



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Cost Summary Cruz Hill Sale 341-05-12

District: Tillamook

Date: 10/8/04

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$641,654.80	\$0.00	\$641,654.80
		Project Work	(\$98,830.00)
		Advertised Value	\$542,824.80



**Timber Sale Appraisal
Timber Description
Cruz Hill
Sale 341-05-12**

"STEWARDSHIP IN FORESTRY"

District: Tillamook

Location: Portions of Section 31, T1S, R6W, W.M.,
Washington County & Portions of Section 6, T2S, R6W, W.M., Tillamook County, Oregon.

Date: 10/8/04

Stand Stocking: 40%

Species	Avg. DBH	Amortized%	Recovery%
Douglas - Fir	13	0	95

Volume by Grade	Douglas - Fir	Total
2S	206	206
3S	1,624	1,624
4S	710	710
Total	2,540	2,540

Comments: Pond Values Used: 3rd Quarter 2004.

- Alder Price: $\$625.00/\text{mbf} - \$338.45/\text{mbf}$ (logging cost) = $\$286.55/\text{mbf}$ stumpage value.
- Cedar Price: $\$1050/\text{mbf} - \$338.45/\text{mbf}$ (logging cost) = $\$711.55/\text{mbf}$ stumpage value.

Road Maintenance Costs of Prospective Haul Route (Toll, Bark Shanty, Telephone Shack, Murphy's Grade, and Cruiser Creek Roads.): $\$5.73/\text{mbf}$

- Surfacing : $40 \text{ yds}^3/\text{mile} \times \$3.00/\text{yd}^3 \times 13 \text{ miles} / 2540 \text{ mbf} = \$0.61/\text{mbf}$
- Grading -Interim Maintenance: $\$250.00/\text{mile} \times 13 \text{ miles} \times 2 \text{ treatments} / 2540\text{mbf} = \$2.56/\text{mbf}$
- Grading - Final Maintenance: $\$500.00/\text{mile} \times 13 \text{ miles} \times 1 \text{ treatment} / 2540\text{mbf} = \$2.56/\text{mbf}$

Other (Profit & Risk Included): $\$70,898.15$

- Pit run for Non-project roads: $50 \text{ yds}^3/\text{station} \times 6 \text{ stations} \times \$2.00/\text{yd}^3 = \$600.00$
- Construction of Non-project roads: $\$130.00/\text{station} \times 8.6 \text{ stations} = \$1,118.00$
- Improvement of Non-project roads: $\$65.00/\text{station} \times 1.74 \text{ stations} = \113.10
- Waterbar installation (Non-project roads): $\$130.00/\text{hr. machine time} \times .94 \text{ hrs} = \122.20
- Tank trap Installation (road closures): $\$50.00 \text{ each} \times 4 \text{ closures} = \200.00
- Equipment Mobilization (Road Maintenance): $\$4,623.85$
- Restrict trails: $\$75.00 \text{ each} \times 3 \text{ trail restrictions} = \225.00
- Slash piling and sorting: $\$110.00/\text{hr} / 50 \text{ acres} \times 180 \text{ acres cable harvest} = \396.00
- Trask Public Safety Road Fee: $\$25/\text{mbf} \times 2,540\text{mbf} = \$63,500$

Other (Add Profit & Risk): $\$9154$

- Brand & Paint: $\$2.00/\text{mbf} \times 2540 \text{ mbf} = \$5,086$
- Swing road (Non-project): $\$30.00/\text{mbf} \times [12 \text{ acres serviced} \times 11.3\text{mbf}/\text{acre}] = \$4,068$



Timber Sale Appraisal

Logging Conditions

Cruz Hill

Sale 341-05-12

"STEWARDSHIP IN FORESTRY"

Combination#: 1

Yarding Distance: Long (1,500 ft) **Downhill Yarding:** No
Logging System: Cable: Small Tower <=40 **Process:** Stroke Delimber
Tree Size: Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF
Loads/Day: 3 **Bd. Ft./Load:** 3,400
Cost/MBF: \$271.84
Machines:
Log Loader (A)
Stroke Delimber (A)
Tower Yarder (Small)

Combination#: 2 Douglas - Fir 68.39%

Yarding Distance: Medium (800 ft) **Downhill Yarding:** No
Logging System: Cable: Small Tower <=40 **Process:** Stroke Delimber
Tree Size: Small / Thinning 9in (70 Bft/tree), 20+ logs/MBF
Loads/Day: 4 **Bd. Ft./Load:** 3,400
Cost/MBF: \$203.88
Machines:

Log Loader (A)
Stroke Delimber (A)
Tower Yarder (Small)

Combination#: 3 Douglas - Fir 12.75%

Yarding Distance: Medium (800 ft) **Downhill Yarding:** No
Logging System: Cut To Length **Process:** Harvester Head Delimiting
Tree Size: Small / Thinning 9in (70 Bft/tree), 20+ logs/MBF
Loads/Day: 4 **Bd. Ft./Load:** 3,400
Cost/MBF: \$202.84
Machines:

Forwarder
Harvester

Combination#: 4 Douglas - Fir 18.86%

Yarding Distance: Medium (800 ft) **Downhill Yarding:** Yes
Logging System: Cut To Length **Process:** Harvester Head Delimiting
Tree Size: Small / Thinning 9in (70 Bft/tree), 20+ logs/MBF
Loads/Day: 5 **Bd. Ft./Load:** 3,400
Cost/MBF: \$154.16
Machines:

Forwarder
Harvester



Timber Sale Appraisal

Logging Costs

Cruz Hill

Sale 341-05-12

"STEWARDSHIP IN FORESTRY"

