth of Rock (inches) 10 8 3 3 8 2 8 8 8 8 8	culvert POINT TC 4C to Volume per station station junction junction station turnout turnout turnaround Landing	33 <b>POINT</b> 4D <b>(CY)</b> 62 50 11 22 13 22 22 88	culverts Sta. to 0+00 to Numb of stations stations junctions junctions stations turnouts turnarounds Landings	4 <b>Sta.</b> 11+50 <b>ber</b> 2 11.5 1 1 4 1 1 1 1 1	132 1,855 <b>TOTAL</b> <b>VOLUME</b> (CY) 124 575 11 22 52 22 22 22
1 1/2"-0" crushed nent: 4C to 4D Rock Size and Type 6"-0" pit-run 5"-0" crushed 1 1/2"-0" crushed 5"-0" crushed 5"-0" crushed 5"-0" crushed 5"-0" crushed 5"-0" crushed 6"-0" pit-run	14+90, 19+40, 20+25, 25+00 <b>Location</b> 9+50 to 11+50 0+00 to 11+50 0+00 0+00 8+50 to 11+50 8+50 8+50	N/A 4A to 4B <b>Depth of</b> <b>Rock</b> (inches) 10 8 3 3 8 2 8 8 8 8 N/A 4C to 4D	culvert POINT TC 4C to Volume per station station junction junction station turnout turnaround Landing POINT TO	33 <b>POINT</b> 4D <b>6</b> 2 50 11 22 13 22 22 88 <b>POINT</b>	culverts Sta. to 0+00 to Numb of stations stations junctions junctions stations turnouts turnarounds Landings Sta. to	4 <b>Sta.</b> 11+50 <b>ber</b> 2 11.5 1 1 4 1 1 5 <b>Sta.</b>	132           1,855           TOTAL           VOLUME           (CY)           124           575           11           22           52           22           22           22           916
1 1/2"-0" crushed nent: 4C to 4D Rock Size and Type 6"-0" pit-run 5"-0" crushed 1 1/2"-0" crushed 5"-0" crushed 5"-0" crushed 5"-0" crushed 5"-0" crushed 5"-0" crushed 6"-0" pit-run nent: 4E to 4F	14+90, 19+40, 20+25, 25+00 <b>Location</b> 9+50 to 11+50 0+00 to 11+50 0+00 8+50 to 11+50 8+50 8+50	N/A           4A to 4B           Depth of           Rock           (inches)           10           8           2           8           N/A           4C to 4D           Depth of	culvert POINT TC 4C to Volume per station station junction junction station turnout turnaround Landing POINT TC 4E to	33 <b>POINT</b> 4D 62 50 11 22 13 22 22 88 <b>POINT</b> 4F	culverts Sta. to 0+00 to Numb of stations stations junctions junctions stations turnouts turnarounds Landings Sta. to 0+00 to	4 <b>Sta.</b> 11+50 <b>ber</b> 2 11.5 1 1 1 4 1 1 1 <b>Sta.</b> 8+50	132         1,855         TOTAL         VOLUME         (CY)         124         575         11         22         52         22         22         22         916         TOTAL
1 1/2"-0" crushed         nent:         4C to 4D         Rock Size         and Type         6"-0" pit-run         5"-0" crushed         1 1/2"-0" crushed         5"-0" crushed         6"-0" pit-run         nent:         4E to 4F         Rock Size	14+90, 19+40, 20+25, 25+00 <b>Location</b> 9+50 to 11+50 0+00 to 11+50 0+00 8+50 to 11+50 8+50 8+50 4D	N/A 4A to 4B Depth of Rock (inches) 10 8 3 3 8 2 8 8 2 8 8 8 N/A 4C to 4D Depth of Rock	Culvert POINT TC 4C to Volume per station station junction junction station turnout turnaround Landing POINT TO 4E to Volume	33 <b>POINT</b> 4D 4D (CY) 62 50 11 22 13 22 22 88 <b>POINT</b> 4F (CY)	culverts Sta. to 0+00 to Numb of stations stations junctions junctions turnouts turnarounds Landings Sta. to 0+00 to Numb	4 <b>Sta.</b> 11+50 <b>ber</b> 2 11.5 1 1 1 4 1 1 1 <b>Sta.</b> 8+50	132         1,855         TOTAL         VOLUME         (CY)         124         575         11         22         52         22         22         22         916         TOTAL         VOLUME         VOLUME
1 1/2"-0" crushed         nent:         4C to 4D         Rock Size         and Type         6"-0" pit-run         5"-0" crushed         1 1/2"-0" crushed         5"-0" crushed         6"-0" pit-run         nent:         4E to 4F         Rock Size         and Type	14+90, 19+40, 20+25, 25+00 Location 9+50 to 11+50 0+00 to 11+50 0+00 8+50 to 11+50 8+50 8+50 4D Location	N/A 4A to 4B Depth of Rock (inches) 10 8 3 3 8 3 2 8 8 8 2 8 8 8 N/A 4C to 4D Depth of Rock (inches)	Culvert POINT TC 4C to Volume per station station junction junction station turnout turnaround Landing POINT TC 4E to Volume per	33 POINT 4D 62 50 11 22 13 22 22 88 POINT 4F 4F (CY)	culverts Sta. to 0+00 to Numb of stations stations junctions junctions stations turnouts turnarounds Landings Sta. to 0+00 to Numb of	4 <b>Sta.</b> 11+50 per 2 11.5 1 1 1 4 1 1 5 1 1 1 5 1 1 5 1 1 5 1 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 5 5 5 5 5 5 5 5 5 5 5 5	132         1,855         TOTAL         VOLUME         (CY)         124         575         11         22         52         22         22         22         916         TOTAL         VOLUME         (CY)
1 1/2"-0" crushed         nent:         4C to 4D         Rock Size         and Type         6"-0" pit-run         5"-0" crushed         1 1/2"-0" crushed         5"-0" crushed         6"-0" pit-run         nent:         4E to 4F         Rock Size         and Type         5"-0" crushed	14+90, 19+40, 20+25, 25+00 <b>Location</b> 9+50 to 11+50 0+00 to 11+50 0+00 8+50 to 11+50 8+50 8+50 4D <b>Location</b> 0+00 to 8+50	N/A 4A to 4B Depth of Rock (inches) 10 8 3 3 8 2 8 8 2 8 8 8 N/A 4C to 4D Depth of Rock (inches) 8	culvert POINT TC 4C to Volume per station station junction junction station turnout turnaround Landing POINT TC 4E to Volume per station	33 <b>POINT</b> 4D 62 50 11 22 13 22 22 88 <b>POINT</b> 4F <b>C(CY)</b> <b>f</b> <b>f</b> <b>f</b> <b>f</b> <b>f</b> <b>f</b> <b>f</b> <b>f</b>	culverts Sta. to 0+00 to Numb of stations stations junctions junctions turnouts turnarounds Landings Sta. to 0+00 to Numb of stations	4 <b>Sta.</b> 11+50 per 2 11.5 1 1 1 4 1 1 5 1 1 1 5 1 1 5 1 1 5 1 5 1 5 1 5 1 5 1 5 5 5 5 5 5 5 5 5 5 5 5 5	132         1,855         TOTAL         VOLUME         (CY)         124         575         11         22         52         22         22         22         916         TOTAL         VOLUME         (CY)         425
1 1/2"-0" crushed           nent:           4C to 4D           Rock Size           and Type           6"-0" pit-run           5"-0" crushed           1 1/2"-0" crushed           5"-0" crushed           1 1/2"-0" crushed           5"-0" crushed           5"-0" crushed           5"-0" crushed           6"-0" pit-run           5"-0" crushed           6"-0" pit-run           nent:           4E to 4F           Rock Size           and Type           5"-0" crushed           1 1/2"-0" crushed	14+90, 19+40, 20+25, 25+00 Location 9+50 to 11+50 0+00 to 11+50 0+00 8+50 to 11+50 8+50 8+50 4D Location 0+00 to 8+50 0+00	N/A           4A to 4B           Depth of           Rock           (inches)           10           8           2           8           N/A           4C to 4D           Depth of Rock           (inches)           8           3	culvert POINT TC 4C to Volume per station station junction station turnout turnaround Landing POINT TC 4E to Volume per station junction	33 POINT 4D 62 50 11 22 13 22 22 88 POINT 4F 4F (CY) 7 50 11	culverts Sta. to 0+00 to Numb of stations stations junctions junctions stations turnouts turnarounds Landings Sta. to 0+00 to Numb of Stations junctions stations turnarounds Landings	4 <b>Sta.</b> 11+50 per 2 11.5 1 1 1 4 1 1 1 5 1 1 5 1 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 5 5 5 5 5 5 5 5 5 5 5 5	132         1,855         TOTAL         VOLUME         (CY)         124         575         11         22         52         22         22         22         22         916         TOTAL         VOLUME         (CY)         425         11
