

PART III: EXHIBITS

State Timber Sale Contract
No. 341-06-30
Goose Pit Combination

EXHIBIT B

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

OREGON DEPARTMENT OF FORESTRY

TIMBER SALE OPERATIONS PLAN

(See Page 2 for instructions)



Date Received by STATE: _____

(5) State Brand Information (complete):

(1) Contract No.: 341-06-30

(2) Sale Name: Goose Pit Combination

(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.

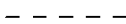
- (10) The STATE representative will furnish extra copies of Exhibit A of the contract for your use in preparing the operations map. The map shall use the following legend and show:
 1. Landing locations, approximate setting boundaries, and probable sequence of logging the settings. Number the settings 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.



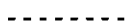
Cable landing, with numbers for sequence.



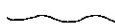
Tractor landing with alphabetical sequence.



Approximate setting boundary.



Spur truck roads.



Tractor yarding roads.



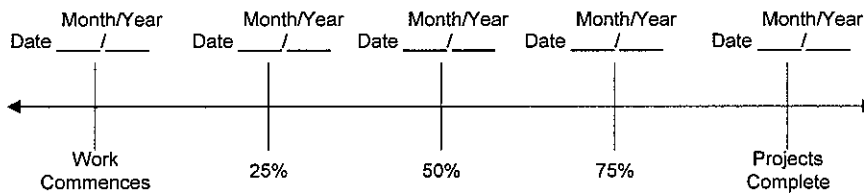
Temporary stream crossings.

EXHIBIT B
OPERATIONS PLAN

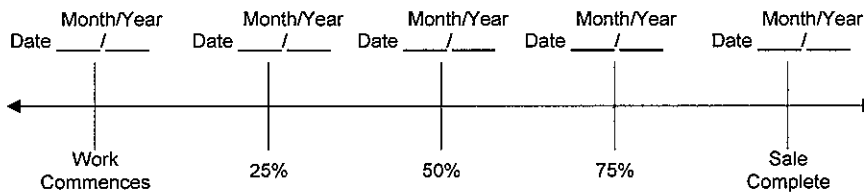
Completion Timeline

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: _____

SUBMITTED BY:
PURCHASER

STATE OF OREGON - DEPARTMENT OF FORESTRY

Title _____

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 _____

(12) SALE NAME Goose Pit Combination
 COUNTY Clatsop

(13) STATE CONTRACT NUMBER 341-06-30

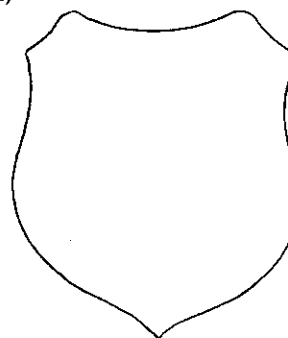
(14) SCALE: westside eastside cubic foot

(15) STATE BRAND REGISTRATION NUMBER _____

(16) BUREAU BRAND CODE NUMBER _____

(17) STATE BRAND INFORMATION:

(COMPLETE) ↓



(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

(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: _____

(10) APPROVED SCALING LOCATIONS	Species	Yard	Truck

(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 7 inches in gross scaling diameter. All hardwood logs that meet both requirements shall be scaled as "Utility."

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

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

(21) SIGNATURES:

 State Forester's Representative

 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.

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
16 feet	12 feet	1A to 1B	0+00 to 30+75	DITCH
16 feet	12 feet	1C to 1D	0+00 to 1+25	DITCH
16 feet	12 feet	2A to 2B	0+00 to 20+60	DITCH
16 feet	12 feet	2C to 2D	0+00 to 23+00	DITCH
14 feet	N/A	2E to 2F	0+00 to 8+70	OUTSLOPED
16 feet	12 feet	2G to 2H	0+00 to 8+00	DITCH
16 feet	12 feet	2I to 2J	0+00 to 2+50	DITCH
14 feet	N/A	2K to 2L	0+00 to 8+50	OUTSLOPED
16 feet	12 feet	2M to 2N	0+00 to 3+15	DITCH
16 feet	12 feet	2O to 2P	0+00 to 1+00	DITCH
14 feet	N/A	3A to 3B	0+00 to 21+50	OUTSLOPED
14 feet	N/A	3C to 3D	0+00 to 11+50	OUTSLOPED
16 feet	12 feet	3E to 3F	0+00 to 1+15	DITCH
16 feet	12 feet	3G to 3H	0+00 to 1+45	DITCH
20 feet	14 feet	A to B	0+00 to 34+00	DITCH
20 feet	14 feet	C to D	0+00 to 2+50	DITCH
16 feet	14 feet	I1 to I2	0+00 to 10+50	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 5 feet back of the top of the cutslope and 5 feet out from the toe of the fill slope, or as directed by STATE. Clearing debris shall not be placed or permitted to remain in or under any road embankment sections. Clearing debris shall not be left lodged against standing trees.

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

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 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 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. Do not place clearing and grubbing debris on side slopes exceeding 50 percent. 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-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

Subgrade. Subgrade shall be crowned at 4 to 6 percent ($\frac{1}{2}$ inch per foot).

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

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

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.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

GRADING

Rock
Common - side slopes 50% and over
Common - side slopes less than 50%
Common - turnpike (level) section

Back Slopes

Vertical to 1/4:1
3/4:1
1:1
2:1

Fill Slopes

Not steeper
than 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. 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 unrocked roads or unfinished subgrades shall be waterbarred in accordance with 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

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
1A to 1B	1+00	Construct 50 foot landing on right side of road.
	5+50	Construct 50 foot landing on left side of road.
	12+50	Construct 50 foot landing on left side of road.
	14+00	Beginning of end-haul segment. Utilize suitable material for road construction between Stations 15+60 and 21+50. Haul excess excavation material and clearing debris to waste area(s).
	15+60	End of end-haul segment.
	16+00	Construct 50 foot landing on right side of road.
	18+50	Junction with 1C to 1D.
	21+75	Construct 70 foot landing on right side of road.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
2A to 2B	4+00	Junction with 2G to 2H.
	6+70	Construct 50 foot landing on the right side of road.
	10+50	Construct 50 foot landing on right side of road.
	13+80	Beginning of end-haul segment.
	19+50	Construct 50 foot landing on left side of road.
	20+65	End of end-haul segment.
2C to 2D	5+80	Construct 50 foot landing on right side of road.
	8+00	Install culvert. Utilize 10 cubic yards or 24"-6" riprap rock to construct an energy dissipator.
	15+50	Construct 50 foot landing on left side of road.
	18+20	Construct 50 foot landing on left side of road.
3A to 3B	6+40	Beginning of end-haul segment. Utilize suitable material for road construction between Stations 14+50 and 21+90. Haul excess excavation material and clearing debris to waste area(s).
	13+50	End of end-haul segment.
	17+00	Construct 50 foot landing on right side of road.
A to B	1+80	Beginning of end-haul segment. Utilize suitable material for road construction between Stations 6+50 and 9+00. Haul excess excavation material and clearing debris to waste area(s).
	6+50	End of end-haul segment.
	15+50	Begin placement of boulders along edge of road. Place large boulders approximately every 4 feet along the outside edge of the road in order to create a safety barrier above the pit face. An excavator shall be used to dig a small depression to place the boulder in for stabilization.
	17+25	Begin drilling and shooting end-haul. Use suitable fill material to construct the fill on Road Segment C to D.
	18+60	End drilling and shooting.
	18+80	End placement of boulders.
	19+00	Junction Pt. C.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
A to B	19+65	Beginning of end-haul segment.
	20+80	Install culvert. Utilize 10 cubic yards or 24"-6" riprap rock to construct an energy dissipator.
	22+40	End of end-haul segment.
	23+80	Install culvert. Utilize 10 cubic yards or 24"-6" riprap rock to construct an energy dissipator.
	24+15	Protect Section Corner: distance of 46 feet at an azimuth of 188 degrees.
	27+00	Beginning of end-haul segment.
	29+75	End of end-haul segment.
	30+90	Install culvert. Utilize 10 cubic yards or 24"-6" riprap rock to construct an energy dissipator.