Date: 10/8/04

Operating Seasons: 2.0

Profit & Risk: 12%

Project Costs: \$98,830

Other Costs (P/R): \$9,154

Slash Disposal: \$0

Other Costs: \$70,898

Miles of Road			
Dirt	Rock (Contractor)	Rock (State)	Paved
0.0	0.0	0.0	0.0

Road Maintenance: \$5.73

Hauling Costs

Species	\$/MBF	Trips/Day	MBF/Load
Douglas - Fir	\$0.00	2.0	3.4



Timber Sale Appraisal Logging Costs Breakdown Cruz Hill Sale 341-05-12

"STEWARDSHIP IN FORESTRY"

Costs	Douglas - Fir
Logging	194.37
Road Maintenance	6.03
Fire Protection	2.13
Hauling	69.16
Other (P/R appl.)	3.60
Profit & Risk	33.03
Slash Disposal	0.00
Scaling	2.00
Other	27.91
Total	338.23

Amortization	0.00
Pond Value	590.85
Stumpage	252.62
Amortized	0.00



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Summary Cruz Hill Sale 341-05-12

Amortized

	Douglas - Fir
MBF	0.00
Value	0.00
Total	0.00

Unamortized

	Douglas - Fir
MBF	2,540.00
Value	252.62
Total	641,654.80

Gross Timber Sale Value

Recovery \$641,654.80

Prepared by: Bob Gustavson

Date: 10/8/04

District: Tillamook

Phone: (503) 842-2545

PROJECT SUMMARY SHEET

Sale: Cruz Hill

CONSTRUCTION

Point	A to B	0+00	stations =	<u>\$0.00</u>
SUBTOTAL CONSTRUCTION				\$0.00

IMPROVEMENT

Point	A to B	229+60	stations =	<u>\$77,429.23</u>
SUBTOTAL IMPROVEMENT				\$77,429.23

SPECIAL PROJECTS

Remove Culverts from State Lands	\$252.09
Stockpile Construction	\$16,134.80
Vacate Road Sections C to D	<u>\$952.92</u>
SUBTOTAL SPECIAL PROJECTS	\$17,339.81

MOVE IN

\$4,061.30

GRAND TOTAL

\$98,830.34

SUMMARY OF CONSTRUCTION COST

Sale:	<u>Cruz Hill</u>	Road:	<u>A to B</u>
Construction -	<u>0+00</u> stations <u>0.00</u> miles	Improvement -	<u>229+60</u> stations <u>4.35</u> miles
CLEARING AND GRUBBING -			
Roadside Brushing	4.35 miles @	\$1,000.00 per mile =	<u>\$4,350.00</u>
		TOTAL CLEARING AND GRUBBING	\$4,350.00
EXCAVATION -			
Excavate/Clean Ditchlines	172.20 sta. @	\$16.00 per sta. =	<u>\$2,755.20</u>
Excavate Ditchouts	2 Hours @	\$130.00 per Hour=	<u>\$260.00</u>
Fill Excavations: Stations 48+75, 195+10, & 223+45	22 Hours @	\$130.00 per Hour=	<u>\$2,860.00</u>
		TOTAL EXCAVATION	\$5,875.20
ENDHAUL -			
Waste Area (Ditchline Haul)	0+00 to 229+60 4 Hours @	\$57.00 per Hour=	<u>\$228.00</u>
Waste Area (Large fill removal material)	Station 48+75 2 Hours @	\$57.00 per Hour=	<u>\$114.00</u>
Waste Area (Large fill removal material)	Stations 195+10 & 223+45 10 Hours @	\$57.00 per Hour=	<u>\$570.00</u>
Spread & compact	5 Hours @	\$71.00 per Hour=	<u>\$355.00</u>
		TOTAL ENDHAUL	\$1,267.00
CULVERTS - MATERIALS & INSTALLATION			
<u>Culverts</u>			
448 LF of 18"	\$6,608.00	76 LF of 24"	\$1,349.00
0 LF of 30"	\$0.00	0 LF of 36"	\$0.00
0 LF of 42"	\$0.00	0 LF of 48"	\$0.00
0 LF of 54"	\$0.00	0 LF of 60"	\$0.00
0 LF of 66"	<u>\$0.00</u>	0 LF of 72"	<u>\$0.00</u>
	<u>\$6,608.00</u>		<u>\$1,349.00</u>
<u>Half Rounds</u>			
20 LF of 21"	\$228.00	0 LF of 30"	\$0.00
0 LF of 36"	<u>\$0.00</u>	0 LF of 42"	<u>\$0.00</u>
	<u>\$228.00</u>		<u>\$0.00</u>
<u>Culvert Stakes & Markers</u>			
4 stakes	\$32.00		
27 markers	<u>\$216.00</u>		
	<u>\$248.00</u>		
<u>Fish Pipe:</u>	137'x 87"x 78' Aluminized steel Arched Pipe	78 LF @	\$141.20/LF= \$11,013.60
	Aluminized Bands and Gaskets	2 LF @	\$211.80/LF= \$423.60
	Bevel Fee		\$114.00
	Profit and Risk		<u>\$1,732.68</u>
			<u>\$13,283.88</u>
		TOTAL CULVERTS	\$21,716.88
SURFACING-			
A to B: Stations 0+00 to 66+25	2,295 cy. of Crushed @	\$9.40 per c.y.=	<u>\$21,573.00</u>
A to B: Turnouts & Junctions	220 cy. of Crushed @	\$9.16 per c.y.=	<u>\$2,015.20</u>
A to B: Culvert bedding/Backfill: 0+00 to 137+30	10 cy. of Crushed @	\$8.89 per c.y.=	<u>\$88.90</u>
A to B: Culvert bedding/Backfill/Sta. 137+30 to 229+60	165 cy. of Crushed @	\$8.67 per c.y.=	<u>\$1,430.55</u>
A to B: Spot Rock	300 cy. of Crushed @	\$9.10 per c.y.=	<u>\$2,730.00</u>
A to B: Ditchline Armor	94+85 to 99+45 & 184+10 to 188+05 65 cy. of Jaw-Run @	\$2.18 per c.y.=	<u>\$141.70</u>
A to B: 0+00 to 40+65	Spot Rock/Base Rock 15 cy. of Jaw-Run @	\$2.84 per c.y.=	<u>\$42.60</u>
A to B: 40+65 to 223+45	Spot Rock/Base Rock 165 cy. of Jaw-Run @	\$3.54 per c.y.=	<u>\$584.10</u>
A to B RipRap: Stations: 0+00 to 137+30	45 cy. of Riprap @	\$8.58 per c.y.=	<u>\$386.10</u>
A to B RipRap: Stations: 137+30 to 229+60	260 cy. of Riprap @	\$8.42 per c.y.=	<u>\$2,189.20</u>
A to B: Culvert Fill Material	Station 195+10 (interior pipe fill) 70 cy. of Pit-Run @	\$6.09 per c.y.=	<u>\$426.30</u>
		TOTAL SURFACING	\$33,032.65
SPECIAL PROJECTS			
Construct 3' wide x 2' deep ditchline	2.00 hours @	\$130.00 per hour	<u>\$260.00</u>
Construct waste areas -	3.00 hours @	\$130.00 per hour	<u>\$390.00</u>
Construct ditchouts -	2.50 hours @	\$130.00 per hour	<u>\$325.00</u>
Attach Existing Half-Round to new culvert (Station: 135+00)	1.00 hours @	\$28.00 per hour	<u>\$28.00</u>
Repair Existing culvert inlet	1.00 hours @	\$45.00 per hour	<u>\$45.00</u>
Grade and shape road (Ditched)-	66.25 stations @	\$17.40 per station	<u>\$1,152.75</u>
Roll subgrade w/ vibratory roller prior to rocking -	66.25 stations @	\$11.00 per station	<u>\$728.75</u>
Assemble culvert (3 person crew)	16.00 hours @	\$28.00 per hour per person	<u>\$1,344.00</u>
Assemble culvert (excavator and operator)	8.00 hours @	\$130.00 per hour	<u>\$1,040.00</u>
Hand Seed Material into culvert (3 person crew and bobcat)	(4 Hours @ \$28/Hour/Person & \$50/Hour/bobcat)		<u>\$536.00</u>
Grass seed and fertilize -	7.90 acres @	\$220.00 per acre	<u>\$1,738.00</u>
Mulching -	6.000 acres @	\$600.00 per acre	<u>\$3,600.00</u>
		TOTAL SPECIAL PROJECTS	\$11,187.50
		GRAND TOTAL	\$77,429.23

