



"STEWARDSHIP IN FORESTRY"

# Timber Sale Appraisal Cost Summary Relay Tower Sale 341-06-062

District: Tillamook

Date: 2/10/06

	Conifer	Hardwood	Total
<b>Gross Timber Sale Value</b>	\$2,368,830.29	\$337,515.60	\$2,706,345.89
		<b>Project Work</b>	(\$1,071,075.00)
		<b>Advertised Value</b>	\$1,635,270.89



# Timber Sale Appraisal Timber Description Relay Tower Sale 341-06-062

"STEWARDSHIP IN FORESTRY"

**District:** Tillamook

**Location:** Portions of Sections 34 and 35, T1N, R8W, & Portions of Sections 1,2, 3, and 4, T1S, R8W, W.M.

**Date:** 2/10/06

**Stand Stocking:** 20%

Species	Avg. DBH	Amortized%	Recovery%
Douglas - Fir	15	0	95
Alder (Red)	14	0	90

Volume by Grade	Douglas - Fir	Alder (Red)	Total
2S	1,298	0	1,298
3S	5,759	0	5,759
4S	2,572	0	2,572
Camprun	0	1,333	1,333
<b>Total</b>	<b>9,629</b>	<b>1,333</b>	<b>10,962</b>

**Comments:** Pond Values Used: 4th Quarter Calendar Year 2005.

Hauling costs adjusted to make equivalent to \$700 daily truck costs (P & R included).

OTHER COSTS (Profit and Risk to be added)

Brand and Paint = \$2/MBF x 10962 MBF = \$21,924

Swing Road = \$25/MBF x 229 MBF = \$5,725

TOTAL OTHER COSTS + (P/R/ to be added): \$27,649

ADDITIONAL COSTS (Profit and Risk Included)

Hauling:

DF [ $\$700/\text{day} - (\$460/\text{day} \times 1.15\%)$ ] / 6.6MBF/day = 26MBF/day x 9629MBF = \$250,354

RA [ $\$700/\text{day} - (\$460/\text{day} \times 1.15\%)$ ] / 9.6MBF/day = 17MBF/day x 1333MBF = \$22,661

Non-Project Roads #1 5 Stations x \$100.00 = \$500

Non-Project Roads #2 40 Stations x \$120.00 = \$4,800

Non-Project Roads #3 3 Stations x \$100.00 = \$300

Non-Project Roads #4 31 Stations x \$130.00 = \$4,030

Non-Project Roads #5 16 Stations x \$100.00 = \$1,600

Non-Project Roads #6 2 Stations x \$100.00 = \$200

OHV Trails:

OHV Filter Construction 7 Filters x \$ 75.00 = \$525

OHV Trail Clearing 110 Stations x \$40.00 = \$4,400

OHV Dips 43 Dips x \$150.00 = \$6,450

OHV Trail Reduction 75 Stations x \$26.00 = \$1,950

Other:

Ditch Pulling and End Hauling 50 cyds x \$5.15 = \$257.5

Slash Piling 515 Acres x \$ 2.20 = \$1,133

Approach Rock Pit Run 4 Stations x 50 cyds x \$6.00 = \$1,200

Landing Rock Pit Run 39 landings x 20 cyds x \$6.00/cyd = \$4,680

TOTAL ADDITIONAL COSTS: \$ 305,041

ROAD MAINTENANCE

Maintenance rock (Includes move in)

$(\$4.50/\text{yard} \times 4 \text{ miles} \times 12 \text{ yards}/\text{MBF}/\text{mile} \times 10.9\text{MBF})/10962 = \$0.21$

Grading and Compaction

Move in =  $\$4.83/\text{STA} \times 210 \text{ Stations}/10962 \text{ MBF} = \$0.093/\text{MBF}$

Water =  $\$6.75/\text{STA} \times 210 \text{ Stations}/10962 \text{ MBF} = \$0.13/\text{MBF}$

Compaction =  $\$11.00/\text{STA} \times 210 \text{ Stations}/10962 \text{ MBF} = \$0.21/\text{MBF}$

Interim Grading =  $\$10.00/\text{STA} \times 210 \text{ Stations}/10962 \text{ MBF} \times 4 \text{ (gradings)} = \$0.77/\text{MBF}$

Final Grading =  $\$17.00/\text{STA} \times 210 \text{ Stations}/10962 \text{ MBF} = \$0.33/\text{MBF}$

TOTAL ROAD MAINTENANCE COSTS: \$1.74/MBF

CEDAR PRICE = Cedar pond value - Douglas fir logging costs

$\$825.00/\text{MBF} - \$220 = \$605/\text{MBF}$



# Timber Sale Appraisal

## Logging Conditions

### Relay Tower

### Sale 341-06-062

"STEWARDSHIP IN FORESTRY"

---

**Combination#: 1**      Douglas - Fir      71.41%  
                         Alder (Red)      71.02%

**Yarding Distance:** Medium (800 ft)      **Downhill Yarding:** No  
**Logging System:** Cable: Small Tower <=40      **Process:** Manual Delimiting  
**Tree Size:** Small / Thinning 9in (70 Bft/tree), 20+ logs/MBF  
**Loads/Day:** 4      **Bd. Ft./Load:** 3,300  
**Cost/MBF:** \$223.21

**Machines:**  
    Log Loader (A)  
    Tower Yarder (Small)

**Combination#: 2**      Douglas - Fir      28.59%  
                         Alder (Red)      28.98%

**Yarding Distance:** Medium (800 ft)      **Downhill Yarding:** Yes  
**Logging System:** Track Skidder      **Process:** Manual Falling/Delimiting  
**Tree Size:** Small / Thinning 9in (70 Bft/tree), 20+ logs/MBF  
**Loads/Day:** 5      **Bd. Ft./Load:** 3,200  
**Cost/MBF:** \$204.09

**Machines:**  
    Log Loader (B)  
    Track Skidder



# Timber Sale Appraisal Logging Costs Relay Tower Sale 341-06-062

"STEWARDSHIP IN FORESTRY"

