EXHIBIT "B"

FOREST ROAD SPECIFICATIONS

SUBGRADE WIDTH	SURFACED WIDTH	POINT TO POINT	STA. TO STA.	DITCH REQ.	OUTSLOPE/ WATERBAR
16 feet	12 feet	1A to 1B	0+00 to 2+80	Yes	No
16 feet	12 feet	1C to 1D	0+00 to 1+90	Yes	No
16 feet	12 feet	2A to 2B	0+00 to 1+35	Yes	No
16 feet	12 feet	2C to 2D	0+00 to 1+10	Yes	No
16 feet	12 feet	2E to 2F	0+00 to 2+00	Yes	No
16 feet	12 feet	2H to 2I	0+00 to 1+40	Yes	No
16 feet	12 feet	3A to 3B	0+00 to 5+35	Yes	No
16 feet	12 feet	3C to 3D	0+00 to 2+00	Yes	No
16 feet	12 feet	3E to 3F	0+00 to 4+00	Yes	No
16 feet	12 feet	3G to 3H	0+00 to 2+80	Yes	No
16 feet	12 feet	3I to 3J	0+00 to 27+30	Yes	No
16 feet	12 feet	3K to 3L	0+00 to 4+60	Yes	No
16 feet	12 feet	4A to 4B	0+00 to 10+00	Yes	No
16 feet	12 feet	5A to 5B	0+00 to 1+00	Yes	No
16 feet	12 feet	5C to 5D	0+00 to 1+20	Yes	No
16 feet	12 feet	5E to 5F	0+00 to 2+75	Yes	No
16 feet	12 feet	6A to 6B	0+00 to 6+90	Yes	No
16 feet	12 feet	6C to 6D	0+00 to 2+90	Yes	No
16 feet	12 feet	6E to 6F	0+00 to 2+50	Yes	No.
14 feet	NA	7A to 7B	0+00 to 10+50	No	Yes
16 feet	12 feet	I1 to I2	0+00 to 55+00	Yes	No
16 feet	12 feet	I3 to I4	0+00 to 57+50	Yes	No
20 feet	16 feet	I5 to I6	0+00 to 28+75	Yes	No
16 feet	12 feet	I6 to I7	28+75 to 115+50	Yes	No
20 feet	16 feet	I6 to P1	0+00 to 7+50	Yes	No
20 feet	16 feet	P1 to P2	0+00 to 58+70	Yes	No
20 feet	16 feet	P2 to P3	0+00 to 47+00	Yes	No
20 feet	16 feet	P3 to P4	0+00 to 11+00	Yes	No

EXHIBIT "B"

FOREST ROAD SPECIFICATIONS

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 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.

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

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

New construction – From the top of the cutslope to the toe of the fill.

CLEARING AND GRUBBING DISPOSAL. Scatter through openings in the timber outside of the cleared right-of-way, except areas where end-haul is required.

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 backfills. Embankment materials shall be free of woody debris, brush, muck, sod, frozen material, and other deleterious materials. All fills and drainage structure backfills shall be machine compacted in lifts not to exceed 8 inches in depth.

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-risk site 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

Ditches. Construct "V" ditch 3 feet wide and to a depth of 1 foot below subgrade. Subgrade shall be crowned at 4 to 6 percent.

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 a minimum 50 feet (75 feet on mainline roads), or as staked on the ground, plus 25-foot approaches at each end.

Location: As marked in the field.

EXHIBIT "B"

FOREST ROAD SPECIFICATIONS

GRADING	Back Slopes	Fill Slopes
Rock	Vertical to ¼:1	Not steeper
Common – side slopes 50% and over	¾ :1	than 1½:1
Common – side slopes less than 50%	1:1	
Common – turnpike (level) section	2:1	

Top of cutslope shall be rounded.

LANDINGS. Landings shall be constructed 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 B.

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

SEASONAL WINTERIZATION. All unrocked or unfinished subgrade shall be waterbarred in accordance with specifications in Exhibit F, 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 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 B.

(2) Riprap Rock Use. Where rock is used for an energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet.

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

Segment	Station	Work Description
3I to 3J	20+00	Install culvert. Utilize 20 cubic yards 1½"-0" crushed rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"– 6" riprap rock to construct an energy dissipator for culvert outlet.
	22+00	Install culvert. Utilize 10 cubic yards of 24"– 6" riprap rock to construct an energy dissipator for culvert outlet.
	24+25	Install culvert. Utilize 20 cubic yards 1½"-0" crushed rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"– 6" riprap rock to construct an energy dissipator for culvert outlet.
3K to 3L	0+00	Install culvert across existing road. Utilize 20 cubic yards 1½"-0" crushed rock for culvert backfill.
6C to 6D	2+20	Begin full bench truck end haul. Utilize suitable fill material for fill construction between Stations 2+00 and 5+30 on Road 6A to 6B.
	3+20	End full bench truck end haul.

EXHIBIT "B"

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

Segment	Station	Work Description
P1 to P2	0+00	Install culvert across existing road. Utilize 20 cubic yards 1½"-0" crushed rock for culvert backfill.
	4+25	Install culvert. Utilize 20 cubic yards 1½"-0" crushed rock for culvert bedding.
	8+25	Begin 80' Radius Curve.
	9+00	Begin truck end haul. Haul excess excavation material to waste area.
	10+00	End 80' Radius Curve.
	10+75	End truck end haul.
	18+85	Install culvert. Utilize 10 cubic yards of 24"– 6" riprap rock to construct an energy dissipator for culvert outlet.
	19+00	Begin 80' Radius Curve. Begin full bench truck end haul. Haul excess excavation material to waste area.
P1 to P2	19+65	End full bench truck end haul, begin through cut truck end haul .
	21+15	End 80' Radius Curve. End through cut truck end haul.
	38+30	Begin full bench truck end haul. Haul excess excavation material to waste area.
	43+90	End full bench truck end haul.
P3 to P4	5+10	Begin full bench truck end haul. Utilize suitable excavation material for fill construction between Stations 2+30 and 4+30. Haul excess excavation material to waste area.
	6+85	End full bench truck end haul. Install culvert. Utilize 10 cubic yards of 24"– 6" riprap rock to construct an energy dissipator for culvert outlet.

EXHIBIT B

FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS

(1) Timber Removal. Remove all trees within the posted Right-of-Way Boundary, as specified in Section 55, "Designated Timber."

(2) Culvert Replacement, Culvert Installation, and Fill Reconstruction. 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 reconstruction backfill shall consist of select materials and be obtained from borrow pits, as directed by STATE. Backfill materials shall be hauled in where necessary and thoroughly compacted in accordance with Exhibit B. 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) Riprap Rock Use. Where rock is used for fill armor, rock shall be placed and tamped at a 1 ½:1 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.

(5) Equipment. All excavation and riprap placement shall be performed using a minimum 1 ½ cubic yard, track-mounted excavator.

(6) Subgrade Preparation and Application of Surfacing Rock.

(a) Complete culvert installations, fill reconstructions, road widening, drainage ditches, and other specified work prior to the application of new surfacing rock.

(b) For Roads I5 to I6, I6 to I7, I6 to P1, and P2 to P3, apply required 4"-0" surfacing base rock on fill reconstructions, road widening, and road realignment sections, and compact in accordance with Exhibit B.

(c) Cut out all chuckholed and/or washboard sections from the existing surfacing.

(d) Apply required 1½" – 0" or 4" – 0" base patching and leveling rock, as directed by STATE.

(e) Process (grade+mix) the existing surfacing and added base rock. Provide for a 4 to 5% crown, and compact in accordance with Exhibit B.

