



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Norrison Combination
Sale 341-08-21

District: Astoria

Date: August 13, 2007

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sales Value	\$433,334.79	\$18,615.09	\$451,949.88
		Project Work:	\$(161,618.00)
		Advertised Value:	\$290,331.88



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Timber Description

Location: Portions of Sections 7 and 18, T4N, R10W, W.M., Clatsop County, Oregon.

Stand Stocking: 80%

SpecieName	AvgDBH	Amortization (%)	Recovery (%)
Western Hemlock / Fir	13	0	97
Sitka Spruce	17	0	95
Red Cedar	10	0	90
Alder (Red)	13	0	95

Volume by Grade	2S	3S	4S	Camprur	Total
Western Hemlock / Fir	293	946	344	0	1,583
Sitka Spruce	721	383	90	0	1,194
Red Cedar	0	4	18	0	22
Alder (Red)	0	0	0	39	39
Total	1,014	1,333	452	39	2,838



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Comments: Pond Values Used: 2nd Quarter Calendar Year 2007.

Log Markets: Tillamook, Longview.

Douglas-fir Stumpage Price = Pond Value minus Logging Cost
 $\$346.15/\text{MBF} = \$535/\text{MBF} - \$188.85/\text{MBF}$

HAULING

Hauling costs equivalent to \$700 daily truck cost.

Other Costs (Profit and Risk to be added):

100% Branding and Painting: $\$1/\text{MBF} \times 2,838/\text{MBF} = \$2,838$

Line Pulling Area 2: $8\text{hrs} \times \$25/\text{hr} = \200

Weighing of all Timber: $\$0.50/\text{MBF} \times 2,838 \text{ MBF} = \$1,419$

TOTAL Other Costs (Profit and Risk to be added) = \$4,457

OTHER COSTS (No Profit and Risk added):

Snag Creation: Create 170 Snags in Areas 2, 3, & 5 $\$45/\text{Snag} \times 170$
snags = \$7,650

Slash Piling in Areas 2 & 3: $71 \times \$120/\text{hr} = \$8,520$

Move in Excavator for Slash Piling = \$945

Pile Slash at MC cable landings $\$130/\text{landing} \times 7 \text{ landings} = \910

TOTAL Other Costs (No Profit and Risk added) = \$18,025



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Logging Conditions

Combination#: 1

Western Hemlock / Fir	48.02%
Sitka Spruce	53.43%
Red Cedar	7.50%
Alder (Red)	52.18%

Yarding Distance: Long (1,500 ft) **Downhill Yarding:** No
Logging System: Cable: Medium Tower >40 - <70 **Process:** Stroke Delimber
Tree Size: Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF
Loads / Day: 7.0 **Bd. Ft / Load:** 3,300
Cost / MBF: \$144.77

Machines: Log Loader (A)
Stroke Delimber (A)
Tower Yarder (Medium)

Combination#: 2

Western Hemlock / Fir	39.29%
Sitka Spruce	43.72%
Red Cedar	6.14%
Alder (Red)	42.69%

Yarding Distance: Medium (800 ft) **Downhill Yarding:** No
Logging System: Track Skidder **Process:** Feller Buncher
Tree Size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
Loads / Day: 10.0 **Bd. Ft / Load:** 3,400
Cost / MBF: \$103.50

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

Combination#: 3

Western Hemlock / Fir	9.90%
Sitka Spruce	2.22%
Red Cedar	67.36%
Alder (Red)	4.00%

Yarding Distance: Medium (800 ft) **Downhill Yarding:** No
Logging System: Cable: Medium Tower >40 - <70 **Process:** Stroke Delimber
Tree Size: Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF
Loads / Day: 5.0 **Bd. Ft / Load:** 3,200
Cost / MBF: \$209.01

Machines: Log Loader (A)
Stroke Delimber (A)
Tower Yarder (Medium)

Combination#: 4

Western Hemlock / Fir	2.79%
Sitka Spruce	0.63%
Red Cedar	19.00%
Alder (Red)	1.13%



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Yarding Distance	Medium (800 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:	7.0	Bd. Ft / Load:	3,300
Cost / MBF:	\$152.33		
Machines:	Log Loader (B) Stroke Delimber (B) Feller Buncher w/ Delimber Track Skidder		



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Logging Costs

Operating Seasons:	3.00	Profit Risk:	16.00%
Project Costs:	\$161,618.00	Other Costs (P/R):	\$4,457.00
Slash Disposal:	\$0.00	Other Costs:	\$18,025.00

Miles of Road

Road Maintenance: \$4.36

Dirt	Rock (Contractor)	Rock (State)	Paved
0.0	0.0	0.0	0.0

Hauling Costs

Species	\$ / MBF	Trips/Day	MBF / Load
Western Hemlock / Fir	\$0.00	3.0	4.0
Sitka Spruce	\$0.00	3.0	4.0
Red Cedar	\$0.00	2.0	3.0
Alder (Red)	\$0.00	4.0	3.0



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District: Astoria

Date: August 13, 2007

Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling	Other	Total
Western Hemlock / Fir									
\$135.13	\$4.49	\$4.64	\$51.80	\$1.57	\$31.62	\$0.00	\$2.00	\$6.35	\$237.60
Sitka Spruce									
\$128.20	\$4.58	\$4.64	\$52.80	\$1.57	\$30.69	\$0.00	\$2.00	\$6.35	\$230.83
Red Cedar									
\$186.95	\$4.80	\$4.64	\$110.64	\$1.57	\$49.38	\$0.00	\$2.00	\$6.35	\$366.33
Alder (Red)									
\$129.81	\$4.58	\$4.64	\$52.80	\$1.57	\$30.94	\$0.00	\$2.00	\$6.35	\$232.69

Specie	Amortization	Pond Value	Stumpage	Amortized
Western Hemlock / Fir	\$0.00	\$376.37	\$138.77	\$0.00
Sitka Spruce	\$0.00	\$397.64	\$166.81	\$0.00
Red Cedar	\$0.00	\$1,025.00	\$658.67	\$0.00
Alder (Red)	\$0.00	\$710.00	\$477.31	\$0.00



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Summary

Amortized

Specie	MBF	Value	Total
Western Hemlock / Fir	0	\$0.00	\$0.00
Sitka Spruce	0	\$0.00	\$0.00
Red Cedar	0	\$0.00	\$0.00
Alder (Red)	0	\$0.00	\$0.00

Unamortized

Specie	MBF	Value	Total
Western Hemlock / Fir	1,583	\$138.77	\$219,672.91
Sitka Spruce	1,194	\$166.81	\$199,171.14
Red Cedar	22	\$658.67	\$14,490.74
Alder (Red)	39	\$477.31	\$18,615.09

Gross Timber Sale Value

Recovery: \$451,949.88

Prepared by: Bryce Rodgers

Phone: 503-325-5451

Road Maintenance Cost Summary (Interim and Post Harvest)

Sale: Norriston Combination
Date: February 21, 2007
By: Bryce Rodgers

MBF: 2,838
\$/MBF: \$4.36

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Interim Operations Entries (1)	Grader 14G	\$570	1	8	\$84	\$1,242
Final Road Maintenance Haul Route	Grader 14G	\$570	1	32	\$84	\$3,258
	Dump Truck 12CY (2 @ \$119)	\$119	2	16	\$59	\$1,182
	FE Loader C966	\$570	1	8	\$79	\$1,202
	Vibratory Roller	\$570	1	32	\$79	\$3,098
	Water Truck 2,500 gallon	\$139	1	32	\$70	\$2,379
Total						\$12,361

Interim Operations Road Maintenance

Production Rates	Miles/day	Distance(miles)	Days	Hours
Grader	2.5	2.5	1.0	8.0

Final Road Maintenance

Production Rates	Miles/day	Distance(miles)	Days	Hours
Grader	1.5	4.8	3.2	32.0
Vibratory Roller	1.5	4.8	3.2	32.0

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Norriston Combination

NEW CONSTRUCTION: 90.70 STATIONS

1.72 MILES

ROAD: 1A-1B(13.0), 1C-1D(2.0), 2A-2B(14.8), 2C-2D(1.0), 2E-2F(1.0), 3A-3B(14.7)

IMPROVEMENT: STATIONS

MILES

3C-3D(1.5), 4A-4B(26.3), 4C-4D(5.0), 4E-4F(2.7), 4G-4H(1.0), 4I-4J(7.7), Pt 4K(0.0)

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
Scatter Outside of R/W	8.00	x	\$980.00	=	\$7,840.00
		x		=	
		x		=	