Date: 2/10/06

Operating Seasons: 2.0

Profit & Risk: 15%

Project Costs: \$1,071,075

Other Costs (P/R): \$27,649

Slash Disposal: \$0

Other Costs: \$305,041

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

Road Maintenance: \$1.74

<b>Hauling Costs</b>
----------------------

Species	\$/MBF	Trips/Day	MBF/Load
Douglas - Fir	\$0.00	2.0	3.3
Alder (Red)	\$0.00	3.0	3.2



# Timber Sale Appraisal Logging Costs Breakdown Relay Tower Sale 341-06-062

"STEWARDSHIP IN FORESTRY"

<b>Costs</b>	<b>Douglas - Fir</b>	<b>Alder (Red)</b>
<b>Logging</b>	217.74	217.67
<b>Road Maintenance</b>	1.83	1.93
<b>Fire Protection</b>	0.49	0.49
<b>Hauling</b>	69.16	48.67
<b>Other (P/R appl.)</b>	2.52	2.52
<b>Profit &amp; Risk</b>	43.76	40.69
<b>Slash Disposal</b>	0.00	0.00
<b>Scaling</b>	2.00	2.00
<b>Other</b>	27.83	27.83
<b>Total</b>	<b>365.33</b>	<b>341.80</b>

<b>Amortization</b>	0.00	0.00
<b>Pond Value</b>	611.34	595.00
<b>Stumpage</b>	246.01	253.20
<b>Amortized</b>	0.00	0.00



"STEWARDSHIP IN FORESTRY"

# Timber Sale Appraisal Summary Relay Tower Sale 341-06-062

**Amortized**

	Douglas - Fir	Alder (Red)
<b>MBF</b>	0.00	0.00
<b>Value</b>	0.00	0.00
<b>Total</b>	0.00	0.00

**Unamortized**

	Douglas - Fir	Alder (Red)
<b>MBF</b>	9,629.00	1,333.00
<b>Value</b>	246.01	253.20
<b>Total</b>	2,368,830.29	337,515.60

**Gross Timber Sale Value**

**Recovery \$2,706,345.89**

Prepared by: Nick Stumpf

Date: 2/10/06

District: Tillamook

Phone: (503) 842-2545



## PROJECT SUMMARY SHEET

Sale: Relay Tower

### IMPROVEMENT

Point	A to B	323+33	stations =	\$102,826.68
Point	C to D	29+00	stations =	\$16,588.45
Point	I to J	56+00	stations =	\$45,441.40
Point	K to L	4+10	stations =	\$4,599.36
Point	M to N	8+00	stations =	\$7,396.28
Point	O to P	1+00	stations =	\$1,098.50
Point	Q to R	1+00	stations =	\$1,075.00
Point	S to T	1+00	stations =	\$1,121.50
Point	U to V	1+00	stations =	\$981.50
<b>SUBTOTAL IMPROVEMENT</b>				<b>\$181,128.67</b>

### RECONSTRUCTION

Point	E to F	25+80	stations =	\$25,540.14
Point	G to H	10+00	stations =	\$8,338.14
<b>SUBTOTAL IMPROVEMENT</b>				<b>\$33,878.28</b>

### SPECIAL PROJECTS

Project No. 7 - Bridge Removal & Construction @ Point "W"			\$776,218.00
Project No. 3 - Stock Pile			\$20,105.60
Project No. 4 - Kilchis Area Bridge Maintenance			\$34,381.63
Project No. 6 - Brush	24.8	miles of road	\$22,448.00
<b>SUBTOTAL SPECIAL PROJECTS</b>			<b>\$853,153.23</b>

**MOVE IN (Relay Timber Sale) \$2,915.74**

**GRAND TOTAL** **\$1,071,075.92**



COST ESTIMATE DETAIL - 100%			Job No: 3350005					
Tetra Tech / KCM			Project Name: ODF - N. Fork Wilson River Bridge 1					
7080 S.W. Fir Loop			Client: Miller Hull			8-Feb-06		
Portland, Oregon 97223			Contractor:			Sheet 1 of 1		
(503) 684-9097								
Item	Description	Quantity	Unit	Unit costs		Material Cost	Labor Cost	Total
				Material	Lab+Equip			
<b>Demolition</b>								
	Remove Exist Span	1	ls		\$ 63,000.00	\$0	\$63,000	\$63,000
	Modify Exist Abutments	1	ls		\$ 20,000.00	\$0	\$20,000	\$20,000
	Erosion Control	1	ls	\$2,000.00	\$ 8,000.00	\$2,000	\$8,000	\$10,000
<b>New Abutment</b>								
	Excavation and Backfill	200	cy	\$25.00	\$ 10.00	\$5,000	\$2,000	\$7,000
	Rock Excavation	85	cy		\$ 125.00	\$0	\$10,625	\$10,625
	Rock Anchors	12	ea	\$500.00	\$ 2,000.00	\$6,000	\$24,000	\$30,000
	Wall Concrete	103	cy	\$150.00	\$ 400.00	\$15,450	\$41,200	\$56,650
	Substructure Concrete	87	cy	\$150.00	\$ 450.00	\$13,050	\$39,150	\$52,200
	Girder Stops/Bearing Pads	1	ls	\$2,300.00	\$ 4,000.00	\$2,300	\$4,000	\$6,300
	Diaphragms	1	ls	\$5,000.00	\$ 11,300.00	\$5,000	\$11,300	\$16,300
<b>Superstructure</b>								
	118 foot span girders	1	ls	\$150,000.00	\$ 50,000.00	\$150,000	\$50,000	\$200,000
	Traffic Barrier (Conc)	236	lf	\$75.00	\$ 75.00	\$17,700	\$17,700	\$35,400
	Pedestrian Rail	160	lf	\$60.00	\$ 60.00	\$9,600	\$9,600	\$19,200
	Waterproofing	1	ls	\$3,000.00	\$ 6,000.00	\$3,000	\$6,000	\$9,000
<b>Road Improvements - South</b>								
	Selective Demolition	1	ls	\$ -	\$ 1,000.00	\$0	\$1,000	\$1,000
	Aggregate Fill	400	cy	\$ 25.00	\$ 10.00	\$10,000	\$4,000	\$14,000
	Guardrail	60	lf	\$ 10.00	\$ 20.00	\$600	\$1,200	\$1,800
	5-inch Asphalt Conc.	70	ton	\$ 60.00	\$ 40.00	\$4,200	\$2,800	\$7,000
<b>Road Improvements - North</b>								
	Clearing/Excavation for Widening	250	cy	\$ 7.00	\$ 7.00	\$1,750	\$1,750	\$3,500
	Place Geotextile	400	sy	\$ 1.25	\$ 1.25	\$500	\$500	\$1,000
	Guardrail	60	lf	\$ 10.00	\$ 20.00	\$600	\$1,200	\$1,800
	Aggregate Fill	350	cy	\$ 30.00	\$ 10.00	\$10,500	\$3,500	\$14,000
	Fine Grading	10,000	sf	\$ 0.60	\$ 0.60	\$6,000	\$6,000	\$12,000
	Gravel Top Course	30	cy	\$ 30.00	\$ 10.00	\$900	\$300	\$1,200
	Underdrain	234	lf	\$ 15.00	\$ 15.00	\$3,510	\$3,510	\$7,020
	Swales	800	lf	\$ 7.00	\$ 7.00	\$5,600	\$5,600	\$11,200
Subtotal								\$611,195
8% Mob/Demob								\$48,896
5% Overhead and Profit								\$30,560
12% General Conditions								\$73,343
2% Escalation to Mid-point Const.								\$12,224
<b>Probable Construction Cost</b>								<b>\$776,218</b>

