



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Kauppi Thin
Sale 341-13-21

District: Astoria

Date: October 05, 2012

cost summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$187,364.73	\$0.00	\$187,364.73
		Project Work:	\$(50,576.00)
		Advertised Value:	\$136,788.73



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timber description

Location: Portions of Section 1, T5N, R6W, and portions of Section 36, T6N, R6W, W.M., Clatsop County, Oregon.

Stand Stocking: 60%

SpecieName	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	12	0	97
Western Hemlock / Fir	18	0	97

Volume by Grade	2S	3S	4S	Total
Douglas - Fir	48	673	228	949
Western Hemlock / Fir	0	1	0	1
Total	48	674	228	950



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comments: Pond Values Used: 3rd Quarter Calendar Year 2012.

Expected Log Markets: Warrenton, OR; Mist, OR; Clatskanie, OR;
Tillamook, OR; Forest Grove, OR.

Western redcedar and Other Cedars Stumpage Price = Pond Value
minus Logging Cost
 $\$683.92/\text{MBF} = \$975/\text{MBF} - \$291.08/\text{MBF}$

Red Alder and Other Hardwoods Stumpage Price = Pond Value minus
Logging Cost
 $\$248.92 = \$540/\text{MBF} - \$291.08$

SCALING COST ALLOWANCE = $\$5.00/\text{MBF}$

FUEL COST ALLOWANCE = $\$4.00/\text{Gallon}$

HAULING COST ALLOWANCE

Hauling costs equivalent to \$780 daily truck cost.

Other Costs (with Profit & Risk to be added):

100% Branding and Painting: $\$1/\text{MBF} \times 950 \text{ MBF} = \950

Machine Washing for Noxious Weed Compliance = $\$2,000$

TOTAL Other Costs (with Profit & Risk to be added) = $\$2,950$

Other Costs (No Profit & Risk added):

Waterbar and block dirt road segments after harvest: $\$14.25/\text{station}$
 $\times 10 \text{ stations} = \142.50

TOTAL Other Costs (No Profit & Risk added) = $\$142.50$



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logging conditions

combination#: 1 Douglas - Fir 77.00%
Western Hemlock / Fir 77.00%

yarding distance: Short (400 ft) **downhill yarding:** No
logging system: Track Skidder **Process:** Feller Buncher
tree size: Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF
loads / day: 6.0 **bd. ft / load:** 3,700
cost / mbf: \$158.51

machines: Log Loader (B)
Stroke Delimber (B)
Feller Buncher w/ Delimber
Track Skidder

combination#: 2 Douglas - Fir 22.00%
Western Hemlock / Fir 22.00%

yarding distance: Medium (800 ft) **downhill yarding:** No
logging system: Cable: Small Tower <=40 **Process:** Manual Falling/Delimiting
tree size: Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF
loads / day: 4.0 **bd. ft / load:** 3,700
cost / mbf: \$182.50

machines: Log Loader (A)
Tower Yarder (Small)

combination#: 3 Douglas - Fir 1.00%
Western Hemlock / Fir 1.00%

yarding distance: Short (400 ft) **downhill yarding:** No
logging system: Shovel **Process:** Manual Falling/Delimiting
tree size: Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF
loads / day: 7.5 **bd. ft / load:** 3,700
cost / mbf: \$90.26

machines: Shovel Logger



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logging costs

Operating Seasons:	2.00	Profit Risk:	14.00%
Project Costs:	\$50,576.00	Other Costs (P/R):	\$2,950.00
Slash Disposal:	\$0.00	Other Costs:	\$142.50

Miles of Road

Road Maintenance: \$11.52

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	3.0	3.7
Western Hemlock / Fir	\$0.00	2.0	3.3



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District: Astoria

Date: October 05, 2012

logging costs breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling	Other	Total
Douglas - Fir									
\$163.11	\$11.87	\$9.23	\$63.49	\$3.11	\$35.11	\$0.00	\$5.00	\$0.15	\$291.07
Western Hemlock / Fir									
\$163.11	\$11.87	\$9.23	\$106.78	\$3.11	\$41.17	\$0.00	\$5.00	\$0.15	\$340.42

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$488.42	\$197.35	\$0.00
Western Hemlock / Fir	\$0.00	\$420.00	\$79.58	\$0.00



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summary

Amortized

Specie	MBF	Value	Total
Douglas - Fir	0	\$0.00	\$0.00
Western Hemlock / Fir	0	\$0.00	\$0.00

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	949	\$197.35	\$187,285.15
Western Hemlock / Fir	1	\$79.58	\$79.58

Gross Timber Sale Value

Recovery: \$187,364.73

Prepared by: Ty Williams

Phone: 503-325-5451

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Kauppi Thin

ROAD CONSTRUCTION:

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
1A-1B, 1C-1D, 1E-1F	27+86	\$21,439
_____	_____	_____
_____	_____	_____
_____	_____	_____
TOTALS		\$21,439

ROAD IMPROVEMENT:

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
11-12, 13-14, 15-16, 17-18, 19-110	137+31	\$21,334
_____	_____	_____
TOTALS		\$21,334

SPECIAL PROJECTS:

<u>Description</u>	<u>Cost</u>
Vacating (V1 - V2)	\$1,455
Project Road Maintenance	\$1,786
_____	_____
TOTAL	\$3,241

MOVE IN:

<u>Equipment</u>	<u>Cost</u>
C330	\$1,220.00
14G Grader	\$675.00
Vibratory Roller	\$675.00
Water Truck	\$165.00
(8) Dump Trucks	\$1,128.00
C315	\$699.00
_____	_____
TOTAL	\$4,562.00

GRAND TOTAL **\$50,576.00**

Compiled By: d.mellison, d.rygell

Date: 07/05/2012

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Kauppi Thin
 ROAD: 1A-1B, 1C-1D, 1E-1F
 POINTS: 1A-1B (2+31), 1C-1D (14+25), 1E-1F (11+30)

