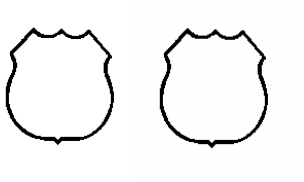
PART III: EXHIBITS

OREGON DEPARTMENT OF FORESTRY

TIMBER SALE OPERATIONS PLAN
(See Page 2 for instructions)



Date Received by STATE: _____

(5) State Brand Information (complete):

(1) Contract No.: 341-14-41

(2) Sale Name: Lost Fry

(3) Contract Expiration Date: October 31, 2016

Project Completion Dates: Project Nos. 2, 3 and Project No. 1: 1A-1B, 2A-2B, 2C-2D, and A-B October 31, 2014
Project No. 1: 1C-1D, 1E-1F, 3A-3B, 3C-3D, 3E-3F, 3G-3H, 4A-4B, and C-D October 31, 2015

(4) Purchaser: _____

(6) Purchaser Representatives:

Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____

(7) State Representatives:

Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____

(8) Name of Subcontractors & Starting Dates:

Projects: No(s) _____-_____	Date: _____	Phone: _____	
No(s) _____-_____	Date: _____	Phone: _____	
No(s) _____-_____	Date: _____	Phone: _____	
No(s) _____-_____	Date: _____	Phone: _____	
Logging: Felling _____	Date: _____	Phone: _____	
Yarding: _____	Date: _____	Phone: _____	

(9) Comments: _____

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

EXHIBIT B

INSTRUCTION SHEET FOR OPERATIONS PLAN

SUBMIT ONE COPY OF PLAN TO STATE

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

Explanation of Item No. (from Page 1)

(5) All sales require you to use a brand furnished by STATE. If the State brand has not been assigned when the plan is submitted, it will be furnished and assigned later. Complete drawing. If more than one brand is assigned to the sale, complete both drawings.

(6) The contract requires you to have a designated representative available on the sale area or work location who is authorized to receive in your behalf any notice or instruction given by STATE and to take action in regard to performance under the contract. If logging and project work is widely separated, a representative is required for each.

(7) The STATE representative will be designated when your plan is approved and is the person who will inspect and issue instructions regarding performance.

(8) Show names of subcontractors to be used for any or all phases of the operations. If subcontractors are not known, or are changed later, give notification to the STATE representative prior to commencement of work by subcontractor.

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

(10) The STATE representative will furnish extra copies of Exhibit A of the contract for your use in preparing the operations map. The map shall use the following legend and show:

1. Landing locations, approximate setting boundaries, and probable sequence of logging the settings. Number the settings in sequence.
2. Locations of spur roads planned for construction, other than those required by the timber sale contract. Provide spur road specifications.
3. Location of proposed tractor yarding roads. Show if and how marked on the ground.
4. Location of temporary stream crossings.
5. List the sequence of performing project work.
6. Location of rock sources - attach pit development plans.

Cable Landing, with numbers for sequence.

Tractor Landing with alphabetical sequence.

_ _ _ _ _ Approximate setting boundary.

- - - - - - - - Spur truck roads.

Tractor yarding roads.

X Temporary stream crossings.

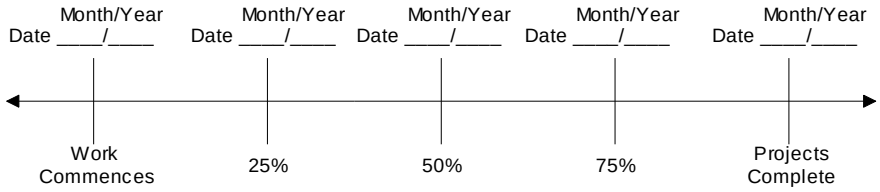
EXHIBIT B

OPERATIONS PLAN

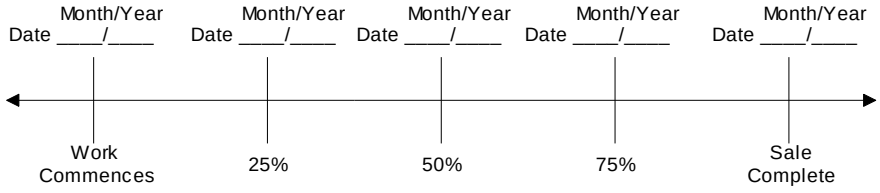
Completion Timeline

Indicate on the appropriate timeline below, the dates by which you plan to complete the work as required under this contract. The purpose of this section is to develop a plan that will ensure you complete the work as required, and meet the interim completion date(s) and contract expiration date. This plan is incorporated and made a part of the contract. When, in the opinion of STATE, operations are not commencing in a manner that meets the intent of this plan, you may be placed in violation of contract and your operations suspended until an amended plan is submitted and approved by STATE.

Projects



Harvest & Other Requirements



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

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

APPROVED: Date: _____

STATE OF OREGON - DEPARTMENT OF FORESTRY

_____

Title _____

SUBMITTED BY:
PURCHASER

_____

Title _____

Original: Salem
cc: District File
Purchaser

EXHIBIT C – SAWMILL GRADE (WESTSIDE SCALE)

SCALING INSTRUCTIONS -- LOCATION APPROVAL -- BRAND INFORMATION

(1) ORIGINAL REGISTRATION ☐ Date _____
REVISION NUMBER _____ ☐ Date _____
CANCELLATION ☐ Date _____

(2) TO: _____
(Third Party Scaling Organization)

(3) FROM: Astoria (04) Phone (503) 325-5451
(State Forestry District)
Address 92219 Hwy. 202, Astoria, Or 97103

(4) PURCHASER: _____
Mailing Address: _____
Phone Number: _____

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

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

	YES	NO
(6) WESTSIDE SCALE: Use Region 6 actual taper rule. Logs over 40'.	☒	☐
(7) Weight Scale Sample	☐	☒

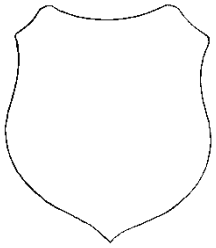
(8) **APPROVED SCALING LOCATIONS** (as shown on the ODF Approved Locations web-site)	Species	Yard	Truck	Weight

(9) SALE NAME: Lost Fry
COUNTY: Clatsop

(10) STATE CONTRACT NUMBER: 341-14-41

(11) STATE BRAND REGISTRATION NUMBER:
_____

(12) STATE BRAND INFORMATION (COMPLETE):



(13) PAINT REQUIRED: YES ☒
COLOR: Orange

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

(15) **REMARKS** _____

Operator's Name (Optional inclusion by District): _____

(16) SIGNATURES:

_____
Purchaser or Authorized Representative Date

_____
State Forester Representative Date

_____
State Forester Representative PRINT NAME

Notify the District within one hour when branding or painting is inadequate for quick identification, the receipts are missing, not correctly or completely filled out, and/or when logs presented for scaling are impossible to scale accurately.

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: services@crls.com

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

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

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

Northwest Log Scalers, Inc .
5526 NE 122nd Ave, Portland, OR 97230
Phone: (503) 254-0600 Fax: (503) 408-0919
Email: info@nwlogscalers.com

Pacific Log Scaling & Grading Bureau, Inc.
P.O. Box 23939, Portland, OR 97281
Phone: (503) 684-5599 Fax: (503) 639-4880
Email: PacLogScale@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 \\WPODFFILL01\Transfer\ScalingInstructions or e-mailed directly to scaling@odf.state.or.us. Scaling instructions for each brand should be scanned separately, for each approved TPSO.

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

Revised 11/11

EXHIBIT C – PULP SORT

PROCESSING INSTRUCTIONS -- LOCATION APPROVAL -- BRAND INFORMATION

(1) ORIGINAL REGISTRATION ☐ Date _____
REVISION NUMBER _____ ☐ Date _____
CANCELLATION ☐ Date _____

(2) TO: _____
(Approved Pulp Processing Facility)

(3) FROM: Astoria (04) Phone (503) 325-5451
(State Forestry District)

(4) PURCHASER: _____

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

_____

Mailing Address: _____
Phone Number: _____

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

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

(7) PULP FACILITY PROCESSING INSTRUCTIONS:

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

(8) TPSO PROCESSING INSTRUCTIONS

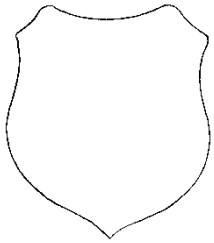
- Mail to ODF weekly.
- Convert to mbf using 10 tons per mbf.

(9) SALE NAME: Lost Fry
COUNTY: Clatsop

(10) STATE CONTRACT NUMBER: 341-14-41

(11) STATE BRAND REGISTRATION NUMBER _____

(12) STATE BRAND INFORMATION: (COMPLETE BELOW)



(13) REMARKS: _____

Operator's Name (Optional inclusion by District):

_____

(14) SIGNATURES:

_____
Purchaser or Authorized Representative Date

_____
State Forester Representative Date

_____
State Forester Representative PRINT NAME

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

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

EXHIBIT C – PULP SORT

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

(1) **Must Complete.** Check appropriate box. REVISION NUMBER requires comments in the Remarks Section (13). CANCELLATION requires logging and hauling to be complete, recall branding hammers, date and sign where indicated, write diagonally across page "CANCEL", and send to TPSO.

(2) **Must Complete**. Approved Pulp Processing Facility. Write in as written in the Approved Log Delivery Location http://www.odf.state.or.us/DIVISIONS/management/asset_management/ScalingLocation.asp

(3) **Must Complete.** State Forestry District and District Phone Number.

(4) **Must Complete**. Purchaser's business name as it appears on the Contract.

(5) **Must Complete.** Third Party Scaling Organization that will be processing the weight tickets, mailing address, and phone number.

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

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

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

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

Northwest Log Scalers, Inc .
5526 NE 122nd Ave, Portland, OR 97230
Phone: (503) 254-0600 Fax: (503) 408-0919
Email: info@nwlogscalers.com

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

(6) **Must Complete.** Big end log not to exceed **8** inches. Big end of log is not to exceed 2 inches greater than the minimum removal specifications in the contract. Example: Minimum removal specifications 6 inches and 20 board feet, then the Big end of log not to exceed 8 inches. When conifer and hardwood removal specifications are different, use the smaller removal diameter to determine this specification.

(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 scaling@odf.state.or.us . Scaling instructions for each brand should be scanned separately, for each approved TPSO.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SUBGRADE WIDTH	SURFACED WIDTH	CLEARING LIMITS	POINT TO POINT	STATION TO STATION	DRAINAGE
16 feet	12 feet	10 feet	A to B	0+00 to 23+60	Crowned/Ditch
16 feet	12 feet	5 feet	C to D	0+00 to 16+60	Crowned/Ditch
16 feet	12 feet	10 feet	1A to 1B	0+00 to 10+25	Crowned/Ditch
16 feet	12 feet	5 feet	1C to 1D	0+00 to 2+20	Crowned/Ditch
16 feet	12 feet	5 feet	1E to 1F	0+00 to 7+50	Crowned/Ditch
16 feet	12 feet	10 feet	2A to 2B	0+00 to 14+90	Crowned/Ditch
16 feet	12 feet	5 feet	2C to 2D	0+00 to 4+55	Crowned/Ditch
16 feet	12 feet	5 feet	3A to 3B	0+00 to 38+90	Crowned/Ditch
16 feet	12 feet	5 feet	3C to 3D	0+00 to 12+45	Crowned/Ditch
16 feet	12 feet	5 feet	3E to 3F	0+00 to 7+20	Crowned/Ditch
16 feet	12 feet	5 feet	3G to 3H	0+00 to 1+55	Crowned/Ditch
16 feet	12 feet	5 feet	4A to 4B	0+00 to 5+75	Crowned/Ditch
14 feet	N/A	5 feet	4A to 4B	5+75 to 19+60	Outsloped
16 feet	12 feet	n/a	I1 to I2	0+00 to 55+85	Crowned/Ditch *
16 feet	12 feet	n/a	I3 to I4	0+00 to 14+12	Crowned/Ditch
16 feet	12 feet	n/a	I5 to I6	0+00 to 22+20	Crowned/Ditch
16 feet	12 feet	n/a	I7 to I14	0+00 to 50+22	Crowned/Ditch
16 feet	12 feet	n/a	I8 to I9	0+00 to 74+09	Crowned/Ditch *
16 feet	12 feet	n/a	I10 to I11	0+00 to 15+71	Crowned/Ditch
16 feet	12 feet	n/a	I12 to I13	0+00 to 28+69	Crowned/Ditch

*See Specific Road Improvement Instructions for road segments to be insloped.