EXHIBIT D
 END-HAULING REQUIREMENTS

POINT TO POINT	STA. TO STA.	CONTAINMENT	WASTE AREA LOCATION	WASTE AREA TREATMENT
1A to 1B	14+00 to 15+60	1	1 and 2	1, 5, and 6
2A to 2B	13+80 to 14+90	2	3	2, 5, and 6
3A to 3B	6+40 to 13+50	1	4 and 5	3, 5, and 6
A to B	1+80 to 6+50	1	6 and 7	3, 5, and 6
A to B	19+65 to 22+40	1	7	4, 5, and 6
A to B	27+00 to 29+75	1	7	4, 5, and 6

End-Haul Areas General Requirements

Material shall not be intentionally sidecast.

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

- (1) 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.
- (2) Average containment: The amount of material lost over the outside edge of the road shall not exceed 12 inches in depth measured perpendicular to the natural ground slope, unless this is a balance road segment.

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) Stations 15+60 to 21+50 on Road Segment 1A to 1B.
- (2) Waste Area No. 2 is located on Road Segment 1A to 1B as shown on Exhibit A.
- (3) Stations 20+00 to 21+10 on Road Segment 2A to 2B.
- (4) Stations 14+50 to 21+90 on Road Segment 3A to 3B.
- (5) Waste Area No. 4 is located adjacent to Station 5+00 on Road Segment 3A to 3B, as shown on Exhibit A.
- (6) Stations 6+50 to 9+00 on Road Segment A to B.
- (7) Waste Area No. 6 is located at the Trailover Quarry, as shown on Exhibit A.

EXHIBIT D
END-HAULING REQUIREMENTS

Waste Area Treatment

- (1) Use suitable excavated material for use in subgrade/fill construction between Stations 15+60 to 21+50 on Road 1A to 1B.
- (2) Use suitable excavated material for use in subgrade/fill construction between Stations 20+00 to 21+10 on Road 2A to 2B.
- (3) Use suitable excavated material for use in subgrade/fill construction between Stations 14+50 to 21+90 on Road 3A to 3B.
- (4) Use suitable excavated material for use in subgrade/fill construction between Stations 6+50 to 9+00 on Road A to B.
- (5) Place excess excavated materials, end haul materials, and clearing and grubbing debris in the waste areas shown on Exhibit A. All waste 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.
- (6) Grass seed and mulch all waste areas in accordance to Exhibit J.

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, 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 pipe 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 J. 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 Exhibit D. 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.
- (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, bridge construction, 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

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
I1 to I2	5+00	Fill reconstruction and culvert replacement. Utilize 20 cubic yards of 1½"-0" rock for culvert bedding and backfill. Utilize 30 cubic yards of 24"-6" riprap rock for fill armor and energy dissipator construction.

ROAD SURFACING – PROJECT NO. 1

ROAD SEGMENT: 1A to 1B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	1A to 1B		0+00 to 30+75		
				Volume (CY) per	Number of			
Base Rock	4"-0" Crushed	1A to 1B	8	Station	50	Stations	30.75	1,538
Curve Widening	4"-0" Crushed		8			Curves		70
Turnouts	4"-0" Crushed		8	Turnout	22	Turnouts	7	154
Turnarounds	4"-0" Crushed		N/A	TA	24	TA	2	48
Junctions	4"-0" Crushed		8	Junction	24	Junctions	2	48
Traction Rock	¾"-0" Crushed	14+00-15+00, 25+00-27+00	2	Station	13	Stations	3	39
Turnouts	¾"-0" Crushed	25+50	2	Turnout	10	Turnouts	1	10
Landing Rock	6"-0" Pit Run	21+75, 1B	N/A	Landing	80	Landings	2	160
Landing Rock	6"-0" Pit Run	1+00, 5+50, 12+50, 16+00	N/A	Landing	50	Landings	4	200
Total Rock for Road Segment:				1A to 1B				2,267
ROAD SEGMENT: 1C to 1D				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	1C to 1D		0+00 to 1+25		
				Volume (CY) per	Number of			
Base Rock	4"-0" Crushed	1C to 1D	8	Station	50	Stations	1.25	63
Landing Rock	6"-0" Pit Run	1D		Landing	50	Landings	1	50
Total Rock for Road Segment:				1C-1D				113
ROAD SEGMENT: 2A to 2B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A to 2B		0+00 to 20+60		
				Volume (CY) per	Number of			
Base Rock	4"-0" Crushed	2A to 2B	8	Station	50	Stations	20.60	1,030
Curve Widening	4"-0" Crushed		8			Curves		22
Turnouts	4"-0" Crushed		8	Turnout	22	Turnouts	3	66
Turnarounds	4"-0" Crushed	18+80	N/A	TA	24	TA	1	24
Junctions	4"-0" Crushed		8	Junction	24	Junctions	3	72
Traction Rock	¾"-0" Crushed	12+00 - 14+50	2	Station	13	Stations	2.5	33
Landing Rock	6"-0" Pit-run	19+50, 2B	N/A	Landing	50	Landings	2	100
Landing Rock	6"-0" Pit-run	6+70, 10+50	N/A	Landing	40	Landings	2	80
Total Rock for Road Segment:				2A to 2B				1,427
ROAD SEGMENT: 2C to 2D				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	2C to 2D		0+00 to 23+30		
				Volume (CY) per	Number of			
Base Rock	4"-0" Crushed	2C to 2D	8	Station	50	Stations	23.00	1,150
Curve Widening	4"-0" Crushed		8			Curves		164
Turnouts	4"-0" Crushed		8	Turnout	22	Turnouts	2	44
Turnarounds	4"-0" Crushed		N/A	TA	24	TA	3	72
Traction Rock	¾"-0" Crushed	1+50-5+00, 6+50-11+50	2	Station	13	Stations	8.5	111
Curve Widening	¾"-0" Crushed		2			Curves		60
Turnouts	¾"-0" Crushed	1+20, 11+50	2	Turnout	10	Turnouts	5	50
Energy Dissipator	24"-6" Riprap	8+00	N/A	Dissipator	10	Dissipators	1	10
Landing Rock	6"-0" Pit-run	5+80, 15+50, 18+20, 2D	N/A	Landing	50	Landings	4	200
Total Rock for Road Segment:				2C to 2D				1,861

