



"STEWARDSHIP IN FORESTRY"

# Timber Sale Appraisal Cost Summary Deep Creek Thinning Sale 341-04-06

District: Astoria

Date: 6/27/03

	Conifer	Hardwood	Total
<b>Gross Timber Sale Value</b>	\$2,751,216.76	\$2,499.14	\$2,753,715.90
		<b>Project Work</b>	(\$448,238.00)
		<b>Advertised Value</b>	\$2,305,477.90



# Timber Sale Appraisal Timber Description Deep Creek Thinning Sale 341-04-06

"STEWARDSHIP IN FORESTRY"

**District:** Astoria

**Location:** Portions of Sections 11, 12, 13, & 14, T5N, R6W, W.M., Clatsop County, Oregon

**Date:** 6/27/03

**Stand Stocking:** 80%

Species	Avg. DBH	Amortized%	Recovery%
Douglas - Fir	18	0	97
Western Hemlock / Fir	15	0	97
Alder (Red)	15	0	95

Volume by Grade	Douglas - Fir	Western Hemlock / Fir	Alder (Red)	Total
<b>2S</b>	5,623	4	0	5,627
<b>3S</b>	2,410	5	7	2,422
<b>4S</b>	505	1	0	506
<b>Total</b>	8,538	10	7	8,555

**Comments:** Pond Values Used: 2nd Quarter 2003

Log Markets: Mist, Claskanine, Tillamook

Additional Costs with P&R:

100% branding and painting: \$1/MBF x 8,555 MBF = \$8,555

Additional cutting costs for thinning (bucking tops, topping/girdling tail lift trees, etc.)

\$5/MBF x 8,555 MBF = \$42,775

Additional costs for cable corridor layout: \$3/MBF x 8,555 MBF = \$25,665

Total Cost w/P&R = \$76,995

Costs without P&R: \$0



# Timber Sale Appraisal Logging Conditions Deep Creek Thinning Sale 341-04-06

"STEWARDSHIP IN FORESTRY"

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<b>Combination#:</b> 1	Douglas - Fir	72.00%	
	Western Hemlock / Fir	72.00%	
	Alder (Red)	72.00%	
<b>Yarding Distance:</b>	Medium (800 ft)		<b>Downhill Yarding:</b> Yes
<b>Logging System:</b>	Track Skidder		<b>Process:</b> Manual Falling/Delimiting
<b>Tree Size:</b>	Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF		
<b>Loads/Day:</b>	6		<b>Bd. Ft./Load:</b> 4,500
<b>Cost/MBF:</b>	\$120.94		
<b>Machines:</b>			
	Log Loader (B)		
	Track Skidder		
<b>Combination#:</b> 2	Douglas - Fir	19.00%	
	Western Hemlock / Fir	19.00%	
	Alder (Red)	19.00%	
<b>Yarding Distance:</b>	Medium (800 ft)		<b>Downhill Yarding:</b> No
<b>Logging System:</b>	Cable: Small Tower <=40		<b>Process:</b> Manual Delimiting
<b>Tree Size:</b>	Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF		
<b>Loads/Day:</b>	4		<b>Bd. Ft./Load:</b> 4,500
<b>Cost/MBF:</b>	\$143.23		
<b>Machines:</b>			
	Log Loader (A)		
	Tower Yarder (Small)		
<b>Combination#:</b> 3	Douglas - Fir	9.00%	
	Western Hemlock / Fir	9.00%	
	Alder (Red)	9.00%	
<b>Yarding Distance:</b>	Short (400 ft)		<b>Downhill Yarding:</b> Yes
<b>Logging System:</b>	Shovel		<b>Process:</b> Manual Delimiting
<b>Tree Size:</b>	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF		
<b>Loads/Day:</b>	7		<b>Bd. Ft./Load:</b> 4,500
<b>Cost/MBF:</b>	\$73.70		
<b>Machines:</b>			
	Shovel Logger		



# Timber Sale Appraisal Logging Costs Deep Creek Thinning Sale 341-04-06

"STEWARDSHIP IN FORESTRY"

Date: 6/27/03

Operating Seasons: 2.5

Profit & Risk: 15%

Project Costs: \$448,238

Other Costs (P/R): \$76,995

Slash Disposal: \$0

Other Costs: \$0

Road Maintenance: \$3.27

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

### Hauling Costs

Species	\$/MBF	Trips/Day	MBF/Load
Douglas - Fir	\$0.00	4.0	4.5
Western Hemlock / Fir	\$0.00	2.0	4.0
Alder (Red)	\$0.00	2.0	3.0



# Timber Sale Appraisal Logging Costs Breakdown Deep Creek Thinning Sale 341-04-06

"STEWARDSHIP IN FORESTRY"

Costs	Douglas - Fir	Western Hemlock / Fir	Alder (Red)
<b>Logging</b>	120.92	120.92	120.92
<b>Road Maintenance</b>	3.37	3.37	3.44
<b>Fire Protection</b>	0.79	0.79	0.00
<b>Hauling</b>	26.34	59.28	80.84
<b>Other (P/R appl.)</b>	9.01	9.01	0.00
<b>Profit &amp; Risk</b>	24.06	29.01	30.78
<b>Slash Disposal</b>	0.00	0.00	0.00
<b>Scaling</b>	2.00	2.00	2.00
<b>Other</b>	0.00	0.00	0.00
<b>Total</b>	186.49	224.38	237.98

<b>Amortization</b>	0.00	0.00	0.00
<b>Pond Value</b>	508.61	320.00	595.00
<b>Stumpage</b>	322.12	95.62	357.02
<b>Amortized</b>	0.00	0.00	0.00



"STEWARDSHIP IN FORESTRY"

# Timber Sale Appraisal Summary

## Deep Creek Thinning Sale 341-04-06

**Amortized**

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

**Unamortized**

	Douglas - Fir	Western Hemlock / Fir	Alder (Red)
<b>MBF</b>	8,538.00	10.00	7.00
<b>Value</b>	322.12	95.62	357.02
<b>Total</b>	2,750,260.56	956.20	2,499.14

### Gross Timber Sale Value

**Recovery \$2,753,715.90**

Prepared by: Ty Williams

Date: 6/27/03

District: Astoria

Phone: (503) 325-5451

**Road Maintenance Cost Summary**

**Sale:** Deep Creek Thinning  
**Date:** 10-Apr-03  
**By:** J. Laughman

**MBF:** 8,555  
**\$/MBF:** \$3.27

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Progressive Operations Entries (2)	Grader 14G	\$540	2	40	\$80	\$4,280
	Dump Truck 12CY x 2	\$228	2	40	\$57	\$2,736
	FE Loader C966	\$540	2	20	\$75	\$2,580
Final Haul Road Maintenance Haul Route	Grader 14G	\$540	1	50	\$80	\$4,540
	Dump Truck 12CY x 3	\$114	3	60	\$57	\$3,762
	FE Loader C966	\$540	1	20	\$75	\$2,040
	Vibratory Roller	\$540	1	50	\$75	\$4,290
	Water Truck 2,500 gallon Labor	\$132	1	50	\$67	\$3,482
				10	\$25	\$250
<b>Total</b>						<b>\$27,960</b>

Production Rates  
 Grader  
 Vibratory Roller\*

Miles/day	Distance(miles)	Days
1.5	7.0	4.7
1.5	7.0	4.7

\*Final Road Maintenance Only

**SUMMARY OF ALL PROJECT COSTS**

**SALE NAME:** DEEP CREEK THINNING

**NEW CONSTRUCTION:**

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 1	2A-2B, 2C-2D	85.2	\$49,146
	2E-2F, 2G-2H,		
	2I-2J, 2K-2L		
	<b>TOTALS</b>	85.20	\$49,146

**ROAD IMPROVEMENT:**

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 1	11-12, 12-13, 12-112	504.90	\$85,552
	13-14, 14-15, 16-17		
	18-19, 19-110		
	<b>TOTALS</b>	504.9	\$85,552

**SPECIAL PROJECTS:**

	<u>Description</u>	<u>Cost</u>
Project No. 2	Hunt Creek Crushing	\$219,310
Project No. 3	Quarry Test Drilling	\$28,912
Project No. 4	Road Vacating (42.9 sta.)	\$11,272
Project No. 5	Roadside Brushing	\$25,104
Project No. 6	Stream Enhancement	\$6,623
	Road Maintenance (project work)	\$17,470
	<b>TOTALS</b>	\$308,691

**MOVE IN:**

	<u>Equipment</u>	<u>Cost</u>
	Dozer (D8)	\$980
	Dump Trucks (12 cy x 4 )	\$456
	Dump Trucks (20 cy x 4)	\$536
	F E Loader (C966)	\$540
	Grader (14G)	\$540
	Vibratory Roller	\$540
	Water Truck (2,500 gallon)	\$132
	Excavator (C325)	\$900
	Road Brusher	\$225
	<b>TOTAL</b>	\$4,849

**GRAND TOTAL** **\$448,238**

Compiled By: J. Laughman  Date: 5/28/2003



**SUMMARY OF CONSTRUCTION COSTS**

**SALE NAME:** Deep Creek Thinning (Area 2)  
**ROAD:** 2A-2B (33.75), 2C-2D (10.8), 2E-2F (3.5),  
 2G-2H (13.9), 2I-2J (14.0), 2K-2L (9.25)

**NEW CONSTRUCTION:** 85.20 STATIONS  
**IMPROVEMENT:** STATIONS 1.61 MILES  
 MILES

<b>CLEARING &amp; GRUBBING</b>						
Method	Acres/amount	x	Rate	=	Cost	
Scatter Outside of R/W	8.08	x	\$840.00	=	\$6,787.20	
		x		=		
		x		=		
<b>SUB TOTAL FOR CLEARING &amp; GRUBBING</b>						<b>\$6,787</b>

<b>EXCAVATION</b>						
Material	Cy/amount	x	Rate	=	Cost	
Common (Reg Standard Design) \$\$/sta.	85.20	x	\$117.00	=	\$9,968.40	
Cut Slope Rounding \$\$/sta.	43.00	x	\$27.00	=	\$1,161.00	
Landing Construction \$\$/landing	6.00	x	\$270.00	=	\$1,620.00	
2D, 2F, 2H, 2I @ 5+75, 2J, 2L		x		=		
		x		=		
		x		=		
		x		=		
		x		=		
		x		=		
		x		=		
		x		=		
<b>SUB TOTAL FOR EXCAVATION</b>						<b>\$12,749</b>

<b>CULVERT MATERIALS AND INSTALLATION</b>								
Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost	
2A-2B 9+50	18"CPP	40	\$11.00	\$440.00				
2A-2B 26+00	18"CPP	40	\$11.00	\$440.00				
2A-2B 33+65	18"CPP	40	\$11.00	\$440.00				
2I-2J 0+00	18"CPP	40	\$11.00	\$440.00				
		Description	Quantity	Rate	Cost			
Other/miscellaneous:								
Culvert stakes & markers:		6' FIBERGLASS MARKERS	4	\$14.10	\$56.40			
<b>SUB TOTAL FOR CULVERT MATERIALS &amp; INSTALLATION</b>								<b>\$1,816</b>

Subtotal **\$21,353**

SURFACING										
Subgrade prep:		Description					Stations/ amount	x	Rate/ sta/amt	Cost
		Grade, Shape and Ditch 16'					72.45	x	\$15.20	\$1,101.24
		Subgrade Compaction					72.45	x	\$12.50	\$905.63
		Grade and Shape 14' outslope/waterbar (dirt roads) 2E-2F, 2K-2L					12.75	x	\$11.20	\$142.80
								x		
<b>ROAD SEGMENT 2A to 2B</b>										
			<b>POINT TO POINT</b>			<b>Sta. to Sta.</b>		<b>TOTAL VOLUME (CY)</b>	<b>*Rate/ Sta./ amt.</b>	<b>Cost</b>
<b>Application</b>		<b>Rock Size and Type</b>	<b>Depth of Rock (Inches)</b>	<b>2A to 2B</b>		<b>0+00 to 33+75</b>				
		<b>Location</b>		<b>Volume (CY) per</b>	<b>Number of</b>	<b>of</b>				
Base Rock	4"-0" Crushed		8	station	50	stations	33.75	1,088	\$4.95	\$8,353
Curve Widening	4"-0" Crushed		8					36	\$4.95	\$178
Turn Outs	4"-0" Crushed		8	turnout	25	turnouts	6	150	\$4.95	\$743
Junctions	4"-0" Crushed		8	junction	25	junctions	2	50	\$4.95	\$248
Total Rock for Road Segment			2A to 2B					1,924		\$9,521
<b>ROAD SEGMENT 2C to 2D</b>										
			<b>POINT TO POINT</b>			<b>Sta. to Sta.</b>		<b>TOTAL VOLUME (CY)</b>	<b>*Rate/ Sta./ amt.</b>	<b>Cost</b>
<b>Application</b>		<b>Rock Size and Type</b>	<b>Depth of Rock (Inches)</b>	<b>2C to 2D</b>		<b>0+00 to 10+80</b>				
		<b>Location</b>		<b>Volume (CY) per</b>	<b>Number of</b>	<b>of</b>				
Base Rock	4"-0" Crushed		8	station	50	stations	10.80	540	\$4.95	\$2,673
Junctions	4"-0" Crushed		8	junction	25	junctions	1	25	\$4.95	\$124
Landings	6"-0" Pit-run		N/A	Landing	80	Landings	1	80	\$7.51	\$601
Turn-Around/Landing	4"-0" Crushed		N/A	TA	24	TA/LDGs	1	24	\$4.95	\$119
Total Rock for Road Segment			2C to 2D					669		\$3,516
<b>ROAD SEGMENT 2G to 2H</b>										
			<b>POINT TO POINT</b>			<b>Sta. to Sta.</b>		<b>TOTAL VOLUME (CY)</b>	<b>*Rate/ Sta./ amt.</b>	<b>Cost</b>
<b>Application</b>		<b>Rock Size and Type</b>	<b>Depth of Rock (Inches)</b>	<b>2G to 2H</b>		<b>0+00 to 13+90</b>				
		<b>Location</b>		<b>Volume (CY) per</b>	<b>Number of</b>	<b>of</b>				
Base Rock	4"-0" Crushed		8	station	50	stations	13.90	695	\$4.95	\$3,440
Turn Outs	4"-0" Crushed		8	turnout	25	turnouts	2	50	\$4.95	\$248
Landings	6"-0" Pit-run		N/A	Landing	80	Landings	1	80	\$7.51	\$601
Total Rock for Road Segment			2G to 2H					825		\$4,289
<b>ROAD SEGMENT 2I-2J</b>										
			<b>POINT TO POINT</b>			<b>Sta. to Sta.</b>		<b>TOTAL VOLUME (CY)</b>	<b>*Rate/ Sta./ amt.</b>	<b>Cost</b>
<b>Application</b>		<b>Rock Size and Type</b>	<b>Depth of Rock (Inches)</b>	<b>2I-2J</b>		<b>0+00 to 14+00</b>				
		<b>Location</b>		<b>Volume (CY) per</b>	<b>Number of</b>	<b>of</b>				
Base Rock	4"-0" Crushed		8	station	50	stations	14.00	700	\$4.95	\$3,465
Turn Outs	4"-0" Crushed		8	turnout	25	turnouts	2	50	\$4.95	\$248
Junctions	4"-0" Crushed		8	junction	25	junctions	1	25	\$4.95	\$124
Turn-Arounds	4"-0" Crushed		N/A	TA	24	TAs	1	24	\$4.95	\$119
Landings	6"-0" Pit-run		N/A	Landing	80	Landings	2	160	\$7.51	\$1,202
Total Rock for Road Segment			2I-2J					959		\$5,157
*All haul rates include loading.										
Processing:		Description					No. sta	Rate/sta	Cost	
		Water, Process & Compact Crushed Rock (8" roads in 1 lift)					72.45	\$37.00	\$2,681	
<b>SUB TOTAL FOR SURFACING</b>									4,377	\$27,313
<b>SPECIAL PROJECTS</b>										
		Description					Cost			
		Develop pit-run rock, 320cy @ \$1.50/cy					\$480.00			
<b>SUB TOTAL FOR SPECIAL PROJECTS</b>									\$480	
<b>GRAND TOTAL</b>			Cost per Mile		\$30,457				\$49,146	

Compiled By: J. Laughman

Date: 5/13/2003

CRUSHED ROCK COST

SALE NAME: Deep Creek Thinning  
 PROJECT: Road Rock  
 QUARRY: Green Mountain Stockpile

ROCK TYPE: Crushed 4"-0"

DATE: 3/28/2003  
 BY: J. Laughman

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			40 MPH	35 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
2A-2B	33.75	1,888			4	1.36	0.68	0.34	0.34	6.80
2C-2D	10.80	564			4	1.30	0.65	0.33	0.33	6.50
2G-2H	13.90	745			4	1.36	0.68	0.34	0.34	6.80
2I-2J	14.00	774			4	1.36	0.68	0.34	0.34	6.80
<b>TOTAL</b>		<b>3,971</b>								
	<b>STA./NO.</b>	<b>CU. YD.</b>								<b>AVERAGE HAUL</b>
	<b>CUBIC YARD WEIGHTED HAUL</b>				<b>4.05</b>	<b>1.35</b>	<b>0.68</b>	<b>0.34</b>	<b>0.34</b>	<b>6.76</b>
Average Round Trip Distance (miles)										13.51