SUMMARY OF VACATING COST

Sale:	<u>Cruz Hill</u>		Road:	<u>C to D</u>
Construction -	<u>0+00</u> stations <u>0.00</u> miles		Improvement -	<u>+00</u> stations <u>0.00</u> miles
CLEARING AND GRUBBING -				
Roadside Brushing		0.00 miles @	\$1,300.00 per mile =	\$0.00
Side cast areas		0.000 acres @	\$815.00 per acre =	\$0.00
Widening areas		0.000 acres @	\$815.00 per acre =	\$0.00
Scattering		0.000 acres @	\$815.00 per acre =	\$0.00
Piling		0.00 acres @	\$905.00 per acre =	\$0.00
Endhaul		0.00 acres @	\$1,500.00 per acre =	\$0.00
			TOTAL CLEARING AND GRUBBING	\$0.00
EXCAVATION -				
Road Earthwork		0.00 sta. @	\$65.00 per sta. =	\$0.00
Pullback		0 cy. @	\$1.40 per c.y.=	\$0.00
Widening: Rippable		0 cy. @	\$2.25 per c.y.=	\$0.00
Widening: Solid		0 cy. @	\$4.90 per c.y.=	\$0.00
Slope Stabilization Prep.		0 Hour @	\$130.00 per Hour =	\$0.00
			TOTAL EXCAVATION	\$0.00
ENDHAUL -				
Pullback	0+00	to	8+75	0 cy. @ \$1.28 per c.y.= \$0.00
Pullback	0+00	to	0+00	0 cy. @ \$1.14 per c.y.= \$0.00
Pullback	0+00	to	0+00	0 cy. @ \$1.01 per c.y.= \$0.00
Pullback	0+00	to	0+00	0 cy. @ \$1.02 per c.y.= \$0.00
Pullback	0+00	to	0+00	0 cy. @ \$1.00 per c.y.= \$0.00
Pullback	0+00	to	0+00	0 cy. @ \$1.05 per c.y.= \$0.00
Pullback	0+00	to	0+00	0 cy. @ \$1.12 per c.y.= \$0.00
Widening	0+00	to	0+00	0 cy. @ \$1.02 per c.y.= \$0.00
Widening	0+00	to	0+00	0 cy. @ \$1.00 per c.y.= \$0.00
				TOTAL ENDHAUL
				\$0.00
CULVERTS - MATERIALS & INSTALLATION				
<u>Culverts</u>				
	0	LF of 18"	\$0.00	0 LF of 24" \$0.00
	0	LF of 30"	\$0.00	0 LF of 36" \$0.00
	0	LF of 42"	\$0.00	0 LF of 48" \$0.00
	0	LF of 54"	\$0.00	0 LF of 60" \$0.00
	0	LF of 66"	\$0.00	0 LF of 72" \$0.00
			<u>\$0.00</u>	<u>\$0.00</u>
<u>Half Rounds</u>				
	0	LF of 21"	\$0.00	0 LF of 30" \$0.00
	0	LF of 36"	\$0.00	0 LF of 42" \$0.00
			<u>\$0.00</u>	<u>\$0.00</u>
<u>Culvert Stakes & Markers</u>				
	0	stakes	\$0.00	
	0	markers	\$0.00	
			<u>\$0.00</u>	
				TOTAL CULVERTS
				\$0.00
SURFACING-				
	0	cy. of Pit-Run	@ \$0.00 per c.y.=	\$0.00
	0	cy. of Riprap	@ \$0.00 per c.y.=	\$0.00
	0	cy. of Riprap	@ \$0.00 per c.y.=	\$0.00
	0	cy. of Pit-Run	@ \$0.00 per c.y.=	\$0.00
				TOTAL SURFACING
				\$0.00
SPECIAL PROJECTS				
Ripping Subgrade			See Attached Ripping Sheet(\$0.74/CY*578CY)	\$427.72
Construct water bars -	4.00	@	\$25.00 each	\$100.00
Block Road Access	1.00	Hour @	\$130.00 per Hour	\$130.00
Grass seed and fertilize -	0.36	acres @	\$220.00 per acre	\$79.20
Mulching -	0.360	acres @	\$600.00 per acre	\$216.00
			TOTAL SPECIAL PROJECTS	\$952.92
			GRAND TOTAL	\$952.92

