# *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.: 341-06-29

(2) Sale Name: Sagermeister

(3) Contract Expiration Date: October 31, 2008 Project Completion Dates: _____

(4) Purchaser: _____ _____

(6) Purchaser Representatives:

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

(7) State Representatives:

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

(8) Name of Subcontractors & Starting Dates:

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

(9) Comments: _____

_____

_____

_____

_____

_____

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

EXHIBIT B

INSTRUCTION SHEET FOR OPERATIONS PLAN

**SUBMIT ONE COPY OF PLAN TO STATE**

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

**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. |

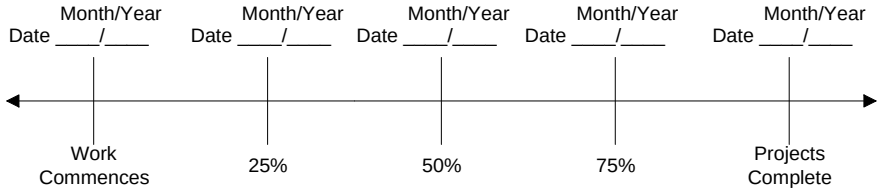
EXHIBIT B

OPERATIONS PLAN

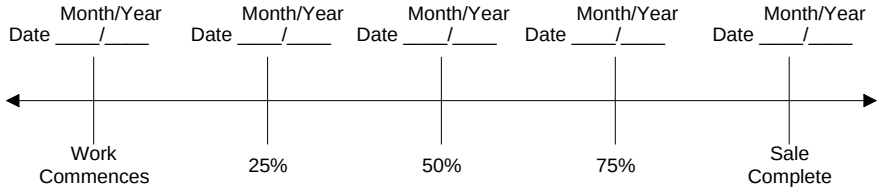
**Completion Timeline**

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

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

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

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

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

(4) PURCHASER: _____
Address _____

| (5) **MINIMUM SCALING SPECIFICATIONS** | | | **CLASS** | | |
|---|---|---|---|---|---|
| SPECIES | SCALING DIAMETER INCHES | *NET SCALE VOLUME | PER MBF | ** SUM | SUB |
| Conifers | -- | 10 | X | | |
| Hardwoods | -- | 10 | X | | |
| | | | | | |

* Apply minimum volume test to whole logs over 40' Westside; 20' Eastside.
** Sum (if indicated): see instructions and explain in Item (20).

(6) WESTSIDE SCALE: YES ☒ NO ☐
Actual taper all logs over 40' scaling length

(7) EASTSIDE SCALE: YES ☐ NO ☒
*Actual taper butt logs over 40' scaling length

(8) PENCIL BUCK YES ☐ NO ☒
back to Minimum Scaling Diameter _____

(9) ADD-BACK VOLUME -- YES ☒ NO ☐
Deductions due to delay

| (10) **APPROVED SCALING LOCATIONS** | **Species** | **Yard** | **Truck** |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

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

_____
State Forester's Representative

(12) SALE NAME Sagermeister
COUNTY Clatsop

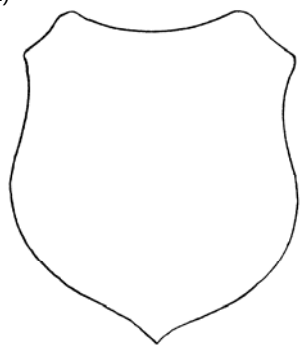
(13) STATE CONTRACT NUMBER 341-06-29

(14) SCALE: westside ☒ eastside ☐ cubic foot ☐

(15) STATE BRAND REGISTRATION NUMBER _____

(16) BUREAU BRAND CODE NUMBER _____

(17) STATE BRAND INFORMATION:
(COMPLETE)



(18) PAINT REQUIRED: YES ☒
COLOR Orange

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

(20) REMARKS: All hardwood logs shall be scaled as sawlogs unless they meet **both** of the following requirements: (1) contain less than **20** net board feet, and (2) are smaller than **8** inches in gross scaling diameter. All hardwood logs that meet **both** requirements shall be scaled as **"Utility."**

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

(21) SIGNATURES:

_____
Purchaser or Authorized Representative Date

_____
State Forester Representative Date

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

Distribution: ORIGINAL: Salem / COPIES: TPSO (4), Purchaser, Operator, District, Mgmt. Unit

# EXHIBIT C

## INSTRUCTIONS FOR FORM 343-307 (rev. 5/01)

(1) Check appropriate box. REVISION NUMBER requires comments. CANCELLATION requires Item (21). Complete date.

(2) Designate Third Party Scaling Organization (TPSO). Send 4 copies to TPSO, 1 to purchaser, 1 to Salem, and keep such copies as to district needs.

(3) State District office, address and phone.

(4) Enter Purchaser's business name and address as it appears on the Contract.

(5) Minimum Scaling Specifications. Review Section 2040 or 2045, "Log Removal," of the Contract. Species, or combined species can be separate entries. Information serves as a basis for scaling (see also Items (13) thru (17)), and is required to show existence on the sale. **PerM** (per MBF). **SUM** (lump sum material). **SUB** (submerchantable material. SUB, as used by the State, references that material containing at least 10 bf (net) but less than the lower merchantable net volume limit or grade requirements for other merchantable (PerM) entries. PerM, SUM, and Sub must be indicated by checking the appropriate column. Species with the same specifications and value are combined into one entry. PerM and Sub require scaling therefore complete specifications. SUM need not be scaled, hence no specifications. Loads containing only SUM are to be ticketed if so instructed in Item (19). Mixed loads of SUM, PERM and/or subspecies will always be scaled.

(6) Westside -- actual taper segment scale. Check Yes or No. Special Service Rules on file with TPSO. See: Segment Scaling and Grading of Long Logs -- All Species -- State Forestry Department Scaling Practices (Westside).

(7) Eastside -- actual taper/taper table segment scale. Special Service Rules on file with TPSO. See: Segment Scaling and Grading of Long Logs -- All Species -- State Forestry Department Scaling Practices (Eastside). Items with * follow U.S. Forest Service Eastside rules.

(8) Pencil Buck. Check NO if a westside sale, optional for eastside sales.

(9) Add-Back Volume. Add-Back is normally checked YES. Scaler records deductions (sap rot, weather checks, etc.) caused by an abnormal delay in removal. Enter separately on scale ticket. TPSO provides State with summaries that include this as a net volume by species. Salvage sales and certain other circumstances may require that "NO" be checked.

(10) Show scaling locations only applicable to TPSO. Not necessary to list markets. If all species are scaled at same location, enter "ALL."

(11) When logging is complete, recall branding hammers, date and sign where indicated, check CANCELLATION box at top of form, and send to TPSO.

(12) Enter sale name and county.

(13) Enter sale Contract number.

(14) Check Westside or Eastside log scale. Cubic foot refers to Northwest Log Rules Cubic Foot Scale.

(15) Oregon Forest Products Brand Registry Number (optional).

(16) DO NOT USE -- TPSO will fill in when applicable.

(17) Show one brand only. Complete drawing. If more than one brand is assigned to the sale, (1) make separate form for each brand, and (2) on each form, explain and show other brand(s) under REMARKS, Item 19.

(18) Check YES and designate orange.

(19) Special Scales. These are the Special Scales that will be applied. If "Other" is indicated, please describe. Give comments in Item (19).

(20) Use this space to designate weight conversion factors, or any other explanations to clarify scaling requirements. If additional scaling locations are approved, prepare another form showing all (old and new) locations. Check REVISION box at top of form and explain under remarks. Route as indicated.