ROCK HAUL:

Truck type: D20 No. trucks: 4  
 Delay min.: 8 Efficiency: 85%  
 Ave haul: \$3.90 /cy

Truck type: D12 No. trucks: 4  
 Delay min.: 6 Efficiency: 85%  
 Load: \$0.40 /cy  
 Spread: \$0.65 /cy

Truck type: D10 No. trucks: \_\_\_\_\_  
 Delay min.: 5 Efficiency: 85%  
 Production: cy/day = 1,018

CRUSHED ROCK HAUL COSTS      3,971 cy @      \$4.95 /cy

PIT RUN ROCK COST

SALE NAME: Deep Creek Thinning  
 PROJECT: Landing Rock  
 QUARRY: Green Mountain

ROCK TYPE: 6" - 0" Pit Run

DATE: 3/28/2003  
 BY: J. Laughman

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			40 MPH	35 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
Landings										
2D,2H,2J	80 cy. Ea.	320			4	1.36	0.68	0.34	0.34	6.80
2I-2J Sta.5+75										
TOTAL		320								
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					4.08	1.36	0.68	0.34	0.34	
										AVERAGE HAUL
										6.80
										Average Round Trip Distance (miles)
										13.60

ROCK HAUL:

Truck type: <u>D20</u>	No. trucks: _____	Ave haul: <u>\$4.71 /cy</u>
Delay min.: <u>8</u>	Efficiency: <u>85%</u>	Load: <u>\$1.20 /cy</u>
Truck type: <u>D12</u>	No. trucks: <u>4</u>	Spread: <u>\$1.60 /cy</u>
Delay min.: <u>6</u>	Efficiency: <u>85%</u>	
Truck type: <u>D10</u>	No. trucks: _____	Production: cy/day = <u>387</u>
Delay min.: <u>5</u>	Efficiency: <u>85%</u>	

PIT RUN ROCK HAUL COSTS      320 cy @      \$7.51 /cy

**SUMMARY OF CONSTRUCTION COSTS**

SALE NAME: Deep Creek Thinning I1-I2(135.0), I2-I3(64.8), I3-I12(56.5)  
 ROAD: I3-I4(69.3), I4-I5(30.3), I6-I7(55.0), I8-I9(63.3), I10-I11(30.7)

NEW CONSTRUCTION: \_\_\_\_\_ STATIONS \_\_\_\_\_ 0.00 MILES  
 IMPROVEMENT: 504.90 STATIONS \_\_\_\_\_ 9.56 MILES

CLEARING & GRUBBING						
Method	Acres/amount	x	Rate	=	Cost	
I8-I9(19+60-21+9) Scatter Outside of R/W	0.14	x	\$840.00	=	\$117.60	
		x		=	\$0.00	
		x		=	\$0.00	
<b>SUB TOTAL FOR CLEARING &amp; GRUBBING</b>						<b>\$118</b>

EXCAVATION						
Material	Cy/amount	x	Rate	=	Cost	
Common (Reg Standard Design) \$\$/sta.	2.30	x	\$117.00	=	\$269.10	
Cut Slope Rounding \$\$/sta.	2.30	x	\$27.00	=	\$62.10	
		x		=	\$0.00	
		x		=	\$0.00	
		x		=	\$0.00	
<b>SUB TOTAL FOR EXCAVATION</b>						<b>\$331</b>

CULVERT MATERIALS AND INSTALLATION								
	Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
	I1-I2 88+80	18"CPP	40	\$11.00	\$440.00			\$0.00
	I1-I2 120+35	18"CPP	40	\$11.00	\$440.00			\$0.00
	I4-I5 21+70	18"CPP	40	\$11.00	\$440.00			\$0.00
	I4-I5 26+90	18"CPP	40	\$11.00	\$440.00			\$0.00
	I8-I9 5+70	18"CPP	30	\$11.00	\$330.00			\$0.00
	I8-I9 8+50	18"CPP	40	\$11.00	\$440.00			\$0.00
	I8-I9 16+55	18"CPP	30	\$11.00	\$330.00			\$0.00
	I8-I9 19+50*	36" CSP**	46	\$23.50	\$1,081.00			\$0.00
	I8-I9 27+50	18"CPP	34	\$11.00	\$374.00			\$0.00
	I8-I9 40+60*	36" CSP***	78	\$27.20	\$2,121.60			\$0.00
	I8-I9 55+85	18"CPP	44	\$11.00	\$484.00			\$0.00
	I8-I9 59+05	18"CPP	40	\$11.00	\$440.00			\$0.00
	I10-I11 17+40	18"CPP	40	\$11.00	\$440.00			\$0.00
	I10-I11 20+55	18"CPP	30	\$11.00	\$330.00			\$0.00
Culvert costs include installation, except for fills as indicated with *.								
**16 gauge aluminized steel								
***14 guage aluminized steel								
	Description					Quantity	Rate	Cost
Other/miscellaneous:	Fill Reconstructions Cost for 19+50 & 40+60 on I8 to I9							\$6,697.00
Culvert stakes & markers:	6' FIBERGLASS MARKERS					37	\$14.10	\$521.70
<b>SUB TOTAL FOR CULVERT MATERIALS &amp; INSTALLATION</b>								<b>\$15,349</b>
Subtotal								<b>\$15,798</b>

SURFACING											
Subgrade prep:		Description				Stations/amount	x	Rate/ sta/amt	Cost		
		Grade, Shape and Ditch 16'				504.90	x	\$15.20	\$7,674.48		
		Subgrade Compaction				504.90	x	\$12.50	\$6,311.25		
<b>ROAD SEGMENT 11 to 12</b>											
Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	*Rate/ Sta./ amt.	Cost	
				11 to 12	Volume (CY) per	0+00 to 135+00	Number of				
Base Rock	3/4"-0" Crushed		3	station	19	stations	135.00	2,565	\$4.95	\$12,697	
Culvert Bedding	3/4"-0" Crushed	88+80	N/A					10	\$4.95	\$50	
Base Restoration	3/4"-0" Crushed	88+80	N/A					20	\$4.95	\$99	
Culvert Bedding	3/4"-0" Crushed	120+35	N/A					10	\$4.95	\$50	
Base Restoration	3/4"-0" Crushed	120+35	N/A					20	\$4.95	\$99	
Energy Dissipator	24"-6" Riprap	120+35	N/A					10	\$11.82	\$118	
Subgrade Leveling	3/4"-0" Crushed		N/A					550	\$4.95	\$2,723	
Curve Widening	3/4"-0" Crushed		3					100	\$4.95	\$495	
Turn Outs	3/4"-0" Crushed		3	turnout	10	turnouts	20	200	\$4.95	\$990	
Junctions	3/4"-0" Crushed		3	junction	20	junctions	11	220	\$4.95	\$1,089	
Total Rock for Road Segment				11 to 12				3,705			\$18,408
<b>ROAD SEGMENT 12 to 13</b>											
Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	*Rate/ Sta./ amt.	Cost	
				12 to 13	Volume (CY) per	0+00 to 64+80	Number of				
Base Rock	1 1/2"-0" Crushed		3	station	19	stations	64.80	1,231	\$4.95	\$6,094	
Turn Outs	1 1/2"-0" Crushed		3	turnout	10	turnouts	12.00	120	\$4.95	\$594	
Junctions	1 1/2"-0" Crushed		3	junction	20	junctions	5	100	\$4.95	\$495	
Curve Widening	1 1/2"-0" Crushed		3					70	\$4.95	\$347	
Subgrade Leveling	1 1/2"-0" Crushed		N/A					200	\$4.95	\$990	
Total Rock for Road Segment				12 to 13				1,721			\$8,520
<b>ROAD SEGMENT 13 to 14</b>											
Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	*Rate/ Sta./ amt.	Cost	
				13 to 14	Volume (CY) per	0+00 to 69+30	Number of				
Base Rock	1 1/2"-0" Crushed		3	station	19	stations	69.30	1,317	\$4.95	\$6,518	
Turn Outs	1 1/2"-0" Crushed		3	turnout	10	turnouts	10	100	\$4.95	\$495	
Junctions	1 1/2"-0" Crushed		3	junction	20	junctions	4	80	\$4.95	\$396	
Subgrade Leveling	1 1/2"-0" Crushed		N/A					150	\$4.95	\$743	
Total Rock for Road Segment				13 to 14				1,647			\$7,409
<b>ROAD SEGMENT 13 to 12</b>											
Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	*Rate/ Sta./ amt.	Cost	
				13 to 12	Volume (CY) per	0+00 to 56+50	Number of				
Subgrade Leveling	1 1/2"-0" Crushed		N/A					400	\$4.95	\$1,980	
Total Rock for Road Segment				13 to 12				400			\$1,980
<b>ROAD SEGMENT 14 to 15</b>											
Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	*Rate/ Sta./ amt.	Cost	
				14 to 15	Volume (CY) per	0+00 to 30+30	Number of				
Culvert Bedding	1 1/2"-0" Crushed	21+70	N/A					20	\$4.95	\$99	
Base Restoration	1 1/2"-0" Crushed	21+70	N/A					20	\$4.95	\$99	
Culvert Bedding	1 1/2"-0" Crushed	26+90	N/A					20	\$4.95	\$99	
Base Restoration	1 1/2"-0" Crushed	26+90	N/A					20	\$4.95	\$99	
Junctions	1 1/2"-0" Crushed	0+00	N/A	junction	20	junctions	1	20	\$4.95	\$99	
Turn-Arounds	4"-0" Crushed	30+25	N/A	TA	24	TA	1	24	\$4.95	\$119	
Subgrade Leveling	1 1/2"-0" Crushed		N/A					100	\$4.95	\$495	
Total Rock for Road Segment				14 to 15				224	\$4.95	\$1,109	\$396
<b>ROAD SEGMENT 16 to 17</b>											
Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	*Rate/ Sta./ amt.	Cost	
				16 to 17	Volume (CY) per	0+00 to 55+00	Number of				
Subgrade Leveling	1 1/2"-0" Crushed		N/A					180	\$4.95	\$891	
Total Rock for Road Segment				16 to 17				180			\$891

ROAD SEGMENT 18 to 19				POINT TO POINT		Sta. to Sta.	TOTAL VOLUME (CY)	*Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (Inches)	18 to 19 Volume (CY) per	0+00 to 63+30 Number of					
Culvert Bedding	1 1/2"-0" Crushed	5+70	N/A				10	\$4.95	\$50	
Base Restoration	1 1/2"-0" Crushed	5+70	N/A				20	\$4.95	\$99	
Culvert Bedding	1 1/2"-0" Crushed	8+50	N/A				10	\$4.95	\$50	
Base Restoration	1 1/2"-0" Crushed	8+50	N/A				20	\$4.95	\$99	
Culvert Bedding	1 1/2"-0" Crushed	16+55	N/A				10	\$4.95	\$50	
Base Restoration	1 1/2"-0" Crushed	16+55	N/A				20	\$4.95	\$99	
Culvert Bedding	1 1/2"-0" Crushed	19+50	N/A				20	\$4.95	\$99	
Base Restoration	1 1/2"-0" Crushed	19+50	N/A				30	\$4.95	\$149	
Fill Armor	24"-6" Riprap	19+50	N/A				40	\$11.82	\$473	
Base Rock	4"-0" Crushed	19+60 - 21+90	8	station	50	station	2.30	115	\$4.95	\$569
Curve Widening	4"-0" Crushed	19+60 - 21+90	8				30	\$4.95	\$149	
Surface Rock	1 1/2"-0" Crushed	19+60 - 21+90	3	station	19	station	2.30	44	\$4.95	\$216
Curve Widening	1 1/2"-0" Crushed	19+60 - 21+90	3				12	\$4.95	\$59	
Culvert Bedding	1 1/2"-0" Crushed	27+50	N/A				10	\$4.95	\$50	
Base Restoration	1 1/2"-0" Crushed	27+50	N/A				20	\$4.95	\$99	
Culvert Bedding	1 1/2"-0" Crushed	40+60	N/A				40	\$4.95	\$198	
Base Restoration	1 1/2"-0" Crushed	40+60	N/A				40	\$4.95	\$198	
Fill Armor	24"-6" Riprap	40+60	N/A				150	\$11.82	\$1,773	
Culvert Bedding	1 1/2"-0" Crushed	55+85	N/A				10	\$4.95	\$50	
Base Restoration	1 1/2"-0" Crushed	55+85	N/A				20	\$4.95	\$99	
Culvert Bedding	1 1/2"-0" Crushed	59+05	N/A				10	\$4.95	\$50	
Base Restoration	1 1/2"-0" Crushed	59+05	N/A				20	\$4.95	\$99	
Landings	4"-0" Crushed	0+00	N/A				40	\$4.95	\$198	
Subgrade Leveling	1 1/2"-0" Crushed						100	\$4.95	\$495	

Total Rock for Road Segment: 18 to 19 841

\$5,467

ROAD SEGMENT 110 to 111				POINT TO POINT		Sta. to Sta.	TOTAL VOLUME (CY)	*Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	110 to 111 Volume (CY) per	0+00 to 30+70 Number of				
Culvert Bedding	1 1/2"-0" Crushed	17+40	N/A				10	\$4.95	\$50
Base Restoration	1 1/2"-0" Crushed	17+40	N/A				20	\$4.95	\$99
Culvert Bedding	1 1/2"-0" Crushed	20+55	N/A				10	\$4.95	\$50
Base Restoration	1 1/2"-0" Crushed	20+55	N/A				20	\$4.95	\$99
Turn-Arounds	1 1/2"-0" Crushed	30+50	N/A				24	\$4.95	\$119
Subgrade Leveling	1 1/2"-0" Crushed						250	\$4.95	\$1,238

Total Rock for Road Segment: 110 to 111 334

\$1,653

\*All haul rates include loading.

Processing:	Description	No. sta.	Rate/sta.	Cost
	Water, Process & Compact Crushed Rock:	271.40	\$37.00	\$10,042
<hr/>				
	24"-6"rr	200		
	6"-0"pr	209		
	4"-0"	209		
	1 1/2"-0"	4,948		
	3/4"-0"	3,695		
	<b>Total</b>		<b>9,052</b>	

**SUB TOTAL FOR SURFACING** \$68,752

SPECIAL PROJECTS	
Description	Cost
Disposal of 11 culverts	\$602.00
Energy Disp. & Fill Armor Placement @\$2.00/cy x 200	\$400.00
Develop Riprap Rock, 200cy @ \$1.50/cy	\$300.00

**SUB TOTAL FOR SPECIAL PROJECTS** \$1,002

**GRAND TOTAL** Cost per Mile \$53,018 **\$85,552**

Compiled By: Ty Williams

Date: 5/14/2003

**Deep Creek Thinning**

**Project No. 1  
Segment I8 to I9**

Location/Description	Excavator		Tamper		Grader		D12		Labor		Material		Straw		Seed		Total
Culvert Installation Sta. 19+50	10	hr	4	hr	0.5	hr	4	hr	8	hr		ft	4	bl.	4	lb.	
Culvert Installation Sta. 40+60	30	hr	8	hr	0.5	hr	8	hr	16	hr		ft	6	bl.	6	lb.	
		hr		hr		hr		hr		hr		ft		bl.		lb.	
		hr		hr		hr		hr		hr		ft		bl.		lb.	
		hr		hr		hr		hr		hr		ft		bl.		lb.	
		hr		hr		hr		hr		hr		ft		bl.		lb.	
		hr		hr		hr		hr		hr		ft		bl.		lb.	
		hr		hr		hr		hr		hr		ft		bl.		lb.	
		hr		hr		hr		hr		hr		ft		bl.		lb.	
		hr		hr		hr		hr		hr		ft		bl.		lb.	
		hr		hr		hr		hr		hr		ft		bl.		lb.	
		hr		hr		hr		hr		hr		ft		bl.		lb.	
		hr		hr		hr		hr		hr		ft		bl.		lb.	
<b>Total</b>	<b>40</b>	<b>hr</b>	<b>12</b>	<b>hr</b>	<b>1</b>	<b>hr</b>	<b>12</b>	<b>hr</b>	<b>24</b>	<b>hr</b>	<b>0</b>	<b>ft</b>	<b>10</b>		<b>10</b>		
<b>Rate</b>	<b>\$130</b>	<b>/hr</b>	<b>\$6</b>	<b>/hr</b>	<b>\$80</b>	<b>/hr</b>	<b>\$57</b>	<b>/hr</b>	<b>\$25</b>	<b>/hr</b>	<b>\$14.70</b>	<b>/ft</b>	<b>\$4.50</b>	<b>bl.</b>	<b>\$1.60</b>	<b>lb.</b>	
<b>Cost</b>	<b>\$5,200</b>		<b>\$72</b>		<b>\$80</b>		<b>\$684</b>		<b>\$600</b>		<b>\$0</b>		<b>\$45.00</b>		<b>\$16.00</b>		<b>\$6,697</b>



SALE NAME: Deep Creek Thinning  
 PROJECT: Project No. 1 - Road Improvement  
 QUARRY: Cow Creek Stockpile

ROCK TYPE: Crushed

DATE: 4/15/2003  
 BY: Ty Williams

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			40 MPH	35 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I1-I2	135.00	3,695	2	2	2	1.00	1.12	0.37	0.37	8.86
										0.00
										0.00
										0.00
										0.00
										0.00
										0.00
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										0.00
										0.00
										0.00
										0.00
										0.00
										0.00
TOTAL	0.00	3,695								AVERAGE HAUL
	STA./NO.	CU. YD.								HAUL
CUBIC YARD WEIGHTED HAUL			2.00	2.00	2.00	1.00	1.12	0.37	0.37	8.86

Average Round Trip Distance (miles) 17.72

ROCK HAUL:

Truck type <u>D20</u>	No. trucks: <u>4</u>	Ave haul: \$3.90 /cy
Delay min. <u>8</u>	Efficiency: <u>85%</u>	
Truck type <u>D12</u>	No. trucks: <u>4</u>	Spread: \$0.65 /cy
Delay min. <u>6</u>	Efficiency: <u>85%</u>	
Truck type <u>D10</u>	No. trucks: _____	Production: cy/day = <u>1,018</u>
Delay min. <u>5</u>	Efficiency: <u>85%</u>	

CRUSHED ROCK HAUL COSTS 3,695 cy @ \$4.95 /cy



RIP RAP ROCK COST

SALE NAME: Deep Creek Thinning  
 PROJECT: Project No. 1 - Road Improvement  
 QUARRY: Green Mountain Quarry No. 2

ROCK TYPE: 24" - 6" Rip Rap

DATE: 4/16/2003  
 BY: Ty Williams

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I1-I2	120+35	10			6	1.05	0.42	0.42	0.21	8.10
I8-I9	19+50	40			8	1.02	0.41	0.41	0.20	
I8-I9	40+60	150			8	1.02	0.41	0.41	0.20	
TOTAL		200								AVERAGE HAUL 9.94
CUBIC YARD WEIGHTED HAUL					7.90	1.02	0.41	0.41	0.20	
			Average Round Trip Distance (miles)							19.89

ROCK HAUL:

Truck type: D12    No. trucks: 4  
 Delay min.: 12    Efficiency: 75%  
 Ave haul: \$6.97 /cy  
 Load: \$2.25 /cy  
 Develop: \$2.60 /cy

Truck type: D10    No. trucks:       
 Delay min.: 10    Efficiency: 75%

Production: cy/day = 261

RIP RAP ROCK HAUL COSTS      200 cy @ \$11.82 /cy

**SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS**

PROJECT NO. 2

Timber Sale Name: Deep Creek Thinning

Quarry: Hunt Creek Quarry

Swell: \_\_\_\_\_

Location: NE1/4, Section 29, T8N, R6W, W.M.