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

EXHIBIT "B"

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description
I5 to I6	0+00	Begin road widening. Excavate subgrade on either left or right side of existing road surfacing , according to State road design plans, for a depth of 1 foot below the existing road surfacing. Finished road surfacing width (top of running surface) shall be a minimum of 16 feet wide. Haul excavated material to designated waste area.
I5 to I6	1+30	Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator for culvert outlet.
I5 to I6	2+85	Culvert replacement. Utilize 20 cubic yards 1½"-0" crushed rock for culvert bedding and backfill. Utilize 20 cubic yards of 24"-6" riprap rock to construct an energy dissipator for culvert outlet.
I5 to I6	4+50	Construct 75 foot turnout on left side of road.
I5 to I6	4+85	Road realignment. Shift centerline 12 feet right into the cutslope.
I5 to I6	5+60	Road realignment. Shift centerline 6 feet right into the cutslope. Pullback any loose material including woody debris and vegetation on fill slope. Armor fill slope at a 1½ : 1 slope, beginning at toe of fill with 120 cubic yards of 36"–12" riprap rock.
I5 to I6	7+00	Culvert replacement. Utilize 20 cubic yards 1½"-0" crushed rock for culvert bedding and backfill. Utilize 30 cubic yards of 24"-6" riprap rock to construct an energy dissipator for culvert outlet.
I5 to I6	10+00	Construct 75 foot turnout on left side of road. Daylight berm. Haul excavated material to designated waste area.
I5 to I6	12+70	Install culvert. Utilize 20 cubic yards 1½"-0" crushed rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator for culvert outlet.
I5 to I6	15+10	Road realignment. Shift centerline 12 feet right into the cutslope. Construct 75 foot turnout on left side of road.
I5 to I6	15+50	Install culvert. Utilize 20 cubic yards 1½"-0" crushed rock for culvert bedding and backfill.
I5 to I6	19+70	Construct 75 foot turnout on left side of road.
I5 to I6	20+90	Install culvert. Utilize 20 cubic yards 1½"-0" crushed rock for culvert bedding and backfill.
I5 to I6	24+40	Construct 75 foot turnout on left side of road.
	28+75	End road widening.

EXHIBIT "B"

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description
I6 to I7	28+80	Culvert replacement. Utilize 20 cubic yards 1½"-0" crushed rock for culvert bedding and backfill.
I6 to I7	34+85	Culvert replacement. Utilize 20 cubic yards 1½"-0" crushed rock for culvert backfill.
I6 to I7	44+40	Culvert replacement. Utilize 20 cubic yards 1½"-0" crushed rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator for culvert outlet.
I6 to I7	48+20	Culvert replacement. Utilize 30 cubic yards 1½"-0" crushed rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator for culvert outlet. Utilize 12 cubic yards 4"-0" for base rock replacement.
I6 to I7	53+40	Culvert replacement and fill reconstruction. Utilize 20 cubic yards 1½"-0" crushed rock for culvert bedding. Utilize 12 cubic yards 4"-0" for base rock replacement.
I6 to I7	72+25	Culvert replacement and fill reconstruction. Utilize 20 cubic yards 1½"-0" crushed rock for culvert bedding. Utilize 24 cubic yards 4"-0" for base rock replacement. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator for culvert outlet.
I6 to I7	77+90	Culvert replacement. Utilize 20 cubic yards 1½"-0" crushed rock for culvert backfill.
I6 to I7	82+80	Culvert replacement. Utilize 20 cubic yards 1½"-0" crushed rock for culvert backfill.
I6 to I7	93+50	Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator for culvert outlet.
I6 to P1	0+00	Begin road widening and re-alignment. Excavate subgrade on left side of existing road surfacing , according to State road design plans, for a depth of 1 foot below the existing road surfacing. Finished road surfacing width (top of running surface) shall be a minimum of 16 feet wide. Haul excavated material to designated waste area.
I6 to P1	7+50	End road widening and re-alignment.

EXHIBIT "B"

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description
P2 to P3	0+00	Begin road widening and re-alignment. Excavate subgrade on either left or right side of existing road surfacing, according to State road design plans, for a depth of 1 foot below the existing road surfacing. Finished subgrade shall be at least 20 feet wide. Finished road surfacing width shall be a minimum of 16 feet wide. Haul excavated material to designated waste area.
P2 to P3	2+75	Construct 75 foot turnout on left side of road.
P2 to P3	6+20	Junction on right.
P2 to P3	12+15	Road realignment. Shift centerline 16 feet right into the cutslope. Construct 75 foot turnout on left side of road.
P2 to P3	18+90	Road realignment. Shift centerline 16 feet right into the cutslope. Construct 75 foot turnout on left side of road.
P2 to P3	25+60	Road realignment. Shift centerline 14 feet left. Construct 75 foot turnout on right side of road.
P2 to P3	29+25	Construct 75 foot turnout on right side of road.
P2 to P3	35+55	Junction on right.
P2 to P3	39+00	Road realignment. Shift centerline 8 feet left. Junction on right.
P2 to P3	40+75	Junction on left.
P2 to P3	44+00	Junction on left.
P2 to P3	44+45	Culvert replacement. Utilize 20 cubic yards 1½"-0" crushed rock for culvert backfill.
P2 to P3	45+75	Road realignment. Shift centerline 16 feet right into the cutslope. Utilize excavated material for fill construction on P3 to P4. Haul excess excavated material to designated waste area.
P2 to P3	47+00	Point P3. End road widening and realignment. Begin new road construction at this point. Utilize excavated material for fill construction on P3 to P4. Haul excess excavated material to waste area.

EXHIBIT "B"

ROAD SURFACING

TYPE OF ROCK	SIZE OF ROCK	CUBIC YARDS PER STA.	COMPACTED DEPTH (INCHES)	POINT TO POINT	STATION TO STATION	TOTAL TRUCK MEASURE VOLUME (CY)
Crushed	4"-0"	50	8"	1A to 1B	0+00 to 2+80	140
Crushed	4"-0"	50	8"	1C to 1D	0+00 to 1+50	75
Crushed	4"-0"	50	8"	2A to 2B	0+00 to 1+35	68
Crushed	4"-0"	50	8"	2C to 2D	0+00 to 1+60	80
Crushed	4"-0"	50	8"	2E to 2F	0+00 to 2+00	100
Crushed	4"-0"	50	8"	2H to 2I	0+00 to 1+40	70
Crushed	4"-0"	50	8"	3A to 3B	0+00 to 5+35	268
Crushed	4"-0"	50	8"	3C to 3D	0+00 to 2+00	100
Crushed	4"-0"	50	8"	3E to 3F	0+00 to 4+00	200
Crushed	¾"-0"	13	2"	3E to 3F	0+00 to 3+50	46
Crushed	4"-0"	50	8"	3G to 3H	0+00 to 2+80	140
Crushed	4"-0"	50	8"	3I to 3J	0+00 to 27+30	1365
Crushed	¾"-0"	13	2"	3I to 3J	0+00 to 6+00	78
Crushed	4"-0"	50	8"	3K to 3L	0+00 to 4+60	230
Crushed	4"-0"	50	8"	4A to 4B	0+00 to 10+00	500
Crushed	¾"-0"	13	2"	4A to 4B	4+75 to 9+75	65
Crushed	4"-0"	50	8"	5A to 5B	0+00 to 1+00	50
Crushed	4"-0"	50	8"	5C to 5D	0+00 to 1+20	60
Crushed	4"-0"	50	8"	5E to 5F	0+00 to 2+75	138
Crushed	4"-0"	50	8"	6A to 6B	0+00 to 6+90	345
Crushed	¾"-0"	13	2"	6A to 6B	0+00 to 2+20	29
Crushed	4"- 0"	50	8"	6C to 6D	0+00 to 2+90	145
Crushed	¾"- 0"	13	2"	6C to 6D	0+00 to 2+50	33
Crushed	4"-0"	50	8"	6E to 6F	0+00 to 2+50	125
Crushed	¾"-0"	19	3"	I1 to I2	0+00 to 55+00	1,045
Crushed	¾"-0"	19	3"	I3 to I4	0+00 to 57+50	1,093
Crushed	¾"-0"	24	3"	I5 to I6	0+00 to 28+75	690

EXHIBIT "B"