EXHIBIT D

ROAD SURFACING – PROJECT NO. 1

ROAD SEGMENT: 2G to 2H				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	2G to 2H		0+00 to 8+00		
				Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	2G to 2H	8	Station	50	Stations	8.00	400
Turnouts	4"-0" Crushed	3+75	8	Turnout	22	Turnouts	1	22
Turnarounds	4"-0" Crushed	7+50	N/A	TA	24	TA	1	24
Landing Rock	6"-0" Pit-run	2H	N/A	Landing	80	Landings	1	80
Total Rock for Road Segment:				2G to 2H				526
ROAD SEGMENT: 2I to 2J				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	2I to 2J		0+00 to 2+50		
				Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	2I to 2J	8	Station	50	Stations	2.50	125
Junctions	4"-0" Crushed		8	Junction	24	Junctions	1	24
Landing Rock	6"-0" Pit Run	2J	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment:				2I to 2J				199
ROAD SEGMENT: 2M to 2N				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	2M to 2N		0+00 to 3+15		
				Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	2M to 2N	8	Station	50	Stations	3.15	158
Junctions	4"-0" Crushed		8	Junction	24	Junctions	1	24
Landing Rock	6"-0" Pit Run	2N	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment:				2M to 2N				232
ROAD SEGMENT: 2O to 2P				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	2O to 2P		0+00 to 1+00		
				Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	2O to 2P	8	Station	50	Stations	1.00	50
Junctions	4"-0" Crushed		8	Junction	40	Junctions	1	40
Junction Rock	¾"-0" Crushed		2	Junction	10	Junctions	1	10
Landing Rock	6"-0" Pit Run	2P	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment:				2O to 2P				150
ROAD SEGMENT: 3E to 3F				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	3E to 3F		0+00 to 1+15		
				Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	3E to 3F	8	Station	50	Stations	1.15	58
Junctions	4"-0" Crushed		8	Junction	24	Junctions	1	24
Junction Rock	¾"-0" Crushed		2	Junction	10	Junctions	1	10
Landing Rock	6"-0" Pit Run	3F	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment:				3E to 3F				142

EXHIBIT D

ROAD SURFACING – PROJECT NO. 1

ROAD SEGMENT: 3G to 3H				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (Inches)	3G to 3H		0+00 to 1+45		
				Volume (CY) per	Number of			
Base Rock	4"-0" Crushed	3G to 3H	8	Station	50	Stations	1.45	73
Curve Widening	4"-0" Crushed		8			Curves		22
Junctions	4"-0" Crushed		8	Junction	24	Junctions	1	24
Junction Rock	¾"-0" Crushed		2	Junction	10	Junctions	1	10
Landing Rock	6"-0" Pit Run	3H	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment:				3G to 3H				179

Total Rock for Project No. 1

24'-6"	6'-0"	4'-0"	¾'-0"	TOTAL
10	1,120	5,631	332	7,093

EXHIBIT D

ROAD SURFACING – PROJECT NO. 2

ROAD SEGMENT: A to B (Trailover Ridge Road)				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	A to B		0+00 to 34+00		
				Volume (CY) per	Station	Number of	Stations	
Base Rock	4"-0" Crushed	A to B	12	Station	92	Stations	34.00	3,128
Curve Widening	4"-0" Crushed		12			Curves		200
Turnouts	4"-0" Crushed		12	Turnout	33	Turnouts	8	264
Turnarounds	4"-0" Crushed	7+80	N/A	TA	30	TA	1	30
Surfacing	¾"-0" Crushed	A to B	3	Station	22	Stations	34	748
Turnouts	¾"-0" Crushed		3	Turnout	10	Turnouts	8	80
Curve	¾"-0" Crushed		3	Curve		Curves		35
Energy Dissipator	24"-6" Riprap	20+80, 23+80, 30+90	N/A	Dissipator	10	Dissipators	3	30
Blockade	36"-24"	15+50 to 18+80	N/A	Boulder	1	Boulders	34	26
Total Rock for Road Segment:				A to B				4,541
ROAD SEGMENT: C to D				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	C to D		0+00 to 2+50		
				Volume (CY) per	Station	Number of	Stations	
Base Rock	4"-0" Crushed	C to D	12	Station	86	Stations	2.50	215
Curve Widening	4"-0" Crushed		12			Curves		125
Fill Widening	4"-0" Crushed		12					100
Junction Rock	4"-0" Crushed	19+00	12	Junction	60	Junctions	1	60
Junctions	¾"-0" Crushed	19+00	3	Junction	30	Junctions	1	30
Surfacing	¾"-0" Crushed	C to D	3	Station	22	Stations	2.5	55
Total Rock for Road Segment:				C to D				585
ROAD SEGMENT: I1 to I2				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 10+50		
				Volume (CY) per	Station	Number of	Stations	
Culvert Bedding	1½ "-0" Recycled	5+00	N/A	Culvert	20	Culverts	1	20
Base Replacement	4"-0"	5+00	8"	Fill	40	Fills	1	40
Energy Dissipator	24"-6" Riprap	5+00	N/A	Dissipator	10	Dissipators	1	10
Fill Armor	24"-6" Riprap	5+00	N/A	Fill	10	Fill slopes	2	20
Subgrade Leveling	¾"-0" Crushed	I1 to I2	N/A					50
Surfacing	¾"-0" Crushed	I1 to I2	3	Station	22	Stations	11	231
Total Rock for Road Segment:				I1 to I2				371

Total Rock for Project No. 2

36"-24"	24"-6"	4"-0"	1½ "-0"	¾"-0"	TOTAL
26	60	4,162	20	1,229	5,497

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

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.

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. 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.