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

Where clearing limits have not been marked, the clearing limits shall extend 5 and 10 feet back of the top of the cutslope and 5 and 10 feet out from the toe of the fill slope, or as directed by STATE. See table above for clearing limits per road segment. Clearing debris shall not be placed or permitted to remain in or under any road embankment sections. Clearing debris shall not be left lodged against standing trees.

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

EXHIBIT D

FOREST ROAD SPECIFICATIONS

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

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

GRUBBING CLASSIFICATION.

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

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

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

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

Excavation shall conform to STATE-specified lines, grades, dimensions, and plans when provided. Plans are provided between points : A to B,1A to 1B, 2A to 2B, 3A to 3B, 3C to 3D, and 3E to 3F and I1-I2 Sta. 24+00-28+72, Sta. 32+37-33+93, Sta. 35+14-37+83, I7-I14 Sta. 47+10-50+22.

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.

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

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

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

EXHIBIT D

FOREST ROAD SPECIFICATIONS

DRAINAGE

Subgrade. Subgrade shall be crowned 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.

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

Inslope. Subgrade shall be insloped at 4 to 6 percent as shown on the “Forest Road Specifications” table in this Exhibit.

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

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

SLOPES	Back Slopes	Fill Slopes
Solid Rock	Vertical to ¼ :1	
Fractured Rock	½ :1	
Soil - side slopes 50%	¾ :1	1½:1
Soil - side slopes less than 50%	1 :1	1½:1

Top of cutslope shall be rounded.

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

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

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

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD CONSTRUCTION INSTRUCTIONS:

1. Timber Removal. Remove all trees within posted right-of-way boundary as specified in Section 2210, "Designated Timber."

2. Excavated Materials. Excavated materials shall be utilized for road construction. 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. Excess excavated material not used for embankment on the following segments; A to B, 1A to 1B, 2A to 2B, shall be end hauled to waste areas as shown on Exhibit A and marked in the field.

3. Drainage Ditches. Construct ditchlines, including ditchouts, as directed by STATE. Cut slopes of ditchelines and ditchouts shall not exceed a 1:1 slope. Construct culvert sediment basins. Waste materials from drainage ditches and sediment basins shall be placed in nearby waste areas and uniformly sloped and compacted for drainage, as directed by STATE.

4. Fill Armor. Where rock is specified for fill armor, rock shall be machine placed and tamped at a 1½:1 slope, beginning at the toe of the fill.

5. Equipment. All excavation and riprap placement shall be performed using a minimum 1½ 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 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 at 4 to 6 percent.

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

Segment	Station	Work Description:
1A to 1B	9+60	Remove existing culvert and backfill with existing material and blend with new junction.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

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

2. Excavated Materials. 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. Excess excavated material not used for embankment on the following segments shall be end hauled to waste areas as shown on Exhibit A and marked in the field.

3. Bank Slough Removal. Dig out 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.

4. Culvert Replacement, Culvert Installation, Fill Reconstruction, and Fill Removal. Existing culvert geometry shall be modified to provide for optimum drainage and culvert performance. Modifications may include, skewing the culvert and/or installing the culvert at gradients equal to or exceeding the drainage (or ditch) gradient. Where fill reconstruction or culvert replacement is specified, fills shall be excavated to natural stream course levels. All woody debris encountered during fill excavation shall be removed. 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.

5. Drainage Ditches. 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.

6. Sidecast Pullback. Excavate/pullback previously sidecast materials below the road at designated locations. Developed slopes shall be pulled back to a 1½:1 slope or to natural ground contours. The beginning position for sidecast pullback shall be no greater than 20 feet vertical distance from the existing road surface, in accordance with Exhibit K.

7. Settling Ponds and Ditch Armoring. Construct settling ponds as directed by STATE. Excavated material shall be hauled to the designated waste areas as marked in the field and/or designated on Exhibit A. Waste materials shall be sloped and compacted for drainage. Settling pond dimensions shall be a finished top diameter of 8 feet, bottom diameter of 4 feet and 3 feet in depth, to the top of the pond armor rock or as directed by STATE. Backslopes shall be 3/4:1.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

8. Fill Armor and Energy Dissipator Construction. Where rock is specified for fill armor, rock shall be machine placed and tamped at a 1½:1 slope, beginning at the toe of the fill. Where rock is used for an energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, in accordance with Exhibit H.

9. Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic yard, track-mounted excavator.

10. 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, or inslope where specified 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.