1 1/2"-0" crushed           nent:           4C to 4D           Rock Size           and Type           6"-0" pit-run           5"-0" crushed           1 1/2"-0" crushed           5"-0" crushed           5"-0" crushed           5"-0" crushed           5"-0" crushed           5"-0" crushed           6"-0" pit-run           s"-0" crushed           6"-0" pit-run           nent:           4E to 4F           Rock Size           and Type           5"-0" crushed           1 1/2"-0" crushed	14+90, 19+40, 20+25, 25+00 Location 9+50 to 11+50 0+00 to 11+50 0+00 8+50 to 11+50 8+50 8+50 4D Location 0+00 to 8+50 0+00 5+00	N/A           4A to 4B           Depth of           Rock           (inches)           10           8           2           8           N/A           4C to 4D           Depth of           Rock           (inches)           8           3           8           N/A           4C to 4D           Bepth of           Rock           (inches)           8           3           8	culvert POINT TC 4C to Volume per station station junction station turnout turnaround Landing POINT TC 4E to Volume per station junction junction junction turnout	33 POINT 4D 62 50 11 22 13 22 22 88 POINT 4F 4F (CY) 50 11 22 22 88	culverts Sta. to 0+00 to Numb of stations stations junctions stations turnouts turnarounds Landings Sta. to 0+00 to Numb of stations junctions turnarounds Landings	4 <b>Sta.</b> 11+50 per 2 11.5 1 1 1 4 1 1 1 <b>Sta.</b> 8+50 per 8.5 1 1 1 1	132         1,855         TOTAL         VOLUME         (CY)         124         575         11         22         52         22         22         22         22         22         24         55         11         22         22         23         916         TOTAL         VOLUME         (CY)         425         11         22
1 1/2"-0" crushed           nent:           4C to 4D           Rock Size           and Type           6"-0" pit-run           5"-0" crushed           1 1/2"-0" crushed           5"-0" crushed           5"-0" crushed           5"-0" crushed           5"-0" crushed           5"-0" crushed           6"-0" pit-run           5"-0" crushed           6"-0" pit-run           nent:           4E to 4F           Rock Size           and Type           5"-0" crushed           1 1/2"-0" crushed	14+90, 19+40, 20+25, 25+00 Location 9+50 to 11+50 0+00 to 11+50 0+00 8+50 to 11+50 8+50 8+50 4D Location 0+00 to 8+50 0+00	N/A           4A to 4B           Depth of           Rock           (inches)           10           8           2           8           N/A           4C to 4D           Depth of Rock           (inches)           8           3	culvert POINT TC 4C to Volume per station station junction station turnout turnaround Landing POINT TC 4E to Volume per station junction	33 POINT 4D 62 50 11 22 13 22 22 88 POINT 4F 4F (CY) 7 50 11	culverts Sta. to 0+00 to Numb of stations stations junctions junctions stations turnouts turnarounds Landings Sta. to 0+00 to Numb of Stations junctions stations turnarounds Landings	4 <b>Sta.</b> 11+50 per 2 11.5 1 1 1 4 1 1 1 5 1 1 5 1 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 5 5 5 5 5 5 5 5 5 5 5 5	132         1,855         TOTAL         VOLUME         (CY)         124         575         11         22         52         22         22         22         22         916         TOTAL         VOLUME         (CY)         425         11
	Rock Size and Type 5"-0" crushed 1 1/2"-0" crushed 6"-0" pit-run nent: Pt. 2A Rock Size and Type 1 1/2"-0" crushed 6"-0" pit-run nent: 3A to 3B Rock Size and Type 1 1/2"-0" crushed 5"-0" crushed 5"-0" crushed nent: 4A to 4B Rock Size and Type 5"-0" crushed 5"-0" crushed 5"-0" crushed 5"-0" crushed 5"-0" crushed 5"-0" crushed	Rock Size and Type         Location           5"-0" crushed         0+00 to 1+00           1 1/2"-0" crushed         0+00           6"-0" pit-run         1B           nent:         Pt. 2A           Rock Size and Type           1 1/2"-0" crushed         0+00           6"-0" pit-run         0+00           6"-0" pit-run         0+00           6"-0" pit-run         0+00           6"-0" crushed         0+00           6"-0" crushed         0+00           1 1/2"-0" crushed         0+00           5"-0" crushed         0+00           5"-0" crushed         0+00           5"-0" crushed         0+00           5"-0" crushed         0+00 to 31+60           5"-0" crushed         0+00           1 1/2"-0" crushed         0+00           5"-0" crushed         0+00           5"-0" crushed         0+00           1 1/2"-0" crushed         0+00           5"-0" crushed         0+00           5"-0" crushed         0+00           1 1/2"-0" crushed         0+00           5"-0" crushed         0+00	Rock Size and Type         Depth of Rock (inches)           5"-0" crushed         0+00 to 1+00         8           1 1/2"-0" crushed         0+00         3           6"-0" pit-run         1B         N/A           nent:         1A to 1B           Pt. 2A         Depth of Rock Size and Type         Depth of Rock (inches)           1 1/2"-0" crushed         0+00         3           6"-0" pit-run         0+00         3           6"-0" crushed         0+00         3           5"-0" crushed         0+00         8           5"-0" crushed         0+00         8           5"-0" crushed         0+00         3           5"-0" crushed         0+00         3           5"-0" crushed         0+00         3	Rock Size and Type         Location         Depth of Rock (inches)         1A to Volume per           5"-0" crushed         0+00 to 1+00         8         station           1 1/2"-0" crushed         0+00         3         junction           6"-0" pit-run         1B         N/A         landing           nent:         1A to 1B          POINT TO           Rock Size and Type         Location         Depth of Rock         PCINT TO           11/2"-0" crushed         0+00         3         junction           6"-0" pit-run         0+00         3         junction           6"-0" pit-run         0+00         3         junction           6"-0" crushed         0+00         3         junction           6"-0" pit-run         0+00         N/A         landing           nent:         Pt. 2A         POINT TO           At to 3B         POINT TO         SA to 3B         POINT TO           1 1/2"-0" crushed         0+00         3         junction           5"-0" crushed         0+00         3         junction           5"-0" crushed         0+00 to 31+60         8         station           5"-0" crushed         0+00 to 31+60         8         station </td <td>Rock Size and Type         Location         Depth of Rock (inches)         