## SUMMARY OF ROAD BRUSHING COST

Sale: Relay Tower Road: See Below

Brushing - 24.8 Miles

**BRUSHING PROJECTS:**

Road System	Name of Road	Miles of Road	Cost per Mile	Total Cost for Segment
Wilson	Fawn Holly Road	2.1	\$885.00	\$1,858.50
Wilson	Kansas Creek	2.4	\$885.00	\$2,124.00
Wilson	Blue Ridge	3.1	\$885.00	\$2,743.50
Wilson	Coast Rang Road	7.8	\$885.00	\$6,903.00
Wilson	Coast Rang X Loop	1.0	\$885.00	\$885.00
Wilson	Coast Rang Lower Loop Spur	0.5	\$885.00	\$442.50
Wilson	Fishermans Access	1.5	\$885.00	\$1,327.50
Wilson	Power line Road Spur	1.8	\$885.00	\$1,593.00
Wilson	Lower Musial	1.8	\$885.00	\$1,593.00
Wilson	Upper Muesial Creek	2.8	\$885.00	\$2,478.00
	Move in			\$500.00
	Total	24.8		TOTAL SPECIAL PROJECTS
				<b>\$22,448.00</b>
			<b>GRAND TOTAL</b>	<b>\$22,448.00</b>

**Project #4 - Kilchis Area Bridge Maint. - Footings and Streambank Protection  
 Relay Tower Timber Sale  
 Rip Rap Cost/Haul/Placement**

Rock Cost From Commercial Source: \$ 18.00 Per Ton  
 Trucking Cost: \$ 80.00 Per Hour

Weight: 1 cubic yard = approx. 3000 lbs (1.5 tons) 1.50

Maximum Load Per Truck (Tons) 10.5

**Haul Cost:**

	Load (hr)	Unload (hr)	Haul Time (RT Hrs)		
Kilchis Bridge # 1	0.17	0.08	1.8	\$	13.96 Per Ton
Kilchis Bridge # 3	0.17	0.08	2.2	\$	17.01 Per Ton
Sam Downs Bridge # 3	0.17	0.08	2.6	\$	20.06 Per Ton

Kilchis Bridge # 1	\$	5,235.00
Kilchis Bridge # 3	\$	4,473.63
Sam Downs Bridge # 3	\$	3,009.00
	<b>\$</b>	<b>12,717.63 Total Haul Cost</b>

**Rock Amount:**

Kilchis Bridge # 1	250 Approx.Cubic Yards	375 Tons
Kilchis Bridge # 3	175 Approx.Cubic Yards	263 Tons
Sam Downs Bridge # 3	100 Approx.Cubic Yards	150 Tons
	<b>525 Total Cubic Yards</b>	<b>788 Total Tons</b>

Rock Cost: \$ 14,184.00 Total Rock Cost

**Staging and Placement**

	Hours	Per Hour Rate		
Kilchis Bridge # 1	16	\$ 150.00	\$	2,400.00
Kilchis Bridge # 3	10	\$ 150.00	\$	1,500.00
Sam Downs Bridge # 3	6	\$ 150.00	\$	900.00
			<b>\$</b>	<b>4,800.00 Staging and Placement Total</b>

**Labor:**

	Hours	Per Hour Rate		
Kilchis Bridge # 1	16	\$ 30.00	\$	480.00
Kilchis Bridge # 3	10	\$ 30.00	\$	300.00
Sam Downs Bridge # 3	6	\$ 30.00	\$	180.00
			<b>\$</b>	<b>960.00 Total Labor Cost</b>

**Move in-**

Excavator	\$	1,100.00
Trucks	\$	120.00
	<b>\$</b>	<b>1,220.00 Total Move-in</b>

Seed and Mulch \$ 500.00

**\$ 34,381.63 Total Project Cost**

## SUMMARY OF CONSTRUCTION COST

Sale:	<u>Relay Tower</u>				Road: <u>A to B</u>
Construction -	0+00 stations <u>0.00</u> miles				Improvement - <span style="float: right;">323+33 stations <u>6.12</u> miles</span>
CLEARING AND GRUBBING - Roadside Brushing (See Summary Sheet)					TOTAL CLEARING AND GRUBBING <b>\$0.00</b>
EXCAVATION -					TOTAL EXCAVATION <b>\$0.00</b>
ENDHAUL -					TOTAL ENDHAUL <b>\$0.00</b>
CULVERTS - MATERIALS & INSTALLATION					
	<u>Culverts</u>				
	26 LF of 18" \$446.92			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>\$446.92</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 &amp; Markers</u>				
	0 stakes \$0.00				
	1 markers \$8.00				
	<u>\$8.00</u>				
					TOTAL CULVERTS <b>\$454.92</b>
ROCK					
0+00 to 323+33	6,481 cy. of Crushed	@	\$14.34 per c.y. =	<u>\$92,937.54</u>	TOTAL ROCK <b>\$92,937.54</b>
SPECIAL PROJECTS					
Grade and shape road -	323.33 stations @	\$14.90 per station	\$4,817.62		
Roll subgrade w/ vibratory roller prior to rocking -	323.33 stations @	\$13.20 per station	\$4,267.96		
Grass seed and fertilize -	1.00 acres @	\$220.00 per acre	\$220.00		
Mulching -	0.214 acres @	\$600.00 per acre	\$128.64		
					TOTAL SPECIAL PROJECTS <b>\$9,434.22</b>
					<b>GRAND TOTAL</b> <span style="border: 1px solid black; padding: 2px;"><b>\$102,826.68</b></span>



