



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Moore Mullenbach
Combination
Sale 341-12-25

District: Astoria

Date: July 15, 2011

cost summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$236,080.66	\$240,226.98	\$476,307.64
		Project Work:	\$(38,496.00)
		Advertised Value:	\$437,811.64



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timber description

Location: Portions of Sections 26 and 27, T5N, R7W, W.M., Clatsop County, Oregon.

Stand Stocking: 60%

SpecieName	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	15	0	97
Western Hemlock / Fir	31	0	96
Sitka Spruce	20	0	97
Alder (Red)	15	0	95
Maple	20	0	93

Volume by Grade	2S	3S	4S	Camprur	Total
Douglas - Fir	192	362	124	0	678
Western Hemlock / Fir	99	10	0	0	109
Sitka Spruce	13	3	0	0	16
Alder (Red)	0	0	0	688	688
Maple	0	0	0	39	39
Total	304	375	124	727	1,530



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comments: Pond Values Used: Local Pond Values.

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

Western redcedar and Other Cedars Stumpage Price = Pond Value
minus Logging Cost
\$734.98/MBF = \$950/MBF - \$215.02/MBF

SCALING COST ALLOWANCE = \$5.00/MBF

FUEL COST ALLOWANCE = \$4.00/Gallon

HAULING COST ALLOWANCE

Hauling costs equivalent to \$740 daily truck cost.

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

100% Branding and Painting: \$1/MBF x 1,530 MBF = \$1,530

Log Loader Slash & Landing Piling (includes Move-In and Pile
Materials): = \$7,868 (see attached appraisal)

Machine washing for noxious weed compliance = \$2,000

TOTAL Other Costs (with Profit & Risk to be added) = \$11,398

Other Costs (No Profit & Risk added):

Waterbar and block dirt road segments after harvest:

\$13.85/station x 16 stations = \$222

Additional logging costs for working off chip seal on Mullenbach
County Road:

1 Cutter = 1 day x \$300/day = \$300

2 Flaggers (\$160/flagger/day) = 1 day x \$320/day = \$320

1 Rubber Tired Skidder = 8 hours x \$85/hour = \$680

Move-in = \$622

Snag Creation:

Create 32 snags x \$40.00/snag = \$1,280

TOTAL Other Costs (No Profit & Risk added) = \$3,424



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logging conditions

combination#: 1
Douglas - Fir 15.77%
Western Hemlock / Fir 93.00%
Sitka Spruce 93.00%
Alder (Red) 93.00%
Maple 93.00%

yarding distance: Medium (800 ft) **downhill yarding:** No
logging system: Shovel **Process:** Stroke Delimber
tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 10.0 **bd. ft / load:** 3,500
cost / mbf: \$41.09

machines: Stroke Delimber (B)

combination#: 2
Douglas - Fir 1.19%
Western Hemlock / Fir 7.00%
Sitka Spruce 7.00%
Alder (Red) 7.00%
Maple 7.00%

yarding distance: Short (400 ft) **downhill yarding:** No
logging system: Cable: Small Tower <=40 **Process:** Stroke Delimber
tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 8.0 **bd. ft / load:** 3,500
cost / mbf: \$101.22

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

combination#: 3
Douglas - Fir 83.04%

yarding distance: Medium (800 ft) **downhill yarding:** No
logging system: Shovel **Process:** Manual Delimiting
tree size: Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF
loads / day: 7.0 **bd. ft / load:** 4,000
cost / mbf: \$89.45

machines: Shovel Logger



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logging costs

Operating Seasons:	2.00	Profit Risk:	12.00%
Project Costs:	\$38,496.00	Other Costs (P/R):	\$11,398.00
Slash Disposal:	\$0.00	Other Costs:	\$3,424.00

Miles of Road

Road Maintenance: \$5.80

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	2.0	4.0
Western Hemlock / Fir	\$0.00	2.0	4.0
Sitka Spruce	\$0.00	1.0	4.0
Alder (Red)	\$0.00	2.0	3.0
Maple	\$0.00	2.0	3.0



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Local Pond Values

Date	Specie	Grade	Value
7/15/11	Douglas - Fir	2S	\$545.00
7/15/11	Douglas - Fir	3S	\$510.00
7/15/11	Douglas - Fir	4S	\$485.00
7/15/11	Western Hemlock / Fir	2S	\$455.00
7/15/11	Western Hemlock / Fir	3S	\$430.00
7/15/11	Sitka Spruce	2S	\$445.00
7/15/11	Sitka Spruce	3S	\$435.00
7/15/11	Alder (Red)	Camprun	\$545.00
7/15/11	Maple	Camprun	\$445.00



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logging costs breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling	Other	Total
Douglas - Fir									
\$81.96	\$5.97	\$5.73	\$85.07	\$7.45	\$22.34	\$0.00	\$5.00	\$2.24	\$215.76
Western Hemlock / Fir									
\$45.30	\$6.03	\$5.73	\$85.89	\$7.45	\$18.05	\$0.00	\$5.00	\$2.24	\$175.69
Sitka Spruce									
\$45.30	\$5.97	\$5.73	\$170.14	\$7.45	\$28.15	\$0.00	\$5.00	\$2.24	\$269.98
Alder (Red)									
\$45.30	\$6.09	\$5.73	\$115.63	\$7.45	\$21.62	\$0.00	\$5.00	\$2.24	\$209.06
Maple									
\$45.30	\$6.21	\$5.73	\$117.83	\$7.45	\$21.90	\$0.00	\$5.00	\$2.24	\$211.66

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$515.34	\$299.58	\$0.00
Western Hemlock / Fir	\$0.00	\$452.71	\$277.02	\$0.00
Sitka Spruce	\$0.00	\$443.12	\$173.14	\$0.00
Alder (Red)	\$0.00	\$545.00	\$335.94	\$0.00
Maple	\$0.00	\$445.00	\$233.34	\$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
Sitka Spruce	0	\$0.00	\$0.00
Alder (Red)	0	\$0.00	\$0.00
Maple	0	\$0.00	\$0.00

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	678	\$299.58	\$203,115.24
Western Hemlock / Fir	109	\$277.02	\$30,195.18
Sitka Spruce	16	\$173.14	\$2,770.24
Alder (Red)	688	\$335.94	\$231,126.72
Maple	39	\$233.34	\$9,100.26

Gross Timber Sale Value

Recovery: \$476,307.64

Prepared by: Jasen McCoy

Phone: 503-325-5451

Site Prep Appraisal

Sale Number: 341-12-25
Sale Name: Moore Mullenbach Combination
Date: 04/06/2011

Vegetation Type/Zone	Vegetation Type/Zone Code	Production Rate (hr/ac)	Estimated Piles/Acre
Doug-fir	A	1.0	3.0
Hemlock/Fir	B	1.5	4.5
Hemlock/Spruce	C	2.0	6.0
Hemlock	D	2.0	6.0
Conifer/Hardwood	E	1.5	3.0

Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area
1	MC	E	37	55.5	\$110.00	\$6,105.00
Sub Total =						\$6,105.00
Sale Area	Number of Landings to be Piled	Cost/Landing Pile*	Total Cost/Area	Number of In-Unit Piles	Material Cost/Pile	Total Cost/Area
1	1	\$263.00	\$263.00	111	\$5.00	\$555.00
Sub Total =						\$818.00
<i>*Cost includes separating firewood</i>						
Move-In Allowance	Number of Move-In's	Total Move-In Allowance				
\$945.00	1	\$945.00				
Sub Total =						\$945.00
Grand Total =						\$7,868.00

Road Maintenance Cost Summary

Sale: Moore Mullenbach
 Date: 04-May-11
 By: J.McCoy *FL*

MBF: 1,705
 \$\$/MBF: \$5.80

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	Production Rates			
							Miles/day	Distance(miles)	Days	
Progressive Operations 1st Entry	Grader 14G	\$675	1	6	\$93	\$1,233	Production Rates	Miles/day	Distance(miles)	Days
	Dump Truck 12CY	\$141	1	4	\$73	\$433	Grader	2.5	1.5	0.6
	FE Loader C966	\$675	1	4	\$77	\$983				
Final Road Maintenance	Grader 14G	\$675	1	23	\$93	\$2,845	Production Rates	Miles/day	Distance(miles)	Days
	Dump Truck 12CY	\$141	1	8	\$73	\$725	Grader	1.5	3.5	2.3
	FE Loader C966	\$675	1	8	\$77	\$1,291	Vibratory Roller*	1.5	3.5	2.3
	Vibratory Roller* Water Truck 2,500 gallon Labor	\$675 \$165	1 1	10 8 4	\$72 \$83 \$38	\$1,395 \$829 \$152				
Total										\$9,886

*Final Road Maintenance Only

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Moore Mullenbach Combination

NEW CONSTRUCTION:

Project No. 1

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Rocked Roads	1A-1B (0+00 to 18+00), 2A-2B, 2C-2D	34.00	\$17,915
Dirt Roads	1A-1B (18+00 to 26+50), 1C-1D	16.00	\$4,694
TOTALS	0.95 miles	50.00	\$22,609

ROAD IMPROVEMENT:

Project No. 1

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Rocked Roads	I1-I2	61.00	\$6,410
TOTALS	1.16 miles	61.00	\$6,410

SPECIAL PROJECTS:

Project No. 2

Vacating	\$1,736
Project Work Road Maintenance	\$2,268

MOVE IN:

<u>Equipment</u>	<u>Cost</u>
Dozer (D8)	\$1,220
Dump Trucks (12 cy x 4)	\$564
F E Loader (C966)	\$675
Grader (14G)	\$675
Vibratory Roller	\$675
Water Truck (2,500 gallon)	\$165
Backhoe (C 312)	\$279
Excavator (C330)	\$1,220
TOTAL	\$5,473

GRAND TOTAL **\$38,496**

Compiled By: J. McCoy FL

Date: 05/11/2011

X:\Jewell_Unit\Timber Sales\2011\Moore Mullenbach\Sale Prep\Projects\Summary of Construction_MM.xls

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Moore Mullenbach Combination (Surfaced Roads) NEW CONSTRUCTION: 34.00 STATIONS 0.64 MILES
 ROADS: 1A-1B (STA 0+00 to 18+00), 2A-2B (8+70), 2C-2D (7+30). IMPROVEMENT: STATIONS 0.00 MILES

Method	Acres/amount	Rate	=	Cost
Scatter Outside of R/W			=	
1A-1B (0+00-18+00), 2A-2B, & 2C-2D.	3.0	\$1,161.00	=	\$3,483.00
SUB TOTAL FOR CLEARING & GRUBBING				\$3,483

Material	Cy/amount/station	Rate	=	Cost
Balanced Construction 1A-1B (0+00-18+00), 2A-2B, 2C-2D, \$\$/station	34	\$106.00	=	\$3,604.00
Landing Construction 2B and 2D \$\$/landing	2	\$338.00	=	\$676.00
Construct "T" Junctions 1A, 2A (Hrs. D8)	3	\$147.00	=	\$441.00
SUB TOTAL FOR EXCAVATION				\$4,721

Sub Total of Clearing and Excavation:

\$8,204

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Moore Mullenbach Combination (Dirt Roads) NEW CONSTRUCTION: 16.00 STATIONS 0.30 MILES
 ROADS: 1A-1B (18+00 to 26+50), 1C-1D (7+50) IMPROVEMENT: STATIONS 0.00 MILES

CLEARING & GRUBBING	Method	Acres/amount	x	Rate	=	Cost
	Scatter Outside of R/W	2.0	x	\$1,161.00	=	\$2,322.00
SUB TOTAL FOR CLEARING & GRUBBING						\$2,322

EXCAVATION	Material	Cy/amount/station	x	Rate	=	Cost
	Balanced construction 1A-1B & 1C-1D \$\$/Sta	16.0	x	\$106.00	=	\$1,696.00
	Landing Construction \$\$/landing 1B, 1D	2	x	\$338.00	=	\$676.00
SUB TOTAL FOR EXCAVATION						\$2,372

CULVERT MATERIALS AND INSTALLATION					No. bands	Rate	Cost
Location	Dia/type	Lineal ft.	Rate	Cost			
Subtotal Culverts & Installation:							\$0.00
							\$4,694

Sub Total of clearing and Excavation:

Project No. 1 New Road Construction

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Moore Mullenbach Combination
 ROAD: 1A-1B [STA 0+00-18+00], 2A-2B (8+70), 2C-2D (7+30)

NEW CONSTRUCTION: 34.00 STATIONS
 IMPROVEMENT: 0.00 STATIONS

0.64 MILES
 0.00 MILES

ROAD SEGMENT		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	0+00 to 18+00			
Subgrade prep:								
Grade, Shape and Ditch 16'	1A-1B [0+00-18+00]			station	18.00	900	\$3.10	\$2,790
Grade and Shape 14' outloped	2A-2B, 2C-2D			TO's	2	44	\$3.10	\$136
Subgrade Compactor	1A-1B [STA 0+00-18+00], 2A-2B, 2C-2D			TA's	1	22	\$3.10	\$68
				T-junctions	1	44	\$3.10	\$136
				T-junctions	1	22	\$3.10	\$68
Total Rock for Road Segment: 1A to 1B 1,032 \$3,199								
ROAD SEGMENT 2A to 2B								
POINT TO POINT								
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A to 2B	Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Base Rock	4" 0"	3+50	8	station	8.70	435	\$3.10	\$1,349
Turnouts	4" 0"	7+60	8	TO's	1	22	\$3.10	\$68
Turnarounds	4" 0"	2A (T junction)	N/A	TA's	1	22	\$3.10	\$68
T-junctions	1 1/2" 0"	2A (T junction)	N/A	T-junctions	1	22	\$3.10	\$68
Landings	6" 0"	2B	N/A	Landings	1	50	\$3.08	\$154
Total Rock for Road Segment: 2A to 2B 595 \$1,844								
ROAD SEGMENT 2C to 2D								
POINT TO POINT								
Application	Rock Size and Type	Location	Depth of Rock (inches)	2C to 2D	Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Base Rock	4" 0"	4+00	8	station	7.30	365	\$3.10	\$1,132
Turnouts	4" 0"	5+60	8	TO's	1	22	\$3.10	\$68
Turnarounds	4" 0"	2C	N/A	TA's	1	22	\$3.10	\$68
Junctions	4" 0"	2D	N/A	junctions	1	11	\$3.10	\$34
Landings	6" 0"	2D	N/A	Landings	1	50	\$3.08	\$154
Total Rock for Road Segment: 2C to 2D 470 \$1,456								
Description: Water, Process & Compact Crushed Base Rock:								
Processing: No. sta 34.0 Rate/sta \$49.02 Cost \$1,667								
Processing: \$0								
SUB TOTAL FOR SURFACING \$9,404								

SPECIAL PROJECTS		
Description	Quantity	Rate
Develop pit run 100cy (\$2.30/cy)	100	\$2.30
Unblock/Block quarry and stockpile access	1	\$77.00
1 hr. C966		\$0.00
		\$0.00
		\$307

SUB TOTAL FOR SPECIAL PROJECTS		
6" 0" gr	4" 0"	Total
100	1,953	44
		2,097

CY SUB TOTAL FOR SURFACING		
GRAND TOTAL		
		\$9,711

Project No. 1 Road Improvement

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Moore Mullenbach Combination NEW CONSTRUCTION: 0.00 STATIONS 0.00 MILES
 ROAD: I1-I2 IMPROVEMENT: 61.00 STATIONS 1.16 MILES

Subgrade prep:	Description	Stations/ amount	Rate/ sta/amt	Cost
Grade, Shape and Ditch	I1-I2	61	\$21.55	\$1,314.55
Scatter ditch waste materials		30	\$10.78	\$323.40
Surfacing Rock Processing and Compaction (Subgrade Leveling)		61	\$49.02	\$2,990.22

ROAD SEGMENT	Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
					I1 to I2	Sta. to Sta. 0+00 to 61+00 Number of			
Subgrade Leveling	1 1/2"-0"	N/A	I1 to I2	N/A			55	\$3.10	\$171
Culvert Bed./ Backfill	1 1/2"-0"	N/A	34+00 (1A) & 40+60 (2C)	N/A	culvert	22	44	\$3.10	\$136
Turnouts	1 1/2"-0"	N/A	I1 to I2	N/A	turnout	11	66	\$3.10	\$205
Total Rock for Road Segment:							165		\$512

CULVERT MATERIALS AND INSTALLATION			
Location	Dia/type	Lineal ft.	Rate
I1 to I2	18/CPP	30	\$17.64
I1 to I2	18/CPP	40	\$17.64
Subtotal Culverts & Installation:			
			\$1,234.80

Description	Quantity	Rate	Cost
Other/miscellaneous:			
Culvert stakes & markers:	2	\$18.00	\$36.00
Installed 6' Fiberglass Markers @\$18.00 each			

SUB TOTAL FOR SURFACING			
6"-0"pr	4"-0"	1 1/2"-0"	Total
100	1,953	209	2,262

CY GRAND TOTAL FOR SURFACING

J. McCoy 05/10/2011

\$6,410.47

Moore Mullenbach Combination Project No. 2 Vacating.