NEW CONSTRUCTION: 27.86 STATIONS 0.53 MILES
 IMPROVEMENT: _____ STATIONS _____ MILES

CLEARING & GRUBBING

Method	Qty/Amount	x	Rate	=	Cost
(1A-1B) Clear & Scatter (C330) (Hrs.)	2	x	\$144.00	=	\$288.00
(1C-1D) Scatter outside RAW (Acres)	1.35	x	\$1,161.00	=	\$1,567.35
(1E-1F) Scatter outside RAW (Acres)	1.05	x	\$1,161.00	=	\$1,219.05
SUB TOTAL FOR CLEARING & GRUBBING					\$3,074

EXCAVATION

Material	Cy/Amount	x	Rate	=	Cost
(1A-1B) Field Design	2.31	x	\$106	=	\$244.86
(1C-1D) Field Design	14.25	x	\$106	=	\$1,510.50
sta. 8+50 (wet area x'ing) C330	0.50	x	\$144	=	\$72.00
(1E-1F) Common Drift	999	x	\$1.60	=	\$1,598.40
Embankment Compaction	993	x	\$0.60	=	\$595.80
Cutslope Rounding (0+50-2+90, 6+70-10+50)	7.20	x	\$37	=	\$266.40
SUB TOTAL FOR EXCAVATION					\$4,288

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
1E1F(10+10)	18" CPP	40	\$17.64	\$705.60					

Description	Quantity	Rate	Cost
Other/miscellaneous:			
Culvert stakes & markers:			
1E-1F (1)	1	\$18.00	\$18.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION \$724
Subtotal of Clearing, Exc., Culv. **\$8,086**

SURFACING		Description	Stations/amount	x	Rate/ sta/amt	Cost
Subgrade prep:		Grade, Shape and Ditch 16'	13.61	x	\$21.55	\$293.30
		Outslope 14' Subgrade	14.25	x	\$15.93	\$227.00
		Subgrade Compaction	27.86	x	\$17.52	\$488.11

ROAD SEGMENT		1A to 1B		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1A to 1B Volume (CY) per	0+00 - 2+31 Number of	stations	2.31			
Base Rock	4"-0" crushed		8	station	50	stations	2.31	116	\$10.90	\$1,264
Surface Rock	3/4"-0" crushed		3	station	19	stations	2.31	44	\$10.90	\$480
				Landing		Landings		0		\$0
Total Rock for Road Segment:				1A to 1B				160		\$0

\$1,744

ROAD SEGMENT		1E to 1F		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1E to 1F Volume (CY) per	0+00 - 11+30 Number of	stations	11.30			
Base Rock	4"-0" crushed		8	station	50	stations	11.30	565	\$10.90	\$5,159
Turnouts	4"-0" crushed	2+20, 6+80	8	turnout	22	turnouts	2	44	\$10.90	\$480
Curve Widening	4"-0" crushed		8	curve	n/a	curves	6	24	\$10.90	\$262
Turnarounds	4"-0" crushed	10+70	8	turnaround	13	turnarounds	1	13	\$10.90	\$142
Traction Rock	3/4"-0" crushed	3+20-7+32, 8+05-10+77	2	station	13	stations	6.84	89	\$10.90	\$969
Culvert Bedding/Backfill	3/4"-0" crushed	10+10	n/a	culvert	30	culverts	1	30	\$10.90	\$327
Curve Widening (Traction)	3/4"-0" crushed	6+15-7+28, 9+25-10+04	2	curve	n/a	curves	2	5	\$10.90	\$55
Landings	6"-0" pit-run	11+30	8	landing	60	landings	1	60	\$15.59	\$935
								0		\$0
Total Rock for Road Segment:				1E to 1F				830		\$0

\$9,328

Processing:	Description	Gradation	#lifts	No. sta	Rate/sta	Cost
	Water, Process & Compact:	3/4"-0"	1	9.15	\$49.02	\$449
		4"-0"	1	13.61	\$49.02	\$667
						\$0

	6"-0" pr	4"-0"	1 1/2"-0"	3/4"-0"	Total	
SUB TOTAL FOR SURFACING	60	762		168	990	\$13,196

SPECIAL PROJECTS		Description	Rate	Hours	Cost
(1C-1D)		Subgrade waterbarring	\$105	1	\$105
(1C-1D)		Remove Punchon	\$105	0.5	\$53

SUB TOTAL FOR SPECIAL PROJECTS \$158

Subtotal of Surfacing & Spec. Proj. \$13,353
Subtotal of Cleaning, Exc., Culv. \$8,086

GRAND TOTAL \$21,439

Compiled By: d.rygell,d.mellison

Date: 07/05/12

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Kauppi Thin
 ROAD: _____
 POINTS: 11-12 (50+58), 13-14 (57+37), 15-16 (6+38), 17-18 (11+90), 19-10 (11+10)

NEW CONSTRUCTION: _____ STATIONS _____ MILES _____
 IMPROVEMENT: 137.31 STATIONS _____ MILES 2.60

CLEARING & GRUBBING							
	Method		Hrs./amount	x	Rate	=	Cost
(11 - 12)	Landing (sta. 43+90) (C330)	(Hrs.)	1	x	\$144.00	=	\$144.00
(13 - 14)	(16+37) (C330)	(Hrs.)	0.5	x	\$144.00	=	\$72.00
	(D12)	(Hrs.)	0.5	x	\$73.00	=	\$36.50
(19 - 110)	Scatter clearing & grubbed material		0.5	x	\$1,161.00	=	\$580.50
SUB TOTAL FOR CLEARING & GRUBBING							\$833