## SUMMARY OF CONSTRUCTION COST

Sale:	<u>Relay Tower</u>	<u>0+00</u> stations <u>0.00</u> miles	@	Road:	<u>E to F</u>	<u>25+80</u> stations <u>0.49</u> miles	@
Construction -				Reconstruction -			
CLEARING AND GRUBBING -							
Scattering		1.48	acres @	\$980.00	per acre =	\$1,450.40	
						<u>TOTAL CLEARING AND GRUBBING</u>	<b>\$1,450.40</b>
EXCAVATION -							
Road Earthwork		25.80	sta. @	\$140.00	per sta. =	\$3,612.00	
						<u>TOTAL EXCAVATION</u>	<b>\$3,612.00</b>
CULVERTS - MATERIALS & INSTALLATION							
	<u>Culverts</u>						
	0	LF of 18"	\$0.00	66	LF of 24"	\$1,584.00	
	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>\$1,584.00</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 &amp; Markers</u>						
	0	stakes	\$0.00				
	2	markers	\$16.00				
			<u>\$16.00</u>				
						<u>TOTAL CULVERTS</u>	<b>\$1,600.00</b>
ROCK							
0+00 to	25+80	1,252	cy. of	Crushed	@	\$13.98 per c.y. =	\$17,502.96
							<u>TOTAL ROCK</u>
							<b>\$17,502.96</b>
SPECIAL PROJECTS							
Grade and shape road -		25.80	stations @	\$14.90	per station	\$384.42	
Roll subgrade w/ vibratory roller prior to rocking -		25.80	stations @	\$13.20	per station	\$340.56	
Remove large stumps -		4.00	lump sum @	\$130.00		\$520.00	
Grass seed and fertilize -		0.59	acres @	\$220.00	per acre	\$129.80	
						<u>TOTAL SPECIAL PROJECTS</u>	<b>\$1,374.78</b>
						<b>GRAND TOTAL</b>	<b>\$25,540.14</b>

## SUMMARY OF CONSTRUCTION COST

Sale:	<u>Relay Tower</u>	<u>0+00</u> stations <u>0.00</u> miles	Road:	<u>G to H</u>	<u>10+00</u> stations <u>0.19</u> miles
Construction -			Reconstruction -		
CLEARING AND GRUBBING - Scattering		0.460 acres @	\$980.00 per acre =		\$450.80
			TOTAL CLEARING AND GRUBBING		<b>\$450.80</b>
EXCAVATION - Road Earthwork		10.00 sta. @	\$90.00 per sta. =		\$900.00
			TOTAL EXCAVATION		<b>\$900.00</b>
ENDHAUL -				TOTAL ENDHAUL	<b>\$0.00</b>
CULVERTS - MATERIALS & INSTALLATION		\$0.00		TOTAL CULVERTS	<b>\$0.00</b>
ROCK 0+00 to 10+00		483 cy. of Crushed	@ \$13.78 per c.y.=		\$6,655.74
			TOTAL ROCK		<b>\$6,655.74</b>
SPECIAL PROJECTS					
Grade and shape road -		10.00 stations @	\$14.90 per station		\$149.00
Roll subgrade w/ vibratory roller prior to rocking -		10.00 stations @	\$13.20 per station		\$132.00
Grass seed and fertilize -		0.23 acres @	\$220.00 per acre		\$50.60
			TOTAL SPECIAL PROJECTS		<b>\$331.60</b>
<b>GRAND TOTAL</b>					<b>\$8,338.14</b>





## SUMMARY OF CONSTRUCTION COST

Sale:	<u>Relay Tower</u>		Road: <u>K to L</u>
Construction -	<u>0+00</u> stations <u>0.00</u> miles		<u>4+10</u> stations <u>0.08</u> miles
CLEARING AND GRUBBING - Scattering	0.260 acres @	\$980.00 per acre =	<u>\$254.80</u>
		TOTAL CLEARING AND GRUBBING	<b>\$254.80</b>
EXCAVATION - Road Earthwork	4.10 sta. @	\$65.00 per sta. =	<u>\$266.50</u>
		TOTAL EXCAVATION	<b>\$266.50</b>
ENDHAUL -		TOTAL ENDHAUL	<b>\$0.00</b>
CULVERTS - MATERIALS & INSTALLATION			
	<u>Culverts</u>		
	0 LF of 18"	\$0.00	
	0 LF of 30"	\$0.00	
	0 LF of 42"	\$0.00	
	0 LF of 54"	\$0.00	
	0 LF of 66"	<u>\$0.00</u>	
		\$0.00	
	<u>Haqf Rounds</u>		
	0 LF of 21"	\$0.00	
	0 LF of 36"	<u>\$0.00</u>	
		\$0.00	
	<u>Culvert Stakes &amp; Markers</u>		
	0 stakes	\$0.00	
	0 markers	<u>\$0.00</u>	
		\$0.00	
		TOTAL CULVERTS	<b>\$0.00</b>
ROCK			
0+00 to 4+10	271 cy. of Crushed	@ \$14.55 per c.y. =	<u>\$3,943.05</u>
		TOTAL ROCK	<b>\$3,943.05</b>
SPECIAL PROJECTS			
Grade and shape road -	4.10 stations @	\$14.90 per station	\$61.09
Roll subgrade w/ vibratory roller prior to rocking -	4.10 stations @	\$13.20 per station	\$54.12
Grass seed and fertilize -	0.09 acres @	\$220.00 per acre	\$19.80
		TOTAL SPECIAL PROJECTS	<b>\$135.01</b>
		<b>GRAND TOTAL</b>	<b>\$4,599.36</b>