SUB TOTAL FOR CLEARING & GRUBBING

\$7,840

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
Field Design (Drift up to 200') \$\$/sta.	11.50	x	\$139.00	=	\$1,598.50
1C-1D, 2C-2D, 2E-2F, 3C-3D, 4C-4D, 4G-4H					
Balanced Construction	2.70		\$89.00		\$240.30
4E-4F					
Common Excavation (≤50% slopes)	9,067.00	x	\$1.28	=	\$11,605.76
1A-1B, 2A-2B, 3A-3B, 4A-4B, 4I-4J					
Embankment Compaction \$\$/cy	9,067.00	x	\$0.45	=	\$4,080.15
Cut Slope Rounding \$\$/sta.	13.20	x	\$31.00	=	\$409.20
1A - 1B (5+60-7+60), (8+30-10+20)					
2A - 2B (4+10-6+40), (8+60-11+00)					
4A - 4B (6+60-7+40), (7+80-9+20)					
(15+40-15+90), (21+70-23+60)					
Undesigned Landing Construction \$\$/ ldg	15.00	x	\$285.00	=	\$4,275.00
Rip Rap Placement \$\$/cy	140.00		\$2.00		\$280.00

SUB TOTAL FOR EXCAVATION

\$22,489

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
1A to 1B	5+00	18" CPP	30	\$13.60	\$408.00		
	7+56	18" CPP	40	\$13.60	\$544.00		
	10+50	18" CPP	30	\$13.60	\$408.00		
2A to 2B	3+80	18" CPP	30	\$13.60	\$408.00		
	7+70	18" CPP	30	\$13.60	\$408.00		
	13+80	18" CPP	30	\$13.60	\$408.00		
3A to 3B	5+00	18" CPP	30	\$13.60	\$408.00		
	10+00	18" CPP	30	\$13.60	\$408.00		
	12+20	18" CPP	30	\$13.60	\$408.00		
4A to 4B	1+00	18" CPP	30	\$13.60	\$408.00		
	2+00	18" CPP	30	\$13.60	\$408.00		
	4+53	18" CPP	30	\$13.60	\$408.00		
	6+70	18" CPP	30	\$13.60	\$408.00		
	7+65	24" CPP	40	\$22.00	\$880.00		
	8+30	18" CPP	30	\$13.60	\$408.00		
	14+70	18" CPP	30	\$13.60	\$408.00		
4E to 4F	23+07	18" CPP	30	\$13.60	\$408.00		
	0+50	18" CPP	20	\$13.60	\$272.00		
4I to 4J	4+15	18" CPP	30	\$13.60	\$408.00		

	Description	Quantity	Rate	Cost
Other/miscellaneous:				
Culvert stakes & markers:	6" FIBERGLASS MARKERS	18	\$14.10	\$253.80

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$8,478

Subtotal

\$38,807

SURFACING		Stations/ amount	x	Rate/ sta/amt	Cost
Subgrade prep:	Description				
	Grade, Shape and Ditch 16'	88.00	x	\$18.20	\$1,601.60
	Grade, Shape and Outslope 14' (4E to 4F)	2.70	x	\$13.45	\$36.32
	Subgrade Compaction	88.00	x	\$14.80	\$1,302.40

ROAD SEGMENT 1A to 1B		POINT TO POINT	Sta. to Sta.	TOTAL VOLUME	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	
Base Rock	4"-0" Crushed	0+00 to 13+00	9	station 49	stations 13.00	637
Traction Rock	1 1/2"-0" Crushed	6+00 to 7+50, 8+50 to 12+00	2	station 11	stations 5	55
Junctions	1 1/2"-0" Crushed	0+00	2	junction 11	junctions 1	11
Junctions	4"-0" Crushed	0+00	9	junction 20	junctions 1	20
Curve widening	4"-0" Crushed	3+90 to 5+20	9	station 28	stations 2	56
Turnouts	4"-0" Crushed	3+90, 11+40	9	TO 22	TO's 2	44
Dissipator	24"-6" Rip Rap	7+56, 10+50	N/A	culvert 10	culverts 2	20
Turn-Arounds	4"-0" Crushed	12+00	9	TA 13	TA's 1	13
Landings	6"-0" Pit-run	1B	N/A	Landing 60	Landings 1	60
Total Rock for Road Segment:				1A to 1B		916

\$3,415

ROAD SEGMENT 1C to 1D		POINT TO POINT	Sta. to Sta.	TOTAL VOLUME	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	
Base Rock	4"-0" Crushed	0+00 to 2+00	9	station 49	stations 2.00	98
Junctions	4"-0" Crushed	0+00	9	junction 20	junctions 1	20
Landings	6"-0" Pit-run	1D	N/A	Landing 60	Landings 1	60
Total Rock for Road Segment:				1C to 1D		178

\$652

ROAD SEGMENT 2A to 2B		POINT TO POINT	Sta. to Sta.	TOTAL VOLUME	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	
Base Rock	4"-0" Crushed	0+00 to 14+80	9	station 49	stations 14.80	725
Traction Rock	1 1/2"-0" Crushed	0+00 to 1+50, 4+00 to 7+50	2	station 11	stations 5.00	55
Junctions	1 1/2"-0" Crushed	0+00	2	junction 11	junctions 1.00	11
Junctions	4"-0" Crushed	0+00	9	junction 20	junctions 1.00	20
Curve widening	4"-0" Crushed	0+75 to 2+30	9	station 26	stations 1.00	26
Fill Armor/ Ditch Armor	24"-6" Rip Rap	0+50 to 1+00	N/A	station 20	stations 1.00	20
Dissipator	24"-6" Rip Rap	7+70	N/A	culvert 10	culverts 1.00	10
Turnouts	4"-0" Crushed	7+30	9	TO 22	TO's 1.00	22
Landing	6"-0" Pit-run	11+70, 2B	N/A	Landings 60	Landings 2.00	120
Total Rock for Road Segment:				2A to 2B		1009

\$3,769

ROAD SEGMENT 2C to 2D		POINT TO POINT	Sta. to Sta.	TOTAL VOLUME	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	
Base Rock	4"-0" Crushed	0+00 to 1+00	9	station 49	station 1.00	49
Junctions	4"-0" Crushed	0+00	9	junction 20	junctions 1.00	20
Landings	6"-0" Pit-run	2D	N/A	Landing 60	Landings 1	60
Total Rock for Road Segment:				2C to 2D		129

\$471

ROAD SEGMENT 2E to 2F		POINT TO POINT	Sta. to Sta.	TOTAL VOLUME	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	
Base Rock	4"-0" Crushed	0+00 to 1+00	9	station 49	stations 1.00	49
Junctions	4"-0" Crushed	0+00	9	junction 20	junctions 1	20
Landings	6"-0" Pit-run	2F	N/A	Landing 60	Landings 1	60
Total Rock for Road Segment:				2E to 2F		129

\$471

ROAD SEGMENT 3A to 3B		POINT TO POINT	Sta. to Sta.	TOTAL VOLUME	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	
Base Rock	4"-0" Crushed	0+00 to 14+70	9	station 49	station 14.70	720
Traction Rock	1 1/2"-0" Crushed	6+40 to 12+70	2	station 11	station 6.0	66
Junctions	1 1/2"-0" Crushed	0+00	2	junction 11	junctions 1.0	11
Junctions	4"-0" Crushed	0+00	9	junction 20	junction 1	20
Curve widening	4"-0" Crushed	5+60 to 7+40	9	station 39	stations 1	39
Dissipator	24"-6" Rip Rap	10+00	N/A	culvert 10	culverts 1	10
Turnouts	4"-0" Crushed	2+70, 11+30	9	TO 22	TO's 2	44
Landings	6"-0" Pit-run	6+36, 3B	N/A	Landing 80	Landing 2	160
Total Rock for Road Segment:				3A to 3B		1070

\$3,959

ROAD SEGMENT 3C to 3D		POINT TO POINT	Sta. to Sta.	TOTAL VOLUME	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	
Base Rock	4"-0" Crushed	0+00 to 1+50	9	station 49	stations 1.50	74
Junctions	4"-0" Crushed	0+00	9	junction 20	junctions 1.00	20
Landings	6"-0" Pit-run	3D	N/A	Landing 80	Landings 1.00	80
Total Rock for Road Segment:				3C to 3D		174