Description	Quantity	Rate	Cost
Remove fill @ Pt. "V1". Develop minimum 4' stream channel.	10	\$147.00	\$1,470.00
Slope back material @ 1 1/2:1 (C330:\$/hr)	4	\$38.00	\$152.00
Spread grass seed and straw mulch (Laborer \$/hr)	10	\$10.00	\$100.00
Straw	10	\$1.40	\$14.00
Pasture seed mix (Annual Rye 33%, Orchard Grass 33%, Perennial Rye 34%) (\$/lb.)	0	\$1,220.00	\$0.00
Move-In: Equipment on site, moved in with Project No. 1			

Grand Total

\$1,736

Road Maintenance after completion of Projects

Sale: Moore Mullenbach
Date: 04-May-11
By: J. McCoy FL

Type	Equipment/Rationale	Hours	Rate	Cost
Final Haul	Grader 14G	8	\$93	\$744
Road	Dump Truck 12CY	3	\$73	\$219
Maintenance	FE Loader C966	3	\$77	\$231
Haul Route	Vibratory Roller	8	\$72	\$576
	Water Truck 2,500 gallon	6	\$83	\$498
Total				\$2,268

Miles/day	Distance(miles)	Days
1.5	1.0	0.7

Production Rates
Grader

**Moore Mullenbach Combination
TIMBER CRUISE REPORT
FY 2011**

1. **Sale Area Location:** Areas 1, 2, and 3 R/W are located in portions of Sections 26, and 27, T5N, R7W, W.M., Clatsop County, Oregon.

2. **Fund Distribution:** BOF 100%
Tax Code 8-01 (81%) 8-02 (19%)

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Existing R/W	Non-Thinnable	GTRA	New R/W	Stream Buffer	Net Acres	Survey Method
1	Modified Clearcut	44	0	0	1	1	2	40	GIS
2	Partial Cut	150	4	4	0	3	3	136	GIS
3 R/W	Right-of-way	4	0	0	0	0	0	4	GIS
TOTALS		198	4	4	1	4	5	180	

4. **Cruisers and Cruise Dates:** Area 1 was cruised by Derek Bangs, Jasen McCoy, and Kevin Berry, March 15th, 2011. Area 2 was cruised by Derek Bangs, Bryce Rodgers, and Kraig Kirkpatrick, May 4th, 2011

5. **Cruise Method and Computation:**

Area 1 is a modified clearcut unit and was variable plot cruised using a 40 BAF. These plots are located on a 3 chain by 4 chain grid, with every third plot measured and graded. A total of 36 plots were sampled, with 13 measured and graded plots, and 23 count plots. Cedar is a reserve species, and was recorded as "leave" trees.

Area 2 is an "auto-mark" thinning unit (SDI 30), and was variable plot cruised using a 40 BAF. These plots are located on a 3 chain by 9 chain grid, with every third plot measured and graded. A total of 50 plots were sampled, with 16 measured and graded plots, and 34 count plots. Cedar and alder are reserve species, and were recorded as "leave" trees. The "biggest and best" trees were recorded as "leave" trees to meet a target residual basal area of 130 ft²/acre. Hardwoods do not count towards the residual basal area.

Area 3 R/W The right-of-way volume within the harvest areas was calculated by multiplying Area 2 R/W acreage and Area 1 R/W acreage by the average volume per acre from the plots in Areas 1 and 2. In-sale right-of-way totals 4 acres. There is no merchantable timber within the right-of-way outside the sale areas.

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	05N07W SEC 26	AREA1	TAKE	40
2	05N07W SEC 27	AREA2	TAKE	136
3 R/W (Area 1)	05N07W SEC 26	AREA3	RW	1
3 R/W (Area 2)	05N07W SEC 27	AREA3	RW	3

6. Timber Description:

Area 1 is a modified clearcut unit, approximately 60 years-old, dominated by red alder with scattered, western hemlock, Douglas-fir, and cedar. The average red alder tree size to be harvested is 14.6 inches DBH, with an average height of 49 feet to a merchantable top (6 inch d.i.b.). The average hemlock tree size is 36.0 inches DBH and 110 feet to a merchantable top (6 inch d.i.b., or 40% of the diameter at 16 ft.). The average Douglas-fir tree size is 33.4 inches DBH and 111 feet to a merchantable top (6 inch d.i.b., or 40% of the diameter at 16 ft.). The average volume per acre to be harvested (net) is 22.2 MBF.

Areas 2 is an "auto-mark" thinning unit, approximately 35 years old, consisting of Douglas-fir stands mixed with the occasional western hemlock, red alder, and cedar. This stand will be thinned to a SDI of 30 (130 Sq.Ft.BA), removing approximately 59 trees per acre and 4.1 MBF/acre. The average conifer "take" tree size is 14.3 inches DBH and 41 feet to a merchantable top (6 inch d.i.b.).

Area 3 R/W is similar to the timber description mentioned above for Areas 1 and 2. The weighted average volume (net) is approximately 19.4 MBF/acre.

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

Statistics for Stand B.F. volumes

Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1 (MC)	55%	11%	63.8%	10.6%
2 (PC)	40%	10%	37.3%	5.3%

8. Volumes by Species and Log Grade: (See "Species, Sort, Grade - Type and Project Reports, attached, of individual sale areas and combined areas and two 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	CampRun	% D & B	% Sale
Douglas-fir	15"	678	192	362	124	0	6%	50%
Hemlock/true fir	31"	109	99	10	0	0	5%	6%
Spruce	20"	16	13	3	0	0	6%	1%
Alder	15"	688	0	0	0	688	2%	40%
Maple	20"	39	0	0	0	39	34%	2%
TOTALS		1,530	304	375	124	727		

9. Approvals:

Prepared by: Jasen McCoy Date: June 7, 2011

Unit Forester Approval: Cull-R. B. [Signature] Date: 6/17/11

10. Attachments:

- Cruise Designs and Maps - 6 pages
- Volume Reports - 4 pages
- Statistics Reports - 10 pages
- Log Stock Tables - 3 pages
- Stand Table Summary - 1 page

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Moore Mullenback Area(s) 1

Harvest Type: (MC)

Approx. Cruise Acres: 40 Estimated CV% 55 Net BF SE% Objective 11 Net BF

Planned Sale Volume: 1,462 Estimated Sale Area Value/Acre: \$9,050/Ac
(34 MBF/Ac.)

A. **Cruise Goals:** (a) Grade minimum 60 Alder and 15 conifer:
(b) Sample 36 cruise plots (12 grade/ 23 count); (c) Other goals 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 40 (Full point; Half point) (circle one)
Cruise Line Direction(s) N-S
Cruise Line Spacing 4 (chains)
Cruise Plot Spacing 3 (chains)
Grade/Count Ratio 1:2

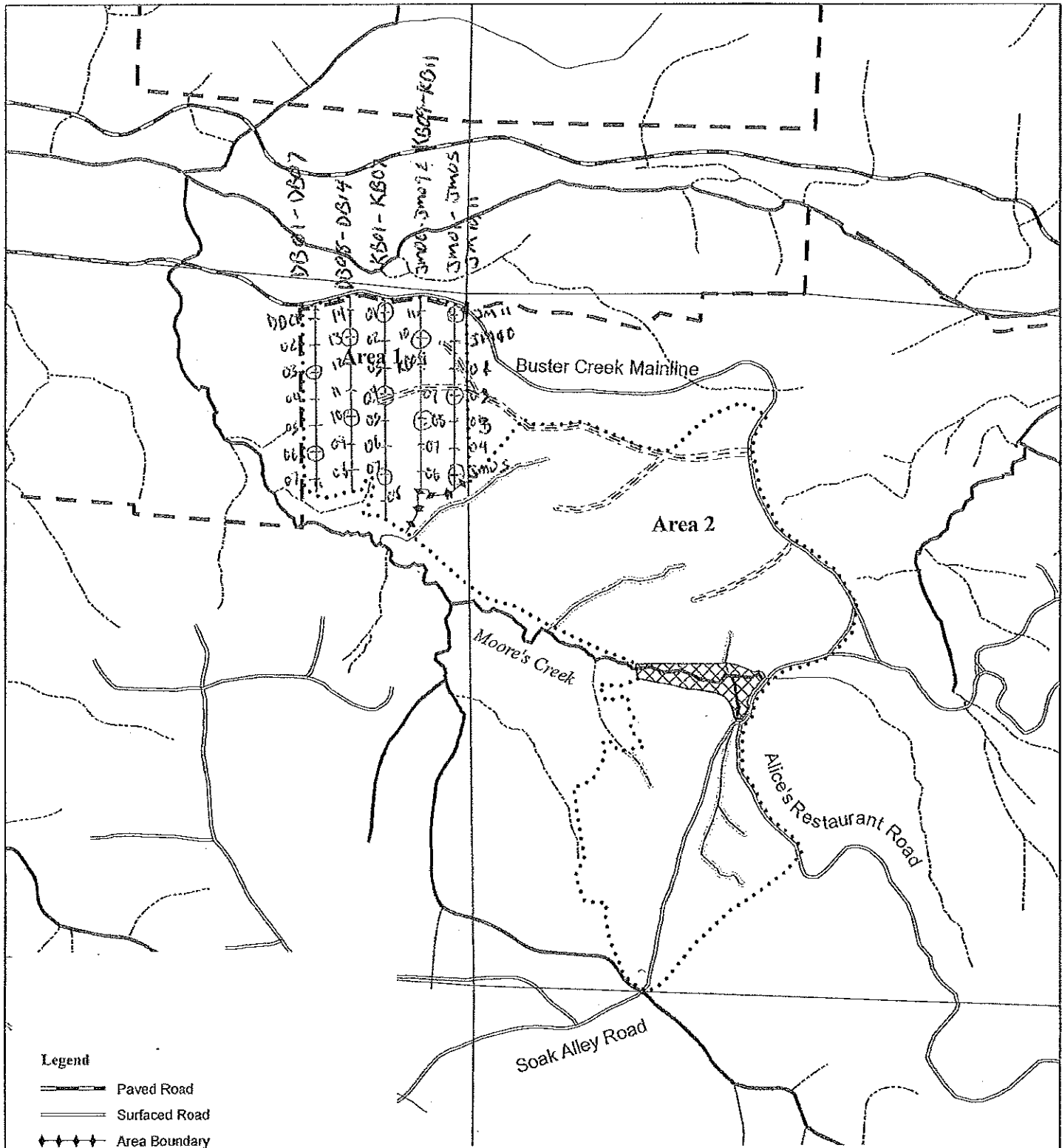
Cedar and marked wildlife trees are leave trees and are recorded as such. Record snags (SN) as cull and estimate heights and diameters. Grade alder as camprun-sawlogs (30 net BF minimum). Do not take plots in buffers.