ROAD SURFACING

TYPE OF ROCK	SIZE OF ROCK	CUBIC YARDS PER STA.	COMPACTED DEPTH (INCHES)	POINT TO POINT	STATION TO STATION	TOTAL TRUCK MEASURE VOLUME (CY)
Crushed	¾"-0"	24	3"	I6 to P1	0+00 to 7+50	180
Crushed	4"-0"	103	12"	P1 to P2	0+00 to 58+70	6046
Crushed	¾"-0"	24	3"	P1 to P2	0+00 to 58+70	1409
Crushed	¾"-0"	24	3"	P2 to P3	0+00 to 47+00	1128
Crushed	4"-0"	103	12"	P3 to P4	0+00 to 11+00	1133
Crushed	¾"-0"	24	3"	P3 to P4	0+00 to 11+00	264
TURNOUTS:		CY PER T.O.		NO. OF T.O.		
Crushed	4"- 0"	22	8"	1	3A to 3B	22
Crushed	4"- 0"	22	8"	1	3E to 3F	22
Crushed	4"- 0"	22	8"	5	3I to 3J	110
Crushed	¾"-0"	10	2"	1	3I to 3J	10
Crushed	4"- 0"	22	8"	1	3K to 3L	22
Crushed	4"- 0"	22	8"	3	4A to 4B	66
Crushed	¾"-0"	10	2"	2	4A to 4B	20
Crushed	4"- 0"	22	8"	1	6A to 6B	22
Crushed	¾"- 0"	12	3"	9	I1 to I2	108
Crushed	¾"- 0"	12	3"	10	I3 to I4	120
Crushed	4"- 0"	44	12"	5	I5 to I6	220
Crushed	¾"- 0"	11	3"	5	I5 to I6	55
Crushed	4"- 0"	44	12"	10	P1 to P2	440
Crushed	¾"- 0"	11	3"	10	P1 to P2	110
Crushed	4"- 0"	44	12"	5	P2 to P3	220
Crushed	¾"- 0"	11	3"	5	P2 to P3	55
Crushed	4"- 0"	44	12"	2	P3 to P4	88
Crushed	¾"- 0"	11	3"	2	P3 to P4	22

EXHIBIT "B"

ROAD SURFACING

TYPE OF ROCK TURNAROUNDS:	SIZE OF ROCK	CY PER T.A.	COMPACTED DEPTH	NO. OF T.A.	POINT TO POINT	TOTAL TRUCK MEASURE VOLUME (CY)
Crushed	4"-0"	20	8"	1	3A to 3B	20
Crushed	4"-0"	20	8"	1	3C to 3D	20
Crushed	4"-0"	20	8"	1	3E to 3F	20
Crushed	4"-0"	20	8"	1	3I to 3J	20
Crushed	4"-0"	20	8"	1	4A to 4B	20
Crushed	4"-0"	20	8"	1	6A to 6B	20
Crushed	4"-0"	20	8"	1	6E to 6F	20
JUNCTIONS:		CY PER JCT.		NO. OF JCTS.		
Crushed	4"-0"	20	8"	1	1A to 1B	20
Crushed	¾"-0	10	2"	1	1A to 1B	10
Crushed	4"-0"	20	8"	1	1C to 1D	20
Crushed	¾"-0	10	2"	1	1C to 1D	10
Crushed	4"-0"	20	8"	1	2A to 2B	20
Crushed	¾"-0	10	2"	1	2A to 2B	10
Crushed	4"-0"	20	8"	1	2C to 2D	20
Crushed	¾"-0	10	2"	1	2C to 2D	10
Crushed	4"-0"	30	8"	1	2E to 2F	30
Crushed	¾"-0	10	2"	1	2E to 2F	10
Crushed	4"-0"	30	8"	1	2H to 2I	30
Crushed	¾"-0	10	2"	1	2H to 2I	10
Crushed	4"-0"	20	8"	1	3A to 3B	20
Crushed	¾"-0"	10	2"	1	3A to 3B	10
Crushed	4"-0"	30	8"	1	3C to 3D	30
Crushed	¾"-0"	10	2"	1	3C to 3D	10
Crushed	4"-0"	20	8"	1	3E to 3F	20
Crushed	¾"-0"	10	2"	1	3E to 3F	10
Crushed	4"-0"	20	8"	1	3G to 3H	20
Crushed	4"-0"	20	8"	1	3I to 3J	20

EXHIBIT "B"

ROAD SURFACING

TYPE OF ROCK JUNCTIONS:	SIZE OF ROCK	CY PER JCT.	COMPACTED DEPTH	NO. OF JCTS.	POINT TO POINT	TOTAL TRUCK MEASURE VOLUME (CY)
Crushed	¾"- 0"	10	2"	1	3I to 3J	10
Crushed	4"- 0"	20	8"	1	3K to 3L	20
Crushed	¾"- 0"	10	2"	1	3K to 3L	10
Crushed	¾"- 0"	10	2"	1	4A to 4B	10
Crushed	4"- 0"	20	8"	1	4A to 4B	20
Crushed	4"- 0"	20	8"	1	5A to 5B	20
Crushed	4"-0"	20	8"	1	5C to 5D	20
Crushed	4"- 0"	20	8"	1	5E to 5F	20
Crushed	4"- 0"	30	8"	1	6A to 6B	30
Crushed	¾"- 0"	10	10"	1	6A to 6B	10
Crushed	4"-0"	20	8"	1	6C to 6D	20
Crushed	¾"-0"	10	2"	1	6C to 6D	10
Crushed	4"-0"	20	8"	1	6E to 6F	20
Crushed	¾"-0"	20	3"	2	I1 to I2	40
Crushed	¾"-0"	20	3"	1	I5 to I6	20
Crushed	4"-0"	30	12"	2	P1 to P2	60
Crushed	¾"-0"	20	3"	2	P1 to P2	40
Crushed	¾"-0"	20	3"	4	P2 to P3	80
Crushed	4"-0"	30	12"	1	P3 to P4	30
Crushed	¾"-0"	20	3"	1	P3 to P4	20

LANDINGS:		VOLUME PER LDG.	LOCATION	NUMBER OF LDGS.	TOTAL CUBIC VOLUME
Pit-Run	6"- 0"	80	1B, 1D, 2B, 2D, 2F, 2G, 3B, 3D, 3F,3H, 3J, 3L, 3M, 4B, 5B, 5D, 5F, 5G, Sta. 1+00 on 6A to 6B, 6B, 6D, 6F, and 7C	23	1840

EXHIBIT "B"

ROAD SURFACING

TYPE OF ROCK MISCELLANEOUS:	SIZE OF ROCK	USE	POINT TO POINT	APPROX. CUBIC VOLUME (TRUCK MEAS.)
Crushed	4"- 0"	Curve Widening	3E to 3F	20
Crushed	¾"- 0"	Curve Widening	3E to 3F	10
Crushed	4"- 0"	Curve Widening	3I to 3J	90
Crushed	4"- 0"	Curve Widening	6A to 6B	30
Crushed	¾"- 0"	Curve Widening	6A to 6B	10
Crushed	¾"- 0"	Curve Widening	I1 to I2	60
Crushed	4"- 0"	Curve Widening	P1 to P2	100
Crushed	¾"- 0"	Curve Widening	P1 to P2	40
Crushed	4"- 0"	Curve Widening	P2 to P3	100
Crushed	¾"- 0"	Curve Widening	P2 to P3	40
Crushed	4"- 0"	Curve Widening	I5 to I6	80
Crushed	4"- 0"	Subgrade Leveling	I5 to I6	170
Crushed	1½"- 0"	Subgrade Leveling	I6 to I7	400
Crushed	4"- 0"	Subgrade Leveling	P2 to P3	340
Crushed	4"- 0"	Base rock replacement for fill reconstruction	I6 to I7	48
Crushed	4"- 0"	Base rock replacement for road realignment	I5 to I6	250
Crushed	4"- 0"	Base rock replacement for road realignment	P2 to P3	500
Crushed	4"- 0"	Base rock for road widening @ 24 cy/sta.	I5 to I6	690
Crushed	4"- 0"	Base rock for road widening @ 24 cy/sta.	I6 to P1	180
Crushed	4"- 0"	Base rock for road widening @ 36 cy/sta.	P2 to P3	1,692
Crushed	1½"- 0"	Culvert Backfill/Bedding	P1 to P2	40
Crushed	1½"- 0"	Culvert Backfill/Bedding	3I to 3J	40
Crushed	1½"- 0"	Culvert Backfill/Bedding	3K to 3L	20
Crushed	1½"- 0"	Culvert Backfill/Bedding	P2 to P3	20
Crushed	1½"- 0"	Culvert Backfill/Bedding	I5 to I6	100
Crushed	1½"- 0"	Culvert Backfill/Bedding	I6 to I7	170
Pit-Run	6"- 0"	Road Blocks	7A to 7B	50
Riprap	24"- 6"	Energy Dissipator	3I to 3J	30

EXHIBIT "B"

ROAD SURFACING

TYPE OF ROCK MISCELLANEOUS:	SIZE OF ROCK	USE	POINT TO POINT	APPROX. CUBIC VOLUME (TRUCK MEAS.)
Riprap	24"- 6"	Energy Dissipator	P1 to P2	10
Riprap	24"-6"	Energy Dissipator	P3 to P4	10
Riprap	24"-6"	Energy Dissipator	I5 to I6	70
Riprap	24"-6"	Energy Dissipator	I6 to I7	40
Riprap	36"-12"	Fill Armor	I5 to I6	120

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.