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I1 to I2	0+00	Point I1. Fall Creek Road / Sweethome Creek Road Junction. Begin Road improvement and application of 4" lift of 1½"-0" crushed rock. Begin SOD removal. Dispose of removed sod material as directed by STATE.
	1+07	Utilize 33 cubic yards of 1½"-0" crushed rock for the "Y" Junction.
	3+64	Remove sod from turnout left. Utilize 22 cubic yards of 4"-0" crushed rock to improve the turnout prior to application of the 1½"-0" crushed rock.
	6+97	Remove sod from turnout left. Utilize 22 cubic yards of 4"-0" crushed rock to improve the turnout prior to application of the 1½"-0" crushed rock.
	16+87	Utilize 33 cubic yards of 1½"-0" crushed rock to rock the junction right.
	20+39	Install culvert marker.
	20+45	Begin sidecast pullback. Pulled back material shall be hauled to the designated waste area. Cut all trees marked with an orange "C". Deck the non-merchantable trees as directed by STATE, and remove the merchantable trees.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
	21+79	End sidecast pull back.
	24+00	Begin road re-alignment according to the Plans on file at the Astoria District Office.
	24+42	Install 18" x 30' CPP. Utilize 33 cubic yards of 1½"-0" crushed rock as bedding and backfill. Utilize 11 cubic yards of 24"-6" riprap as an energy dissipator. Install culvert marker. Begin in-sloping the road segment.
	26+87	End in-sloping the road segment. Begin typical 16 foot ODF template with a ¾:1 back-slope. Replace existing culvert with 18" x 40' CPP. Utilize 33 cubic yards of 1½"-0" crushed rock as bedding and backfill. Cut and deck tree marked with an orange "C" as directed by STATE. Utilize 11 cubic yards of 24"-6" riprap as an energy dissipator. Install culvert marker.
	28+72	End road re-alignment.
	29+05	Begin bank slough removal and re-sloping cut slope and establishing a ditchline as directed by STATE.
	30+00	End re-sloping cut slope and ditchline re-establishment.
	30+96	Replace existing culvert and fill. Install 18" x 75' ACSP. Utilize 55 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize 285 cubic of suitable excavated material as fill backfill. Utilize 455 cubic yards of suitable excavation from sta. 32+37 to 37+83. Utilize 33 cubic yards of 4"-0" crushed rock for road base rock. Utilize 165 cubic yards of 24"-6" riprap for an energy dissipator. Utilize 100 cubic yards of 24"-6" riprap for fill armor. Utilize 5 cubic yards of 1½"-0" crushed rock and 11 cubic yards of 4"-0" crushed rock in fill widening.
	32+37	Begin re-alignment as shown on the plans on file on file at the Astoria District Office. Back-slope shall be ¾:1. Install 18"x40' CPP. Utilize 33 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize 11 cubic yards of 24"-6" riprap as an energy dissipator. Install culvert marker.
	32+97	Begin five feet of curve widening.
	33+40	End five feet of curve widening.
	33+93	End re-alignment.
	35+14	Begin re-alignment as shown on the plans on file on file at the Astoria District Office.
	36+23	Clean buried culvert inlet. Replace culvert marker. Utilize 11 cubic yards of 24"-6" riprap as an energy dissipator. Begin four feet of curve widening. Taper curve widening to nine feet at station 36+48.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I1 to I2	37+30	Remove sod from turnout left. Utilize 22 cubic yards of 4”-0” crushed rock to improve the turnout prior to application of the 1½”-0” crushed rock.
	37+54	End nine feet of curve widening. Begin tapering to two feet of curve widening ending at station 37+83.
	37+83	End re-alignment.
	44+35	Begin re-sloping cutslope as directed by STATE. Grub overhanging stumps on the top of the cutslope, as directed by STATE. Fall all trees to the right-of-way tags. Trees not removed as designated timber are to be decked as directed by STATE.
	45+75	End re-sloping cutslope.
	50+28	Remove sod from turnout right. Utilize 22 cubic yards of 4”-0” crushed rock to improve the turnout prior to application of the 1½”-0” crushed rock.
	50+87	Install 18” x 40’ CPP. Utilize 33 cubic yards of 1½”-0” crushed rock as bedding and backfill. Utilize 11 cubic yards of 24”-6” riprap as an energy dissipator. Install culvert marker. Block old ditchout as directed by STATE.
	51+00	Begin re-establishing ditchline.
	52+50	End ditchline re-establishment.
	54+62	Begin ditchline re-establishment.
	55+85	Point I2. End improvement segment. End ditchline re-establishment. End sod removal.
I3 to I4	0+00	Point I3. Begin application of 2” lift of 1½”-0” crushed rock. Begin sod removal. Dispose of removed sod material as directed by STATE.
	3+10	Remove sod from turnout left.
	4+36	Clean catch basin. Install culvert marker.
	10+19	Begin ditchline re-establishment directing flow to the culvert at station 10+73.
	10+73	Clean catch basin. Install culvert marker. End ditchline re-establishment.
	14+12	Point I4. End application of crushed rock. End segment improvement. End sod removal.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I5 to I6	0+00	Point I5. Begin application of 4" lift of 1½"-0" crushed rock. Begin sod removal. Dispose of removed sod material as directed by STATE.
	3+27	Utilize 22 cubic yards of 1½"-0" crushed rock to rock the junction left. Dispose of old culvert remnant. Construct turnaround left.
	4+24	Begin re-sloping cutslope to within 5 feet of posted right-of-way and establish ditchline. Deck logs as directed by STATE. Haul clearing debris to designated waste area.
	4+89	Clean culvert inlet. Improve catch basin as directed by STATE. Install culvert marker.
	5+25	Construct turnaround left.
	5+60	End re-sloping cutslope and ditchline work.
	9+79	Construct turnout left. Cut trees marked with an orange "C". Trees not removed as designated timber are to be decked as directed by STATE. Utilize 30 cubic yards of approved fill material in fill construction. Utilize 22 cubic yards of 4"-0" crushed rock for turnout base material.
	13+23	Begin moving road centerline into the hill 15 to 20 feet as directed by STATE. Utilize suitable excavated material for fill replacement material on segments I7 to I14, I12 to I13, and I8 to I9. Utilize 200 cubic yards of 4"-0" crushed rock for base material.
	13+96	Construct three settling ponds and ditchout as directed by STATE.
	17+25	End moving road into the hill.
	20+40	Replace existing culvert with a 18" x 30' CPP. Utilize 33 cubic yards of 1½"-0" crushed rock as bedding and backfill. Install culvert marker. Dispose of old culvert remnant.
	22+20	End segment improvement. Point I6. End sod removal.
I7 to I14	0+00	Point I7. Fall trees, deck logs and remove debris to designated waste area, as directed by STATE. Begin application of 4" lift of 1½"-0" crushed rock. Begin sod removal. Dispose of removed sod material as directed by STATE.
	3+25	End felling and decking of overhanging Alder trees.
	7+68	Improve turnout left as directed by STATE. Utilize 22 cubic yards of 4"-0" crushed rock as base material.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I7 to I14	12+38	Replace existing culvert with a 18" x 30' CPP. Utilize 33 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize 11 cubic yards of 24"-6" riprap as an energy dissipator. Install culvert marker.
	14+94	Begin re-alignment of the road as directed by STATE. Haul excavated material to the designated waste area.
	16+44	Clean out plugged culvert as directed by STATE. Install culvert marker. Remove old culvert remnant. End re-alignment.
	17+85	Begin ditchline re-establishment.
	20+15	End ditchline re-establishment.
	23+87	Utilize 22 cubic yards of 1½"-0" crushed rock for junction/turnout right.
	24+79	Install culvert marker.
	26+84	Junction with road segment I12 to I13.
	28+30	Re-establish ditchline to drain to culvert at sta. 1+26 on road segment I12 to I13.
	31+97	Replace existing culvert with a 36" x 72' ACSP. Utilize 55 cubic yards of 1½"-0" crushed rock for bedding and back. Utilize 100 cubic yards of suitable excavated material as fill backfill. Utilize 240 cubic yards of suitable excavation from sta. 13+23 – 17+25 on segment I5 to I6 as fill backfill. Utilize 66 cubic yards of 24"-6" riprap for fill armor. Utilize 66 cubic yards of 24"-6" riprap for dissipator rock. Utilize 33 cubic yards of 4"-0" crushed rock for base material.
	33+70	Waste area, develop as directed by STATE.
	37+43	Install 18" x 30' CPP culvert. Utilize 33 cubic yards of 1½"-0" crushed rock for bedding and backfill. Install culvert inlet 2 foot deeper than ditchline. Construct ditchout as directed by STATE. Install culvert marker.
	38+00	Replace existing culvert with a 24" x 69' ACSP. Utilize 55 cubic yards of 1½" -0" crushed rock for bedding and backfill. Utilize 180 cubic yards of suitable excavated material as fill backfill. Utilize 892 cubic yards of suitable excavation from sta. 13+23 – 17+25 on segment I5 to I6 as fill backfill. Utilize 77 cubic yards of 24"-6" riprap for fill armor. Utilize 66 cubic yards of 24"-6" riprap for dissipator rock. Utilize 33 cubic yards of 4"-0" crushed rock for base material.
	39+05	Install 18" x 30' CPP. Utilize 33 cubic yards of 1½"-0" crushed rock as bedding and backfill. Utilize 11 cubic yards of 24"-6" riprap as an energy dissipator. Install culvert marker. Construct a ditchout as directed by STATE.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I7 to I14	40+96	Remove sod from turnout left. Utilize 22 cubic yards of 4”-0” crushed rock to improve the turnout prior to application of the 1½”-0” crushed rock.
	42+60	Replace existing culvert with a 18” x 30’ CPP. Utilize 33 cubic yards of 1½”-0” crushed rock for bedding and backfill. Install culvert marker.
	43+73	Begin road re-alignment as directed by STATE. Utilize suitable material for fill reconstruction as needed on other road segments. Haul excess material to designated waste areas.
	45+00	Remove sod from turnout left. Utilize 22 cubic yards of 4”-0” crushed rock to improve the turnout prior to application of the 1½”-0” crushed rock.
	46+07	End road re-alignment.
	47+10	Begin junction re-alignment according to the plans on file at the Astoria District Office. Remove sidecast debris as directed by STATE. Utilize 500 cubic yards of suitable borrow material for road embankment material where necessary as directed by STATE.
	47+50	New road centerline leaving existing road shoulder.
	47+94	Replace existing culvert with a 18” x 55’ CPP. Utilize 44 cubic yards of 1½”-0” crushed rock for bedding and backfill. Install culvert marker.
	48+79	New road centerline on existing road shoulder and preparing to cross the existing road. Blend crossing with road heading down Rector Ridge as directed by STATE. Utilize 100 cubic yards of 4”-0” crushed rock for blending of grades. Utilize 33 cubic yards of 1½”-0” crushed rock as junction rock.
	49+50	New road centerline is on the centerline of the Rector Ridge Road heading up the hill. Blend alignment and grades with the Rector Ridge Road heading down the hill.
	50+22	End junction re-alignment and segment improvement. Point I14. End sod removal.
I8 to I9	0+00	Junction with road segment I7 to I14. Utilize 22 cubic yards of 1½”-0” crushed rock in the “Y” junction. Begin application of a 3” lift of 1½”-0” crushed rock. Begin sod removal.
	0+91	Junction with other segment of the “Y” junction. Utilize 22 cubic yards of 1½”-0” crushed rock to surface this other segment of the junction.
	2+41	Replace existing culvert with a 18” x 40’ CPP. Utilize 33 cubic yards of 1½”-0” crushed rock for bedding and backfill. Utilize 11 cubic yards of 4”-0” crushed rock as base material. Utilize 11 cubic yards of 24”-6” riprap as an energy dissipator. Install culvert marker.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I8 to I9	5+88	Construct ditchout right to drain as directed by STATE.
	14+10	Improve existing turnout right. Utilize 22 cubic yards of 4”-0”.
	20+38	Improve ditchout left.
	23+42	Old spur to right which is road segment V9 to V10. End application of the 3” lift of 1½”-0” crushed rock. Begin application of a 2” lift of 1½”-0” crushed rock. Begin ditchline re-establishment with ditch draining to the vacated culvert on road segment V9 to V10.
	28+71	Improve turnout right. Utilize 11 cubic yards of 4”-0” crushed rock.
	29+20	Begin in-sloping the road segment. End ditchline re-establishment.
	30+53	End in-sloping.
	32+80	Begin ditchline re-establishment.
	34+40	End ditchline re-establishment.
	36+18	Begin in-sloping the road segment.
	39+32	Replace existing culvert with a 18” x 30’ CPP. Utilize 33 cubic yards of 1½”-0” crushed rock for bedding and backfill. Utilize 55 cubic yards of 4”-0” crushed rock as base material. Utilize 11 cubic yards of 24”-6” riprap as an energy dissipator. End ditchline re-establishment. Install culvert marker.
	40+50	Utilize 55 cubic yards of 4”-0” crushed rock to repair road slump.
	42+00	End in-sloping the road segment. Begin ditchline re-establishment.
	44+50	Utilize 22 cubic yards of 4”-0” crushed rock to repair road slump.
	46+28	End ditchline re-establishment.
	47+02	Replace existing culvert with a 18” x 30’ CPP. Utilize 33 cubic yards of 1½”-0” crushed rock for bedding and backfill. Utilize 11 cubic yards of 24”-6” riprap as an energy dissipator. Install culvert marker.
	49+73	Install culvert marker.
	50+88	Use old junction as turnout left. End application of 2” lift of crushed rock. Begin application of 3” lift of 1½”-0” crushed rock.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I8 to I9	55+30	Replace existing culvert with a 18" x 36' CPP. Utilize 33 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize 11 cubic yards of 24"-6" riprap as an energy dissipator. Install culvert marker.
	59+00	Junction with road segment I10 to I11. Utilize 22 cubic yards of 1½"-0" crushed rock for the junction.
	59+50	Install a 18" x 40' CPP. Utilize 33 cubic yards of 1½"-0" crushed rock for bedding and backfill. Install culvert marker.
	60+87	Remove existing culvert. Utilize borrow material to backfill old culvert bed. Utilize 44 cubic yards of 4"-0" crushed rock for base material.
	61+48	Construct turnout left in old road junction as directed by STATE. Utilize 22 cubic yards of 4"-0" crushed rock. Construct borrow site right.
	63+15	Install a 18" x 30' CPP. Utilize 33 cubic yards of 1½"-0" crushed rock for bedding and backfill. Install culvert marker.
	63+94	Improve turnout left. Utilize 11 cubic yards of 4"-0" crushed rock.
	65+64	Replace existing culvert with a 24" x 70' ACSP. Utilize 66 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize 22 cubic yards of 4"-0" crushed rock as base material. Utilize 200 cubic yards of suitable on-site material for backfill. Utilize 532 cubic yards of borrow material as backfill. Utilize 5 cubic yards of 1½"-0" crushed rock for fill widening. Utilize 55 cubic yards of 24"-6" riprap as an energy dissipator. Utilize 110 cubic yards of 24"-6" riprap for fill armor. Salvage and reuse existing fill armor.
	71+32	Construct a truck turnaround. Utilize 22 cubic yards of 4"-0" crushed rock for base material.
	74+09	End segment improvement. Point I9. End sod removal. End application of crushed rock.
I10 to I11	0+00	Begin ditchline re-establishment. Ditchline to drain to station 60+87 on road segment I8 to I9. Begin sod removal.
	3+75	Install a 18" x 30' CPP. Utilize 33 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize 11 cubic yards of 24"-6" riprap for an energy dissipator.
	6+04	Remove existing culvert. Utilize borrow material to backfill old culvert bed. Utilize 44 cubic yards of 4"-0" crushed rock for base material.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I10 to I11	7+00	End ditchline re-establishment.
	8+63	Install a 18" x 40' CPP. Utilize 33 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize 11 cubic yards of 24"-6" riprap for an energy dissipator.
	9+40	Begin ditchline re-establishment.
	15+71	Point I11. End of road segment improvement. End sod removal. End ditchline re-establishment.
I12 to I13	0+00	Begin sod removal. Utilize 30 cubic yards of 1½"-0" crushed rock for junction improvement. Utilize 33 cubic yards of 1½"-0" crushed rock at the junction.
	1+26	Replace existing culvert with a 18" x 32' CPP. Utilize 33 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize 11 cubic yards of 24"-6" riprap as an energy dissipator. Install culvert marker.
	3+81	Replace existing culvert with a 18" x 46' CPP. Utilize 44 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize 22 cubic yards of 24"-6" riprap as an energy dissipator. Install culvert marker.
	7+10	Replace existing culvert with a 42" x 52' ACSP. Utilize 66 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize 153 cubic yards of backfill material imported from segment I5 to I6 station 13+23 to 17+25. Utilize 100 cubic yards of on-site suitable excavated material as directed by STATE for fill backfill. Utilize 88 cubic yards of 24"-6" riprap as fill armor. Utilize 22 cubic yards of 4"-0" crushed rock for road base material. Utilize 11 cubic yards of 24"-6" riprap as an energy dissipator.
	9+00	Install a new 18"x32' CPP. Utilize 33 cubic yards of 1½"-0" crushed rock for bedding and backfill. Culvert inlet shall be 1' deeper than a normal installation. Improve ditchline 25' both sides of culvert for drainage. Utilize 33 cubic yards of 1½"-0" crushed rock to raise grade over culvert.
	12+10	Replace existing culvert with a 18" x 59' ACSP. Utilize 44 cubic yards of 1½"-0" crushed rock for bedding and backfill. Utilize 188 cubic yards of backfill material imported from segment I5 to I6 station 13+23 to 17+25. Utilize 70 cubic yards of on-site suitable excavated material as directed by STATE for fill backfill. Utilize 55 cubic yards of 24"-6" riprap as fill armor. Utilize 22 cubic yards of 4"-0" crushed rock for road base material.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I12 to I13	13+06	Improve turnout with 11 cubic yards of 4”-0” crushed rock.
	15+00	Replace existing culvert with a 24” x 47’ ACSP. Utilize 33 cubic yards of 1½”-0” crushed rock for bedding and backfill. Utilize 57 cubic yards of backfill material imported from segment I5 to I6 station 13+23 to 17+25. Utilize 30 cubic yards of on-site suitable excavated material as directed by STATE for fill backfill. Utilize 44 cubic yards of 24”-6” riprap as fill armor. Utilize 22 cubic yards of 4”-0” crushed rock for road base material.
	20+25	Install a new 18”x30’ CPP. Utilize 33 cubic yards of 1½”-0” crushed rock as bedding and backfill. Utilize 11 cubic yards of 24”-6” riprap as an energy dissipator.
	24+30	Replace existing culvert with a 24” x 96’ ACSP. Utilize 55 cubic yards of 1½”-0” crushed rock for bedding and backfill. Utilize 802 cubic yards of backfill material imported from segment I5 to I6 station 13+23 to 17+25. Utilize 325 cubic yards of on-site suitable excavated material as directed by STATE for fill backfill. Utilize 165 cubic yards of 24”-6” riprap as fill armor. Utilize 44 cubic yards of 4”-0” crushed rock for road base material. Utilize 33 cubic yards of 24”-6” riprap as an energy dissipator.
	25+30	Install a new 18”x30’ CPP. Utilize 33 cubic yards of 1½”-0” crushed rock as bedding and backfill. Utilize 22 cubic yards of 24”-6” riprap as an energy dissipator.
	28+69	Point I13. End of road segment. End sod removal.