EXHIBIT E
 CULVERT LIST

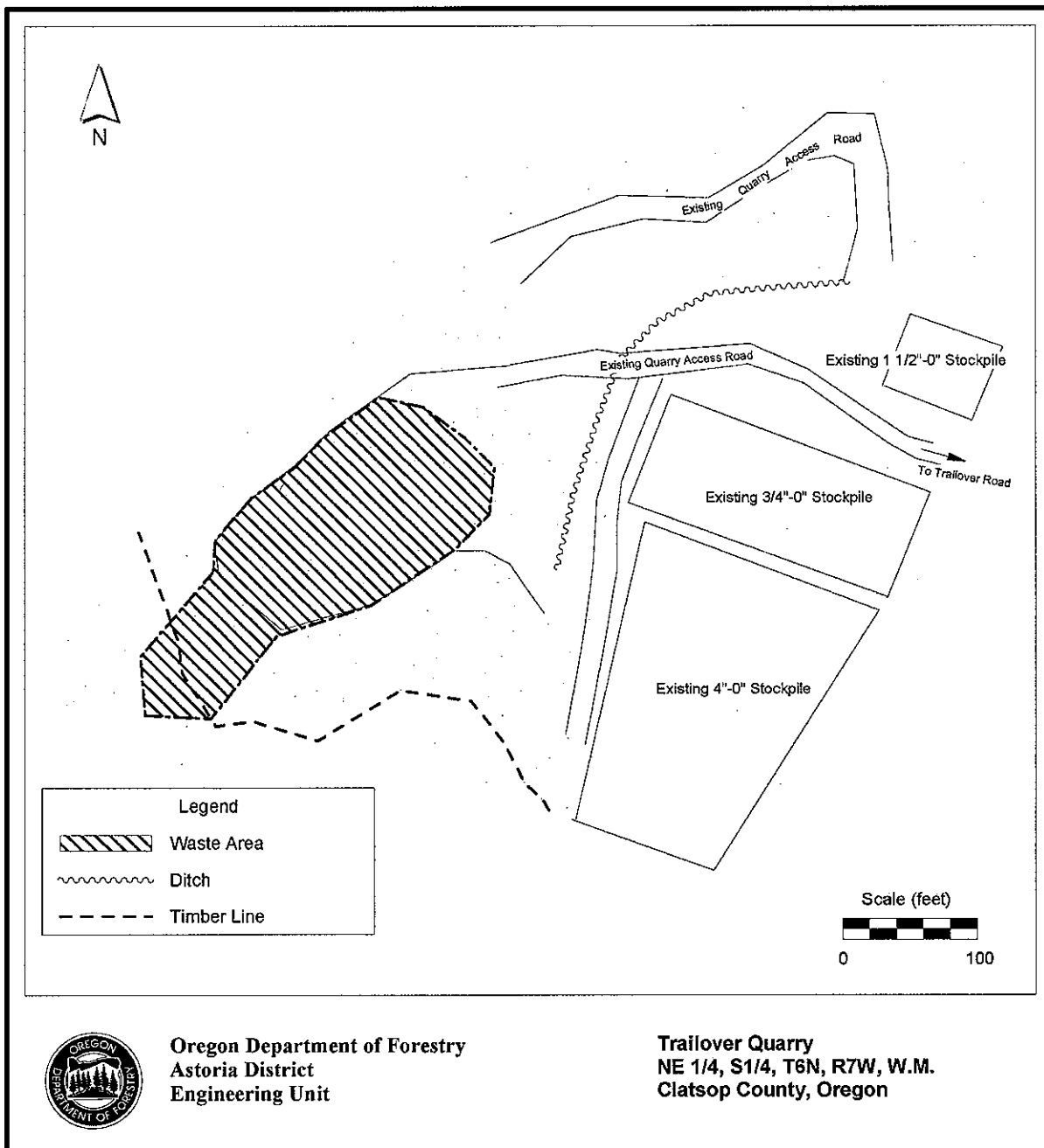
CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	MATERIAL TYPE	ROAD SEGMENT POINT TO POINT	STATION
1	18	30	CPP	1A to 1B	1+50
2	18	40	CPP	1A to 1B	11+80
3	18	30	CPP	2A to 2B	2+00
4	18	30	CPP	2A to 2B	4+20
5	18	34	CPP	2A to 2B	14+00
6	18	34	CPP	2C to 2D	2+00
7	18	30	CPP	2C to 2D	5+00
8	18	40	CPP	2C to 2D	8+00
9	18	34	CPP	2C to 2D	10+50
10	18	30	CPP	2C to 2D	13+50
11	18	40	CPP	2C to 2D	17+00
12	18	30	CPP	2C to 2D	21+50
13	18	30	CPP	2G to 2H	2+50
14	18	30	CPP	2G to 2H	7+00
15	18	40	CPP	2I to 2J	0+30
16	18	40	CPP	3E to 3F	0+00
17	18	40	CPP	3G to 3H	0+00
18	18	40	CPP	A to B	3+30
19	18	40	CPP	A to B	6+00
20	18	40	CPP	A to B	10+70
21	18	40	CPP	A to B	18+00
22	18	40	CPP	A to B	20+80
23	18	34	CPP	A to B	23+80
24	18	40	CPP	A to B	28+00
25	24	34	CPP	A to B	30+90
26	18	34	CPP	A to B	32+75
27	18	70	CPP	C to D	0+80
28	18	36	CPP	I1 to I2	5+00

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 STATE contracts.
- (3) 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) PURCHASER shall conduct the operation relative to the disposal of waste material in such manner that silt, rock, debris, dirt, or clay shall not be washed, conveyed, or otherwise deposited in any stream.
- (5) Quarry face shall be developed in a uniform manner.
- (6) 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.
- (7) 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.
- (8) PURCHASER shall notify STATE 5 days prior to the start of quarry development activities.
- (9) All quarry backslopes shall be left in a stable condition.
- (10) The quarry floor shall be developed to provide for drainage away from the quarry. All quarry and stockpile site drainage ditches shall be maintained. Quarry access roads shall be cleared and blocked upon completion of quarry use as directed by STATE.
- (11) Rehabilitation at the Trailover Quarry shall be accomplished by filling in excavated development areas, as shown on Exhibit A, with the excess material from the construction of road segment A to B. Rehabilitation shall provide for drainage at a minimum 3 percent gradient in a northeasterly direction, as shown on Exhibit F, page 2 (map). The rehabilitation measures shall prevent ponding or collection of water.

EXHIBIT F
ROCK QUARRY DEVELOPMENT AND USE



Oregon Department of Forestry
Astoria District
Engineering Unit

Trailover Quarry
NE 1/4, S1/4, T6N, R7W, W.M.
Clatsop County, Oregon

State Timber Sale Contract
No. 341-06-29
Goose Pit Combination

EXHIBIT G

PIT-RUN AND RIPRAP ROCK SPECIFICATIONS

<u>For 6"-0" Pit-Run</u>	Passing	10" sieve	100%
	Passing	6" sieve	65%

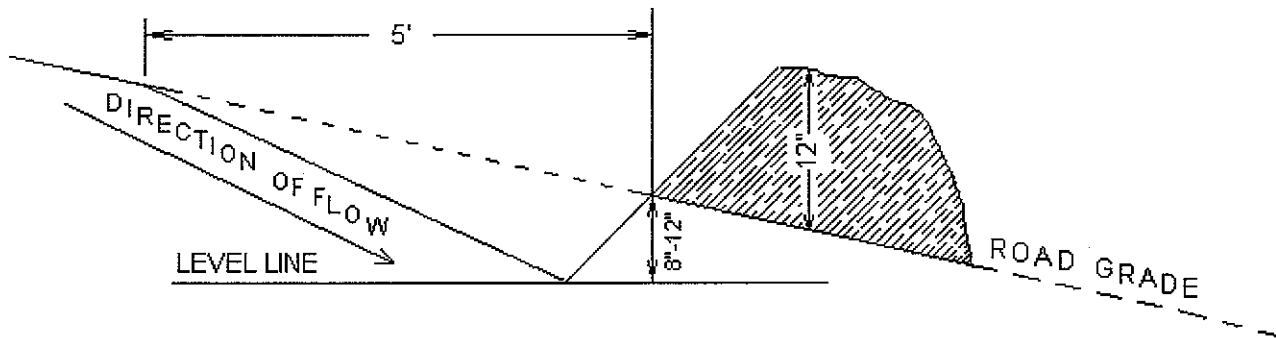
Control of gradation shall be by visual inspection by STATE.

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.