ROCK DEVELOPMENT COST SUMMARY

Pit:	Cruiser Creek Pit-Run Source	Location:	SW1/4, SE1/4, Sec. 6, T2S, R8W, W.M.
Sale:	Cruz Hill	Road:	70 c.y.
Swell:	1.40	Stockpile:	c.y.
Shrinkage	1.16	Total Truck Loads:	70 c.y.
Drill Pct.:	0%	In Place Total:	50 c.y.

Pit Development & Cleanup including Clearing and grubbing of Waste Area @ adjacent to pit, place overburden in Waste Area, spread and compact.				\$0.00
Drill & Shoot:	\$2.10 /cu.yd.	x	0 cu.yds.	= \$0.00
Rip Rock	\$1.75 /cu.yd.	x	50 cu.yds.	= \$87.50
Load Dump Truck:	\$0.60 /cu.yd.	x	70 cu.yds.	= \$42.00
			Subtotal	\$129.50

Move in and set up Drill and Compressor	(Within Area: 1.32 Miles @ \$46.00/Mile)	=	\$0.00
Move in Loader	(Within Area: 2.19 Miles @ \$9.00/Mile)	=	\$0.00
Move in Excavator	(Within Area: 1.96 Miles @ \$44.80/Mile)	=	\$87.81
Move in Trucks	(Within Area: 3 Trucks @ 1.96 Miles @ \$2.85/Truck/Mile)	=	\$12.88
		Subtotal	\$100.69

Base Cost=	\$3.29	Per Cu.Yd.		TOTAL PRODUCTION COSTS	\$230.19
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Road Segment	Haul Cost /cu.yd.	Placement Cost /cu.yd.	Base Cst. /cu.yd.	Cost /cu.yd.	Number Cu. Yds	ROCK COST
A to B: Culvert Fill Material	\$1.40	\$1.40	\$3.29	\$6.09	70	\$426.30
				Total C.Y.	70	Sub Total \$426.30

TOTAL ROCKING COSTS	\$426.30
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ROCK DEVELOPMENT COST SUMMARY

Pit:	Cruiser Creek Pit	Location:	SW 1/4 of Sec. 1, T2S, R7W, W.M.
Sale:	<u>Cruz Hill</u>	Road:	<u>2990 c.y.</u>
Swell:	<u>1.40</u>	Stockpile:	<u>2123 c.y.</u>
Shrinkage:	<u>1.16</u>	Total Truck Loads:	<u>5418 c.y.</u>
Drill Pct.:	<u>85%</u>	In Place Total:	<u>3870 c.y.</u>
RipRap:	<u>305</u>		

Pit Development & Cleanup including Clearing and grubbing of Waste Area @ adjacent to pit, place overburden in Waste Area, spread and compact. \$740.00

Drill & Shoot:	\$2.10 /cu.yd.	x	3290 cu.yds.	=	\$6,909.00
Rip Rock	\$1.75 /cu.yd.	x	580 cu.yds.	=	\$1,015.00
Load Dump Truck:	\$0.60 /cu.yd.	x	5113 cu.yds.	=	\$3,067.80
Load Crusher:	\$0.60 /cu.yd.	x	5113 cu.yds.	=	\$3,067.80
Crush 2'0":	\$2.30 /cu.yd.	x	5113 cu.yds.	=	\$11,759.90
Load RipRap:	\$1.40 /cu.yd.	x	305 cu.yds.	=	\$427.00
Sort RipRap:	\$130.00 /Hour	x	4 Hours	=	\$520.00
Oversize Reduction	\$4.50 /cu.yd.	x	581 cu.yds.	=	\$2,614.50
			Subtotal		\$30,121.00

Move In and set up Drill and Compressor	1	@	314	=	\$314.00
Move in Excavator	(Within Area: 1.63 Miles @ \$44.80/Mile)			=	\$73.02
Move in Loader	1	@	447	=	\$447.00
Move in D8 Dozer	(Within Area: 1.63 Miles @ \$44.80/Mile)			=	\$73.02
Move in Trucks	(Within Area: 3 trucks, 1.63 Miles @ \$2.85/Truck/Mile)			=	\$13.94
Move in and Set up Crusher	1	@	3195	=	\$3,195.00
			Subtotal		\$4,115.98

Crushed Base Cost=	\$6.37	Per Cu.Yd.
RipRap Base Cost=	\$5.46	Per Cu.Yd.