EXHIBIT D

FULL BENCH AND END-HAUL REQUIREMENTS

POINT TO POINT	STA. TO STA.	CONTAINMENT - SIDECAST
A to B	6+70 to 8+80	2
A to B	16+00 to 17+80	2
1A to 1B	4+70 to 6+70	2, 3
2A to 2B	5+00 to 7+60	2

Full Bench and End-Haul Areas General Requirements

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. Material shall not be sidecast unless specified above.

Clearing and grubbing debris shall be end-hauled.

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

Containment/Sidecast

(1) Full: No excavated material remains below the road.

(2) Normal/Incidental: The amount of excavated material lost over the outside edge of the road shall not exceed 1 foot in depth.

(3) Sidecast: Material shall be spread evenly below the road so that it does not build up behind trees, snags or other debris, and shall not exceed 3 feet in depth. 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.

Any amount of material exceeding the containment requirements shall be removed by whatever means necessary and end-hauled to a designated waste area.

Waste Area Location

- As shown on Exhibit A and as marked in the field.
- Setback from slope break shall be a minimum of 20 feet horizontal measurement.

Waste Area Treatment

- Deposit at waste area, spread evenly, compact, and provide adequate drainage.
- Pile woody debris separate from other waste material.
- Mulch and seed all waste areas in accordance with Exhibit L.

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT	A to B			POINT TO POINT		Sta. to Sta.		
				A to B		0+00 to 23+60		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	0+00-23+60	8	station	50	stations	23.60	1,180
Junctions	4"-0" Crushed	1+60	8	junction	22	junctions	1	22
Turnouts	4"-0" Crushed	7+80,13+40,19+00	8	TO	33	TO's	3	99
Curve Widening	4"-0" Crushed	3+00-4+65, 6+15-7+10, 19+30-20+45	8	curve	n/a	curves	3	165
Fill Armor	24"-6" Riprap	5+10, 20+30	N/A	fill	n/a	fills	n/a	440
Surface Rock	11/2"-0" Crushed	0+00-23+60	3	station	19	stations	24	448
Junctions	11/2"-0" Crushed	1+60	3	junction	11	junctions	1	11
Turnouts	11/2"-0" Crushed	7+80,13+40,19+00	3	TO	11	TO's	3	33
Curve Widening	11/2"-0" Crushed	3+00-4+65, 6+15-7+10, 19+30-20+45	3	curve	n/a	curves	3	44
Total Rock for Road Segment:			A to B					2,442

ROAD SEGMENT	C to D			POINT TO POINT		Sta. to Sta.		
				C to D		0+00 to 16+60		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	0+00-16+60	10	station	63	stations	16.60	1,046
Turnouts	4"-0" Crushed	8+00	10	TO	22	TO's	1	22
Turnarounds	4"-0" Crushed	15+50	10	TA	22	TA's	1	22
Junctions	4"-0" Crushed	0+00	10	junction	22	junctions	1	22
Landings	6"-0" pit-run	16+60	N/A	Landing	66	Landings	1	66
Total Rock for Road Segment:			C to D					1,178

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT	1A to 1B			POINT TO POINT		Sta. to Sta.		TOTAL
			Depth of	1A to 1B		0+00 to 10+25		
Application	Rock Size and Type	Location	Rock (inches)	Volume (CY) per		Number of		VOLUME (CY)
Base Rock	4"-0" Crushed	0+00 - 10+25	8	station	50	stations	10.25	513
Junctions	4"-0" Crushed	10+25	8	junction	55	junctions	1	55
Turnouts	4"-0" Crushed	8+40	8	TO	33	TO's	1	33
Curve Widening	4"-0" Crushed	4+70-6+15, 7+35-8+20, 8+65-9+25	8	curve	n/a	curves	3	77
Fill Armor	24"-6" Riprap	0+10-1+40	N/A	fill	n/a	fills	1	330
Surface Rock	11/2"-0" Crushed	0+00 - 10+25	3	station	19	stations	10	195
Junctions	11/2"-0" Crushed	10+25	3	junction	11	junctions	1	11
Turnouts	11/2"-0" Crushed	8+40	3	TO	11	TO's	1	11
Curve Widening	11/2"-0" Crushed		3	curve	n/a	curves	3	33
Total Rock for Road Segment:		1A to1B						1,258

ROAD SEGMENT	1C to 1D			POINT TO POINT		Sta. to Sta.		TOTAL
			Depth of	1C to 1D		0+00 to 2+20		
Application	Rock Size and Type	Location	Rock (inches)	Volume (CY) per		Number of		VOLUME (CY)
Base Rock	4"-0" Crushed	0+00 to 2+00	10	station	63	stations	2.20	139
Junctions	4"-0" Crushed	0+00	10	junction	22	junctions	1	22
Landings	6"-0" pit-run	2+20	N/A	Landing	66	Landings	1	66
Total Rock for Road Segment:		1C to 1D						227

ROAD SEGMENT	1E to 1F			POINT TO POINT		Sta. to Sta.		TOTAL
			Depth of	1E to 1F		0+00 to 7+50		
Application	Rock Size and Type	Location	Rock (inches)	Volume (CY) per		Number of		VOLUME (CY)
Base Rock	4"-0" Crushed	0+00 to 7+50	10	station	63	stations	7.50	473
Junctions	4"-0" Crushed	0+00	10	junction	22	junctions	1	22
Turnouts	4"-0" Crushed	5+40	10	TO	22	TO's	1	22
Turnarounds	4"-0" Crushed	6+45	10	TA	22	TA's	1	22
Landings	6"-0" pit-run	7+50	N/A	Landing	66	Landings	1	66
Total Rock for Road Segment:		1E to 1F						605

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT	2A to 2B			POINT TO POINT		Sta. to Sta.		TOTAL
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A to 2B Volume (CY) per		0+00 to 14+90 Number of		VOLUME (CY)
Base Rock	4"-0" Crushed	0+00-14+90	8	station	50	stations	14.90	745
Junctions	4"-0" Crushed	0+80, 14+90	8	junction	22	junctions	2	44
Turnouts	4"-0" Crushed	8+50, 12+00	8	TO	33	TO's	2	66
Curve Widening	4"-0" Crushed	7+90-9+65, 11+35-12+50	8	curve	n/a	curves	2	88
Surface Rock	1 1/2"-0" Crushed	0+00-14+90	3	station	19	stations	15	283
Junctions	1 1/2"-0" Crushed	0+80, 14+90	3	junction	11	junctions	2	22
Turnouts	1 1/2"-0" Crushed	8+50, 12+00	3	TO	11	TO's	2	22
Curve Widening	1 1/2"-0" Crushed	7+90-9+65, 11+35-12+50	3	curve	n/a	curves	2	22
Total Rock for Road Segment:			2A to 2B					1,292

ROAD SEGMENT	2C to 2D			POINT TO POINT		Sta. to Sta.		TOTAL
Application	Rock Size and Type	Location	Depth of Rock (inches)	2C to 2D Volume (CY) per		0+00 to 4+55 Number of		VOLUME (CY)
Base Rock	4"-0" Crushed	0+00-4+55	10	station	63	stations	4.55	287
Turnarounds	4"-0" Crushed	2+90	10	TA	22	TA's	1	22
Junctions	4"-0" Crushed	0+00	10	junction	22	junctions	1	22
Traction Rock	11/2"-0" Crushed	1+40-4+00	2	station	13	stations	3	39
Landings	6"-0" Pitrun	4+55	N/A	Landing	66	Landings	1	66
Total Rock for Road Segment:			2C to 2D					436

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT	3A to 3B			POINT TO POINT		Sta. to Sta.		
			Depth of	3A to 3B		0+00 to 38+90		TOTAL
Application	Rock Size and Type	Location	Rock (inches)	Volume (CY) per		Number of		VOLUME (CY)
Base Rock	4"-0" Crushed	0+00-14+90	8	station	50	stations	38.90	1,945
Junctions	4"-0" Crushed	0+00	8	junction	22	junctions	1	22
Turnouts	4"-0" Crushed	4+60,8+75,12+75 21+45,26+45,28+45	8	TO	33	TO's	6	198
Curve Widening	4"-0" Crushed	3+85-4+60, 8+20-8+75, 12+45-12+95, 25+65-26+55, 35+90-36+25	8	curve	n/a	curves	5	143
Turnarounds	4"-0" Crushed	34+35	8	TA	22	TA's	1	22
Fill Armor	24"-6" Riprap	35+00-36+30	N/A	fill	n/a	fills	1	495
Traction Rock	11/2"-0" Crushed	5+20-9+25, 25+10-38+05	2	station	19	stations	17	323
Turnouts	11/2"-0" Crushed	8+75, 26+45	2	TO	11	TO's	2	22
Curve Widening	11/2"-0" Crushed	8+20-8+75, 25+65-26+55, 35+90-36+25	2	curve	n/a	curves	3	33
Landings	6"-0" pit-run	38+90	N/A	Landing	88	Landings	1	88
Total Rock for Road Segment:		3A to 3B						3,291

ROAD SEGMENT	3C to 3D			POINT TO POINT		Sta. to Sta.		
			Depth of	3C to 3D		0+00 to 12+45		TOTAL
Application	Rock Size and Type	Location	Rock (inches)	Volume (CY) per		Number of		VOLUME (CY)
Base Rock	4"-0" Crushed	0+00-12+45	10	station	63	stations	12.45	784
Turnouts	4"-0" Crushed	2+25, 6+25	10	TO	33	TO's	2	66
Turnarounds	4"-0" Crushed	9+60	10	TA	22	TA's	1	22
Junctions	4"-0" Crushed	0+00	10	junction	22	junctions	1	22
Curve Widening	4"-0" Crushed	2+40-3+05, 3+10-3+55, 7+75-8+30	10	curve	n/a	curves	3	88
Traction Rock	11/2"-0" Crushed	0+00-8+00	2	station	13	stations	8	104
Landings	6"-0" pit-run	12+45	N/A	Landing	66	Landings	1	66
Total Rock for Road Segment:			3C to 3D					1,152

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT Application	3E to 3F Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT 3E to 3F Volume (CY) per		Sta. to Sta. 0+00 to 7+20 Number of		TOTAL VOLUME (CY)
Base Rock	4"-0" Crushed	0+00-7+20	10	station	63	stations	7.20	454
Junctions	4"-0" Crushed	0+00	10	junction	22	junctions	1	22
Traction Rock	11/2"-0" Crushed	1+00-6+25	2	station	13	stations	5	68
Landings	6"-0" pit-run		N/A	Landing	66	Landings	1	66
Total Rock for Road Segment:			3E to 3F					610

