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 3+50	Yes	No
16 feet	12 feet	2A to 2B	0+00 to 14+50	Yes	No
16 feet	12 feet	2C to 2D	0+00 to 2+00	Yes	No
16 feet	12 feet	2E to 2F	0+00 to 3+80	Yes	No
16 feet	12 feet	3A to 3B	0+00 to 37+60	Yes	No
16 feet	12 feet	4A to 4B	0+00 to 9+00	Yes	No
14 feet	N/A	4C to 4D	0+00 to 13+00	No	OUTSLOPED
14 feet	N/A	6A to 6B	0+00 to 10+50	No	OUTSLOPED
16 feet	12 feet	I1 to I2	0+00 to 86+60	Yes	No
16 feet	12 feet	I2 to I3	0+00 to 90+00	Yes	No
16 feet	12 feet	I4 to I5	0+00 to 2+00	Yes	No
16 feet	12 feet	I6 to I7	0+00 to 20+00	Yes	No
16 feet	12 feet	I8 to I9	0+00 to 2+00	Yes	No
16 feet	12 feet	I10 to I11	0+00 to 2+00	Yes	No
N/A	16 feet	I12 to 13	20+00 to 22+50	Yes	No
23 feet	20 feet	I14 to I15	2+50 to 3+50	Yes	No
20 feet	16 feet	I14 to I15	10+00 to 11+00	Yes	No
20 feet	16 feet	F1 to F2	0+00 to 0+50	Yes	No

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.

EXHIBIT "B"

FOREST ROAD SPECIFICATIONS

GRUBBING. Improvement and reconstruction – 4 feet back from the shoulder of the subgrade or ditch, whichever is widest, or as marked in the field.

CLEARING AND GRUBBING DISPOSAL. Scatter through openings in the timber outside of the cleared right-of-way, except areas where end-haul is required. In areas where end-haul is required, clearing and grubbing debris shall be fully contained and hauled to a designated waste area.

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

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

All suitable excavated material shall be used where possible for the formation of fills, shoulders, and drainage structure 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

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, or as staked on the ground, plus 25-foot approaches at each end.

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

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

Top of cutslope shall be rounded.

EXHIBIT "B"

FOREST ROAD SPECIFICATIONS

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 Exhibit B, and/or marked in the field.

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

EXHIBIT "B"

FOREST ROAD SPECIFICATIONS

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. Full bench road construction shall be performed 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, in accordance with Exhibit P.

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

Segment	Station	Work Description
2A to 2B	5+80	Begin full bench construction/end haul. Truck end-haul excess excavated material to waste area located at Station 1+50 on Road Segment 1A to 1B.
	7+00	End full bench construction/end haul.
	10+50	Begin full bench construction/end haul. Truck end-haul excess excavated material to waste area located at Station 1+50 on Road Segment 1A to 1B.
	11+80	End full bench construction/end haul.
	11+80	Begin full bench construction, drift excess excavated material for fill construction on Road Segment 2E to 2F.
	13+60	End drift of excess excavation.
3A to 3B	0+00	Utilize suitable excavation material for fill construction between Stations 2+70 and 4+50. Truck end-haul excess excavation material to waste area located at Station 16+00.
	2+70	Begin fill construction.
	4+05	Install culvert and utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator.
	4+50	End fill construction. Haul excess excavation material to waste area located at Station 16+00.
	5+93	Begin full bench construction/truck end haul. Utilize suitable excavation material for fill construction between Stations 15+00 and 19+40. Haul excess excavation material to waste area located at Station 16+00.
	8+65	Install culvert and utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator.
	12+40	End full bench construction/truck end haul.

EXHIBIT "B"

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

Segment	Station	Work Description
3A-3B	12+60	Begin 150' radius curve.
	12+75	Install culvert and utilize 10 cubic yards 24"-6" riprap rock to construct an energy dissipator.
	14+12	End 150' radius curve.
	15+00	Begin fill construction.
	18+94	Begin 120' radius curve.
	19+40	End fill construction.
	19+94	End 120' radius curve.
	21+77	Begin 100' radius curve.
	22+72	End 100' radius curve.
	26+17	Begin 160' radius curve.
	27+15	End 160' radius curve.
	28+41	Begin full bench construction/truck end haul. Utilize suitable excavation material for fill construction between Stations 30+60 and 32+50 and for landing construction at Station 37+60. Haul excess excavation material to waste area located at Station 16+00.
	30+58	End full bench construction/truck end haul.
	30+60	Begin fill construction.
	32+50	End fill construction.
37+60	Point 3B	End truck end-haul landing construction. Haul excess excavation material to waste landing area located at Station 16+00.

EXHIBIT "B"

END-HAULING REQUIREMENTS

POINT TO POINT	STATION TO STATION	WASTE AREA LOCATION	WASTE AREA TREATMENT
2A to 2B	5+80 to 7+00	1	1
2A to 2B	10+50 to 11+80	1	1
2A to 2B	11+80 to 13+60	2	1, 2
3A to 3B	0+00 to 4+50	3, 4	3
3A to 3B	5+93 to 12+40	4,5	4
3A to 3B	28+41 to 30+58	6	4, 5, 8
I1 to I2	78+00	7,9	6, 8
I1 to I2	85+00	7,9	6, 8
I14 to I15	2+50 to 3+50	8	7, 8
I14 to I15	10+00 to 11+00	8	7, 8
F1 to F2	0+00 to 0+50	9	8

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

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) Between Stations 1+50 to 2+50 off Road 1A to 1B.

(2) Between Stations 0+00 to 2+00 on Road 2E to 2F.

(3) Between Stations 2+70 to 4+50 on Road 3A to3B.

EXHIBIT "B"

END-HAULING REQUIREMENTS

Waste Area Location (Cont.)

(4) Station 16+00 on Road 3A to 3B.

(5) Between Stations 15+00 on 19+40 on Road 3A to 3B.

(6) Between Stations 30+60 and 32+50, and landing construction at Station 37+60 on Road 3A to 3B.

(7) Station 86+60 on Road I1 to I2 (Pt.I2).

(8) At Trailover Quarry.

(9) In a stable location as directed by STATE.

Waste Area Treatment

(1) Place excess excavated materials waste materials, and clearing and grubbing debris in the waste area located at Station 1+15 on Road 1A to 1B. All excess excavated fill material and unsuitable fill material, including clearing and grubbing debris, shall be deposited in stable locations as directed by STATE, spread evenly, compacted, and adequate drainage shall be established. Pile woody debris on top of waste area.

(2) Use suitable excavated material for use in subgrade/fill construction between Stations 0+00 to 2+00 on Road 2E to 2F. Haul excess excavated material to waste area off Station 1+50 Road 1A to 1B.

(3) Use suitable excavated material for use in fill construction between Stations 2+70 and 4+50 on Road 3A to 3B. Haul excess excavated material to waste area at Station 16+00 Road 3A to 3B.

(4) Use suitable excavated fill material for use in subgrade construction from Station 15+00 to 19+40 on Road 3A to 3B. Haul excess excavated material to waste area at Station 16+00 Road 3A to 3B

(5) Use suitable excavated fill material for use in subgrade construction from Station 30+60 to 32+50 on Road 3A to 3B. Haul excess excavated material to waste area at Station 16+00 Road 3A to 3B.

(6) Place excess excavated materials waste materials, and clearing and grubbing debris in the waste area located at Station 86+60 on Road I1 to I2 (Pt. I2). All excess excavated fill material and unsuitable fill material, including clearing and grubbing debris, shall be deposited in stable locations as directed by STATE, spread evenly, compacted, and adequate drainage shall be established. Pile woody debris on top of waste area.

(7) Place excess excavated materials waste materials, and clearing and grubbing debris in the waste area located at the Trailover Quarry. All excess excavated fill material and unsuitable fill material, including clearing and grubbing debris, shall be deposited in stable locations as directed by STATE, spread evenly, compacted, and adequate drainage shall be established. Pile woody debris on top of waste area.

(8) All excess excavated fill material and unsuitable fill material, including clearing and grubbing debris, shall be deposited in stable locations as directed by STATE, spread evenly, compacted, and adequate drainage shall be established. Pile woody debris on top of waste area.

EXHIBIT "B"

ROAD IMPROVEMENT INSTRUCTIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS

(1) 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. All culvert installations on Road Segment I1 to I2 shall require that road fabric be replaced with the installations. The road fabric shall be installed according to Exhibit O, "Fabric Specifications." Removed culverts shall be hauled to an approved refuse site off of STATE land.

(2) 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.

(3) 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. Where rock is used for an energy dissipater, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, in accordance with Exhibit P.

(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, fill reconstruction, road realignment, drainage ditches, and other specified work prior to the application of new surfacing rock.

(b) For Road Segment I1 to I2, where culverts are installed, road fabric will be installed in accordance to Exhibit O.

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

(d) Apply required ¾"-0", and 1½"-0", leveling rock, as directed by STATE.

(e) Process (grade+mix) the existing surfacing and added base rock. Provide for a 4 to 6 percent 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"

ROAD IMPROVEMENT INSTRUCTIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS

(6) Free Draining Fill Construction. Where free draining fill construction is required, clean 24"-6" drain rock shall be hauled in and used to construct the fill base, 1½"-0" crushed rock shall be used for backfilling around culverts.

(7) Additional Requirements for Type F Stream Fill Construction. Additional requirements are shown on Exhibit L.

(8) Roadside Brushing. Complete brushing requirements according to specifications in Exhibit Q.

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description
I1 to I2	0+50	Replace culvert. Utilize 30 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill. Replace road fabric.
	19+30	Replace culvert. Utilize 30 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill. Replace road fabric.
	72+25	Install new culvert. Utilize 40 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill. The new culvert will be skewed. Utilize 10 cubic yards of 24"-6" riprap rock for energy dissipator construction. Replace road fabric.
	76+60	Utilize 10 cubic yards 24"-6" riprap rock to construct energy dissipator.
	78+00	Remove bank ravel and stabilize cut slope. Move toe of cut bank in 3 feet and create ditch. Haul excavated material to waste area located on Road Segment I1-I2 Station 86+60.
	85+00	Utilize 50 cubic yards 24"-6" riprap rock to armor fill slopes on outlet end of existing culvert. Haul waste material to Station 86+60 on I1-I2.
I2 to I3	83+50	Unplug culvert inlet, re-establish culvert catch basin.
	86+50	Unplug culvert inlet, re-establish culvert catch basin.
I12 to I13	7+50	Culvert replacement. Utilize 30 cubic yards of 1 ½"-0" crushed rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator.
I12 to I13	20+00	Begin construction of 250 feet of 16-foot wide access road with turnaround from the existing quarry access road to the 4"-0" stockpile site. Surface access road utilizing 250 cubic yards of 6"-0" pit-run to a depth of 12 inches. Construct a drainage ditch that provides for positive drainage away from the new access road and the quarry floor. See Exhibit D for additional specifications.