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: Jasen McCoy
 Approved by: *Jasen McCoy*
 Date: 3/10/11



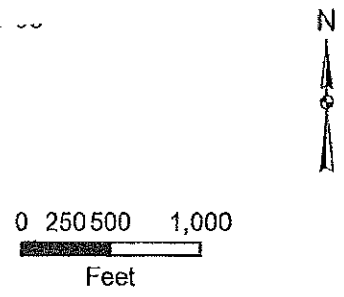
Legend

- Paved Road
- Surfaced Road
- Area Boundary
- Timber Sale Boundary
- New Road Construction
- Type F Stream
- Type N Stream
- Unknown Stream
- Ownership Boundary
- New Shapefile
- Right-of-Way
- Non Thinnable Area
- Non Posted Stream Buffer

Exhibit "A"
 OF TIMBER SALE CONTRACT NO. 341
 Moore Mullenback
 Portions of Sections 26 & 27,
 T5N, R7W, W.M., Clatsop County, OR

Approximate Net Acreage:

Area 1 (MC) -	41 Acres
Area 2 (PC) -	133 Acres
Area 3 (R/W)-	4 Acres



**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Moore Mullenbach Area(s) 2

Harvest Type: (PC)

Approx. Cruise Acres: 136 Estimated CV% 40 Net BF SE% Objective 10 Net BF

Planned Sale Volume: 930 MBF Estimated Sale Area Value/Acre: \$1,500/Ac
(7 MBF/Ac.)

A. **Cruise Goals:** (a) Grade minimum 100 conifer:
(b) Sample 51 cruise plots (17 grade/ 34count); (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 40 (Full point; Half point) (circle one)
Cruise Line Direction(s) N-S
Cruise Line Spacing 9 (chains)
Cruise Plot Spacing 3 (chains)
Count/Grade Ratio 2:1

The BA target is 140 sq. ft. Select 3-4 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 in a buffer or a road offset by 1 chain and continue. All cedars are leave trees and count towards the leave tree basal area. Alder is 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.

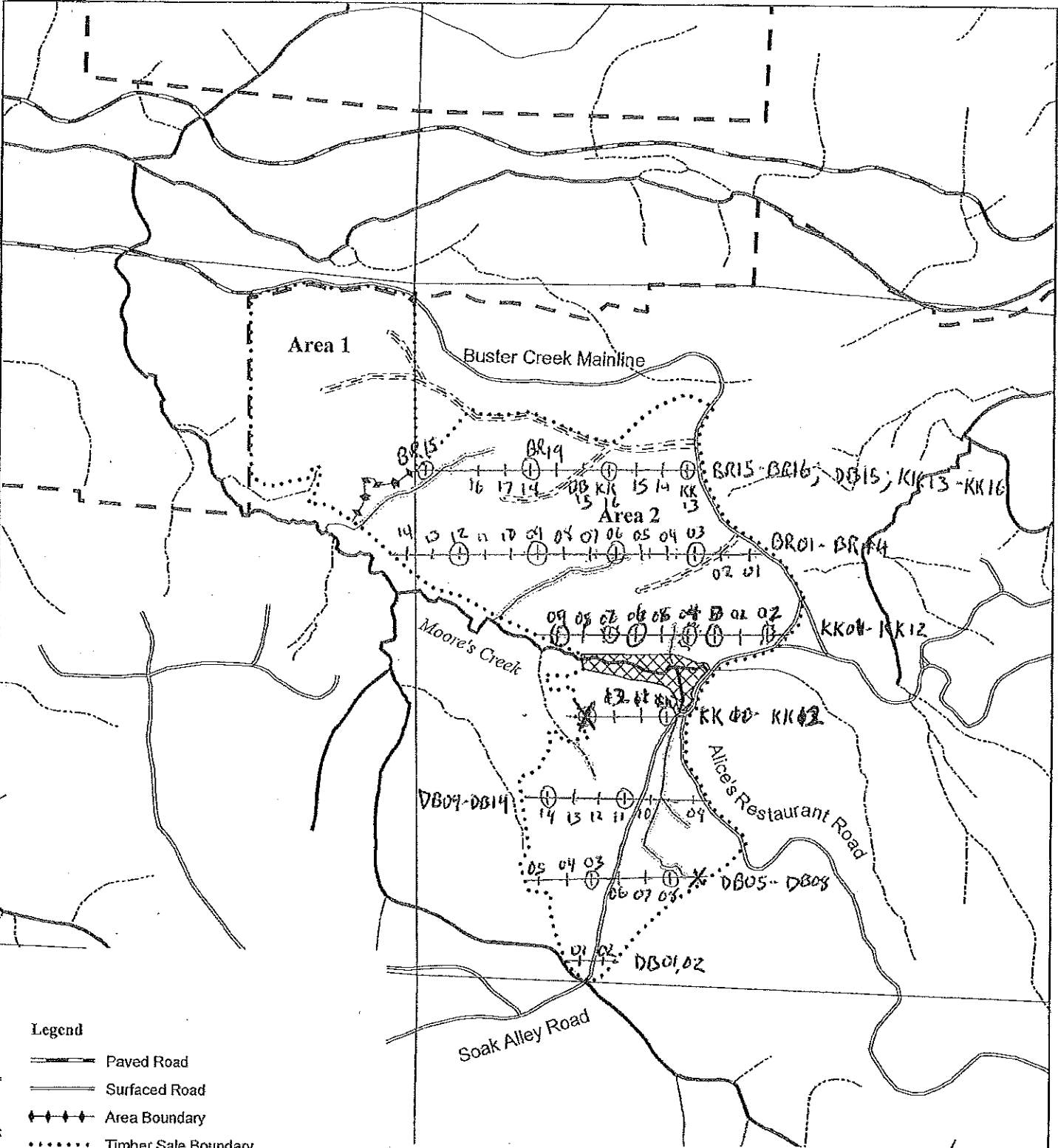
C. **Tree Measurements:**

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: Jasen McCoy
Approved by: [Signature]
Date: 3/2/11

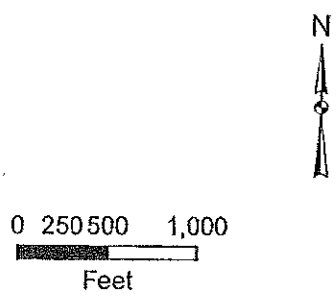


- Legend**
- Paved Road
 - Surfaced Road
 - Area Boundary
 - Timber Sale Boundary
 - New Road Construction
 - Type F Stream
 - Type N Stream
 - Unknown Stream
 - Ownership Boundary
 - New Shapefile
 - Right-of-Way
 - Non Thinnable Area
 - Non Posted Stream Buffer

Exhibit "A"
 OF TIMBER SALE CONTRACT NO. 341-
 Moore Mullenback
 Portions of Sections 26 & 27,
 T5N, R7W, W.M., Clatsop County, OR

Approximate Net Acreage:

Area 1 (MC) -	41 Acres
Area 2 (PC) -	133 Acres
Area 3 (R/W)-	4 Acres



Species, Sort Grade - Board Foot Volumes (Project)