(21) Require purchaser to sign and date completed form.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

| SUBGRADE WIDTH | SURFACED WIDTH | POINT TO POINT | STATION TO STATION | DRAINAGE |
|---|---|---|---|---|
| 14 feet | N/A | 1A to 1B | 0+00 to 18+00 | OUTSLOPED |
| 14 feet | N/A | 1C to 1D | 0+00 to 1+60 | OUTSLOPED |
| 14 feet | N/A | 1E to 1F | 0+00 to 8+15 | OUTSLOPED |
| 14 feet | N/A | 1G to 1H | 0+00 to 10+00 | OUTSLOPED |
| 14 feet | N/A | 1I to 1J | 0+00 to 2+00 | OUTSLOPED |
| 14 feet | N/A | 1K to 1L | 0+00 to 7+90 | OUTSLOPED |
| 14 feet | N/A | 2A to 2B | 0+00 to 1+25 | OUTSLOPED |
| 14 feet | N/A | 2C to 2D | 0+00 to 1+85 | OUTSLOPED |
| 16 feet | 12 feet | 4A to 4B | 0+00 to 1+60 | DITCH |
| 16 feet | 12 feet | 4C to 4D | 0+00 to 1+50 | DITCH |
| 16 feet | 12 feet | 5A to 5B | 0+00 to 6+00 | DITCH |
| 18 feet | 14 feet | I1 to I2 | 0+00 to 84+35 | DITCH |
| 18 feet | 14 feet | I3 to I4 | 0+00 to 88+70 | DITCH |
| 18 feet | 14 feet | I4 to I5 | 0+00 to 154+30 | DITCH |
| 18 feet | 14 feet | I3 to I6 | 0+00 to 98+00 | DITCH |
| 18 feet | 14 feet | I6 to I11 | 0+00 to 86+25 | DITCH |
| 16 feet | 12 feet | I7 to I8 | 0+00 to 19+40 | DITCH |
| 16 feet | 12 feet | I9 to I10 | 0+00 to 19+30 | DITCH |
| 16 feet | 12 feet | I11 to I12 | 0+00 to 107+90 | DITCH |
| 16 feet | 12 feet | I13 to I14 | 0+00 to 3+00 | DITCH |

CLEARING. This work shall consist of clearing, removing, and disposing of all trees, snags, down timber, brush, surface objects, and protruding obstructions within the clearing limits.

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

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

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GRUBBING. This work shall consist of the removal or digging out of stumps and protruding objects. All stumps shall be completely removed within the limits of required grubbing. Stumps overhanging cutslopes shall be removed. Grubbing debris shall not be placed or permitted to remain in or under any road embankment sections. Grubbing debris shall be left in a stable location, and not left lodged against standing trees.

GRUBBING CLASSIFICATION. New construction – From the top of the cutslope to the toe of the fill. Improvement and reconstruction – Four feet back from the shoulder of the subgrade of ditch, whichever is widest, or as marked in the field.

CLEARING AND GRUBBING DISPOSAL. Scatter 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.

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

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

All suitable excavated material shall be used where possible for the formation of fills, shoulders, and drainage structure backfill. Embankment materials shall be free of woody debris, brush, muck, sod, frozen material, and other deleterious materials. All fills and drainage structure backfill shall be machine compacted according to the specifications in Exhibit D.

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

Excess excavation shall not be sidecast where material will enter a stream course or where material will accumulate in areas deemed a high landslide hazard location by STATE.

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

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

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

DRAINAGE

Ditch. Construct "V" ditch 3 feet wide and to a depth of 1 foot below subgrade. Subgrade shall be crowned at 4 to 6 percent. Construct ditchouts away from subgrade at locations marked in the field.

Outslope. Road subgrade shall be outsloped at 4 to 6 percent.

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

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

| GRADING | Back Slopes | Fill Slopes |
|---|---|---|
| Rock | Vertical to 1/4:1 | Not steeper |
| Common - side slopes 50% and over | 3/4:1 | than 1½:1 |
| Common - side slopes less than 50% | 1:1 | |
| Common - turnpike (level) section | 2:1 | |

Top of cutslope shall be rounded.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

LANDINGS. Landings shall be constructed as posted in the field, no less than 50 feet wide and no more than 70 feet wide. Surface is to be crowned for drainage, with general grade no more than 3 percent. Surface as shown on Exhibit D.

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

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

GENERAL ROAD CONSTRUCTION INSTRUCTIONS

(1) Excavated Materials. Excavated materials shall be utilized for road construction and hauled in where necessary. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with Exhibit D. Full bench road construction shall be performed in accordance with Exhibit D.

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

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

| Segment | Station | Work Description |
|---|---|---|
| 1A to 1B | 5+10 | Begin full bench truck end haul. Utilize suitable material for road construction between Stations 7+05 and 18+00. Haul excess excavation material and clearing debris to waste area(s). |
| | 7+05 | End full bench truck end haul. |

EXHIBIT D

END-HAULING REQUIREMENTS

| POINT TO POINT | STA. TO STA. | WASTE AREA LOCATION | WASTE AREA TREATMENT |
|---|---|---|---|
| 1A to 1B | 5+10 to 7+05 | 1 and 2 | 1, 2, and 3 |

End-Haul Areas General Requirements

Material shall not be intentionally side cast.

Clearing and grubbing debris shall be end-hauled.

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

Containment

Full containment: The amount of material lost over the outside edge of the road shall not exceed 6 inches in depth measured perpendicular to the natural ground slope. Pioneer excavation shall be removed by digging, loading, and hauling rather than by pushing or scraping methods.

Trees and stumps may have up to 12 inches of material directly above them. 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

(1) Waste Area No. 1 is between Stations 7+05 to 18+00 on Road Segment 1A to 1B.

(2) Waste Area No. 2 is located on Road Segment 1A to 1B as shown on Exhibit A.

Waste Area Treatment

(1) Use suitable excess excavated materials as designed by STATE from road segments 1A to 1B to construct road between stations 7+05 and 18+00 on Road Segment 1A to 1B. Compact fill according to Exhibit D specifications.

(2) Place excess excavated materials, end haul materials, and clearing and grubbing debris in the waste area in the waste area shown on Exhibit A. All placed materials shall be deposited in stable locations as directed by STATE, spread evenly, compacted, and adequate drainage established. Pile woody debris on top of waste area.

(3) Mulch and seed all waste areas in accordance to Exhibit K.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS

(1) Excavated Materials. Excavated materials shall be utilized for road and fill construction and hauled in where necessary. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with Exhibit D.

(2) Culvert Replacement and Culvert Installation. Existing culvert geometry shall be modified to provide for optimum drainage and culvert performance. Modifications may include, skewing the culvert and/or installing the pipe at gradients equal to or exceeding the drainage (or ditch) gradient. 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. Fill construction backfill shall consist of select materials and may be obtained from borrow pits, as directed by STATE. Backfill materials shall be hauled in where necessary and thoroughly compacted in accordance with Exhibit D. Crushed rock shall be used for backfilling excavation trenches less than 3 feet deep. Removed culverts shall be hauled to an approved refuse site off of STATE land.

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

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

(5) Subgrade Preparation and Application of Surfacing Rock.

(a) Complete culvert installations, drainage ditches, fill reconstruction, roadside brushing, 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 surfacing and added base rock. Provide for a crown of 4 to 6 percent, (½ inch per foot), and compact in accordance with Exhibit D. Subgrade shall be crowned at 4 to 6 percent. Subgrade shall be crowned at 4 to 6 percent.

(e) Upon completion of above required work, apply, process, and compact surfacing rock in accordance with specifications in Exhibit D.

(6) Riprap Rock Use: Where rock is used for fill armor, rock shall be placed and tamped at a 1½ : 1 slope, beginning at the fill toes. When used for an energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, in accordance with Exhibit I.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

| Segment | Station | Work Description |
|---|---|---|
| I1 to I2 | 4+64 | Culvert replacement. Skew culvert for better alignment. Utilize 30 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. |
| | 7+35 | Culvert replacement. Utilize 20 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. |
| | 20+71 | Fill reconstruction. Utilize 30 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. Utilize 40 cubic yards of 4"-0" for base rock replacement. Utilize 80 cubic yards of 24"-6" riprap rock for fill armor and energy dissipator construction. |
| | 26+07 | Culvert replacement. Utilize 20 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. |
| | 31+10 | Fill reconstruction. Utilize 30 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. Utilize 40 cubic yards of 4"-0" for base rock replacement. Utilize 50 cubic yards of 24"-6" riprap rock for fill armor and energy dissipator construction. |
| | 38+70 | Culvert replacement. Utilize 20 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. |
| | 52+56 | Culvert replacement. Utilize 20 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. |
| | . 58+97 | Culvert replacement. Utilize 20 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. |
| | 64+73 | Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator. |
| I3 to I4 | 5+29 | Culvert replacement. Utilize 20 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator. |
| | 7+18 | Culvert replacement. Utilize 20 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator. |
| | 10+80 | Culvert replacement. Utilize 20 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. Move inlet 5' up the road to avoid disturbing tree in the cutbank that is adjacent to the inlet currently. |
| | 19+24 | Culvert replacement. Skew culvert for better alignment. Utilize 30 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator. |
| | 26+25 | Culvert replacement. Skew culvert for better alignment. Utilize 30 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. |