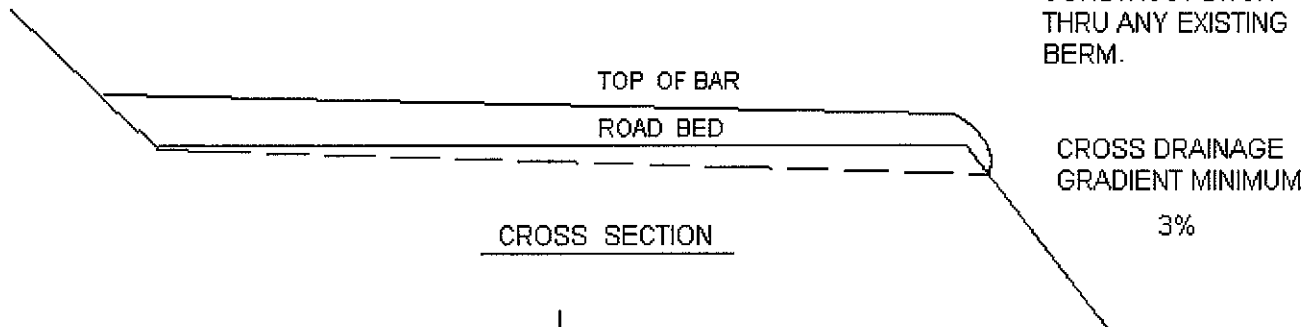
EXHIBIT H

WATERBAR SPECIFICATIONS



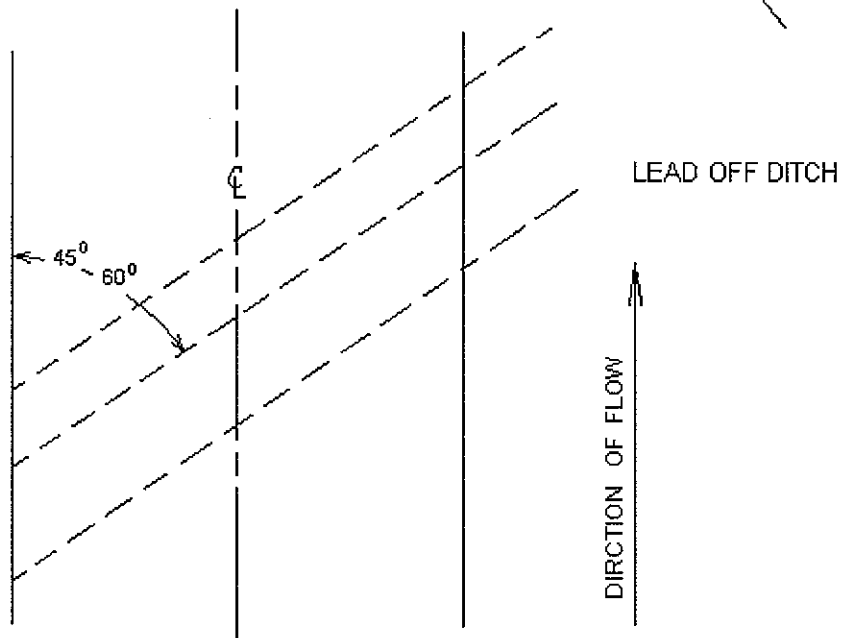
PROFILE

CONSTRUCT DITCH
THRU ANY EXISTING
BERM.



CROSS SECTION

SPACING OF WATERBARS:
AS DIRECTED BY STATE.



PLAN VIEW

EXHIBIT I
TYPICAL EMBEDDED ENERGY DISSIPATOR

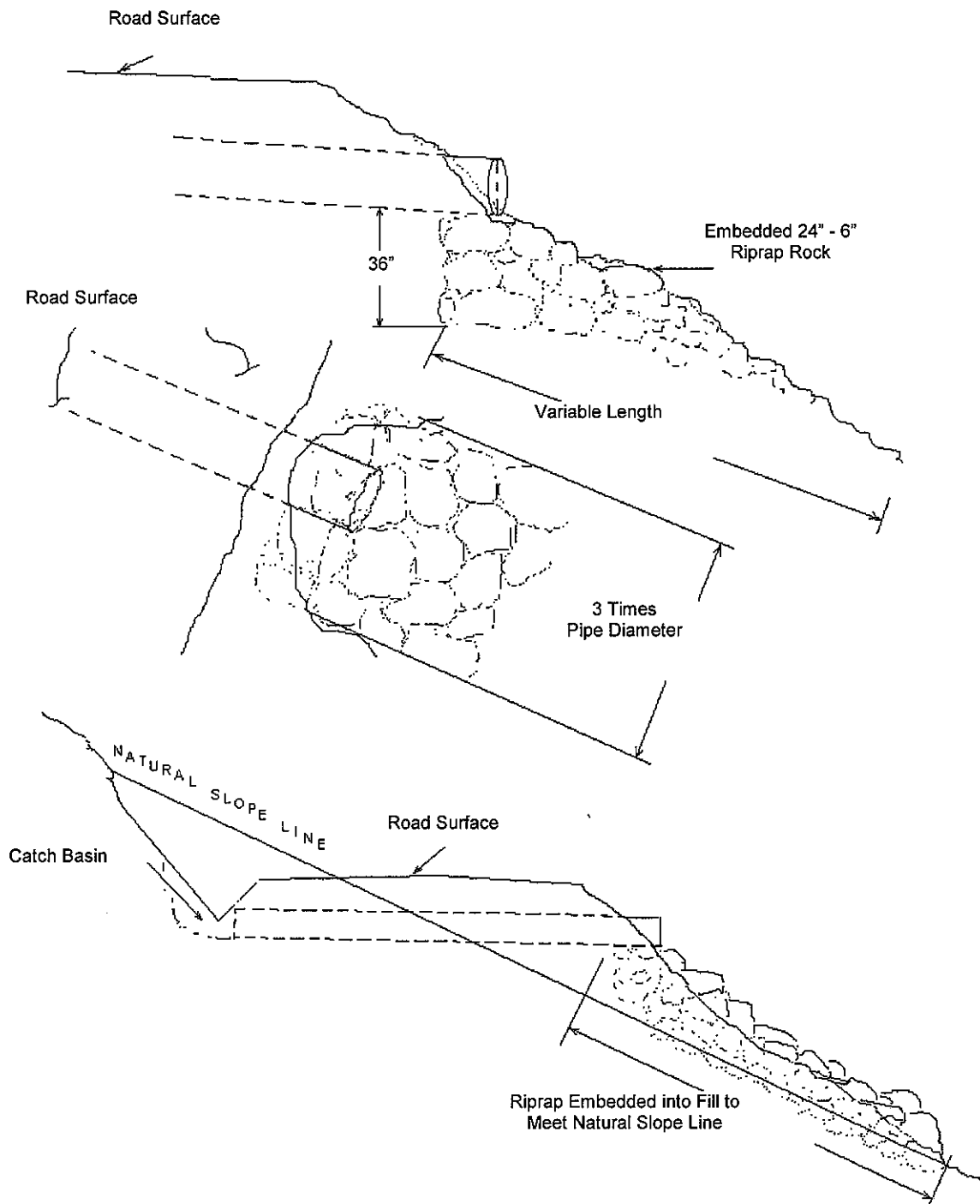


EXHIBIT J

GRASS SEEDING AND MULCHING

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

Seeding Seasons. Seeding and mulching 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 Trifol	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 resulting from Project Nos. 1 and 2.