T05N R07W S26 TyRWM
THRU
TT5N RR7W S27 TyTAK

Project: MULLEN
Acres 180.00

Page 1
Date 6/7/2011
Time 10:49:40AM

Spp	S T	So rt	Gr 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				
S	DOCU				100.0	0										13		0.00	.0	
S	DO2S	86			6.1	79	75	13						100	8	92	36	1439	8.38	.1
S	DO3S	14			2.3	12	12	2		83	3	15		83	15	3	30	47	0.68	.2
S Totals		1			5.8	92	86	16		11	0	88		18	2	80	31	283	2.20	.3
M	DOCU				100.0	101										15		0.00	.5	
M	DOCR	100			3.9	224	215	39		70	19	11		18	17	60	27	90	1.26	2.4
M Totals		3			33.7	324	215	39		70	19	11		18	17	60	25	75	1.13	2.9
A	DOCU				100.0	12										4		0.00	1.2	
A	DOCR	100			1.2	3,870	3,822	688		0	70	26	3	6	22	23	29	82	0.82	46.4
A Totals		45			1.5	3,882	3,822	688		0	70	26	3	6	22	23	28	80	0.82	47.6
H	DOCU				100.0	2										21		0.00	.0	
H	DO2S	92			4.5	536	512	92				1	99			40	866	4.38	.6	
H	DO3S	7				39	39	7		4	96			94	6	27	128	1.47	.3	
H	DO4S	1				0	0	0		100				100		24	40	0.75	.0	
H Totals		6			4.5	577	551	99		0	8	92		7	93	35	590	3.54	.9	
NF	DO2S	70				40	40	7			98	2				40	398	2.06	.1	
NF	DO3S	29				16	16	3		100			18		82	24	85	0.96	.2	
NF	DO4S	1				0	0	0		100					100	40	40	0.55	.0	
NF Totals		1				56	56	10		0	29	69	2	5	24	71	30	191	1.46	.3
D	DOCU				100.0	160										19		0.00	1.7	
D	DO2S	28			3.8	1,108	1,065	192		0	71	29		0	1	46	35	237	1.77	4.5
D	DO3S	53			.2	2,013	2,009	362		6	94	0		1	2	31	36	70	0.70	28.8
D	DO4S	19				691	691	124		16	84			45	39	7	22	24	0.46	29.2
D Totals		44			5.2	3,972	3,766	678		6	65	20	8	9	9	31	29	59	0.69	64.2
C	DO2S	76				1	1	0		100				100		30	130	1.43	.0	
C	DO3S	24				0	0	0		100				100		29	40	0.48	.0	
C Totals		0				1	1	0		100				100		30	85	0.97	.0	
Totals					4.6	8,904	8,498	1,530		3	63	22	12	7	15	26	29	73	0.79	116.2

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)								Page 1										
		Project: MULLEN								Date 6/7/2011										
										Time 10:50:34AM										
T05N R07W S26 TTAKE										T05N R07W S26 TTAKE										
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt											
05N	07W	26	AREA1	TAKE	40.00	36	52	1	W											
Spp	Sort	Grade	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
				Del%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/Lf		
A	DO	CU		00.0	52											4	0.00	5.2		
A	DO	CR	100	1.2	16,945	16,738	670	0	70	26	3	6	22	23	48	29	83	0.82	202.7	
A Totals			75	1.5	16,997	16,738	670	0	70	26	3	6	22	23	48	28	81	0.82	207.9	
M	DO	CU		00.0	442											15	0.00	2.2		
M	DO	CR	100	3.9	983	944	38		70	19	11	18	17	60	6	27	90	1.26	10.5	
M Totals			4	33.7	1,424	944	38		70	19	11	18	17	60	6	25	75	1.13	12.7	
H	DO	2S	93	4.3	2,326	2,226	89				100				100	40	885	4.44	2.5	
H	DO	3S	7		163	163	7				100				100	26	130	1.50	1.3	
H Totals			11	4.0	2,490	2,389	96			7	93			7	93	35	633	3.72	3.8	
D	DO	2S	95	1.1	1,529	1,512	60			18	82			18	82	37	675	3.48	2.2	
D	DO	3S	5		69	69	3		100				100			17	75	1.12	.9	
D Totals			7	1.0	1,598	1,581	63		4	17	78		4	17	78	31	501	3.10	3.2	
S	DO	2S	87	6.3	313	293	12				100		8	92		35	1400	8.28	.2	
S	DO	3S	13		42	42	2		100				100			30	40	0.60	1.0	
S Totals			2	5.5	355	335	13		12		88		20	80		31	268	2.07	1.2	
NF	DO	2S	70		168	168	7				100				100	40	400	2.07	.4	
NF	DO	3S	30		72	72	3		100				18	82		24	85	0.96	.8	
NF Totals			1		240	240	10		30	70			5	25	70	29	190	1.47	1.3	
Type Totals					3.8	23,103	22,227	889	0	57	23	20	6	18	22	54	28	97	0.94	230.0

TTSN RR7W S27 TTAKE	TTSN RR7W S27 TTAKE
Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt	
TSN R7W 27 AREA2 TAKE 136.00 50 21 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
				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	DO	CU		00.0	198											20		0.00	2.0
D	DO	2S	19	5.5	841	795	108			100				66	34	34	172	1.49	4.6
D	DO	3S	59		2,471	2,471	336	7	93				2	32	66	37	69	0.69	35.9
D	DO	4S	22		873	873	119	17	83			45	38	7	10	22	24	0.46	36.9
D	Totals		100	5.6	4,383	4,139	563	8	73	19		10	9	33	48	29	52	0.65	79.4
Type Totals				5.6	4,383	4,139	563	8	73	19		10	9	33	48	29	52	0.65	79.4

Species, Sort Grade - Board Foot Volumes (Project)

T05N R07W S26 TyRWM 1.00 TT5N RR7W S27 TyRWP 3.00	Project: MULLEN Acres 4.00	Page 1 Date 6/7/2011 Time 10:51:15AM
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Spp	S T	So rt	Gr 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				
S	DOCU				100.0	10											13		0.00	.2
S	DO2S	79			4.8	442	420	2						100	3	97	38	1785	9.15	.2
S	DO3S	21			10.0	122	110	0		17	12	71			17	71	31	150	1.81	.7
S	Totals	3			7.5	574	531	2		3	3	94		5	15	80	29	436	3.53	1.2
M	DOCU				100.0	110											15		0.00	.5
M	DOCR	100			3.9	246	236	1		70	19	11		18	17	60	27	90	1.26	2.6
M	Totals	1			33.7	356	236	1		70	19	11		18	17	60	25	75	1.13	3.2
A	DOCU				100.0	13											4		0.00	1.3
A	DOCR	100			1.5	4,692	4,620	18		0	73	24	3	7	21	21	29	75	0.75	61.5
A	Totals	24			1.8	4,705	4,620	18		0	73	24	3	7	21	21	29	74	0.74	62.8
H	DOCU				100.0	88											21		0.00	1.4
H	DO2S	85			8.3	862	790	3				23	77			100	40	541	3.29	1.5
H	DO3S	13				115	115	0		63	37				15	85	35	108	1.18	1.1
H	DO4S	2				18	18	0		100					100	24	40	0.75	.5	
H	Totals	5			14.7	1,084	924	4		10	25	65		4	96	31	213	1.81	4.3	
NF	DO2S	83				109	109	0			60	40				100	40	368	1.92	.3
NF	DO3S	14				18	18	0		100				18		82	24	85	0.96	.2
NF	DO4S	3				4	4	0		100						100	40	40	0.55	.1
NF	Totals	1				131	131	1		3	14	50	34	2	11	86	34	217	1.43	.6
D	DOCU				100.0	454											12		0.00	9.0
D	DO2S	44			2.9	5,961	5,787	23			0	74	25	3	9	23	35	254	1.94	22.8
D	DO3S	44			2.4	5,863	5,725	23		2	97	1		1	5	31	36	86	0.85	66.7
D	DO4S	12				1,440	1,440	6		10	90			41	52	3	21	25	0.48	58.0
D	Totals	67			5.6	13,718	12,953	52		2	53	34	11	6	12	24	29	83	0.92	156.5
C	DO2S	76				41	41	0		100						100	30	130	1.43	.3
C	DO3S	24				13	13	0		100						100	29	40	0.48	.3
C	Totals	0				53	53	0		100						100	30	85	0.97	.6
Totals					5.7	20,622	19,448	78		1	55	30	14	6	14	22	29	85	0.91	229.3