\$633

ROAD SEGMENT 4A to 4B		POINT TO POINT	Sta. to Sta.	TOTAL VOLUME	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	
Base Rock	4"-0" Crushed	0+00 to 26+30	9	station 49	stations 26.30	1,289
Traction Rock	1 1/2"-0" Crushed	12+60 to 19+60	2	station 11	stations 7	77
Junctions	1 1/2"-0" Crushed	0+00	2	junction 11	junctions 1	11
Junctions	4"-0" Crushed	0+00	9	junction 20	junctions 1	20
Curve widening	4"-0" Crushed	19+80 to 21+00	9	station 31	stations 1	31
Turn-Arounds	4"-0" Crushed	25+40	9	TA 13	TA's 1	13
Dissipator	24"-6" Rip Rap	1+00, 2+00, 6+70, 7+67, 8+30, 14+70	N/A	culvert 10	culverts 6	60
Inlet Armor	24"-6" Rip Rap	7+65	N/A	culvert 10	culverts 1	10
Turnouts	4"-0" Crushed	8+90, 14+00, 18+00, 25+40	9	TO 22	TO's 4	88
Landings	6"-0" Pit-run	4B	N/A	Landing 60	Landings 1	60
Total Rock for Road Segment:				4A to 4B		1,659

\$6,244

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)	4C to 4D Volume (CY) per	0+00 to 5+00 Number of					
Base Rock	4"-0" Crushed	0+00 to 5+00	9	station 49	stations 5.00	245	\$3.70	\$907		
Junctions	4"-0" Crushed	0+00	9	junction 20	junctions 1	20	\$3.70	\$74		
Turn-Arounds	4"-0" Crushed	4+00	9	TA 13	TA's 1	13	\$3.70	\$48		
Turnouts	4"-0" Crushed	2+50	9	TO 22	TO's 1	22	\$3.70	\$81		
Landings	6"-0" Pit-run	4D	N/A	Landing 60	Landings 1	60	\$3.59	\$215		
Total Rock for Road Segment							360		\$1,325	
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)	4E Volume (CY) per	0+00 Number of					
Junctions	4"-0" Crushed	0+00	N/A	junction 20	junctions 1	20	\$3.70	\$74		
Total Rock for Road Segment							20		\$74	
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)	4G to 4H Volume (CY) per	0+00 to 1+00 Number of					
Base Rock	4"-0" Crushed	0+00 to 1+00	9	station 49	stations 1.00	49	\$3.70	\$181		
Junctions	4"-0" Crushed	0+00	9	junction 20	junctions 1	20	\$3.70	\$74		
Landings	6"-0" Pit-run	4H	N/A	Landing 60	Landings 1	60	\$3.59	\$215		
Total Rock for Road Segment							129		\$471	
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)	4I to 4J Volume (CY) per	0+00 to 7+70 Number of					
Base Rock	4"-0" Crushed	0+00 to 7+70	9	station 49	stations 7.70	377	\$3.70	\$1,396		
Traction Rock	1 1/2"-0" Crushed	0+00 to 5+00	2	station 11	stations 5	55	\$3.70	\$204		
Junctions	1 1/2"-0" Crushed	0+00	2	junction 11	junctions 1	11	\$3.70	\$41		
Junctions	4"-0" Crushed	0+00	9	junction 20	junctions 1	20	\$3.70	\$74		
Turn-Arounds	4"-0" Crushed	6+70	9	TA 13	TA's 1	13	\$3.70	\$48		
Dissipator	24"-6" Rip Rap	4+15	N/A	culvert 10	culverts 1	10	\$5.32	\$53		
Turnouts	4"-0" Crushed	4+80	9	TO 22	TO's 1	22	\$3.70	\$81		
Landings	6"-0" Pit-run	4J	N/A	Landing 60	Landings 1	60	\$3.59	\$215		
Total Rock for Road Segment							568		\$2,112	
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)	PL 4K Volume (CY) per	N/A Number of					
Landings	6"-0" Pit-run	PL 4K	N/A	Landing 60	Landings 1	60	\$3.59	\$215		
Total Rock for Road Segment							60		\$215	
Processing:			Description		No. sta	Rate/sta	Cost			
			Water, Process & Compact 8" in one lift		88.00	\$41.40	\$3,643			
			Water, Process & Compact 1 1/2"-0" (Traction rock)		23.80	\$41.40	\$985			
SUB TOTAL FOR SURFACING			24"-6"	6"-0" pit	4"-0"	1 1/2"-0"	Total	6,401	6,401	\$31,380
			140	900	4,998	363				

SPECIAL PROJECTS		Description	Cost
1A-1B, 1C-1D, 2A-2B, 2C-2D, 2E-2F, 3A-3B, 3C-3D, 4A-4B, 4C-4D		12.5' wide 6.5 oz. woven fabric 88 sta x 110% @ \$0.95/ft	\$9,196.00
4G-4H, 4I-4J			
SUB TOTAL FOR SPECIAL PROJECTS			\$9,196

GRAND TOTAL **\$79,383**

Compiled By: Bryce Rodgers

Date: 02/20/2007

SURFACING		Stations/ amount	x	Rate/ sta/amt	Cost
Subgrade prep: Description					
Grade, Shape and Ditch 16'		0.00	x		\$0.00
Subgrade Compaction		0.00	x		\$0.00

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)	11 to 12			
Patch Rock	4'-0" Crushed					\$3.70	\$925
Total Rock for Road Segment			11 to 12		250		\$925

Processing:		Description	No. sta	Rate/sta	Cost
		Water, Process & Compact Patch Rock	20.00	\$41.40	\$828
SUB TOTAL FOR SURFACING			250	250	\$1,753

SPECIAL PROJECTS		Description	Cost
SUB TOTAL FOR SPECIAL PROJECTS			\$0

Subtotal of Surfacing & Spec. Proj. \$1,753
Subtotal of Clearing, Exc., Culv. \$0

GRAND TOTAL **\$1,753**

Compiled By: Bryce Rodgers

Date: 02/20/2007

Norriston Combination

Project No. 4 Road Vacating

V1 to V2

Location/Description	C330 Excavator	D-3 Dozer	Silt Fence	Truck	Labor	Seeding	Straw Mulch	Total
V1 to V2 Fill Removal Sidecast Pullback Waterbar	8 hrs 2 hrs	6 hrs						
V1 to V2 Erosion Control Mulch Hand Grass Seeding labor & seed Miscellaneous Silt Fence			200		5 hr 1 hr 2 hr	0.12 ac	40 bales	
Total	10 hrs	6 hrs	2 rolls	0 hr	8 hr	0.12 ac	40 Bales	
Rate	\$138 /hr	\$126 /hr	\$45 /roll	\$57 /hr	\$25 /hr	\$460.00 /ac	\$4.50 /Bale	
Cost	\$1,380	\$756	\$90	\$0	\$200	\$55	\$180.00	\$2,661

Prepared by: Bryce Rodgers Date: 02/20/2007

x:\Document\2007 FY Sales\Norriston\Sale Prep\Projects\Vacating Costs -Norriston.xls

SUMMARY OF ROCK DEVELOPMENT, CRUSHING COSTS, AND STOCKPILE SITE CONSTRUCTION
 PROJECT NO.3

Timber Sale Name: Norriston Combination

Quarry: Tolovanna XOVER
 Location: NW1/4,S17,T4N,R10W
 County: Clatsop
 By: d.mellison
 Date: 01/04/07

Swell: _____
 Shrink: 16%

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"	2%	CR			
1-1/2"-0"	2%	CR	750	763 *	1,633
4"-0"		CR	750	5,248	6,118
6"-0"		PR		1,400	1,400
24"-6"		RR		140	140
36"		RR			
TOTAL CUBIC YARDS OF ROCK:			1,500	7,551	9,291

* 400 cy is for project road maintenance on Weyco rock haul route used.