ROCK SUMMARY

ROCK SIZE	APPROX. TOTAL TRUCK MEASURE VOLUME (CY)
¾"- 0"	7,060
1½"- 0"	790
4"- 0"	17,550
6"- 0"	1,890
24"- 6"	160
36"- 12"	120
TOTAL	27,570

EXHIBIT "B"

FULL BENCH END-HAULING REQUIREMENTS

POINT TO POINT	STA. TO STA.	WASTE AREA LOCATION	WASTE AREA TREATMENT
6C to 6D	2+20 to 3+20	2	1 and 2
P1 to P2	9+00 to 10+10	1	1 and 2
P1 to P2	19+00 to 19+65	1	1 and 2
P1 to P2	38+30 to 43+90	1	1 and 2
P3 to P4	5+10 to 6+85	3	1 and 2

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 timed 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 operator from the slope, by whatever means necessary, and end-hauled to a designated waste area.

Waste Area Location

(1) Waste Area No. 1, as shown on Exhibit A.

(2) Road 6A to 6B Station 2+00.

(3) Road P3 to P4 Station 3+00.

Waste Area Treatment

(1) Deposit at waste area, spread evenly, and provide adequate drainage.

(2) Utilize clean dirt only for fill subgrade construction.

EXHIBIT "B"

ROCK ACCOUNTABILITY

The rock shall meet the quality and size specifications in Exhibit E. A sample of the rock must be supplied to STATE for testing and approval prior to rocking. 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 B. Deliver at least 600 cubic yards per 8-hour shift, unless otherwise approved by STATE. A penalty of $10.00 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 B. 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 B. 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.

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	1

EXHIBIT "B"

COMPACTION AND PROCESSING REQUIREMENTS

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." A minimum 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 6 inches in depth. When more than 1 layer is required, each shall be shaped and compacted before the succeeding layer is placed. Any irregularities or depressions that develop during compaction of the top layer shall be corrected by loosening the material at these places and adding or removing material until the surface is smooth and uniform. Each layer shall be compacted with a minimum of 3 passes over the entire width and length of the road. 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	1

COMPACTION EQUIPMENT OPTIONS

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

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

(3) Tampingfoot Compactors. Tampingfoot 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 around culverts. The tamper shoe dimensions shall be a minimum of 10" X 13" and capable of a centrifugal force of 2,250 pounds.

EXHIBIT "C"

CULVERT SPECIFICATIONS

All culvert materials shall be furnished and installed by PURCHASER, unless otherwise specified in the contract. All culverts shall be constructed of corrugated, double-walled polyethylene. Pipe and fittings shall be made of polyethylene compounds which meet or exceed the requirements of Type III, Category 4 or 5, Grade P33 or P34, Class C per ASTM D-1248 with the applicable requirements defined in ASTM D-1248. Double-walled polyethylene pipe shall meet the requirements of AASHTO M-294-901, Type S.

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

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. If tamping is required, the trench shall be excavated wide enough to permit working on each side of pipe. Bedrock shall be excavated as required to provide a uniform foundation for the full length of the culvert.

A bedding of granulated material or job-excavated soil 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.

Transporting of the pipe shall be done carefully. Dragging or allowing free fall from trucks or into trenches shall not be permitted. Damage to bituminous coating shall be repaired before the pipe is covered.

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.

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

Tamping shall be done in 8-inch lifts, 1 pipe diameter each side of the pipe to 85 percent density or over, and to the minimum fill height as specified below. Additional fill shall be embankment material.

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.

EXHIBIT "C"

CULVERT SPECIFICATIONS

Minimum height of cover over top of culvert to subgrade when road is to be rocked shall be 12 inches for polyethylene culverts (add 6" for roads which will not be rocked). Minimum vertical cover for other steel or aluminum designs shall be as specified by STATE.

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

The ends of each culvert shall be free of logs and debris which would restrict the free flow of water. Culverts in Type F streams must allow free passage of fish as provided in the Oregon Forest Practice Rules. 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 into waters of the State shall be provided with a downspout or other approved slope protection device.

This specification applies to high density polyethylene corrugated pipe with an integrally formed smooth interior.

The intake ends of culverts that could be reached by a grader blade shall be marked by driving or placing 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. Culverts intakes that can not be reached by a grader blade do not need culvert markers.

All culverts shall be constructed of corrugated, double-walled polyethylene.

Tamping is required.

All culverts 24" in diameter or larger shall have 1:1 beveled inlets.

CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	ROAD SEGMENT POINT TO POINT	STATION
1	18	40	1A to 1B	0+00
2	18	40	2A to 2B	0+00
3	18	40	2C to 2D	0+00
4	18	50	2H to 2I	0+00
5	18	50	3E to 3F	0+00
6	18	34	3I to 3J	3+25
7	18	32	3I to 3J	6+50
8	18	30	3I to 3J	13+40
9	18	30	3I to 3J	20+00
10	18	30	3I to 3J	22+00
11	24	40	3I to 3J	24+25

EXHIBIT "C"

CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	ROAD SEGMENT POINT TO POINT	STATION
12	18	30	3I to 3J	25+30
13	18	40	3K to 3L	0+00
14	18	30	6A to 6B	4+50
15	18	40	P1 to P2	0+00
16	18	40	P1 to P2	4+25
17	18	40	P1 to P2	8+25
18	18	40	P1 to P2	11+85
19	18	40	P1 to P2	15+00
20	18	40	P1 to P2	18+85
21	18	40	P1 to P2	21+75
22	18	40	P2 to P3	44+45
23	18	40	P3 to P4	6+85
24	18	40	I5 to I6	2+85
25	18	40	I5 to I6	7+00
26	18	34	I5 to I6	12+70
27	18	40	I5 to I6	15+50
28	18	34	I5 to I6	20+90
29	18	32	I6 to I7	28+80
30	18	32	I6 to I7	34+85
31	18	30	I6 to I7	44+40
32	18	40	I6 to I7	48+20
33	18	32	I6 to I7	53+40
34	18	40	I6 to I7	72+25
35	18	30	I6 to I7	77+90
36	18	50	I6 to I7	82+80

EXHIBIT "D"

ROCK PIT DEVELOPMENT AND USE

(1) PURCHASER shall schedule and coordinate Sterling Quarry and stockpile use with other existing STATE contracts and planned STATE contracts requiring quarry and stockpile use.

(2) PURCHASER shall prepare a written development plan for the pit area. The plan shall be submitted to STATE for approval prior to conducting any operation in the pit area. The plan shall include, but not be limited to:

(a) Location of benches and roads to benches.

(b) Disposal site for debris and overburden.

(c) Time lines for rock quarry use.

(d) Erosion Control measures.

(3) PURCHASER shall conduct the operations 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.

(4) Benches shall be constructed at intervals of 40 feet or less in height and shall be a minimum of 20 feet in width. Any gravel or talus slopes shall be left with a working face at an angle of 60 degrees or less. There shall be a minimum of 1 bench with an access road to it. Said bench shall be easily accessible with tractors.