TOTAL PRODUCTION COSTS \$34,236.98

Road Segment	Haul Cost /cu.yd.	Proc/Placement Cost /cu.yd.	Base Cst. /cu.yd.	Cost /cu.yd.	Number Cu. Yds	ROCK COST
A to B: Stations 0+00 to 66+25	\$1.73	\$1.30	\$6.37	\$9.40	2295	\$21,573.00
A to B: Turnouts & Junctions	\$1.49	\$1.30	\$6.37	\$9.16	220	\$2,015.20
A to B: Cuvlert bedding/Backfill: 0+00 to 137+30	\$1.62	\$0.90	\$6.37	\$8.89	10	\$88.90
A to B: Culvert bedding/Backfill/Sta. 137+30 to 229+60	\$1.40	\$0.90	\$6.37	\$8.67	165	\$1,430.55
A to B Spot Rock	\$1.43	\$1.30	\$6.37	\$9.10	300	\$2,730.00
Stockpile	\$0.93	\$0.30	\$6.37	\$7.60	2123	\$16,134.80
A to B RipRap: Stations: 0+00 to 137+30	\$1.72	\$1.40	\$5.46	\$8.58	45	\$386.10
A to B RipRap: Stations: 137+30 to 229+60	\$1.56	\$1.40	\$5.46	\$8.42	260	\$2,189.20
				Total C.Y.	5418	Sub Total
						\$46,547.75

TOTAL ROCKING COSTS \$46,547.75

ROCK PIT DEVELOPMENT AND CRUSHING COST SUMMARY

Pit:	<u>Murphy Grade Stockpile</u>	Location:	<u>SW 1/4 of Sec. 12, T2S, R7W, W.M.</u>
Sale:	<u>Cruz Hill</u>	Road:	<u>245 c.y.</u>
Swell:	<u>1.40</u>	Stockpile:	<u>c.y.</u>
Shrinkage:	<u>1.16</u>	Total Truck Loads:	<u>245 c.y.</u>
Drill Pct.:	<u>0%</u>	In Place Total:	<u>175 c.y.</u>

Pit Development & Cleanup including Clearing and grubbing of Waste Area @ adjacent to pit, place overburden in Waste Area, spread and compact.				\$0.00
Drill & Shoot:	<u>\$2.10</u> /cu.yd.	x	<u>0</u> cu.yds.	= \$0.00
Rip Rock	<u>\$1.75</u> /cu.yd.	x	<u>0</u> cu.yds.	= \$0.00
Load Dump Truck:	<u>\$0.60</u> /cu.yd.	x	<u>245</u> cu.yds.	= \$147.00

Subtotal \$147.00

Move in Loader	(Within Area: 1.8 Miles @ \$9/Mile)	=	\$16.20
Move in Trucks	(Within area: 3.1 Miles @ \$2.85/truck/mile)	=	\$26.51
		Subtotal	<u>\$42.71</u>

Base Cost= \$0.77 Per Cu.Yd. **TOTAL PRODUCTION COSTS** \$189.71

Road Segment	Haul Cost /cu.yd.	Proc./Placement Cost /cu.yd.	Base Cst. /cu.yd.	Cost /cu.yd.	Number Cu. Yds	ROCK COST
A to B: 0+00 to 40+65	0.77	1.30	0.77	2.84	15	\$42.60
A to B: 40+65 to 223+45	1.47	1.30	0.77	3.54	165	\$584.10
A to B: Ditchline Armor	0.81	0.60	0.77	2.18	65	\$141.70
				Total C.Y.	245	Sub Total \$768.40

TOTAL ROCKING COSTS \$768.40

MOVE-IN CALCULATIONS

Sale: **Cruz Hill**

DISTANCE	ROADWAY	AVE SPEED (MPH)
30.0	Highway	37
12.4	Main Lines (Off Road)	15
3.2	Pulling Steep Grades	4

No.	EQUIPMENT DESCRIPTION	Move in Cost	Pilot Cars	Within Area Move (\$/mile)	Begin Mileage	End Mileage	Total Miles	Within Area Cost	Total Cost
0	Drill & Compressor	\$0.00		\$46.00	0.00	0.00	0	\$0.00	\$0.00
1	Brush Cutter	\$314.07		\$4.00	0.00	4.35	4.35	\$17.40	\$331.47
1	Graders	\$164.98		\$3.65	0.00	4.35	4.35	\$15.88	\$180.86
0	Loader (Small)	\$0.00	1	\$3.55	0.00	0.00	0	\$0.00	\$0.00
1	Loader (Med. & Large)	\$446.67	1	\$9.00	0.00	5.00	5	\$45.00	\$491.67
1	Rollers & Compactors	\$314.07		\$5.00	0.00	4.35	4.35	\$21.75	\$335.82
0	Excavators (Small)	\$0.00		\$22.00	0.00	0.00	0	\$0.00	\$0.00
0	Excavators (Med.)	\$0.00		\$35.50	0.00	0.00	0	\$0.00	\$0.00
2	Excavators (Large)	\$1,033.50	1	\$44.80	0.00	3.50	3.5	\$313.60	\$1,347.10
1	Rubber Tired Backhoes/Skidlers	\$314.07		\$3.00	0.00	4.35	4.35	\$13.05	\$327.12
0	Tractors (D6)	\$0.00	2	\$7.10	0.00	0.00	0	\$0.00	\$0.00
0	Tractors (D7)	\$0.00	2	\$11.30	0.00	0.00	0	\$0.00	\$0.00
1	Tractor (D8)	\$491.49	2	\$15.10	0.00	4.35	4.35	\$65.69	\$557.18
3	Dump Truck (10 cy +)	\$316.49		\$2.85	0.00	4.35	4.35	\$37.19	\$353.68
0	Dump Truck (Off Hiway)	\$0.00	1	\$4.75	0.00	0.00	0	\$0.00	\$0.00
0	Water Truck (1500 Gal)	\$0.00		\$2.85	0.00	0.00	0	\$0.00	\$0.00
1	Water Truck (2500 Gal)	\$124.00		\$2.85	0.00	4.35	4.35	\$12.40	\$136.40
0	Jaw	\$1,066.00							
0	2-Stage Crusher	\$1,597.00							
0	3-Stage Crusher	\$2,489.00							

TOTAL MOVE-IN COSTS:	\$4,061.30
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REMOVE CULVERTS FROM STATE LANDS COST SHEET