1) MOBILIZATION & SET UP:

EQUIPMENT MOBILIZATION	DISTANCE IN MILES	DIST. FACTOR	BASE RATE	COST
3 Stage Crusher	75	1.40	\$2,353	\$3,294
Screening Plants (2)	75	1.40	\$954	\$1,336
D8 Cat & D6 Cat	75	1.40	\$1,600	\$2,240
Loader	75	1.40	\$590	\$826
Drill & Compressor	75	1.40	\$1,030	\$1,442
Powder	75	1.40	\$286	\$400
Excavator	75	1.40	\$1,030	\$1,442
SUB TOTAL FOR MOBILIZATION				\$10,980

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher		\$2,682	\$2,682
Screening Plants (2)		\$451	\$451
Change Gradation	3	\$424	\$1,272

SUB TOTAL FOR SET UP COSTS \$4,405

TOTAL MOBILIZATION & SET UP COSTS \$15,385

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
(0.123 acres) and Cat 330 Exc.				
Clear, grub, & pile debris in quarry floor	3.0	hrs.	\$138	\$414
Burn and tend burning pile	2.0	hrs.	\$138	\$276

TOTAL CLEARING & GRUBBING COSTS \$690

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden Removal				
Haul to Weyco designated site	200	bcy.	\$2.90	\$580

TOTAL EXCAVATION COSTS \$580

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd.	Vol.	Weight	Ripping		\$1.85	
crushed	7,751		83%	Drill & shoot	100%	\$1.95	\$18,181
pit run	1,400		15%	Oversize red	2%	\$5.04	\$922
rip rap	140		2%	Other			
Total	9,291						
reject	33		0.4%				
TOTAL ROCK DEVELOPMENT COSTS							\$19,104

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	2	\$400	\$800
Calibrate			
Test	4	\$50	\$200
Test			
TOTAL CALIBRATION & TESTING COSTS			\$1,000

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	7,784	\$0.70	\$5,446
TOTAL FEEDING & LOADING COSTS			\$5,446

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed		3 stage w/s			
1-1/2"-0"	crushed	1,633	3 stage w/s	120	\$2.71	\$4,423
4"-0"	crushed	6,118	2 stage	140	\$1.71	\$10,488
TOTAL ROCK CRUSHING COSTS						\$14,911

8) STOCKPILING

STOCKPILE PREPARATION						COST
SUB TOTAL						
HAUL & STOCKPILE STOCKPILE LOCATION	SIZE	# of TRUCKS	CU. YDS.	RATE	COST	
1.		6				
2.	1-1/2"-0"		870	\$3.28	\$2,854	
3.	4"-0"		870	\$3.28	\$2,854	
4.						
5.						
6.						
SUB TOTAL						\$5,707
TOTAL STOCKPILING COSTS						\$5,707

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the stockpile site.	\$82
\$3.28/cy 33 CY	
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access	
2 - D8 Cat hours @ \$126/hr =	\$252
TOTAL MISCELLANEOUS COSTS	\$334

10) STOCKPILE SITE CONSTRUCTION

DESCRIPTION		
Clear and Grub (0.26 acres[pile & burn] @ \$1500/acre) =	(Grub only)	\$390
Excavate/Comp (3 D-8 hrs & 3 vibratory roller hrs @ \$205/hr) =		\$615
Haul, place and dump 500 cy pit run @ \$3.28/cy =		\$1,640
Process 500 cy pit run @ \$1.00/cy =		\$500
TOTAL STOCKPILE SITE CONSTRUCTION COSTS		\$3,145

11) GRAND TOTAL:

	\$66,301
\$/Cubic Yard	\$8.55

Footnotes:

Construct/Reconstruct Stockpile Floor

Equipment	Hours	Rate	Total

Rock for Floor (CY)	\$/CY Haul	Total

Total Construct Stockpile Floor

HAUL and STOCKPILE COST

SALE NAME: Norrison Combination
 QUARRY: Tolovanna XOVER ROCK TYPE: Crushed

Location 1.	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				1.70	1.00	0.15	0.15
Truck type: <u>D20</u>	No. trucks: <u>2</u>			Ave haul: <u>\$2.47</u>	/cy		
Delay min.: <u>8</u>	Efficiency: <u>85%</u>			Load: <u>\$0.42</u>	/cy		
Truck type: <u>D12</u>	No. trucks: <u>4</u>			* Stockpile: <u>\$0.39</u>	/cy		
Delay min.: <u>6</u>	Efficiency: <u>85%</u>						
Truck type: _____	No. trucks: _____			Production: cy/day =	1,219		
Delay min.: <u>10</u>	Efficiency: <u>75%</u>						
Location 1.	Haul and Stockpile Cost			\$3.28 /cy			

Location 2. 1-1/2"-0"	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
			7.50		1.30		
Truck type: <u>D20</u>	No. trucks: _____			Ave haul: <u>#DIV/0!</u>	/cy		
Delay min.: <u>15</u>	Efficiency: <u>75%</u>			Load: <u>#N/A</u>	/cy		
Truck type: <u>D12</u>	No. trucks: _____			Stockpile: <u>#N/A</u>	/cy		
Delay min.: <u>12</u>	Efficiency: <u>75%</u>						
Truck type: <u>D10</u>	No. trucks: _____			Production: cy/day =			
Delay min.: <u>10</u>	Efficiency: <u>75%</u>						
Location 2.	Haul and Stockpile Cost			#DIV/0! /cy			

Location 3. 4"-0"	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				1.00	1.00		
Truck type: <u>D20</u>	No. trucks: _____			Ave haul: <u>#DIV/0!</u>	/cy		
Delay min.: <u>15</u>	Efficiency: <u>75%</u>			Load: <u>#N/A</u>	/cy		
Truck type: <u>D12</u>	No. trucks: _____			Stockpile: <u>#N/A</u>	/cy		
Delay min.: <u>12</u>	Efficiency: <u>75%</u>						
Truck type: <u>D10</u>	No. trucks: _____			Production: cy/day =			
Delay min.: <u>10</u>	Efficiency: <u>75%</u>						
Location 3.	Haul and Stockpile Cost			#DIV/0! /cy			

Location 4.	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				1.00	1.00		
Truck type: <u>D20</u>	No. trucks: _____						

Projects Road Maintenance Cost Summary

Sale: Norrison Combination
Date: February 21, 2007
By: Bryce Rodgers

Type	Equipment/Rationale	Hours	Rate	Cost
Post-Projects Road	Grader 14G	17	\$84	\$1,428
	Dump Truck 12CY (3 trucks)	16	\$177	\$2,832
	FE Loader C966	8	\$79	\$632
	Vibratory Roller	17	\$79	\$1,343
	Water Truck 2500 gallon	17	\$70	\$1,190
Total				\$7,425

Final Road Maintenance

Production Rates

Grader

Vibratory Roller

Miles/day	Distance(miles)	Days	Hours
1.5	3.1	2.1	17.00
1.5	3.1	2.1	17.00

***Maintenance calculations were determined as follows:**

Apply 400 cubic yards of maintenance rock from Tolovana XOVER 40 Quarry to Point I1.

Sale Area to Tolovana XOVER Quarry.

Total Miles: 3.1 Miles

Norriston Combination
FY 2007
TIMBER CRUISE REPORT

1. **Sale Area Location:** Areas 1, 2, 3, 4, 5 are located in portions of Sections 7 and 18, T4N, R10W, W.M., Clatsop County, Oregon.

All timber sale areas are posted with ODF "Timber Sale Boundary" signs, pink ribbon. The boundary between Areas 1 2, 3 and 5 are posted with "Area Boundary" signs and pink ribbon. R/W areas are posted with ODF "Right-of-Way Boundary" signs and pink ribbon.

2. **Fund Distribution:** **Fund:** BOF (100%)
 Tax Code: 10-02 100%

3. **Sale Acreage by Area:**

Area	Harvest Type	Gross Acreage	New R/W Acreage	Existing R/W Acreage	Wind Buffer	Stream Buffer Acreage	Wildlife Tree Area	Net Acreage
1	PC	55.5	-1.4	0	-3.4	-2.5	0	48.2
2	MC	34.0	0	-4.1	0	-3.5	-1.5	24.9
3	MC	44.9	0	0	0	-1.2	0	43.7
4	R/W	3.0	0	0	0	0	0	3.0
5	MC	16.8	0	0	0	-1.7	-1.0	14.1
Totals		154.2	-1.4	-4.1	-3.4	-8.9	-2.5	133.9

4. **Cruisers and Cruise Dates:** Areas 2, 3 and 5 were cruised by Nate Agalzoff, Dave Horning, Ed Holloran, Kraig Kirkpatrick and Bryce Rodgers. Area 1 was cruised by Ed Holloran, Kraig Kirkpatrick and Bryce Rodgers. Areas 2, 3 and 5 were cruised on 2/2/07 and Area 1 was cruised on 2/9/07.

5. **Cruise Method and Computation:** All cruises used Corvallis MicroTechnology (CMT) 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.

Areas 2, 3, and 5 (Modified Clear Cut), were variable plot cruised with a 40 BAF. 35 plots were sampled on a cruise grid of 5 chains by 5 chains, with a count/cruise plot ratio of 1:2.

Areas 1 (Partial Cut), was variable plot cruised with a 20 BAF. 27 grade plots were sampled on a cruise grid of 4 chains by 4 chains.

All "take" and "leave" trees were measured and graded.