Shrink: 16%

County: Clatsop

By: D.Mellison

Date: 3/3/03

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR	10,000		11,600
1-1/2"-0"		CR	5,000		5,800
4"-0"		CR	15,000		17,400
6"-0"		PR			
24"-6"		RR			
36"		RR			
<b>TOTAL CUBIC YARDS OF ROCK:</b>			<b>30,000</b>		<b>34,800</b>

**1) MOBILIZATION & SET UP:**

EQUIPMENT MOBILIZATION	DISTANCE IN MILES	DIST. FACTOR	BASE RATE	COST
3 stage crusher	75	1.40	\$2,220	\$3,108
Screening Plants	75	1.40	\$450	\$630
D8 Cat 7 D6 Cat	75	1.40	\$1,540	\$2,156
Loader	75	1.40	\$560	\$784
Drill & compressor	75	1.40	\$1,080	\$1,512
Powder	75	1.40	\$270	\$378
1 Dump Truck	75	1.40	\$134	\$188
Excavator	75	1.40	\$980	\$1,372
<b>SUB TOTAL FOR MOBILIZATION</b>				<b>\$10,128</b>

EQUIPMENT SET UP	TIMES	RATE	COST
3 stage crusher	1	\$2,530	\$2,530
Screening plant	1	\$215	\$215
Change Gradation	2	\$400	\$800
<b>SUB TOTAL FOR SET UP COSTS</b>			<b>\$3,545</b>

**TOTAL MOBILIZATION & SET UP COSTS** **\$13,673**

**2) CLEARING & GRUBBING**

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clear, load, and haul to Waste Area slash, and stumps (1 truck, 1 exc.)	4.0	hr	\$187	\$748

**TOTAL CLEARING & GRUBBING COSTS** **\$748**

**3) EXCAVATION**

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
		bcy		
		cy		
		cy		

**TOTAL EXCAVATION COSTS**

**4) DEVELOP ROCK**

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping			\$1.85	
crushed	34,800	100%	Drill & shoot	88%	30,624	\$1.90	\$58,186
pit run	0	0	Oversize red	3%	1,044	\$5.04	\$5,262
rip rap	0	0	Other				
Total	34,800						
reject							

**TOTAL ROCK DEVELOPMENT COSTS**

\$63,447

**5) CALIBRATION & TESTING**

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	2	\$400	\$800
Calibrate			
Test	13	\$50	\$650
Test			

**TOTAL CALIBRATION & TESTING COSTS**

\$1,450

**6) FEEDING & LOADING**

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	34,800	\$0.71	\$24,708

**TOTAL FEEDING & LOADING COSTS**

\$24,708

**7) ROCK CRUSHING**

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTIO	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed	11,600	3 stage	110	\$2.50	\$29,000
1-1/2"-0"	crushed	5,800	3 stage	120	\$2.29	\$13,292
4"-0"	crushed	17,400	2 stage	140	\$1.71	\$29,829

**TOTAL ROCK CRUSHING COSTS**

\$72,120

**8) STOCKPILING**

STOCKPILE PREPARATION OR CONST	COST
Clear, Level, Grade Stockpile Floors	
2 hrs. grader @ \$80/hr	\$160
<b>SUB TOTAL</b>	<b>\$160</b>

HAUL & STOCKPILE	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1. Hunt CK. Stockpile site	3/4"-0"	1	11,600	\$1.37	\$15,892
2. Hunt CK. Stockpile site	1-1/2"-0"	1	5,800	\$1.34	\$7,772
3. Hunt CK. Stockpile site	4"-0"	1	15,000	\$1.14	\$17,100
4. _____					
5. _____					
6. _____					
<b>SUB TOTAL</b>					<b>\$40,764</b>

**TOTAL STOCKPILING COSTS** **\$40,924**

**9) MISCELLANEOUS COSTS**

DESCRIPTION	COST
Block Quarry Access, Waterbarring, Drainage	\$2,240
<b>TOTAL MISCELLANEOUS COSTS</b>	<b>\$2,240</b>

**TOTAL FIXED COSTS (mobilization, clearing and grubbing, stockpiling prep, drainage)** **\$16,821**

**TOTAL VARIABLE COSTS (excavation, rock development, calibration/testing, feeding/loading, crushing cost, haul/stockpile, Load/Haul/Spread reject material)** **\$202,490**

**10) GRAND TOTAL:** **\$219,310**

Total \$/Cubic Yard	\$6.30
Fixed \$/Cubic Yard	\$0.48
Ave. Variable \$/Cubic Yard	\$5.82
4"-0" Ave. Variable \$/Cubic Yard	\$ 5.50
1-1/2"-0" Ave. Variable \$/Cubic Yard	\$ 5.45
3/4"-0" Ave. Variable \$/Cubic Yard	\$ 6.24

**Summary of Test Drilling Costs**

Project No. 3

Timber Sale Name Deep Creek Thinning

Test Location: NT 60 Road  
 Legal: SE1/4,NE1/4 Sec 29, T5N, R6W  
 County: Clatsop  
 By: Mellison  
 Date: 3/27/03

**Drilling Cost:**

Hole No.	Depth (ft)	Cost/Ft	\$
1	60	\$31.00	\$1,860
2	60	\$31.00	\$1,860
3	86	\$31.00	\$2,666
4	82	\$31.00	\$2,542

Total Drilling Cost \$8,928

**Drill Access Road Development Cost:**

Equipment	Hrs.	\$/Hour	\$	# of acres	\$/acre	\$	# sta	cy/sta	\$/cy	\$
D7 Cat		\$90	0							
D8 Cat	2	\$120	\$240							
Cat 235 Exc		\$130								
Sub Total			\$240			\$0				\$0

Total Road Cost \$240

**Water Barring Cost:**

Equipment	Hrs.	\$/Hour	\$
D7 Cat		\$90	\$0
D8 Cat	1	\$120	\$120
Cat 235 Exc		\$130	\$0

Total Water barring \$120

**TOTAL LOCATION COST: \$9,288**

\*Includes all mobilization and incidental material costs.

**Summary of Test Drilling Costs**

Project No. 3

Timber Sale Name Deep Creek Thinning

Test Location: Selders Creek Road  
 Legal: Section 36, T5N, R6W, W.M.  
 County: Clatsop  
 By: Mellison  
 Date: 3/27/03

**Drilling Cost:**

Hole No.	Depth (ft)	Cost/Ft	\$
1	68	\$31.00	\$2,108
2	90	\$31.00	\$2,790
3	63	\$31.00	\$1,953
4	73	\$31.00	\$2,263

Total Drilling Cost \$9,114

**Drill Access Road Development Cost:**

Equipment	Hrs.	\$/Hour	\$	# of acres	\$/acre	\$	# sta	cy/sta	\$/cy	\$
D7 Cat		\$90	0							
D8 Cat	20	\$120	\$2,400							
Cat 235 Exc	20	\$130	\$2,600							
<b>Sub Total</b>			\$5,000			\$0				\$0

Total Road Cost \$5,000

**Water Barring Cost:**

Equipment	Hrs.	\$/Hour	\$
D7 Cat		\$90	\$0
D8 Cat	2	\$120	\$240
Cat 235 Exc		\$130	\$0

Total Water barring \$240

**Total Location Cost:\* \$14,354**

\* Includes mobilization and all incidental material costs.



**Summary of Test Drilling Costs**

Project No. 3

Timber Sale Name: Deep Creek Thinning

Test Location: Green Mountain #1 Quarry  
 Legal: NW1/4, NE1/4, Section 34, T5N, R6W  
 County: Clatsop  
 By: Mellison  
 Date: 3/27/03

**Drilling Cost:**

Hole No.	Depth (ft)	Cost/Ft	\$
1	39	\$31.00	\$1,209
2	53	\$31.00	\$1,643
3	78	\$31.00	\$2,418
4	0	\$31.00	\$0

Total Drilling Cost \$5,270

**Drill Access Road Development Cost:**

Equipment	Hrs.	\$/Hour	\$	# of acres	\$/acre	\$	# c.y.	\$/c.y.	\$
D7 Cat		\$90	0						
D8 Cat		\$120							
Cat 235 Exc		\$130							
<b>Sub Total</b>			\$0			\$0			\$0

Total Road Cost \$0

**Water Barring Cost:**

Equipment	Hrs.	\$/Hour	\$
D7 Cat		\$90	\$0
D8 Cat		\$120	\$0
Cat 235 Exc		\$130	\$0

Total Water barring \$0

**TOTAL LOCATION COST:\* \$5,270**

\* Includes all mobilization and incidental material costs.

**DEEP CREEK THINNING**

**Project No. 4 Road Vacating. V1 to V2 and V3 to V4**

Location/Description	330#1 (hrs.)	330#2 (hrs.)	D-7 CAT (hrs.)	10 CY Truck #1 (hrs.)	10 CY Truck #2 (hrs.)	Front End Loader (hrs.)	Grader (hrs.)	Laborer (hrs.)	Straw Bales	Seed (lb.)
V1 to V2 0+00 to 16+60 Waterbar/Block Road	2									
V1 to V2 2+65 Remove Fill Develop 15' Stream Channel	20		20					4	20	20
V1 to V2 5+90 Remove Fill Develop 6' Stream Channel	8		8					3	15	15
V1 to V2 10+20 Remove Culvert	0.5							1	3	3
V1 to V2 16+60 Remove Culvert/Block Road	0.5							1	2	2
V3 to V4 0+00 to 15+40 Waterbar/Block Road	2									
V3 to V4 3+55 Remove Culvert/Fill Develop 4' Stream Channel	2		2					2	7	7
V3 to V4 10+50 Remove Culvert/Fill Develop 5' Stream Channel	3		3					2	7	7
V3 to V4 15+00 Remove Culvert/Fill Develop 10' Stream Channel	8		8					3	15	15
V3 to V4 15+40 Waterbar/Block Road	0.5									
V1 to V2 and V3 to V4 Haul Away Old Culverts	2			8						
<b>Total hours</b>	<b>48.5</b>	<b>0</b>	<b>41</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>69</b>	<b>69</b>
<b>Total cost</b>	<b>\$6,305</b>	<b>\$0</b>	<b>\$3,690</b>	<b>\$456</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$400</b>	<b>\$311</b>	<b>\$110</b>
<b>Total Estimated Cost</b>	<b>\$ 11,272</b>									

## Project No. 5 Roadside Brushing

Segment	Length (Miles)	Brush Type	Cost/Mile	Cost
B1-B2	12.10	L	\$980	\$11,858.00
I1-B3	3.00	M	\$1,100	\$3,300.00
B4-B5	0.72	M	\$1,100	\$792.00
B6-B7	0.12	L	\$980	\$117.60
B8-B9	0.09	H	\$1,300	\$117.00
B10-B11	0.05	M	\$1,100	\$55.00
B12-B13	0.03	H	\$1,300	\$39.00
B14-B15	0.74	M	\$1,100	\$814.00
B16-B17	0.29	M	\$1,100	\$319.00
I10-I11	0.86	M	\$1,100	\$946.00
B18-B19	0.04	H	\$1,300	\$52.00
B20-B21	0.76	M	\$1,100	\$836.00
I2-B22	1.90	M	\$1,100	\$2,090.00
B23-B24	0.30	H	\$1,300	\$390.00
I6-I7	1.20	M	\$1,100	\$1,320.00
I8-I9	0.78	M	\$1,100	\$858.00
I9-B25	0.86	M	\$1,100	\$946.00
B26-B27	0.12	H <del>M</del>	\$1,300	\$156.00
B28-B29	0.10	L	\$980	\$98.00
<b>Total Miles</b>	<b>24.06</b>		<b>Total Project Cost</b>	<b>\$25,104</b>

L = Light Brush \$980

M = Medium Brush \$1,100

H = Heavy Brush \$1,300

Deep Creek Thinning  
Project No. 6 Stream Enhancement

Location	Site	Number of Trees	\$/Tree*	Pounds of Seed	\$/Lb. of Seed	Number of Straw Bales	\$/Bale	Location Cost
SE1 to SE2	1	6	\$225.00	3	\$1.60	3	\$4.50	\$1,368
SE1 to SE2	2	6	\$225.00	3	\$1.60	3	\$4.50	\$1,368
SE1 to SE2	3	8	\$225.00	4	\$1.60	4	\$4.50	\$1,824
SE3 to SE4	4	2	\$225.00	2	\$1.60	2	\$4.50	\$462
SE3 to SE4	5	4	\$225.00	2	\$1.60	2	\$4.50	\$912
SE3 to SE4	6	3	\$225.00	2	\$1.60	2	\$4.50	\$687
<b>Project Total</b>								<b>\$6,623</b>

\*\$/Tree includes transportation cost of tree up to 0.5 miles.

**Road Maintenance after completion of Projects**

**Sale:** Deep Creek Thinning  
**Date:** 26-May-03  
**By:** J. Laughman

Green Mtn. Pit to Pt. 13 (4.53 miles), Military Pit to Green Mtn. Jct. (.78 miles), Cow Creek Stockpile to Pt. 11 (3.44 miles)  
 Total Miles = 8.75

Type	Equipment/Rationale			Hours	Rate	Cost
	Grader 14G			60	\$80	\$4,800
Final Haul	Dump Truck 12CY x 6			60	\$57	\$3,420
Road	FE Loader C966			10	\$48	\$480
Maintenance	Vibratory Roller			60	\$75	\$4,500
Haul Route	Water Truck 2,500 gallon			60	\$67	\$4,020
	Labor			10	\$25	\$250
<b>Total</b>						<b>\$17,470</b>

Production Rates  
 Grader  
 Vibratory Roller

Miles/day	Distance(miles)	Days
1.5	8.8	5.8
1.5	8.8	5.8

x:\Jewell Unit\timber sales\2003sales\deep creek\project\road maintenance after project work.xls

**TIMBER CRUISE REPORT  
DEEP CREEK THINNING  
FY 2003**

1. **Sale Area Location:** Areas 1 & 2 are located in portions of Sections 11, 12, 13, & 14 T5N, R6W, Clatsop County, Oregon.
2. **Fund Distribution:** BOF 100%  
Tax Code 8-01 (100%)
3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Existing R/W	New R/W	Stream Buffer	Net Acres	Survey Method	Closure
1	SDI 30 Thinning	190	3.0	0.0	15*	172	GIS	N/A
2	SDI 25 Thinning	388	5.0	8.0	46**	329	GIS	N/A
3	New Roads					8.0	L X W	N/A
<b>TOTALS</b>		<b>578</b>	<b>8</b>	<b>8</b>	<b>61</b>	<b>509</b>		

\* Area 1 stream buffers include 1 acre of non-thinnable hardwood types.

\*\* Area 2 stream buffers include 24 acres of non-thinnable hardwood types.