EXCAVATION							
	Material		Hrs./amount	x	Rate	=	Cost
(11-12)	sta. 12+04 Select borrow	(CY)	30	x	\$11.00	=	\$330.00
	Haul waste to sta. 43+90	(CY)	30	x	\$1.75	=	\$52.50
	Landing (sta. 43+90) (C330)	(Hrs.)	0.5	x	\$144.00	=	\$72.00
(13 - 14)	Existing culvert work (C330)	(Hrs.)	2.5	x	\$94.00	=	\$235.00
	Sta. 16+37 remove Alder trees (C330)	(Hrs.)	1	x	\$94.00	=	\$94.00
	Fall Alders	(Hrs.)	1	x	\$38.00	=	\$38.00
				x		=	
				x		=	
				x		=	
				x		=	
				x		=	
				x		=	
				x		=	
				x		=	
				x		=	
				x		=	
				x		=	
SUB TOTAL FOR EXCAVATION							\$822

CULVERT MATERIALS AND INSTALLATION									
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
(11-12) 5+50	18" CPP	32	\$17.64	\$584.48					
(11-12) 12+04	18" CPP	42	\$17.64	\$740.88					
(11-12) 37+99	18" CPP	40	\$17.64	\$705.60					
(13-14) 19+64	18" CPP	40	\$17.64	\$705.60					
(13-14) 38+66	18" CPP	50	\$17.64	\$882.00					
(15-16) 4+95	18" CPP	40	\$17.64	\$705.60					
					Quantity	Rate	Cost		
Other/miscellaneous:		Description			5	\$18.00	\$90.00		
Culvert stakes & markers:									
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION							\$4,394		

Subtotal of Clearing, Exc., Culv. **\$6,049**

SURFACING		Description	Hours	Stations/amount	x	Rate/sta/amt	Cost
Subgrade prep:							
(11-12)	Grade, Shape and Ditch 16'	(Hrs.)	8	50.58	x	\$93.00	\$744.00
(11-12)	Ditchline Re-establishment			3.54	x	\$42.50	\$150.45
(11-12)	Sod Removal			23.55	x	\$13.59	\$320.04
(13-14)	Grade, Shape and Ditch 16'			57.37	x	\$21.55	\$1,236.32
	Compact Subgrade			57.37	x	\$17.52	\$1,006.12
(15-16)	Grade, Shape and Ditch 16'	(Hrs)	1	6.36	x	\$93.00	\$93.00
(17-18)	Grade, Shape and Ditch 16'	(Hrs)	1	11+90	x	\$93.00	\$93.00
(19-110)	Grade, Shape and Ditch 16'	(Hrs.)	1	11+10	x	\$93.00	\$93.00

ROAD SEGMENT	H1 to H2	POINT TO POINT	Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt	Cost
		I1 to I2	0+00 - 50+58			
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	
Leveling Rock	3/4"-0" crushed		n/a	load	10 loads	20
Bedding/Backfill	3/4"-0" crushed		n/a	culvert	n/a culverts	3
Base Rock	4"-0" crushed	12+04	n/a	culvert	10 culverts	1
Surface Rock	3/4"-0" crushed	12+04	n/a	culvert	10 culverts	1
Dissipator Rock	24"-6" riprap	37+99	n/a	culvert	10 culverts	1
Total Rock for Road Segment:						350

\$3,891

ROAD SEGMENT	H1 to H2	POINT TO POINT	Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt	Cost
		I3 to I4	0+00 - 57+37			
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	
Leveling Rock	3/4"-0" crushed		n/a	load	10 loads	20
Bedding/Backfill	3/4"-0" crushed		n/a	culvert	n/a culverts	2
Dissipator Rock	24"-6" riprap	19+64, 36+66	n/a	culvert	10 culverts	2
Total Rock for Road Segment:						290

\$3,314

ROAD SEGMENT	H1 to H2	POINT TO POINT	Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt	Cost
		I5 to I6	0+00 - 6+36			
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	
Leveling Rock	3/4"-0" crushed		n/a	load	10 loads	10
Bedding/Backfill	3/4"-0" crushed		n/a	culvert	30 culverts	1
Total Rock for Road Segment:						130

\$1,417

ROAD SEGMENT	H1 to H2	POINT TO POINT	Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt	Cost
		I7 to I8	0+00 - 11+90			
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	
Leveling Rock	4"-0" crushed		n/a	load	10 loads	5
Total Rock for Road Segment:						50

\$10.90

Processing:

Description	Gradation	# Lifts	No. sta	Rate/sta	Cost
Water, Process & Compact:	4"-0"	1	1	\$49.02	\$49
	3/4"-0"	1	57.37	\$49.02	\$2,812

SUB TOTAL FOR SURFACING

24"-6"	4"-0"	3/4"-0"	Total
30	60	730	820

\$15,229

SPECIAL PROJECTS

Description	Acres	Cost
Seed waste area	0.1	\$56

SUB TOTAL FOR SPECIAL PROJECTS

\$56

Subtotal of Surfacing & Spec. Proj. \$15,285
Subtotal of Cleaning, Exc., Culv. \$6,049

GRAND TOTAL

\$21,334

Compiled By: d.mellison, d.rygel

Date: 06/18/12

Road Maintenance after completion of Projects

Sale: Kauppi Thin
Date: 06/01/12
By: d.rygell, d.mellison

Cow Ck. Stockpiles to Northrup pavement, Jones Rd/202 Jct to Pt. I1, Pt. I1 to Pt. I3, Pt. I3 to Pt. I7

Type	Equipment/Rationale	Move in Rate	Hours	Rate	Cost
	Grader 14G (onsite)		19.2	\$93	\$1,786
Total					\$1,786

Miles/day	Distance(miles)	Days
2.0	4.8	2.4

Production Rates
Grader

Note: Rock Volume hauled 1,810 c.y.
Miles to maintain = 4.79 miles

CRUSHED ROCK COST

SALE NAME: Kauppi Thin
 PROJECT: No. 1
 QUARRY: Cow Creek Stockpiles

MATERIAL: Crushed

DATE: 04/25/12
 BY: d.rygell, d.mellison

Segment	Stations	Cubic Yards							Total
		Base	Running	Bed/Backf	Leveling	Turnaround	Turnouts	C.Widening	
11 to 12	50+58	10	10	120	200				340
13 to 14	57+37			70	200				270
15 to 16	6+36			30	100				130
17 to 18	11+90				50				50
1A to 1B	2+31	116	44						160
1E to 1F	11+30	565	89	30		13	44	29	770
Grand Total		691	143	250	550	13	44	29	1,720