ROAD SEGMENT Application	3G to 3H Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT 3G to 3H Volume (CY) per		Sta. to Sta. 0+00 to 1+55 Number of		TOTAL VOLUME (CY)
Base Rock	4"-0" Crushed	0+00 to 1+55	10	station	63	stations	1.55	98
Junctions	4"-0" Crushed	0+00	10	junction	22	junctions	1	22
Landings	6"-0" Pit-run	2+00	N/A	Landing	66	Landings	1	66
Total Rock for Road Segment:			3G to 3H					186

ROAD SEGMENT Application	4A to 4B Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT 4A to 4B Volume (CY) per		Sta. to Sta. 0+00 to 19+60 Number of		TOTAL VOLUME (CY)
Base Rock	4"-0" Crushed	0+00 to 5+75	10	station	63	stations	5.75	362
Junctions	4"-0" Crushed	0+00	10	junction	22	junctions	1	22
Turnouts	4"-0" Crushed	1+00, 4+80	10	TO	33	TO's	2	66
Subgrade Reinforcement	6"-0" pit-run	16+10	N/A					22
Total Rock for Road Segment:			4A to 4B					472

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I1 to I2				POINT TO POINT		Sta. to Sta.		
				I1 to I2		0+00 to 55+85		
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	**Volume (CY) Per**		**Number of**		**TOTAL VOLUME (CY)**
Surfacing Rock	11/2”-0” Crushed		4	Station	25	Stations	55.85	1,396
Junctions	11/2”-0” Crushed	1+07, 16+87	4	Junction	33	Junctions	2	66
Turnouts	11/2”-0” Crushed	3+64,6+97,29+75,37+30	4	Turnout	11	Turnouts	7	77
		40+33, 44+60, 50+28						
Culvert Bedding	11/2”-0” Crushed	24+42, 26+87, 30+96	n/a	Culvert	n/a	Culverts	5	187
and Backfill		32+37, 50+87						
Fill Widening	11/2”-0” Crushed	30+96	4	Fill	5	Fills	1	5
Curve Widening	11/2”-0” Crushed		4	Curve	n/a	Curves	17	111
Turnouts	4”-0” Crushed	3+64,6+97,37+30,50+28	8	Turnout	22	Turnouts	4	88
Leveling Rock	4”-0” Crushed		n/a	Load	11	Loads	15	165
Fill Widening	4”-0” Crushed	30+96	8	Fill	11	Fills	1	11
Base Rock	4”-0” Crushed	30+96	8	Fill	33	Fills	1	33
Dissipator Rock	24”-6” Riprap	24+42, 26+87, 30+96	n/a	Culvert	n/a	Culverts	6	220
		32+37, 36+23, 50+87						
Fill Armor	24”-6” Riprap	30+96	n/a	Fill	100	Fills	1	100
Total Rock for Road Segment:			I1 to I2					2,459

ROAD SEGMENT: I3 to I4				POINT TO POINT		Sta. to Sta.		
				I3 to I4		0+00 to 14+12		
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	**Volume (CY) Per**		**Number Of**		**TOTAL VOLUME (CY)**
Leveling Rock	11/2”-0” Crushed		n/a	Load	11	Loads	5	55
Surface Rock	11/2”-0” Crushed		2	Station	13	Stations	14.12	184
Turnouts	11/2”-0” Crushed	3+10	2	Turnout	6	Turnouts	1	6
Curve Widening	11/2”-0” Crushed		2	Curve	n/a	Curves	4	11
Total Rock for Road Segment:			I3 to I4					256

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I5 to I6				POINT TO POINT		Sta. to Sta.		
			Depth of Rock (inches)	I5 to I6		0+00 to 22+20		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location		Volume (CY) Per		Number of		
Surface Rock	11/2"-0" Crushed		4	Station	25	Stations	22.20	555
Turnouts	11/2"-0" Crushed	4+86, 9+79, 15+29	4	Turnout	11	Turnouts	3	33
Curve Widening	11/2"-0" Crushed		4	Curve	n/a	Curves	3	11
Junction Rock	11/2"-0" Crushed	3+27	4	Junction	22	Junctions	1	22
Bedding/Backfill	11/2"-0" Crushed	20+40	n/a	Culvert	33	Culverts	1	33
Base Rock	4"-0" Crushed	13+23 – 17+25	8	Station	50	Stations	4	200
Turnouts	4"-0" Crushed	9+79	8	Turnout	22	Turnouts	1	22
Leveling Rock	4"-0" Crushed		n/a	Load	11	Loads	8	88
Total Rock for Road Segment:			I5 to I6					964

ROAD SEGMENT: I7 to I14				POINT TO POINT		Sta. to Sta.		
			Depth of Rock (inches)	I7 to I14		0+00 to 50+22		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location		Volume (CY) Per		Number of		
Base Rock	4"-0" Crushed	14+94-16+44,47+50-49+50	8	Station	50	Stations	4.5	225
Base Rock	4"-0" Crushed	31+97, 38+00	8	Station	n/a	Stations	n/a	66
Base Rock	4"-0" Crushed	43+73 – 46+07	8	Station	50	Stations	2.34	117
Turnouts	4"-0" Crushed	7+68, 40+96, 45+00	8	Turnout	22	Turnouts	3	66
Fill Widening	4"-0" Crushed	31+97, 38+00	8	Fill	11	Fills	2	22
Curve Widening	4"-0" Crushed	48+22 – 49+50	8	Curve	22	Curves	1	22
Blending Grades	4"-0" Crushed	48+79	n/a	Site	100	Sites	1	100
Leveling Rock	4"-0" Crushed		n/a	Load	11	Loads	13	143
Surface Rock	11/2"-0" Crushed		4	Station	25	Stations	50.22	1,256
Turnouts	11/2"-0" Crushed		4	Turnout	11	Turnouts	7	77
Fill Widening	11/2"-0" Crushed	31+97, 38+00	4	Fill	5	Fills	2	10
Junction Rock	11/2"-0" Crushed	23+87, 48+79	4	Junction	n/a	Junctions	2	55
Bedding/Backfill	11/2"-0" Crushed		n/a	Culvert	n/a	Culverts	7	286
Curve Widening	11/2"-0" Crushed		4	Curve	n/a	Curves	7	75
Dissipator Rock	24"-6" Riprap		n/a	Dissipator	n/a	Dissipators	4	154
Fill Armor	24"-6" Riprap	31+97, 38+00	n/a	Fill	n/a	Fills	2	143
Total Rock for Road Segment			I7 to I14					2,817

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I8 to I9				POINT TO POINT		Sta. to Sta.		
				I8 to I9		0+00 to 74+09		
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) Per		Number of		TOTAL VOLUME (CY)
Surface Rock	11/2"-0" Crushed	0+00–23+42, 50+88-74+09	3	Station	19	Stations	46.63	886
Surface Rock	11/2"-0" Crushed	23+42 – 50+88	2	Station	13	Stations	27.46	357
Junctions	11/2"-0" Crushed	0+91, 59+00	3	Junction	22	Junctions	2	44
Turnouts	11/2"-0" Crushed		3	Turnout	22	Turnouts	10	220
Turnouts	11/2"-0" Crushed	28+71, 34+49, 42+86	2	Turnout	13	Turnouts	3	39
Turnarounds	11/2"-0" Crushed	71+32	3	Turnaround	11	Turnarounds	1	11
Curve Widening	11/2"-0" Crushed		n/a	Curve	n/a	Curves	27	143
Bedding/Backfill	11/2"-0" Crushed		n/a	Culvert	n/a	Culverts	7	264
Leveling Rock	11/2"-0" Crushed		n/a	Load	11	Loads	21	231
Fill Widening	11/2"-0" Crushed	65+65	3	Fill	5	Fills	1	5
Base Rock	4"-0" Crushed	60+87, 65+64	8	Site	n/a	Sites	2	66
Turnouts	4"-0" Crushed	14+10,28+71,61+48 ,63+94	8	Turnout	22	Turnouts	4	88
Slump Repair	4"-0" Crushed	40+55, 44+50	n/a	Slump	n/a	Slumps	2	77
Turnarounds	4"-0" Crushed	71+32	8	Turnaround	22	Turnarounds	1	22
Dissipators	24"-6" Riprap	2+41, 39+32, 47+02	n/a	Dissipator	11	Dissipators	3	33
Dissipators	24"-6" Riprap	55+30, 65+64	n/a	Dissipator	n/a	Dissipators	2	66
Fill Armor	24"-6" Riprap	65+64	n/a	Fill	110	Fills	1	110
Total Rock for Road Segment			I8 to I9					2,662

ROAD SEGMENT: I10 to I11				POINT TO POINT		Sta. to Sta.		
				I10 to I11		0+00 to 15+71		
Application	Rock Size And Type	Location	Depth of Rock (inches)	Volume (CY) Per		Number of		TOTAL VOLUME (CY)
Leveling Rock	4"-0" Crushed		n/a	Load	11	Loads	9	99
Base Rock	4"-0" Crushed	6+04	8	Station	n/a	Stations	n/a	44
Bedding/Backfill	11/2"-0" Crushed	3+75, 8+63	n/a	Culvert	33	Culverts	2	66
Dissipators	24"-6" Riprap	3+75, 8+63	11	Dissipator	11	Dissipator	2	22
Total Rock for Road Segment			I10 to I11					231

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I12 to I13				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
				I12 to I13		0+00 to 28+69		
Application	Rock Size And Type	Location	Depth of Rock (inches)	Volume (CY) Per		Number of		
Leveling Rock	4”-0” Crushed		n/a	Load	11	Loads	10	110
Base Rock	4”-0” Crushed	7+10,12+10,15+00,24+30	8	Fill	n/a	Fills	4	110
Turnouts	4”-0” Crushed	13+06	8	Turnout	11	Turnouts	1	11
Bedding/Backfill	11/2”-0” Crushed		n/a	Culvert	n/a	Culverts	9	374
Grade Raising	11/2”-0” Crushed	9+00	n/a	Site	33	Sites	1	33
Junctions	11/2”-0” Crushed	0+00	4	Junction	44	Junctions	1	44
Dissipators	24”-6” Riprap		n/a	Dissipator	n/a	Dissipators	6	110
Fill Armor	24”-6” Riprap	7+10,12+10,15+00,24+30	n/a	Fill	n/a	Fills	4	352
Total Rock for Road Segment			I12 to I13					1,144
ROAD SEGMENT: V5				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
				V5		0+00		
Application	Rock Size And Type	Location	Depth of Rock (inches)	Volume (CY) Per		Number of		
Slope Armor	24”-6” Riprap	V5	n/a	n/a		n/a		30
Access Road	6”-0” Pit-run	V5	n/a	n/a		n/a		30
Access Road	11/2”-0” Crushed	V5	3	n/a		n/a		30
Total Rock for Road Segment			V5					90

Rock Totals all Sources

Rock Source	24"-6"	6"-0”	4"-0”	1½"-0”	Total (CY)
Fall Creek Stockpile and Quarry	2,605	602	6,166		9,373
Sweethome Stockpile				8,982	8,982
Cougar Mountain Stockpile			5,417		5,417
Total by Gradation	2,605	602	11,583	8,982	23,772

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

EXHIBIT D

ROCK ACCOUNTABILITY

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

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

Rock Checking. All rock spreading shall be done only when a STATE representative is present. STATE shall issue a receipt for each load delivered, and rock shall be measured without allowance for shrinkage or shakedown during hauling. Total truck measure volume for each road segment shall be as shown on Exhibit D. Deliver at least 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.

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

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

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

EXHIBIT D

COMPACTION AND PROCESSING REQUIREMENTS

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

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

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

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

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments that require rock surfacing	1

Fills. Embankments and fills shall be placed in (approximately) horizontal layers not more than 8 inches in depth. Each layer shall be separately, and thoroughly, compacted. Compaction equipment shall be operated over the entire width of each layer until visible deformation of the layers ceases. 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, 2, 3, and 4

EXHIBIT D

COMPACTION AND PROCESSING REQUIREMENTS

Crushed Rock. The rock shall be uniformly mixed and spread in layers on the approved roadbed. Each layer of crushed rock shall be moistened or dried to uniform moisture content suitable for maximum compaction and compacted in layers not to exceed 6 inches in depth. When more than 1 layer is required, each shall be shaped 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 Exhibit D.