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

EXHIBIT K

STREAM ENHANCEMENT INSTRUCTIONS

GENERAL INSTRUCTIONS

- (a) Stream enhancement structures will be created between points SE1 and SE2 along the northeast timber sale boundary of Area 4 and points SE3 and SE4 along the northwest timber sale boundary of Area 2, as shown on Exhibit A. Each structure must consist of a minimum of 5 conifer trees or logs and be no less than 100 feet apart.
- (b) Work shall be conducted only during periods of low water flows and between July 1 and August 31, annually unless otherwise approved in writing by STATE. STATE shall be notified a minimum of 48 hours prior to beginning work.
- (c) Turbidity shall not exceed 10% above natural stream turbidities as a result of work. The turbidity may be exceeded for a limited duration (per OAR 340-41), provided all practicable erosion control measures have been implemented.
- (d) Trees required for stream enhancement work shall be obtained from within the timber sale or at other locations acceptable to STATE.
- (e) Trees shall be uprooted, cut to length, and delivered to the project site, as directed by STATE. Trees will be transported by log truck, or other means so that roads are not damaged (i.e. trees cannot be dragged on road surface). The cable yarding system will be used to place all logs in the stream.

SPECIFIC INSTRUCTIONS

Location Work Description

SE1 to SE2 Work: When logging cables pass over Walker Creek between Points SE1 and SE2, shown on Exhibit A, PURCHASER shall create three stream enhancement structures in accordance with the above specifications, unless otherwise approved by STATE.

Materials: Five trees or logs at least 22 inches in diameter at the large end. A minimum length of 50 feet is required with branches, root wads attached if possible. Place at least one end of each tree or log on the stream bank.

SE3 to SE4 Work: When logging cables pass over the tributary of Walker Creek in Area 2 between Point SE3 and SE4 shown on Exhibit A, PURCHASER shall create five stream enhancement structures in accordance with the above specifications, unless otherwise approved by STATE.

Materials: Five trees or logs at least 18 inches in diameter at the large end. A minimum length of 40 feet is required with branches, root wads attached if possible. Place at least one end of each tree or log on the stream bank.

EXHIBIT L

SPECIFICATIONS FOR BRUSH AND SLASH SHOVEL PILING

Description of Work to be Done

Areas designated for work under the contract shall be treated according to the specifications given below:

Clearing - Brush, logging slash, and other debris shall be cleared from planting sites and piled in windrows or piled so that 80 percent or more of the soil organic layer is exposed. All woody vegetation (other than conifer trees) is defined as brush in this Exhibit.

Piles - shall be located at least 75 feet apart and shall be no more than 75 feet long. Piles shall be located inside the project area designated for piling and shall be more than 75 feet from any edge or standing conifer tree. Piles shall be built to a height of 3 to 4 feet and then covered to prevent water from reaching the slash. STATE shall supply the materials used for covering the slash. Additional woody debris shall be piled on top of the covered piles to complete the piling, as directed by STATE. Logs and chunks which are suitable for firewood shall be piled separately from slash, near roads and landings and alongside the road in locations designated by STATE.

Conifer Trees - shall be saved, unless otherwise directed by STATE.

Skid Trails - shall be ripped to a depth of 12 inches.

Residual Logs - An average of 600 cubic feet of hard conifer logs per acre. Log shall contain a minimum of 10 cubic feet of volume and be no shorter than 6 feet in length. Two logs per acre shall be at least 24 inches in diameter, on the large end, where available. Hard conifer logs must be in decay class one or two as indicated by intact bark and original wood color. Trees or logs shall be left well distributed across the unit.

Protective Measures - shall comply with Oregon Forest Practice Rules issued per ORS 527.610 to 527.992. Examples of protective measures are: (1) waterbarring tractor trails where necessary to prevent runoff toward streams; (2) not windrowing in streams or streamways; and (3) leaving stream buffers along designated streams.

Work specifications may be modified or waived only upon written notice from STATE.

EXHIBIT L

SPECIFICATIONS FOR BRUSH AND SLASH SHOVEL PILING

Equipment Type, Equipment Operation, and Conduct of Work

The specifications given below are requirements for equipment type, equipment operation, and conduct of work under the contract.

Shovel - shall be a track-mounted machine with a ground-pressure rating of not more than 6.8 PSI and a net horsepower of 85 or more. The machine shall be capable of a minimum horizontal reach of 26 feet and a minimum vertical reach of 16 feet.

- Excavator - shovel: Bucket shall be a hydraulically controlled, 4 to 5-foot wide, "clamshell-style bucket with rake arms," with a 360-degree continuous rotation, and tooth length on rake arm shall be greater than 14 inches long, unless otherwise approved in writing by STATE. "Clamshell-style bucket with rake arms" shall be hydraulically controlled to operate bucket in a horizontal position (fixed position: positive control) for piling slash.
- Log Loader - shovel: Bucket shall be a hydraulically controlled, 4 to 5 foot wide, "clamshell-style bucket with rake arms," with a 360-degree continuous rotation, and tooth length on rake arm shall be greater than 14 inches long, unless other wise approved in writing by STATE. "Clamshell-style bucket with rake arms" shall be hydraulically controlled to operate bucket in a vertical position (free swinging) for piling slash.

Equipment	Rate	Hours	Appraised Value
Excavator	\$ 120.00 / hour	138.5	\$ 16,620.00
Log Loader	\$ 87.50 / hour	189.9	\$ 16,620.00

Operator - must be experienced in operating similar equipment on land clearing operations, be able to operate the equipment proficiently, and pile the debris on the area as directed by STATE.

Support - including transport, other equipment, replacements, supplies, maintenance, and repairs shall be furnished as required to complete work; and shall be furnished without cost to STATE, other than as agreed under the contract terms.

Work Scheduling - work shall be accomplished only during dry weather conditions, and started within 14 calendar days after completion of yarding activities on Areas 1, 3, and 4. Operations shall provide for continual operation until contract work is completed, unless interrupted by poor weather, fire closures, or other uncontrollable circumstances. Equipment breakdowns shall be repaired without undue delay, and provision shall be made for replacement of equipment to prevent prolonged delays. Piling operation shall not be allowed when operations might damage sites or affect stream flows. Any exception to these instructions must be authorized in writing by STATE.

STATE Representative - shall provide directions for the conduct of work according to specifications.

PART IV: OTHER INFORMATION

FOREST PRACTICES ACT "WRITTEN PLAN" For Project No. 3, Stream Enhancement Goose Pit Combination Timber Sale 341-06-30

Landowner:

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

Protected Resources:

The following streams are located in Section 1 of T6N, R7W; Section 6 of T6N, R6W; and Section 31 of T7N, R6W, W.M., Clatsop County, Oregon.

Area 2: An unnamed Tributary to Walker Creek is designated as a small, Type F stream 5 to 10 feet wide, where it runs parallel along the northwestern sale boundary of Area 2 for approximately 1,800 feet.

Area 4: Walker Creek is designated as a medium, Type F stream 5 to 10 feet wide, where it runs along the eastern edge of the sale boundary of Area 4 for approximately 2,300 feet.

Specific Site Characteristics:

Tributary of Walker Creek (Area 2): A narrow flood plain accompanies the tributaries active stream channel. The stream banks are relatively gentle and riparian vegetation is mostly hardwoods, shrubs, and conifers.

Walker Creek (Area 4): A flood plain, ranging from 100 to 200 feet wide, accompanies the streams active channel. The stream banks are relatively gentle and riparian vegetation is mostly red alder, shrubs, and conifers.