<u>AREAS</u>	<u>PROJECT</u>	<u>CRUISE TYPE</u>
2, 3 and 5	NORRISTON	00MC, TAKE, STAY
1	NORRISTON	00PC, TAKE, STAY
4 R/W	NORRISTON	RW01, RW04

6. Timber Description:

Areas 2, 3 and 5 (Modified Clear cut) – These stands are approximately 55 years old, consisting of hemlock dominated, mixed conifer stands. These stands average 14.5 inches in DBH, with an average merchantable height of 46 feet to a merchantable top. The average volume (net) is 30.2 MBF/acre.

Area 1 (Partial Cut) – This stand is a “auto-mark” thinning unit, approximately 55 years old, hemlock dominated mixed conifer stands. This stand will be harvested to an SDI of 35, with a target basal area of 180 ft², while removing approximately 119 trees per acre and 5.3 MBF/acre. The average “take” tree size is 12.3” DBH and 28 feet to a merchantable top (6” d.i.b).

7. Statistical Analysis: (See also “Statistics Reports,” attached.)

Area	Target CV	Target SE%	Actual CV	Actual SE%
2, 3 and 5	45	8	32.9	5.6
1	40	8	61.6	12.1

The statistics for All cruises are “Take” and “Leave” stands combined.

8. Volumes by Species and Log Grades for All Sale Areas by MBF: (See “Species, Sort, Grade, Length % Type Reports” attached, of the thinning and regeneration harvest areas combined.) Volumes do not include “ingrowth.” The majority of defect and breakage was culled out during the cruise.

Species	DBH	Net Vol.	2 Saw	3Saw	4 Saw	Camp Run	% D & B	% Sale
Hemlock	13	1,583	293	946	344	0	7%	56
Spruce	17	1,194	721	383	90	0	4%	42
WR Cedar	10	22	0	4	18	0	27%	1
Alder	13	39	0	0	0	39	0%	1
TOTAL		2,838						100%

9. Prepared by: Bryce Rodgers

Date: February 15, 2007

10. Approved by: Dan Gearty

Date: 5/8/07

- 11. Attachments:**
- Cruise Plans & Maps (4 pages)
 - Species, Sort, Grade Reports (4 pages)
 - Statistics Stand Summary Reports (11 pages)
 - Log Stock Table Reports (3 pages)
 - Leave Tree Stand Table Reports (2 pages)

X:\Sunset Unit\2007 FY Sales\Norrison\Sale Prep\Cruise Report-Norrison\doc

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Norriston Combo. Area(s) 2, 3 & 5

Harvest Type: (MC) PC CT "Automark Thinning" (circle one)
 Approx. Cruise Acres: 82 Estimated CV% 45% ^{Net BF} BA/Acre SE% Objective 8% ^{Net BF} BA/Acre

Planned Sale Volume: 2.0 MMBF Estimated Sale Area Value/Acre: \$3,000

A. **Cruise Goals:** (a) Grade minimum 100 conifer and 50 hardwood trees:
 (b) Sample 36 cruise plots; Grade 18 plots; (c) Other goals (Determine
 "automark" thinning standards; X Determine log grades for sale value; X
 Determine snag and leave tree species and sizes; Determine LWD (down wood)
 cubic feet and decay classes; Determine "diameter limit" harvest parameters;)
Basal Area leave target sq. ft. Cruiser needs to select or leave trees per plot.

B. Cruise Design:

1. **Plot Cruises:** BAF 40 (Full point) Half point) (circle one)
 Fixed Plot Size Plot Radius feet
 Cruise Line Direction(s) N45W
 Cruise Line Spacing 5 (chains) (feet)
 Cruise Plot Spacing 5 (chains) (feet)
 Grade/Count Ratio Grade 1 out of 2
2. **ITS (Sample Tree) Cruises:** Measure-grade ratios: D-fir Hemlock
 Spruce True Fir Cedar Hardwood

C. Tree Measurements:

1. **Diameter:** Minimum DBH to cruise is 8" or at least 20 board feet for conifers and 10" for hardwoods.
 Record DBH to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate. Cruise snags 15 DBH inches and over. Cruise all "W" (wildlife) trees and all reserved trees (cedar and D-fir) as Leave trees by species. Cruise all hardwoods greater than 10" in cruise plots.
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 for conifer is 7", 8" 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; R = Camp Run; 0 = Cull ; 9 = Utility

Hardwoods: #2 Sawmill = 12" + scaling diameter; #3 Sawmill = 10 and 11"; #4 Sawmill = 8 and 9" Lengths for Alder are 8 and 10 foot multiples.

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 indivisible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

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

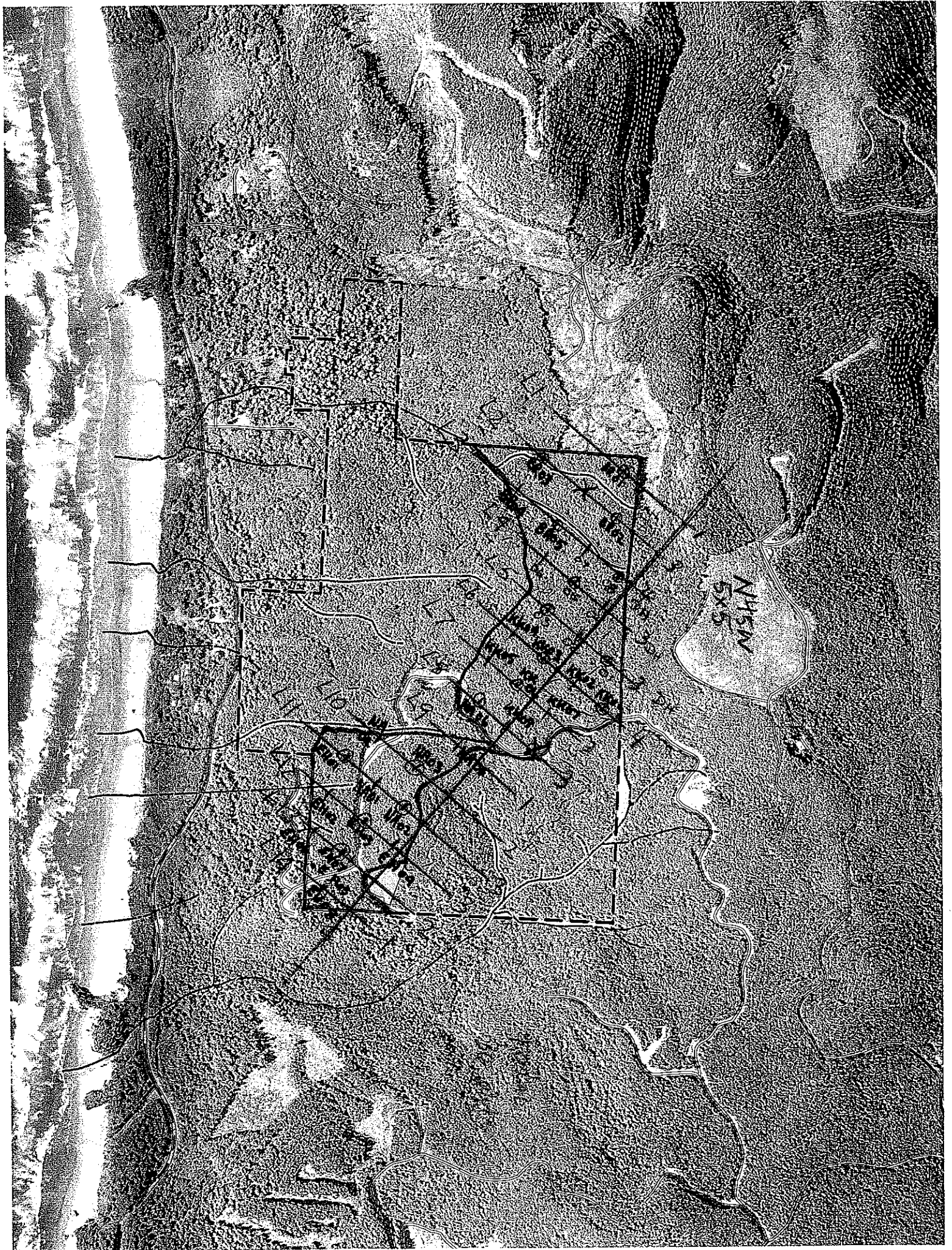
9. **Cruising Equipment:** Relaskop Rangefinder Logger's Tape (with DBH on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.