EXHIBIT "B"

ROAD IMPROVEMENT INSTRUCTIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description
I12 to I13	22+50	End stockpile access road construction.
I14 to I15	3+00	Trailover Creek Type F Stream Crossing and Fill Reconstruction. See Exhibit L for specifications and instructions.
I14 to I15	10+50	Trailover Road Fill Reconstruction. Requires construction of a free draining fill. See Exhibits M and N for specifications and instructions.

EXHIBIT "B"

ROAD SURFACING

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 3+50		
				Volume (CY) per		Number of		
Base Rock	4"-0" Crushed	1A to 1B	8	station	50	stations	3.5	175
Landings	6"-0" Pit-run	1B	N/A	landing	80	landings	1	80
Total Rock for Road Segment:		**1A to 1B**						255
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 14+50		
				Volume (CY) per		**Number of**		
Base Rock	4"-0" Crushed	2A to 2B	8	station	50	stations	14.5	725
Traction Rock	¾"-0"Crushed	8+50 to 13+50	2	station	13	stations	7.0	91
Curve Widening	4"-0" Crushed	N/A	8		N/A		N/A	60
Turnouts	4"-0" Crushed		8	turnout	22	turnouts	3	66
Turnouts Traction	3/4"-0" Crushed		2	turnout	8	turnouts	2	16
Junctions	4"-0" Crushed		8	junction	20	junctions	3	60
Junction Traction	¾"-0" Crushed	0+00	N/A	junction	10	junctions	1	10
Landings	6"-0" Pit-run	2B	N/A	landing	80	landings	1	80
Total Rock for Road Segment:		**2A to 2B**						1,108
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 2+00		
				Volume (CY) per		**Number of**		
Base Rock	6"-0" Pit-run	2C to 2D	8	station	50	stations	2.0	100
Landings	6"-0" Pit-run	2D	N/A	landing	80	landings	1	80
Total Rock for Road Segment:		**2C to 2D**						180
ROAD SEGMENT: 2E to 2F				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	2E to 2F		0+00 to 3+80		
				Volume (CY) per		**Number of**		
Base Rock	4"-0" Crushed	2E to 2F	8	station	50	stations	3.80	190
Landings	6"-0" Pit-run	2F	N/A	landing	80	landings	1	80
Total Rock for Road Segment:		**2E to 2F**						270

EXHIBIT "B"

ROAD SURFACING

ROAD SEGMENT: 3A to 3B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	3A to 3B Volume (CY) per		0+00 to 37+60 Number of		
Base Rock	4"-0" Crushed	3A to 3B	10	station	63	stations	37.60	2,369
Traction Rock	¾"-0"Crushed	2+00 to 18+00	3	station	19	stations	16	304
Traction Rock	¾"-0"Crushed	27+00 to 31+00	3	station	19	stations	4	76
Traction Rock	¾"-0"Crushed	34+00 to 36+50	3	station	19	stations	2.5	48
Turnouts	4"-0" Crushed		10	turnout	28	turnouts	8	224
Turnouts Traction	¾"-0" Crushed		3	turnout	8	junctions	7	56
Junctions	4"-0" Crushed		8	junction	30	junctions	1	30
Junction Traction	¾"-0" Crushed	0+00	N/A	junction	12	junctions	1	12
Turnarounds	4"-0" Crushed			turnaround	24	turnaround	2	48
Curve Widening	4"-0" Crushed	N/A			N/A	curves	N/A	60
Curve Widening	¾"-0" Crushed	N/A			N/A	curves	N/A	20
Fill Widening	4"-0" Crushed					N/A	1	80
Fill Widening	¾"-0" Crushed					N/A		30
Dissipator Rock	24"-6" Riprap		N/A	dissipator	10	dissipators	3	30
Landings	6"-0" Pit-run	3B	N/A	landing	80	landings	1	80
Total Rock for Road Segment:		**3A to 3B**						3,466
ROAD SEGMENT: 4A to 4B				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	4A to 4B Volume (CY) per		0+00 to 9+00 Number of		
Base Rock	4"-0" Crushed	4A to 4B	8	station	50	stations	9	450
Traction Rock	¾"-0" Crushed	0+00-3+00	2	station	13	stations	3	39
Curve Widening	4"-0" Crushed	N/A		curve		N/A	N/A	24
Landings	4"-0" Crushed	6+00	N/A	landing	120	landings	1	120
Landings	6"-0" Pit-run	4B	N/A	landing	80	landings	1	80
Total Rock for Road Segment:		**4A to 4B**						713
ROAD SEGMENT: 4C to 4D				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	4C to 4D Volume (CY) per		0+00 to 1+00 Number of		
Base Rock	4"-0" Crushed	0+00-1+00	8	station	50	stations	1	50
Total Rock for Road Segment:		**4C to 4D**						50
ROAD SEGMENT: 6A to 6B				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	6A to 6B Volume (CY) per		0+00 to 2+00 Number of		
Base Rock	4"-0" Crushed	0+00-1+00	8	station	50	stations	2	100
Total Rock for Road Segment:		**6A to 6B**						100

EXHIBIT "B"

ROAD SURFACING

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 Volume (CY) per		0+00 to 86+60 Number of		
Surfacing Rock	1½ "-0" Crushed	I1 to I2	2	station	13	stations	86.6	1,126
Subgrade Leveling Rock	1½ "-0" Crushed	I1 to I2	N/A	level rock	N/A	N/A	N/A	225
Turnouts	1½ "-0" Crushed	I1 to I2	2	turnout	8	turnouts	14	112
Junctions	1½ "-0" Crushed	0+00	N/A	junction	10	junctions	4	40
Culvert Bedding	1½ "-0" Crushed	0+50	N/A	bedding	N/A	N/A	N/A	30
Culvert Bedding	1½ "-0" Crushed	19+30	N/A	bedding	N/A	N/A	N/A	30
Culvert Bedding	1½ "-0" Crushed	72+25	N/A	bedding	N/A	N/A	N/A	40
Energy Dissipator	24"-6" Riprap	72+25	N/A	dissipator	10	dissipators	1	10
Energy Dissipator	24"-6" Riprap	76+60	N/A	dissipator	10	dissipators	1	10
Fill Armor	24"-6" Riprap	85+00	N/A	fillslope	50	fillslope	1	50
Total Rock for Road Segment:		**I1 to I2**						1,673
ROAD SEGMENT: I2 to I3				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	**I2 to I3 Volume (CY) per**		**0+00 to 90+00 Number of**		
Surface Rock	¾"-0"Crushed	I2 to I3	2	station	13	stations	90	1,170
Subgrade Leveling Rock	¾"-0"Crushed	I2 to I3	N/A	N/A	N/A	N/A	N/A	225
Turnouts	¾"-0"Crushed	I2 to I3	2	turnout	10	turnouts	10	100
Junctions	¾"-0"Crushed	I2 to I3	2	junction	10	turnouts	5	50
Total Rock for Road Segment:		**I2 to I3**						1,545
ROAD SEGMENT: I4 to I5				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	**I4 to I5 Volume (CY) per**		**0+00 to 2+00 Number of**		
Surfacing Rock	1½ "-0" Crushed	I4 to I5	2	station	13	stations	2	26
Total Rock for Road Segment:		**I4 to I5**						26
ROAD SEGMENT: I6 to I7				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	**I6 to I7 Volume (CY) per**		**0+00 to 20+00 Number of**		
Surfacing Rock	1½ "-0" Crushed	I6 to I7	2	station	13	stations	20	260
Subgrade Leveling Rock	1½ "-0" Crushed	I6 to I7	N/A	N/A	N/A	N/A	N/A	50
Turnouts	1½ "-0" Crushed	I6 to I7	2	turnout	8	turnouts	3	24
Junctions	1½ "-0" Crushed	I6 to I7	2	junction	10	junctions	2	20
Total Rock for Road Segment:		**I6 to I7**						354

EXHIBIT "B"

ROAD SURFACING

ROAD SEGMENT: I8 to I9				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	I8 to I9 Volume (CY) per		0+00 to 2+00 Number of		
Landing Rock	6"-0" Pit-run	I9	N/A	landing	20	landings	1	20
Total Rock for Road Segment:		**I8 to I9**						20
ROAD SEGMENT: I10 to I11				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I10 to I11 Volume (CY) per		0+00 to 2+00 Number of		
Landing Rock	6"-0" Pit-run	I11	N/A	landing	20	landings	1	20
Total Rock for Road Segment:		**I10 to I11**						20
ROAD SEGMENT: I12 to I13				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I12 to I13 Volume (CY) per		0+00 to 22+50 Number of		
Culvert Bedding	1½"-0" Crushed	7+50	N/A	culvert	N/A	culverts	1	30
Base Rock	6"-0" Pit-run	20+00-22+50	12	station	100	stations	2.5	250
Energy Dissipator	24"-6" Riprap	7+50	N/A	dissipator	10	dissipators	1	10
Total Rock for Road Segment:		**I12 to I13**						290
ROAD SEGMENT: I14 to I15				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I14 to I15 Volume (CY) per		2+50 to 3+50 and 10+00 to 11+00 Number of		
Culvert Bedding	1½"-0" Crushed	3+00	N/A	culvert	N/A	culverts	1	204
Base Rock	4"-0" Crushed	2+50 to 3+50	16	station	N/A	stations	N/A	192
Surfacing Course	¾"-0" Crushed	2+50 to 3+50	6	station	N/A	stations	N/A	60
Fill Armor	24"-6" Riprap	3+00	N/A	armor	N/A	armor	N/A	305
Energy Dissipator	36"-24" Riprap	3+00	N/A	dissipator	N/A	dissipators	N/A	12
Culvert Bedding	1½"-0" Crushed	10+50	N/A	culvert	N/A	culvert	N/A	140
Free Draining Fill Rock	Clean 24"-6" Drain Rock	10+50	N/A	N/A	N/A	N/A	N/A	805
Fill Armor	24"-6" Riprap	10+50	N/A	armor	N/A	armor	N/A	300
Base Course	4"-0" Crushed	10+00 to 11+00	14	station	N/A	stations	N/A	160
Surfacing Course	¾"-0" Crushed	10+00 to 11+00	6	station	N/A	stations	N/A	50
Energy Dissipator	36"-24" Riprap	10+50	N/A	dissipator	N/A	dissipators	N/A	60
Total Rock for Road Segment:		**I14 to I15**						2,288

EXHIBIT "B"

ROAD SURFACING

ROAD SEGMENT: F1 to F2				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	F1 to F2 Volume (CY) per		0+00 to 0+50 Number of		
Foundation & Surfacing Rock	¾"-0" Crushed	0+50	N/A	N/A	N/A	--	--	59
Foundation, Base & Backfill Rock	4"-0" Crushed	0+50	12 Base	--	--	--	--	174
Fill Armor	24"-6" Riprap	0+50	N/A	--	--	--	--	150
Footing Foundation Rock	24"-12" Riprap	0+50	N/A	--	--	--	--	50
Total Rock for Road Segment:		**F1 to F2**						433

SUMMARY OF ALL ROAD IMPROVEMENT AND NEW ROAD CONSTRUCTION ROCK VOLUMES

ROCK TOTALS (CY)	36"-24"	24"-12"	24"-6"	6"-0"	4"-0"	1 1/2"-0"	3/4"-0"	TOTAL ROCK
	72	50	1,670	870	5,357	2,357	2,416	12,881

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 "B"

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 B. 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 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.