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	
11 to 12	50+58	340	2.5	1	1.6	2.48	1.13	0.25	0.25	9.21
13 to 14	57+37	270	2.5	1	1.6	2.83	1.50	0.25	0.25	9.93
15 to 16	6+36	130	2.5	1	1.6	2.93	1.50	0.25	0.25	10.03
17 to 18	11+90	50	2.5	1	1.6	3.08	1.50	0.25	0.25	10.18
1A to 1B	2+31	160	2.50	1	2	2.81	1.50	0.25	0.25	9.91
1E to 1F	11+30	770	2.50	1	2	3.08	1.73	0.25	0.25	10.41
TOTAL		1,720								
	STA./NO.	CU. YD.								AVERAGE HAUL
CUBIC YARD WEIGHTED HAUL			2.50	1.00	1.60	2.89	1.53	0.25	0.25	10.02

Average Round Trip Distance (miles) 20.03

ROCK HAUL:

Truck type: D20 No. trucks:
 Delay min.: 8 Efficiency: 85%

Ave haul: \$8.66 /cy
 Load: \$0.78 /cy
 Spread: \$1.46 /cy

Truck type: D12 No. trucks:
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks: 8
 Delay min.: 5 Efficiency: 85%

Production: cy/day = 539

CRUSHED ROCK HAUL COSTS 1,720 cy @ \$10.90 /cy

PIT RUN ROCK COST

SALE NAME: Kauppi Thin
 PROJECT: No. 1
 QUARRY: Northrup

MATERIAL: Pit Run

DATE: 04/25/2012
 BY: d.rygell, d.mellison

		Cubic Yards								
Segment	Stations	Base	Landing	Turnout	Turnaround	Junction		Misc	Total	
1E to 1F			60						60	
Grand Total			60						60	

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	
1E to 1F		60	2.50	1	2	3.91	1.73	0.25	0.25	8.74
TOTAL		60								
	STA./NO.	CU. YD.								AVERAGE HAUL
			2.50	1.00	1.60	3.91	1.73	0.25	0.25	11.24
									Average Round Trip Distance (miles)	22.48

ROCK HAUL:

Truck type: D20 No. trucks:
 Delay min.: 8 Efficiency: 85%

Truck type: D12 No. trucks:
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks: 3
 Delay min.: 5 Efficiency: 85%

Ave haul: \$9.77 /cy
 Load: \$4.03 /cy
 Spread: \$1.79 /cy

Production: cy/day = 179

PIT RUN ROCK HAUL COSTS 60 cy @ \$15.59 /cy

RIP RAP ROCK COST

SALE NAME: Kauppi Thin
 PROJECT: No. 1
 QUARRY: Northrup

MATERIAL: Rip Rap

DATE: 04/25/12
 BY: d.rygell, d.mellison

		Cubic Yards									
Segment	Stations	Dissapator	Borrow						Misc	Total	
11-12		10								10	
13-14	57+37	20								20	
Grand Total		30								30	

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	
11-12		10	2.5	1	1.6	2.48	1.13	0.25	0.25	9.21
13-14	57+37	20	2.5	1	1.6	2.83	2.30	0.25	0.25	10.73
TOTAL		30								
CUBIC YARD WEIGHTED HAUL		STA./NO. CU. YD.	2.50	1.00	1.60	2.71	1.91	0.25	0.25	AVERAGE HAUL 10.22
Average Round Trip Distance (miles)									20.45	

ROCK HAUL:

Truck type: D12 No. trucks: _____
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks: 1
 Delay min.: 5 Efficiency: 85%

Ave haul: \$8.94 /cy
 Load: _____ /cy *
 Develop: \$9.60 /cy *

Production: cy/day = 65

* Development/Load: (2 hrs. (C315) @ \$96/hr = \$192/ 20 cy =\$9.60)

RIP RAP ROCK HAUL COSTS 30 cy @ **\$18.54 /cy**

Road Maintenance Cost Summary

Sale: Kauppi Thin
 Date: 04-Jun-12
 By: Ty Williams *RL*

MBF: 950
 \$\$/MBF: \$11.52

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	Production Rates		
							Miles/day	Distance(miles)	Days
Final Road Maintenance	Grader 14G	\$675	1	24	\$93	\$2,907	Production Rates		
	Dump Truck 12CY x 2	\$141	2	8	\$73	\$1,309	Grader	1.5	4.5
	FE Loader C966	\$675	1	8	\$77	\$1,291	Vibratory Roller	1.5	4.5
	Vibratory Roller	\$675	1	32	\$72	\$2,979			
	Water Truck 2,500 gallon	\$165	1	24	\$83	\$2,157			
	Labor	\$0	1	8	\$38	\$304			
Total									\$10,947

**Kauppi Thin
TIMBER CRUISE REPORT
FY 2012**

1. **Sale Area Location:** Areas 1 and 2 are located in Section 1, T5N, R6W, and Section 36, T6N, R6W, W.M., Clatsop County, Oregon.

2. **Fund Distribution:** BOF 100%
Tax Code 8-01 (100%)

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Non-thinnable	Existing R/W	Stream Buffer	Net Acres	Survey Method
1	Partial Cut	190	5	5	16	164	GIS
2	Right-of-Way	2	0	0	0	2	GIS
TOTALS		192	5	5	16	166	

4. **Cruisers and Cruise Dates:** Areas 1 and 2 were cruised by Jasen McCoy and David Rygell in May of 2012.

5. **Cruise Method and Computation:** Area 1 is a partial cut thinning and was variable plot cruised using a 33.61 BAF. Area 1 plots are located on a 4 chain by 12 chain grid, with every third plot measured and graded. A total of 33 plots were sampled, with 14 measured and graded plots, and 19 count plots. The target residual basal area is 110 square feet. Cedar and alder are reserve species, and were recorded as "leave" trees.