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: Bryce Rodgers and Dan Goody

Approved by: Edward M. Holloman Acting Sausal Unit Forester

Date: 2/1/07



**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Norrison Combo. Area(s) 1

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

Approx. Cruise Acres: 51.6 Estimated CV% 40 Net BF or BA/Acre SE% Objective 8% Net BF or BA/Acre

Planned Sale Volume: 3.0 MMBF Estimated Sale Area Value/Acre: \$3,000

A. **Cruise Goals:** (a) Grade minimum 100 conifer and 10 hardwood trees:
 (b) Sample cruise plots; Grade 29 plots; (c) Other goals (Determine "automark" thinning standards; X Determine log grades for sale value; X Determine snag and leave tree species and sizes; Determine LWD (down wood) cubic feet and decay classes; Determine "diameter limit" harvest parameters;)
Basal Area leave target 140 sq. ft. Cruiser needs to select 7 leave trees per plot.

B. Cruise Design:

1. **Plot Cruises:** BAF 20.0 (Full point, Half point) (circle one)

Fixed Plot Size Plot Radius feet

Cruise Line Direction(s) North/South

Cruise Line Spacing 4 (chains) (feet)

Cruise Plot Spacing 4 (chains) (feet)

Grade/Count Ratio 1:1

2. **ITS (Sample Tree) Cruises:** Measure-grade ratios: D-fir Hemlock
 Spruce True Fir Cedar Hardwood

C. Tree Measurements:

1. **Diameter:** Minimum DBH to cruise is 8" or at least 20 board feet for conifers and 10" for hardwoods.

Record DBH to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.

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 for conifer is 7", 8" 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.

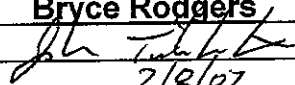
6. **Species, Sort, and Grade Codes:** A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (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; R = Camp Run; 0 = Cull ; 9 = Utility
Hardwoods: #2 Sawmill = 12" + scaling diameter; #3 Sawmill = 10 and 11"; #4 Sawmill = 8 and 9" Lengths for Alder are 8 and 10 foot multiples.

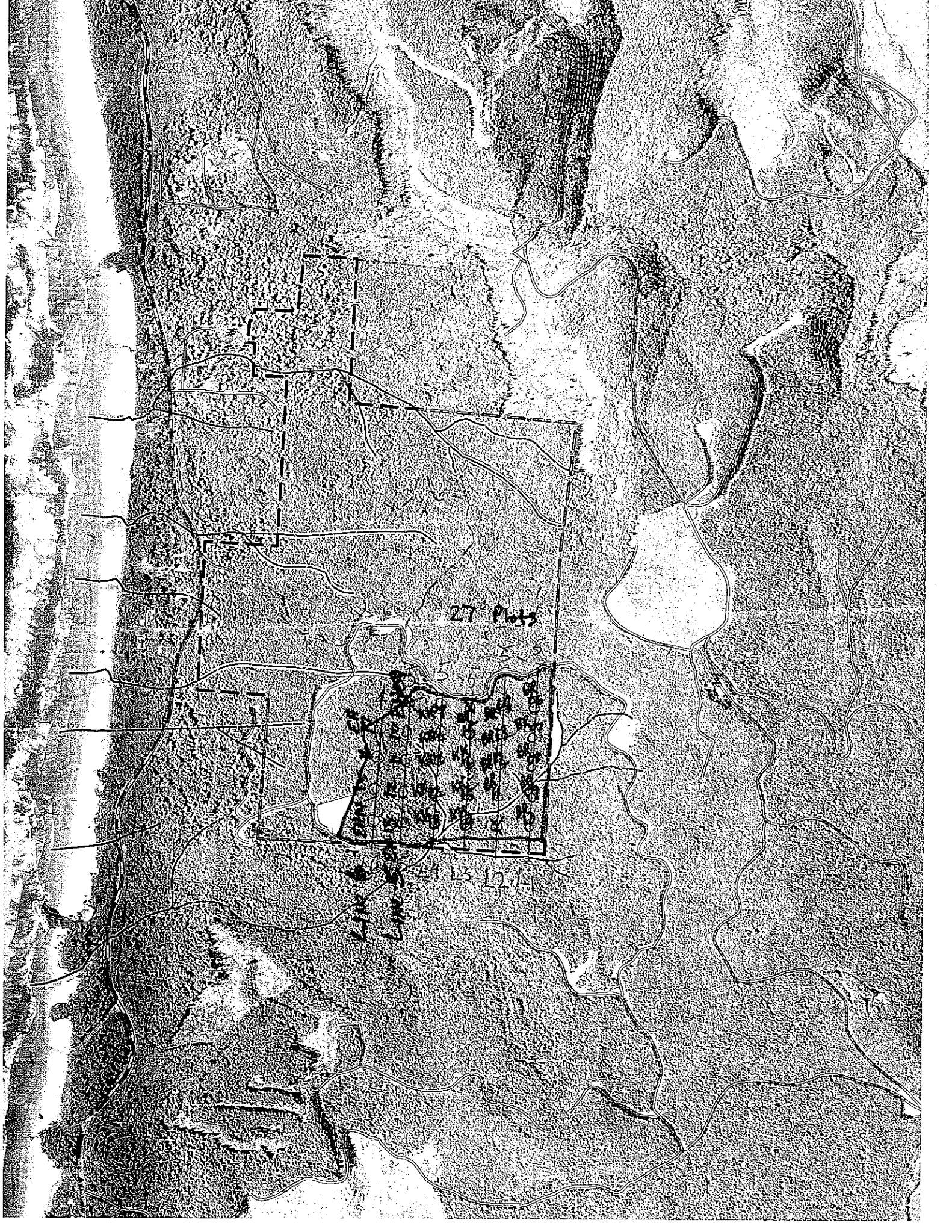
7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally 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 indivisible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.
ITS and 100% Cruises: Mark cruise "strips" with various colored flagging (not pink). Mark trees measured and graded with yellow paint.

9. **Cruising Equipment:** Relaskop Rangefinder Logger's Tape (with DBH on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, 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: Bryce Rodgers
Approved by: 
Date: 2/8/07



27 Plot

24 B 12.4

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30

Species, Sort Grade - Board Foot Volumes (Project)

T04N R10W S18 TyTAKE
THRU
T04N R10W S18 TyTAKE

Project: NORISTON
Acres 133.90

Page 1
Date 3/5/2007
Time 11:14:04AM

S Spp	So T	Gr rt	ad	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent of 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				
H	DOCU				100.0	732		293									10		0.00	16.2
H	DO2S	18			1.3	2,213	2,184	302		5	86	9	6	6	63	26	31	207	1.66	10.5
H	DO3S	60			1.5	7,171	7,063	946	0	95	4	0	4	5	42	49	34	87	0.75	81.0
H	DO4S	22			.1	2,575	2,572	344	2	98			66	34	0	0	18	26	0.44	97.7
H Totals		56			6.9	12,691	11,819	1,583	0	79	18	2	18	12	36	34	25	58	0.67	205.5
A	DOCR	100				291	291	39		100			32	5	63		23	52	0.66	5.6
A Totals		1				291	291	39		100			32	5	63		23	52	0.66	5.6
S	DOCU				100.0	294											12		0.00	12.0
S	DO2S	60				5,383	5,383	721		4	75	21	0	11	14	76	36	276	1.96	19.5
S	DO3S	32			1.0	2,885	2,856	383	86	14			1	30	38	30	33	85	0.83	33.7
S	DO4S	8			3.7	700	674	90	100				40	54	6		22	30	0.55	22.5
S Totals		42			3.8	9,262	8,913	1,194	37	50	13		3	20	21	56	28	102	1.05	87.7
C	DOCU				100.0	64											14		0.00	3.5
C	DO3S	18			2.3	32	31	4		83	9	8	2	46	43	9	32	92	1.56	.3
C	DO4S	82			.0	140	140	18	0	100			58	42	0		18	25	0.55	5.7
C Totals		1			27.4	235	171	22	0	97	2	1	48	43	8	2	17	18	0.45	9.5
Totals					5.7	22,478	21,194	2,838	0	62	31	6	12	15	30	43	25	69	0.78	308.2