EXHIBIT "B"

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 except I12-I13 Sta. 20+00-22+50	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." 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 except I12-I13 sta. 20+00-22+50	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 hen 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 rock	1

EXHIBIT "B"

COMPACTION AND PROCESSING REQUIREMENTS

Pit-Run Rock. The rock shall be uniformly mixed and spread in layers on the approved roadbed. Each layer of pit-run rock shall be moistened or dried to 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 or 5

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.

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

EXHIBIT "C"

CULVERT SPECIFICATIONS

All culvert materials shall be furnished and installed by PURCHASER, unless otherwise specified in the contract. 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. All culverts shall be constructed with of double-walled polyethylene except for culvert Nos. 10, and 11. Double-walled polyethylene pipe 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.

Culvert No. 10 (78" X 80', round pipe, 3" X 1" corrugations) shall be constructed of 12 gauge, corrugated aluminized steel. Culvert No. 11 (36" X 104', round pipe, 2 2/3" X ½" corrugations) shall be constructed of 14 gauge, corrugated aluminized steel.

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.

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.

Backfill shall consist of granulated material 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. Damage to bituminous coating shall be repaired before the pipe is covered.

On new installations, joining shall be done with bands of like material and corrugations. Manufacturers' instructions shall be followed for prefabricated pipe assembly.

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 (when required) 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.

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.

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. 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.

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

Tamping is required.

EXHIBIT "C"

CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	ROAD SEGMENT POINT TO POINT	STATION
1	18	30	1A to 1B	1+50
2	18	34	3A to 3B	4+05
3	18	34	3A to 3B	8+65
4	18	34	3A to 3B	12+75
5	18	40	4A to 4B	6+90
6	18	30	I1 to I2	0+50
7	18	36	I1 to I2	19+30
8	18	40	I1 to I2	72+25
9	24	30	I12 to I13	7+50
*10	78 (aluminized steel)	80	I14 to I15	3+00
*11	36 (aluminized steel)	104	I14 to I15	10+50

The intake ends of culverts in fills less than 3 feet 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 2½ inches side, with the spade driven 2 feet into the ground. Culverts in fills over 3 feet in height do not need culvert markers.

All culverts shall be constructed of corrugated, double-walled polyethylene, except culvert No. 10 which is to be 12 gauge CSP, and culvert No. 11 which is to be 14 gauge aluminized CSP.

Culvert No. 10 and Culvert No. 11 require 1:1 step beveling on the inlet end.

*Indicates culverts that do not require culvert markers.

EXHIBIT "D"

ROCK PIT DEVELOPMENT AND USE

(1) PURCHASER shall schedule and coordinate Trailover Quarry and stockpile, and Sterling Ridge Quarry and Flatiron Stockpile sites use with other existing STATE contracts and planned STATE contracts requiring quarry and stockpile use.

(2) Project No.1 Only: 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) Project No.1 Only: 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) Utilize available rock at the designated rock source. Upon completion of rock removal, waste material hauled into the quarry from Fill Removals of Project No. 1 shall be placed in the excavated area and contoured to provide for drainage at a minimum 3% gradient in a northeasterly direction.

(5) Materials used for Fill Reconstruction on Project No. 1 shall be obtained from the Trailover Quarry, as directed by STATE. Borrow pit slopes shall be uniformly contoured at slopes no greater than 1½:1 upon completion.

(6) 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.

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

(8) Oversized material that is produced or encountered during development shall be utilized, as directed by STATE.

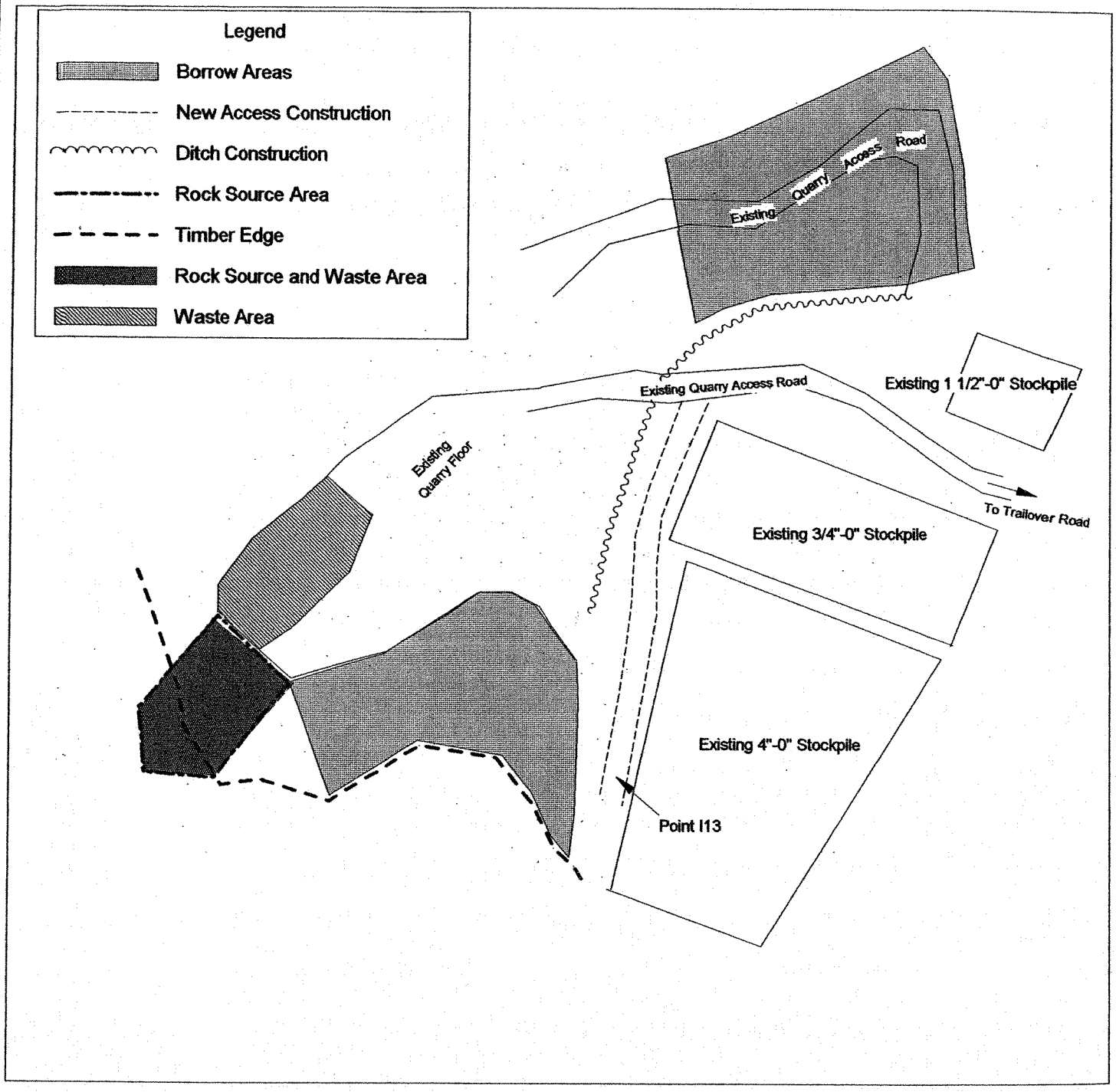
(9) The pit site shall be left in a condition free from overburden and debris. Access roads to the pit, and the pit floor, shall be cleared at the termination of use.

(10) The quarry floor shall be developed to provide for drainage away from the quarry. All quarry and stockpile site drainage ditches shall be maintained. Quarry access roads shall be cleared and blocked upon completion of quarry use as directed by STATE.

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

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

EXHIBIT "D"
ROCK PIT 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. 341-04-49
Bull Music Combination

EXHIBIT "E"

PIT-RUN AND RIPRAP ROCK SPECIFICATIONS

Grading Requirements

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 24"-12" Riprap — A minimum of 50 percent of the material shall measure a minimum of 24 inches, measured in one dimension. Material shall be clean, of well graded, and free of 2"-0" fines.

For 36"-24"Riprap — A minimum of 50 percent of the material shall measure a minimum of 36 inches, measured in one dimension. Material shall be clean, of well graded, and free of 2"-0" fines.

Control of gradation shall be by visual inspection by STATE.

EXHIBIT "F"

STREAM CROSSING SPECIFICATIONS

Project No. 4, Point F1 to Point F2

PURCHASER shall design and construct an open bottom concrete slab culvert that is sufficient to preserve a natural stream channel width of 10 feet.

These specifications require a fully engineered prefabricated concrete slab deck culvert of pre-cast conventionally reinforced concrete construction. Structural members shall be designed in accordance with AASHTO LRFD Bridge Design Specifications, 1998 (Modified). Welding and weld procedure qualification tests shall conform to the provisions of ANSI/AWS D1.1 "Structural Welding Code", 1996 Edition and/or CWB – CSA W59.