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

| Segment | Station | Work Description |
|---|---|---|
| I3 to I4 | 31+31 | Culvert replacement. Utilize 20 cubic yards of 1½”-0” recycled rock for culvert bedding and backfill. Utilize 10 cubic yards of 24”-6” riprap rock to construct an energy dissipator. |
| | 36+36 | Culvert replacement. Utilize 20 cubic yards of 1½”-0” recycled rock for culvert bedding and backfill. Remove three trees at outlet and place outside the right-of-way in a stable location for down wood. |
| | 40+79 | Culvert replacement. Skew culvert for better alignment. Utilize 30 cubic yards of 1½”-0” recycled rock for culvert bedding and backfill. |
| | 54+35 | Remove and dispose of old scrap culverts along the road. |
| | 58+17 | Remove and dispose of old scrap culvert along the road. |
| | 68+92 | Culvert replacement. Shift culvert inlet 4’ closer to the road. Utilize 20 cubic yards of 1½”-0” recycled rock for culvert bedding and backfill. |
| | 71+56 | Culvert replacement. Utilize 20 cubic yards of 1½”-0” recycled rock for culvert bedding and backfill. |
| | 74+82 | Fill reconstruction. Install culvert perpendicular to the road. Utilize 20 cubic yards of 1½”-0” recycled rock for culvert bedding and backfill. Utilize 40 cubic yards of 4”-0” for base rock replacement and fill widening. Utilize 30 cubic yards of 24”-6” riprap rock for fill armor and energy dissipator construction. |
| | 83+00 | Culvert replacement. Utilize 20 cubic yards of 1½”-0” recycled rock for culvert bedding and backfill. |
| I3 to I6 | 6+80 | Fill slide repair and armoring. Utilize 200 cubic yards of 24”-6” riprap rock for fill armoring. Reconstruct fill slopes no steeper than 1½:1. Remove overhanging trees and place in the timber outside the road right-of-way. Deposit all excess material in waste area(s) as shown on Exhibit A. |
| I7 to I8 | 4+18 | Culvert replacement. Utilize 20 cubic yards of 1½”-0” recycled rock for culvert bedding and backfill. |
| | 9+50 | Culvert replacement. Utilize 20 cubic yards of 1½”-0” recycled rock for culvert bedding and backfill. |
| | 13+70 | Culvert replacement. Utilize 20 cubic yards of 1½”-0” recycled rock for culvert bedding and backfill. Utilize 10 cubic yards of 24”-6” riprap rock to construct an energy dissipator. |
| | 14+95 | Culvert replacement. Utilize 20 cubic yards of 1½”-0” recycled rock for culvert bedding and backfill. Utilize 10 cubic yards of 24”-6” riprap rock to construct an energy dissipator. |

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

| Segment | Station | Work Description |
|---|---|---|
| I6 to I11 | 10+25 | Fill reconstruction. Move inlet 4 feet towards the road. Utilize 20 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. Utilize 40 cubic yards of 4"-0" for base rock replacement. Utilize 30 cubic yards of 24"-6" riprap rock for fill armor and energy dissipator construction. Utilize 20 cubic yards of ¾"-0" for surfacing rock replacement. |
| | 41+55 | Fill reconstruction. Move inlet 2 feet towards the road. Utilize 20 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. Utilize 40 cubic yards of 4"-0" for base rock replacement. Utilize 50 cubic yards of 24"-6" riprap rock for fill armor and energy dissipator construction. Utilize 20 cubic yards of ¾"-0" for surfacing rock replacement. |
| I11 to I12 | 17+66 | Culvert replacement. Skew culvert for better alignment. Utilize 30 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. |
| | 22+74 | Culvert replacement. Utilize 20 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator. |
| | 24+07 | Culvert replacement. Utilize 20 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator. |
| | 28+80 | Culvert replacement. Skew culvert for better alignment. Utilize 30 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator. |
| | 34+07 | Culvert replacement. Utilize 20 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator. |
| | 40+82 | Culvert replacement. Utilize 20 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator. |
| | 50+16 | Culvert replacement. Skew culvert for better alignment. Utilize 30 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. |
| | 60+69 | Culvert replacement. Utilize 20 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. |
| | 68+08 | Culvert replacement. Utilize 20 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. |
| | 85+41 | Culvert replacement. Utilize 20 cubic yards of 1½"-0" recycled rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator. |

EXHIBIT D

ROAD SURFACING – PROJECT NO. 1

| **ROAD SEGMENT: 4A to 4B** | | | | **POINT TO POINT** | | **Sta. to Sta.** | | **TOTAL VOLUME (CY)** |
|---|---|---|---|---|---|---|---|---|
| **Application** | **Rock Size and Type** | **Location** | **Depth of Rock (inches)** | 4A to 4B | | 0+00 to 1+60 | | |
| | | | | **Volume (CY) per** | | **Number of** | | |
| Base Rock | 4"-0" Crushed | 4A to 4B | 8 | Station | 50 | Stations | 1.6 | 80 |
| Junctions | 4"-0" Crushed | | 8 | Junction | 24 | Junctions | 1 | 24 |
| Landing Rock | 6”-0” Pit Run | | | Landing | 50 | Landings | 1 | 50 |
| Total Rock for Road Segment: | | **4A to 4B** | | | | | | 154 |
| **ROAD SEGMENT: 4C to 4D** | | | | **POINT TO POINT** | | **Sta. to Sta.** | | **TOTAL VOLUME (CY)** |
| **Application** | **Rock Size and Type** | **Location** | **Depth of Rock (inches)** | 4C to 4D | | 0+00 to 1+50 | | |
| | | | | **Volume (CY) per** | | **Number of** | | |
| Base Rock | 4"-0" Crushed | 4C to 4D | 8 | Station | 50 | Stations | 1.5 | 75 |
| Junctions | 4"-0" Crushed | | 8 | Junction | 24 | Junctions | 1 | 24 |
| Landing Rock | 6”-0” Pit Run | | | Landing | 50 | Landings | 1 | 50 |
| Total Rock for Road Segment: | | **4C-4D** | | | | | | 149 |
| **ROAD SEGMENT: 5A to 5B** | | | | **POINT TO POINT** | | **Sta. to Sta.** | | **TOTAL VOLUME (CY)** |
| **Application** | **Rock Size and Type** | **Location** | **Depth of Rock (inches)** | 5A to 5B | | 0+00 to 6+00 | | |
| | | | | **Volume (CY) per** | | **Number of** | | |
| Base Rock | 4"-0" Crushed | 5A to 5B | 8 | Station | 50 | Stations | 6.0 | 300 |
| Junctions | 4"-0" Crushed | | 8 | Junction | 24 | Junctions | 1 | 24 |
| Landing Rock | 6"-0" Pit-run | | | Landing | 50 | Landings | 1 | 50 |
| Total Rock for Road Segment: | | **5A to 5B** | | | | | | 374 |
| **ROAD SEGMENT: I1 to I2 (Nehalem X-Over)** | | | | **POINT TO POINT** | | **Sta. to Sta.** | | **TOTAL VOLUME (CY)** |
| **Application** | **Rock Size and Type** | **Location** | **Depth of Rock (inches)** | I1 to I2 | | 0+00 to 84+35 | | |
| | | | | **Volume (CY) per** | | **Number of** | | |
| Leveling Rock | ¾” -0” Crushed | I1-I2 | | | | | | 500 |
| Culvert backfill | 1½”-0” Recycled | | | Culvert | 20 | Culverts | 5 | 100 |
| Culvert backfill | 1½”-0” Recycled | | | Culvert | 30 | Culverts | 1 | 30 |
| Culvert bedding | 1½”-0” Recycled | | | Culvert | 30 | Culverts | 2 | 60 |
| Fill Surfacing Rock | 4” -0” Crushed | 20+71 | | Fill | 40 | Fills | 1 | 40 |
| Energy Dissipator | 24”-6” Riprap | 20+71 | | Dissipator | 10 | Dissipators | 1 | 10 |
| Fill Armor | 24”-6” Riprap | 20+71 | | | | | | 70 |
| Fill Surfacing Rock | 4” -0” Crushed | 31+10 | | Fill | 40 | Fills | 1 | 40 |
| Energy Dissipator | 24”-6” Riprap | 31+10 | | Dissipator | 10 | Dissipators | 1 | 10 |
| Fill Armor | 24”-6” Riprap | 31+10 | | | | | | 40 |
| Energy Dissipator | 24”-6” Riprap | 64+73 | | Dissipator | 10 | Dissipators | 1 | 10 |
| Total Rock for Road Segment: | | **I1 to I2** | | | | | | 910 |