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)								Page 1												
		Project: NORISTON								Date 2/15/2007												
										Time 3:52:14PM												
T04N R10W S18 TTAKE										T04N R10W S18 TTAKE												
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt													
04N	10W	18	AREA 1	TAKE	48.20	27	112	1	W													
Spp	So	Gr	% 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				
H	DO	CU																				
H	DO	2S	2		101	101	5											13		0.00	12.0	
H	DO	3S	55	1.6	2,322	2,284	110	1	99				3	3	47	47		40	240	1.38	.4	
H	DO	4S	43	.5	1,803	1,793	86	3	97				32	67		1		33	83	0.69	27.5	
H	Totals		78	1.1	4,225	4,178	201	2	96	2			15	31	26	29		24	40	0.49	105.4	
C	DO	CU																				
C	DO	3S	11		47	47	2		100						77	23		14		0.00	9.3	
C	DO	4S	89		359	359	17		100				58	42				31	95	1.85	.5	
C	Totals		8		406	406	20		100				51	46	3			18	25	0.54	14.6	
S	DO	CU																				
S	DO	2S	9		66	66	3				100				100			8		0.00	4.9	
S	DO	3S	57		411	411	20		100						53	47		24	280	2.83	.2	
S	DO	4S	34		236	236	11		100				80	13		7		36	75	0.71	5.5	
S	Totals		13		713	713	34		91	9			26	14	31	29		17	30	0.61	7.9	
A	DO	CR	100		38	38	2		100						100			20	39	0.63	18.5	
A	Totals		1		38	38	2		100						100			30	40	0.50	.9	
Type Totals				.9	5,382	5,335	257	2	95	2	1		19	30	24	26		23	36	0.49	149.2	

T04N R10W S18 TTAKE T04N R10W S18 TTAKE
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt
 04N 10W 18 AREAS 23&5 TAKE 82.70 35 112 1 W

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
H		DO	CU													9		0.00	18.5	
H		DO	2S	20	1.3	3,415	3,369	279		6	85	9	6	6	64	25	31	207	1.67	16.3
H		DO	3S	61	1.5	9,921	9,773	808		95	5		4	6	41	49	34	88	0.75	111.4
H		DO	4S	19		3,009	3,009	249	1	99			78	22			17	26	0.46	115.9
H	Totals			53	1.2	16,345	16,152	1,336	0	77	21	2	18	9	38	35	25	62	0.71	262.1
S		DO	CU													13		0.00	16.0	
S		DO	2S	61		8,430	8,430	697		4	75	21		10	14	76	36	276	1.95	30.6
S		DO	3S	32	1.1	4,312	4,267	353		85	15		1	32	38	29	33	85	0.84	50.1
S		DO	4S	7	4.2	966	926	77		100			34	60	6		23	30	0.55	30.9
S	Totals			45	.6	13,708	13,622	1,127		36	51	13	3	21	20	57	28	107	1.07	127.6
A		DO	CR	100		440	440	36		100			34		66		22	53	0.67	8.3
A	Totals			1		440	440	36		100			34		66		22	53	0.67	8.3
Type Totals					.9	30,493	30,214	2,499	0	59	34	7	11	14	30	44	26	76	0.84	397.9

Species, Sort Grade - Board Foot Volumes (Project)

T04N R10W S18 TyRW01	1.40
T04N R10W S18 TyRW04	1.60

Project: **NORISTON**

Page **1**

Acres **3.00**

Date **4/5/2007**

Time **1:21:27PM**

Area 4 r/w

S Spp	So Gr	T rt ad	% Net BdFt	Bd. Ft. per Acre		Total Net MBF	Percent of 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					
H	DOCU		100.0	896											11		0.00	20.8	
H	DO2S	19	1.2	3,013	2,976	9		3	85	12		7	6	44	44	32	214	1.70	13.9
H	DO3S	61	1.3	9,267	9,144	27	0	95	5	0		3	5	44	48	34	88	0.75	104.3
H	DO4S	20	.4	3,022	3,010	9	2	98				58	40	1	0	19	27	0.44	113.3
H	Totals		55	6.6	16,199	15,130	45	1	77	20	2	15	12	35	38	26	60	0.68	252.3
S	DOCU		100.0	413												12		0.00	12.5
S	DO2S	62	1.2	6,812	6,812	20		3	69	29		1	8	17	74	35	296	2.11	23.0
S	DO3S	30	1.2	3,308	3,269	10		84	16			2	29	41	29	33	87	0.86	37.4
S	DO4S	8	3.9	812	780	2		100				47	48		5	21	29	0.56	27.1
S	Totals		40	4.3	11,346	10,862	33		34	48	18	4	17	23	55	28	109	1.12	100.1
C	DOCU		100.0	200												13		0.00	7.6
C	DO3S	57	5.0	659	626	2		62	20	18		5	8	67	20	34	88	1.25	7.1
C	DO4S	43		467	467	1	2	98				59	39		2	19	26	0.65	17.6
C	Totals		4	17.6	1,327	1,094	3	1	78	12	10	28	21	39	12	21	34	0.76	32.4
A	DOCR	100		252	252	1		100				31	7	62		23	52	0.65	4.9
A	Totals		1		252	252	1		100			31	7	62		23	52	0.65	4.9
Totals				6.1	29,124	27,337	82	0	60	30	9	12	14	31	43	26	70	0.81	389.7

TC TSTATS				STATISTICS				PAGE 1		
PROJECT NORISTON						DATE 4/5/2007				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	10W	18	AREA 1	TAKE	48.20	27	112	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	27	112	4.1							
CRUISE	27	112	4.1	5,909		1.9				
DBH COUNT										
REFOREST										
COUNT										
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
WHEMLOCK	75	83.8	11.0	31		55.6	4,536	4,178	1,324	1,234
WR CEDAR	20	24.1	10.6	17		14.8	570	406	220	172
S SPRUCE	16	13.8	12.5	29		11.9	791	713	260	239
R ALDER	1	.9	12.0	31		.7	38	38	14	14
TOTAL	<i>112</i>	<i>122.6</i>	<i>11.1</i>	<i>28</i>		<i>83.0</i>	<i>5,934</i>	<i>5,335</i>	<i>1,818</i>	<i>1,659</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	92.8	18.2	68	84	99					
WR CEDAR	179.1	35.2	16	24	33					
S SPRUCE	183.6	36.0	9	14	19					
R ALDER	519.6	102.0		1	2					
TOTAL	<i>73.5</i>	<i>14.4</i>	<i>105</i>	<i>123</i>	<i>140</i>		<i>225</i>	<i>56</i>	<i>25</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		
WHEMLOCK	92.8	18.2	45	56	66					
WR CEDAR	157.0	30.8	10	15	19					
S SPRUCE	194.4	38.2	7	12	16					
R ALDER	519.6	102.0		1	1					
TOTAL	<i>70.0</i>	<i>13.7</i>	<i>72</i>	<i>83</i>	<i>94</i>		<i>204</i>	<i>51</i>	<i>23</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		
WHEMLOCK	154.4	30.3	2,912	4,178	5,444					
WR CEDAR	177.5	34.8	265	406	548					
S SPRUCE	204.2	40.1	427	713	999					
R ALDER	519.6	102.0		38	76					
TOTAL	<i>124.5</i>	<i>24.4</i>	<i>4,032</i>	<i>5,335</i>	<i>6,637</i>		<i>644</i>	<i>161</i>	<i>72</i>	

TC TSTATS				STATISTICS				PAGE 1		
PROJECT NORISTON						DATE 4/5/2007				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	10W	18	AREA 1	STAY	48.20	27	242	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL				27	242	9.0				
CRUISE				27	242	9.0	7,081	3.4		
DBH COUNT										
REFOREST										
COUNT										
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
HEMLEAV	139	91.2	14.4	46		103.0	10,797	10,166	3,177	3,035
CEDLEAV	63	39.4	14.7	26		46.7	1,953	1,675	903	841
SPRUCELV	35	14.7	18.0	52		25.9	3,037	2,704	868	804
SNAG	5	1.7	20.2	35		3.7	213		58	
TOTAL	242	146.9	15.0	41		179.3	16,000	14,546	5,005	4,680
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
HEMLEAV	65.6	12.9	79	91	103					
CEDLEAV	121.7	23.9	30	39	49					
SPRUCELV	145.3	28.5	10	15	19					
SNAG	283.8	55.7	1	2	3					
TOTAL	31.9	6.3	138	147	156		42	11	5	
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
HEMLEAV	54.1	10.6	92	103	114					
CEDLEAV	110.2	21.6	37	47	57					
SPRUCELV	154.0	30.2	18	26	34					
SNAG	261.0	51.2	2	4	6					
TOTAL	7.9	1.5	176	179	182		3	1	0	
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
HEMLEAV	68.4	13.4	8,802	10,166	11,531					
CEDLEAV	126.1	24.7	1,261	1,675	2,090					
SPRUCELV	162.1	31.8	1,844	2,704	3,564					
SNAG										
TOTAL	44.7	8.8	13,270	14,546	15,821		83	21	9	