## SUMMARY OF CONSTRUCTION COST

Sale:	<u>Relay Tower</u>				Road: <u>M to N</u>
Construction -	<u>0+00</u> stations <u>0.00</u> miles				<u>8+00</u> stations <u>0.15</u> miles
CLEARING AND GRUBBING - Scattering		0.290 acres @	\$980.00 per acre =	<u>\$284.20</u>	
			TOTAL CLEARING AND GRUBBING		<b>\$284.20</b>
EXCAVATION - Road Earthwork		8.00 sta. @	\$90.00 per sta. =	<u>\$720.00</u>	
			TOTAL EXCAVATION		<b>\$720.00</b>
ENDHAUL -				<u>TOTAL ENDHAUL</u>	<b>\$0.00</b>
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"	<u>\$0.00</u>		0 LF of 72"	<u>\$0.00</u>
		\$0.00			\$0.00
	<u>Half Rounds</u>				
	0 LF of 21"	\$0.00		0 LF of 30"	\$0.00
	0 LF of 36"	<u>\$0.00</u>		0 LF of 42"	<u>\$0.00</u>
		\$0.00			\$0.00
	<u>Culvert Stakes &amp; Markers</u>				
	0 stakes	\$0.00			
	0 markers	<u>\$0.00</u>			
		\$0.00		TOTAL CULVERTS	<b>\$0.00</b>
ROCK					
0+00 to 8+00	416 cy. of Crushed		@ \$14.73 per c.y. =	<u>\$6,127.68</u>	
				TOTAL ROCK	<b>\$6,127.68</b>
SPECIAL PROJECTS					
Grade and shape road -	8.00 stations @	\$14.90 per station		\$119.20	
Roll subgrade w/ vibratory roller prior to rocking -	8.00 stations @	\$13.20 per station		\$105.60	
Grass seed and fertiilze -	0.18 acres @	\$220.00 per acre		\$39.60	
			TOTAL SPECIAL PROJECTS		<b>\$264.40</b>
			<b>GRAND TOTAL</b>		<b>\$7,396.28</b>

## SUMMARY OF CONSTRUCTION COST

Sale:	<u>Relay Tower</u>				Road: <u>0 to P</u>
Construction -	<u>0+00</u> stations <u>0.00</u> miles				Improvement - <u>1+00</u> stations <u>0.02</u> miles
CLEARING AND GRUBBING - Scattering		0.200 acres @	\$980.00 per acre =	<u>\$196.00</u>	
				TOTAL CLEARING AND GRUBBING	<b>\$196.00</b>
EXCAVATION - Road Earthwork		1.00 sta. @	\$100.00 per sta. =	<u>\$100.00</u>	
				TOTAL EXCAVATION	<b>\$100.00</b>
ENDHAUL -				TOTAL ENDHAUL	<b>\$0.00</b>
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 &amp; Markers</u>				
	0 stakes	\$0.00			
	0 markers	\$0.00			
		<u>\$0.00</u>			
				TOTAL CULVERTS	<b>\$0.00</b>
ROCK					
0+00 to 1+00	50 cy. of Crushed	@	\$15.18 per c.y. =	<u>\$759.00</u>	
				TOTAL ROCK	<b>\$759.00</b>
SPECIAL PROJECTS					
Grade and shape road -	1.00 stations @	\$14.90	per station	\$14.90	
Roll subgrade w/ vibratory roller prior to rocking -	1.00 stations @	\$13.20	per station	\$13.20	
Grass seed and fertilize -	0.07 acres @	\$220.00	per acre	\$15.40	
				TOTAL SPECIAL PROJECTS	<b>\$43.50</b>
				<b>GRAND TOTAL</b>	<b>\$1,098.50</b>

## SUMMARY OF CONSTRUCTION COST

Sale:	<u>Relay Tower</u>		Road: <u>Q to R</u>
Construction -	<u>0+00</u> stations <u>0.00</u> miles		Improvement - <u>1+00</u> stations <u>0.02</u> miles
CLEARING AND GRUBBING - Scattering	0.200 acres @	\$980.00 per acre =	\$196.00
		TOTAL CLEARING AND GRUBBING	<b>\$196.00</b>
EXCAVATION - Road Earthwork	1.00 sta. @	\$100.00 per sta. =	\$100.00
		TOTAL EXCAVATION	<b>\$100.00</b>
ENDHAUL -			<u>TOTAL ENDHAUL</u> <b>\$0.00</b>
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 &amp; Markers</u>		
	0 stakes	\$0.00	
	0 markers	\$0.00	
		<u>\$0.00</u>	TOTAL CULVERTS <b>\$0.00</b>
ROCK			
0+00 to 1+00	50 cy. of Crushed	@ \$14.71 per c.y. =	\$735.50
			<u>TOTAL ROCK</u> <b>\$735.50</b>
SPECIAL PROJECTS			
Grade and shape road -	1.00 stations @	\$14.90 per station	\$14.90
Roll subgrade w/ vibratory roller prior to rocking -	1.00 stations @	\$13.20 per station	\$13.20
Grass seed and fertilize -	0.07 acres @	\$220.00 per acre	\$15.40
		TOTAL SPECIAL PROJECTS	<b>\$43.50</b>
		<b>GRAND TOTAL</b>	<b>\$1,075.00</b>

## SUMMARY OF CONSTRUCTION COST

Sale:

Relay Tower

Road: S to T

Construction -	<u>0+00</u> stations								
	<u>0.00</u>	miles				<u>1+00</u> stations		<u>0.02</u>	miles
CLEARING AND GRUBBING - Scattering			0.200 acres @	\$980.00 per acre =	\$196.00				
				TOTAL CLEARING AND GRUBBING					<b>\$196.00</b>
EXCAVATION - Road Earthwork			1.00 sta. @	\$100.00 per sta. =	\$100.00				
				TOTAL EXCAVATION					<b>\$100.00</b>
ENDHAUL -								TOTAL ENDHAUL	<b>\$0.00</b>
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	
			\$0.00					\$0.00	
	<u>Havf 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	
			\$0.00					\$0.00	
	<u>Culvert Stakes &amp; Markers</u>								
	0	stakes	\$0.00						
	0	markers	\$0.00						
			\$0.00						
								TOTAL CULVERTS	<b>\$0.00</b>
ROCK									
0+00 to	1+00	50 cy. of	Crushed	@	\$15.64 per c.y. =	\$782.00			
						TOTAL ROCK			<b>\$782.00</b>
SPECIAL PROJECTS									
Grade and shape road -			1.00 stations @	\$14.90 per station	\$14.90				
Roll subgrade w/ vibratory roller prior to rocking -			1.00 stations @	\$13.20 per station	\$13.20				
Grass seed and fertilize -			0.07 acres @	\$220.00 per acre	\$15.40				
						TOTAL SPECIAL PROJECTS			<b>\$43.50</b>
<b>GRAND TOTAL</b>									<b>\$1,121.50</b>

## SUMMARY OF CONSTRUCTION COST

Sale:	<u>Relay Tower</u>		Road: <u>U to V</u>
Construction -	<u>0+00</u> stations <u>0.00</u> miles		<u>1+00</u> stations <u>0.02</u> miles
CLEARING AND GRUBBING - Scattering	0.200 acres @	\$980.00 per acre =	<u>\$196.00</u>
		TOTAL CLEARING AND GRUBBING	<b>\$196.00</b>
EXCAVATION - Road Earthwork	1.00 sta. @	\$100.00 per sta. =	<u>\$100.00</u>
		TOTAL EXCAVATION	<b>\$100.00</b>
ENDHAUL -			<u>TOTAL ENDHAUL</u> <b>\$0.00</b>
CULVERTS - MATERIALS & INSTALLATION			
	<u>Culverts</u>		
	0 LF of 18"	\$0.00	0 LF of 24"
	0 LF of 30"	\$0.00	0 LF of 36"
	0 LF of 42"	\$0.00	0 LF of 48"
	0 LF of 54"	\$0.00	0 LF of 60"
	0 LF of 66"	<u>\$0.00</u>	0 LF of 72"
		\$0.00	<u>\$0.00</u>
	<u>Havf Rounds</u>		
	0 LF of 21"	\$0.00	0 LF of 30"
	0 LF of 36"	<u>\$0.00</u>	0 LF of 42"
		\$0.00	<u>\$0.00</u>
	<u>Culvert Stakes &amp; Markers</u>		
	0 stakes	\$0.00	
	0 markers	<u>\$0.00</u>	
		\$0.00	TOTAL CULVERTS <b>\$0.00</b>
ROCK			
0+00 to 1+00	50 cy. of Crushed	@ \$12.84 per c.y. =	<u>\$642.00</u>
			TOTAL ROCK <b>\$642.00</b>
SPECIAL PROJECTS			
Grade and shape road -	1.00 stations @	\$14.90 per station	\$14.90
Roll subgrade w/ vibratory roller prior to rocking -	1.00 stations @	\$13.20 per station	\$13.20
Grass seed and fertilize -	0.07 acres @	\$220.00 per acre	\$15.40
		TOTAL SPECIAL PROJECTS	<b>\$43.50</b>
		<b>GRAND TOTAL</b>	<b>\$981.50</b>

## ROCK PIT DEVELOPMENT AND CRUSHING COST SUMMARY

Pit:	Fishermans Access	Location:	Sec.11, T1S, R8W, W.M.
Sale:	<b>Relay Tower</b>	Road:	12670 c.y.
Swell:	1.30	Stockpile:	2060 c.y.
Shrinkage:	1.16	Total Truck Loads:	14730 c.y.
Drill Pct.:	100%	In Place Total:	11331 c.y.

Pit Development & Cleanup including Clearing and grubbing of				\$7,600.00
Waste Area @ adjacent to pit, place overburden				
in Waste Area, spread and compact.				
Drill & Shoot:	\$2.50 /cu.yd.	x	11331 cu.yds.	= \$28,327.50
Push Rock:	\$0.70 /cu.yd.	x	14730 cu.yds.	= \$10,311.00
Load Crusher:	\$0.70 /cu.yd.	x	14730 cu.yds.	= \$10,311.00
Crush " Rock	\$2.50 /cu.yd.	x	14730 cu.yds.	= \$36,825.00
Load Dump Truck:	\$0.70 /cu.yd.	x	14730 cu.yds.	= \$10,311.00
Oversize Reduction:	\$4.50 /cu.yd.	x	737 cu.yds.	= \$3,316.50
			Subtotal	\$107,002.00

Move In/Set-up Crusher				\$3,195.00
Move In and set up Drill and Compressor	1	@	\$349.59	= \$349.59
Move in Roller and Compactor	1	@	\$349.59	= \$349.59
Move in Grader	1	@	\$175.20	= \$175.20
Move in D-8	1	@	\$514.42	= \$514.42
Move in Loader	1	@	\$399.04	= \$399.04
Move in Excavator	1	@	\$561.82	= \$561.82
Move in Trucks	6	@	\$109.52	= \$657.12
Move in Water Truck	1	@	\$128.73	= \$128.73
Change Gradation	1	@	\$210.00	= \$210.00
			Subtotal	\$6,540.51

Base Cost=	\$7.71	Per Cu.Yd.	TOTAL PRODUCTION COSTS \$113,542.51
------------	--------	------------	-------------------------------------

Road Segment	Haul Cost /cu.yd.	Proc Cost /cu.yd.	Base Cst. /cu.yd.	Cost /cu.yd.	Number Cu. Yds	ROCK COST
A to B	4.18	2.45	7.71	14.34	6481	92,937.54
C to D	1.59	2.45	7.71	11.75	889	10,445.75
E to F	3.82	2.45	7.71	13.98	1252	17,502.96
G to H	3.62	2.45	7.71	13.78	483	6,655.74
I to J	4.08	2.45	7.71	14.24	2678	38,134.72
K to L	4.39	2.45	7.71	14.55	271	3,943.05
M to N	4.57	2.45	7.71	14.73	416	6,127.68
O to P	5.02	2.45	7.71	15.18	50	759.00
Q to R	4.55	2.45	7.71	14.71	50	735.50
S to T	5.48	2.45	7.71	15.64	50	782.00
U to V	2.68	2.45	7.71	12.84	50	642.00
<b>Stock Pile Rock</b>	1.35	0.70	7.71	9.76	2060	20,105.60
				Total C.Y.	14730	Sub Total 178,665.94