EXHIBIT D

ROAD SURFACING – PROJECT NO. 1

| **ROAD SEGMENT: I3 to I4 (West Sager)** | | | | **POINT TO POINT** | | **Sta. to Sta.** | | **TOTAL VOLUME (CY)** |
|---|---|---|---|---|---|---|---|---|
| **Application** | **Rock Size and Type** | **Location** | **Depth of Rock (inches)** | I3 to I4 **Volume (CY) per** | | 0+00 to 88+70 **Number of** | | |
| Leveling Rock | 1½"-0" Crushed | I3-I4 | | | | | | 300 |
| Surfacing | ¾" -0" Crushed | | 3 | Station | 22 | Stations | 88.7 | 1,951 |
| Curve Widening | ¾" -0" Crushed | | 3 | | | | | 160 |
| Turnouts | ¾" -0" Crushed | | 3 | Turnout | 10 | Turnouts | 20 | 200 |
| Junctions | ¾" -0" Crushed | | 3 | Junction | 10 | Junction | 7 | 70 |
| Culvert backfill | 1½"-0" Recycled | | | Culvert | 20 | Culverts | 9 | 180 |
| Culvert backfill | 1½"-0" Recycled | | | Culvert | 30 | Culverts | 3 | 90 |
| Fill Surfacing Rock | 4" -0" Crushed | 74+82 | | | | | 40 | 40 |
| Energy Dissipator | 24"-6" Riprap | | | Dissipator | 10 | Dissipators | 4 | 40 |
| Fill Armor and Dissipator | 24"-6" Riprap | 74+82 | | | | | | 30 |
| Total Rock for Road Segment: | | **I3 to I4** | | | | | | 3,061 |

| **ROAD SEGMENT: I4 to I5 (West Sager)** | | | | **POINT TO POINT** | | **Sta. to Sta.** | | **TOTAL VOLUME (CY)** |
|---|---|---|---|---|---|---|---|---|
| **Application** | **Rock Size and Type** | **Location** | **Depth of Rock (inches)** | I4 to I5 **Volume (CY) per** | | 0+00 to 154+30 **Number of** | | |
| Leveling Rock | 1½"-0" Crushed | I4-I5 | | | | | | 600 |
| Base Rock Re-inforcement | 4"-0" Crushed | | | | | | | 100 |
| Total Rock for Road Segment: | | **I4 to I5** | | | | | | 700 |

| **ROAD SEGMENT: I3 to I6 (East Sager)** | | | | **POINT TO POINT** | | **Sta. to Sta.** | | **TOTAL VOLUME (CY)** |
|---|---|---|---|---|---|---|---|---|
| **Application** | **Rock Size and Type** | **Location** | **Depth of Rock (inches)** | I3 to I6 **Volume (CY) per** | | 0+00 to 98+00 **Number of** | | |
| Leveling Rock | 1½"-0" Crushed | I3-I6 | | | | | | 330 |
| Surfacing | ¾" -0" Crushed | | 3 | Station | 22 | Stations | 98.0 | 2,156 |
| Curve Widening | ¾" -0" Crushed | | 3 | | | | | 80 |
| Turnouts | ¾" -0" Crushed | | 3 | Turnout | 10 | Turnouts | 7 | 70 |
| Junctions | ¾" -0" Crushed | | 3 | Junction | 20 | Junction | 5 | 50 |
| Fill Armor | 24"-6" Riprap | 6+80 | | | | | | 200 |
| Total Rock for Road Segment: | | **I3 to I6** | | | | | | 2,886 |

| **ROAD SEGMENT: I7 to I8** | | | | **POINT TO POINT** | | **Sta. to Sta.** | | **TOTAL VOLUME (CY)** |
|---|---|---|---|---|---|---|---|---|
| **Application** | **Rock Size and Type** | **Location** | **Depth of Rock (inches)** | I7 to I8 **Volume (CY) per** | | 0+00 to 19+40 **Number of** | | |
| Leveling Rock | 1½"-0" Crushed | I7-I8 | | | | | | 250 |
| Culvert backfill | 1½"-0" Recycled | | | Culvert | 20 | Culverts | 4 | 80 |
| Energy Dissipator | 24"-6" Riprap | | | Dissipator | 10 | Dissipators | 2 | 20 |
| Total Rock for Road Segment: | | **I7 to I8** | | | | | | 350 |

| **ROAD SEGMENT: I9 to I10** | | | | **POINT TO POINT** | | **Sta. to Sta.** | | **TOTAL VOLUME (CY)** |
|---|---|---|---|---|---|---|---|---|
| **Application** | **Rock Size and Type** | **Location** | **Depth of Rock (inches)** | I9 to I10 **Volume (CY) per** | | 0+00 to 19+30 **Number of** | | |
| Leveling Rock | 1½"-0" Crushed | I9-I10 | | | | | | 200 |
| Total Rock for Road Segment: | | **I9 to I10** | | | | | | 200 |

EXHIBIT D

ROAD SURFACING – PROJECT NO. 1

| **ROAD SEGMENT: I6 to I11** | | | | **POINT TO POINT** | | **Sta. to Sta.** | | **TOTAL VOLUME (CY)** |
|---|---|---|---|---|---|---|---|---|
| **Application** | **Rock Size and Type** | **Location** | **Depth of Rock (inches)** | I6 to I11 | | 0+00 to 86+25 | | |
| | | | | **Volume (CY) per** | | **Number of** | | |
| Culvert bedding | 1½"-0" Recycled | 10+25 | | Culvert | 20 | Culverts | 1 | 20 |
| Surfacing Replacement | ¾" -0" Crushed | 10+25 | | | | | | 20 |
| Base Rock Replacement | 4"-0" Crushed | 10+25 | | Culvert | 40 | Culverts | 1 | 40 |
| Energy Dissipator & Armor | 24"-6" Riprap | 10+25 | | | | | | 30 |
| Culvert bedding | 1½"-0" Recycled | 41+55 | | Culvert | 20 | Culverts | 1 | 20 |
| Surfacing Replacement | ¾" -0" Crushed | 41+55 | | | | | | 20 |
| Base Rock Replacement | 4"-0" Crushed | 41+55 | | Culvert | 40 | Culverts | 1 | 40 |
| Energy Dissipator & Armor | 24"-6" Riprap | 41+55 | | | | | | 50 |
| Total Rock for Road Segment: | | **I6 to I11** | | | | | | 240 |
| **ROAD SEGMENT: I11 to I12 (Sager Ridge)** | | | | **POINT TO POINT** | | **Sta. to Sta.** | | **TOTAL VOLUME (CY)** |
| **Application** | **Rock Size and Type** | **Location** | **Depth of Rock (inches)** | I11 to I12 | | 0+00 to 107+90 | | |
| | | | | **Volume (CY) per** | | **Number Of** | | |
| Leveling Rock | 1½"-0" Crushed | I11-I12 | | | | | | 220 |
| Culvert backfill | 1½"-0" Recycled | | | Culvert | 20 | Culverts | 7 | 140 |
| Culvert backfill | 1½"-0" Recycled | | | Culvert | 30 | Culverts | 3 | 90 |
| Surfacing | 1½"-0" Crushed | | 3 | Station | 19 | Stations | 107.90 | 2,050 |
| Curve Widening | 1½"-0" Crushed | | | | | | | 180 |
| Turnouts | 1½"-0" Crushed | | 3 | Turnout | 10 | Turnouts | 19 | 190 |
| Junctions | 1½"-0" Crushed | | 3 | Junction | 10 | Junctions | 9 | 90 |
| Energy Dissipator | 24"-6" Riprap | | 3 | Dissipator | 10 | Dissipators | 6 | 60 |
| Total Rock for Road Segment: | | **I11 to I12** | | | | | | 3,020 |
| **ROAD SEGMENT: I13 to I14** | | | | **POINT TO POINT** | | **Sta. to Sta.** | | **TOTAL VOLUME (CY)** |
| **Application** | **Rock Size and Type** | **Location** | **Depth of Rock (inches)** | I13 to I14 | | 0+00 to 3+00 | | |
| | | | | **Volume (CY) per** | | **Number of** | | |
| Leveling Rock | 1½"-0" Recycled | I3-I14 | | | | | | 80 |
| Total Rock for Road Segment: | | **I13 to I14** | | | | | | 80 |