The structure shall be designed for E80 vehicle loads. All designs shall be prepared by a Professional Engineer licensed in Oregon and approved by STATE.

The stream crossing structure shall maintain the existing alignment and width of the road. STATE has performed a site survey for the purposes of displaying the road and stream locations and is shown on pages 3, 4 and 5.

Retaining curbs shall be designed to accommodate and retain roadway embankments. Footings shall extend a minimum of 2 feet below the predicted natural stream bottom elevations and prevent the scour of any substructure, footing or roadway embankment. Riprap rock shall be utilized to armor and protect road approach embankments.

PROJECT PLANS. PURCHASER shall submit plans to STATE for approval, prior to commencement of any work on the project. The plans shall include design calculations, scaled drawings, elevations and section drawings for the structure, including sizes and dimensions of components. The plans shall also include a description of special tools, equipment, the required lifting capacity and the general process to install and connect the components. Plans must contain erosion control measures, site de-watering measures and all information necessary for the administration and inspection of the project by STATE. The plans shall be stamped and signed by a professional engineer licensed in Oregon.

CONSTRUCTION

(a) Work shall be conducted only during periods of low water flows and between July 1 and September 15, annually. STATE shall be notified a minimum of 48 hours prior to beginning the work. STATE has prepared a FPA "Written Plan" for this work.

(b) Remove the existing embankment and culvert to accommodate the work area for stream crossing construction. Existing embankment(s) shall be excavated to the natural stream course level. All woody debris encountered during excavation shall be removed. Excavated debris and materials unsuitable for embankment construction shall be end hauled to the designated waste area, as directed by STATE. The existing, removed culvert shall be hauled to an approved refuse site off of STATE land.

(c) Waste materials shall be sloped for drainage and stability, as directed by STATE. Prior to hauling waste materials, the waste area shall be cleared of large woody debris. The debris shall be piled adjacent to the waste area. All exposed excavation areas and waste materials shall be mulched with straw. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover. Large woody debris shall be redistributed over the waste area after all waste materials have been hauled.

(d) Construct the concrete open bottom slab culvert and the approach embankments in accordance with approved plans. The approach embankments shall consist of 4"-0" crushed rock and/or select materials, hauled in where necessary. Embankment materials shall be thoroughly compacted in accordance with Exhibit B.

EXHIBIT "F"

STREAM CROSSING SPECIFICATIONS

Project No. 4, Point F1 to Point F2

CONSTRUCTION

(e) Construct stable foundation bases for footings and back walls by utilizing a minimum of 50 cubic yards of 24"-12" riprap rock, 10 cubic yards of 4"-0" crushed rock and 10 cubic yards of ¾"-0" crushed rock, enclosed in geotextile fabric and compacted.

(f) Utilize a minimum of 150 cubic yards of 24"-6" riprap rock for back filling, and, for embankment and stream bank armor. Riprap rock shall be placed and tamped at a 1½:1 slope, beginning at the fill toes.

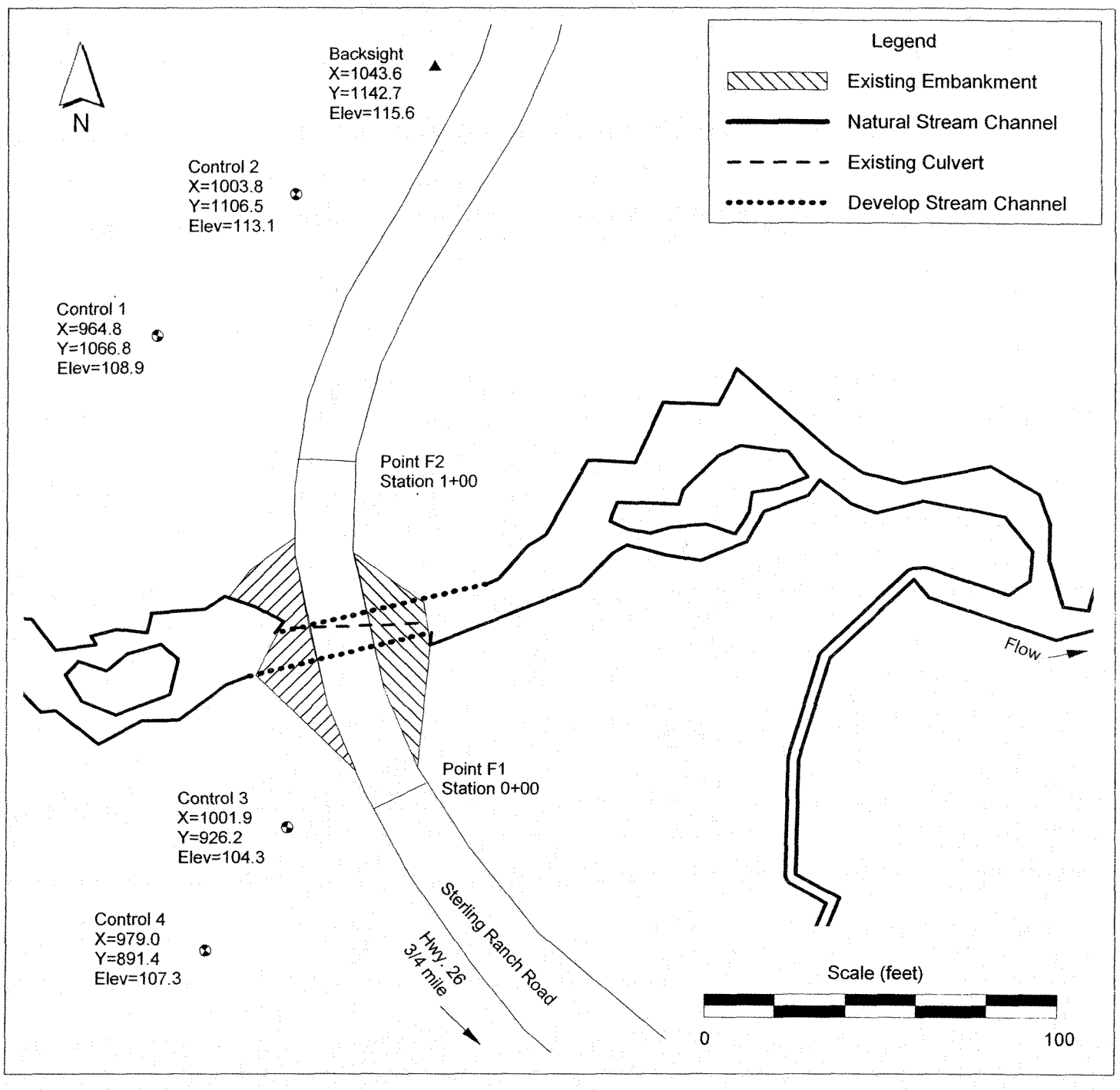
(g) A minimum 1½ cubic-yard, track-mounted excavator shall be used for all excavation, stream channel development, and riprap placement.

(h) All joints of the concrete members shall be sealed and filled with a construction sealant to prevent material from entering the stream.

(i) Upon completion of the above required work, apply, process, and compact surfacing rock in accordance with Exhibit B. Utilize a minimum of 50 cubic yards of 4"-0" crushed base course rock and 50 cubic yards of ¾"-0" crushed surface course rock to provide for a minimum road surface width of 16 feet and to provide for a smooth and uniform transition from the existing roadway across the structure.

The Engineer shall supervise and inspect the construction work and issue STATE written certification upon completion of the project.

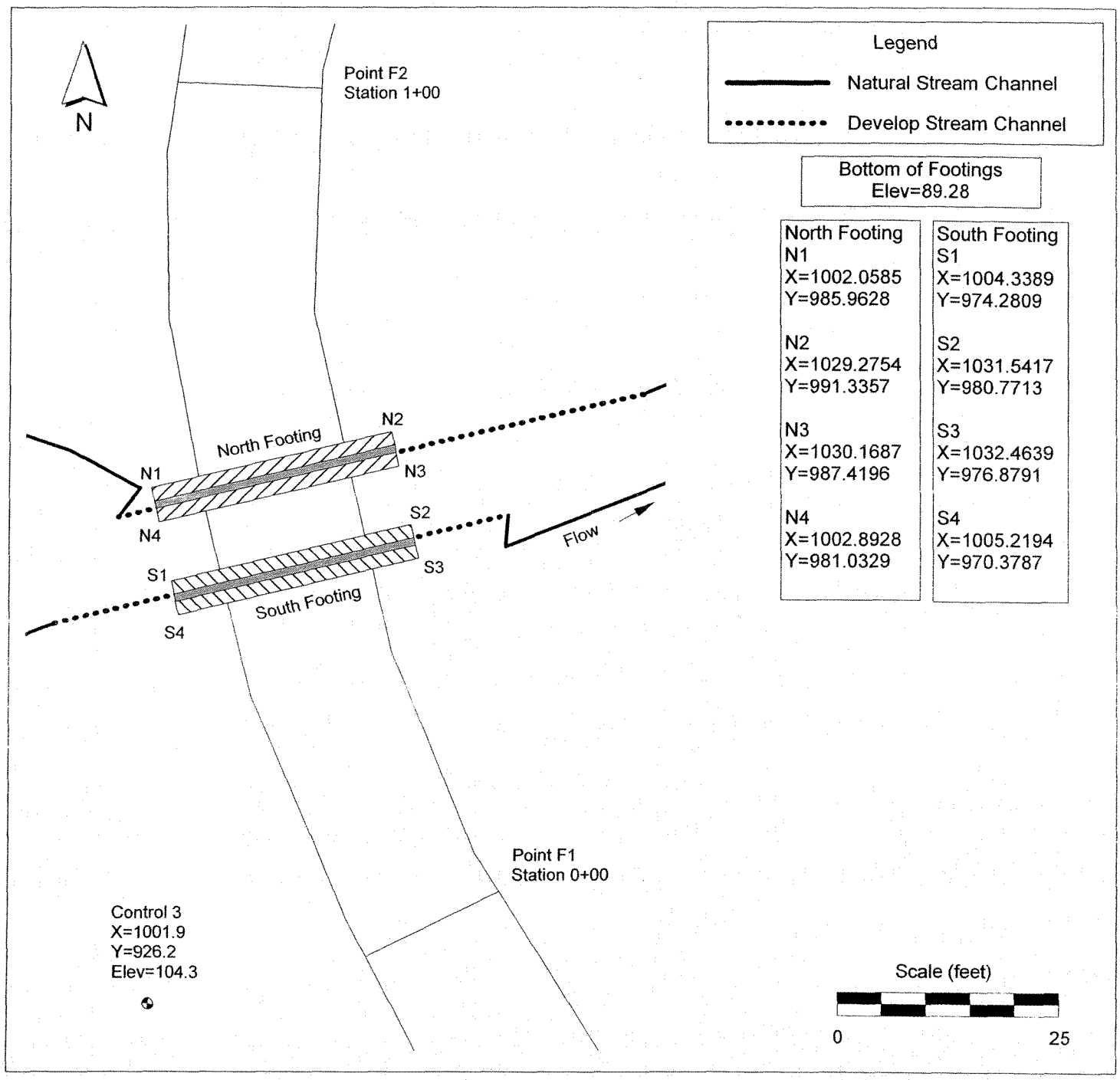
EXHIBIT "F"
SITE PLAN



Oregon Department of Forestry
Astoria District
Engineering Unit

Point F1 to Point F2
Station 0+50
Rock Creek Tributary
NW1/4, Section 30, T4N, R6W, W. M.
Clatsop County, Oregon