**4. Cruisers and Cruise Dates:** Areas 1 & 2 were cruised by Lanny Freeman, Alan Kelso, Jenny Laughman, Jon Long, Ty Williams, Dave Wolfgram, and Diana Ison in April 2003.

**5. Cruise Method and Computation:** AREA 1 is an "auto-mark" thinning unit (SDI 30), and was variable plot cruised using a 27.78 BAF. A total of 40 plots were sampled, with 14 measured and graded, and 26 count. These plots are located on a 11 chain by 4 chain grid. All "take" and "leave" trees were measured and graded. All species other than Douglas-fir are "leave" trees.

AREA 2 is an "auto-mark" thinning unit (SDI 25), and was variable plot cruised using a 27.78 BAF. A total of 51 plots were sampled, with 17 measured and graded, and 34 count. These plots are located on 6 different transects and each plot was 4 chains apart. All "take" and "leave" trees were measured and graded. All species other than Douglas-fir are "leave" trees.

AREA 3 R/W, in-sale Right-of-Way, volume was calculated by multiplying R/W acreage and the average volume per acre from the plots in Area 2.

All cruises used Corvallis MicroTechnology (CMT) data collectors, and were downloaded to the Atterbury Super A.C.E. program in District for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria district office.

<u>AREA</u>	<u>CRUISE</u>	<u>CRUISE TYPE</u>
1	RD 30 Auto-mark Thinning	5N 6W SEC 13 TRACT: A1 PC TYPE:TAKE
2	RD 30 Auto-mark Thinning	5N 6W SEC 13 TRACT: A2 PC TYPE:TAKE
3	In-Sale Right-of-way	5N 6W SEC 13 TRACT: A2 TYPE: RW

**6. Timber Description:** Areas 1 & 2 are "auto-mark" thinning units, the majority of the stand is 60 to 65 years old, consisting of dense Douglas-fir stands with alder patches. A minor portion of Area 1, 12 acres, consists of 25 year old Douglas-fir. The conifer in Area 1 will be thinned to an SDI of 30, with a target basal area of 140 ft<sup>2</sup>.

All hardwoods and conifer, other than Douglas-fir will not be harvested. Approximately 45 trees per acre and 11.2 MBF/acre (net) will be harvested from this stand. The average Douglas-fir "take" tree size is 17.1" DBH and 59 feet to a merchantable top (6" d.i.b.).

The conifer in Area 2 will be thinned to an SDI of 25, with a target basal area of 120 ft<sup>2</sup>. All hardwoods and conifer, other than Douglas-fir will not be harvested. Approximately 71 trees per acre and 19.1 MBF/acre (net) will be harvested from this stand. The average Douglas-fir "take" tree size is 17.5" DBH and 68 feet to a merchantable top (6" d.i.b.).

Area 3 R/W (In-sale R/W) is similar to the timber description mentioned above for Area 2. The average volume (net) is 39.7 MBF/acre.

**7. Statistical Analysis and Stand Summary:** (See "Statistics" - Type Reports, attached)

Statistics for total stand (Take and Leave trees combined) B.F. volumes

Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1	40%	7%	32.0%	5.1%
2	45%	7%	34.9%	4.9%

**8. Volumes by Species and Log Grade:** (See "Species, Sort, Grade - Type and Project Reports, attached, of individual sale areas and combined areas and five cruise types).

Volumes by Species and Grade for All Sale Areas: (MBF) Volumes do not include "in-growth."

Species	DBH	Net Vol.	2 Saw	3Saw	4 Saw	D & B	% Sale
Douglas-fir	18"	8,538	5,623	2,410	505	34	99
Hemlock	15"	10	4	5	1	<1	<1
Alder	15"	7		7	0	<1	<1
<b>TOTALS</b>		<b>8,555</b>					

**9. Approvals:**

Prepared by: Ty Williams

Date: April 04, 2003

Reviewed by: *Dan Goeh*

Date: 4/9/03

**10. Attachments:**

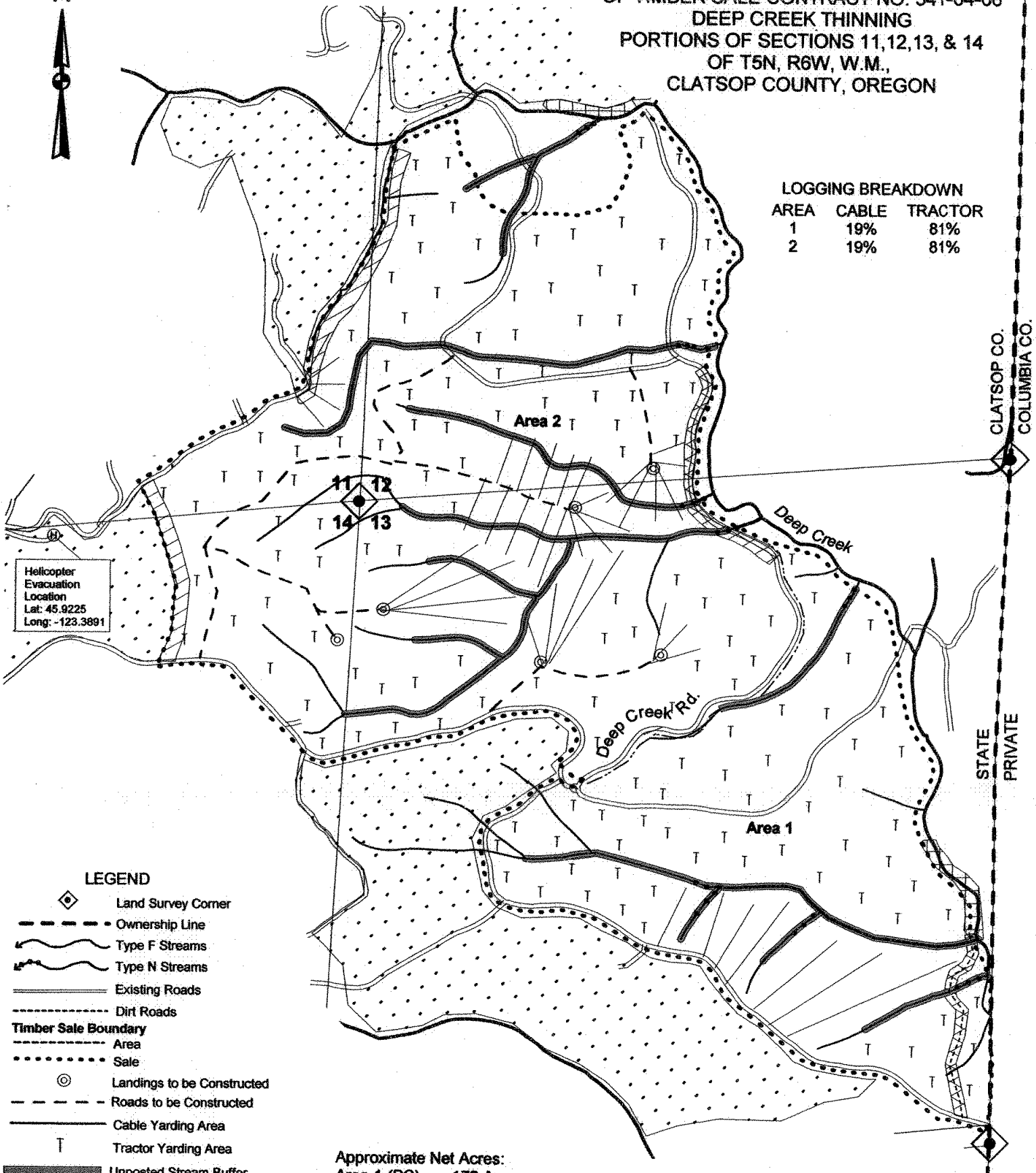
- Cruise Designs (2)
- Cruise Maps (2)
- Volume Reports - 4 pages
- Statistics Reports - 6 pages
- Stand Tables - 2 pages
- Log Stock Tables - 4 pages

LOGGING PLAN MAP  
 OF TIMBER SALE CONTRACT NO. 341-04-06  
 DEEP CREEK THINNING  
 PORTIONS OF SECTIONS 11, 12, 13, & 14  
 OF T5N, R6W, W.M.,  
 CLATSOP COUNTY, OREGON



LOGGING BREAKDOWN

AREA	CABLE	TRACTOR
1	19%	81%
2	19%	81%

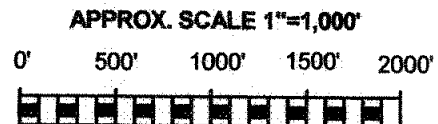


Helicopter  
 Evacuation  
 Location  
 Lat: 45.9225  
 Long: -123.3891

LEGEND

- Land Survey Corner
- Ownership Line
- Type F Streams
- Type N Streams
- Existing Roads
- Dirt Roads
- Timber Sale Boundary**
- Area
- Sale
- Landings to be Constructed
- Roads to be Constructed
- Cable Yarding Area
- Tractor Yarding Area
- Unposted Stream Buffer
- Road to be Vacated
- Controlled Felling Area
- Reforestation Area

Approximate Net Acres:  
 Area 1 (PC) - 172 Acres  
 Area 2 (PC) - 329 Acres  
 Area 3 (R/W) - 8 Acres  
 Total Acres = 509



CLATSOP CO.  
 COLUMBIA CO.  
 STATE  
 PRIVATE



046.

Revised August, 2002

### CRUISE DESIGN ASTORIA DISTRICT

Sale Name: DEEP CREEK THINNING Area(s) 2

Harvest Type: CC (PC) CT "Automark Thinning" (circle one)

Net BF or

(Net BF or

Approx. Cruise Acres: ~~334~~ 359 Estimated CV% 45 BA/Acre SE% Objective 7 BA/Acre

Planned Sale Volume: 2.43MMBF Estimated Sale Area Value/Acre: \$6600/AC  
Remove approx. 15mbf/ac

- A. **Cruise Goals:** (a) Grade minimum 50 conifer.  
 (b) Sample 53 cruise plots; (c) Other goals: Do not take plots within 25 ft. of streams or in large HWD. types

B. **Cruise Design:**

1. **Plot Cruises:** BAF 27.7 (Full point) Half point) (circle one)  
 Fixed Plot Size \_\_\_\_\_ Plot Radius \_\_\_\_\_ feet  
 Cruise Line Direction(s) Transects- see map  
 Cruise Line Spacing \_\_\_\_\_ (chains) (feet)  
 Cruise Plot Spacing \_\_\_\_\_ (chains) (feet)  
 Grade/Count Ratio 3:1
2. **Reserve species:** All species except Douglas-fir
3. **Leave trees:** BA(target)= 120/acre 4.3 leave trees/acre

C. **Tree Measurements:**

1. **Diameter:** Minimum DBH to cruise is 8 " for conifers and 10 " for hardwoods. Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
4. **Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
5. **Top Cruise Diameter (TCD):** Minimum top outside bark is 7 " or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh. *(8" for hardwoods)*
6. **Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

7. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.

6. **Species, Sort, and Grade Codes:** A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)

B. Sort: Use code "1" (Domestic).

C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull

7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at intervisible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

ITS and 100% Cruises: Mark cruise "strips" with various colored flagging (not pink). Mark trees measured and graded with yellow paint.

9. **Cruising Equipment:** Relaskop Rangefinder Logger's Tape (with dbh on back)  
Biltmore Stick      Compass      Cruise Cards in Tatum OR Data Recorder  
Cruise Design      Cruise Map      Yellow Flagging      Blue Flagging

10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

B. Data Recorder Instructions

C. Other

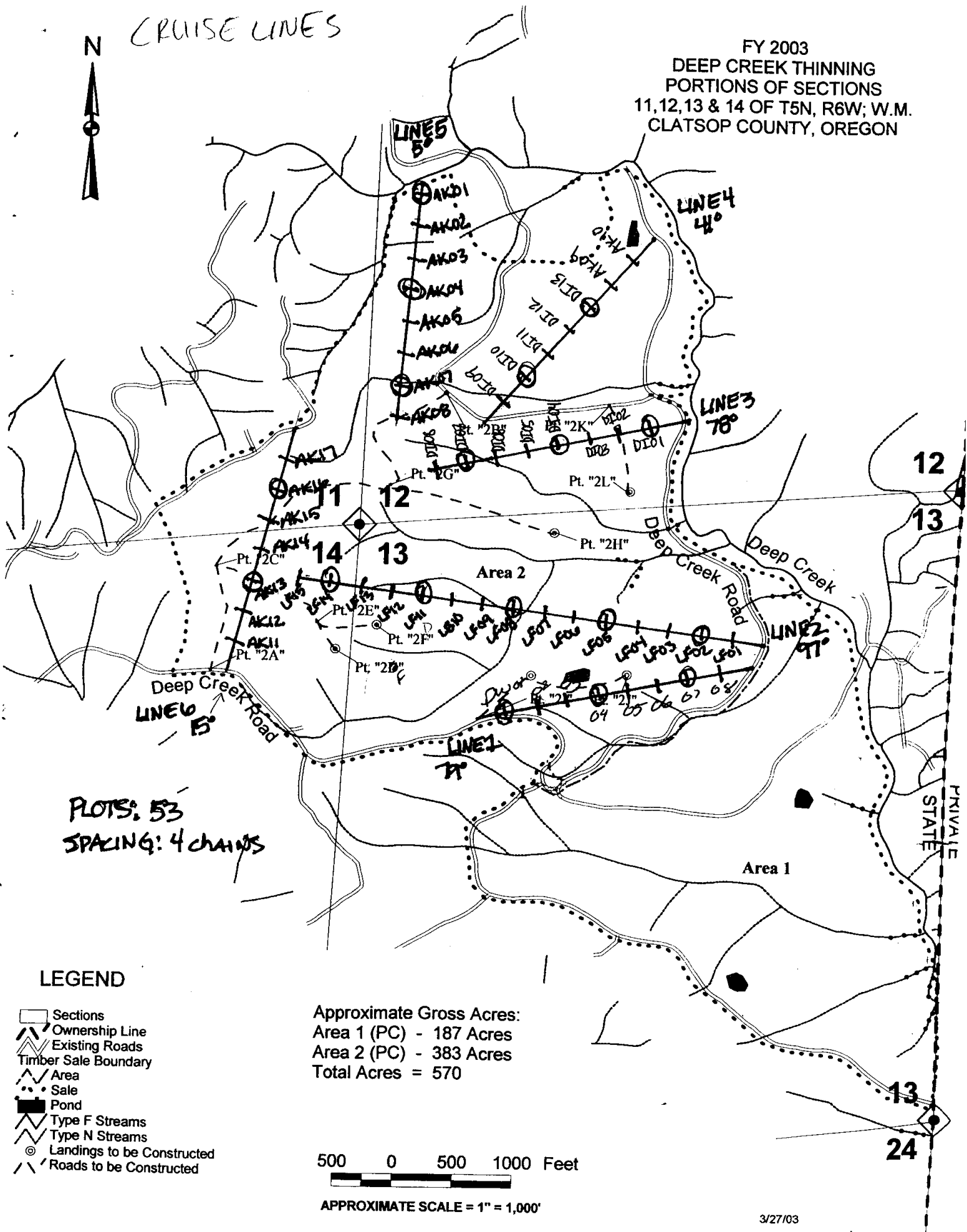
Cruise Design by: J. Laughman

Approved by: Don Gandy

Date: 3/31/2003

# CRUISE LINES

FY 2003  
DEEP CREEK THINNING  
PORTIONS OF SECTIONS  
11, 12, 13 & 14 OF T5N, R6W; W.M.  
CLATSOP COUNTY, OREGON



LOTS: 53  
SPACING: 4 CHAINS

## LEGEND

- Sections
- Ownership Line
- Existing Roads
- Timber Sale Boundary
- Area
- Sale
- Pond
- Type F Streams
- Type N Streams
- Landings to be Constructed
- Roads to be Constructed

Approximate Gross Acres:  
Area 1 (PC) - 187 Acres  
Area 2 (PC) - 383 Acres  
Total Acres = 570



APPROXIMATE SCALE = 1" = 1,000'

046.

Revised August, 2002

### CRUISE DESIGN ASTORIA DISTRICT

Sale Name: DEEP CREEK THINNING Area(s) 1

Harvest Type: CC (PC) CT "Automark Thinning" (circle one)

Net BF or

Approx. Cruise Acres: 186 Estimated CV% 40 BA/Acre SE% Objective 7 BA/Acre (Net BF or)

Planned Sale Volume: 2.43MMBF Estimated Sale Area Value/Acre: \$5720/AC  
Remove approx. 13mbf/ac

- A. **Cruise Goals:** (a) Grade minimum 50 conifer.  
 (b) Sample 44 cruise plots; (c) Other goals: Do not take plots within 25 ft. of streams or in large HWD. types

B. **Cruise Design:**

1. **Plot Cruises:** BAF 27.7 (Full point) Half point (circle one)

Fixed Plot Size \_\_\_\_\_ Plot Radius \_\_\_\_\_ feet

Cruise Line Direction(s) West-East

Cruise Line Spacing 11 (chains)

Cruise Plot Spacing 4 (chains)

Grade/Count Ratio 3:1

2. **Reserve species:** All species except Douglas-fir

3. **Leave trees:** BA(target)= 140/acre 5.0 leave trees/acre

C. **Tree Measurements:**

1. **Diameter:** Minimum DBH to cruise is 8 " for conifers and 10 " for hardwoods. Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.