Tree and Vegetation Retention:

FPA defines the RMA width of a medium Type F stream as 70 feet. The timber sale boundary for Area 4 is posted at an average of 150 feet from the Type F stream. A small Type F stream RMA width is defined as 50 feet. The timber sale boundary for Area 2 is posted at least 100 feet from the Type F stream.

Practices:

Area 2: requires three stream enhancement structures located between points SE 3 and SE 4. Trees or logs shall be at least 18 inches in diameter at the large end and at least 40 feet in length.

Area 4: requires five stream enhancement structures located between points SE 1 and SE 2. Trees or logs shall be conifers at least 22 inches in diameter at the large end and at least 50 feet in length.

Stream Enhancement structures must be created by the PURCHASER for stream improvement as recommended by ODFW fisheries biologist. Each structure will be created by placing 5 conifer logs in the Type F stream. Structures shall be at least 100 feet apart. Trees can have branches and root wads attached and may have defects such as double tops, crooked trunks, heart rot, etc. The logs will be lowered into the stream at locations specified by STATE, and with consultation from an ODFW fisheries biologist. All conifer logs will be taken from the sale area and not from within the stream buffer. These structures will be created using 5 logs at each location. This work will take place during the instream work period (July 1 – August 31) if possible. If the work cannot be done during the designated instream work period an ODFW fisheries biologist will be consulted to field verify any fish habitat concerns and approve any work to be conducted outside the designated period.

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: _____
Purchaser/Operator Contract Representative

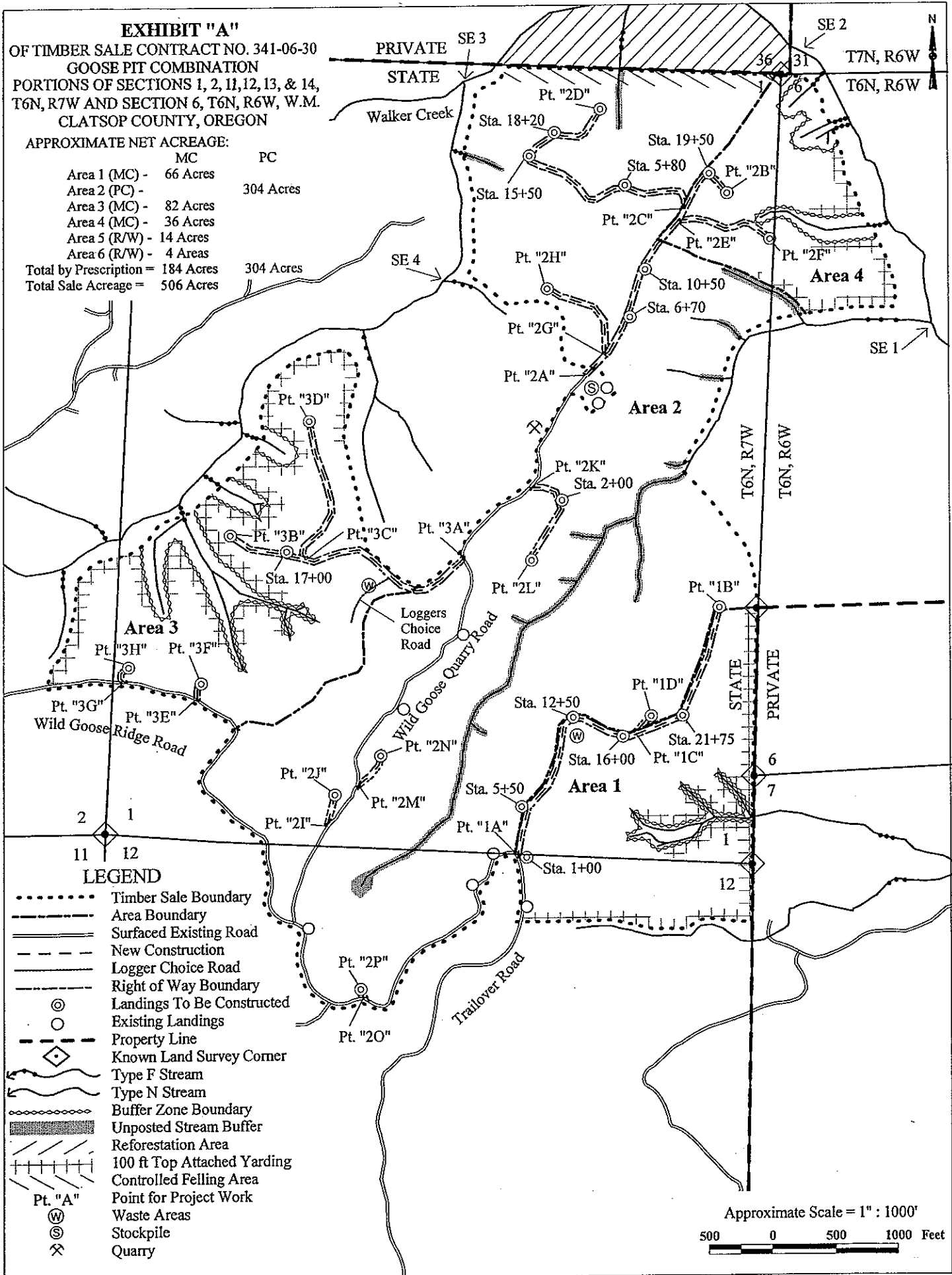
Date: _____

Attachments: Logging Plan Map

EXHIBIT "A"
OF TIMBER SALE CONTRACT NO. 341-06-30
GOOSE PIT COMBINATION
PORTIONS OF SECTIONS 1, 2, 11, 12, 13, & 14,
T6N, R7W AND SECTION 6, T6N, R6W, W.M.
CLATSOP COUNTY, OREGON

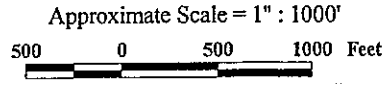
APPROXIMATE NET ACREAGE:

	MC	PC
Area 1 (MC) -	66 Acres	
Area 2 (PC) -		304 Acres
Area 3 (MC) -	82 Acres	
Area 4 (MC) -	36 Acres	
Area 5 (R/W) -	14 Acres	
Area 6 (R/W) -	4 Acres	
Total by Prescription =	184 Acres	304 Acres
Total Sale Acreage =	506 Acres	



LEGEND

- Timber Sale Boundary
- Area Boundary
- ==== Surfaced Existing Road
- New Construction
- Logger Choice Road
- Right of Way Boundary
- ⊙ Landings To Be Constructed
- Existing Landings
- Property Line
- ◆ Known Land Survey Corner
- ~ Type F Stream
- ~ Type N Stream
- Buffer Zone Boundary
- Unposted Stream Buffer
- Reforestation Area
- 100 ft Top Attached Yarding
- Controlled Felling Area
- ⊙ Pt. "A" Point for Project Work
- ⊙ Waste Areas
- ⊙ Stockpile
- ⊙ Quarry



FOREST PRACTICES ACT "WRITTEN PLAN"
For Harvest of Goose Pit Combination Timber Sale 341-06-30

Landowner:

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

Protected Resources:

The following stream is located in Section 6 of T6N, R6W, and Section 1, T6N, R7W, W.M., Clatsop County, Oregon.