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

EXHIBIT D

COMPACTION EQUIPMENT OPTIONS

(1) Vibratory Rollers. The drum shall have a smooth surface, a diameter not less than 48 inches, a width not less than 58 inches, and a turning radius of 15 feet or less. Vibration frequency shall be regulated in steps to 1400, 1500, and 1600 VPM, corresponding to engine speeds of 1575, 1690, and 1800 RPM. The centrifugal force developed shall be 7 tons at 1600 VPM. It shall be activated by a power unit of not less than 25 horsepower. The vibratory roller shall be self-propelled and operated at speeds ranging from 0.9 miles to 1.8 miles per hour, as directed by STATE.

(2) Rubber-Tired Skidders. A rubber-tired skidder weighing a minimum of 20,000 pounds shall be operated over the fill layers so that the entire layered surface comes in contact with the tires. Skidders with oversized tires high flotation are not acceptable for compaction.

(3) Tampingfoot Compactors. Tampingfoot compactors shall exert a minimum pressure of 250 pounds per square inch on the ground area in contact with the tamping feet. The compactor shall cover a minimum width of 60 inches per pass and weigh a minimum of 16,000 pounds.

(4) Vibratory Hand-Operated or Backhoe-Mounted Tamper. Vibratory hand-held or hydraulic tampers shall be used for compaction of backfill materials around culverts. The tamper shoe dimensions shall be a minimum of 10" X 13" and capable of a centrifugal force of 2,250 pounds.

EXHIBIT E

CULVERT SPECIFICATIONS

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

Culverts shall be constructed of corrugated double-walled polyethylene, and corrugated aluminized (Type 2) steel.

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

Aluminized (Type 2) steel culverts shall meet the requirements of AASHTO M-36-03[1].

Polyethylene culverts shall not be used where required culvert diameter is over 24 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.

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 all culverts on road improvement segments.

Backfill shall consist of, crushed rock, or 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.

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 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.

EXHIBIT E

CULVERT SPECIFICATIONS

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.

Culverts 30 inches in diameter or larger shall have 1:1 beveled inlets.

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.

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

	Steel Culvert	Thickness			Band Widths (")	
Dia.	Gauge	Uncoated	Coated	Band Gauges	Annular	Helical
12-15	16	(0.0598")	(0.064”)	16	7	12
18-24	16	(0.0598")	(0.064”)	16	12	12
30-36	16	(0.0598")	(0.064”)	16	12	12
42	12	(0.1046")	(0.109”)	16	12	12
48	12	(0.1046")	(0.109”)	16	24	24
54	12	(0.1046")	(0.109”)	16	24	24

Culverts larger than 60” in diameter shall have (*3” x 1”) corrugations.

EXHIBIT E

CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	MATERIAL TYPE	GAUGE	ROAD SEGMENT POINT TO POINT	STATION
1	18	30	CPP	N/A	A to B	4+50
2	30	50	CPP	N/A	A to B	5+10
3	18	30	CPP	N/A	A to B	5+70
4	18	30	CPP	N/A	A to B	8+30
5	18	30	CPP	N/A	A to B	12+90
6	18	30	CPP	N/A	A to B	19+65
7	54	45	ACSP	12	A to B	20+30
8	18	30	CPP	N/A	A to B	20+85
9	18	30	CPP	N/A	C to D	8+00
10	18	30	CPP	N/A	1A to 1B	5+80
11	18	30	CPP	N/A	1E to 1F	2+00
12	18	40	CPP	N/A	2A to 2B	2+05
13	18	30	CPP	N/A	2A to 2B	5+95
14	18	40	CPP	N/A	2A to 2B	12+40
15	18	30	CPP	N/A	3A to 3B	5+20
16	18	30	CPP	N/A	3A to 3B	14+15
17	18	35	CPP	N/A	3A to 3B	30+00
18	18	30	CPP	N/A	I1 to I2	24+42
19	18	40	CPP	N/A	I1 to I2	26+87
20	18	75	ACSP	12	I1 to I2	30+96
21	18	40	CPP	N/A	I1 to I2	32+37
22	18	40	CPP	N/A	I1 to I2	50+87
23	18	30	CPP	N/A	I5 to I6	20+40
24	18	30	CPP	N/A	I7 to I14	12+38
25	36	72	ACSP	12	I7 to I14	31+97

ACSP = Aluminized, CPP = Polyethylene

EXHIBIT E

CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	MATERIAL TYPE	GAUGE	ROAD SEGMENT POINT TO POINT	STATION
26	18	30	CPP	N/A	I7 to I14	37+43 *
27	24	69	ACSP	12	I7 to I14	38+00
28	18	30	CPP	N/A	I7 to I14	39+05 *
29	18	30	CPP	N/A	I7 to I14	42+60
30	18	55	CPP	N/A	I7 to I14	47+94
31	18	40	CPP	N/A	I8 to I9	2+41
32	18	30	CPP	N/A	I8 to I9	39+32
33	18	30	CPP	N/A	I8 to I9	47+02
34	18	36	CPP	N/A	I8 to I9	55+30
35	18	40	CPP	N/A	I8 to I9	59+50
36	24	70	ACSP	12	I8 to I9	65+64
37	18	30	CPP	N/A	I10 to I11	3+75
38	18	40	CPP	N/A	I10 to I11	8+63
39	18	32	CPP	N/A	I12 to I13	1+26
40	18	46	CPP	N/A	I12 to I13	3+81
41	42	46	ACSP	12	I12 to I13	7+10
42	18	32	CPP	N/A	I12 to I13	9+00
43	18	59	ACSP	12	I12 to I13	12+10
44	24	47	ACSP	12	I12 to I13	15+00
45	18	30	CPP	N/A	I12 to I13	20+25
46	24	96	ACSP	12	I12 to I13	24+30
47	18	30	CPP	N/A	I12 to I13	25+30 *

ACSP = Aluminized, CPP = Polyethylene

*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. At the Fall Creek Quarry, all woody debris, including stumps and Slash shall be hauled to the designated disposal areas, piled and disposed of by burning as directed by STATE. No trees shall be felled.

7. 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.

8. 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.

9. Quarry face shall be developed in a uniform manner. All quarry backslopes shall be left in a stable condition.

10. Oversized material that is produced or encountered during development shall be broken down and utilized for pit-run, not broken down and utilized as riprap, or piled where directed by STATE.

11. 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.

EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

12. 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.

13. Apply seed and mulch to the waste area, as specified in Exhibit L.

SWEETHOME STOCKPILE SITE

1. Develop Waste Area as directed by STATE.

EXHIBIT G

PIT-RUN and RIPRAP ROCK SPECIFICATIONS

For 6"-0" Pit-Run	Passing	10" sieve	100%
	Passing	6" sieve	60-85%
	Passing	3" sieve	30-50%
	Passing	1/4" sieve	0-20%

For 24"-6" Riprap A minimum of 50 percent of the material shall measure a minimum of 24 inches, measured in one dimension. Material shall be clean, well graded, and free of 2"-0" fines.

Control of gradation shall be by visual inspection by STATE.