4. **Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.

5. **Top Cruise Diameter (TCD):** Minimum top outside bark is 7 " or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh. *(8" for hardwoods)*

6. **Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

7. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.

6. **Species, Sort, and Grade Codes:** A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)  
B. Sort: Use code "1" (Domestic).  
C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull

7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

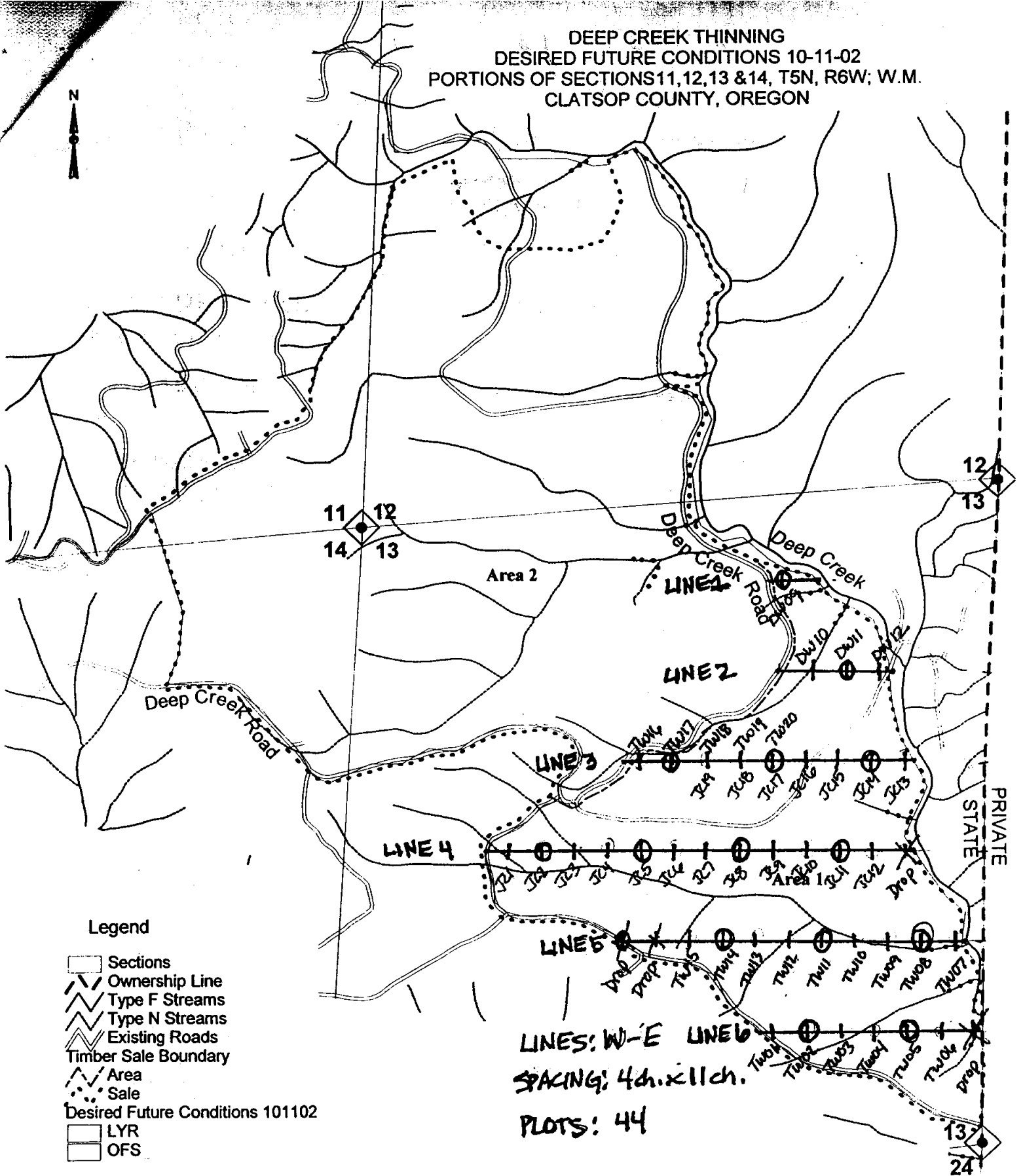
8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at intervisible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.  
ITS and 100% Cruises: Mark cruise "strips" with various colored flagging (not pink). Mark trees measured and graded with yellow paint.

9. **Cruising Equipment:** Relaskop Rangefinder Logger's Tape (with dbh on back)  
Biltmore Stick      Compass      Cruise Cards in Tatum OR Data Recorder  
Cruise Design      Cruise Map      Yellow Flagging      Blue Flagging

10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale).  
B. Data Recorder Instructions  
C. Other

Cruise Design by: J. Laughman  
Approved by: Dean Goody  
Date: 3/31/2003

DEEP CREEK THINNING  
 DESIRED FUTURE CONDITIONS 10-11-02  
 PORTIONS OF SECTIONS 11, 12, 13 & 14, T5N, R6W; W.M.  
 CLATSOP COUNTY, OREGON



Legend

- Sections
- Ownership Line
- Type F Streams
- Type N Streams
- Existing Roads
- Timber Sale Boundary
- Area Sale
- Desired Future Conditions 101102
- LYR
- OFS

LINES: W-E LINE 6  
 SPACING: 4ch. x 11ch.  
 PLOTS: 44

400 0 400 800 Feet

Approximate Scale = 1" = 1000'

**Species, Sort Grade - Board Foot Volumes (Project)**

T5N R6W S13 TyTAKE	172.00
T5N R6W S13 TyRW	8.00
T5N R6W S13 TyTAKE	329.00

**Project: DEEPC**  
**Acres 509.00**

**Page 1**  
**Date 4/7/2003**  
**Time 11:47:55AM**

S Spp	So T	Gr rt ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log			Logs Per /Acre		
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf			
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99						
D	?	?																			
D	?	2S	66	.5	11,101	11,046	5,623		1	62	37		3	4	48	45	5	34	281	0.00	5.6
D	?	3S	28	.3	4,747	4,735	2,410		93	7	0		4	6	67	22	33	85	1.84	39.3	
D	?	4S	6		992	992	505		100				43	51	6		20	27	0.74	56.0	
<b>D Totals</b>			100	.4	16,841	16,774	8,538		33	43	24		6	8	51	36	28	122	1.05	137.5	
H	?	2S	0		9	9	4			100				14	86		30	230	1.75	.0	
H	?	3S	0		10	10	5		100					10	75	15	32	77	0.69	.1	
H	?	4S	0		1	1	1		100			35	65				21	26	0.50	.0	
<b>H Totals</b>			0		20	20	10		56	44			2	16	75	7	29	92	0.85	.2	
A	?	3S	0		14	14	7		80	20				20	80		33	68	0.79	.2	
A	?	4S	0		1	1	0		100			100					19	30	0.68	.0	
<b>A Totals</b>			0		15	15	7		81	19			4	19	77		32	65	0.78	.2	
<b>Totals</b>				0.4	16,876	16,808	8,555		33	43	24		6	8	51	36	28	122	1.05	137.9	

T5N R6W S13 TTAKE										T5N R6W S13 TTAKE		
Twp	Rge	Sec	Tract	Type	Acre	Plots	Sample Trees	CuFt	BdFt			
5N	6W	13	AREA 1	TAKE	172.00	40	34	1	W			

S Spp	So T	Gr rt	ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
									Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf		
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
D	?	?																			
D	?	2S		70	.3	7,861	7,835	1,348	4	61	35	6	5	54	35	32	256	1.77			30.6
D	?	3S		21	.2	2,403	2,398	412	75	25		8	11	81		30	94	0.88			25.4
D	?	4S		9		1,014	1,014	174	100			31	69			20	26	0.44			39.2
<b>D Totals</b>				100	.3	11,278	11,247	1,934	28	48	25	8	12	55	24	26	113	1.08			99.2
<b>Type Totals</b>					.3	11,278	11,247	1,934	28	48	25	8	12	55	24	26	113	1.08			99.2



T5N R6W S13 TTAKE										T5N R6W S13 TTAKE		
Twp	Rge	Sec	Tract	Type	Acre	Plots	Sample Trees	CuFt	BdFt			
5N	6W	13	AREA 2	TAKE	329.00	51	67	1	W			

S Spp	So T	Gr rt	ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
									Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf		
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
D	?	?																			
D	?	2S		64	.6	12,358	12,290	4,043	1	63	36	2	4	46	48	34	288	1.86			6.3
D	?	3S		31	.3	5,905	5,890	1,938	96	4		4	5	64	27	33	83	0.71			42.7
D	?	4S		5		979	979	322	100			48	42	9		20	28	0.44			71.2
<b>D Totals</b>				100	.4	19,242	19,159	6,303	35	42	23	5	6	50	39	29	123	1.03			35.3
<b>Type Totals</b>					.4	19,242	19,159	6,303	35	42	23	5	6	50	39	29	123	1.03			155.5

**Species, Sort Grade - Board Foot Volumes (Type)**

Project: DEEPC

T5N R6W S13 TRW

T5N R6W S13 TRW

Twp Rge Sec Tract Type Acre Plots Sample Trees CuFt  
5N 6W 13 AREA 2 RW 8.00 41 144 1

BdFt  
W

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
D	?	?														4		0.00		7.1
D	?	2S		77	.5	29,100	28,963	232	0	45	55	2	2	49	48	35	341	2.09		85.0
D	?	3S		20	.5	7,524	7,483	60	92	5	2	4	9	68	19	32	86	0.76		86.6
D	?	4S		3		1,088	1,088	9	100			58	35	7		20	28	0.47		38.4
<b>D</b>	<b>Totals</b>			94	.5	37,712	37,534	300	22	36	43	4	4	51	41	30	173	1.33		217.0
A	?	3S		96		896	896	7	80	20			20	80		33	68	0.79		13.2
A	?	4S		4		36	36	0	100			100				19	30	0.68		1.2
<b>A</b>	<b>Totals</b>			2		932	932	7	81	19		4	19	77		32	65	0.78		14.4
H	?	2S		44		550	550	4		100			14	86		30	230	1.75		2.4
H	?	3S		50		631	631	5	100				10	75	15	32	77	0.69		8.2
H	?	4S		6		81	81	1	100			35	65			21	26	0.50		3.2
<b>H</b>	<b>Totals</b>			3		1,262	1,262	10	56	44		2	16	75	7	29	92	0.85		13.7
<b>Type</b>	<b>Totals</b>				.4	39,906	39,728	318	24	36	40	4	5	52	39	30	162	1.27		245.1

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT DEEPC		DATE 4/7/2003				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
5N	6W	13	AREA 1	A1	172.00	40	304	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	40	304	7.6							
CRUISE	14	104	7.4	17,241	.6					
DBH COUNT										
REFOREST										
COUNT	26	200	7.7							
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUGLEAV	68	48.8	22.1	73		129.5	25,052	24,949	5,570	5,570
DOUG FIR	34	45.4	17.1	59		72.7	11,278	11,247	2,758	2,758
ALDRLEAV	1	2.3	15.0	35		2.8	158	158	56	56
HEMLEAV	1	3.8	10.0	30		2.1	152	152	42	42
<b>TOTAL</b>	<b>104</b>	<b>100.2</b>	<b>19.5</b>	<b>64</b>		<b>207.1</b>	<b>36,640</b>	<b>36,506</b>	<b>8,426</b>	<b>8,426</b>
SD: 1	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	12		
DOUGLEAV	105.2	10.3	481	536	591					
DOUG FIR	179.6	17.6	109	133	156					
ALDRLEAV	1019.8	100.0		1	1					
HEMLEAV	1019.8	100.0		0	1					
<b>TOTAL</b>	<b>71.6</b>	<b>7.0</b>	<b>623</b>	<b>670</b>	<b>717</b>	<b>205</b>	<b>105</b>	<b>36</b>		
SD: 1	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	12		
DOUGLEAV	59.2	9.4	44	49	53					
DOUG FIR	93.7	14.8	39	45	52					
ALDRLEAV	303.8	48.0	1	2	3					
HEMLEAV	355.7	56.2	2	4	6					
<b>TOTAL</b>	<b>60.4</b>	<b>9.5</b>	<b>91</b>	<b>100</b>	<b>110</b>	<b>146</b>	<b>74</b>	<b>25</b>		
SD: 1	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	12		
DOUGLEAV	14.8	2.3	126	129	133					
DOUG FIR	81.7	12.9	63	73	82					
ALDRLEAV	303.8	48.0	1	3	4					
HEMLEAV	355.7	56.2	1	2	3					
<b>TOTAL</b>	<b>28.9</b>	<b>4.6</b>	<b>198</b>	<b>207</b>	<b>217</b>	<b>33</b>	<b>17</b>	<b>6</b>		
SD: 1	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	12		
DOUGLEAV	21.2	3.4	24,112	24,949	25,786					
DOUG FIR	86.8	13.7	9,704	11,247	12,789					
ALDRLEAV	303.8	48.0	82	158	234					
HEMLEAV	355.7	56.2	67	152	238					
<b>TOTAL</b>	<b>32.0</b>	<b>5.1</b>	<b>34,660</b>	<b>36,506</b>	<b>38,352</b>	<b>41</b>	<b>21</b>	<b>7</b>		

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	DEEPC		DATE 4/7/2003			
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
5N	6W	13	AREA 1	LEAV	172.00	40	199	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		40	199	5.0						
CRUISE		14	70	5.0	9,437	.7				
DBH COUNT REFOREST COUNT		26	129	5.0						
BLANKS 100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUGLEAV	68	48.8	22.1	73		129.5	25,052	24,949	5,570	5,570
ALDRLEAV	1	2.3	15.0	35		2.8	158	158	56	56
HEMLEAV	1	3.8	10.0	30		2.1	152	152	42	42
<b>TOTAL</b>	<b>70</b>	<b>54.9</b>	<b>21.2</b>	<b>68</b>		<b>134.3</b>	<b>25,362</b>	<b>25,259</b>	<b>5,669</b>	<b>5,669</b>
	COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	7	12	
DOUGLEAV	64.6	7.7	735	797	858					
ALDRLEAV	836.7	100.0		1	2					
HEMLEAV	836.7	100.0		1	1					
<b>TOTAL</b>	<b>64.1</b>	<b>7.7</b>	<b>737</b>	<b>798</b>	<b>859</b>		<b>165</b>	<b>84</b>	<b>29</b>	
	COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	7	12	
DOUGLEAV	59.2	9.4	44	49	53					
ALDRLEAV	303.8	48.0	1	2	3					
HEMLEAV	355.7	56.2	2	4	6					
<b>TOTAL</b>	<b>55.6</b>	<b>8.8</b>	<b>50</b>	<b>55</b>	<b>60</b>		<b>124</b>	<b>63</b>	<b>21</b>	
	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	7	12	
DOUGLEAV	14.8	2.3	126	129	133					
ALDRLEAV	303.8	48.0	1	3	4					
HEMLEAV	355.7	56.2	1	2	3					
<b>TOTAL</b>	<b>12.8</b>	<b>2.0</b>	<b>132</b>	<b>134</b>	<b>137</b>		<b>7</b>	<b>3</b>	<b>1</b>	
	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	7	12	
DOUGLEAV	21.2	3.4	24,112	24,949	25,786					
ALDRLEAV	303.8	48.0	82	158	234					
HEMLEAV	355.7	56.2	67	152	238					
<b>TOTAL</b>	<b>20.4</b>	<b>3.2</b>	<b>24,444</b>	<b>25,259</b>	<b>26,074</b>		<b>17</b>	<b>9</b>	<b>3</b>	

TC TSTATS				STATISTICS				PAGE 1		
PROJECT DEEPC				DATE 4/7/2003						
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
5N	6W	13	AREA 1	TAKE	172.00	40	105	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		40	105	2.6						
CRUISE		13	34	2.6	7,804	.4				
DBH COUNT										
REFOREST										
COUNT		23	71	3.1						
BLANKS		4								
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	34	45.4	17.1	59		72.7	11,278	11,247	2,758	2,758
<b>TOTAL</b>	<b>34</b>	<b>45.4</b>	<b>17.1</b>	<b>59</b>		<b>72.7</b>	<b>11,278</b>	<b>11,247</b>	<b>2,758</b>	<b>2,758</b>
	COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	7	12	
DOUG FIR	61.8	10.6	362	405	448					
<b>TOTAL</b>	<b>61.8</b>	<b>10.6</b>	<b>362</b>	<b>405</b>	<b>448</b>		<b>153</b>	<b>78</b>	<b>27</b>	
	COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	7	12	
DOUG FIR	93.7	14.8	39	45	52					
<b>TOTAL</b>	<b>93.7</b>	<b>14.8</b>	<b>39</b>	<b>45</b>	<b>52</b>		<b>351</b>	<b>179</b>	<b>61</b>	
	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	7	12	
DOUG FIR	81.7	12.9	63	73	82					
<b>TOTAL</b>	<b>81.7</b>	<b>12.9</b>	<b>63</b>	<b>73</b>	<b>82</b>		<b>267</b>	<b>136</b>	<b>46</b>	
	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	7	12	
DOUG FIR	86.8	13.7	9,704	11,247	12,789					
<b>TOTAL</b>	<b>86.8</b>	<b>13.7</b>	<b>9,704</b>	<b>11,247</b>	<b>12,789</b>		<b>301</b>	<b>154</b>	<b>52</b>	