**Total Rock for Project No. 1**

| **24"-6"** | **6"-0"** | **4"-0"** | **1½"-0"** | **¾" -0"** | **TOTAL** |
|---|---|---|---|---|---|
| 570 | 150 | 827 | 5,300 | 5,277 | 12,124 |

Roads shall be uniformly graded and approved by STATE prior to rocking. For typical cross section, see Forestry Department Drawing Nos. 351-C and 351-D at the Forestry Department district office.

EXHIBIT D

ROCK ACCOUNTABILITY

Subgrades must be approved by STATE prior to rocking. Rocking must be done only when weather conditions are acceptable to STATE, and must be suspended when muddy water could enter streams from runoff.

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

Rock Checking. All rock spreading shall be done only when a STATE representative is present. STATE shall issue a receipt for each load delivered, and rock shall be measured without allowance for shrinkage or shakedown during hauling. Total truck measure volume for each road segment shall be as shown on Exhibit D. Deliver at least 600 cubic yards per 8-hour shift, unless otherwise approved by STATE. A penalty of $10 for each 10 cubic yards which are not delivered during a single shift shall be billed, and payment shall be required prior to final acceptance of the project by STATE.

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

Depth shall be determined in the most compacted area of the surface cross section. If additional rock is required because of insufficient depth, it shall be added by truck measure to those areas that were slighted. The conversion from compacted yardage to truck yardage is 1.3 multiplied by the compacted yardage equals truck yardage.

The depth of compacted aggregates shall not vary more than 1 inch from the depth specified in Exhibit D. The average depth for each road segment shall be the specified depth or greater. Surfacing areas shall be staked by STATE.

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

EXHIBIT D

COMPACTION AND PROCESSING REQUIREMENTS

Subgrade. Subgrade surfaces of the road segments listed below shall be graded and compacted prior to rocking. Compaction shall be accomplished by traveling all surfaces from shoulder to shoulder until visible deformation ceases, or in the case of a sheepsfoot roller, the roller "walks out." A minimum of 3 passes shall be made over the entire width and length of the road. A pass is defined as traveling a road section in one direction and then back over that same section again. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

| ROAD SEGMENT | COMPACTION EQUIPMENT OPTIONS |
|---|---|
| All road segments that require rock surfacing. | 1, 3, or 5 |

Fills. Embankments and fills shall be placed in (approximately) horizontal layers not more than 8 inches in depth. Each layer shall be separately, and thoroughly, compacted. Compaction equipment shall be operated over the entire width of each layer until visible deformation of the layers ceases or, in the case of a sheepsfoot roller, the roller "walks out." At least of 3 passes shall be made over the entire width and length of each layer. A pass is defined as traveling a fill layer in one direction and then back over that same layer again.

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

| ROAD SEGMENT | COMPACTION EQUIPMENT OPTIONS |
|---|---|
| All road segments | 1, 2 or 3, and 4 |

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

| 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 mile to 1.8 miles per hour, as directed by STATE.

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

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

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

(5) Vibratory Grid Compactors. The roller shall have a grid surface and have an operating weight of 32,000 pounds or more. The rock shall be worked with a grader weighing at least 20,000 pounds during the grid rolling process. All rock shall come in contact with the vibratory grid compactor.

# EXHIBIT E

## CULVERT SPECIFICATIONS

All culvert materials shall be furnished and installed by PURCHASER, unless otherwise specified in the Contract. All culverts shall conform to the material and fabricating requirements of Sections 2410 and 2420 of the "Standard Specifications for Highway Construction" prepared by the Highway Division of the Oregon State Department of Transportation. Culverts shall be constructed of double-walled polyethylene and shall meet the requirements of AASHTO M-294-901, Type S. Corrugation types and shapes other than those meeting the above minimum Highway requirements, shall be approved in writing by STATE. This specification applies to high density polyethylene corrugated pipe with an integrally formed smooth interior. Clean, reworked material may be used.

All culverts 24 inches in diameter or greater shall have 1:1 beveled inlets.

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

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

Culvert grade shall slope away from ditch grade at least 5 percent unless otherwise specified.

The foundation and trench walls for all culverts shall be free from logs, stumps, limbs, stones over 3 inches, and other objects which would dent or damage the pipe during installation or use. The culvert trench shall be excavated wide enough to permit compaction and working on each side of the pipe. Tamping shall be done in 6-inch lifts, 1 pipe diameter each side of the pipe to 95 percent density or over. Bedrock shall be excavated as required to provide a uniform foundation for the full length of the culvert.

A bedding of granulated material or crushed rock as specified shall be placed to provide a wide band of support and to transmit the load from above evenly over the entire length of the pipe.

Backfill shall consist of granulated material, crushed rock, or job-excavated soil free of stumps, limbs, rocks, or other objects which would damage the pipe.

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

Joining shall be done with bands of like material and corrugations. Manufacturers' instructions shall be followed for prefabricated pipe assembly.

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

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

Fill heights, if not shown on a road plan and profile, shall be in accordance with those shown in Drawing No. 2094, “Fill Height Tables”, prepared by the Highway Division of the Oregon State Department of Transportation. Any deviation must be approved by STATE.

Minimum height of cover over top of culvert to subgrade when road is to be rocked shall be as follows: 12" for culverts 18” to 36” and 18” for culverts 42” to 96” (add 6" for roads which will not be rocked). Minimum vertical cover for other designs shall be as specified by STATE.

EXHIBIT E

CULVERT SPECIFICATIONS

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

The ends of each culvert shall be free of logs and debris which would restrict the free flow of water. The intake end of relief culverts shall be provided with a sediment catching basin 3 feet in diameter at the bottom. The outlet end of any culvert which would allow water to erode embankment soil shall be provided with a 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.

Polyethylene culverts shall be double walled and meet the requirements of AASHTO M-294-901, Type S.

The intake ends of culverts in fills less than 3 feet shall be marked by driving white fiberglass posts within 6 inches of the downgrade side. Posts shall be a minimum of 6 feet long and 2 ½ inches wide, with the spade driven 2 feet into the ground.

Tamping is required.