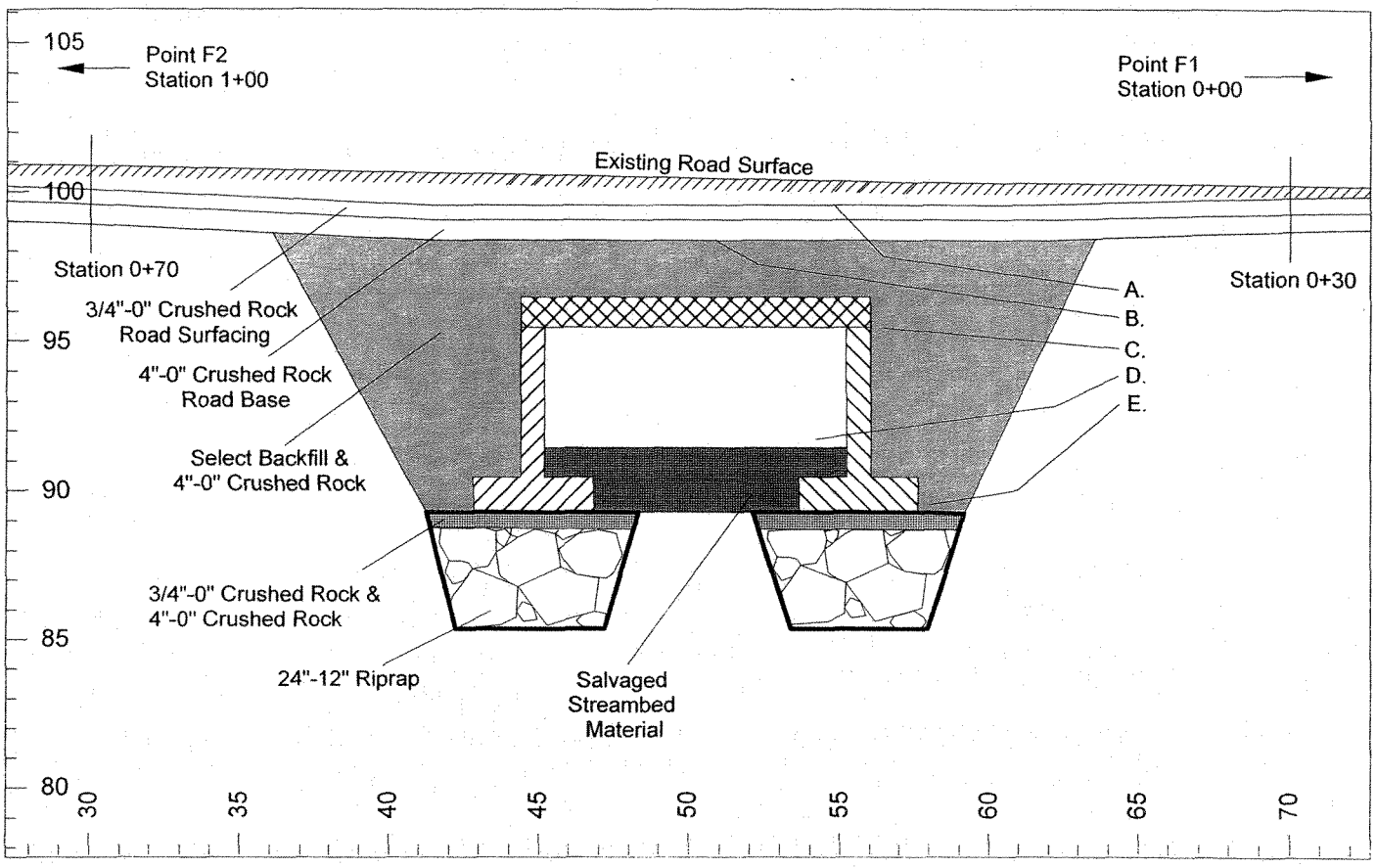
EXHIBIT "F"
FOOTING PLAN



Oregon Department of Forestry
Astoria District
Engineering Unit

Point F1 to Point F2
Station 0+50
Rock Creek Tributary
NW1/4, Section 30, T4N, R6W, W. M.
Clatsop County, Oregon

EXHIBIT "F"
FOOTING PROFILE



Legend

- Geotextile Fabric
- Footing
- Deck Slab

Elevations

A.	Road Surfacing	= 99.53'
B.	Subgrade	= 98.36'
C.	Top of Footing	= 95.45'
D.	Final Streambed	= 91.45'
E.	Bottom of Footing	= 89.28'

Oregon Department of Forestry
Astoria District
Engineering Unit

Point F1 to Point F2
Station 0+50
Rock Creek Tributary
NW1/4, Section 30, T4N, R6W, W. M.
Clatsop County, Oregon

EXHIBIT "G"

ROAD VACATING AND FILL REMOVAL SPECIFICATIONS: V1 to V2, V3, V4 to V5

Project Requirements and General Specifications

PURCHASER shall vacate portions of the following roads: Squaw Creek Road between Point V1 and V2, and V3, and Music Road between Point V4 and V5. Specific objectives for this project include:

Squaw Creek Vacating; V1 to V2, V3:

(1) Fill removal and stream channel development.
(2) Culvert removal.
(3) Minimize disturbance of existing vegetation.

Music Road Vacating; V4 to V5:

(1) Salvage and stockpile existing crushed surfacing rock.
(2) Fill removal and stream channel development
(3) Culvert removal.
(4) Rehabilitate compacted subgrade soils by ripping and tilling.
(5) Restoration of natural contours by outsloping of the road prism.
(6) Sidecast pullback.
(7) Minimize disturbance of existing vegetation.

A total project cost not exceeding $70,000.

(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 location shown on Exhibit "A", Rock Salvage Stockpile Area, 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, or restored to natural contours, as directed by STATE. Developed stream banks shall be sloped at natural contours or no steeper than 1½:1, 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, in accordance with specifications in Exhibit K.

(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, as directed by STATE and in accordance with specifications in Exhibit K.

(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 J.

EXHIBIT "G"

ROAD VACATING AND FILL REMOVAL SPECIFICATIONS: V1 to V2, V3, V4 to V5

(8) Use of Excavated Materials.

(a) Fill Excavation and Sidecast Pullback. Unless otherwise specified, 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. Excavated materials shall be placed and compacted on the roadway a minimum of 10 feet from the top of the developed stream bank, unless otherwise specified. Any excess material will be hauled to a designated waste area, as directed by STATE.

(b) Woody Debris may be incorporated in embankment material and/or placed on the surface of compacted embankment material.

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

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

(10) Construct Waterbars at designated locations and as directed by STATE. Construct waterbars according to the specifications in Exhibit H.

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

(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. All in-stream work shall be conducted between July 1 and August 31, annually.

Progressive Operations. Once vacating on a particular segment has begun, the project will progress efficiently and continuously until completed and approved.

Credit for Project Work. The final credit for Project No. 2 shall not exceed $70,000. STATE may adjust the credit in Section 73 in the event that the work is completed prior to using all available credit rates.

EXHIBIT "G"

ROAD VACATING AND FILL REMOVAL SPECIFICATIONS: V1 to V2, V3, V4 to V5

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)	D6 dozer, or equivalent, and operator.	$ 80 per operating hour
(4)	D7 dozer, or equivalent, and operator.	$ 90 per operating hour
(5)	D8 dozer, or equivalent, and operator.	$120 per operating hour
(6)	C966 front end loader, or equivalent, and operator.	$ 75 per operating hour
(7)	C12G grader, or equivalent, and operator.	$ 70 per operating hour
(8)	C14G grader, or equivalent, and operator.	$ 80 per operating hour
(9)	Heavy Equipment transport and operator. (For secondary mobilization of equipment for the project.)	$ 500 per authorized move
(10)	10-12 cubic yard dump truck and operator.	$ 57 per operating hour
(11)	20 cubic yard, Off-Road dump truck and operator.	$ 67 per operating hour
(12)	25 cubic yard, Off-Road dump truck and operator.	$ 95 per operating hour
(13)	Laborer(s) (Application of mulch only)	$ 25 per operating hour
(14)	Straw Mulch (Includes transport and staging of material at job site)	$ 5 per bale
(15)	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.

EXHIBIT "G"

ROAD VACATING AND FILL REMOVAL SPECIFICATIONS: V1 to V2, V3, V4 to V5

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.

SPECIFIC INSTRUCTIONS/SPECIFICATIONS

Segment	Station	Work Description
V1 to V2	0+00	Point V1. Begin Vacating. Type F Stream fill/culvert removal. Remove all fill and restore to natural contours. Fill will be hauled to a designated waste area and used to construct a road block.
	0+90	Remove culvert approximately 50' in old spur. Remove existing fill and woody debris within 50' of main road to provide for positive drainage. Fill and woody debris will be hauled to a designated waste area.
	8+70	Fill/culvert removal. Develop a minimum 6-foot wide stream channel.
	12+20	Waste area location.
	14+60	Fill/culvert removal. Develop a minimum 6-foot wide stream channel.
	16+20	Fill/culvert removal. Develop 4-foot wide stream channel.
	17+30	Waste area location.
	20+10	Remove culvert. Establish drainage.
	24+40	Fill/culvert removal. Remove all road fill and restore to natural contours.
	29+60	Fill/culvert removal. Develop minimum 4-foot wide stream channel.
	32+00	Remove culvert. Construct waterbar.
	41+00	Point V2. End Vacating.