SALE: Cruz Hill

<u>Point to Point</u>	<u>Number of Culverts</u>
A to B	2
C to D	0
TOTAL CULVERTS	2

Load culverts @ 0.25 hrs/culvert =	0.50 hrs
Move Backhoe between culverts =	0.50 hrs
Subtotal loading time =	1.00 hrs
Driving and unloading time =	1.50 hrs
Total project time =	2.50 hrs

5.00 hours labor @ \$33.07/hour =	\$165.35
2.50 hours with Dump Truck @ \$24.46/hour =	\$61.15
2.50 hours with trailer @ \$5.00/hour =	\$12.50
1.00 hours with Backhoe @ \$13.09/hour =	\$13.09

Grand Total

\$252.09

	TIME TO RIP PER MINUTES PER 100 FEET								
	Ideal			Average			Adverse		
	D-7	D-8	D-9	D-7	D-8	D-9	D-7	D-8	D-9
Soft(3000fps)	0.54	0.42	0.30	0.74	0.58	0.42	0.97	0.82	0.67
Med-soft(3900fps)	0.80	0.61	0.42	1.14	0.88	0.62	2.74	1.99	1.24
Med(4800fps)	1.05	0.79	0.53	1.54	1.18	0.82	M.	3.16	1.81
Med-hard(5750fp)	1.54	1.26	0.93	M.	2.82	1.79	N.R.	4.45	3.70
Hard(6700fps)	M.	1.73	1.33	N.R.	4.45	2.75	N.R.	M.	
Very hard(8000fp)	N.R.	4.45	2.98	N.R.	M.		N.R.		
Extremely hard(9000fps +)				N.R.	M.		N.R.		

0.00 = FACTOR N.R.--Non Rippable M.--Marginal

RIPPER PRODUCTION SHEET

Sale: Cruz Hill Road: C to D

TIME Computation- Sta.: 0+00 to 9+75

Basic rip time per 100 feet from table	(1)	2.82
Time per pass = 1 9.75 Stations	(2)	27.50
Turn time	(3)	0.25
Total time per pass (100% efficiency)	(4)	27.75
Operator efficiency correction = line 4/.75	(5)	36.99
Job efficiency correction = line 5/.75	(6)	49.32

Time per cubic yard:

Ripping time per cu.yd. = line 6/cu.yd. per pass

(distance) x (width) x (depth)		
975.00 4.00 1.00		
.....	(7)	0.34
27.00		

COST PER CU.YD. Computation-

Cost of tractor and ripper per hour	\$94.71	
Cost of operator per hour	\$35.60	
Total operating cost per hour	(8)	\$130.31
Operating cost per minute	(9)	\$2.17
Cost per cu.yd. = line 7 x line 9	(10)	\$0.74



**OREGON DEPARTMENT OF FORESTRY
CRUISE REPORT**

Cruz Hill

"STEWARDSHIP IN FORESTRY"

1. **Type of Sale:** Regeneration harvest – Recovery
2. **Legal Description:** Portions of Sections 31, T1S, R6W, W.M., Washington County, Oregon and Portions of Section 6, T2S, R6W, W.M., Tillamook County, Oregon.
3. **Sale Acreage:** The sale boundary was plotted on a digital orthophotograph and the acreage was calculated with GIS.

ACRES			
Area	Sale	Total	Net
1	84	80	80
2	104	101	101
3	99	93	93
Total	287	274	274

Sale Acres

Area within the Timber Sale Boundary signs

Total acres for accomplishment reporting

Sale acres, plus green tree retention acres outside the sale boundary, less roads, and less riparian areas classified as Special Stewardship in LMCS inside the sale boundary.

Net acres for calculating the advertised volume

Sale acres, less green tree retention, less roads, and less riparian areas classified as Special Stewardship in LMCS inside the sale boundary.

4. **Cruising Procedures:**

- A. **Cruise Method:** In all sales areas, a grid cruise system was employed to capture any existing variation between thinned and unthinned portions of the stands. Areas 1 and 3 were considered to consist of the same timber type with identical harvest prescriptions applied to both. Therefore, Areas 1 and 3 were cruised as one unit. Areas 1 and 3 cruise lines were established in the sale area running north and south. Lines are 510 feet apart with variable radius full point plots taken every 510 feet, with the target of one plot per 6 acres across the sale area. Area 2 cruise lines were established in the sale area running east and west. Lines are 420 feet apart with variable radius full point plots taken every 420 feet, with the target of one plot per 4 acres across the sale area. For all areas on all plots, tree count by diameter and species was recorded. A total number of 32 plots established for Areas 1 and 3. For Areas 1 and 3, every even number plot was measured and graded to determine a VBAR for the stand. The number of measure plots for VBAR determination in Areas 1 and 3 were 13. A total number of 26 plots established for Area 2. For Area 2, every odd number plot was measured and graded to determine a VBAR for the stand. The number of

measure plots for VBAR determination in Area 2 is 14. Diameters were recorded to the nearest 1", heights to the nearest foot. Diameters were taken at 4.5' above the ground on the uphill side. Conifers with diameters of 8" or larger and hardwoods with diameters of 9" or larger were recorded. The cruise had a coefficient of variation of 55.6% and a SE% of 7.3% for the net board feet/acre.

B. **Plot size:** A BAF of 20 was used for Douglas fir and all other conifers in Areas 1,2 & 3. A BAF of 10 was used for hardwoods in all areas. The point of tree observation was 4.5 feet.

C. **Grading System:** Trees heights were measured to a 6" merchantable top (outside bark) for conifers and 8" (outside bark) for hardwoods. Douglas fir was graded using Columbia River rules favoring a 40' log. All other species were graded camprun.