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

CULVERT LIST

| CULVERT NO. | DIAMETER (Inches) | LENGTH (Feet) | MATERIAL TYPE | ROAD SEGMENT POINT TO POINT | STATION |
|---|---|---|---|---|---|
| 1 | 18 | 32 | CPP | I1 to I2 | 4+64 |
| 2 | 18 | 40 | CPP | I1 to I2 | 7+35 |
| 3 | 18 | 60 | CPP | I1 to I2 | 20+71 |
| 4 | 18 | 40 | CPP | I1 to I2 | 26+07 |
| 5 | 18 | 40 | CPP | I1 to I2 | 31+10 |
| 6 | 18 | 32 | CPP | I1 to I2 | 38+70 |
| 7 | 18 | 32 | CPP | I1 to I2 | 52+56 |
| 8 | 18 | 30 | CPP | I1 to I2 | 58+97 |
| 9 | 18 | 34 | CPP | I3 to I4 | 5+29 |
| 10 | 18 | 34 | CPP | I3 to I4 | 7+18 |
| 11 | 18 | 32 | CPP | I3 to I4 | 10+80 |
| 12 | 18 | 36 | CPP | I3 to I4 | 19+24 |
| 13 | 18 | 32 | CPP | I3 to I4 | 26+25 |
| 14 | 18 | 40 | CPP | I3 to I4 | 31+31 |
| 15 | 18 | 40 | CPP | I3 to I4 | 36+-36 |
| 16 | 18 | 34 | CPP | I3 to I4 | 40+79 |

EXHIBIT E

CULVERT LIST

| CULVERT NO. | DIAMETER (Inches) | LENGTH (Feet) | MATERIAL TYPE | ROAD SEGMENT POINT TO POINT | STATION |
|---|---|---|---|---|---|
| 17 | 18 | 50 | CPP | I3 to I4 | 68+92 |
| 18 | 18 | 32 | CPP | I3 to I4 | 71+56 |
| 19 | 18 | 40 | CPP | I3 to I4 | 74+82 |
| 20 | 18 | 40 | CPP | I3 to I4 | 83+00 |
| 21 | 18 | 30 | CPP | I7 to I8 | 4+18 |
| 22 | 18 | 30 | CPP | I7 to I8 | 9+50 |
| 23 | 18 | 50 | CPP | I7 to I8 | 13+70 |
| 24 | 18 | 40 | CPP | I7 to I8 | 14+95 |
| 25 | 18 | 40 | CPP | I6 to I11 | 10+25 |
| 26 | 18 | 40 | CPP | I6 to I11 | 41+55 |
| 27 | 18 | 32 | CPP | I11 to I12 | 17+66 |
| 28 | 18 | 40 | CPP | I11 to I12 | 22+74 |
| 29 | 18 | 40 | CPP | I11 to I12 | 24+07 |
| 30 | 18 | 40 | CPP | I11 to I12 | 28+80 |
| 31 | 18 | 34 | CPP | I11 to I12 | 34+07 |
| 32 | 18 | 36 | CPP | I11 to I12 | 40+82 |
| 33 | 18 | 32 | CPP | I11 to I12 | 50+16 |
| 34 | 18 | 32 | CPP | I11 to I12 | 60+69 |
| 35 | 18 | 40 | CPP | I11 to I12 | 68+08 |
| 36 | 18 | 50 | CPP | I11 to I12 | 85+41 |

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EXHIBIT F

ROCK PIT DEVELOPMENT AND USE

(1) PURCHASER shall schedule and coordinate quarry and stockpile usage with other existing or planned STATE contracts.

(2) Pit site shall be left in a condition free from overburden and debris. Access roads to the pit, and the pit floor, shall be cleared at the termination of use.

(3) Benches shall be maintained at intervals of 40 feet or less in height and shall be a minimum of 20 feet in width. Any gravel or talus slopes shall be left with a working face at an angle of 60 degrees or less. Said bench shall be easily accessible with tractors.

(4) Pit face shall be developed in a uniform manner.

(5) Proper winterization and storm-water control measures such as water barring, drainage, utilization of filter bales, mulching and/or blocking access shall be utilized and such measures maintained to protect the watershed and project work, as directed by STATE.

(6) PURCHASER shall notify STATE 5 days prior to the start of quarry use activities.

(7) All quarry backslopes shall be left in a stable condition.

(8) The quarry floor shall be maintained 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 G

## PIT-RUN AND RIPRAP ROCK SPECIFICATIONS

| | | | |
|---|---|---|---|
| For 6"-0" Pit-Run | Passing | 10" sieve | 100% |
| | Passing | 6" sieve | 65% |

Control of gradation shall be by visual inspection by STATE.

For 24”-6” Riprap — A minimum of 50 percent or more of the material shall measure at least 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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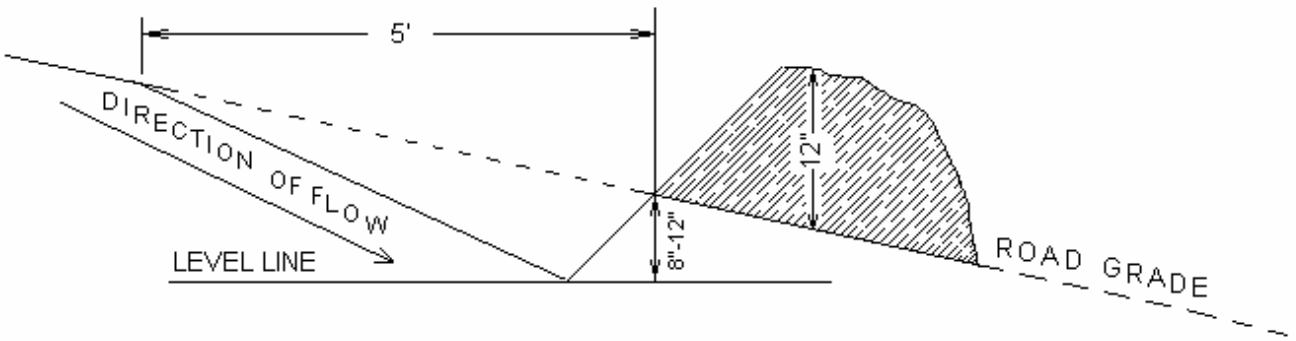
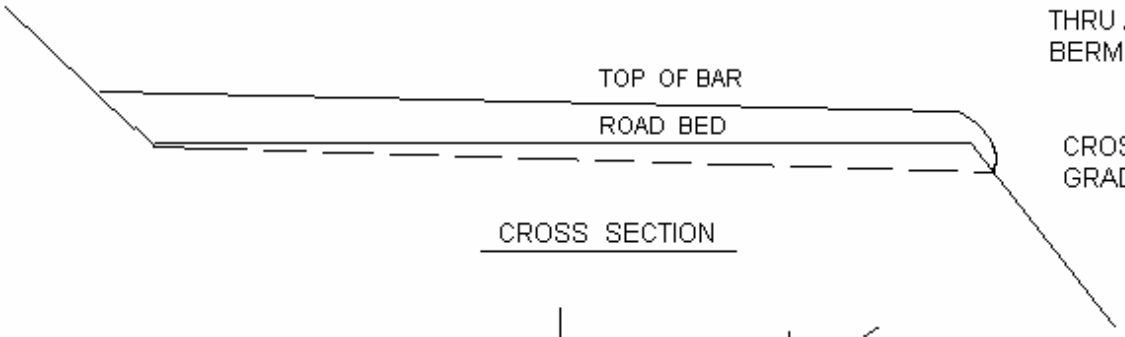
EXHIBIT H

# WATERBAR SPECIFICATIONS




PROFILE

CONSTRUCT DITCH THRU ANY EXISTING BERM.

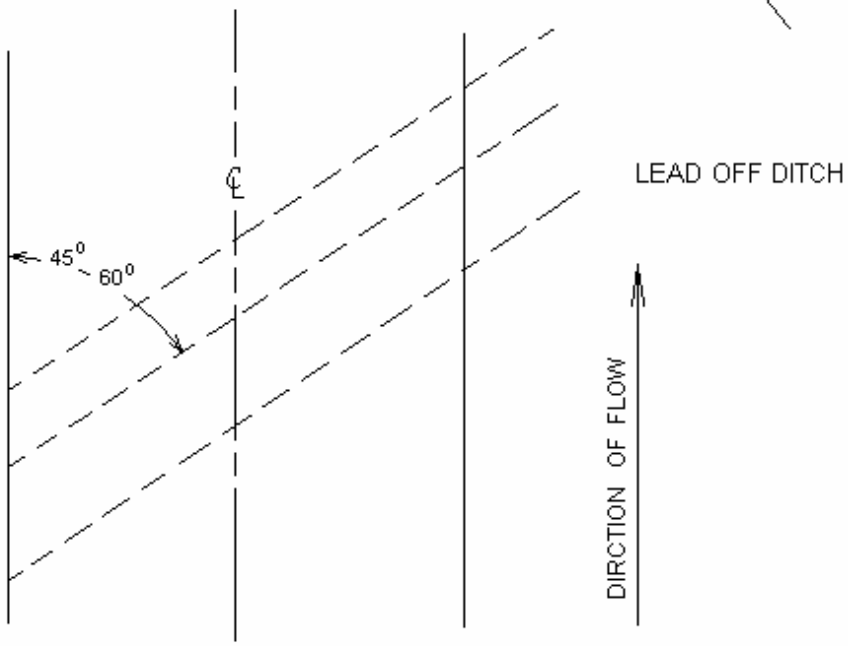



CROSS DRAINAGE GRADIENT MINIMUM 3%

CROSS SECTION

SPACING OF WATERBARS:

AS DIRECTED BY STATE.