Area 2 right-of-way is within the boundary of Area 1 and is the same timber type.

All cruisers used Corvallis MicroTechnology (CMT) and/or Allegro 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.

AREA	CRUISE	TRACT	TYPE	ACRES
1	T6NR6W36	AREA 1	TAKE	164
2	T6NR6W36	AREA 2	R/W	2

6. **Timber Description:** Area 1 is a partial cut thinning unit, approximately 32 years old, dominated by Douglas-fir, with a small component of western hemlock. The average Douglas-fir tree size to be harvested is 11.7 inches DBH, with an average height of 36 feet to a merchantable top (6 inch d.i.b.). The average hemlock tree size is 18.7 inches DBH and 62 feet to a merchantable top (6 inch d.i.b.). The average volume per acre to be harvested (net) is 5.7 MBF.

Area 2 (Right-of-Way) is two acres of in-sale right-of-way. The timber type is similar to the Sale Area therefore the total cruise volume from Area 1 was applied to these acres.

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

Statistics for Stand B.F. volumes

Areas	Estimated CV	Target SE%	Actual CV	Actual SE%
1 (PC)	40%	9%	27.1%	4.7%


8. Volumes by Species and Log Grade: (See "Species, Sort, Grade" - Project Report, attached).
 Volumes by Species and Grade for All Sale Areas: (MBF) Volumes do not include "in-growth."

Species	DBH	Net Vol.	2 Saw	3 Saw	4 Saw	Camp Run	% D & B	% Sale
Douglas-fir	11.7"	949	48	673	228	0	2.3	100
Hemlock/True-fir	18.7"	1	0	1	0	0	<1	<1
TOTALS		950	48	674	228	0		100

9. Approvals:

Prepared by: Ty Williams

Date: 5/22/12

Unit Forester Approval: 

Date: 5/22/12

10. Attachments:

- Cruise Designs and Maps – 3 pages
- Volume Report - 3 pages
- Statistics Reports - 1 page
- Log Stock Table - 1 page
- Stand Table Summary – 1 page

X:\Jewell_Unit\Timber Sales\2012\Kauppi Thin\Sale_Prep\Cruise_Report_Kauppi.docx

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Kauppi Thin Area(s) 1

Harvest Type: (PC)

Approx. Cruise Acres: 187 Estimated CV% 40 Net BF SE% Objective 9 Net BF

Planned Sale Volume: 1,232 MBF Estimated Sale Area Value/Acre: \$1,365/Ac
(7 MBF/Ac.)

- A. **Cruise Goals:** (a) Grade minimum 100 conifer:
(b) Sample 33 cruise plots (11 grade/22 count); (c) Other goals X Determine "automark" thinning standards; X Determine log grades for sale value; X Determine snag and leave tree species and sizes.

B. Cruise Design:

1. **Plot Cruises:** BAF 33.61 (Full point; Half point) (circle one)
Cruise Line Direction(s) 326 degrees
Cruise Line Spacing 12 (chains)
Cruise Plot Spacing 4 (chains)
Count/Grade Ratio 2:1

The BA target is 130 sq. ft. Select 4 leave trees per plot. Mark Leave trees with an "L" using yellow paint on graded plots only. Cruise all take and leave trees. If a cruise line ends up paralleling or a plot ends up in a buffer or a road offset by 1 chain and continue. Plots that would have landed within a road right of way or unthinnable area through the systematic design have been dropped; pace through these dropped plots. All cedars are leave trees and count towards the leave tree basal area. Hardwoods are also a reserve species, but will not count towards the leave tree BA. Grade alder as camprun-sawlogs (30 net BF minimum). Record all snags as SN and estimate diameter and total height.

C. Tree Measurements:

1. **Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods. Record dbh to nearest $\frac{1}{2}$ " 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.
2. **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.
3. **Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for hardwoods 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.
4. **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.

5. **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; 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 inter-visible 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.
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, Yellow Paint.
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.

Cruise Design by: Dave Rygell
Approved by: [Signature]
Date: 4/20/12

Exhibit "A"

OF TIMBER SALE CONTRACT NO 341-12-55
KAUPPI THIN

Portions of Section 1, T5N, R6W, and
Portions of Section 36, T6N, R6W, W.M.,
Clatsop County, Oregon.

Approximate Net Acres
Area 1 (PC) = 166 Acres

Total Acres = 166

Cruise Map Area 1

4ch x 12 ch - 33.61 BAF

35 36
2 1

E. Sager Rd.

Jones Rd.

Kauppi ML

Area 1

PRIVATE

Legend

2

Existing Landings ○

New Construction Landings ⊙

--- New Road Construction

== Paved Roads

== Restricted Roads

— Surfaced Roads

— Type F Streams

— Type N Streams

..... Unknown Fish Presence

■ Non-Posted Stream Buffer

▨ Unthinable

..... Timber Sale Area

Line 1

Line 2

Line 3

Line 4

Line 5

Line 6

6

N

0 1,000
Feet

1 inch = 1,000 feet

11

12

7

Species, Sort Grade - Board Foot Volumes (Project)

T06N R06W S36 TyR/W 2.00
T06N R06W S36 TyTAKE 164.00

Project: DEMO
Acres 166.00

Page 1
Date 5/22/2012
Time 8:41:35AM

Spp	So Gr	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	DOCU														17		0.00	10.2			
D	DO2S	5	11.3	326	289	48		2	96	1		1	91	8	32	146	1.25	2.0			
D	DO3S	71	1.5	4,116	4,056	673			100			0	10	90	37	74	0.62	54.7			
D	DO4S	24	2.6	1,407	1,370	227		12	88			36	13	37	23	32	0.39	43.0			
D Totals		100	2.3	5,849	5,715	949		3	92	5	0	9	3	21	67	30	52	0.53	109.9		
H	DO2S	24		2	2	0				100				100	40	460	2.93	.0			
H	DO3S	70	1.8	6	6	1			100			10		90	35	125	1.11	.1			
H	DO4S	6		0	0	0			100					100	30	40	0.50	.0			
H Totals		0	1.3	9	9	1			76		24			12		88		34	134	1.17	.1
Totals			2.3	5,858	5,724	950		3	92	5	0	9	3	21	67	30	52	0.53	109.9		