1A to 1B           5"-0" crushed         0+00 to 1+00         8         station         50           1 1/2"-0" crushed         0+00         3         junction         11           6"-0" pit-run         1B         N/A         landing         110           nent:         1A to 1B         N/A         landing         110           Pt. 2A         POINT TO POINT         POINT TO POINT           Rock Size and Type         Location         Rock         Volume (CY)           1 1/2"-0" crushed         0+00         3         junction         11           6"-0" pit-run         0+00         3         junction         11           6"-0" pit-run         0+00         3         junction         11           6"-0" pit-run         0+00         N/A         landing         88           ment:         Pt. 2A         POINT TO POINT         POINT TO POINT           3A to 3B         Depth of Rock         Ga to 3B         Volume (CY)           and Type         Location         Bok         junction         11           5"-0" crushed         0+00         3         junction         12</td> <td>Rock Size and Type         Location         Depth of Rock (inches)         1A to 1B         0+00 to Volume (CY)         Numb Numb Numb Station           5"-0" crushed         0+00 to 1+00         8         station         50         stations           1 1/2"-0" crushed         0+00         3         junction         11         junctions           6"-0" pit-run         1B         N/A         landing         110         landings           nent:         1A to 1B         N/A         landing         110         landings           nent:         1A to 1B         N/A         landing         110         landings           Pt. 2A         Depth of Rock Size and Type         Depth of Rock         POINT TO POINT         Sta. to           1 1/2"-0" crushed         0+00         3         junction         11         junctions           6"-0" pit-run         0+00         N/A         landing         88         landings           nent:         Pt. 2A         POINT TO POINT         Sta. to           Rock Size and Type         Location         Rock         Volume (CY)         Numt           1 1/2"-0" crushed         0+00         3         junctions         22         junctions           5"-0" crushed</td> <td>Rock Size and Type         Location         Depth of Rock (inches)         1A to 1B         0+00 to 1+00           5"-0" crushed         0+00 to 1+00         8         station         50         stations         1           11/2"-0" crushed         0+00         3         junction         11         junctions         1           6"-0" pit-run         1B         N/A         landing         110         landings         1           nent:         1A to 1B         N/A         landing         110         landings         1           Pt. 2A         POINT TO POINT         Sta. to Sta.         Sta. to Sta.         1           Rock Size and Type         Location         Rock         Peth of Rock         Pt. 2A         0+00           11/2"-0" crushed         0+00         3         junction         11         junctions         1           11/2"-0" crushed         0+00         3         junction         11         junctions         1           and Type         Location         Rock         Peth of Rock         SA to 3B         0+00 to 9+00           Rock Size and Type         Location         Rock         per         of         1           1/2"-0" crushed         0+00         3</td>	Rock Size and Type         Location         Depth of Rock (inches)         1A to 1B           5"-0" crushed         0+00 to 1+00         8         station         50           1 1/2"-0" crushed         0+00         3         junction         11           6"-0" pit-run         1B         N/A         landing         110           nent:         1A to 1B         N/A         landing         110           Pt. 2A         POINT TO POINT         POINT TO POINT           Rock Size and Type         Location         Rock         Volume (CY)           1 1/2"-0" crushed         0+00         3         junction         11           6"-0" pit-run         0+00         3         junction         11           6"-0" pit-run         0+00         3         junction         11           6"-0" pit-run         0+00         N/A         landing         88           ment:         Pt. 2A         POINT TO POINT         POINT TO POINT           3A to 3B         Depth of Rock         Ga to 3B         Volume (CY)           and Type         Location         Bok         junction         11           5"-0" crushed         0+00         3         junction         12	Rock Size and Type         Location         Depth of Rock (inches)         1A to 1B         0+00 to Volume (CY)         Numb Numb Numb Station           5"-0" crushed         0+00 to 1+00         8         station         50         stations           1 1/2"-0" crushed         0+00         3         junction         11         junctions           6"-0" pit-run         1B         N/A         landing         110         landings           nent:         1A to 1B         N/A         landing         110         landings           nent:         1A to 1B         N/A         landing         110         landings           Pt. 2A         Depth of Rock Size and Type         Depth of Rock         POINT TO POINT         Sta. to           1 1/2"-0" crushed         0+00         3         junction         11         junctions           6"-0" pit-run         0+00         N/A         landing         88         landings           nent:         Pt. 2A         POINT TO POINT         Sta. to           Rock Size and Type         Location         Rock         Volume (CY)         Numt           1 1/2"-0" crushed         0+00         3         junctions         22         junctions           5"-0" crushed	Rock Size and Type         Location         Depth of Rock (inches)         1A to 1B         0+00 to 1+00           5"-0" crushed         0+00 to 1+00         8         station         50         stations         1           11/2"-0" crushed         0+00         3         junction         11         junctions         1           6"-0" pit-run         1B         N/A         landing         110         landings         1           nent:         1A to 1B         N/A         landing         110         landings         1           Pt. 2A         POINT TO POINT         Sta. to Sta.         Sta. to Sta.         1           Rock Size and Type         Location         Rock         Peth of Rock         Pt. 2A         0+00           11/2"-0" crushed         0+00         3         junction         11         junctions         1           11/2"-0" crushed         0+00         3         junction         11         junctions         1           and Type         Location         Rock         Peth of Rock         SA to 3B         0+00 to 9+00           Rock Size and Type         Location         Rock         per         of         1           1/2"-0" crushed         0+00         3