TC PSTATS		PROJECT STATISTICS							PAGE	1
		PROJECT MULLEN							DATE	6/7/2011
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CUFt	BdFt	
05N	07	26	AREA1	00MC	40.00	36	205	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		36	205	5.7						
CRUISE		15	76	5.1	6,137	1.2				
DBH COUNT										
REFOREST										
COUNT		21	120	5.7						
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
R ALDER	36	126.5	14.6	49		147.8	16,997	16,738	4,851	4,835
BL MAPLE	10	9.9	19.7	33		21.1	1,424	944	442	353
DOUGLEAV	14	6.0	23.3	78		17.8	4,360	4,201	903	893
HEMLEAV	4	4.1	21.2	44		10.0	1,323	937	327	263
WHEMLOCK	1	1.3	36.0	110		8.9	2,490	2,389	495	495
DOUG FIR	2	.9	33.4	111		5.6	1,598	1,581	304	304
SPRUCELV	2	.3	54.4	122		5.6	1,819	1,748	341	341
SNAG	2	1.2	26.5	38		4.4	45		35	
S SPRUCE	2	1.1	19.2	35		2.2	355	335	80	80
CEDLEAV	1	1.3	18.0	61		2.2	214	214	72	72
NFIRLEAV	1	.4	23.0	118	0	1.1	285	285	63	63
NOB FIR	1	.4	22.0	92	0	1.1	240	240	54	54
TOTAL	76	153.4	16.5	50		227.8	31,149	29,613	7,968	7,754
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	
R ALDER		86.1	14.3	152	177	203				
BL MAPLE		74.1	24.7	81	107	133				
DOUGLEAV		94.4	26.1	1,106	1,498	1,889				
HEMLEAV		176.4	100.8		865	1,737				
WHEMLOCK										
DOUG FIR		42.9	40.2	1,065	1,780	2,495				
SPRUCELV		21.4	20.0	4,202	5,255	6,308				
SNAG										
S SPRUCE		138.8	129.9		2,120	4,874				
CEDLEAV										
NFIRLEAV										
NOB FIR										
TOTAL		177.4	20.3	562	705	848	1,257	314	140	
CL	68.1	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
R ALDER		78.1	13.0	110	127	143				
BL MAPLE		201.3	33.5	7	10	13				
DOUGLEAV		480.1	79.9	1	6	11				
HEMLEAV		239.3	39.9	2	4	6				
WHEMLOCK		243.2	40.5	1	1	2				
DOUG FIR		306.0	51.0	0	1	1				
SPRUCELV		305.6	50.9	0	0	1				
SNAG		290.7	48.4	1	1	2				
S SPRUCE		562.4	93.7	0	1	2				
CEDLEAV		418.2	69.6	0	1	2				
NFIRLEAV		608.0	99.9	0	0	1				

TC PSTATS		PROJECT STATISTICS							PAGE	2	
		PROJECT MULLEN							DATE	6/7/2011	
TWP	RGE	SC	TRACT	TYPE	ACRES			PLOTS	TREES	CuFt	BdFt
05N	07	26	AREA1	00MC	40.00			36	205	1	W
CL	68.1	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15		
NOB FIR		600.0	99.9	0	0	1					
TOTAL		59.6	9.9	138	153	169	142	35	16		
CL	68.1	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER		75.7	12.6	129	148	166					
BL MAPLE		209.9	35.0	14	21	28					
DOUGLEAV		389.5	64.9	6	18	29					
HEMLEAV		221.7	36.9	6	10	14					
WHEMLOCK		243.2	40.5	5	9	12					
DOUG FIR		305.6	50.9	3	6	8					
SPRUCELV		305.6	50.9	3	6	8					
SNAG		286.9	47.8	2	4	7					
S SPRUCE		418.2	69.6	1	2	4					
CEDLEAV		418.2	69.6	1	2	4					
NFIRLEAV		600.0	99.9	0	1	2					
NOB FIR		600.0	99.9	0	1	2					
TOTAL		47.3	7.9	210	228	246	89	22	10		
CL	68.1	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER		76.7	12.8	14,599	16,738	18,877					
BL MAPLE		211.4	35.2	612	944	1,276					
DOUGLEAV		348.3	58.0	1,764	4,201	6,638					
HEMLEAV		246.2	41.0	553	937	1,322					
WHEMLOCK		243.2	40.5	1,422	2,389	3,357					
DOUG FIR		307.9	51.3	770	1,581	2,392					
SPRUCELV		305.6	50.9	858	1,748	2,637					
SNAG											
S SPRUCE		528.7	88.0	40	335	630					
CEDLEAV		418.2	69.6	65	214	363					
NFIRLEAV		600.0	99.9	0	285	570					
NOB FIR		600.0	99.9	0	240	480					
TOTAL		55.4	9.2	26,878	29,613	32,347	123	31	14		

TC PSTATS				PROJECT STATISTICS				PAGE 1		
				PROJECT MULLEN				DATE 5/13/2011		
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
05N	07	26	AREA1	TAKE	40.00	36	168	1	W	
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES			
TOTAL			36	168	4.7					
CRUISE			13	52	4.0	5,607	9			
DBH COUNT										
REFOREST										
COUNT			22	110	5.0					
BLANKS			1							
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
R ALDER	36	126.5	14.6	49		147.8	16,997	16,738	4,851	4,835
BL MAPLE	10	9.9	19.7	33		21.1	1,424	944	442	353
WHEMLOCK	1	1.3	36.0	110		8.9	2,490	2,389	495	495
DOUG FIR	2	.9	33.4	111		5.6	1,598	1,581	304	304
S SPRUCE	2	1.1	19.2	35		2.2	355	335	80	80
NOB FIR	1	.4	22.0	92	0	1.1	240	240	54	54
TOTAL	52	140.2	15.6	48		186.7	23,103	22,227	6,227	6,122
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	
R ALDER		86.1	14.3	152	177	203				
BL MAPLE		74.1	24.7	81	107	133				
WHEMLOCK										
DOUG FIR		42.9	40.2	1,065	1,780	2,495				
S SPRUCE		138.8	129.9		2,120	4,874				
NOB FIR										
TOTAL		203.7	28.2	245	341	437	1,657	414	184	
CL	68.1	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
R ALDER		78.1	13.0	110	127	143				
BL MAPLE		201.3	33.5	7	10	13				
WHEMLOCK		243.2	40.5	1	1	2				
DOUG FIR		306.0	51.0	0	1	1				
S SPRUCE		562.4	93.7	0	1	2				
NOB FIR		600.0	99.9	0	0	1				
TOTAL		66.6	11.1	125	140	156	177	44	20	
CL	68.1	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
R ALDER		75.7	12.6	129	148	166				
BL MAPLE		209.9	35.0	14	21	28				
WHEMLOCK		243.2	40.5	5	9	12				
DOUG FIR		305.6	50.9	3	6	8				
S SPRUCE		418.2	69.6	1	2	4				
NOB FIR		600.0	99.9	0	1	2				
TOTAL		55.9	9.3	169	187	204	125	31	14	
CL	68.1	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
R ALDER		76.7	12.8	14,599	16,738	18,877				
BL MAPLE		211.4	35.2	612	944	1,276				
WHEMLOCK		243.2	40.5	1,422	2,389	3,357				
DOUG FIR		307.9	51.3	770	1,581	2,392				

TC PSSTATS		PROJECT STATISTICS					PAGE	2	
		PROJECT MULLEN					DATE	5/13/2011	
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	07	26	AREA1	TAKE	40.00	36	168	1	W
CL	68.1	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
S SPRUCE		528.7	88.0	40	335	630			
NOB FIR		600.0	99.9	0	240	480			
TOTAL		63.8	10.6	19,866	22,227	24,589	163	41	18

TC PSTATS		PROJECT STATISTICS							PAGE	1	
		PROJECT MULLEN							DATE	6/7/2011	
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt	
TSN	R7	27	AREA2	00PC		136.00	50	253	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		50	253	5.1							
CRUISE		21	78	3.7	19,116	.4					
DBH COUNT											
REFOREST											
COUNT		28	148	5.3							
BLANKS		1									
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	47	65.1	18.6	57		122.4	11,740	11,042	3,704	3,600	
DOUG FIR	21	58.5	14.3	41		65.6	4,383	4,139	1,560	1,511	
ALDRLEAV	4	14.5	9.5	30		7.2	608	581	173	173	
HEMLEAV	2	1.0	23.8	71		3.2	426	421	122	122	
SNAG	3	1.1	20.4	30		2.4					
SPRUCELV	1	.3	30.0	47		1.6	134	104	43	38	
TOTAL	78	140.6	16.2	47		202.4	17,291	16,287	5,602	5,445	
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		65.7	9.6	185	204	224					
DOUG FIR		78.1	17.4	72	88	103					
ALDRLEAV		48.5	27.7	31	43	54					
HEMLEAV		30.3	28.4	301	420	539					
SNAG											
SPRUCELV											
TOTAL		83.3	9.4	148	164	179	277	69	31		
CL	68.1	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV		34.3	4.8	62	65	68					
DOUG FIR		98.1	13.9	50	59	67					
ALDRLEAV		293.1	41.4	8	14	20					
HEMLEAV		345.1	48.8	1	1	2					
SNAG		470.3	66.4	0	1	2					
SPRUCELV		494.9	69.9	0	0	1					
TOTAL		40.8	5.8	132	141	149	67	17	7		
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		33.9	4.8	117	122	128					
DOUG FIR		99.1	14.0	56	66	75					
ALDRLEAV		290.3	41.0	4	7	10					
HEMLEAV		342.6	48.4	2	3	5					
SNAG		399.8	56.5	1	2	4					
SPRUCELV		494.9	69.9	0	2	3					
TOTAL		36.2	5.1	192	202	213	52	13	6		
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		36.8	5.2	10,468	11,042	11,617					
DOUG FIR		105.6	14.9	3,521	4,139	4,756					
ALDRLEAV		296.1	41.8	338	581	824					
HEMLEAV		342.8	48.4	217	421	625					