TOTAL ROCKING COSTS	178,665.94
---------------------	------------

## Move-In Calculations

Sale: Relay Tower

LOWBOY HAUL (Round Trip)		
DIST. (mi)	ROADWAY	AVE SPEED (mph)
24.0	Highway	37
8.0	Main Lines	11
6.0	Steep Grades	5

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
0	Brush Cutter	\$0.00		\$4.00	0.00	0.00	0	\$0.00	\$0.00
0	Graders	\$0.00		\$3.65	0.00	0.00	0	\$0.00	\$0.00
0	Loader (Small)	\$0.00	1	\$3.55	0.00	0.00	0	\$0.00	\$0.00
0	Loader (Med. & Large)	\$0.00	1	\$9.00	0.00	0.00	0	\$0.00	\$0.00
1	Rollers (smooth/grid) & Compactors	\$349.59		\$5.00	0.00	6.00	6	\$30.00	\$379.59
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
1	Excavators (Large)	\$576.74	1	\$44.80	0.00	6.00	6	\$268.80	\$845.88
0	Tired Backhoes/Skidders	\$0.00		\$3.00	0.00	0.00	0	\$0.00	\$0.00
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)	\$544.26	2	\$15.10	0.00	6.00	6	\$90.60	\$634.86
6	Dump Truck (10 cy +)	\$806.98		\$2.85	0.00	6.00	6	\$102.60	\$909.58
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)	\$128.73		\$2.85	0.00	6.00	6	\$17.10	\$145.83
0	Jaw	\$1,066.00							
0	2-Stage Crusher	\$1,597.00							
0	3-Stage Crusher	\$2,489.00							

	<b>TOTAL MOVE-IN COSTS:</b>	<b>\$2,915.74</b>
--	-----------------------------	-------------------





## CRUISE REPORT

### *Relay Tower*

1. **Type of Sale:** Regeneration Harvest (Modified Clearcut, Retention cut); Recovery
2. **Legal Description:** Portions of sections 34 and 35, T1N, R8W, and sections 1, 2, 3, 4, T1S, R8W, W.M., Tillamook County, Oregon.
3. **Sale Acreage:** The sale boundaries were plotted on a digital orthophotograph and the acreage was calculated with GIS.

Area	Sale	Net
1 Modified Clearcut	198	174
2 Retention cut	160	137
3 Retention cut	194	186
4 Modified Clearcut	239	227
<b>Total</b>	<b>791</b>	<b>724</b>

#### Sale Acres

Area within the Timber Sale Boundary signs.

#### Net acres for calculating the advertised volume

Sale acres, less green tree retention, roads, utility, right-of-way, and less riparian areas inside the sale boundary.

### 3. **Cruising Procedures:**

A. **Cruise Method:** A total of 126 variable radius full point plots were established on the sale area. A ratio of two count plots per one measured plot was established. Conifer with less than 7" DBH and alder with less than 10" DBH were not recorded. On the count plots the species and tree count were recorded. On the measure plots the species, diameter at breast height, height to a 5" merchantable top for conifer and 8" for alder, form factor at 16', and grades, lengths and defect of each segment were recorded. Heights were to nearest foot.

B. **Plot size:** 40 BAF.

C. **Point of observation:** 4.5 feet

- D. **Grading System:** Columbia River Official Log Scaling and Grading Bureau rules.
- E. **Diameter Standards:** 4.5 feet (DBH) to the nearest inch.
- F. **Form Point:** 16 feet for conifers.
- G. **Form Factor:** A form factor was recorded for all trees on measure plots. The average for Douglas-fir was 85 and the average form factor for red alder was 80.
5. **Computation Procedure:** The volumes and statistics for the timber cruised were computed using Atterbury Consultants, Inc. SUPER A.C.E. 98 program. The coefficients of variation and stand errors are as follows: Area 1: 57.5 and 10.0; Area 2: 50.2 and 9.9; Area 3: 41.9 and 8.2; Area 4: 41.3 and 6.5. The volume for each area was generated individually and the areas were summed for the total sale volume. Take and leave trees were determined by leaving the largest trees on each plot for the target residual basal area.
6. **Defect and Breakage:** A 5% reduction for defect and breakage was applied to the volume for Douglas-fir and Western Hemlock and 10% defect and breakage was applied to red alder.
7. **Timber Description:** The sale area is composed of 45 year old Douglas-fir with scattered Alder, Hemlock and Spruce. The sale area burned in the 1933 Tillamook Fire and the 1939 Saddle Mountain Fire. Areas 3 and 4 were planted between 1955 and 1957. Areas 1 and 2 were planted between 1953 and 1960. A small portion was planted in 1970. Alder naturally regenerated and was sprayed with herbicides in the 1970's, which created severely deformed boles and multiple tops. The Douglas-fir has moderate to severe Swiss needle cast symptoms and is from an off-site seed source.
8. **Cruiser Names/Dates:** Jason Lee, Nick Stumpf, Jay Anderson, August 2005.
9. **Revenue Distribution:**  
100 % FDF  
17% Tax Code 56  
83% Tax Code 9-2  
Deed Numbers: 162, 168, 169, 211  
99% Rehabilitation Obligated
10. **Attachments:**  
Volume Summary  
Logging Plan



## Relay Tower

### Volume Summary

Area 1 Modified Clearcut						
174 acres						
SPECIES	Basal Area Per Acre	V-BAR	Vol/Acre MBF	Volume MBF	D & B	Net Vol MBF
Douglas-fir	104	92	9.6	1670	5%	1587
Alder	59	73	4.3	748	10%	673
<b>TOTAL</b>			13.9	2418		2260