#### EXHIBIT D ROAD SURFACING

ROAD SEGMENT	l1 to l2			POINT TO		Sta. to		
			Depth of	l1 to	12	0+00 to 1	199+00	TOTAL
Application	Rock Size		Rock	Volume	(CY)	Num	ber	VOLUME
Application	and Type	Location	(inches)	pe	r	of		(CY)
Surface Leveling Rock	1 1/2"-0" crushed	0+00 to 199+00	N/A	load	11	loads	7	77
Culvert Bedding and Backfill	1 1/2"-0" crushed	100+80	N/A	load	11	loads	3	33
Total Rock for Road Segment:			I1 to I2					110
ROAD SEGMENT	12 to 13	-		POINT TO	POINT	Sta. to	Sta.	
			Depth of	l2 to		0+00 to		TOTAL
Application	Rock Size		Rock	Volume	(CY)	Num	ber	VOLUME
	and Type	Location	(inches)	pe	r	of		(CY)
Subgrade Leveling Rock	1 1/2"-0" crushed	0+00 to 43+90	N/A	load		loads	4	44
Surfacing	1 1/2"-0" crushed	8+50 to 43+90	2	station	13	stations	35.4	460
		11+90, 17+60,						
		20+90, 25+40,						
Turnouts	1 1/2"-0" crushed	30+80, 39+55	N/A	turnout	11	turnouts	6	66
Junctions	1 1/2"-0" crushed	14+70, 23+22	N/A	junction	11	junctions	2	22
Total Rock for Road Segment:			I2 to I3					592
ROAD SEGMENT	14 to 15	-		POINT TO		Sta. to		
			Depth of	l4 to		0+00 to		TOTAL
Application	Rock Size		Rock	Volume	(CY)	Num	ber	VOLUME
	and Type	Location	(inches)	pe		of		(CY)
Subgrade Leveling Rock	1 1/2"-0" crushed	0+00 to 17+50	N/A	load	11	loads	1	11
Surfacing	1 1/2"-0" crushed	0+00 to 17+50	2	station	13	stations	17.5	228
		4+40, 10+75,						
Turnouts	1 1/2"-0" crushed	14+60,	N/A	turnout	11	turnouts	6	66
Junctions	1 1/2"-0" crushed		N/A	junction	11	junctions	1	11
Subgrade Leveling Rock	5"-0" crushed	17+50 to 27+60	N/A	load	11	loads	2	22
Surfacing	5"-0" crushed	17+50 to 27+60	4	station	25	stations	10.1	253
Turnouts	5"-0" crushed	23+30,	N/A	turnout	11	turnouts	6	66
Truck Turnarounds	5"-0" crushed	27+60	N/A	turnaround	11	turnarounds	1	11
Junctions	5"-0" crushed	24+80	N/A	junction		junctions	1	11
Surfacing	6"-0" pit-run	27+60 to 30+20	4	station	25	stations	2.6	65
Landing Improvement	6"-0" pit-run	15	N/A	load	11	loads	4	44
Total Rock for Road Segment:			14 to 15				-	787
ROAD SEGMENT	16 to 17			POINT TO		Sta. to		
			Depth of	l6 to		0+00 to		TOTAL
Application	Rock Size		Rock	Volume		Num		VOLUME
	and Type	Location	(inches)	pe		of		(CY)
Subgrade Leveling Rock	5"-0" crushed	0+00 to 2+30	N/A	load		loads	1	11
Surfacing	5"-0" crushed	0+00 to 2+30	4	station	25	stations	2.3	58
Truck Turnarounds	5"-0" crushed	2+30	N/A	turnaround	11	turnarounds	1	11
Surfacing	6"-0" pit-run	2+30 to 3+30	4	station	25	stations	1 4	25 44
Landing Improvement	6"-0" pit-run	17	N/A	load	11	loads	4	
Total Rock for Road Segment: ROAD SEGMENT	18 to 19		l6 to 17	POINT TO	POINT	Sta. to	Sta	149
KOAD SEGMENT	10 10 19		Depth of	I8 to		0+00 to		TOTAL
	Rock Size		Rock	Volume		Num		VOLUME
Application	and Type	Location	(inches)	pe	. ,	of		(CY)
Surfacing	6"-0" pit-run	0+00 to 2+40	4	station		stations		60
Landing Improvement	6"-0" pit-run	I9	N/A	load	11	loads	4	44
Total Rock for Road Segment:		15	18 to 19	1080		10003		104
ROAD SEGMENT	I10 to I11		10 10 10	POINT TO	POINT	Sta. to	Sta.	104
			Depth of	1011110		0+00 to		TOTAL
	Rock Size		Rock	Volume		Num		VOLUME
Application	and Type	Location	(inches)	pe		of		(CY)
Surface Leveling Rock	1 1/2"-0" crushed		N/A	load		loads	4	44
								<u> </u>
	6"-0" pr	5"-0"	1 1/2"-(	0" 7	otal			
	780	3,336	1,312	2 5	,428			
			,					

6"-0"pr	5"-0" crushed	1 1/2"	-0" crushed		Total
498	2,894		250		3,642
88	Landings	1	88 568	\$4.88	

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

# 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.

<u>Rock Checking</u>. All rock spreading shall be done only when a STATE representative is present. STATE shall issue a receipt for each load delivered, and rock shall be measured without allowance for shrinkage or shakedown during hauling. Total truck measure volume for each road segment shall be as shown in this Exhibit. Deliver at least 500 cubic yards per 8-hour shift, unless otherwise approved by STATE. A penalty of \$10 for each 10 cubic yards which are not delivered during a single shift shall be billed, and payment shall be required prior to final acceptance of the project by STATE.