D. **Defect and Breakage:** A 5% defect and breakage reduction was applied to both conifer and hardwood volume.

E. **Cruiser Names / Dates:** Kevin Benton. January and February 2004.

5. **Computation Procedures:** Area 2 is a Retention Cut with a residual Basal Area of 33 to 40. For all areas, V-BAR (Volume-Basal Area Ratio) and Basal Area for the take trees was computed using SuperACE. The data from SuperACE was entered into a Volume Summary spreadsheet (see attached) to obtain volumes for use in the appraisal.

6. **Timber Description:** The sale contains Douglas fir stands 39 years of age with symptoms of Swiss Needle Cast. Hardwoods are present in draws and near abandoned roads.

7. **Revenue Distribution:**

100% FDF

Tax Code: 11% -WA.CO.

89% - 9-1

Deed No. 115 - 11%

168 - 36%

169 - 53%

89% Rehabilitation Obligated

8. **Appendices:**

- Volume Summary
- Logging Plan
- Conifer Stand Table – Area 2



"STEWARDSHIP IN FORESTRY"

Cruz Hill

Volume Summary

Area 1						
80 acres						
SPECIES	Basal Area Per Acre	V-BAR	Vol/Acre MBF	Volume MBF	D & B	Net Vol MBF
Douglas-fir	132.0	90.0	11.9	952	5%	904
TOTAL				952		904

Area 2						
101 acres						
SPECIES	Basal Area Per Acre	V-BAR	Vol/Acre MBF	Volume MBF	D & B	Net Vol MBF
Douglas-fir	84.0	73.0	6.1	616	5%	585
TOTAL				616		585

Area 3						
93 acres						
SPECIES	Basal Area Per Acre	V-BAR	Vol/Acre MBF	Volume MBF	D & B	Net Vol MBF
Douglas-fir	132.0	90.0	11.9	1106	5%	1051
TOTAL				1106		1051

TOTAL SALE VOLUME			
SPECIES	MBF	D&B	Net Vol. (MBF)
Douglas-fir	2674	5%	2540
TOTAL	2674		2540

Cruz Hill

Area 2

Type1 cut to 33 BA

Conifer Take / Leave Stand Table

DBH	Total Tk trs/acre	Total Lv trs/acre	Hemlock Tk tr/acre	Hemlock Lv tr/acre	Spruce Tk trs/acre	Spruce Lv trs/acre	Cedar Lv trs/acre	Douglas-fir Tk tr/acre	Douglas-fir Lv tr/acre
8"	8.8	0.0	0.0	0.0	0.0	0.0	0.0	8.8	0.0
9"	12.4	0.0	0.0	0.0	0.0	0.0	0.0	12.4	0.0
10"	15.7	0.0	0.0	0.0	0.0	0.0	0.0	15.7	0.0
11"	20.8	0.0	0.0	0.0	0.0	0.0	0.0	20.8	0.0
12"	14.0	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0
13"	5.1	2.5	0.0	0.0	0.0	0.0	0.0	5.1	2.5
14"	13.2	6.6	0.0	0.0	0.0	0.0	0.0	13.2	6.6
15"	5.5	2.5	0.0	0.0	0.0	0.0	0.0	5.5	2.5
16"	7.0	3.2	0.0	0.0	0.0	0.0	0.0	7.0	3.23
18"	3.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0
20"	1.0	2.8	0.0	0.0	0.0	0.0	0.0	1.0	2.8
22"	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	2.2
24"	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5
26"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34"	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	106	23	0	0	0	0	0	106	23

TOTAL STAND

BA/acre	120.0
Lv BA/ac	35.4
Tk BA/ac	84.6

Current Ave Stand Diameter	13.0
Leave Stand - QM Diameter	16.7
Take trees - QM Diameter	12.1

Hemlock	BA	QMD
Total	0	#DIV/0!
Leave	0	#DIV/0!
Take	0	#DIV/0!

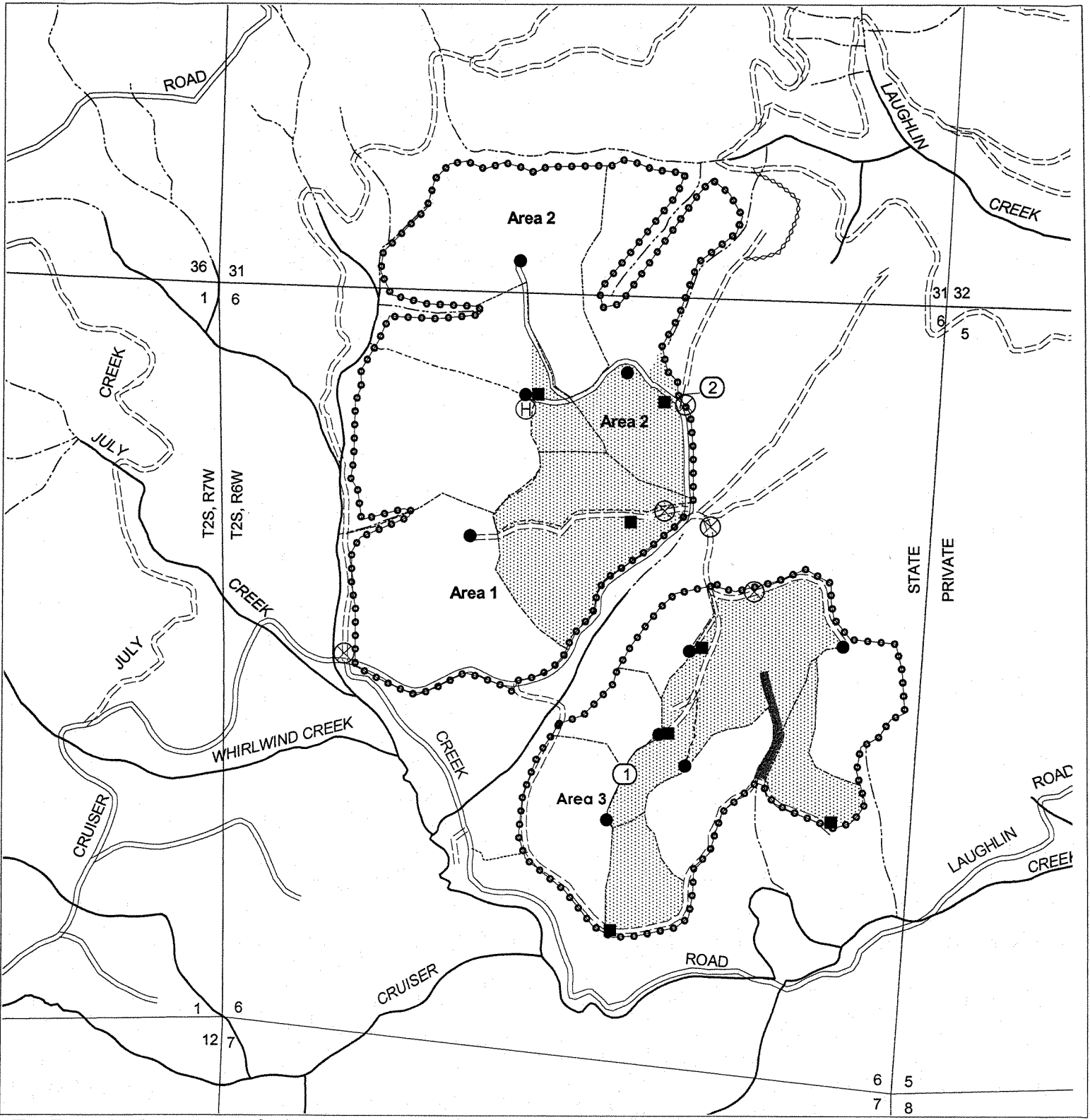
Douglas-fir	BA	QMD
Total	120	13.0
Leave	35	16.7
Take	85	