EXHIBIT "G"

ROAD VACATING AND FILL REMOVAL SPECIFICATIONS: V1 to V2, V3, V4 to V5

SPECIFIC INSTRUCTIONS/SPECIFICATIONS

Segment	Station	Work Description
V3	Point V3.	Fill/culvert removal. Remove all road fill and restore to natural contours.
V4 to V5	0+00	Point V4. Begin vacating. Construct road block and turnaround. Place salvaged rock down old spur. Utilize thru-cut from 0+00 through 3+30 as a waste area.
	3+30	Begin sidecast pullback.
	4+15	Fill/culvert removal. Remove all fill and restore to natural contours.
	7+00	Fill/culvert removal. Remove all fill and restore to natural contours.
	9+80	Fill/culvert removal. Remove all fill and restore to natural contours.
	15+20	Fill/culvert removal. Develop a minimum 6-foot wide stream channel.
	17+10	End sidecast pullback.
	19+50	Begin sidecast pullback.
	22+40	End sidecast pullback. Pullback is located on old road approximately 40' off of existing road.
	27+55	Remove culvert. Establish drainage.
	28+70	Remove culvert. Establish drainage.
	30+90	Begin sidecast pullback.
	32+90	End sidecast pullback.
	33+20	Fill/culvert removal. Remove culvert. Establish Drainage.
	34+15	Begin sidecast pullback.
	36+90	End sidecast pullback.
	37+30	Establish drainage in wet area by restoring to natural contours.
	37+55	Fill/culvert removal. Develop a minimum 5-foot wide stream channel.
	38+10	Begin sidecast pullback.
	40+50	Point V5. End sidecast pullback. End Vacating.

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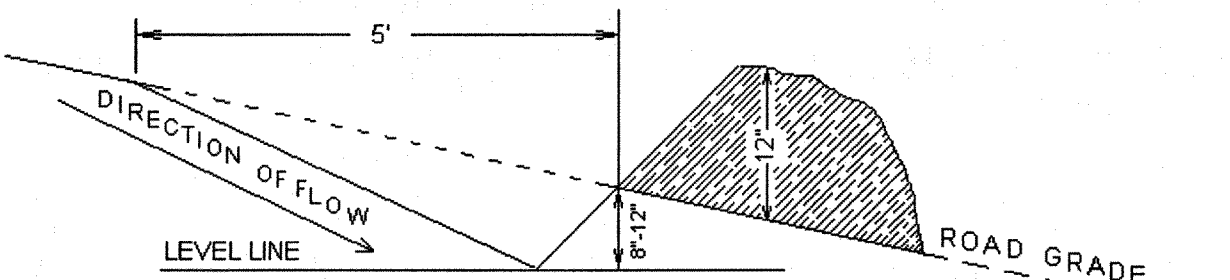
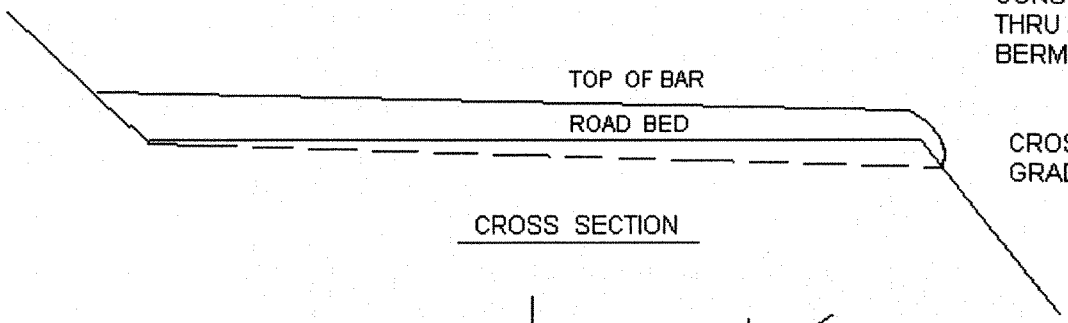
EXHIBIT "H"

WATERBAR SPECIFICATIONS



PROFILE

CONSTRUCT DITCH THRU ANY EXISTING BERM.

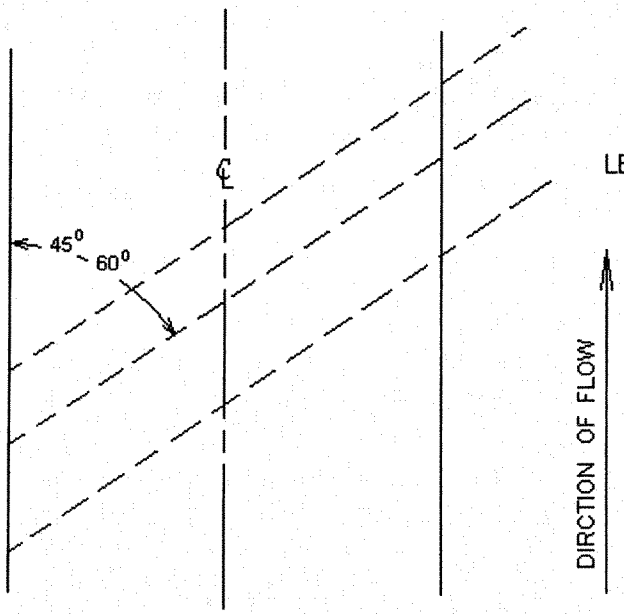


CROSS DRAINAGE GRADIENT MINIMUM 3%

CROSS SECTION

SPACING OF WATERBARS:

AS DIRECTED BY STATE.



PLAN VIEW

WATERBAR SPECIFICATIONS
FOR CROSS DITCHING #298

State Timber Sale Contract
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EXHIBIT "I"

GRASS SEEDING AND MULCHING

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

Seeding Seasons. Seeding shall be performed only from March 1 through June 15 and August 15 through October 31. Seeding materials shall not be applied during windy weather or when the ground is excessively wet or frozen. Work shall be performed during each specified seeding season on all completed and previously untreated sections. PURCHASER shall notify STATE 24 hours prior to seeding.

Application Methods for Grass Seed

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

Application Rates for Seed

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

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

Seeding and Mulching. Apply grass seed and straw mulch to all waste areas, and bare soils resulting from Project Nos. 2 and 4. Applied straw mulch shall be a minimum of 2 inches deep and provide a uniform cover.

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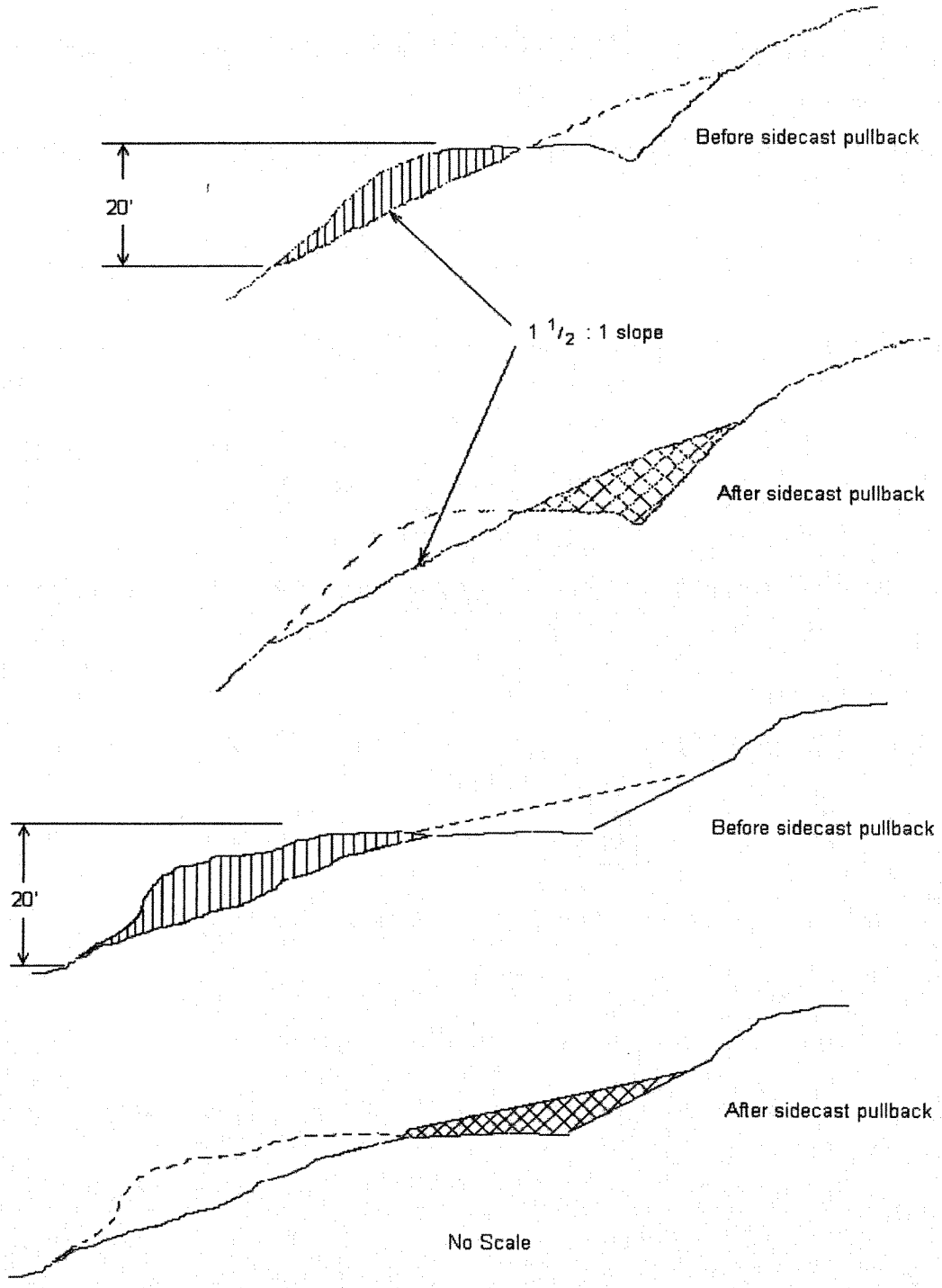
EXHIBIT "J"

TYPICAL CROSS SECTION OF SIDECAST PULLBACK



No Scale

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EXHIBIT "K"