<u>Depth Measurement</u>. Rock shall be spread and compacted according to the depths specified in this Exhibit. 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 this Exhibit. 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.

<u>Load Records</u>. 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.

# COMPACTION AND PROCESSING REQUIREMENTS

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

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

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

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

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments	1

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

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

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments.	1 or 2

# COMPACTION AND PROCESSING REQUIREMENTS

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

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

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

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

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

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

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
Segments requiring pit-run rock	1 or 3

#### COMPACTION EQUIPMENT OPTIONS

- (1) <u>Vibratory Rollers</u>. 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) <u>Rubber-Tired Skidders</u>. A rubber-tired skidder weighing a minimum of 20,000 pounds shall be operated over the fill layers so that the entire layered surface comes in contact with the tires. Skidders with oversized tires (high flotation) are not acceptable for compaction.
- (3) <u>Dozer</u>. A dozer/track-type tractor weighing a minimum of 45,000 pounds shall be operated over the pitrun rock so that the entire surface comes in contact with the tracks.

# EXHIBIT E

# CULVERT SPECIFICATIONS

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

Culverts shall be constructed of corrugated double-walled polyethylene.

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

(Type 2) steel culverts shall meet the requirements of AASHTO M-36-031.

Polyethylene culverts shall not be used where required culvert diameter is over 18 inches.

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

Culverts shall be located according to the alignment and grade as shown on the Plan and Profile, and/or as staked in the field, or as specified in special instructions. Culverts in live streams shall be installed with the inlet and outlet on grade with the stream bottom, unless otherwise specified in writing.

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

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

On road improvement segments, backfill shall consist of, crushed rock. On new construction backfill shall consist of, job-excavated soil free of stumps, limbs, rocks, or other objects which would damage the culvert.

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

# EXHIBIT E

# CULVERT SPECIFICATIONS

Minimum height of cover over top of culvert to subgrade when road is to be rocked shall be as follows: 12" for culverts 18" to 36" 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 relief culverts shall be provided with a sediment catching basin 3 feet in diameter at the bottom. The outlet end of any culvert which would allow water to erode embankment soil shall be provided with an energy dissipator, half round, or other approved slope protection device. Construct lead-off ditches away from culvert outlets where the slope gradients restrict the free flow of water.

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

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

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

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

# EXHIBIT E

# CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	MATERIAL TYPE	ROAD SEGMENT POINT TO POINT	STATION
1	18	30	CPP	4A to 4B	3+50
2	18	30	CPP	4A to 4B	8+00
3	18	30	CPP	4A to 4B	14+90
4	18	40	CPP	4A to 4B	19+40
5*	18	30	CPP	4A to 4B	20+25
6	18	30	CPP	4A to 4B	25+00
7	18	30	CPP	4C to 4D	6+00
8	18	30	CPP	4C to 4D	8+00
9	18	30	CPP	11 to 12	100+80

ACSP = Aluminized, CPP = Polyethylene \* = Ditch Disconnect Culvert

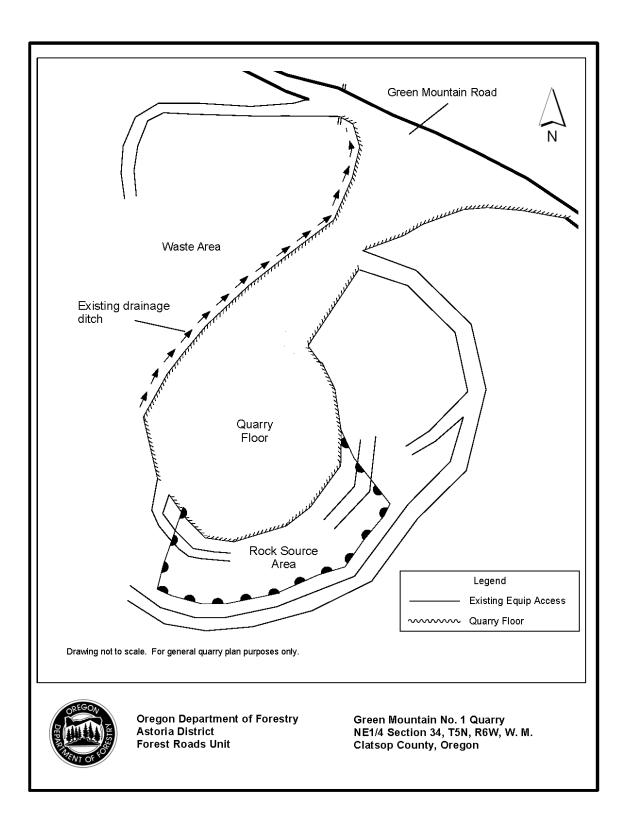
# EXHIBIT F

#### ROCK QUARRY DEVELOPMENT AND USE

- 1. PURCHASER shall prepare a written development plan for the quarry area. The plan shall be submitted to STATE for approval prior to conducting any operation in quarry area. The plan shall include, but not be limited to:
  - (a) Location of benches and roads to benches.
  - (b) Disposal site for woody debris, overburden and reject material.
  - (c) Time lines for rock quarry use.
  - (d) Erosion Control measures.
- 2. PURCHASER shall schedule and coordinate quarry and stockpile usage with other existing or planned activity requiring quarry or stockpile usage. PURCHASER shall notify STATE 5 days prior to the start of quarry development activities.
- 3. The quarry site shall be left in a condition free from overburden and debris. Access roads to the quarry, and the quarry floor, shall be cleared at the termination of use. Overburden shall be removed for a distance of 20 feet beyond the developed rock source.
- 4. All overburden and reject material shall be hauled to the designated waste area as directed by STATE.
- 5. PURCHASER shall conduct the operations relative to the disposal of waste material in such manner that sediment, rock, or debris shall not be washed, conveyed, or otherwise deposited in any stream.
- 6. Controlled blasting techniques shall be utilized for any blasting operations, and shall be accomplished using timing devices, delayed charges, low intensity shots, or other suitable means to contain as much material as possible within the quarry development area. PURCHASER shall maintain a comprehensive blasting log that contains all pertinent data for all blasting operations. The blasting log shall be submitted to the STATE after the completion of all blasting activity. The blasting log is intended for STATE record keeping purposes only.
- 7. Benches shall be maintained/constructed at intervals of 40 feet or less in height and shall be a minimum of 20 feet in width. Any gravel or talus slopes shall be left with a working face at an angle of 60 percent or less. There shall be a minimum of one bench with an access road to it. Said bench shall be easily accessible with tractors.
- 8. Quarry face shall be developed in a uniform manner. All quarry backslopes shall be left in a stable condition.
- 9. Oversized material that is produced or encountered during development shall be broken down and utilized for crushing.
- 10. The quarry floor shall be developed to provide for drainage away from the quarry. All quarry and stockpile site drainage ditches shall be maintained. Quarry access roads shall be cleared and blocked upon completion of quarry use as directed by STATE.
- 11. Proper winterization and storm-water control measures such as waterbarring, drainage, utilization of filter bales, mulching and/or blocking access shall be constructed and maintained to protect the watershed and Project Work, as directed by STATE.
- 12. Benches shall be accessed utilizing existing quarry access roads. If alternative quarry access roads are desired, these shall be included for approval in the quarry development plan.
- 13. At the Green Mountain No. 2 Quarry, begin quarry rehabilitation. PURCHASER shall spread material from existing waste area into Quarry Rehab. Area as shown on attached map for Green Mountain Quarry No. 2. Final slopes on rehabilitation area shall be left in a stable condition.