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
5N	6W	13	AREA 2	A2	329.00	51	449	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	51	449	8.8		
CRUISE	17	144	8.5	38,964	.4
DBH COUNT					
REFOREST					
COUNT	34	303	8.9		
BLANKS					
100 %					

**STAND SUMMARY**

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	67	70.9	17.5	67		118.2	19,242	19,159	4,719	4,719
DOUGLEAV	59	26.9	25.7	99		97.0	21,476	21,363	4,692	4,692
ALDRLEAV	8	11.0	15.3	36		14.2	779	779	297	297
HEMLEAV	10	9.6	14.8	48		11.4	1,408	1,408	379	379
<b>TOTAL</b>	<b>144</b>	<b>118.4</b>	<b>19.3</b>	<b>70</b>		<b>240.8</b>	<b>42,905</b>	<b>42,709</b>	<b>10,086</b>	<b>10,086</b>

SD:	COEFF VAR.%	S.E.%	SAMPLE TREES - BF			# OF TREES REQ.	INF. POP.	
1			LOW	AVG	HIGH	5	7	12
DOUG FIR	151.2	12.6	169	193	217			
DOUGLEAV	132.3	11.0	323	363	404			
ALDRLEAV	472.0	39.3	3	4	6			
HEMLEAV	465.7	38.8	9	15	21			
<b>TOTAL</b>	<b>69.2</b>	<b>5.8</b>	<b>542</b>	<b>575</b>	<b>609</b>	<b>192</b>	<b>98</b>	<b>33</b>

SD:	COEFF VAR.%	S.E.%	TREES/ACRE			# OF PLOTS REQ.	INF. POP.	
1			LOW	AVG	HIGH	5	7	12
DOUG FIR	66.0	9.2	64	71	77			
DOUGLEAV	36.1	5.0	26	27	28			
ALDRLEAV	299.6	42.0	6	11	16			
HEMLEAV	203.5	28.5	7	10	12			
<b>TOTAL</b>	<b>47.5</b>	<b>6.7</b>	<b>111</b>	<b>118</b>	<b>126</b>	<b>90</b>	<b>46</b>	<b>16</b>

SD:	COEFF VAR.%	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.	INF. POP.	
1			LOW	AVG	HIGH	5	7	12
DOUG FIR	60.2	8.4	108	118	128			
DOUGLEAV	31.1	4.3	93	97	101			
ALDRLEAV	299.7	42.0	8	14	20			
HEMLEAV	195.4	27.4	8	11	15			
<b>TOTAL</b>	<b>34.7</b>	<b>4.9</b>	<b>229</b>	<b>241</b>	<b>252</b>	<b>48</b>	<b>25</b>	<b>8</b>

SD:	COEFF VAR.%	S.E.%	NET BF/ACRE			# OF PLOTS REQ.	INF. POP.	
1			LOW	AVG	HIGH	5	7	12
DOUG FIR	64.4	9.0	17,432	19,159	20,886			
DOUGLEAV	32.6	4.6	20,387	21,363	22,339			
ALDRLEAV	302.0	42.3	450	779	1,108			
HEMLEAV	207.4	29.0	999	1,408	1,816			
<b>TOTAL</b>	<b>34.9</b>	<b>4.9</b>	<b>40,623</b>	<b>42,709</b>	<b>44,794</b>	<b>49</b>	<b>25</b>	<b>8</b>

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT DEEPC		DATE 4/7/2003				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
5N	6W	13	AREA 2	LEAV	329.00	51	232	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	51	232	4.5							
CRUISE	17	77	4.5	15,646			.5			
DBH COUNT										
REFOREST										
COUNT	34	153	4.5							
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUGLEAV	59	26.9	25.7	99		97.0	21,476	21,363	4,692	4,692
ALDRLEAV	8	11.0	15.3	36		14.2	779	779	297	297
HEMLEAV	10	9.6	14.8	48		11.4	1,408	1,408	379	379
<b>TOTAL</b>	<b>77</b>	<b>47.6</b>	<b>21.7</b>	<b>74</b>		<b>122.6</b>	<b>23,663</b>	<b>23,550</b>	<b>5,367</b>	<b>5,367</b>
	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	7	12	
DOUGLEAV	68.6	7.8	627	680	733					
ALDRLEAV	339.3	38.7	5	8	11					
HEMLEAV	334.6	38.1	17	28	39					
<b>TOTAL</b>	<b>58.8</b>	<b>6.7</b>	<b>668</b>	<b>716</b>	<b>764</b>		<b>138</b>	<b>71</b>	<b>24</b>	
	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	7	12	
DOUGLEAV	36.1	5.0	26	27	28					
ALDRLEAV	299.6	42.0	6	11	16					
HEMLEAV	203.5	28.5	7	10	12					
<b>TOTAL</b>	<b>66.2</b>	<b>9.3</b>	<b>43</b>	<b>48</b>	<b>52</b>		<b>175</b>	<b>89</b>	<b>30</b>	
	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	7	12	
DOUGLEAV	31.1	4.3	93	97	101					
ALDRLEAV	299.7	42.0	8	14	20					
HEMLEAV	195.4	27.4	8	11	15					
<b>TOTAL</b>	<b>26.1</b>	<b>3.7</b>	<b>118</b>	<b>123</b>	<b>127</b>		<b>27</b>	<b>14</b>	<b>5</b>	
	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	7	12	
DOUGLEAV	32.6	4.6	20,387	21,363	22,339					
ALDRLEAV	302.0	42.3	450	779	1,108					
HEMLEAV	207.4	29.0	999	1,408	1,816					
<b>TOTAL</b>	<b>19.9</b>	<b>2.8</b>	<b>22,892</b>	<b>23,550</b>	<b>24,208</b>		<b>16</b>	<b>8</b>	<b>3</b>	

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
5N	6W	13	AREA 2	TAKE	329.00	51	217	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	51	217	4.3		
CRUISE DBH COUNT REFOREST COUNT	15	67	4.5	23,319	.3
BLANKS 100 %	30	150	5.0		
	6				

STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	67	70.9	17.5	67		118.2	19,242	19,159	4,719	4,719
<b>TOTAL</b>	<b>67</b>	<b>70.9</b>	<b>17.5</b>	<b>67</b>		<b>118.2</b>	<b>19,242</b>	<b>19,159</b>	<b>4,719</b>	<b>4,719</b>

SD:	1	COEFF		SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.
		VAR.%	S.E.%	LOW	AVG	HIGH	5	7	
DOUG FIR		72.8	8.9	378	414	451			
<b>TOTAL</b>		<b>72.8</b>	<b>8.9</b>	<b>378</b>	<b>414</b>	<b>451</b>	<b>212</b>	<b>108</b>	<b>37</b>

SD:	1	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.
		VAR.%	S.E.%	LOW	AVG	HIGH	5	7	
DOUG FIR		66.0	9.2	64	71	77			
<b>TOTAL</b>		<b>66.0</b>	<b>9.2</b>	<b>64</b>	<b>71</b>	<b>77</b>	<b>174</b>	<b>89</b>	<b>30</b>

SD:	1	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.
		VAR.%	S.E.%	LOW	AVG	HIGH	5	7	
DOUG FIR		60.2	8.4	108	118	128			
<b>TOTAL</b>		<b>60.2</b>	<b>8.4</b>	<b>108</b>	<b>118</b>	<b>128</b>	<b>145</b>	<b>74</b>	<b>25</b>

SD:	1	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
		VAR.%	S.E.%	LOW	AVG	HIGH	5	7	
DOUG FIR		64.4	9.0	17,432	19,159	20,886			
<b>TOTAL</b>		<b>64.4</b>	<b>9.0</b>	<b>17,432</b>	<b>19,159</b>	<b>20,886</b>	<b>166</b>	<b>85</b>	<b>29</b>



**Stand Table Summary**

Project DEEPC

T5N R6W S13 TLEAV

T5N R6W S13 TLEAV

Twp Rge Sec Tract  
5N 6W 13 AREA 1

Type  
LEAV

Acres  
172.00

Plots  
40

Sample Trees  
70

Page: 1  
Date: 4/7/2003  
Time: 11:53:03AM

Spc	T	DBH	Sample Trees	FF 16'	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
									Net Cu.Ft.	Net Bd.Ft.			Tons	Cunits	MBF
DL		11	4	83	47	12.105	7.62	12.11	11.5	34.8	139	421		239	72
DL		13	1	82	49	2.235	1.90	2.23	16.0	40.0	36	89		61	15
DL		14	1	82	57	1.781	1.90	3.56	12.5	45.0	45	160		77	28
DL		16	1	85	132	1.364	1.90	4.09	22.7	86.7	93	355		160	61
DL		17	1	81	126	1.208	1.90	3.62	23.0	83.3	83	302		143	52
DL		18	2	85	101	2.155	3.81	6.47	23.0	85.0	149	550		256	95
DL		19	1	85	104	.967	1.90	1.93	39.0	140.0	75	271		130	47
DL		20	1	85	131	.873	1.90	1.75	56.5	255.0	99	445		170	77
DL		21	1	86	81	.792	1.90	1.58	39.5	140.0	63	222		108	38
DL		22	4	87	120	2.886	7.62	8.66	40.7	179.2	353	1,551		607	267
DL		23	1	89	117	.660	1.90	1.32	54.0	210.0	71	277		123	48
DL		24	4	87	116	2.425	7.62	7.27	45.2	197.5	329	1,437		565	247
DL		25	4	87	107	2.235	7.62	5.03	62.1	273.3	312	1,374		537	236
DL		26	10	86	120	5.165	19.04	16.53	51.4	230.6	850	3,812		1,462	656
DL		27	1	87	131	.479	1.90	1.92	49.8	250.0	95	479		164	82
DL		28	10	86	125	4.454	19.04	14.70	61.0	279.1	897	4,102		1,542	706
DL		30	7	86	127	2.716	13.33	8.15	77.6	364.3	632	2,968		1,088	510
DL		31	4	85	114	1.453	7.62	4.36	74.1	328.3	323	1,432		556	246
DL		33	3	86	135	.962	5.71	3.53	80.5	397.3	284	1,401		489	241
DL		34	2	84	140	.604	3.81	2.11	92.4	445.7	195	942		336	162
DL		35	1	86	132	.285	1.90	1.14	62.5	340.0	71	388		123	67
DL		36	1	84	132	.269	1.90	.81	110.3	543.3	89	439		153	76
DL		38	3	86	132	.725	5.71	2.18	132.1	704.4	288	1,533		495	264
DL		Totals	68	85	96	48.798	129.50	115.04	48.4	216.9	5,570	24,949		9,581	4,291
AL		15	1	87	47	2.257	2.77	2.26	25.0	70.0	56	158		97	27
AL		Totals	1	87	47	2.257	2.77	2.26	25.0	70.0	56	158		97	27
HL		10	1	87	52	3.809	2.08	3.81	11.0	40.0	42	152		72	26
HL		Totals	1	87	52	3.809	2.08	3.81	11.0	40.0	42	152		72	26
Totals			70	85	91	54.864	134.35	121.11	46.8	208.6	5669	25,259		9,750	4,345

**Stand Table Summary**

Project DEEPC

T5N R6W S13 TLEAV

T5N R6W S13 TLEAV

Twp Rge Sec Tract  
5N 6W 13 AREA 2

Type  
LEAV

Acres  
329.00

Plots  
51

Sample Trees  
79

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S Spc	T	Sample			Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Cu.Ft.	Net Bd.Ft.	Totals		
		DBH	Trees	16'					Net Cu.Ft.	Net Bd.Ft.			Tons Acre	Cunits	MBF
DL	16	1	89	124	1.177	1.64	3.53	22.7	93.3	80	330		263	108	
DL	18	2	90	108	1.860	3.29	4.65	30.8	126.0	143	586		471	193	
DL	21	3	88	122	2.050	4.93	6.15	37.8	164.4	232	1,011		764	333	
DL	22	1	88	133	.623	1.64	1.87	45.0	193.3	84	361		276	119	
DL	23	5	88	132	2.848	8.22	10.25	40.6	184.4	416	1,891		1,370	622	
DL	24	2	87	133	1.046	3.29	3.14	51.5	218.3	162	685		532	225	
DL	25	8	88	125	3.857	13.15	12.05	52.4	232.4	631	2,801		2,076	921	
DL	26	8	88	133	3.566	13.15	10.70	61.5	273.8	657	2,928		2,163	963	
DL	27	5	87	129	2.067	8.22	6.20	64.6	286.0	400	1,773		1,318	583	
DL	28	7	87	133	2.690	11.50	8.45	68.4	320.5	578	2,709		1,902	891	
DL	29	2	87	137	.717	3.29	2.15	79.0	365.0	170	785		559	258	
DL	30	5	88	126	1.674	8.22	4.69	83.0	402.1	389	1,885		1,280	620	
DL	31	3	87	129	.941	4.93	2.82	85.2	400.0	240	1,129		791	371	
DL	33	2	87	115	.553	3.29	1.66	82.3	381.7	137	634		450	208	
DL	34	3	87	109	.782	4.93	2.35	88.0	438.9	206	1,030		679	339	
DL	35	2	87	133	.492	3.29	1.48	111.7	560.0	165	826		542	272	
DL	Totals	59	88	127	26.940	96.96	82.13	57.1	260.1	4,692	21,363		15,436	7,029	
HL	11	2	80	68	3.636	2.29	3.64	17.8	54.8	65	199		213	66	
HL	12	1	77	35	1.456	1.14	1.46	13.0	30.0	19	44		62	14	
HL	15	1	88	113	.932	1.14	2.80	19.3	76.7	54	214		178	71	
HL	16	1	89	23	.873	1.14	.87	16.0	30.0	14	26		46	9	
HL	18	2	88	110	1.295	2.29	3.88	27.3	111.7	106	434		349	143	
HL	20	1	81	60	.524	1.14	1.05	29.5	100.0	31	105		102	35	
HL	22	2	86	98	.867	2.29	1.73	51.8	222.5	90	386		295	127	
HL	Totals	10	83	71	9.583	11.44	15.43	24.5	91.2	379	1,408		1,245	463	
AL	14	2	87	48	3.312	3.54	3.31	21.5	60.0	71	199		234	65	
AL	15	3	86	46	4.328	5.31	4.33	24.3	56.7	105	245		346	81	
AL	16	1	86	47	1.268	1.77	1.27	28.0	60.0	36	76		117	25	
AL	17	1	86	47	1.123	1.77	1.12	32.0	70.0	36	79		118	26	
AL	18	1	86	57	1.002	1.77	2.00	24.5	90.0	49	180		161	59	
AL	Totals	8	86	48	11.032	14.16	12.03	24.7	64.7	297	779		977	256	
Totals		77	86	97	47.556	122.56	109.59	49.0	214.9	5367	23,550		17,659	7,748	

**Log Stock Table - MBF**  
**Project: DEEPC**

T5N R6W S13 TTAKE

T5N R6W S13 TTAKE

Twp Rge Sec Tract Type Acres Plots Sample Trees Page  
 5N 6W 13 AREA 1 TAKE 172.00 40 34 Date 4/7/2003  
 Time 11:51:58AM

S Spp	So T	Gr rt	Log de Len	Gross MBF	% Def	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches												
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+	
D	?	?	2																	
D	?	?	6																	
D	DO	CU	10																	
D	?	?	16																	
D	?	2S	12	23		23	1.2										23			
D	DO	2S	18	27		27	1.4							27						
D	DO	2S	20	26		26	1.4													
D	?	2S	24	74		74	3.8													
D	?	2S	32	697	.6	692	35.8				17									
D	DO	2S	34	39		39	2.0					37	136		229	177		97		
D	?	2S	40	467		467	24.1								162	199	106			
D	DO	3S	15	10		10	.5						10							
D	DO	3S	16	11		11	.6						11							
D	DO	3S	20	10		10	.5							10						
D	?	3S	23	10		10	.5				5	5								
D	DO	3S	24	20		20	1.0								20					
D	?	3S	28	11		11	.6				6	5								
D	?	3S	30	6		6	.3					6								
D	?	3S	32	335	.3	334	17.3				26	129		107	54		19			
D	?	4S	8	1		1	.1					1								
D	?	4S	10	5		5	.3				5									
D	?	4S	12	2		2	.1				2									
D	?	4S	13	3		3	.2				3									
D	?	4S	15	13		13	.6				13									
D	?	4S	16	21		21	1.1				21									
D	?	4S	20	10		10	.5				10									
D	?	4S	21	25		25	1.3				15		10							
D	?	4S	23	14		14	.7				10	4								
D	?	4S	24	55		55	2.8				55									
D	?	4S	26	10		10	.5				10									
D	?	4S	27	8		8	.4				8									
D	DO	4S	28	8		8	.4				8									
D	Totals			1,940		1,934	100.0				196	167		174	446		474	357		119
Total All Species				1,940		1,934	100.0				196	167		174	446		474	357		119