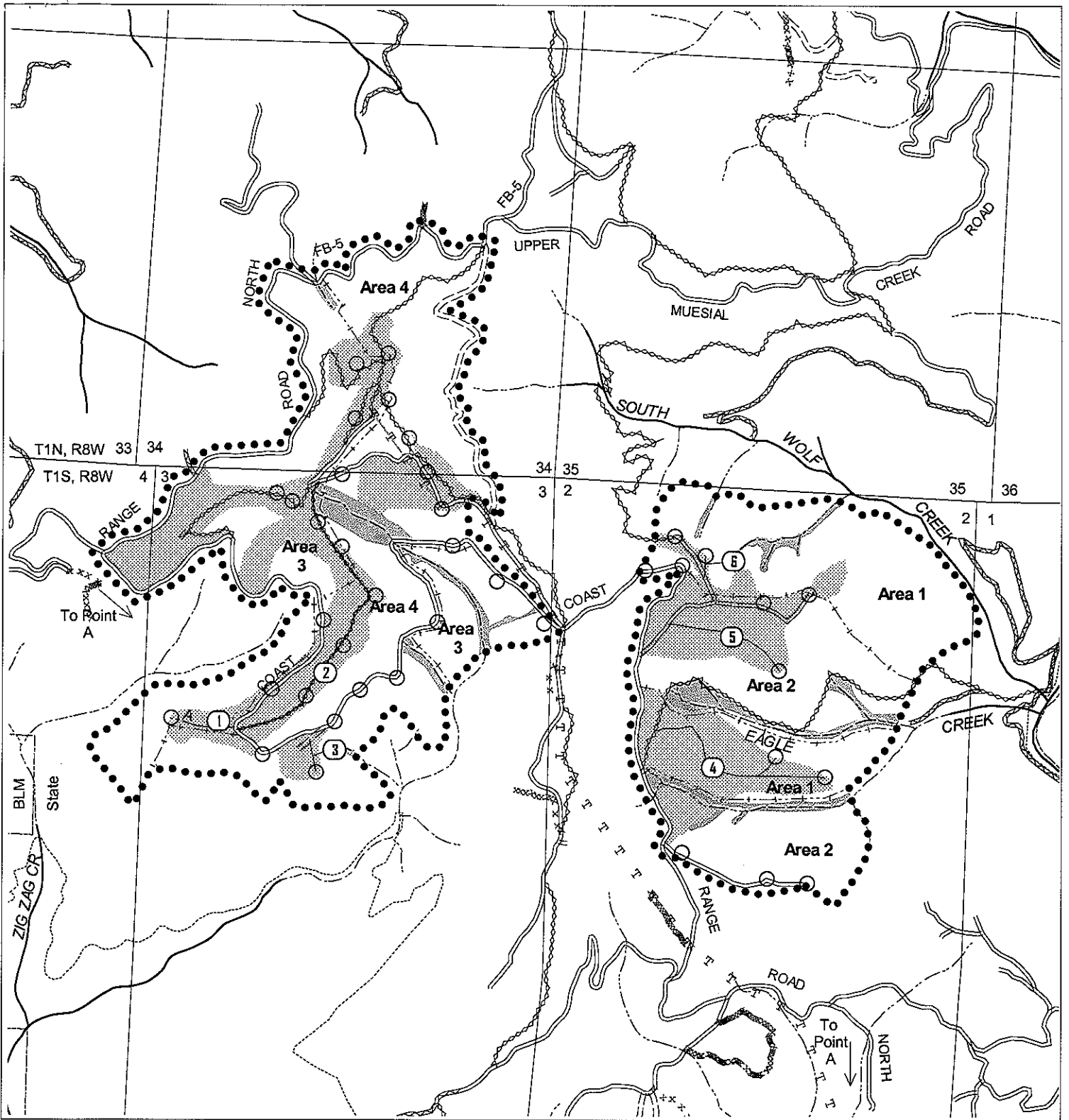
Area 2 Retention Cut						
137 acres						
SPECIES	Basal Area Per Acre	V-BAR	Vol/Acre MBF	Volume MBF	D & B	Net Vol MBF
Douglas-fir	129	97	12.5	1713	5%	1627
Alder	25	110	2.8	384	10%	346
<b>TOTAL</b>			15.3	2097		1973

Area 3 Retention Cut						
186 acres						
SPECIES	Basal Area Per Acre	V-BAR	Vol/Acre MBF	Volume MBF	D & B	Net Vol MBF
Douglas-fir	133	94	12.5	2325	5%	2209
Alder	27	32	0.9	167	10%	150
<b>TOTAL</b>			13.4	2492		2359

Area 4 Modified Clearcut						
227 acres						
SPECIES	Basal Area Per Acre	V-BAR	Vol/Acre MBF	Volume MBF	D & B	Net Vol MBF
Douglas-fir	199	98	19.5	4427	5%	4206
Alder	16	51	0.8	182	10%	164
<b>TOTAL</b>			20.3	4609		4370

Total Net Acres 724 Acres

TOTAL SALE VOLUME			
SPECIES	Gross Vol. (MBF)		Net Vol. (MBF)
Douglas-fir	10135		9629
Alder	1481		1333
<b>TOTAL</b>	11616		10962



- Landing
- ⊕ Domestic water supply
- ⊕ Truck turn-around
- ▼ Permanent plot
- Cable yarding
- ▨ Ground yarding
- ▩ Helicopter yarding
- ▧ Downhill yarding
- ▦ Buffer
- ▨ Non-required thinning
- Area boundary
- Sale boundary
- Ownership boundary
- Perennial Type-F stream
- Perennial Type-N stream
- == Surfaced road
- == Unsurfaced road
- == State/Federal highway
- County road
- ② Non-project road
- ..A.. Swing road
- Legacy road
- xxx Blocked road
- OHV trail
- Non-motorized trail
- T T Transmission line

**LOGGING PLAN**  
 Timber Sale Contract  
 No. 341-06-62  
 Relay Tower  
 Portions of Sections 34 and 35,  
 T1N, R8W, and Sections 1, 2,  
 3, and 4, T1S, R8W, W.M.  
 Tillamook County, Oregon

1000 0 1000 Feet

Tillamook District GIS  
 11-14-2005  
 This product is for informational use and  
 may not have been prepared for, or suitable  
 for legal, engineering, or surveying purposes.

Area	Type of Operation	Acres	
		Gross	Net
1	Modified clearcut	198	174
2	Retention cut	160	137
3	Retention cut	194	186
4	Modified clearcut	239	227
Total		791	724