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

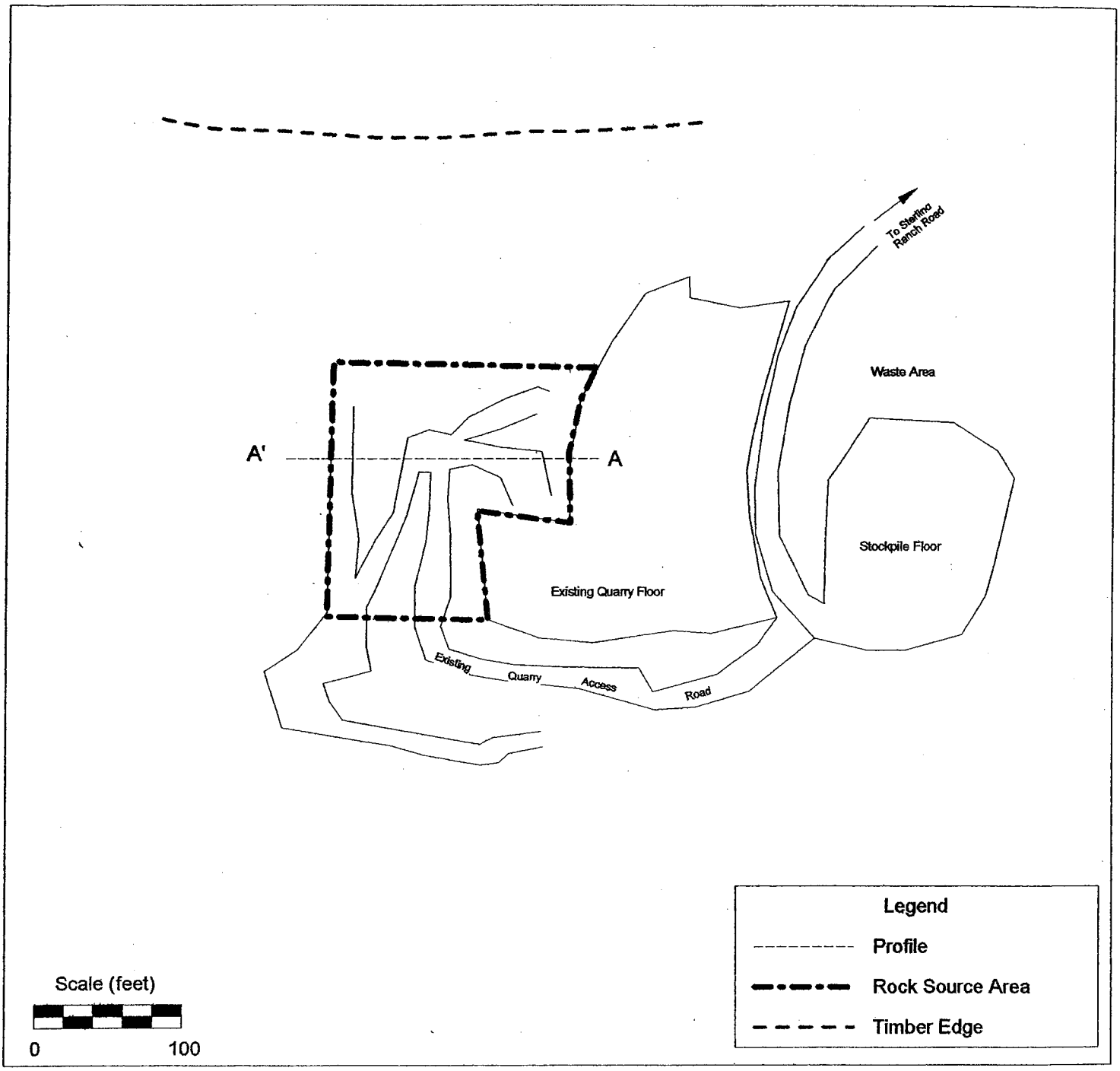
(6) Oversized material that is produced or encountered during development shall be broken down and utilized for crushing, as directed by STATE.

(7) The 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. Overburden shall be removed for a distance of 20 feet beyond the developed rock source.

(8) 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.

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

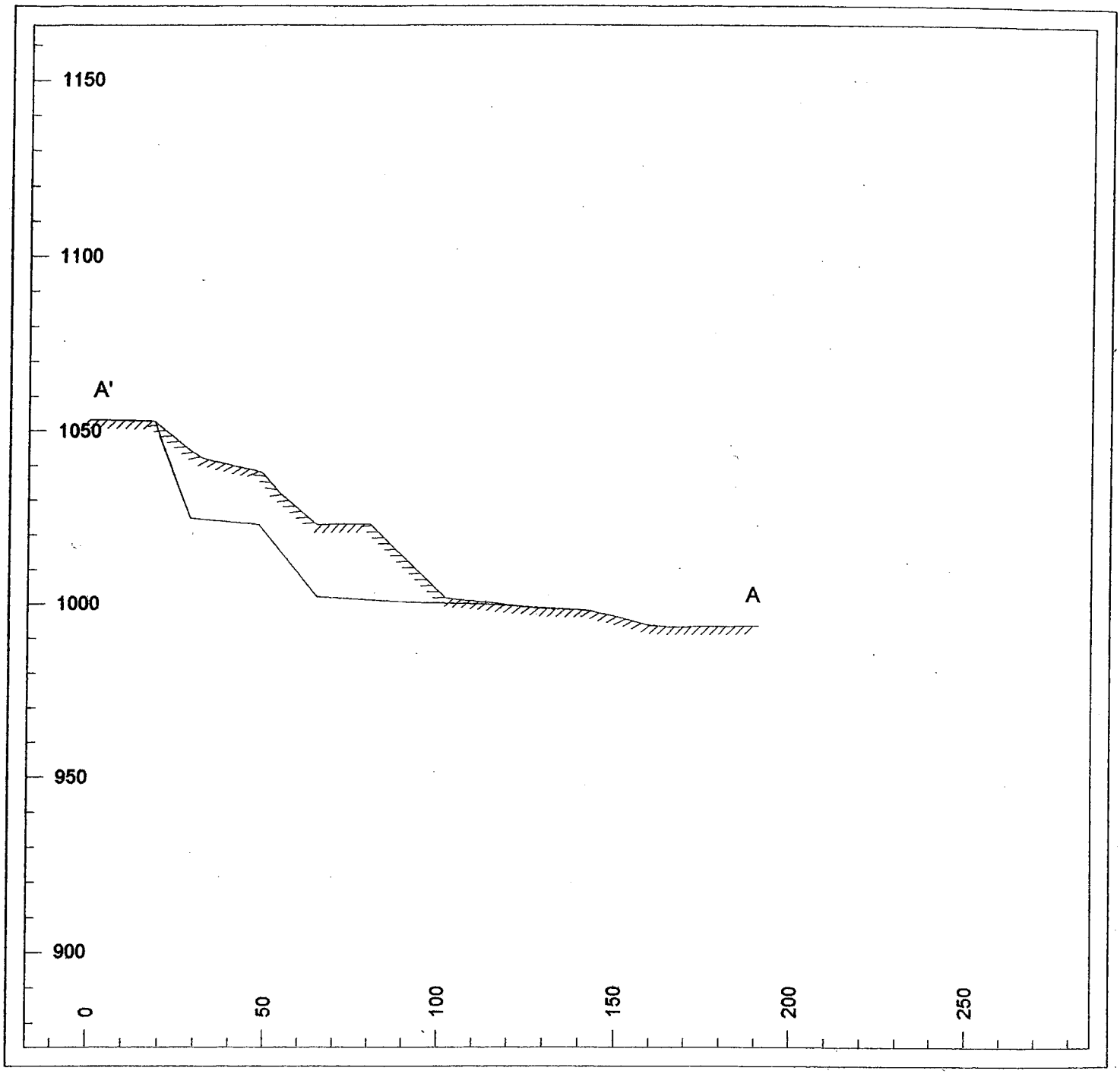
EXHIBIT "D"
ROCK PIT DEVELOPMENT AND USE



Oregon Department of Forestry
Astoria District
Engineering Unit

Sterling Quarry
SW1/4, Section 23, T4N, R7W, W. M.
Clatsop County, Oregon

EXHIBIT "D"
ROCK PIT DEVELOPMENT AND USE



Oregon Department of Forestry
Astoria District
Engineering Unit

Sterling Quarry
SW1/4, Section 23, T4N, R7W, W. M.
Clatsop County, Oregon

State Timber Sale Contract
No. 341-03-21
Foster Divide Combination

EXHIBIT "E"

ROCK SPECIFICATIONS

Materials. The material shall be fragments of rock or other hard, durable particles crushed to the required size and a filler of finely crushed stone, sand, or other finely divided mineral matter. The material shall be free from vegetation and lumps of clay.

Quality and Grading Requirements. The stone base materials shall be crushed rock, including sand. River gravel shall not be used.