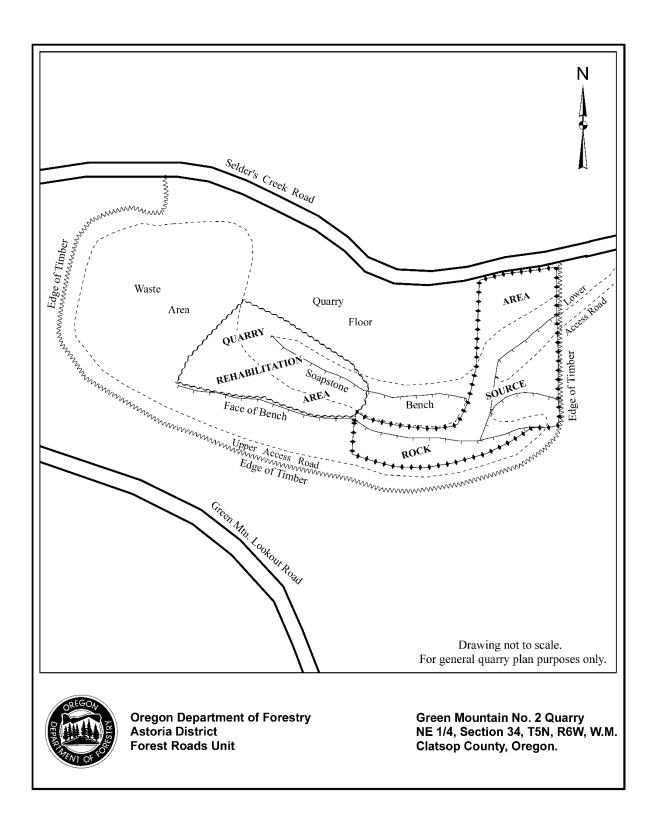
# EXHIBIT F

# ROCK QUARRY DEVELOPMENT AND USE



# EXHIBIT F

# ROCK QUARRY DEVELOPMENT AND USE



# EXHIBIT G

# CRUSHED ROCK SPECIFICATIONS

<u>Materials</u>. The material shall be fragments of rock crushed to the required size. The material shall be free from vegetation and lumps of clay. STATE will require screening and/or rejecting of materials utilized for production of crushed rock for the purpose of removing excess fine material, as visually determined by STATE. Rock crushing shall be limited to periods when weather conditions are acceptable to STATE.

<u>Quality and Grading Requirements</u>. The base material shall be rock. River gravel shall not be used. Crushed rock shall meet the grading requirements that follow.

Rock strength: for rock not produced from STATE quarries, the material from which base material is produced or manufactured shall meet the following test requirement for Aggregate Hardness - Test Method AASHTO T 96, 35 percent Maximum.

For the purpose of crushing rock specified under the projects in Section 2610, "Project Work," PURCHASER shall utilize a three-stage rock crusher, or equivalent, unless otherwise approved by STATE.

The rock crusher shall be calibrated to produce rock as specified in this exhibit. Prior to the commencement of production crushing, PURCHASER shall sample, test, and provide rock test results meeting STATE specifications. STATE may then sample and test crushed rock for approval to proceed. PURCHASER shall take one sample of each 2,000 cubic yards of crushed rock material produced thereafter, using approved AASHTO sampling procedures. PURCHASER shall submit samples to a certified laboratory or shall perform testing for gradation requirements using AASHTO T 11 and AASHTO T 27 testing procedures. Prior to testing, each sample shall be split, making one-half of the sample, with proper identification, available for testing by STATE. Each sample and the results of PURCHASER testing shall be made available to STATE within 24 hours of sampling. Any rock crushed prior to STATE approval to proceed shall not be credited to the required rock quantity. Any subsequent rock tests not meeting STATE specifications shall be reason for rejection of that portion of crushed rock produced after that test and shall not be credited to the required rock quantity. STATE may sample the crushed rock at any time during the operation. Results of STATE's tests shall prevail over all other test results.

State Timber Sale Contract No. 341-18-49 Pancho

#### EXHIBIT G

# CRUSHED ROCK SPECIFICATIONS

# Grading Requirements

<u>For 1½"-0"</u>	Passing	2" sieve	100%
	Passing	1½" sieve	90-100%
	Passing	3/4" sieve	50-75%
	Passing	1/4" sieve	25-55%
	Passing	No. 10 sieve	10-25%
	Passing	No. 40 sieve	5-15%
<u>For 5"-0"</u>	Passing	6" sieve	100%
	Passing	5" sieve	90-100%
	Passing	4" sieve	80-90%
	Passing	2" sieve	50-80%
	Passing	3/4" sieve	15-50%
	Passing	1/4" sieve	0-20%