TC PSTATS		PROJECT STATISTICS						PAGE	2		
		PROJECT MULLEN						DATE	6/7/2011		
TWP	RGE	SC	TRACT	TYPE	ACRES			PLOTS	TREES	CuFt	BdFt
T5N	R7	27	AREA2	00PC	136.00			50	253	1	W
CL	68.1	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15		
SNAG											
SPRUCELV		494.9	69.9	31	104	177					
TOTAL		37.2	5.3	15,430	16,287	17,145	55	14	6		

TC PSTATS		PROJECT STATISTICS						PAGE	1	
		PROJECT MULLEN						DATE	6/7/2011	
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
TSN	R7	27	AREA2	TAKE	136.00	50	82	1	W	
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES			
TOTAL			50	82	1.6					
CRUISE			9	21	2.3	7,961	.3			
DBH COUNT										
REFOREST										
COUNT			24	61	2.5					
BLANKS			17							
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	21	58.5	14.3	41		65.6	4,383	4,139	1,560	1,511
TOTAL	21	58.5	14.3	41		65.6	4,383	4,139	1,560	1,511
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	
DOUG FIR		78.1	17.4	72	88	103				
TOTAL		78.1	17.4	72	88	103	256	64	28	
CL	68.1	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		98.1	13.9	50	59	67				
TOTAL		98.1	13.9	50	59	67	384	96	43	
CL	68.1	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		99.1	14.0	56	66	75				
TOTAL		99.1	14.0	56	66	75	392	98	44	
CL	68.1	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		105.6	14.9	3,521	4,139	4,756				
TOTAL		105.6	14.9	3,521	4,139	4,756	445	111	49	

TC PSTATS		PROJECT STATISTICS						PAGE 1		
		PROJECT MULLEN						DATE 6/7/2011		
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
05N	07	26	AREA1	RWM	4.00	86	451	1	W	
T5N	R7W	27	AREA2	RWPC						
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		86	451	5.2						
CRUISE		34	149	4.4	565		26.4			
DBH COUNT										
REFOREST										
COUNT		51	275	5.4						
BLANKS		1								
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	84	92.5	17.1	51		146.8	13,718	12,953	4,284	4,166
R ALDER	40	42.5	13.5	44		42.3	4,705	4,620	1,343	1,339
WHEMLOCK	7	2.5	23.0	56		7.1	1,084	924	267	243
BL MAPLE	10	2.5	19.7	33		5.3	356	236	110	88
S SPRUCE	5	.8	27.0	45		3.1	574	531	127	124
NOB FIR	2	.2	22.5	104	0	.6	131	131	30	30
WR CEDAR	1	.3	18.0	61		.6	53	53	18	18
TOTAL	149	141.3	16.3	49		205.8	20,622	19,448	6,179	6,008
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	
DOUG FIR		184.7	20.1	342	428	514				
R ALDER		91.9	14.5	140	164	188				
WHEMLOCK		134.1	54.6	402	886	1,369				
BL MAPLE		74.1	24.7	81	107	133				
S SPRUCE		89.1	44.3	1,680	3,014	4,348				
NOB FIR		18.4	17.2	542	655	768				
WR CEDAR										
TOTAL		209.7	17.2	369	445	522	1,756	439	195	
CL	68.1	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		103.8	11.2	82	93	103				
R ALDER		148.1	16.0	36	43	49				
WHEMLOCK		234.1	25.2	2	2	3				
BL MAPLE		330.6	35.6	2	2	3				
S SPRUCE		391.3	42.2	0	1	1				
NOB FIR		652.5	70.3	0	0	0				
WR CEDAR		651.9	70.2	0	0	1				
TOTAL		52.7	5.7	133	141	149	111	28	12	
CL	68.1	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		99.7	10.7	131	147	163				
R ALDER		145.4	15.7	36	42	49				
WHEMLOCK		224.3	24.2	5	7	9				
BL MAPLE		343.0	37.0	3	5	7				
S SPRUCE		338.2	36.4	2	3	4				
NOB FIR		651.9	70.2	0	1	1				
WR CEDAR		651.9	70.2	0	1	1				
TOTAL		52.1	5.6	194	206	217	108	27	12	
CL	68.1	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	

PROJECT STATISTICS
PROJECT MULLEN

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N T5N	07 R7W	26 27	AREA1 AREA2	RWM RWPC	4.00	86	451	1	W
			DOUG FIR	96.8	10.4	11,602	12,953	14,303	
			R ALDER	150.1	16.2	3,873	4,620	5,368	
			WHEMLOCK	230.2	24.8	695	924	1,153	
			BL MAPLE	345.1	37.2	148	236	324	
			S SPRUCE	386.5	41.6	310	531	752	
			NOB FIR	654.3	70.5	39	131	224	
			WR CEDAR	651.9	70.2	16	53	91	
			TOTAL	47.0	5.1	18,464	19,448	20,433	88 22 10

T05N R07W S26 TyRWM
THRU
T15N RR7W S27 TyTAK

Project: MULLEN
Acres 180.00

Page 2
Date 6/7/2011
Time 10:55:01AM

Spp	S T	So Gr rt 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+
A		DO CR	55	17		17	2.5			17									
A		Totals		699	1.5	688	45.0		2	181	70	233	82	98		22			
H		DO CU	20	0	100.0														
H		DO CU	21	0	100.0														
H		DO 2S	38	0	22.2	0	.2						0						
H		DO 2S	40	96	4.4	92	92.7						1	30		61	1		
H		DO 3S	26	7		7	6.7					7							
H		DO 3S	36	0		0	.3						0						
H		DO 3S	37	0		0	.1												
H		DO 4S	24	0		0	.1												
H		Totals		104	4.5	99	6.5			0	0		7	1	30		61	1	
NF		DO 2S	40	7		7	70.9						0		7				
NF		DO 3S	16	1		1	5.1			1									
NF		DO 3S	32	2		2	23.9					2							
NF		DO 4S	40	0		0	.2			0									
NF		Totals		10		10	.7			0	1		2	0		7			
D		DO CU	6	1	100.0														
D		DO CU	7	0	100.0														
D		DO CU	10	0	100.0														
D		DO CU	20	27	100.0														
D		DO CU	47	0	100.0														
D		DO 2S	20	1	15.0	1	.1								1				
D		DO 2S	22	1		1	.2					1			1				
D		DO 2S	26	1		1	.1						1						
D		DO 2S	32	92	4.9	88	12.9					75	5	8	0	0			
D		DO 2S	40	105	2.9	102	15.0					0	43	5	1	30	22	1	
D		DO 3S	12	0		0	.0							0					
D		DO 3S	16	1		1	.2			0		1							
D		DO 3S	18	2		2	.2				0	2							
D		DO 3S	20	0		0	.0					0		0					
D		DO 3S	22	0	25.0	0	.0					0							
D		DO 3S	24	8		8	1.1					8	0						
D		DO 3S	26	0		0	.0						0						

Log Stock Table - MBF

T05N R07W S26 TyrWWM
THRU
TT5N RR7W S27 TyTAK

Project: MULLEN
Acres 180.00

Page 3
Date 6/7/2011
Time 10:55:01AM

Spp	S T	So Gr rt 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 3S	28	0		0	.0			0										
D		DO 3S	30	0	36.4	0	.0					0								
D		DO 3S	32	104		104	15.3			40	61	3								
D		DO 3S	34	10		10	1.5			10										
D		DO 3S	36	17		17	2.5			17										
D		DO 3S	38	0		0	.1			0										
D		DO 3S	40	220		219	32.4	11	12	73	83	41	0							
D		DO 4S	12	4		4	.5			4										
D		DO 4S	14	7		7	1.1			7										
D		DO 4S	16	26		26	3.9		0	26										
D		DO 4S	20	19		19	2.8			19										
D		DO 4S	22	30		30	4.4		0	30	0									
D		DO 4S	24	1		1	.1			1										
D		DO 4S	26	1		1	.1			1										
D		DO 4S	28	0		0	.0			0										
D		DO 4S	30	16		16	2.4			16										
D		DO 4S	32	8		8	1.2		8											
D		DO 4S	40	12		12	1.8		12											
D		Totals		715	5.2	678	44.3	11	33	252	144	47	118	10	10	31	22	1		
C		DO 2S	30	0		0	76.5					0								
C		DO 3S	29	0		0	23.5			0										
C		Totals		0		0	.0			0		0								
Total		All Species		1,603	4.6	1,530	100.0	11	35	438	226	294	214	109	53	52	87	9	0	