**Log Stock Table - MBF**  
Project: DEEPC

T5N R6W S13 TTAKE

T5N R6W S13 TTAKE

Twp 5N Rge 6W Sec 13 Tract AREA 2 Type TAKE Acres 329.00 Plots 51 Sample Trees 67 Page 1 Date 4/7/2003 Time 11:51:58AM

Spp	T	S	So	Gr	Log	Gross MBF	% Def	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches									
										2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29
D		?	?																
D		?	?		2														
D		?	?		3														
D		?	?		4														
D		?	?		16														
D		?	2S		20	76		76	1.2				44			31			
D		?	2S		24	45		45	.7				20	25					
D		?	2S		28	66	4.8	63	1.0						63				
D		?	2S		30	56		56	.9					56					
D		?	2S		32	1,855	.2	1,850	29.4			28	469	477	794	82			
D		?	2S		40	1,968	.8	1,953	31.0				545	358	685	365			
D		?	3S		18	31		31	.5				31						
D		?	3S		19	7		7	.1										
D		?	3S		20	35		35	.6				35						
D		?	3S		24	18		18	.3				18						
D		?	3S		25	8		8	.1										
D		?	3S		26	9		9	.1										
D		?	3S		27	18		18	.3										
D		?	3S		28	9		9	.1			9							
D		?	3S		29	9		9	.1										
D		?	3S		30	31		31	.5			22	9						
D		?	3S		31	42		42	.7			22	20						
D		?	3S		32	1,175		1,175	18.6			160	474	511	30				
D		?	3S		33	26		26	.4			26							
D		?	3S		36	33		33	.5			33							
D		?	3S		38	33		33	.5			33							
D		?	3S		40	459	1.1	454	7.2			245		169	40				
D		?	4S		11	4		4	.1			4							
D		?	4S		15	6		6	.1			6							
D		?	4S		16	126		126	2.0			126							
D		?	4S		18	5		5	.1				5						
D		?	4S		20	15		15	.2			15							
D		?	4S		21	17		17	.3			10	7						
D		?	4S		22	18		18	.3			18							
D		?	4S		23	26		26	.4			26							
D		?	4S		24	20		20	.3			13	6						
D		?	4S		26	9		9	.1			9							
D		?	4S		27	39		39	.6			39							
D		?	4S		28	9		9	.1			9							
D		?	4S		31	30		30	.5			30							
D			Totals			6,331		6,303	100.0			853	572	792	1109	957	1573	447	
			Total All Species			6,331		6,303	100.0			853	572	792	1109	957	1573	447	

**Log Stock Table - MBF**  
Project: DEEPC

T5N R6W S13 TRW

T5N R6W S13 TRW

Twp 5N Rge 6W Sec 13 Tract AREA 2 Type RW Acres 8.00 Plots 41 Sample Trees 144 Page 1 Date 4/7/2003 Time 11:51:58AM

S SppT	So rt	Gr de	Log Len	Gross MBF	% Def	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches									
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29
D	?	?															
D	?	?	2														
D	?	?	3														
D	?	?	4														
D	?	?	6														
D	?	?	7														
D	?	?	8														
D	?	?	16														
D	?	2S	20	4		4	1.3					1				2	
D	?	2S	24	1		1	.3					0	1				
D	?	2S	26	1		1	.3							1			
D	?	2S	28	1	4.8	1	.4							1			
D	?	2S	30	2		2	.5					0	1				
D	?	2S	32	113	.5	112	37.5				1	22	25	42	17		5
D	?	2S	36	2		2	.5								2		
D	?	2S	40	109	.4	109	36.3					17	18	45	25		4
D	?	3S															
D	?	3S	15	0		0	.1				0						
D	?	3S	16	0		0	.1				0						
D	?	3S	17	0		0	.0				0						
D	?	3S	18	1		1	.2				1						
D	?	3S	19	0		0	.1			0	0						
D	?	3S	20	1		1	.4				0						
D	?	3S	22	1		1	.2			0	0						
D	?	3S	23	0		0	.1			0	0						
D	?	3S	24	0		0	.1				0						
D	?	3S	25	0		0	.2				0						
D	?	3S	26	0		0	.1				0						
D	?	3S	27	1		1	.2				0						
D	?	3S	28	1		1	.2				1						
D	?	3S	29	1		1	.3			0	1						
D	?	3S	30	1		1	.4			0	1						
D	?	3S	31	1		1	.4			0	1						
D	?	3S	32	38	.3	38	12.7			6	11	19	1		1		
D	?	3S	33	1		1	.3			1	0						
D	?	3S	36	1		1	.2			1	0						
D	?	3S	37	1		1	.2				1						
D	?	3S	38	1		1	.2			1							
D	?	3S	39	0		0	.1				0						
D	?	3S	40	10	2.3	9	3.1			4	0	3		2			
D	?	4S	12	0		0	.0					0					
D	?	4S	15	0		0	.0			0							
D	?	4S	16	4		4	1.2			3	0						
D	?	4S	17	0		0	.0				0						
D	?	4S	18	0		0	.1				0						
D	?	4S	19	0		0	.1			0	0						
D	?	4S	20	0		0	.2			0	0						
D	?	4S	21	0		0	.2			0	0						
D	?	4S	22	1		1	.2			0	0						
D	?	4S	23	1		1	.2			1	0						
D	?	4S	24	0		0	.1			0	0						
D	?	4S	26	0		0	.1			0							

**Log Stock Table - MBF**  
**Project: DEEPC**

T5N R6W S13 TRW

T5N R6W S13 TRW

Twp Rge Sec Tract Type Acres Plots Sample Trees  
 5N 6W 13 AREA 2 RW 8.00 41 144

Page 2  
 Date 4/7/2003  
 Time 11:51:58AM

Spp	T	S	So	Gr	Log	Gross MBF	% Def	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches									
										2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29
D	?	4S	27			0		0	.1			0							
D	?	4S	28			0		0	.1			0							
D	?	4S	31			1		1	.2			1							
D		Totals				302		300	94.5			20	18	26	42	47	91	47	9
A	?	3S	24			1		1	19.3					1					
A	?	3S	31			1		1	9.3			1							
A	?	3S	32			1		1	12.8			1							
A	?	3S	34			2		2	22.8			1	1						
A	?	3S	35			2		2	32.0			2							
A		Totals				7		7	2.3			5	1		1				
H	?	2S	24			1		1	6.3						1				
H	?	2S	32			4		4	37.3					1	1	2			
H	?	3S	21			0		0	1.8			0							
H	?	3S	26			0		0	3.4				0						
H	?	3S	32			4		4	37.5			1	1	2					
H	?	3S	40			1		1	7.3			1							
H		Totals				10		10	3.2			2	1	2	1	2	2		
Total All Species						319		318	100.0			28	20	29	44	49	93	47	9

**FPA "WRITTEN PLAN"**  
**Deep Creek Thinning**  
**Project No. 1 – Road Improvement**

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

**Planned Operation:**  
Fill reconstruction/culvert replacement of a fill over 15 feet high.

**Protected Resources:**  
A small Type N tributary of Deep Creek.

**Description of Area:**

- Operation is located in the Coast Range Geographic Region
- Upland vegetation: Douglas-fir with minor components red alder 56-66 years old.
- RMA vegetation: conifer with clumps of red alder of similar age
- Streamside slopes range from 20% to 40%, streambed ranges from 2-3 feet wide, and stream gradient is 6%

**Drainage Area and Stream Crossing Design:**  
The existing culvert will be replaced with a 36" x 78' CMP. The new culvert will be embedded 1 foot to allow natural stream functioning and will be beveled at 1:1 on the inlet.

<u>Drainage Specifications</u>			
Existing Stream Gradient:	3-6%	Size of Watershed:	32 acres
Developed Waterway Width:	3 feet	50-Year Peak Flow/Mile <sup>2</sup> :	150 cfs
50-Year Peak Flow:	7.5 cfs	Flow Capacity of Structure:	31 cfs

**Resource Protection Measures:**

- Machine activity in stream channels will be minimized
- Excavated embankment materials will be hauled to approved waste areas, sloped for drainage and left in a stable condition
- Erosion control measures shall be applied to all exposed excavation areas, bare soils and waste materials.
- Riprap rock will be used to armor fill slopes
- The de-watering (if necessary) will be accomplished by use of cofferdams, temporary diversion ditches, and/or drainage structures

Submitted: \_\_\_\_\_ Date: \_\_\_\_\_  
                  Purchaser/Operator Contract Representative

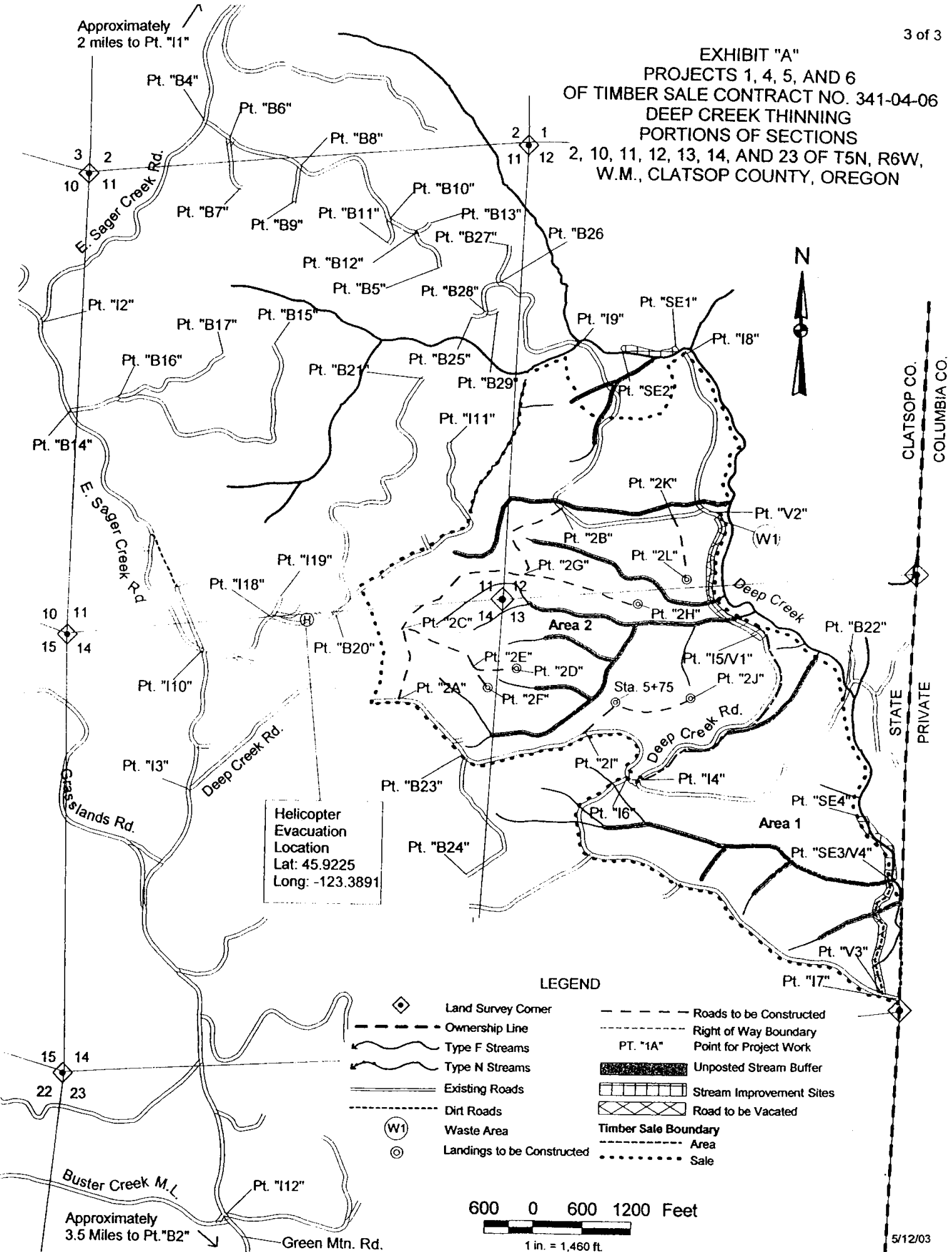
Approved: \_\_\_\_\_ Date: \_\_\_\_\_  
                  State Lands Forester

Approved: *amu* \_\_\_\_\_ Date: \_\_\_\_\_  
                  Forest Practices Forester

Attachments: Exhibit "A" Map

Original: Salem  
CC: Purchaser, Operator, District, Jewell Unit

EXHIBIT "A"  
PROJECTS 1, 4, 5, AND 6  
OF TIMBER SALE CONTRACT NO. 341-04-06  
DEEP CREEK THINNING  
PORTIONS OF SECTIONS  
2, 10, 11, 12, 13, 14, AND 23 OF T5N, R6W,  
W.M., CLATSOP COUNTY, OREGON



Approximately 2 miles to Pt. "I1"

3 2 10 11

10 11 15 14

15 14 22 23

Approximately 3.5 Miles to Pt. "B2"

Helicopter Evacuation Location  
Lat: 45.9225  
Long: -123.3891

LEGEND

- Land Survey Corner
- Ownership Line
- Type F Streams
- Type N Streams
- Existing Roads
- Dirt Roads
- Waste Area
- Landings to be Constructed
- Roads to be Constructed
- Right of Way Boundary
- PT. "1A" Point for Project Work
- Unposted Stream Buffer
- Stream Improvement Sites
- Road to be Vacated
- Timber Sale Boundary
- Area
- Sale

600 0 600 1200 Feet

1 in. = 1,460 ft.

CLATSOP CO.  
COLUMBIA CO.

STATE PRIVATE



**FPA "Written Plan"**  
**Deep Creek Thinning**  
**Project No. 4. - Road Vacating**

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

**Planned Operation:**

Road vacating and fill removal on tributary streams within 100 feet of Deep Creek.

**Protected Resource:**

Deep Creek, designated as a medium Type F stream adjacent to vacating segment V1 to V2 and designated as a large Type F stream adjacent to vacating segment V3 to V4, is located within 100 feet of the road vacating project. Approximate total length of the affected stream reaches requiring protection is 800 feet.

**Description of Area:**

- Operation is located in the Coast Range Geographic Region
- Upland vegetation: Douglas-fir with minor components of other conifers and red alder 56-66 years old
- RMA vegetation: red alder with scattered conifer of similar age
- For Deep Creek, streamside slopes range from very low gradient flood plains to 30% and the streambed ranges from 12-15 feet wide
- For the small Type N tributaries, streamside slopes range from 10% to 40%, streambeds ranges from 2-8 feet wide, and stream gradients range from 2% to 6%

**Resource Protection Measures:**

- Work will be performed during the in-water work period between July 1 and August 31, annually
- Machine activity in stream channels will be minimized. All excavation and removed fill placement will be performed using a minimum 1 ½ cubic-yard track-mounted excavator
- De-watering of existing fills and development of the stream channel will be accomplished by use of coffer dams, temporary diversion ditches, or drainage structures and/or damming and pumping
- Disturbance to existing vegetation will be minimized, trees felled within the RMA will not be removed as designated timber and will be left in the RMA, in stable locations
- The stream channels will be restored to average channel widths above and below the fill locations, backslopes will be recontoured to 1 ½ :1 slopes
- Excavated fill materials will be used for recontouring slopes or placed in approved waste areas and left in a stable condition
- Bare soils shall be grass seeded and/or mulched