Spruce	BA	QMD
Total	0	#DIV/0!
Leave	0	#DIV/0!
Take	0	

Cedar	BA	QMD
Total	0	#DIV/0!

Relative Density	33
RD- Expected	9

Stand Density Index	0.33
SDI - Expected	0.07



- Tractor landing
- Cable landing
- ▲ Domestic water supply
- ⊗ Blocked
- ⊕ Helicopter landing
- Cable yarding
- ▨ Ground yarding
- ▩ Helicopter yarding
- Buffer
- ▨ Non-required thinning
- Setting boundary
- - - Area boundary
- Sale boundary
- Ownership boundary
- Type-F stream
- - - Type-N stream
- === Surfaced road
- Unsurfaced road
- State highway
- County road
- ⊙ Non-project road
- - - Swing road
- - - Abandoned road
- ⊖ OHV trail
- ⋯ Non-motorized trail

ADMINISTRATOR'S MAP
 Timber Sale Contract No. 341-05-12
 Cruz Hill
 Portions of Section 31, T1S, R6W, W. M.
 Washington County, Oregon
 Portions of Section 6, T2S, R6W, W. M.
 Tillamook County, Oregon

Area	Type of Operation	Acres Sale Net	
1	Modified clearcut	84	80
2	Retention cut	104	101
3	Modified clearcut	99	93
Total		287	274





Oregon Department of Forestry

WRITTEN PLAN

SALE NAME:

Cruz Hill

PROTECTED WATERS:

Cruiser Creek and associated tributaries
Laughlin Creek and associated tributaries

LOCATION:

Portions of Section 31, T1S, R6W, W.M., Washington County,
Oregon.
Portions of Section 6, T2S, R6W, W.M., Tillamook County

Riparian Management Area:

The area measured 100 feet slope distance from the high water mark on Cruiser Creek, Laughlin Creek and their associated tributaries that are designated Type F streams.

Protection Measures:

Yarding Systems, Layout, and Stream Protection

Cable Yarding: When yarding with cables hanging within or across these streams, cables will be pulled out of the Riparian Management Area prior to rigging the next yarding road. Yarding roads will be spaced an average of 150 feet apart where they extend over or through the riparian management area. Pending the approval by the sale administrator, use of ground based equipment for purposes of providing for a mobile tailhold will be evaluated on an individual basis.

Ground Based Yarding: During ground based yarding operations, all yarding activity and landing locations will occur outside Type F Riparian Management Areas.

Date: February 13, 2004

By: Kevin Benton

OREGON DEPARTMENT OF FORESTRY

WRITTEN PLAN

CRUZ HILL TIMBER SALE

Protected Waters: Cruiser Creek, a type F stream of the North Fork Trask River Basin and other unnamed tributaries of Cruiser Creek in the North Fork Trask River Basin.

Location: W ½ of Sec. 6 T2S, R8W, W.M.

Activities: Replacement of a non-fish passable structure on an unnamed tributary of Cruiser Creek with an arch pipe to allow fish passage. Road vacating on part of Road Segment paralleling unnamed tributary.

Protection Measures: Work will not be allowed from October 16 through April 30. No activity within 100 feet of the protected waters or in-stream activity will be conducted before July 1 or after September 15 without prior approval from the Oregon Department of Fish and Wildlife.

A 137" x 87" by 78 foot arch pipe has been sized for a 100-year event of 224.5 cfs using Peak Flow. Fill material will be placed in 8-inch lifts and compacted with a tamper. Fill slopes will be constructed at a 1½ to 1 fill width-to-height ratio. Pipe shall be countersunk and filled with granular material to simulate stream bed. Dewatering of the stream channel shall be required to minimize amounts of sediment delivery. The work area shall be dewatered by either rerouting the water in a channel adjacent to the site, or by pumping the water around the site.

Road closure activities will include ripping existing road prism, water barring, and blocking vehicular access to the road.

All other areas of disturbed soil resulting from project work, including fill slopes, cut banks and waste areas will be grass seeded, fertilized and mulched upon completion of work.

Prepared By: Vanessa M. Stone
Road Specialist

Date: June 14, 2004