T06N R06W S36 TTAKE	T06N R06W S36 TTAKE
Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt	BdFt
06N 06W 36 AREA1 TAKE 164.00 1	W

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			
								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	DO	CU																				
D	DO	2S	4	12.5	294	257	42			100				100				17		0.00		10.1
D	DO	3S	71	1.5	4,039	3,979	653			100				10	90			32	140	1.22		1.8
D	DO	4S	25	2.6	1,391	1,354	222	12	88					36	13	37	14	37	74	0.61		54.0
D	Totals		100	2.3	5,724	5,591	917	3	92	5				9	3	21	68	23	32	0.39		42.4
D	Totals		100	2.3	5,724	5,591	917	3	92	5				9	3	21	68	30	52	0.52		108.4
Type	Totals			2.3	5,724	5,591	917	3	92	5				9	3	21	68	30	52	0.52		108.4

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)							Page 1														
		Project: DEMO							Date 5/22/2012														
									Time 8:41:36AM														
T06N R06W S36 TR/W								T06N R06W S36 TR/W															
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt														
06N	06W	36	AREA1	R/W	2.00			1	W														
Spp	S	So	Gr	%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log			Logs Per /Acre			
					Net BdFt	Def%	Gross		Net	Log Scale Dia.				Log Length				Ln Ft	Bd Ft		CF/Lf		
D	DO	CU																					
D	DO	2S	18	1.7	2,967	2,915	6	20	69	11	8	29	63	37	213	1.55							13.7
D	DO	3S	65	.8	10,440	10,354	21	100			1	20	78	37	93	0.75							111.7
D	DO	4S	17	1.4	2,700	2,662	5	6	94		47	26	20	7	22	29	0.44						91.8
D	Totals			96	1.1	16,107	15,931	32	1	84	13	2	8	7	22	64	30	69	0.69				231.8
H	DO	2S	24		177	177	0			100			100	40	460	2.93							.4
H	DO	3S	70	1.8	531	521	1	100			10		90	35	125	1.11							4.2
H	DO	4S	6		39	39	0	100			100			30	40	0.50							1.0
H	Totals			4	1.3	746	737	1	76	24		12	88	34	134	1.17							5.5
Type Totals					1.1	16,853	16,668	33	1	84	12	3	8	7	21	65	30	70	0.71				237.3

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	DEMO		DATE	5/22/2012		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
06N	06W	36	AREA1	MAST	164.00	33	179	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		33	179	5.4						
CRUISE		14	67	4.8	27,987		.2			
DBH COUNT										
REFOREST										
COUNT		19	101	5.3						
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	32	65.1	16.6	58		97.8	10,446	10,407	3,082	3,082
DOUG FIR	25	96.3	11.7	36		72.3	5,724	5,591	1,696	1,696
SNAG	6	6.1	13.6	41		6.1				
HEMLEAV	4	3.2	18.7	62		6.1	746	737	219	219
TOTAL	<i>67</i>	<i>170.7</i>	<i>14.0</i>	<i>45</i>		<i>182.3</i>	<i>16,916</i>	<i>16,735</i>	<i>4,997</i>	<i>4,997</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.	INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	42.6	7.5	166	180	193					
DOUG FIR	69.6	14.2	64	75	85					
SNAG										
HEMLEAV	61.5	35.1	177	273	368					
TOTAL	<i>77.4</i>	<i>9.4</i>	<i>118</i>	<i>130</i>	<i>142</i>		<i>239</i>	<i>60</i>	<i>27</i>	
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.	INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	28.4	4.9	62	65	68					
DOUG FIR	91.5	15.9	81	96	112					
SNAG	265.6	46.2	3	6	9					
HEMLEAV	338.7	58.9	1	3	5					
TOTAL	<i>52.2</i>	<i>9.1</i>	<i>155</i>	<i>171</i>	<i>186</i>		<i>109</i>	<i>27</i>	<i>12</i>	
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.	INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	21.7	3.8	94	98	101					
DOUG FIR	79.8	13.9	62	72	82					
SNAG	255.6	44.4	3	6	9					
HEMLEAV	349.3	60.8	2	6	10					
TOTAL	<i>28.8</i>	<i>5.0</i>	<i>173</i>	<i>182</i>	<i>191</i>		<i>33</i>	<i>8</i>	<i>4</i>	
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.	INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	20.9	3.6	10,030	10,407	10,785					
DOUG FIR	75.7	13.2	4,855	5,591	6,326					
SNAG										
HEMLEAV	346.5	60.3	293	737	1,180					
TOTAL	<i>27.1</i>	<i>4.7</i>	<i>15,945</i>	<i>16,735</i>	<i>17,524</i>		<i>29</i>	<i>7</i>	<i>3</i>	

Log Stock Table - MBF

T06N R06W S36 TyR/W 2.00
 T06N R06W S36 TyTAKE 164.00

Project: DEMO
Acres 166.00

Page 1
Date 5/22/2012
Time 8:41:34AM

S T	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	30-39	40+	
D	DO	2S	30	0	5.6	0	.0					0								
D	DO	2S	32	50	12.2	44	4.6					43		1						
D	DO	2S	40	4		4	.4					1	2	1						
D	DO	3S	24	0		0	.0			0										
D	DO	3S	28	0		0	.0			0										
D	DO	3S	32	71	4.8	68	7.2			44	22	2								
D	DO	3S	34	0		0	.0			0										
D	DO	3S	36	193		193	20.4			154	39									
D	DO	3S	38	84		84	8.9			84										
D	DO	3S	40	334	2.0	327	34.5			124	56	148								
D	DO	4S	16	30		30	3.2			30	0									
D	DO	4S	18	52		52	5.5		28	15	9									
D	DO	4S	20	1		1	.1			1										
D	DO	4S	22	14		14	1.4			14										
D	DO	4S	24	0		0	.0			0										
D	DO	4S	26	16		16	1.7			16										
D	DO	4S	28	0		0	.0			0										
D	DO	4S	30	0		0	.0			0										
D	DO	4S	32	40		40	4.2			40										
D	DO	4S	34	44		44	4.6			44										
D	DO	4S	36	37	16.7	31	3.2			31										
D	Totals			971	2.3	949	99.8		28	597	126	151	45	1	1					
H	DO	2S	40	0		0	24.0							0						
H	DO	3S	22	0		0	3.9			0										
H	DO	3S	26	0		0	3.1			0										
H	DO	3S	40	1	2.0	1	63.7					1								
H	DO	4S	30	0		0	5.3			0										
H	Totals			1	1.3	1	.2			0	0	1		0						
Total	All Species			972	2.3	950	100.0		28	597	126	152	45	1	1					