The material from which base material is produced or manufactured shall conform to the general requirements of Section 2630 of the "Standard Specifications for Highway Construction" prepared by the Highway Division, Oregon Department of Transportation, and shall meet the following test requirements:

Hardness - Test Method AASHTO T 96 35% Maximum

Durability - Test Method OSHD Standard
Passing No. 20 Sieve: 30% Maximum
Sediment Height: 3" Maximum

For 4"-0"	Passing	4" sieve	100%
	Passing	2" sieve	60-90%
	Passing	1/4" sieve	15-35%

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

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

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

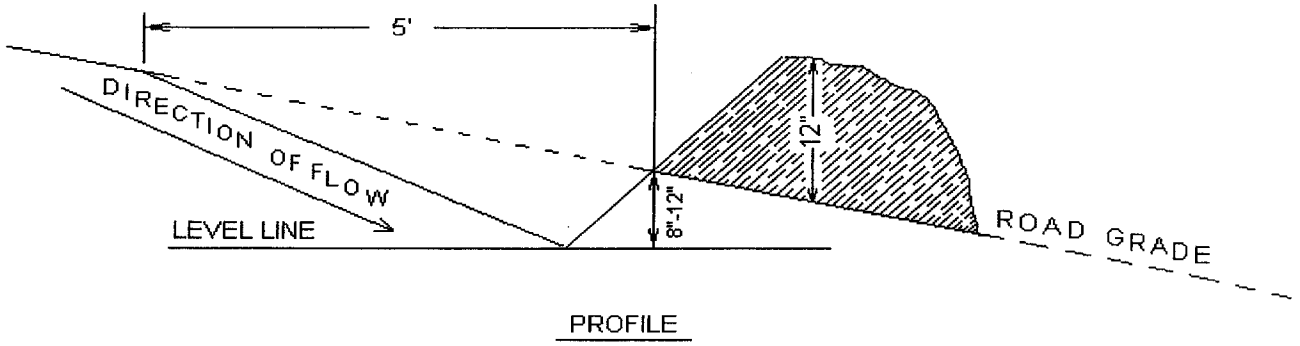
For 36"-12" Riprap A minimum of 50 percent of the material shall measure a minimum of 36 inches, measured in one dimension. Material shall be clean, well graded, and free of 2"-0" fines.

Control of gradation for pit-run and riprap rock shall be by visual inspection by STATE.

State Timber Sale Contract
No. 341-03-21
Foster Divide Combination

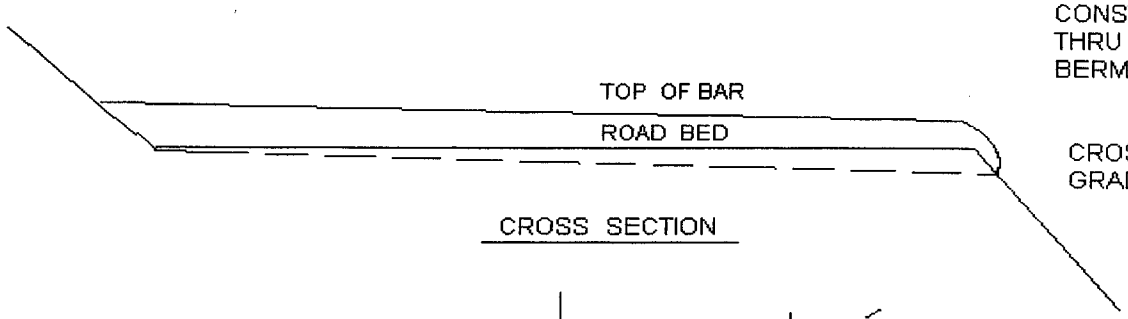
EXHIBIT "F"

WATERBAR SPECIFICATIONS



PROFILE

CONSTRUCT DITCH THRU ANY EXISTING BERM.

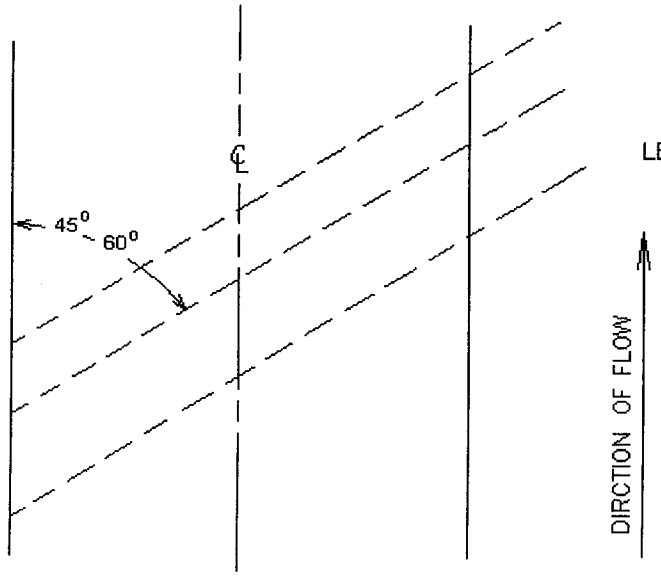


CROSS DRAINAGE GRADIENT MINIMUM 3%

CROSS SECTION

SPACING OF WATERBARS:

AS DIRECTED BY STATE.



LEAD OFF DITCH

PLAN VIEW

WATERBAR SPECIFICATIONS
FOR CROSS DITCHING #298

State Timber Sale Contract
No. 341-03-21
Foster Divide Combination

EXHIBIT "G"

GRASS SEEDING, FERTILIZING, AND MULCHING

This work shall consist of preparing seedbeds and furnishing and placing required seed and fertilizer.

Seeding Seasons. Seeding shall be performed only from March 1 to June 15 and August 15 to 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.

Soil Preparation. Areas to be seeded that have been damaged by erosion or other causes shall be restored prior to seeding. All areas to be seeded shall be finished and then cultivated to provide a reasonably firm, but friable seedbed. A minimum of 1/2 inch of surface soil shall be in a loose condition.

Application. Apply slurry containing specified seed, fertilizer, wood fiber and water to approximately 1.3 acres of disturbed soil on all exposed cutbanks, side slopes, and waste areas from reconstruction on Road I5 to I6.

Hydro seeding method. Hydraulic equipment shall be used to apply the slurry of seed, mulch (wood fiber), and fertilizer in the amounts and mixtures specified.

Dry Method. Hand-operated seeding and mulching devices may be used on exposed soils resulting from road vacating in Project No. 4.

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

SPECIES	LB./ACRE	MIXTURE	PURE LIVE SEED	POISON AND/OR REPELLENT
Highland Bentgrass	32	40%	98%	0
Annual Ryegrass	24	30%	98%	0
Perennial Ryegrass	24	30%	98%	0

Wood Fiber: Green wood fiber must be one of the following brand names or an equivalent approved in writing by STATE:

(1) Silva Fiber, manufactured by the Weyerhauser Company,
(2) CONWED Hydro Mulch, made by the CONWED Corporation.

Fertilizer: Chemical analysis shall be 16-20-0 and shall be applied at the rate of 200 pounds per acre.

Slurry Mixture: Slurry will be applied at a rate of 3,000 gallons per acre. The mixture will consist of:

(1) 1,500 pounds of wood fiber
(2) 80 pounds of seed
(3) 200 pounds of fertilizer
(4) A sufficient quantity of water
(5) 30 pounds of tackifier

Seeding: Apply grass seed to all waste areas, and bare soils resulting from Project No. 4.

Mulching: In addition to seeding requirements, apply straw mulch to all waste areas, and bare soils resulting from Project No. 4 Cow Creek Road Vacating. Applied straw mulch shall be a minimum of 2 inches deep and provide a uniform cover.

EXHIBIT "H"

ROAD VACATING AND FILL REMOVAL SPECIFICATIONS: Points V1 to V2

PURCHASER shall vacate Cow Creek Road between Point V1 and V2. Specific objectives for this project include:

- Salvage and stockpile existing crushed surfacing rock.
- Fill removal and stream channel development.
- Culvert removal.
- Rehabilitate compacted subgrade soils by ripping and tilling.
- Restoration of natural contours by outsloping of the road prism.
- Sidecast pullback.
- Minimize disturbance of existing vegetation.
- A total project cost not exceeding $60,000.

(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) Rock Salvage. Remove, salvage, and stockpile the existing crushed surfacing rock. Salvaged rock shall be stockpiled at the locations shown on Exhibit A as "Rock Salvage Stockpile Areas," as directed by STATE.

(3) 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.

(4) Culvert Removal. Remove drainage structures and culverts. Removed culverts shall be hauled to an approved refuse site off of State Land.

(5) Rip and Till Subgrade. Rip and till the compacted subgrade soils to a minimum depth of 18 inches.