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EXHIBIT H

TYPICAL EMBEDDED ENERGY DISSIPATOR

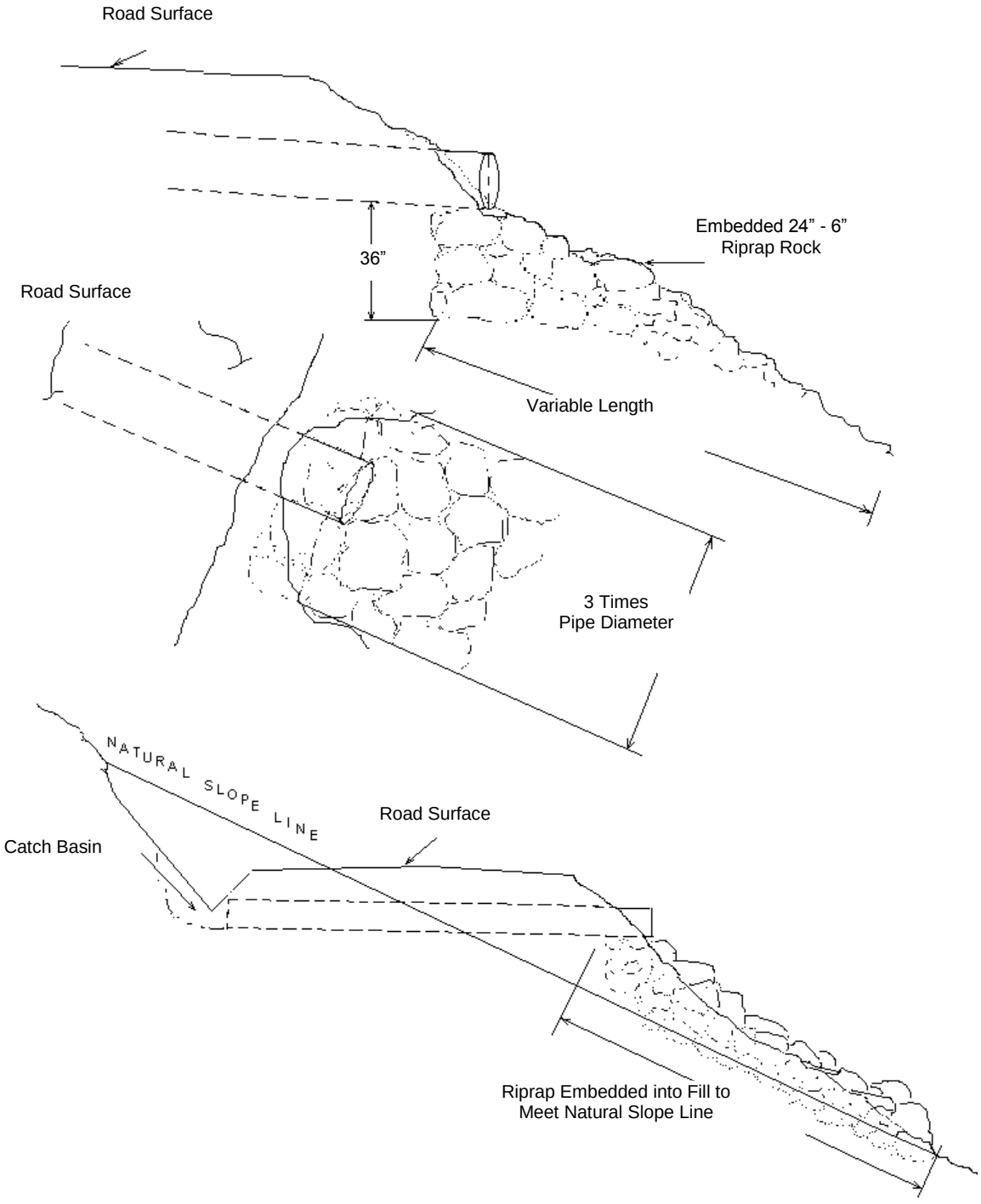

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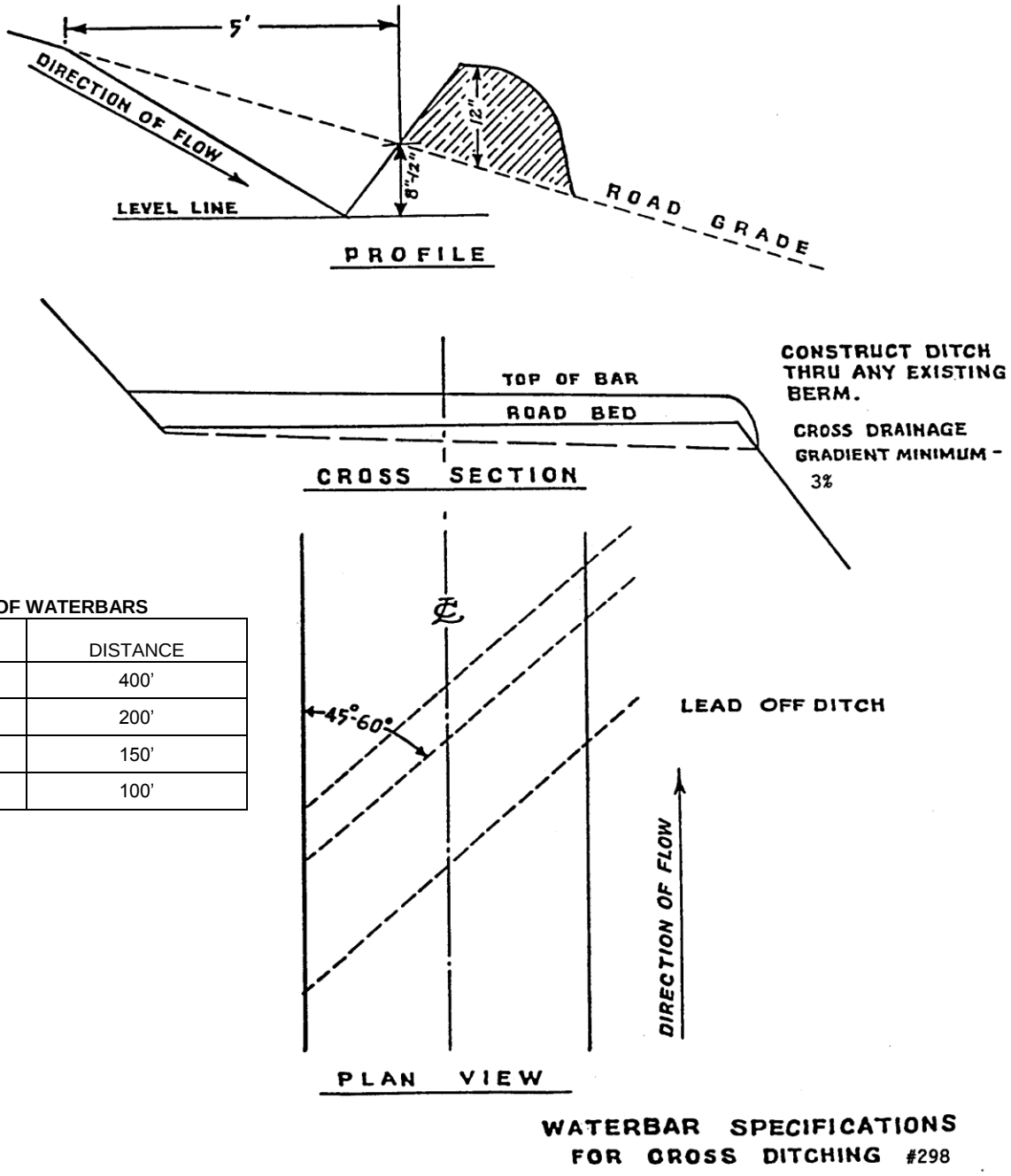
EXHIBIT I

WATERBAR SPECIFICATIONS



SPACING OF WATERBARS

ROAD GRADE	DISTANCE
≤ 5%	400'
6-10%	200'
11-15%	150'
16-20% or greater	100'

EXHIBIT J

ROAD VACATING SPECIFICATIONS

PURCHASER shall vacate at the following points: V1 to V2, V3 to V4, V5 to V6, V7 to V8 and V9 to V10. 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) Tree Removal. Cut or remove all trees necessary to access the project area and to facilitate vacating operations, as directed by STATE. All merchantable timber shall be removed as designated timber, unless located within posted timber sale boundaries or right-of-way boundaries.

(2) Fill Removal and Stream Channel Development. Remove fills to the natural stream course 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) Culvert Removal. Remove drainage structures and culverts. Removed culverts shall be hauled to an approved refuse site off of STATE land.

(4) Outslope Road. Outslope road to restore natural contours or establish a minimum of 10 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) Sidecast Pullback. Excavate/pullback previously sidecast materials below the road at designated locations. Developed slopes shall be pulled back to a 1½:1 slope or to natural ground contours. The beginning position for sidecast pullback shall be no greater than 20 feet vertical distance from the existing road surface, in accordance with Exhibit K. Sidecast material remaining greater than 20 feet below the road shall be tapered and sloped for drainage.

(6) Use of Excavated Materials.

(A) Fill Excavation and Sidecast Pullback. Excavated materials shall be placed on the interior (cut) side of the road, and utilized to restore the cutslope to natural contours, or to a minimum 10 percent outsloped surface for drainage. Any excess material will be hauled to a designated waste area, as directed by STATE.

(B) Woody Debris Shall be placed on the surface of pullback/fill material.

(C) Block Roads. Use excavated material from fill removals to block roads from vehicle access, as directed by STATE.

(7) Erosion Control. Erosion control shall be completed in a progressive manner. Grass seed and straw mulch shall be applied for every 500 feet of road vacated, prior to continuing work.

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

EXHIBIT J

ROAD VACATING SPECIFICATIONS

(8) Construct Waterbars as directed by STATE. Construct waterbars according to the Specifications in Exhibit I.

(9) Equipment. A minimum 1½ cubic-yard, track mounted excavator shall be used for all excavation, culvert removal, streambed preparation, road blocking, and waterbarring, unless otherwise approved in writing by STATE.

(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.

(12) Fry Creek Waterhole Construction. Waterhole construction and fill vacating shall be completed together. Clear woody debris, vegetation, and stumps from the posted right of way area. Utilize this area to construct a waterhole, water truck drafting area, and waste area. Approximate waterhole dimensions are Top: Length = 45 feet x Width = 40 feet, Bottom: Length = 25 feet x Width = 20 feet. Approximate depth is 7 feet. Any depth below 7 feet shall have an excavated step at least 3 feet wide at the 7 foot level.

SPECIFIC INSTRUCTIONS/SPECIFICATIONS:

Segment	Station	Work Description
V1 to V2	0+00	Begin sidecast pullback.
	4+85	Remove culvert continue sidecast pullback.
	7+40	Point V2. End sidecast pullback.
V3 to V4	0+00	Begin vacating, block road.
	0+40	Remove culvert and begin waterbars.
	1+50	End waterbars and begin sidecast pullback.
	4+00	End sidecast pullback and begin waterbars.
	5+00	End waterbars and begin sidecast pullback.
	6+50	End sidecast pullback and begin waterbars.
	9+45	Point V4. End waterbars and vacating.

EXHIBIT J

ROAD VACATING SPECIFICATIONS

SPECIFIC INSTRUCTIONS/SPECIFICATIONS:

Segment	Station	Work Description
V5 to V6	0+00	Begin fill removal. Construct a waterhole to the specifications in item (12) above. A ramp shall be excavated if necessary to properly access the waterhole. Utilize 30 cubic yards of 24”-6” riprap to armor slopes of the waterhole along the drafting edge and to place a row of rocks near the edge of the waterhole to prevent vehicles from backing into the water source. Utilize 30 cubic yards of 6”-0” pit-run and 30 cubic yards of 1½”-0” crushed rock to surface the water truck access road and drafting area. All disturbed soils shall be seeded and mulched.
	0+25	Remove culvert. Establish 6 foot stream channel.
	0+60	End fill removal. Begin waterbars.
	2+75	Remove culvert, establish 2 foot stream channel and continue waterbars.
	7+30	Remove culvert, establish 3 foot stream channel and continue waterbars.
	12+60	Remove culvert, establish 2 foot stream channel and continue waterbars.
	16+35	Remove culvert and continue waterbars.
	17+85	Point V6. End waterbars and vacating.
V7 to V8	0+00	Begin vacating, block road and begin waterbars.
	0+50	Remove culvert, continue waterbars.
	2+00	Begin fill removal and end waterbars.
	2+25	Remove culvert and establish 6 foot stream channel.
	2+50	Point V8. End fill removal and vacating.
V9 to V10	0+00	Begin vacating. Keep ditchline open to removed culvert. Point V9.
	0+30	Remove culvert, establish 4 foot trench. Block road at removed culvert site with excavated material and old woody material. Waterbar remaining road as directed by STATE.
	7+35	Point V10.