RIPPING, TILLING, OUTSLOPE

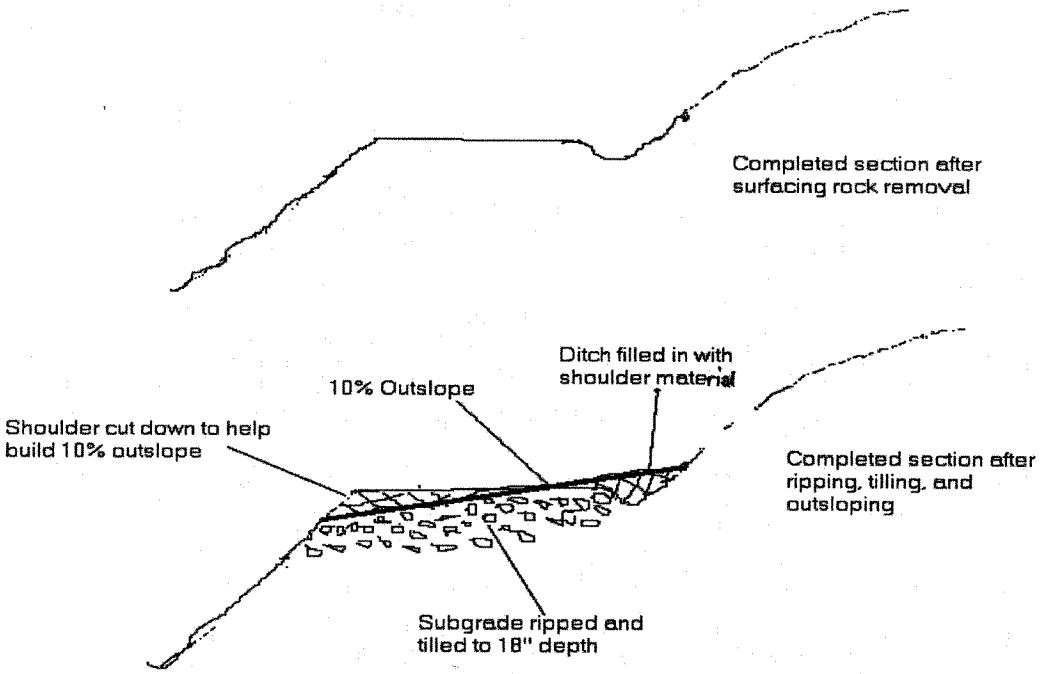

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EXHIBIT "L"

SPECIFICATIONS FOR TRAILOVER CREEK TYPE "F" STREAM CROSSING AND FILL RECONSTRUCTION AT STATION 3+00 ROAD SEGMENT I14 TO I15

(1) Type "F" stream fill reconstruction must allow free passage of fish as provided in the Oregon Forest Practice Rules. Modifications of the existing culvert geometry and stream channel shall be required to allow free passage of fish.

(2) Work shall be conducted only during periods of low water flows and between July 1 and August 31, annually. STATE shall be notified a minimum of 48 hours prior to beginning work. STATE has prepared the FPA "Written Plan" for this work.

(3) A minimum of 1½ cubic yard, track mounted backhoe shall be used for all embankment excavation, stream development/preparation, and riprap replacement. Use of a hydraulic rock hammer may be required for the breaking of rock strata encountered during the development of the culvert bed.

(4) Excavated debris and soil materials unsuitable for fill construction shall be placed at stable locations and/or end-hauled to Trailover Quarry, as directed by STATE. The existing removed culvert shall be hauled to an approved refuse site off of STATE land.

(5) Waste materials shall be sloped for drainage and stability, as directed by STATE. Straw mulch shall be applied to all exposed areas, bare soils and waste materials. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.

(6) Remove existing fill, culvert, and any logs or woody debris.

(7) Minimize delivery of sediment to streams during operations by employment of de-watering techniques such as temporary cofferdams, diversion ditches, drainage structures, and/or damming and pumping.

(8) Develop the culvert bed and stream channel in accordance with project plans and field marked control reference points. The embedded culvert will be installed at a 7% gradient. Utilize a minimum of 204 cubic yards of 1½"-0" crushed rock to provide a bed of uniform density and for culvert installation.

(9) Develop the stream channel for a distance of 145 feet upstream and 50 feet downstream of the new culvert. The developed channel width shall be a minimum of 6½-feet and developed stream banks shall be sloped at 2:1.

(10) Native (excavated) substrate materials shall be placed in the culvert barrel to a depth of 2.6 feet. 24"-6" riprap rock shall be placed and embedded at the outlet of the new culvert to serve as an energy dissipator and promote settling of additional sediment in the culvert barrel.

(11) Fill reconstruction backfill shall consist of select materials and be obtained from Trailover rock pit, as directed by STATE. Backfill materials shall be hauled in where necessary and thoroughly compacted. Utilize 305 cyd of 24"-6" riprap for armoring fill slopes. The riprap rock shall be placed and tamped at a 1½ :1 slope for a minimum thickness of 2 feet beginning at the toes. Finished subgrade width shall be 23-feet with a 20-foot running surface. 192 cubic yards 4"-0" base rock will be utilized to restore the base surfacing coarse and 60 cubic yards of ¾"-0" for top surfacing course. Fill and crushed rock surfacing materials shall be compacted in accordance with Exhibit B.

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EXHIBIT "M"

SPECIFICATIONS FOR TRAILOVER ROAD FILL RECONSTRUCTION
AT STATION 10+50 ROAD SEGMENT I14-I15.

(1) Work shall be conducted only during dry weather periods, low water stream flows and between May 1 and September 30, annually. In addition, in-stream work may be conducted only between July 1 and August 31, annually. STATE shall be notified a minimum of 48 hours prior to beginning work. STATE has prepared the FPA "Written Plan" for this work.

(2) A minimum of 1½ cubic yard, track mounted excavator shall be used for all excavation, stream channel development and riprap rock placement.

(3) Excavated debris and embankment materials unsuitable for fill construction shall be placed at stable locations and/or end-hauled to Trailover Quarry, as directed by STATE. The existing removed culvert shall be hauled to an approved refuse site off of STATE land.

(4) Waste materials shall be sloped for drainage and stability, as directed by STATE. Straw mulch shall be applied to all exposed areas, bare soils and waste materials. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.

(5) Remove the existing fill, culvert, any logs or woody debris, and, remove additional fill, logs and/or woody debris necessary for the development of the new culvert bed. Construct a free-draining blanket drain at the base of the new fill.

(6) Develop the culvert bed and stream channel in accordance with project plans and field control reference points. For free-draining blanket drain construction, utilize 805 cubic yards of 24"-6" drain rock, 140 cubic yards of 1½" – 0" and drainage fabric in accordance with specifications in Exhibits N and O.

(7) Develop the stream channel for a distance of 20 feet upstream of the inlet of the new culvert and 20 feet downstream of the outlet of the new culvert. The minimum stream channel width shall be 3-feet and developed stream channel banks shall be sloped at 2:1.

(8) Utilize 60 cubic yards of 36"-24" riprap rock for construction of an embedded energy dissipator at the culvert outlet.

(9) Fill reconstruction backfill shall consist of select materials, obtained from the Trailover rock pit and hauled in where necessary as directed by STATE. Utilize 300 cy of 24"-6" riprap rock for armoring fill slopes. The riprap rock shall be placed and tamped at a 1½:1 slope for a minimum thickness of 2 feet beginning at the fill toes. Finished subgrade width shall be 20-feet with a 16-foot running surface. 160 cubic yards 4"-0" base rock will be utilized to restore the base surfacing coarse and 50 cubic yards of ¾"-0" for the top surfacing course. Embankment materials and crushed rock shall be thoroughly compacted in accordance with Exhibit B.

State Timber Sale Contract
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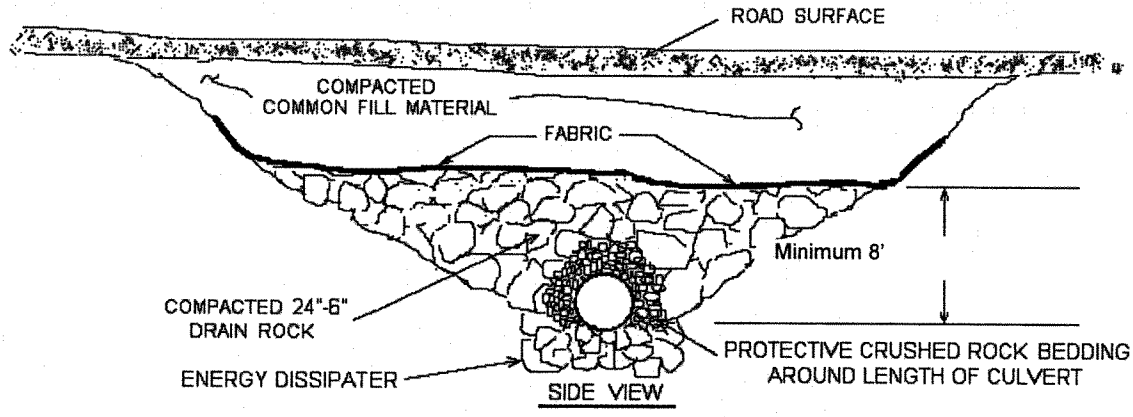
EXHIBIT "N"

FREE DRAINING FILL SPECIFICATIONS



Drainage Fabric Specifications:
Use nonwoven fabric designed for subsurface drain purposes, which meets or exceeds the following requirements:

		Test Method	Properties
1.	Water Flow Rate	ASTM D 4491	85 gal/min/ft^2
2.	Water Permeability	ASTM D 4491	0.30 cm/sec
3.	Grab Tensile Strength	ASTM D 4632	250 lb
4.	Mullen Burst Test	ASTM D 3766	460 lb
5.	Mass	ASTM D 4533	10 oz/yd^2
6.	Thickness	ASTM D 5199	100 mills
7.	UV Resistance	ASTM D 4355 Xenon Arc	70% retained

State Timber Sale Contract
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EXHIBIT "O"

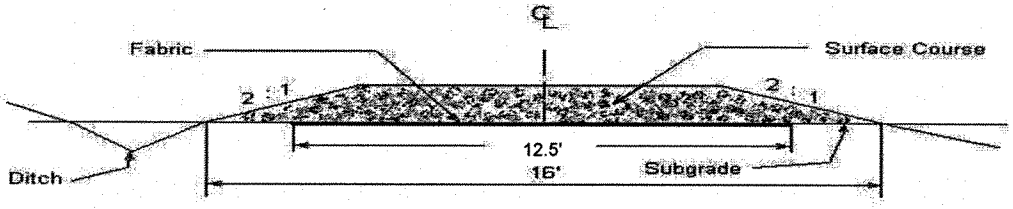
FABRIC SPECIFICATIONS

FABRIC SPECIFICATIONS - shall be woven fabric designed for forest road subgrade surfacing purposes and shall meet or exceed the following requirements, unless otherwise approved in writing by STATE:

(1)	Grab Tensile	300 lbs.	ASTM D1682
(2)	Modulus Load at 10% Elongation	140 lbs.	ASTM D1682
(3)	Mullen Burst	600 lbs.	ASTM D751
(4)	Width – 12.5 feet		

INSTALLATION REQUIREMENTS - fabric shall be installed according to the following requirements:

(1) Typical cross section:



(2) Subgrade surface shall be leveled and smoothed to remove humps and depressions which exceed 6 inches in height and depth. Small pieces of woody debris shall be removed or pushed below subgrade surface. Light vegetation (grass, weeds, leaves, and fine woody debris) may be left in place.