Submitted: \_\_\_\_\_  
Purchaser/Operator Contract Representative

Date: \_\_\_\_\_

Approved: \_\_\_\_\_  
State Lands Forester

Date: \_\_\_\_\_

Approved: AMA \_\_\_\_\_  
Forest Practices Forester

Date: \_\_\_\_\_

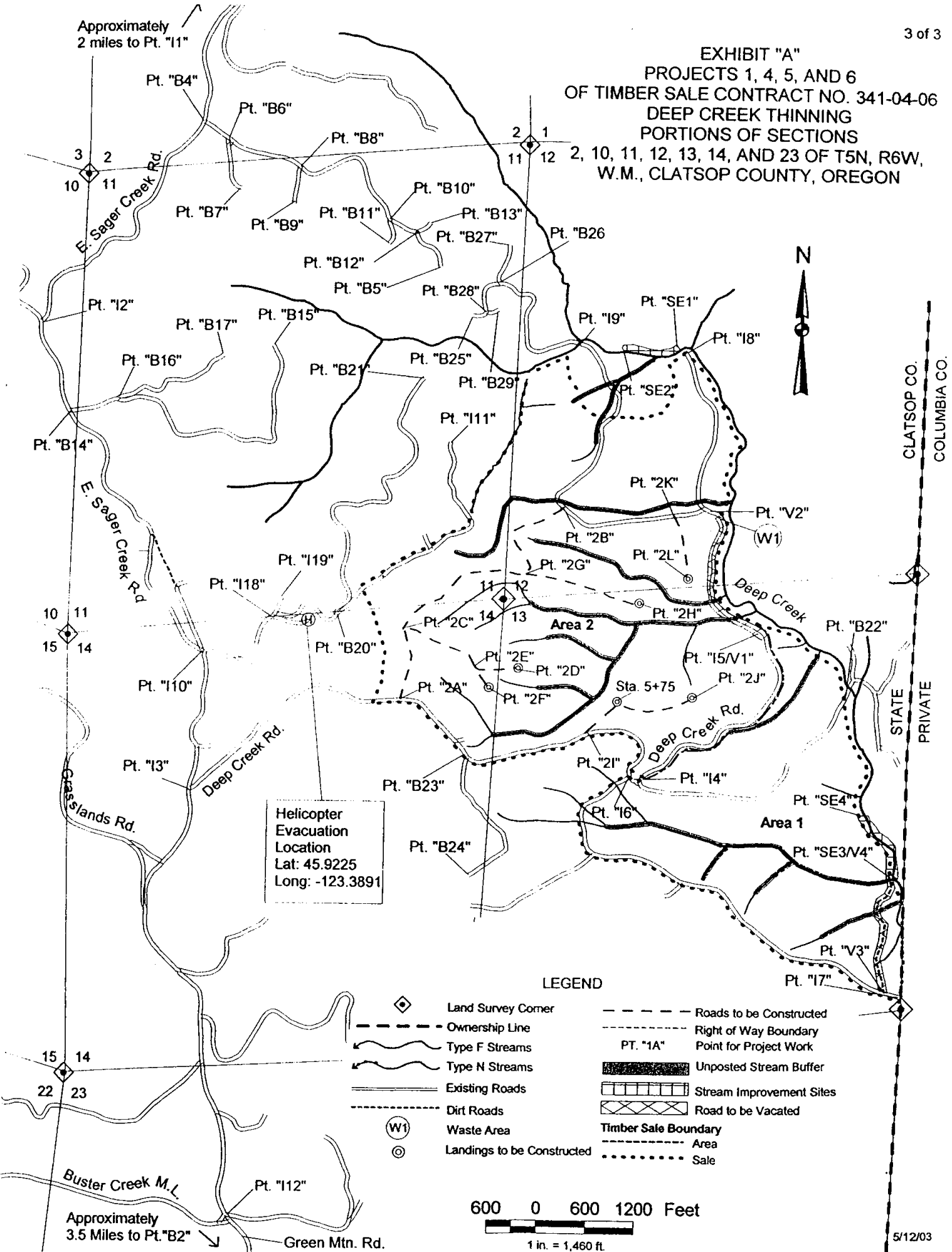
Attachments: Exhibit A

Original: Salem

CC: Operator, Purchaser, District, Jewell Unit

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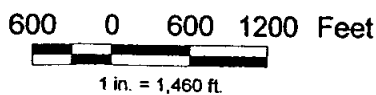
EXHIBIT "A"  
PROJECTS 1, 4, 5, AND 6  
OF TIMBER SALE CONTRACT NO. 341-04-06  
DEEP CREEK THINNING  
PORTIONS OF SECTIONS  
2, 10, 11, 12, 13, 14, AND 23 OF T5N, R6W,  
W.M., CLATSOP COUNTY, OREGON



Helicopter  
Evacuation  
Location  
Lat: 45.9225  
Long: -123.3891

LEGEND

- Land Survey Corner
- Ownership Line
- Type F Streams
- Type N Streams
- Existing Roads
- Dirt Roads
- Waste Area
- Landings to be Constructed
- Roads to be Constructed
- Right of Way Boundary
- Point for Project Work
- Unposted Stream Buffer
- Stream Improvement Sites
- Road to be Vacated
- Timber Sale Boundary
- Area
- Sale



Approximately  
2 miles to Pt. "I1"

Approximately  
3.5 Miles to Pt. "B2"

CLATSOP CO.  
COLUMBIA CO.

STATE  
PRIVATE

**FPA "WRITTEN PLAN"**  
**Deep Creek Thinning**  
**Harvesting**

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

**Planned Operation:**  
Commercial thinning.

**Protected Resources:**

Type F Streams: Deep Creek, is a Type F stream located within 100 feet of operations in Areas 1 and 2. Where Deep Creek flows adjacent to Area 1 (4,000 feet) it is classified as a large Type F stream and adjacent to Area 2 (4,000 feet) it is classified as a medium Type F stream. Additionally, an unnamed small Type F tributary of Deep Creek flows through the middle of Area 1. The approximate length of this stream requiring protection is 2,200 feet.

**Description of Area:**

- 509 acre commercial thinning in the Coast Range Geographic Region
- Upland vegetation: Douglas-fir with minor components of other conifers and red alder 56-66 years old
- RMA vegetation: red alder, similar age with scattered conifer clumps
- Streamside slopes range from 10% to 50% and the streambed ranges from 12-15 feet wide

**Planned Resource Protection Measures:**

The timber sale boundaries adjacent to Deep Creek are posted between 60 feet to 100 feet from the stream. The average buffer width is 90 feet. A minimum of 230 square feet of basal area per 1,000 feet of stream length will be retained. In Area 1, along the small Type F tributary to Deep Creek, an unposted 25 foot no-touch buffer is written into the timber sale contract, and a target of 140 square feet of basal area per 1,000 feet of stream length will be retained.

Along all of the above mentioned streams the following practices are required, under the timber sale contract, to protect the streams and streamside areas:

- No trees will be felled within posted stream buffers (RMA's).
- Trees adjacent to the posted stream buffers (RMA's) will be felled away from or parallel to the streams to prevent trees from entering the aquatic areas.
- All Type-F streams will have a 25 foot no touch zone.
- All trees in the RMA that lean over the stream will not be cut.
- When cable logging is conducted nearby the RMA's, logging lines may cross, but will not be lowered into the RMA's during yarding, except during rigging. During rigging the lines must be pulled out of the RMA's when changing corridors.

Submitted: \_\_\_\_\_  
Purchaser/Operator Contract Representative

Date: \_\_\_\_\_

Approved: \_\_\_\_\_  
State Lands Forester

Date: \_\_\_\_\_

Approved: *AMU* \_\_\_\_\_  
Forest Practices Forester

Date: \_\_\_\_\_

Attachments: Logging Plan Map

Original: Salem

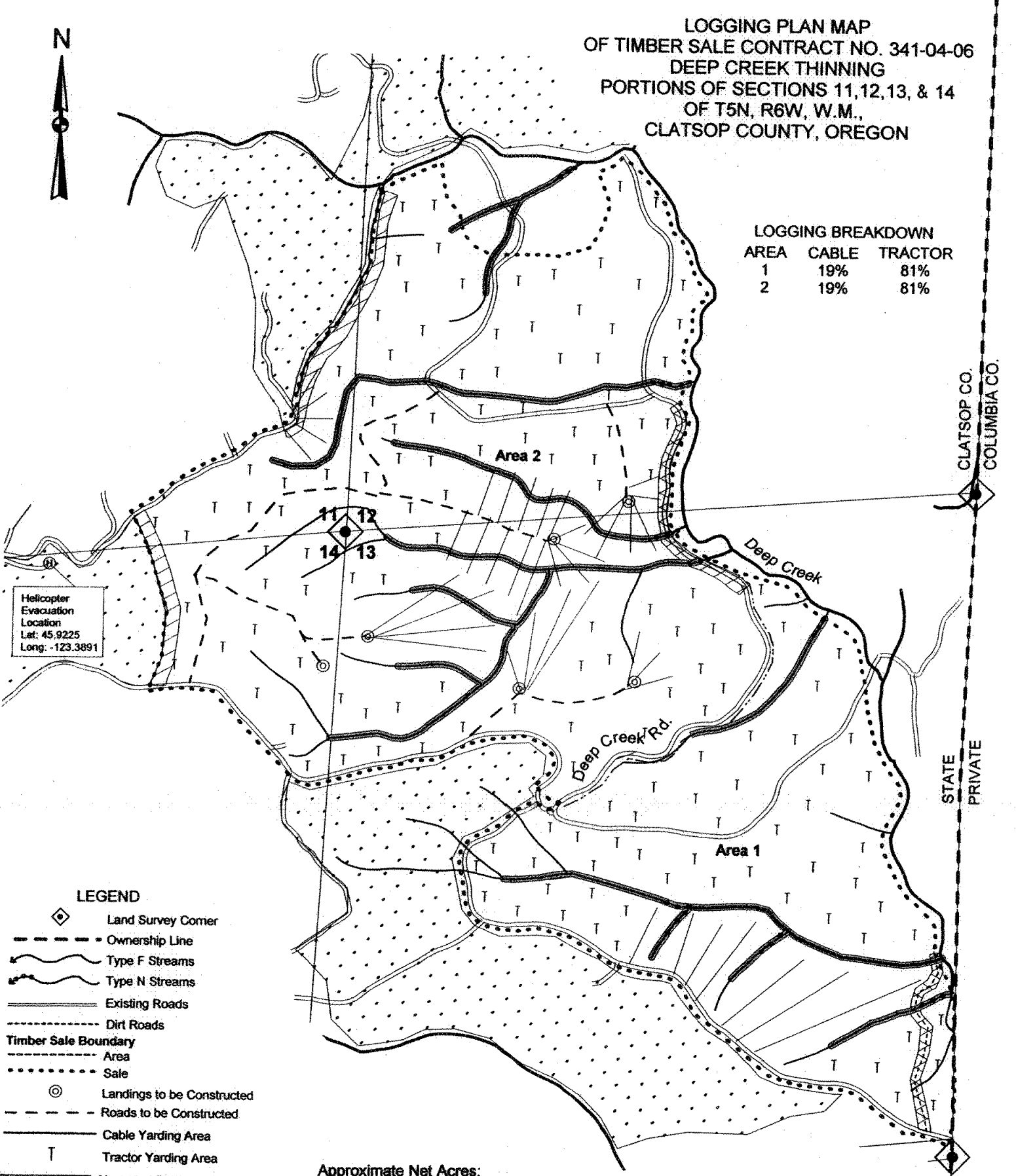
CC: Purchaser, Operator, District, Jewell Unit

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LOGGING PLAN MAP  
 OF TIMBER SALE CONTRACT NO. 341-04-06  
 DEEP CREEK THINNING  
 PORTIONS OF SECTIONS 11,12,13, & 14  
 OF T5N, R6W, W.M.,  
 CLATSOP COUNTY, OREGON



LOGGING BREAKDOWN		
AREA	CABLE	TRACTOR
1	19%	81%
2	19%	81%



Helicopter  
 Evacuation  
 Location  
 Lat: 45.9225  
 Long: -123.3891

CLATSOP CO.  
 COLUMBIA CO.  
 STATE  
 PRIVATE

**LEGEND**

- Land Survey Corner
- Ownership Line
- Type F Streams
- Type N Streams
- Existing Roads
- Dirt Roads
- Timber Sale Boundary**
- Area
- Sale
- Landings to be Constructed
- Roads to be Constructed
- Cable Yarding Area
- Tractor Yarding Area
- Unposted Stream Buffer
- Road to be Vacated
- Controlled Felling Area
- Reforestation Area

Approximate Net Acres:  
 Area 1 (PC) - 172 Acres  
 Area 2 (PC) - 329 Acres  
 Area 3 (R/W) - 8 Acres  
 Total Acres = 509

APPROX. SCALE 1"=1,000'

0' 500' 1000' 1500' 2000'



**FPA "WRITTEN PLAN"**  
**Deep Creek Thinning**  
**Project No. 6 – Stream Enhancement**

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

**Planned Operation:**

Stream enhancement project recommended by ODFW fisheries biologist to be performed in conjunction with adjacent commercial thinning. Six structures will be created for stream enhancement. Each structure will be created by placing 2-8 conifer logs in Deep Creek. The logs will be placed into the stream with an excavator at locations selected by Dave Plawman, ODFW fisheries biologist.

**Protected Resources:**

Deep Creek, which is designated as a medium Type F stream between stream enhancement segment SE1 to SE2 (approximately 700 feet of stream) and a large Type F between stream enhancement segment SE3 to SE4 (approximately 800 feet of stream).

**Description of Area:**

- Operation is located in the Coast Range Geographic Region
- Upland vegetation: mixed Douglas-fir and western hemlock 56-66 years old
- RMA vegetation: red alder, similar age with scattered conifer clumps
- Streamside slopes range from 10% to 50% and the streambed ranges from 12-15 feet wide

**Planned Resource Protection Measures:**

Three of the sites will require crossing Deep Creek with an excavator to reach the project site. During the crossing of the stream, turbidity and erosion will be monitored. All conifer trees will be utilized from inside the timber sale area and not from within the RMA. The work will take place during the in-water work period between July 1 – August 31. All access trails to the stream enhancement sites will be waterbarred and blocked upon completion of the project. Any areas of soil disturbance will be grass seeded and mulched.

**Attachments:** Exhibit "A" Map

Submitted: \_\_\_\_\_ Date: \_\_\_\_\_  
Purchaser/Operator Contract Representative

Approved: \_\_\_\_\_ Date: \_\_\_\_\_  
State Lands Forester

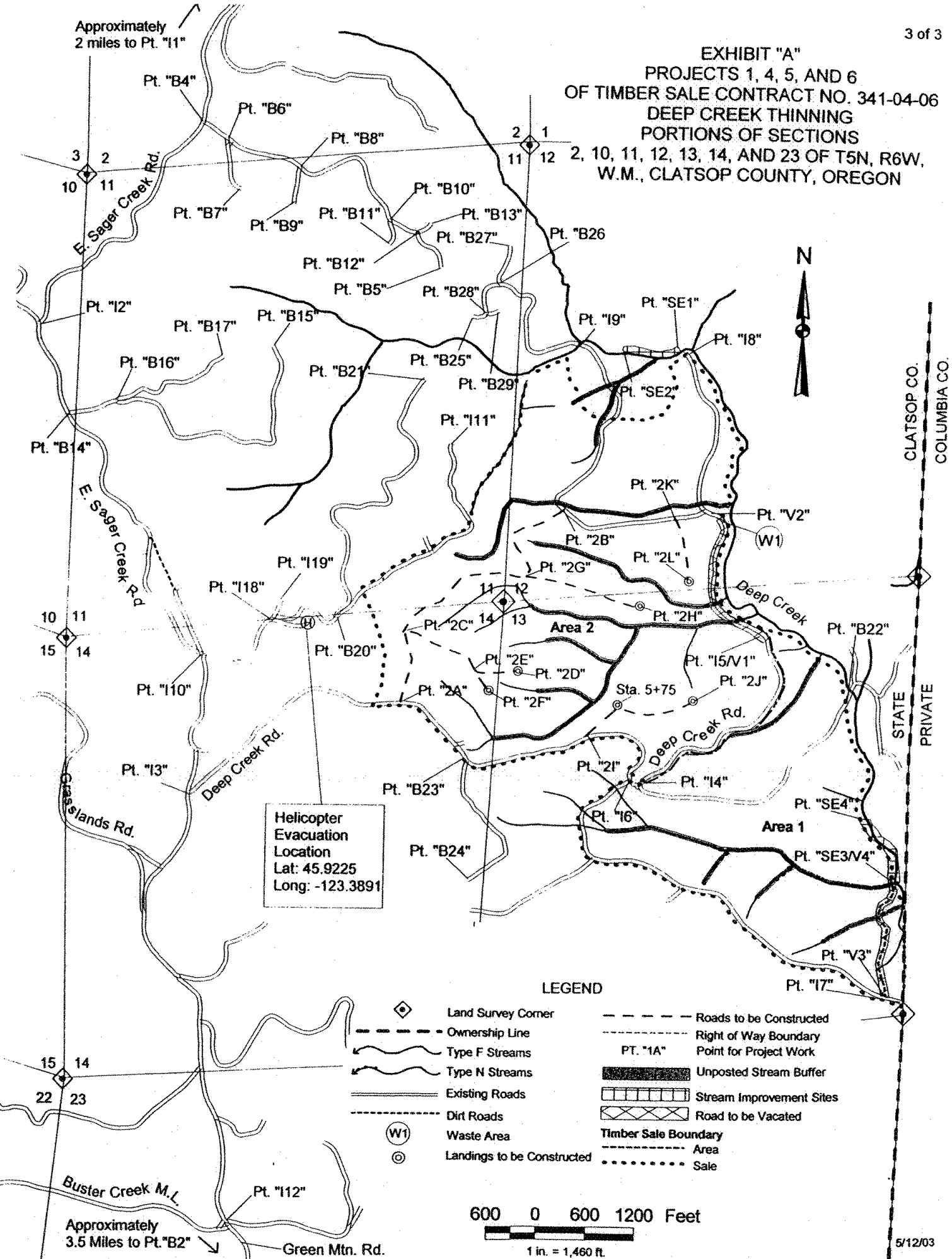
Approved: AMA \_\_\_\_\_ Date: \_\_\_\_\_  
Forest Practices Forester

Original: Salem

CC: Purchaser, Operator, District, Jewell Unit

X:\Jewell Unit\Timber Sales\2003\Deep Creek Thinning\Sale Prep\Written Plan-Stream Enhancement.doc

EXHIBIT "A"  
PROJECTS 1, 4, 5, AND 6  
OF TIMBER SALE CONTRACT NO. 341-04-06  
DEEP CREEK THINNING  
PORTIONS OF SECTIONS  
2, 10, 11, 12, 13, 14, AND 23 OF T5N, R6W,  
W.M., CLATSOP COUNTY, OREGON



Helicopter  
Evacuation  
Location  
Lat: 45.9225  
Long: -123.3891

LEGEND

- Land Survey Corner
- Ownership Line
- Type F Streams
- Type N Streams
- Existing Roads
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- Area
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