(6) Outslope Road. Outslope road to restore natural contours or establish a minimum of 10% slope for drainage. If the road grade exceeds 10%, outslope of the road shall be 2% greater than the road grade.

(7) Sidecast Pullback. Excavate/pullback previously sidecast materials below the road at designated locations. Developed slopes shall be pulled back to a 1 ½:1 slope or to natural ground contours. The beginning position for sidecast pullback shall be no greater than 20 feet vertical distance from the existing road surface, in accordance with specifications in Exhibit H.

(8) 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. 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.

EXHIBIT "H"

ROAD VACATING AND FILL REMOVAL SPECIFICATIONS: Points V1 to V2

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

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

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

(11) 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.

(12) 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 August 31, annually.

Progressive Operations. Once begun, the project will progress efficiently and continuously until completed and approved. The project shall be completed in the following priority sequence, unless otherwise approved by STATE in writing:

Priority No. 1: Salvage and stockpile existing crushed surfacing rock between Point V1 and V2.
Priority No. 2: Complete Type F Stream fill removals and stream channel development at stations 57+20 and 59+20.
Priority No. 3: Vacate remaining portions of V1 to V2.

Credit for Project Work. The final credit for Project No. 4 shall not exceed $60,000 per Section 74, "Credit for Project Work," in the Timber Sale Contract. STATE may adjust the credit in Section 73 in the event that the work is completed prior to using all available credit rates.

Credit Rates. Rates credited toward completion of the project will be applied for periods of active operation on the project work only and exclusive of initial move in of equipment or supplies. The method of crediting PURCHASER will be determined by applying the following credit rates for equipment, personnel, and supplies.

(1)	C325 excavator, or equivalent, and operator.	$115 per operating hour
(2)	C330 excavator, or equivalent, and operator.	$130 per operating hour
(3)	D7 dozer, or equivalent, and operator.	$ 90 per operating hour
(4)	C966 front end loader, or equivalent, and operator.	$ 75 per operating hour
(5)	C12G grader, or equivalent, and operator.	$ 70 per operating hour
(6)	C14G grader, or equivalent, and operator.	$ 80 per operating hour
(7)	Heavy Equipment transport and operator. (For secondary mobilization of equipment for the project.)	$ 80 per operating hour
(8)	10-12 cubic yard dump truck and operator.	$ 57 per operating hour

EXHIBIT "H"

ROAD VACATING AND FILL REMOVAL SPECIFICATIONS: Points V1 to V2

(9)	20 cubic yard, Off-Road dump truck and operator.	$ 67 per operating hour
(10)	25 cubic yard, Off-Road dump truck and operator.	$ 95 per operating hour
(11)	Laborer(s) (Application of mulch only)	$ 25 per operating hour
(12)	Straw Mulch (Includes transport and staging of material at job site)	$ 5 per bale
(13)	Grass Seed	$ 2 per pound

Record Keeping. PURCHASER shall keep an accurate log of operating time (exclusive of standby time, repair delays, down time, etc.) and invoices for all equipment, personnel, straw bales, and grass seed on a daily basis, and submit it to the STATE Representative upon request. STATE shall provide the form for recording the required log. If the log is determined by STATE to not be complete or accurate, then PURCHASER will not get credited for all or a portion of the work, as determined by STATE.

Verification. The STATE representative shall provide direction for the conduct of work according to the specifications, verify hours of operation, verify required record keeping, and determine credits for project work.

Continuous Operations. Operations shall provide for continual operation on the project, 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.

A Penalty of $250 per day shall be assessed for any 8-hour work day that either equipment, personnel, or supplies are not operating or available due to failure to supply approved and acceptable equipment, personnel, or supplies in order to continue the project in an efficient and progressive manner. STATE may terminate the project in the event that work progress is not satisfactory to STATE.

Operators shall be experienced in operating the required equipment and be able to operate the equipment proficiently and efficiently. If STATE determines that an operator(s) or other personnel is/are not operating in a proficient and efficient manner, STATE considers the operator(s) or personnel not approved and not acceptable and may require the PURCHASER to do one or more of the following measures:

Replace operator(s) and/or personnel;
Replace equipment;
Terminate operations.

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

EXHIBIT "H"

ROAD VACATING AND FILL REMOVAL SPECIFICATIONS: Points V1 to V2

SPECIFIC INSTRUCTIONS/SPECIFICATIONS

Segment	Station	Work Description
V1 to V2	0+00	Point V1. Begin Vacating. Construct road block.
	1+40	Begin fill removal. Remove road fill to natural floodplain level. Fill will be hauled to a designated waste area or used to block road at V1.
	2+10	Remove culvert.
	4+65	End fill removal. Begin sidecast pullback.
	6+00	Remove culvert. End sidecast pullback
	7+40	Begin sidecast pullback.
	8+80	Remove two existing culverts/fill. Develop minimum 5-foot wide stream channel.
	9+70	End sidecast pullback.
	10+75	Waste area.
	12+75	Fill/culvert removal. Develop minimum 4-foot wide stream channel. Begin sidecast pullback.
	13+50	End sidecast pullback.
	14+80	Fill/culvert removal. Develop minimum 4-foot wide stream channel.
	17+10	Begin sidecast pullback.
	20+00	Fill/culvert removal. Remove all fill material and restore to natural contours. Develop a minimum 6-foot wide stream channel.
	21+30	Fill/culvert removal. Remove all fill material and restore to natural Contours. Develop a minimum 6-foot wide stream channel. Fill material will be hauled to a designated waste area.
	22+30	End sidecast pullback.
	23+55	Fill/culvert removal. Remove all fill material and restore to natural contours. Develop a minimum 15-foot wide stream channel.
	24+40	Waste area
	25+50	Begin fill removal. Remove all road fill and restore to natural contours.

EXHIBIT "H"

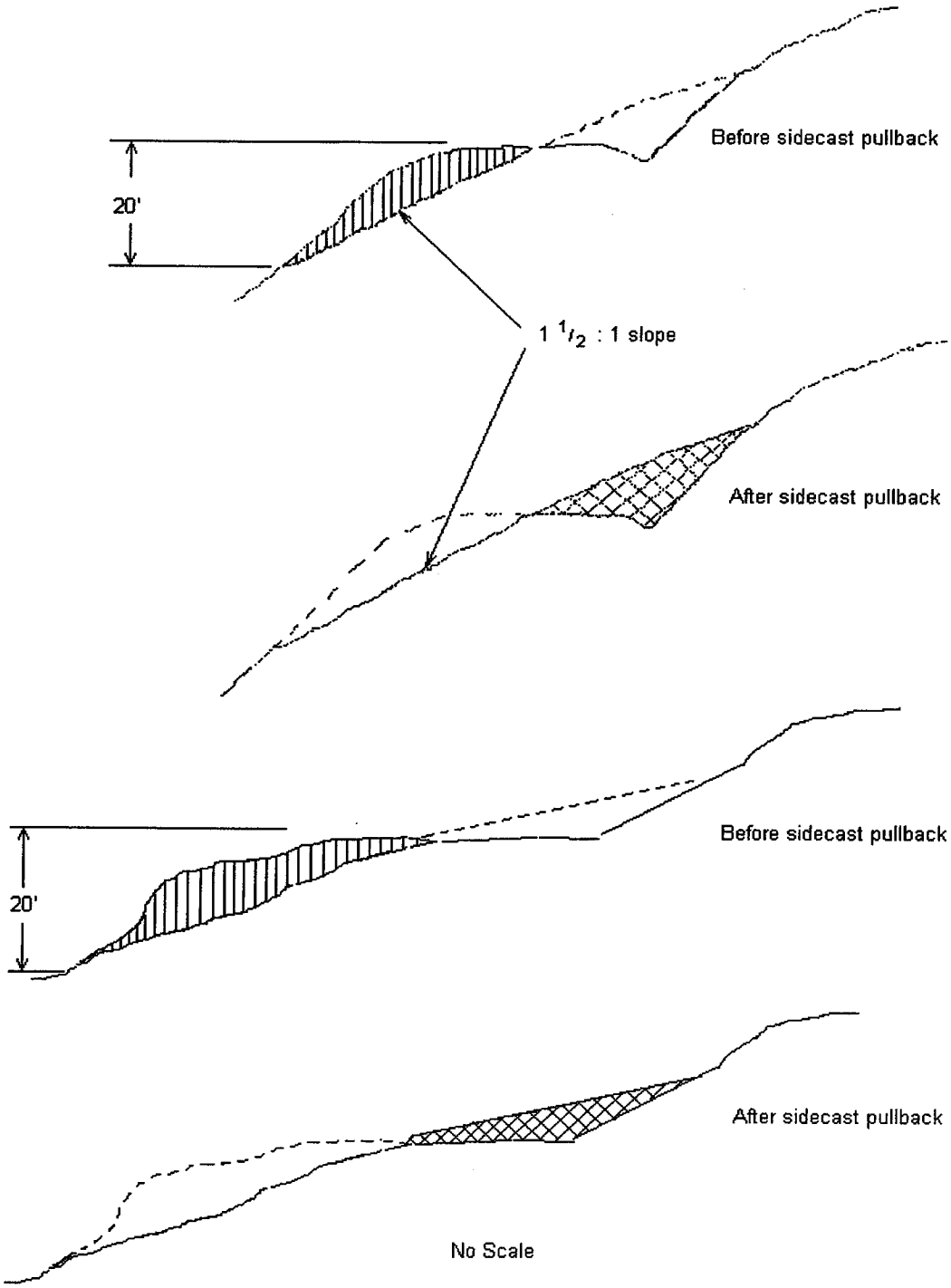
ROAD VACATING AND FILL REMOVAL SPECIFICATIONS: Points V1 to V2