(3) Fabric shall be installed directly on the prepared surface. Longitudinal and traverse joints shall be overlapped at least 3 feet.

(4) Surfacing course material shall be placed to the designated thickness in one lift and spread in the direction of fabric overlap. Hauling and spreading equipment shall not be operated on the fabric until the total thickness of surfacing course material is placed.

(5) Torn, punctured, or separated sections of the fabric shall be repaired by installing a fabric patch over the break prior to placing the surfacing course material. The patch shall be at least 4 feet larger in horizontal dimensions than the break to be repaired.

(6) Should STATE determine that installation of fabric on roads or portions of roads is not necessary, PURCHASER shall deliver an equivalent amount of road fabric to STATE.

(7) Install fabric at the following locations: 0+35 to 0+65, 19+15 to 19+45, and 72+10 to 72+40 on I1 to I2.

(8) Fabric failures resulting after rock placement and as evidenced by subgrade pumping or roadbed distortion shall be corrected. Correction measures shall consist of: (1) removing at least three-quarters the depth of surfacing course material in the affected area, (2) placing a fabric patch over the affected area with a minimum 4-foot overlap around the circumference of the area, and (3) replacing enough rock to cover the patch and blend in with the rest of the road.

State Timber Sale Contract
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EXHIBIT "P"

TYPICAL EMBEDDED ENERGY DISSIPATOR

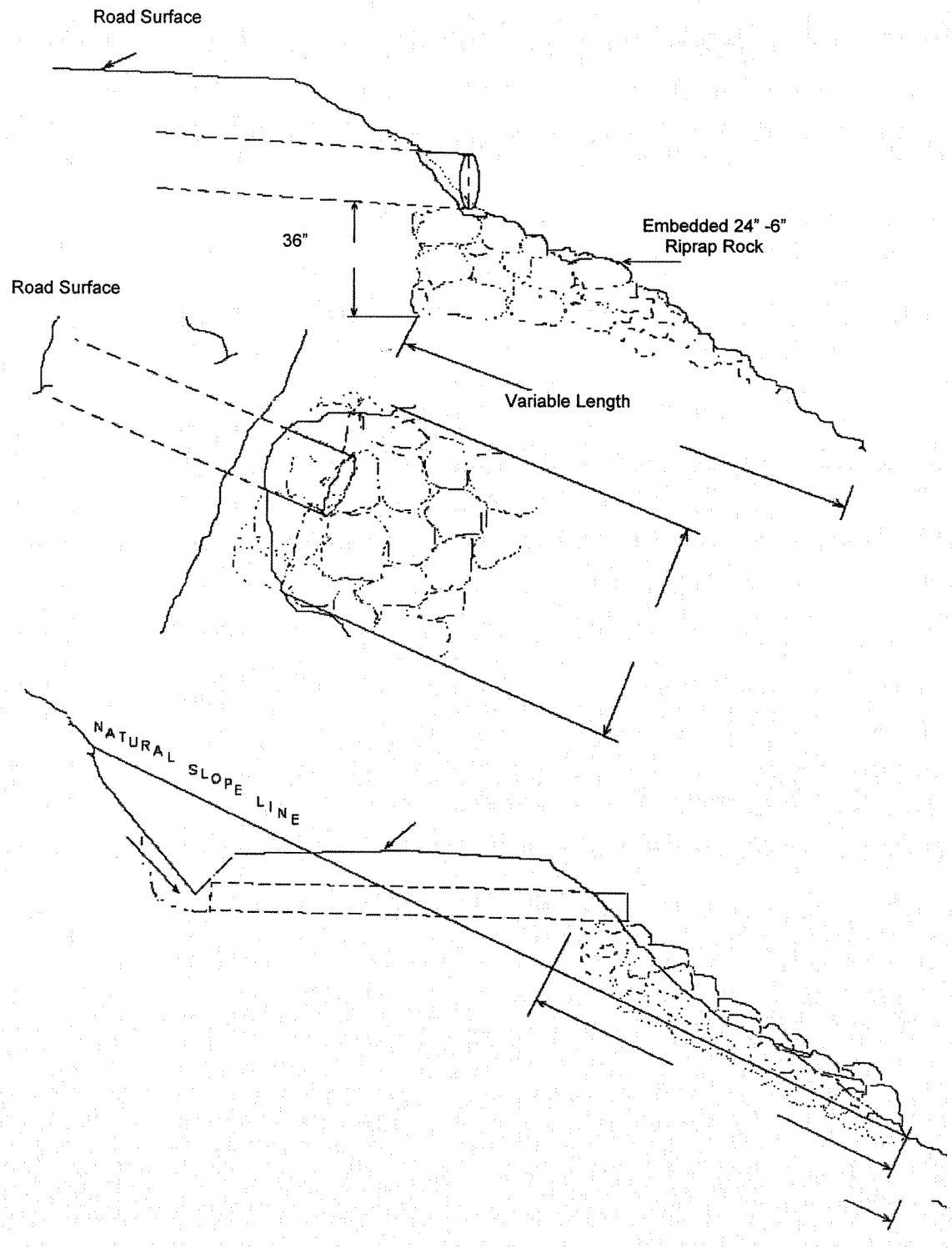

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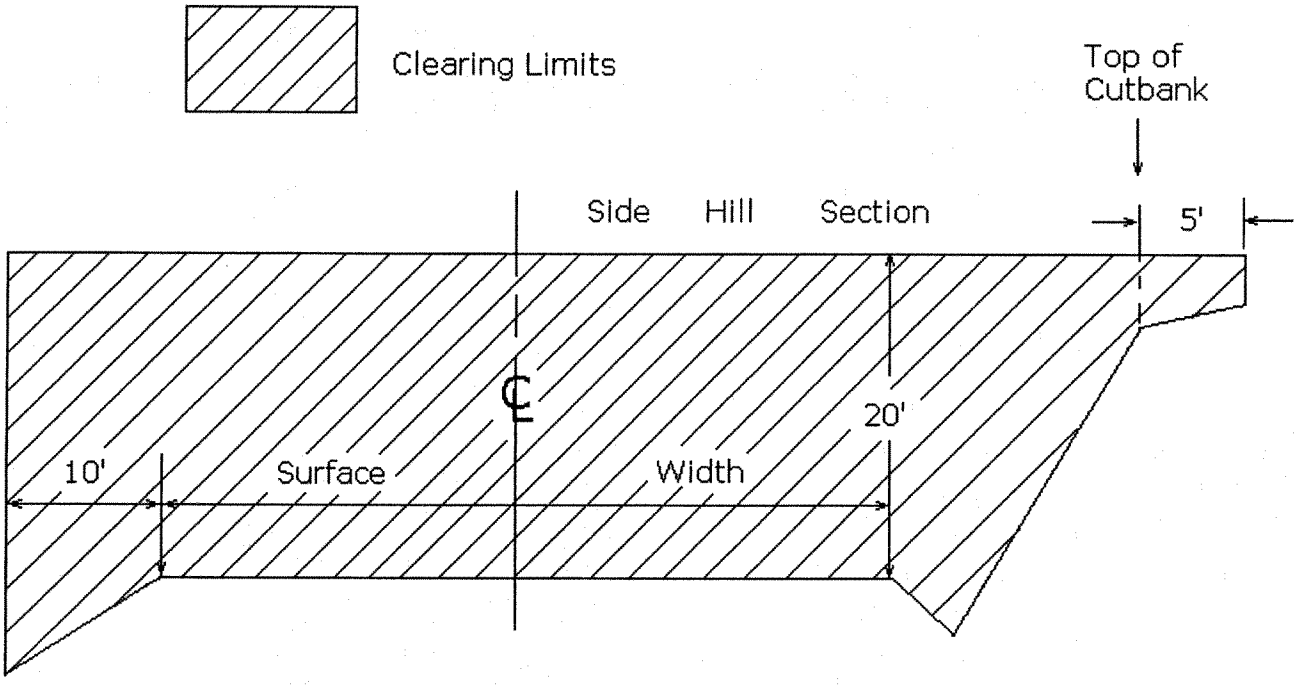
EXHIBIT "Q"

LOGGING ROAD BRUSHING SPECIFICAITONS



REQUIREMENTS

The minimum height of clearing shall be 20 feet from the road surface, and the minimum width of clearing on the cutslope side(s) of the road shall be 15 feet horizontal distance from the shoulder of the road, 5 feet beyond the top of the cutbank, and 10 feet horizontal on the down slope side from the road shoulder.

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

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

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

EXHIBIT "R"

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 500 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 "R"

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	58	$ 5,510
Log Loader	$ 70.00 / hour	79	$ 5,510

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, 4, 5, and 6. 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 "S"
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 Highway 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 Bull Music Combination
COUNTY Clatsop

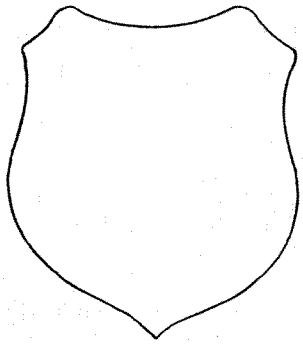
(13) STATE CONTRACT NUMBER 341-04-49

(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 Mgmt. Unit

EXHIBIT "S"

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.