EXHIBIT J

TYPICAL CROSS SECTION VIEW OF ROAD VACATING SIDECAST PULLBACK

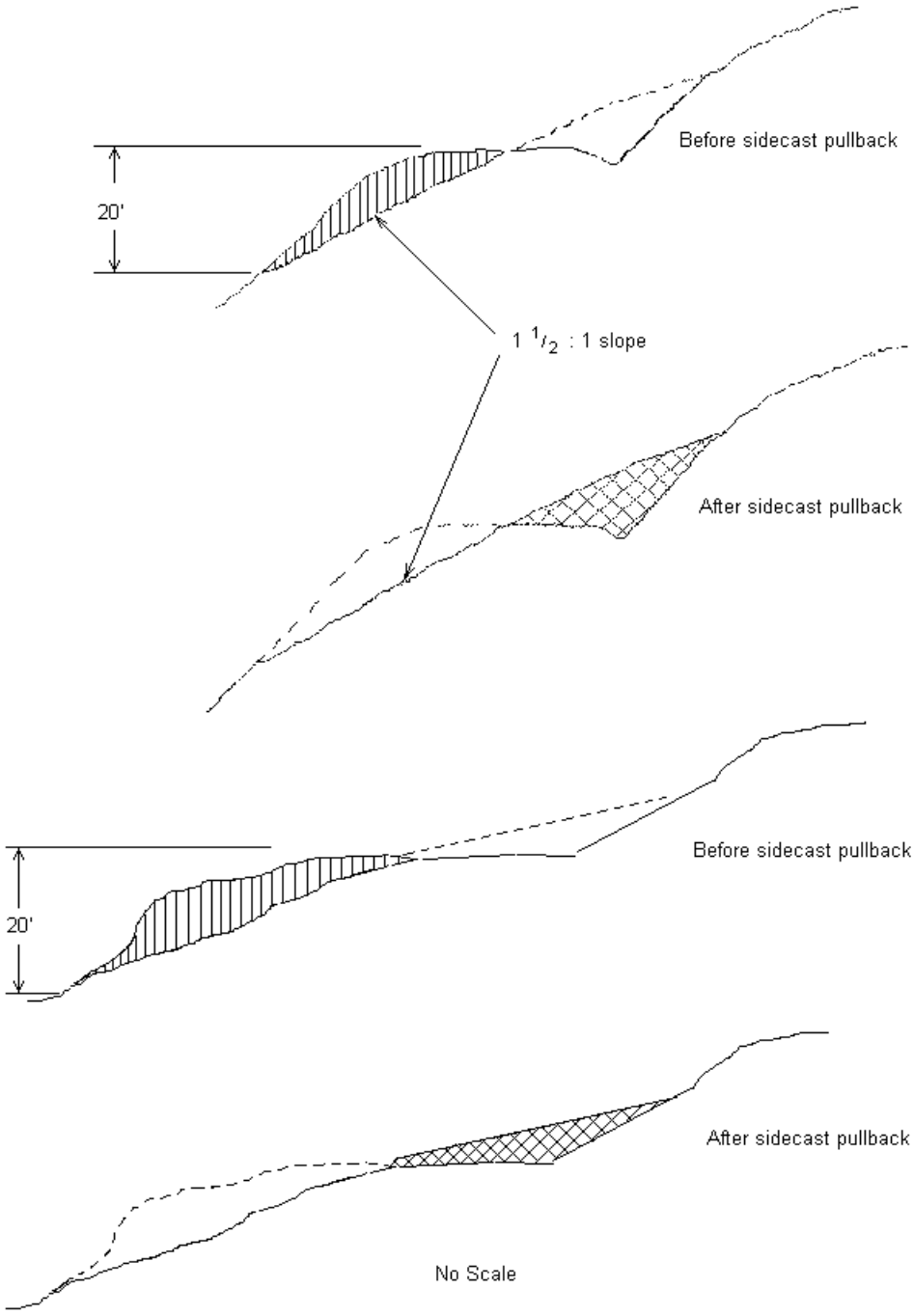


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EXHIBIT K

TYPICAL CROSS SECTION VIEW OF SIDECAST PULLBACK AND ROAD REALIGNMENT

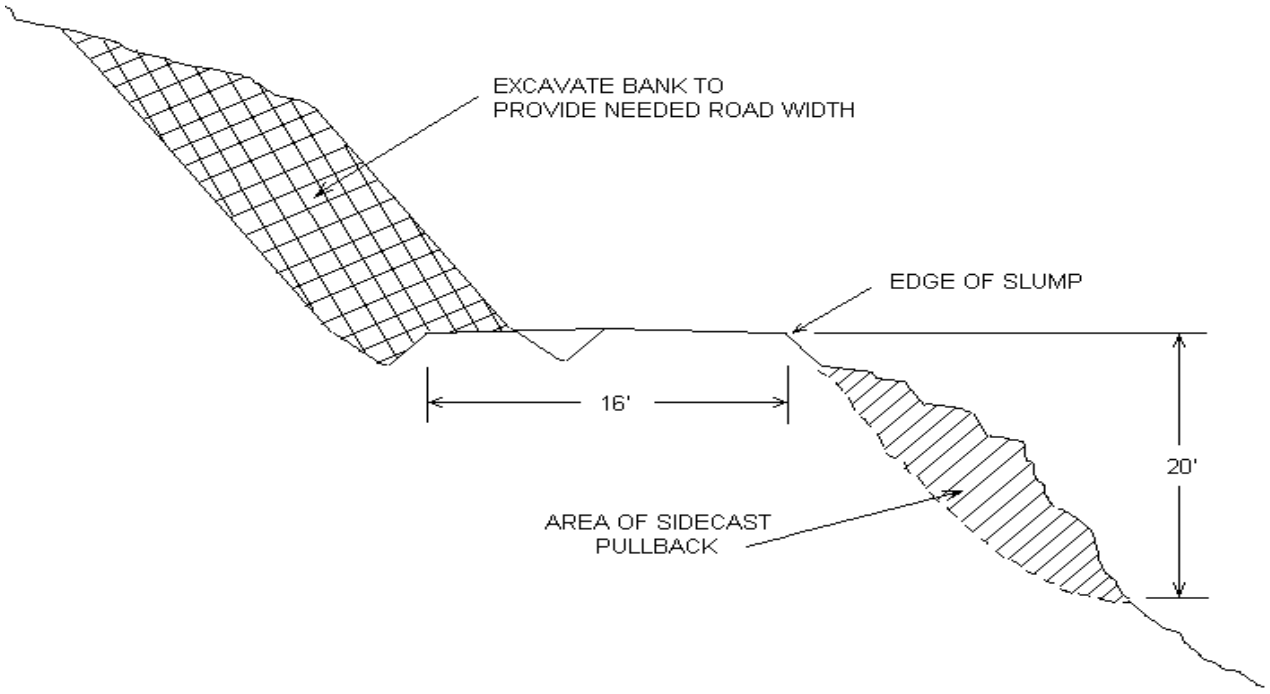

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EXHIBIT L

SEEDING AND MULCHING

This work shall consist of preparing seedbeds and furnishing and placing required seed, fertilizer, 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. 1, 2, and 3 any skid trails within posted stream buffers.

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

APPLICATION METHODS FOR SEED

Dry Method. Mechanical seeders, seed drills, landscape seeders, cultipacker seeders, 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%

Mulching Period. 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.

PART IV: OTHER INFORMATION

FOREST PRACTICES ACT "WRITTEN PLAN"
Fill greater than 15 Feet
Lost Fry Timber Sale

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

Protected Resources:

Road Segments: I1 to I2 (Sta. 30+96), I7 to I14 (Sta. 38+00), and I8 to I9 (Sta. 65+64): Are unnamed Type N tributaries of Sweethome Creek, located in the NW1/4, Section 29, SW1/4, Section 32, and SW1/4 Section 29 respectively, T4N, R8W, W.M., Clatsop County, Oregon. **I12 to I13 (Sta. 24+30)**: Is a unnamed Type N tributary of Lost Creek, located in the SE1/4, Section 31, T4N, R8W, W.M., Clatsop County, Oregon. A written plan is required when constructing a permanent stream crossing fill over 15 feet in depth in a Type N stream, as specified in ORS 629-625-0320(1)(b)(B).

Situation:
The current structures are failing.

Solution:
Design crossing structures that meet or exceeds the need of the particular stream crossing site and FPA requirements for type N stream crossings.

Drainage Area and Structure Design: On segment I1 to I2, the existing 18" diameter and 46' long stream crossing structure will be replaced with a 18" diameter, 75', 12 gage aluminized steel round culvert pipe. On segment I7 to I14, the existing 18" diameter and 37' long stream crossing structure will be replaced with a 24" diameter, 69', 12 gage aluminized steel round culvert pipe. On segment I8 to I9, the existing 24" diameter and 45' long stream crossing structure will be replaced with a 24" diameter, 70' , 12 gage aluminized steel round culvert pipe. On segment I12 to I13, the existing 24" diameter and 45' long stream crossing structure will be replaced with a 24" diameter, 96' , 12 gage aluminized steel round culvert pipe.

Road segment:	I1 to I2	I7 to I14	I8 to I9	I12 to I13
New Stream Gradient:	12%	30%	10%	25%
Size of Watershed:	3 acres	10 acres	7 acres	18 acres
Average Stream Width:	1.5 feet	2 feet	2 feet	2 feet
Streambed material:	Cobble	Cobble	Cobble	Cobble
50 Year Peak Flow/Mi.^{2}:	300 cfs	300 cfs	300 cfs	300 cfs
50 Year Peak Flow:	1.4 cfs	4.7 cfs	3.3 cfs	8.4 cfs
Flow Capacity of New Structure:	5 cfs	11 cfs	11 cfs	11 cfs

Resource Protection Measures:

- In water work is only allowed from July 1 through September 15.
- Machine activity in stream channel shall be minimized.
- All fill excavation, backfilling, stream channel development, and riprap placement shall be performed using a minimum 2 cubic yard track mounted excavator.
- A dewatering plan shall be developed and followed from the start of excavation until the structure is in place and water flowing.
- An erosion control plan shall be developed and followed to prevent sediment from entering the stream during construction work.

Resource Protection Measures: (Cont.)

- Clearing debris, and excavation material shall be hauled to a designated waste area.
- Riprap rock shall be used to protect the structure, road approaches/embankments, and stream banks from erosion.
- Oil spill response materials shall be on site before work begins.

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted when, fill work exceeds 15 feet in height. I agree to the protection measures listed on this plan.

Submitted _____ _____

Purchaser/Operator Date

Attachments: Exhibit A
Original: Salem
Copies: Operator, Purchaser, District File, Forest Roads Unit, Sunset Unit

Forest Practices Act
"WRITTEN PLAN"

Pump Chance/Waterhole Construction
Lost Fry

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

Protected Resources:

1. **Pump Chance/Waterhole Construction.** A medium Type N stream, Fry Creek. Located in the NE¼, Section 31, T4N, R8W, W.M., Clatsop County, Oregon.

A written plan is required for construction on pump chances or waterholes that will be part of a stream as specified in ORS 629-625-0100(2)(a).

Situation:

Pump Chance/Waterhole Construction. The Oregon Department of Forestry has identified an opportunity to construct a pump chance/waterhole on State managed forestland. The nearest pump chance/waterhole is approximately 3 miles away.

The location offers road-based access to the pump chance/waterhole for fire suppression and road water needs. The location is desirable since it is located higher up in the transportation system. Other water sources are located near Sweethome Creek and result in an adverse haul of several miles.

Practices:

- All excavation and fill removal will be performed using a track-mounted excavator.
- Work will be performed only during dry weather periods, low water stream flows, and between July 1 and September 15, annually.
- Disturbance to existing vegetation, machine activity in the stream, and entry of sediment in the stream will be minimized.
- Excavated materials will be hauled and placed in approved waste areas and left in a stable condition.
- Disturbance to and alteration of the stream channel will be kept to the absolute minimum necessary to provide the water source required for firefighting and road use needs.
- Rock will be placed to provide stable road-based access and to minimize sediment delivery to the stream.
- All bare soils shall be seeded and mulched.

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operation of equipment near waters of the State. I agree to the protection measures listed on this plan:

Submitted: _____ Date: _____
Purchaser/Operator Contract Representative

Attachments: Exhibit A
Original: Salem
Copies: Operator, Purchaser, District File, Forest Roads Unit, Sunset Unit

State Timber Sale Contract
No. 341-14-41
Lost Fry

OREGON DEPARTMENT of FISH and WILDLIFE

FISH SCREENING PROGRAM

SMALL PUMP SCREEN SELF CERTIFICATION

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

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

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

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

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

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

Screen area must be large enough to cause fish impact. Wetted screen area depends on the water flow rate and the water approach velocity. **Approach velocity** is the water velocity perpendicular to and approximately three inches in front of any part of the screen face.

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

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

For further information on fish screening please contact:

Bernie Kepshire, Oregon Department of Fish and Wildlife,
7118 NE Vandenberg Avenue, Corvallis, OR 97330-9446 (541) 757-4186 x 255

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

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

Applicant Signature: _____ Date: ___/___/___ WRD File #

Printed Name and Address: _____

Phone: (_____) _____ Fax: (_____) _____

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PUMPCERT.doc

NB: ODFW logo is 129% of logo on HQ mail label

State Timber Sale Contract
No. 341-14-41
Lost Fry

NOTICE OF TRANSFER OF STATE TIMBER

Instructions **629:-Form-301-010**

Complete Section 1. Mark the box which applies to you/your company in Section 2. Complete Section 3 and obtain signatures.

SECTION 1

On _____, state timber sale purchaser (Transferor)

_____, sold, exchanged or otherwise transferred to

_____, (Transferee) state timber originating from State

Timber Sale Contract No. _____.

Transferee hereby certifies that they:

(a) Will not export the unprocessed state timber which is the subject of this transaction;

(b) Will not sell, transfer, exchange or otherwise convey the unprocessed timber which is the subject of this transaction to any other person without first obtaining a like certification from that person; and

(c) Are not prohibited by OAR's 629-31-005 through 045 from purchasing state timber or logs directly from the State Forester, or this is a sale of Western Red Cedar for domestic processing.

SECTION 2

☐ Have not exported unprocessed timber originating from private lands in Oregon in the last 24 months.

☐ This is a sale of hardwood logs for domestic processing.

☐ This is a sale of Western Red Cedar for domestic processing.

☐ This is a sale of pulp logs or cull logs processed at domestic pulp mills, domestic chip plants or other domestic operations for the purpose of conversion of the logs into chips.

SECTION 3

The parties understand that falsely entering into this certification, or failure to comply with the terms of this certification is a violation of the Forest Conservation and Shortage Relief Act of 1990 and OAR Chapter 629, Division 31, and is subject to any and all penalties contained therein.

Transferor:	Transferee:
_____	_____
Signed	Signed
_____	_____
Title	Title
_____	_____
Dated	Dated

[Note: For the purpose of this form, the definition of unprocessed timber is the same as in OAR 629-31-005]

Mail To: State Forester
2600 State Street
Salem, OR 97310