Stand Table Summary

T06N R06W S36 TyR/W 2.00
T06N R06W S36 TyTAKE 164.00

Project **DEMO**
Acres **166.00**

Time: **8:41:37AM**
Grown Year:

S Spec T	Sample DBH	Trees	Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
			FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
D	8	4	89	26	16.579	5.79	8.29	5.0	20.0		41	166		69	28
D	9	2	91	26	7.343	2.89	7.34	5.0	20.0		37	147		61	24
D	10	6	86	69	15.916	8.68	15.92	13.7	53.3		218	849		361	141
D	11	8	88	66	18.393	11.57	18.39	15.1	57.4		279	1,055		462	175
D	12	3	91	54	3.730	2.93	3.78	17.9	49.9		68	188		112	31
D	13	6	88	55	9.418	8.68	9.42	20.3	60.0		191	565		318	94
D	14	10	91	67	10.894	11.65	10.93	22.5	69.9		246	764		408	127
D	15	13	86	91	4.984	6.11	9.88	22.2	77.1		219	761		364	126
D	16	6	75	72	4.196	5.86	6.32	24.4	47.5		154	300		256	50
D	17	10	91	73	3.808	6.00	5.78	31.1	102.7		180	593		299	99
D	18	3	85	71	1.658	2.93	3.32	26.6	85.2		88	283		146	47
D	19	4	87	82	.073	.14	.15	31.6	103.7		5	15		8	3
D	20	3	87	79	.049	.11	.10	34.3	121.7		3	12		6	2
D	21	2	90	84	.030	.07	.06	42.2	150.0		3	9		4	1
D	22	1	89	81	.014	.04	.03	43.5	135.0		1	4		2	1
D	25	1	88	72	.011	.04	.01	82.0	370.0		1	4		1	1
D	Totals	82	88	57	97.096	73.49	99.70	17.4	57.3		1,732	5,715		2,876	949
H	17	2	86	87	.023	.04	.05	31.0	105.0		1	5		2	1
H	18	1	87	64	.010	.02	.01	50.0	150.0		1	2		1	0
H	27	1	87	83	.005	.02	.01	72.5	260.0		1	2		1	0
H	Totals	4	86	80	.038	.07	.07	39.8	133.7		3	9		4	1
Totals		86	88	57	97.134	73.56	99.76	17.4	57.4		1,735	5,724		2,880	950

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT DEMO		DATE 5/22/2012				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
06N	06W	36	AREA1	LEAV	164.00	33	108	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL	33	108	3.3							
CRUISE	14	42	3.0	12,195			.3			
DBH COUNT										
REFOREST										
COUNT	19	57	3.0							
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	32	65.1	16.6	58		97.8	10,446	10,407	3,082	3,082
SNAG	6	6.1	13.6	41		6.1				
HEMLEAV	4	3.2	18.7	62		6.1	746	737	219	219
TOTAL	42	74.4	16.5	57		110.0	11,193	11,144	3,301	3,301
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	42.6	7.5	166	180	193					
SNAG										
HEMLEAV	61.5	35.1	177	273	368					
TOTAL	66.6	10.3	146	163	180	177	44	20		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	28.4	4.9	62	65	68					
SNAG	265.6	46.2	3	6	9					
HEMLEAV	338.7	58.9	1	3	5					
TOTAL			74	74	74					
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	21.7	3.8	94	98	101					
SNAG	255.6	44.4	3	6	9					
HEMLEAV	349.3	60.8	2	6	10					
TOTAL			110	110	110					
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	20.9	3.6	10,030	10,407	10,785					
SNAG										
HEMLEAV	346.5	60.3	293	737	1,180					
TOTAL	7.9	1.4	10,991	11,144	11,297	2.	1	0		

TC TSTNDSUM		Stand Table Summary														
Project DEMO											T06N R06W S36 TLEAV		T06N R06W S36 TLEA			
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page:	1		Date:	05/22/20				
06N	06W	36	AREA1	LEAV	164.00			Time:	8:43:09AM							
Spc	S T	DBH	Sample Trees	FF 16'	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
									Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
DL		12	1	82	88	3.890	3.06	7.78	13.0	45.0		101	350		166	57
DL		14	2	82	72	5.716	6.11	8.57	19.7	56.7		169	486		277	80
DL		15	9	89	69	22.758	27.50	37.70	20.6	68.0		776	2,564		1,273	421
DL		16	2	91	91	4.377	6.11	8.75	25.7	97.5		225	853		370	140
DL		17	6	84	88	11.631	18.33	23.26	27.2	89.2		632	2,074		1,036	340
DL		18	1	88	90	1.729	3.06	3.46	31.5	105.0		109	363		179	60
DL		19	4	87	82	6.207	12.22	12.41	31.6	103.8		393	1,288		644	211
DL		20	3	88	79	4.202	9.17	8.40	34.3	121.7		289	1,022		473	168
DL		21	2	90	84	2.541	6.11	5.08	42.2	150.0		215	762		352	125
DL		22	1	89	81	1.157	3.06	2.31	43.5	135.0		101	313		165	51
DL		25	1	89	72	.896	3.06	.90	82.0	370.0		73	332		121	54
DL	Totals		32	87	79	65.104	97.77	118.63	26.0	87.7		3,082	10,407		5,054	1,707
HL		17	2	86	87	1.938	3.06	3.88	31.0	105.0		120	407		197	67
HL		18	1	87	64	.865	1.53	.86	50.0	150.0		43	130		71	21
HL		27	1	87	83	.384	1.53	.77	72.5	260.0		56	200		91	33
HL	Totals		4	86	80	3.187	6.11	5.51	39.8	133.7		219	737		359	121
SN		10	1	89	25	1.867	1.02									
SN		12	1	82	74	1.297	1.02									
SN		14	1	82	69	.953	1.02									
SN		16	1	82	78	.729	1.02									
SN		17	1	89	47	.646	1.02									
SN		18	1	91	68	.576	1.02									
SN	Totals		6	86	55	6.069	6.11									
Totals			42	87	77	74.360	110.00	124.14	26.6	89.8		3301	11,144		5,414	1,828