TC TSTNDSUM		Stand Table Summary														
Project MULLEN											TT5N RR7W S27 TLEAV		TT5N RR7W S27 TLEA			
Twp Rge Sec Tract		Type		Acres		Plots		Sample Trees		Page: 1		Date: 06/07/20				
T5N R7W 27 AREA2		LEAV		136.00		50		57		Time: 12:46:01PM						
Spc	S T	DBH	Sample Trees	FF 16'	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
									Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
DL		13	1	82	48	2.825	2.60	2.83	17.0	50.0		48	141		65	19
DL		15	5	84	77	10.611	13.02	19.10	20.2	61.1		386	1,167		525	159
DL		16	5	84	67	9.326	13.02	14.92	23.2	65.0		347	970		472	132
DL		17	4	85	68	6.609	10.42	11.57	24.3	72.9		281	843		382	115
DL		18	6	84	77	8.842	15.63	17.68	28.3	88.3		500	1,562		679	212
DL		19	6	85	64	7.936	15.63	13.23	30.6	86.0		405	1,137		550	155
DL		20	4	83	75	4.775	10.42	8.36	38.3	108.6		320	907		435	123
DL		21	5	85	81	5.414	13.02	9.74	38.9	124.4		379	1,213		515	165
DL		23	3	83	85	2.708	7.81	5.42	45.7	140.0		247	758		336	103
DL		24	6	85	85	4.974	15.63	9.95	52.7	175.0		525	1,741		714	237
DL		26	1	86	80	.706	2.60	1.41	59.5	195.0		84	275		114	37
DL		35	1	88	83	.390	2.60	.78	101.5	420.0		79	327		108	45
DL	Totals		47	84	73	65.115	122.40	114.98	31.3	96.0		3,600	11,042		4,897	1,502
AL		8	1	87	20	5.157	1.80	5.16	5.0	20.0		26	103		35	14
AL		10	2	86	81	6.600	3.60	6.60	17.0	60.0		112	396		153	54
AL		11	1	86	45	2.727	1.80	2.73	13.0	30.0		35	82		48	11
AL	Totals		4	86	53	14.485	7.20	14.48	12.0	40.1		173	581		236	79
HL		22	1	86	79	.606	1.60	1.21	48.5	165.0		59	200		80	27
HL		26	1	85	90	.434	1.60	.87	72.5	255.0		63	221		86	30
HL	Totals		2	86	84	1.040	3.20	2.08	58.5	202.6		122	421		166	57
SL		30	1	77	55	.326	1.60	.33	118.0	320.0		38	104		52	14
SL	Totals		1	77	55	.326	1.60	.33	118.0	320.0		38	104		52	14
SN		15	1	82	25	.652	.80									
SN		25	1	88	30	.235	.80									
SN		29	1	88	48	.174	.80									
SN	Totals		3	84	30	1.061	2.40									
Totals			57	85	69	82.027	136.80	131.87	29.8	92.1		3934	12,149		5,350	1,652

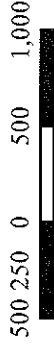
Logging Plan

OF TIMBER SALE CONTRACT NO. 341-12-25
 MOORE MULLENBACH COMBINATION
 PORTIONS OF SECTIONS 26 AND 27
 T5N, R7W, W.M., CLATSOP COUNTY, OR

Approximate Net Acreage:

- Area 1 (MC) - 40 Acres
- Area 2 (PC) - 136 Acres
- Area 3 (R/W) - 4 Acres
- Total Sale - 180 Acres

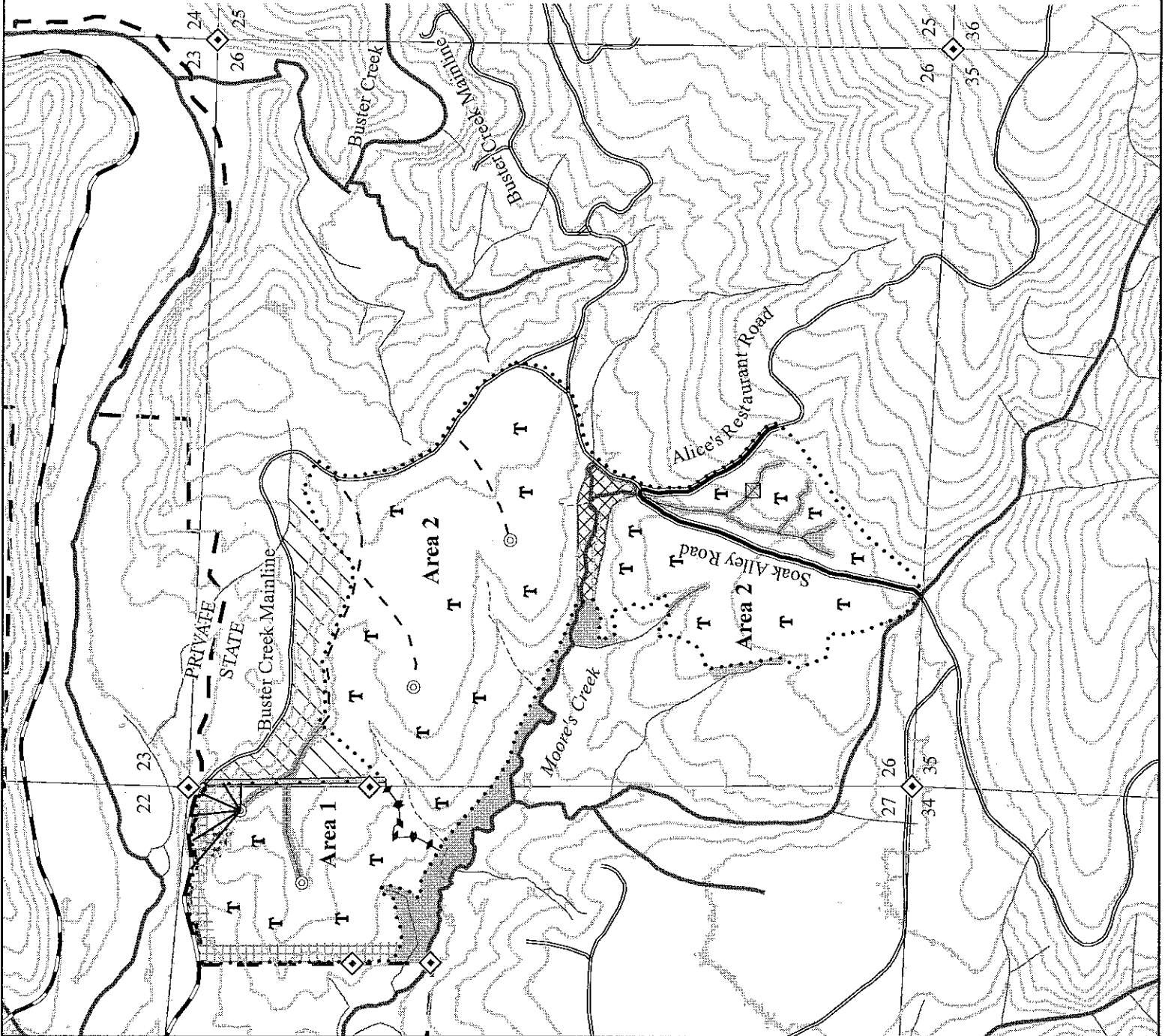
Approximate Scale = 1" = 1,000'



Feet

Legend

- ◆◆◆◆ Area Boundary
- ▬ Nonposted Timber Sale Boundary
- Timber Sale Boundary
- ▬ Paved Road
- ▬ Existing Surfaced Road
- ▬ Seasonally Restricted Road
- ▬ New Road Construction - Surfaced
- ▬ New Road Construction - Unsurfaced
- ~ Type N Stream
- ~ Type F Stream
- Seasonal Type N Stream
- ☒ Temporary Stream Crossing
- ◆ Know Land Survey Corner
- ◎ New Construction Landing
- /// Reforestation Area
- ▨ Contolled Felling Area
- ▬ Ownership Boundary
- ▨ Green Tree Retention Area
- ▨ Buffer Zone
- ▨ Non Thinnable Area
- T Yarding Area - Tractor
- ▬ Yarding Area - Cable



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500 250 0 500 1,000

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- ◆◆◆◆ Area Boundary
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