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

# PIT-RUN AND RIPRAP ROCK SPECIFICATIONS

<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%

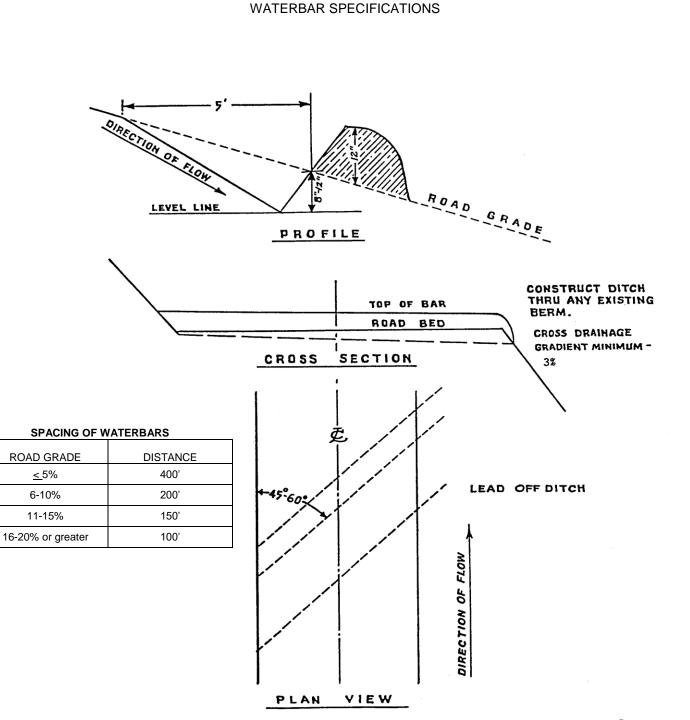
Control of gradation shall be by visual inspection by STATE.

<u><</u>5%

6-10%

11-15%

#### EXHIBIT H



WATERBAR SPECIFICATIONS FOR CROSS DITCHING #298

#### Page 1 of 3

# EXHIBIT I

#### ROAD VACATING SPECIFICATIONS

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

- (a) Fill removal and stream channel development.
- (b) Culvert removal.
- (c) Restoration of natural contours by outsloping of the road prism.
- (d) Sidecast pullback.
- (e) Minimize disturbance of existing vegetation.
  - (1) <u>Tree Removal.</u> Cut or remove all trees necessary to access the project area and to facilitate vacating operations, as directed by STATE. Conifer timber shall be removed as designated timber.
  - (2) <u>Fill Removal and Stream Channel Development.</u> Remove fills to the natural stream course levels. Stream channels shall be excavated/developed to specified widths. Developed stream banks shall be sloped at natural contours or no steeper than 1 ½:1, as directed by STATE.
  - (3) <u>Culvert Removal.</u> Remove drainage structures and culverts. Removed culverts shall be hauled to an approved refuse site off of STATE land.
  - (4) <u>Outslope Road.</u> Outslope road to restore natural contours or establish a minimum of 10 percent slope for drainage at designated locations. If the road grade exceeds 10 percent, outslope of the road shall be 2 percent greater than the road grade.
  - (5) <u>Sidecast Pullback.</u> Excavate/pullback previously sidecast materials below the road at designated locations. Developed slopes shall be pulled back to a 1½:1 slope or to natural ground contours. The beginning position for sidecast pullback shall be no greater than 20 feet vertical distance from the existing road surface, in accordance with Exhibit I. Sidecast material remaining greater than 20 feet below the road shall be tapered and sloped for drainage.
  - (6) Use of Excavated Materials.
    - (A) <u>Fill Excavation and Sidecast Pullback.</u> Excavated materials shall be placed on the interior (cut) side of the road, and utilized to restore the cutslope to natural contours, or to a minimum 10 percent outsloped surface for drainage. Any excess material will be hauled to a designated waste area, as directed by STATE.
    - (B) <u>Woody Debris</u> Shall be placed on the surface of pullback/fill material.
    - (C) <u>Block Roads.</u> Use excavated material from fill removals to block roads from vehicle access, as directed by STATE.
  - (7) <u>Erosion Control.</u> Erosion control shall be completed in a progressive manner. Grass seed and straw mulch shall be applied for every 500 feet of road vacated, prior to continuing work.

All excavated material and bare soil shall utilize grass seed and straw mulch approved by STATE and in accordance with the specifications in Exhibit J. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.

(8) <u>Construct Waterbars</u> as directed by STATE. Construct waterbars according to the specifications in Exhibit H.

# EXHIBIT I

# ROAD VACATING SPECIFICATIONS

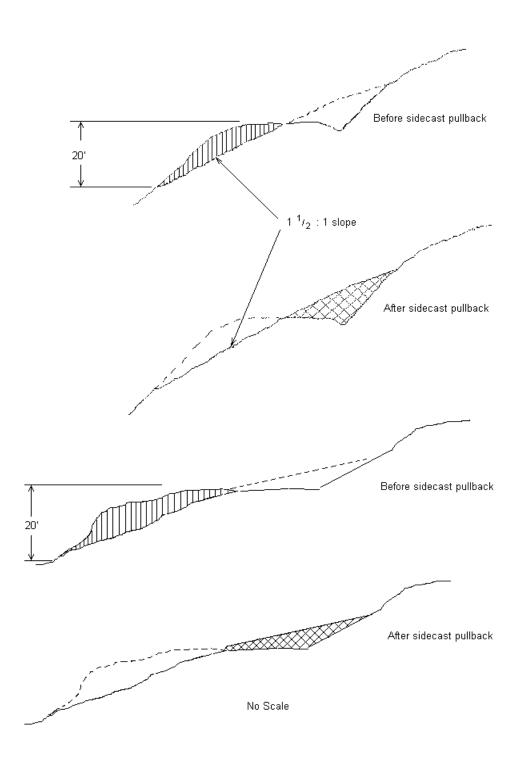
- (9) <u>Equipment.</u> A minimum 1½ cubic-yard, track mounted excavator shall be used for all excavation, culvert removal, streambed preparation, road blocking, and waterbarring, unless otherwise approved in writing by STATE.
- (10) Dry Conditions. All work shall be performed during dry conditions acceptable to STATE.
- (11) Support, including transport, other equipment, replacements, supplies, maintenance, and repairs, shall be furnished as required to complete the project and shall be furnished without cost to STATE, other than as agreed under the contract terms.

# SPECIFIC INSTRUCTIONS/SPECIFICATIONS:

- Segment Station Work Description
- V1 0+00 Begin road vacating as specified above in General Instructions and below in the Specific Instructions. Construct road block / waterbar. Seed and mulch exposed soils.
  - 2+75 Remove fill. Develop natural stream channel. Seed and mulch exposed soils, construct large waterbar.
  - 3+75 Construct waterbar.
  - 6+20 Construct waterbar.
  - 10+20 Remove fill. Develop natural stream channel. Seed and mulch exposed soils. Salvage existing riprap rock and haul to Green Mountain Stockpile Site.
  - 11+70 Construct long waterbar. Remove existing corrugated metal pipe.
  - 14+30 Construct waterbar
  - 17+70 Construct waterbar
  - 20+65 Construct waterbar
  - 23+50 Remove fill. Develop natural stream channel. Seed and mulch exposed soils. Any conifer timber cut shall be removed as designated timber and decked at V2.
- V2 26+50 Construct road block / waterbar. End road vacating.