SPECIFIC INSTRUCTIONS/SPECIFICATIONS

Segment	Station	Work Description
V1 To V2	26+20	Remove culvert. End fill removal.
	27+20	Begin sidecast pullback.
	29+25	Remove culvert. Establish drainage.
	36+40	Fill/culvert removal. Remove all road fill and restore to natural contours. Develop a minimum 12-foot wide stream channel. Fill material will be hauled to a designated waste area.
	37+10	End sidecast pullback.
	38+15	Fill/culvert removal. Remove all road fill and restore to natural contours. Develop a minimum 4-foot wide stream channel.
	39+20	Fill/culvert removal. Remove all road fill and restore to natural contours. Develop a minimum 6-foot wide stream channel.
	42+20	Fill/culvert removal. Remove all road fill and restore to natural contours. Develop a minimum 4-foot wide stream channel.
	44+60	Waste area.
	47+90	Remove culvert. Establish drainage.
	48+60	Road junction.
	49+30	Remove culvert. Establish drainage.
	57+20	Type F Stream fill/culvert removal. Develop a minimum 25-foot wide stream channel.
	59+20	Type F Stream fill/culvert removal. Develop a minimum 21-foot wide stream channel.
	62+50	Begin 17% outslope.
	64+50	Remove culvert. Establish drainage.
	67+50	Remove culvert. Establish drainage. End 17% outslope.
	68+90	Point V2. End vacating. Construct road block.

EXHIBIT "H"

TYPICAL CROSS SECTION OF SIDECAST PULLBACK



State Timber Sale Contract
No. 341-03-21
Foster Divide Combination

EXHIBIT "I"

TYPICAL EMBEDDED ENERGY DISSIPATER

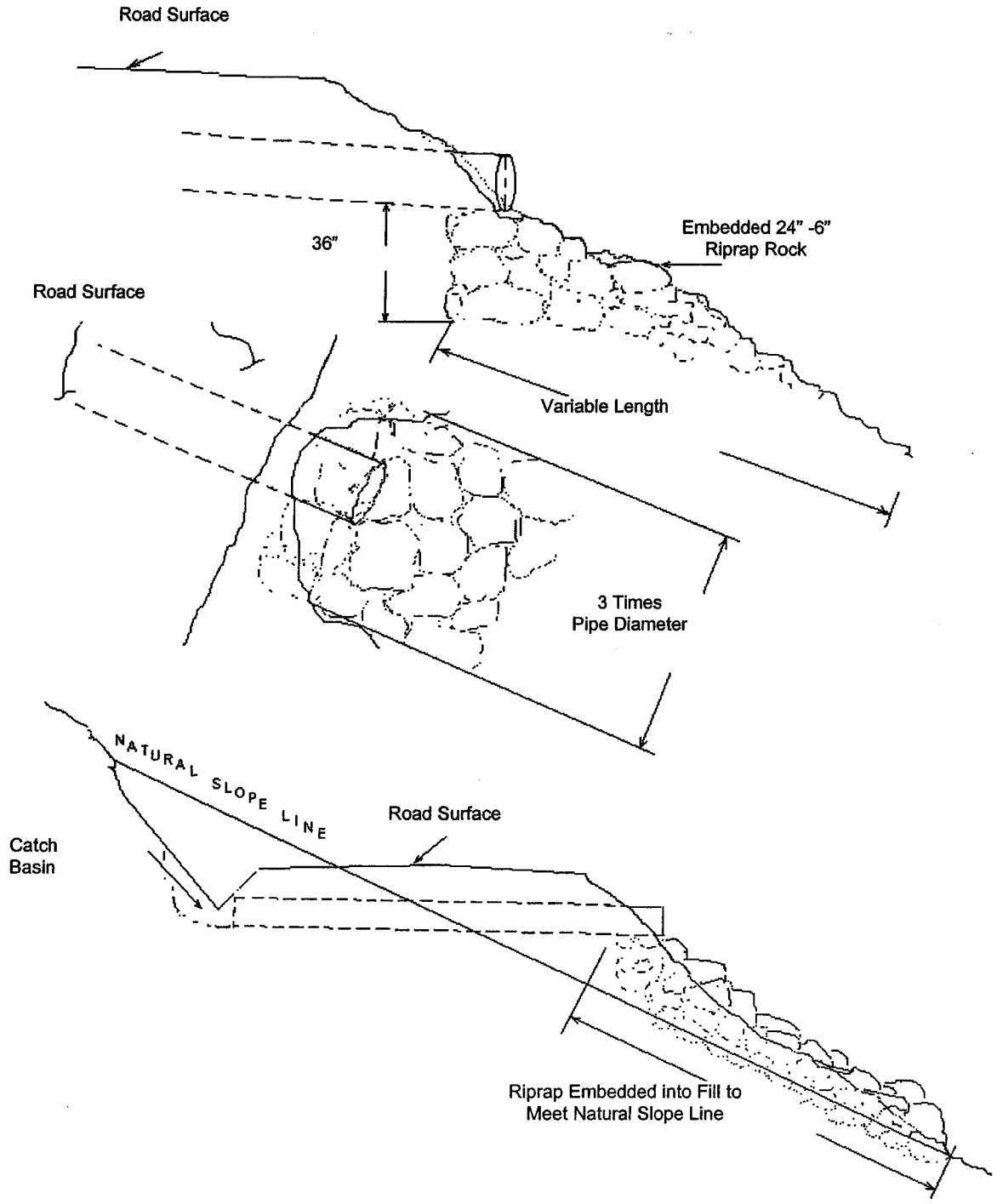


EXHIBIT "J"

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 300 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 "J"

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	$ 95.00 / hour	116	$ 11,020.00
Log Loader	$ 70.00 / hour	157	$ 11,020.00

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 5, 6A, 6B, and 7. 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.

FORM 629.343-307
Rev. 3/01

EXHIBIT "K"
OREGON DEPARTMENT OF FORESTRY

SCALING INSTRUCTIONS -- LOCATION APPROVAL -- BRAND INFORMATION

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

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

(3) FROM: Astoria 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).

	YES	NO
(6) WESTSIDE SCALE: Actual taper all logs over 40' scaling length	☒	☐
(7) EASTSIDE SCALE: *Actual taper butt logs over 40' scaling length	☐	☒
(8) PENCIL BUCK back to Minimum Scaling Diameter _____	☐	☒
(9) ADD-BACK VOLUME -- 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 Foster Divide Combination
COUNTY Clatsop

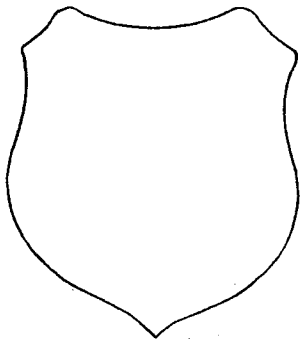
(13) STATE CONTRACT NUMBER 341-03-21

(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: _____

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

(21) SIGNATURES:

_____
Purchaser or Authorized Representative Date

_____
State Forester Representative Date

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

EXHIBIT "K"

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 45, "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 SUB species 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.