Area 2: Tributary of Walker Creek is designated as a small, Type F stream 5 to 10 feet wide, where it runs along the northwestern edge of the sale boundary of Area 2.

Area 3: Tributary of Walker Creek is designated as a small, Type F stream 3 to 5 feet wide, where it runs along the northwestern edge of the sale boundary of Area 3.

Area 4: Walker Creek is designated as a medium, Type F stream 5 to 10 feet wide, where it runs along the eastern edge of the sale boundary of Area 4.

Specific Site Characteristics:

Tributary of Walker Creek (Areas 2 and 3): A narrow flood plain accompanies the tributaries active stream channel. The stream banks are relatively gentle and riparian vegetation is mostly hardwoods, shrubs, and conifers.

Walker Creek (Area 4): A flood plain, ranging from 100 to 200 feet wide, accompanies the streams active channel. The stream banks are relatively gentle and riparian vegetation is mostly red alder, shrubs, and conifers.

Tree and Vegetation Retention:

FPA defines the RMA width of a medium Type F stream as 70 feet. The timber sale boundary for Area 4 is posted at an average of 150 feet from the Type F stream. A small Type F stream RMA width is defined as 50 feet. The timber sale boundaries for Areas 2 and 3 are posted at least 100 feet from the Type F stream. All Type N tributary streams of Walker Creek within or adjacent to Areas 1, 3, and 4 are posted at least 100 feet wide for the first 500 feet from the confluence with the Type F stream. All other Type N streams within Areas 1, 3, and 4 are posted at 25 feet.

Practices:

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

- No trees will be felled within stream buffers (RMA's), except where required by 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 nor within 25 feet of any stream.
- 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.
- The cable 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: _____
Purchaser/Operator Contract Representative

Date: _____

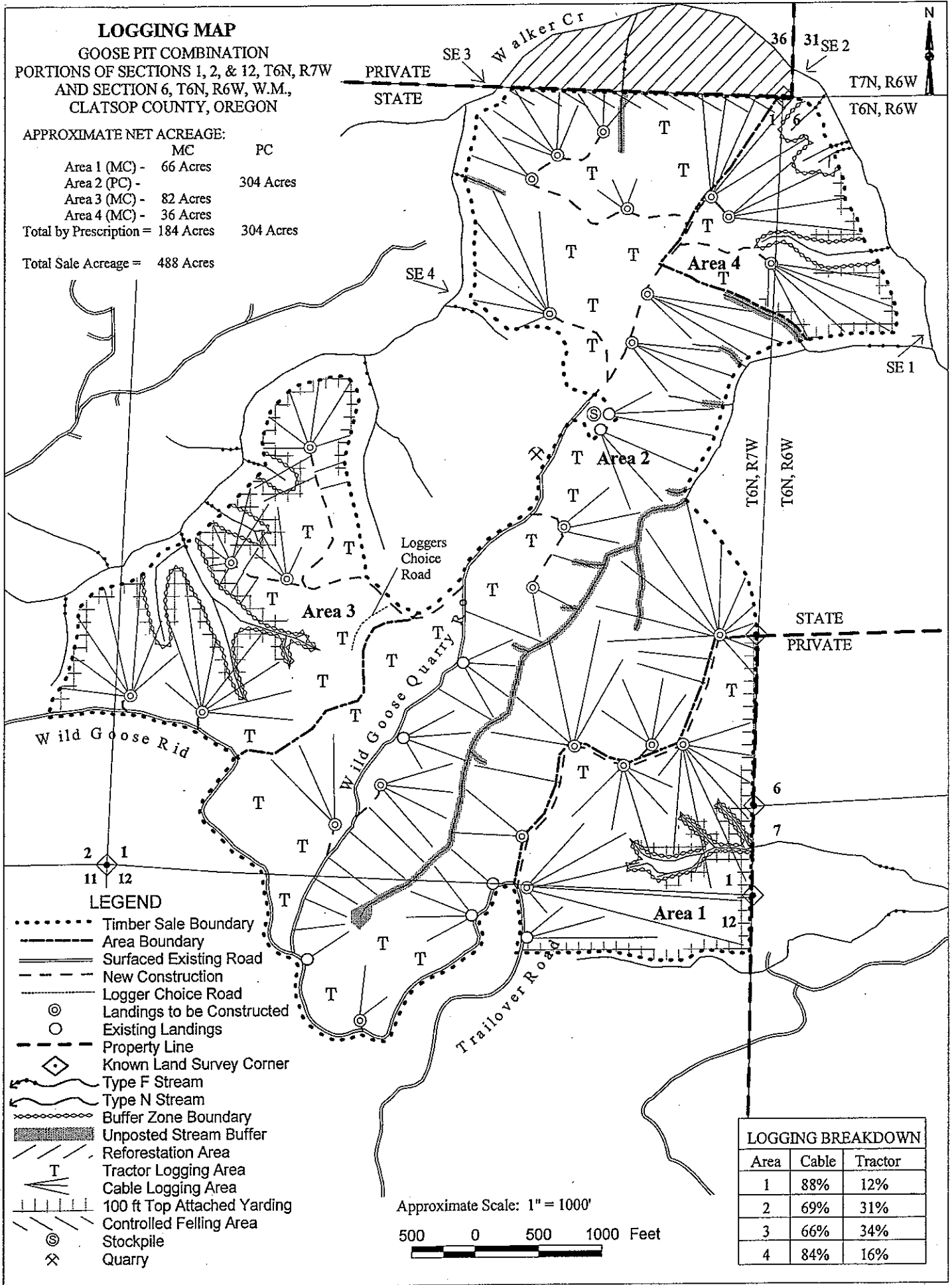
Attachments: Logging Plan Map

LOGGING MAP

GOOSE PIT COMBINATION
 PORTIONS OF SECTIONS 1, 2, & 12, T6N, R7W
 AND SECTION 6, T6N, R6W, W.M.,
 CLATSOP COUNTY, OREGON

APPROXIMATE NET ACREAGE:

	MC	PC
Area 1 (MC) -	66 Acres	
Area 2 (PC) -		304 Acres
Area 3 (MC) -	82 Acres	
Area 4 (MC) -	36 Acres	
Total by Prescription =	184 Acres	304 Acres
Total Sale Acreage =	488 Acres	



LEGEND

- Timber Sale Boundary
- Area Boundary
- ===== Surfaced Existing Road
- New Construction
- Logger Choice Road
- ⊙ Landings to be Constructed
- Existing Landings
- Property Line
- ◇ Known Land Survey Corner
- ~ Type F Stream
- ~ Type N Stream
- Buffer Zone Boundary
- ▨ Unposted Stream Buffer
- ▨ Reforestation Area
- T Tractor Logging Area
- ▨ Cable Logging Area
- ▨ 100 ft Top Attached Yarding
- ▨ Controlled Felling Area
- ⊙ Stockpile
- ⊗ Quarry

Area	Cable	Tractor
1	88%	12%
2	69%	31%
3	66%	34%
4	84%	16%

Approximate Scale: 1" = 1000'

500 0 500 1000 Feet

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 permittee:

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

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

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

For further information on fish screening please contact:

Bernie Kepshire, Oregon Department of Fish and Wildlife,
7118 NE Vandenberg Avenue, Corvallis, OR 97330-9446 (541) 757-4186 x255

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: ()

bmK
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PUMPCERT.doc

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