Exhibit "A"

OF TIMBER SALE CONTRACT NO 341-13-21
KAUPPI THIN

PORTIONS OF SECTION 1, T5N, R6W AND
PORTIONS OF SECTION 36, T6N, R6W, W.M.,
CLATSOP COUNTY, OREGON.

Approximate Net Acreage:

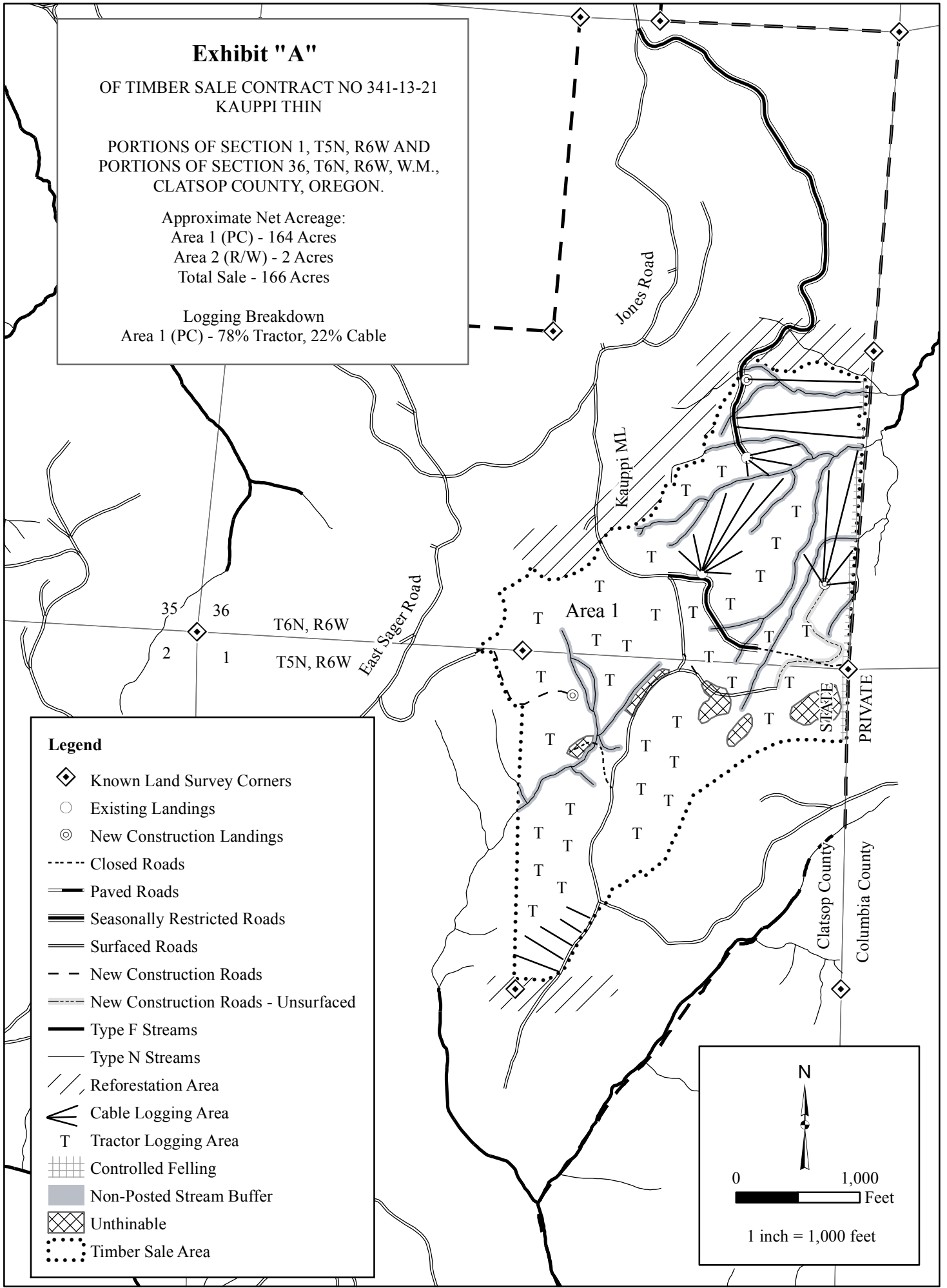
Area 1 (PC) - 164 Acres

Area 2 (R/W) - 2 Acres

Total Sale - 166 Acres

Logging Breakdown

Area 1 (PC) - 78% Tractor, 22% Cable



Legend

- ◊ Known Land Survey Corners
- Existing Landings
- ⊙ New Construction Landings
- ⋯ Closed Roads
- Paved Roads
- Seasonally Restricted Roads
- Surfaced Roads
- - New Construction Roads
- New Construction Roads - Unsurfaced
- Type F Streams
- Type N Streams
- /// Reforestation Area
- ∧ Cable Logging Area
- T Tractor Logging Area
- ▤ Controlled Felling
- Non-Posted Stream Buffer
- ▨ Unthinable
- ⋯ Timber Sale Area