PLAN VIEW

WATERBAR SPECIFICATIONS
FOR CROSS DITCHING #298

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EXHIBIT I

TYPICAL EMBEDDED ENERGY DISSIPATOR

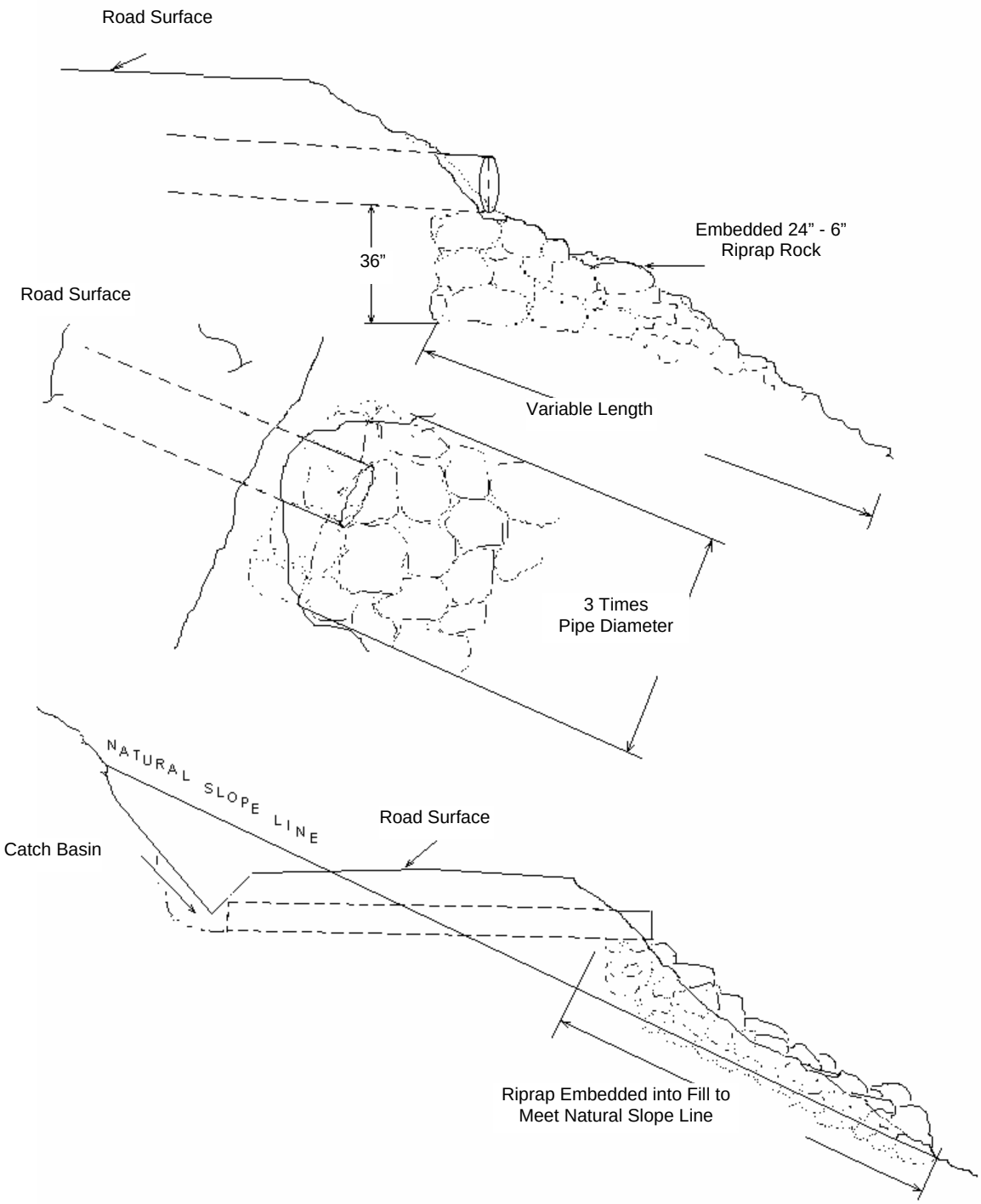

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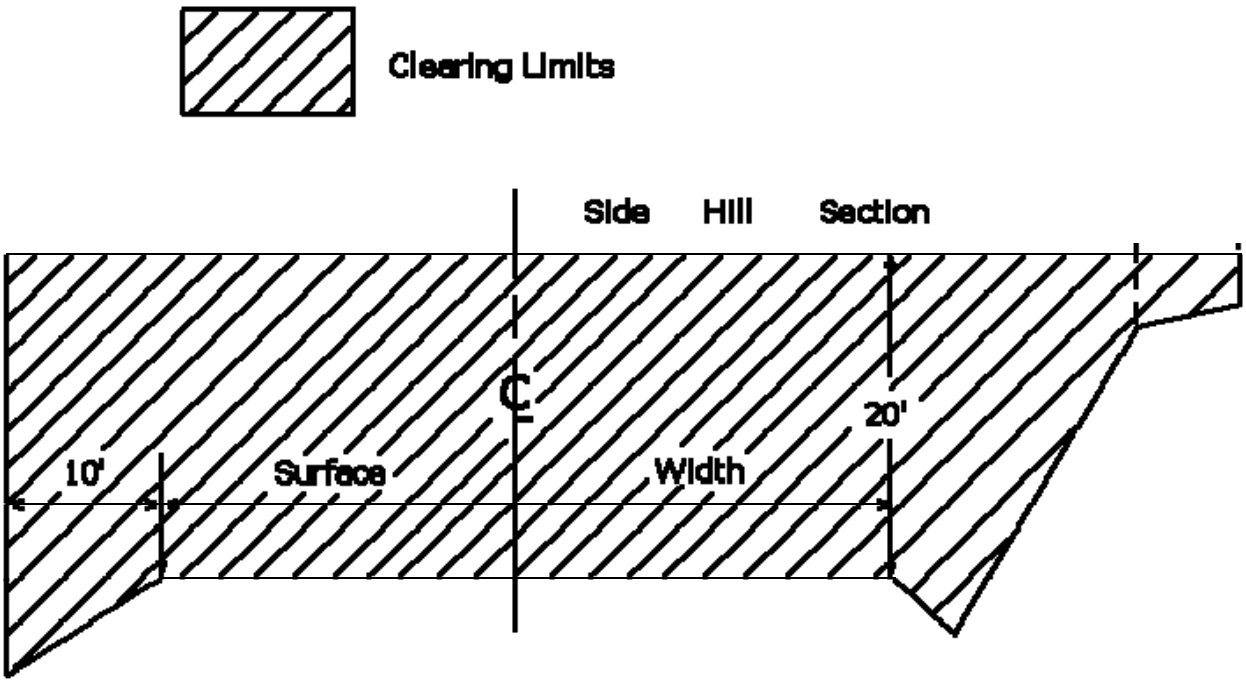
EXHIBIT J

LOGGING ROAD BRUSHING SPECIFICATIONS




REQUIREMENTS

The minimum height of clearing shall be 20 feet from the road surface, and the minimum width of clearing on the cutslope side(s) of the road shall be 15 feet horizontal distance from the shoulder of the road and 10 feet horizontal on the down slope side from the road shoulder. For cutslopes less than 6 feet in height, brushing shall extend 5 feet beyond the top of cutslope. For cutslopes greater than 6 feet in height, brushing shall extend 15 feet horizontal distance from the road shoulder.

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

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

Trees larger than 6 inches in diameter at stump height, located within clearing limits but outside of the ditchline or shoulder, shall not be cut down, but shall be limbed for road visibility.

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EXHIBIT K

GRASS SEEDING AND MULCHING

This work shall consist of furnishing and placing required grass seed, and straw mulch.

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. Work shall be performed during each specified seeding season on all completed and previously untreated sections. PURCHASER shall notify STATE 24 hours prior to seeding.