# EXHIBIT I

# TYPICAL CROSS SECTION VIEW OF ROAD VACATING SIDECAST PULLBACK



#### EXHIBIT J

#### SEEDING AND MULCHING

This work shall consist of preparing seedbeds and furnishing and placing required seed and straw mulch. Straw mulch shall consist of straw that is free of noxious weeds. Apply seed and straw mulch to all waste areas, and bare soils resulting from Project No. 4.

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

#### APPLICATION METHODS FOR SEED

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

# APPLICATION RATES FOR SEED

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

SPECIES	MIXTURE	PURE LIVE SEED	GERMINATION
Annual Rye	33%	95%	>90%
Orchard Grass	33%	95%	>90%
Perennial Rye	34%	95%	>90%

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

# APPLICATION RATES FOR MULCH

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

Application Locations:

Road Segment	Location
V1 to V2	As designated

# PART IV: OTHER INFORMATION

#### FOREST PRACTICES ACT "WRITTEN Plan" For Operations within 100 feet of Type F Stream

Portions of Sections 4 and 5 of T4N, R6W and portions of Sections 34 and 35 of T5N, R6W, W.M., Clatsop

County, Oregon

Landowner: Oregon Department of Forestry

92219 Hwy 202 Astoria, OR 97103 (503) 325-5451

#### **Protected Resources:**

- 1. North Fork Rock Creek
- 2. Tributaries of North Fork Rock Creek
- 3. Ginger Creek

# **Specific Site Characteristics:**

- 1. Tributaries of North Fork Rock Creek (small, Type F) flow along on the East boundary of Area 1 for approximately 1,400 feet as well as the West boundary for approximately 1,050 feet.
- 2. Tributaries of North Fork Rock Creek (small, Type F) flow along the North boundary of Area 2 for approximately 1,000 feet as well as the South boundary for approximately 1,100 feet.
- 3. Tributaries of North Fork Rock Creek (small, Type F) also flow along the East boundary of Area 3 for approximately 1,200 feet as well as the South boundary for approximately 900 feet.
- 4. North Fork Rock Creek (large, Type F) flows along the West boundary of Area 2 for approximately 500 feet.
- 5. Ginger Creek (small, Type F) flows along the Southeast boundary of Area 4 for approximately 700 feet.

# Tree and Vegetation Retention:

Vegetation within the buffers consists of a combination of conifers, hardwoods, and shrubs.

The Type F streams adjacent to Areas 1, 2, 3 and 4 are outside of the sale area. If trees need to be felled within FPA defined stream buffers (RMA's) to allow for cable corridors, trees cut within 25 feet will not be removed. Cable lines may extend over and/or through these buffers.

Cable lines may extend over and/or through the Type F riparian area to allow for tail holds but no harvest will occur on the adjacent state lands and no yarding will take place through the buffer.

#### **Resource Protection Practices:**

Along 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:

- No trees will be felled within the stream buffers (RMAs), except as necessary in cable corridors.
- Trees that fall or slide into the Type F RMA's shall not be removed without prior approval from STATE.
- Trees adjacent to the stream buffers (RMA's) will be felled away from or parallel to the streams to prevent trees from entering the aquatic areas.
- When cable logging is conducted nearby the RMA's, logging lines may cross, but will not be lowered into the RMA's during yarding, except during rigging. During rigging the lines must be pulled out of the RMA's when changing corridors.
- Logs shall be fully suspended when yarding across all stream buffers (RMA's).
- Cable corridors must be at least 100 feet apart where they cross the RMA's.

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

Submitted:

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

Purchaser/Operator Contract Representative Original: Salem

#### FOREST PRACTICES ACT "WRITTEN PLAN" For Operating within 100 feet of a Type F Stream

Portions of Section 34, T5N, R6W, W.M., Clatsop County, Oregon.

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

#### **Protected Resources:**

An existing fill crosses a small Type F stream, an unnamed tributary of Weed Creek. This road segment and fill is to be vacated. A "written plan" is required for operations within 100 feet of a stream classified as Type F.

#### **Specific Site Characteristics:**

An existing fill crosses an unnamed tributary of Weed Creek. This fill and culvert will be removed returning the stream channel to the natural gradient.

#### **Resource Protection Practices:**

- Work will be performed only during dry weather periods, low water stream flows and between July 1 and August 31, annually.
- Work will be performed in an efficient and timely manner to reduce the amount of time of stream disturbance.
- Machine activity in stream channel will be minimized. All excavation will be performed using a minimum 1 ½ cubic yard track mounted excavator.
- Reconstructed slopes will not exceed 1.5:1.
- Excavated waste materials will be hauled to approved waste areas and left in a stable condition.
- All bare soils and waste areas will be mulched and seeded to prevent erosion.

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

Submitted:

Date:

Purchaser/Operator Contract Representative

Original: Salem CC: Operator, Purchaser, District file, Forest Roads Unit, Jewell Unit

# **OREGON DEPARTMENT of FISH and WILDLIFE**



# SMALL PUMP SCREEN SELF CERTIFICATION

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

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

Screen material open area must be at least 27% of the total wetted screen area.

Perforated plate: Openings shall not exceed 3/32 or 0.0938 inches (2.38 mm).

**Mesh/Woven wire screen:** Square openings shall not exceed 3/32 or 0.0938 inches (2.38 mm) in the narrow direction, e.g., 3/32 inch x 3/32 inch open mesh.

**Profile bar screen/Wedge wire:** Openings shall not exceed 0.0689 inches (1.75 mm) in the narrow direction.

**Screen area** must be large enough not to cause fish impact. Wetted screen area depends on the water flow rate and the water approach velocity. **Approach velocity** is the water velocity perpendicular to and approximately three inches in front of any part of the screen face.

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

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

For further information on fish screening please contact:

Oregon Department of Fish and Wildlife, Statewide Fish Screening Coordinator: 503.947.6229 Oregon Department of Fish and Wildlife, Screening Program Administrative Specialist: 503.947.6224

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

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

Applicant Signature: \_\_\_\_\_ Date: \_/ / \_WRD File #: \_\_\_\_\_

Printed Name and Address:

Phone: (	) F	ax: (	)
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