Application Methods for Grass Seed

Dry Method. Hand-operated seeding devices may be used when seed is applied in dry form.

Application Rates for Seed

Seed listed below shall be applied at the following rate per acre: 100 lbs.

| SPECIES | MIXTURE | PURE LIVE SEED | POISON AND/OR REPELLENT | GERMINATION |
|---|---|---|---|---|
| **Annual Rye** | **26%** | **95%** | **0** | **>90%** |
| **Orchard Grass** | **25%** | **95%** | **0** | **>90%** |
| **New Zealand White Clover** | **17%** | **95%** | **0** | **>90%** |
| **Perennial Rye** | **15%** | **95%** | **0** | **>90%** |
| **Birdsfoot Trifoil** | **07%** | **95%** | **0** | **>90%** |
| **Red Clover** | **06%** | **95%** | **0** | **>90%** |
| **Alsike Clover** | **04%** | **95%** | **0** | **>90%** |

Seeding and Mulching

Apply grass seed and straw mulch to all waste areas and bare soils resulting from Project No. 3 fill removals, and all waste areas and borrow areas resulting from Project No. 1.

Applied straw mulch shall be a minimum of 2 inches deep and provide a uniform cover.

Grass seed shall be applied prior to the application of straw mulch.

EXHIBIT L

ROAD VACATING AND FILL REMOVAL INSTRUCTIONS: V1 to V2, AND V3

(1) Tree Removal. Cut or remove all trees necessary to access the project area and to facilitate vacating operations, as directed by STATE. Timber shall NOT be removed as designated timber, unless located within posted timber sale boundaries or right-of-way boundaries.

(2) Fill Removal and Stream Channel Development. Remove fills to the natural stream course level(s). Stream channel(s) shall be excavated/developed to 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) Use of Excavated Materials.

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

(b) Woody Debris may be incorporated in embankment material.

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

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

(6) Construct Waterbars as directed by STATE. Construct waterbars according to the specifications in Exhibit H.

(7) Equipment. A minimum 1 ½ 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.

(8) Dry Conditions. All work shall be performed during dry conditions acceptable to STATE.

FPA Written Plan. STATE has prepared the required FPA Written Plan for this work and the Plan is on file at the Astoria District, Oregon Department of Forestry. Fill removal, stream channel development, and/or in-stream work shall be conducted between July 1 and September 1, annually.

EXHIBIT L

ROAD VACATING AND FILL REMOVAL INSTRUCTIONS: V1 to V2, AND V3

SPECIFIC INSTRUCTIONS/SPECIFICATIONS

| Segment | Station | Work Description |
|---|---|---|
| V1 to V2 | 0+95 | Fill/ culvert removal. Develop a minimum 6-foot wide stream channel. Excavated material shall be placed on the interior (cut) side of the road on both sides of the fill, as directed by STATE. |
| | 2+55 | Fill/ culvert removal. Develop a minimum 6-foot wide stream channel. Excavated material shall be placed on the interior (cut) side of the road on both sides of the fill, as directed by STATE. |
| | 6+35 | Remove culvert. Establish drainage. |
| V3 | Point V3 | Fill/ culvert removal. Remove all fill and restore to natural contours. |

# *PART IV: OTHER INFORMATION*

State Timber Sale Contract
No. 341-06-29
Sagermeister

**FOREST PRACTICES ACT "WRITTEN PLAN"**
**For Harvest of Sagermeister Timber Sale 341-06-29**

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

**Protected Resources:**
An unnamed medium Type F tributary of Sager Creek is located within 200-600 feet of the road vacating project in Section 35, T6N, R6W, W.M., Clatsop County, Oregon.

**Situation:**
An old road parallels Sager Creek in Area 7 of the Sagermeister Timber Sale will be vacated upon completion of log hauling in Area 7. Two fills on this old road will be removed and the stream channel will be restored.

Fill removal materials will be left on-site, in stable locations ten feet back from the top of the new stream cutslope. Soil disturbance will be kept to a minimum and all exposed soil around the vacated fills will be grass seeded and mulched.

Further detailed work specifications for this project are included as Project No. 3 of the Sagermeister Timber Sale Contract.

**Specific Site Characteristics:**
The streambeds of the small Type N streams where the two fills to be removed are located are approximately 4 to 6 feet wide with moderate to steep stream-bank slopes. Streamside vegetation is dominated by conifer reprod, approximately 25 years of age. The two fills to be removed are within 500 to 600 feet of the medium Type F tributary of Sager Creek.

**Practices:**
Along the above mentioned streams, as well as any live streams, the following practices are required, under the timber sale contract, to protect the streams and streamside areas:

- Work will be performed only during dry weather periods, low water stream flows, and between July 1 and September 1, annually.
- Machine activity in stream channels will be minimized. All excavation and removed fill placement will be performed using a minimum 1 ½ cubic-yard track-mounted excavator.
- De-watering of existing fills and development of the stream channel will be accomplished by use of coffer dams, temporary diversion ditches, or drainage structures and/or damming and pumping.
- Disturbance to existing vegetation will be minimized. Trees removed within the RMA will not be removed as designated timber and will be left in the RMA, in stable locations.
- Excavated fill materials will be used for recontouring slopes or placed in approved waste areas and left in a stable condition.
- Bare soils resulting from fill removal shall be grass seeded and mulched with straw mulch approved by STATE. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.
- Debris entering the RMA or aquatic area will be removed by the end of operations each day or as soon as possible and placed in a stable location, unless an alternate practice is approved by STATE.

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

Submitted: _____ Date: _____
Purchaser/Operator Contract Representative

**Attachment:** Exhibit A
Original: Salem
cc: Operator, Purchaser, District file, Salem, Eng. Unit, Jewell Unit

State Timber Sale Contract
No. 341-06-29
Sagermeister

**FOREST PRACTICES ACT "WRITTEN PLAN"**
**For Harvest of Sagermeister Timber Sale 341-06-29**

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

**Protected Resources:**
The following streams are located in Section 35 of T6N, R6W, W.M., Clatsop County, Oregon.

Area 1 There are no Type F streams within Area 1. A portion of the western boundary of Area 1 is adjacent to a small Type F tributary of Sager Creek for approximately 650 feet.

Area 2 There are no Type F streams within Area 2. A portion of the western boundary of Area 2 is adjacent to a small Type F tributary of Sager Creek for approximately 1,200 feet.

Area 4 There are no Type F streams within Area 4. A portion of the eastern boundary of Area 4 is adjacent to a small Type F tributary of Sager Creek for approximately 1,500 feet.

Area 7 There are no Type F streams within Area 7. A portion of the southern boundary of Area 7 is adjacent to a medium Type F tributary of Sager Creek for approximately 1,500 feet.

**Specific Site Characteristics:**
Type F Tributaries to Sager Creek (Areas 1, 2, 4, and 7): The streambeds are approximately 5 to 12 feet wide with moderate stream-bank slopes. Streamside vegetation is dominated by mature red alder and bigleaf maple. There is a significant component of conifer trees located above the flood plain.

**Tree and Vegetation Retention:**
The timber sale boundary for Areas 1, 2, 4, and 7 (partial cuts) are posted at least 25 feet from the Type F streams. There are several Type N streams throughout the sale area that are tributaries to these streams. These Type N streams have 25 foot unposted stream buffers.

**Practices:**
Along the above mentioned Type F streams that are adjacent to Areas 1, 2, 4, and 7, as well as all other perennial Type N streams not listed, the following practices are required under the timber sale contract:

- No trees will be felled within stream buffers (RMA's), except in cable corridors.
- Trees adjacent to the stream buffers (RMA's) will be felled away from or parallel to the streams to prevent trees from entering the aquatic areas.
- No ground based logging equipment will be permitted within the RMA's.

When cable logging is conducted nearby the RMA's, logging lines may cross, but will not be lowered into the RMA's during yarding, except during rigging. During rigging the lines must be pulled out of the RMA's when changing corridors.

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

Submitted: _____ Date: _____
Purchaser/Operator Contract Representative

**Attachments:** Logging Plan Map
Original: Salem
cc: Operator, Purchaser, District file, Salem, Eng. Unit, Jewell Unit