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT NORISTON				DATE 4/5/2007		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	10W	18	AREA 1	00PC	48.20	27	349	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL		27	349	12.9						
CRUISE		27	349	12.9	12,828		2.7			
DBH COUNT										
REFOREST										
COUNT										
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
HEMLEAV	139	91.2	14.4	46		103.0	10,797	10,166	3,177	3,035
WHEMLOCK	72	81.1	11.0	31		53.3	4,379	4,035	1,273	1,184
CEDLEAV	63	39.4	14.7	26		46.7	1,953	1,675	903	841
SPRUCELV	35	14.7	18.0	52		25.9	3,037	2,704	868	804
WR CEDAR	19	23.9	10.4	17		14.1	560	395	207	160
S SPRUCE	15	13.3	12.4	28		11.1	759	681	243	222
SNAG	5	1.7	20.2	35		3.7	213		58	
R ALDER	1	.9	12.0	31		.7	38	38	14	14
TOTAL	349	266.1	13.3	35		258.5	21,734	19,695	6,743	6,260
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
HEMLEAV	65.6	12.9	79	91	103					
WHEMLOCK	98.8	19.4	65	81	97					
CEDLEAV	121.7	23.9	30	39	49					
SPRUCELV	145.3	28.5	10	15	19					
WR CEDAR	181.2	35.6	15	24	32					
S SPRUCE	192.0	37.7	8	13	18					
SNAG	283.8	55.7	1	2	3					
R ALDER	519.6	102.0		1	2					
TOTAL	39.4	7.7	246	266	287	64	16	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		
HEMLEAV	54.1	10.6	92	103	114					
WHEMLOCK	100.3	19.7	43	53	64					
CEDLEAV	110.2	21.6	37	47	57					
SPRUCELV	154.0	30.2	18	26	34					
WR CEDAR	166.4	32.6	9	14	19					
S SPRUCE	207.8	40.8	7	11	16					
SNAG	261.0	51.2	2	4	6					
R ALDER	519.6	102.0		1	1					
TOTAL	25.7	5.1	245	259	272	28	7	3		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
HEMLEAV	68.4	13.4	8,802	10,166	11,531					
WHEMLOCK	161.8	31.8	2,753	4,035	5,316					
CEDLEAV	126.1	24.7	1,261	1,675	2,090					
SPRUCELV	162.1	31.8	1,844	2,704	3,564					
WR CEDAR	183.4	36.0	253	395	537					
S SPRUCE	214.6	42.1	394	681	968					
SNAG										
R ALDER	519.6	102.0		38	76					

TC TSTATS				STATISTICS				PAGE 2	
				PROJECT NORISTON				DATE 4/5/2007	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	10W	18	AREA 1	00PC	48.20	27	349	1	W
CL: 68.1%		COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0		VAR.		LOW	AVG	HIGH	5	10	15
TOTAL		61.6	12.1	17,314	19,695	22,076	158	39	18

TC TSTATS		STATISTICS						PAGE 1		
		PROJECT NORISTON						DATE 4/5/2007		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	10W	18	AREA 1 R/W	RW01	1.40	27	344	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	27	344	12.7							
CRUISE	27	344	12.7		370		92.9			
DBH COUNT										
REFOREST										
COUNT										
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
WHEMLOCK	208	170.7	12.9	39		154.1	14,922	13,961	4,375	4,146
WR CEDAR	82	63.3	13.3	23		60.7	2,512	2,071	1,111	1,002
S SPRUCE	53	29.6	15.6	42		39.3	4,049	3,625	1,187	1,099
R ALDER	1	.9	12.0	31		.7	38	38	14	14
TOTAL	344	264.5	13.3	35		254.8	21,521	19,695	6,687	6,261
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	65.5	12.9	149	171	193					
WR CEDAR	117.5	23.1	49	63	78					
S SPRUCE	138.9	27.2	22	30	38					
R ALDER	519.6	102.0		1	2					
TOTAL	40.3	7.9	244	264	285	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		
WHEMLOCK	55.9	11.0	137	154	171					
WR CEDAR	105.1	20.6	48	61	73					
S SPRUCE	151.8	29.8	28	39	51					
R ALDER	519.6	102.0		1	1					
TOTAL	27.1	5.3	241	255	268	30	8	3		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	85.3	16.7	11,625	13,961	16,297					
WR CEDAR	123.8	24.3	1,567	2,071	2,574					
S SPRUCE	154.5	30.3	2,526	3,625	4,724					
R ALDER	519.6	102.0		38	76					
TOTAL	61.6	12.1	17,314	19,695	22,076	158	39	18		

TC TSTATS		STATISTICS							PAGE	1
		PROJECT NORISTON							DATE	4/5/2007
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	10W	18	AREA 4 R/W	RW04	1.60	35	264	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		35	264	7.5						
CRUISE		20	123	6.2	400	30.7				
DBH COUNT										
REFOREST										
COUNT		15	132	8.8						
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
WHEMLOCK	64	165.6	13.3	41		160.0	17,316	16,152	4,860	4,632
S SPRUCE	53	74.3	17.9	58		129.1	17,730	17,194	4,965	4,830
R ALDER	3	6.5	12.7	30		5.7	440	440	125	125
WR CEDAR	1	.5	37.0	50		3.4	289	239	89	89
SNAG	2	3.2	14.0	49		3.4				
TOTAL	123	250.1	14.9	46		301.7	35,776	34,024	10,039	9,677
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		75.3	12.7	145	166	187				
S SPRUCE		100.7	17.0	62	74	87				
R ALDER		308.7	52.2	3	7	10				
WR CEDAR		435.7	73.7	0	0	1				
SNAG		331.4	56.0	1	3	5				
TOTAL		41.4	7.0	233	250	268	68	17	8	
CL:	68.1 %	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		66.4	11.2	142	160	178				
S SPRUCE		99.4	16.8	107	129	151				
R ALDER		301.0	50.9	3	6	9				
WR CEDAR		435.7	73.7	1	3	6				
SNAG		331.4	56.0	2	3	5				
TOTAL		29.5	5.0	287	302	317	35	9	4	
CL:	68.1 %	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		70.9	12.0	14,217	16,152	18,086				
S SPRUCE		100.3	17.0	14,279	17,194	20,108				
R ALDER		324.5	54.9	199	440	681				
WR CEDAR		435.7	73.7	63	239	415				
SNAG										
TOTAL		34.7	5.9	32,031	34,024	36,017	48	12	5	

TC PSTATS		PROJECT STATISTICS							PAGE 1	
		PROJECT NORISTON							DATE 4/5/2007	
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	10	18	AREA 1 R/W	RW01	3.00	62	608	1	W	
04N	10W	18	AREA 4 R/W	RW04						
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		62	608	9.8						
CRUISE		47	467	9.9	770	60.6				
DBH COUNT										
REFOREST										
COUNT		15	132	8.8						
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
WHEMLOCK	272	168.0	13.1	40		157.2	16,199	15,130	4,634	4,405
S SPRUCE	106	53.4	17.3	54		87.2	11,346	10,862	3,202	3,089
WR CEDAR	83	29.8	13.6	23		30.2	1,327	1,094	566	515
R ALDER	4	3.9	12.6	30		3.4	252	252	73	73
SNAG	2	1.7	14.0	49		1.8				
TOTAL	467	256.8	14.1	41		279.8	29,124	27,337	8,475	8,083
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL	68.1	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		70.5	9.0	153	168	183				
S SPRUCE		118.1	15.0	45	53	61				
WR CEDAR		208.2	26.4	22	30	38				
R ALDER		378.4	48.1	2	4	6				
SNAG		447.1	56.8	1	2	3				
TOTAL		41.6	5.3	243	257	270	69	17	8	
CL	68.1	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		61.3	7.8	145	157	169				
S SPRUCE		123.2	15.6	74	87	101				
WR CEDAR		183.4	23.3	23	30	37				
R ALDER		372.4	47.3	2	3	5				
SNAG		447.1	56.8	1	2	3				
TOTAL		28.4	3.6	270	280	290	32	8	4	
CL	68.1	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		76.7	9.7	13,656	15,130	16,603				
S SPRUCE		130.7	16.6	9,059	10,862	12,664				
WR CEDAR		199.3	25.3	817	1,094	1,370				
R ALDER		409.7	52.0	121	252	383				
SNAG										
TOTAL		47.9	6.1	25,673	27,337	29,001	92	23	10	

TC TSTATS		STATISTICS						PAGE 1		
		PROJECT NORISTON						DATE 4/5/2007		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	10W	18	AREAS 23&5	TAKE	82.70	35	239	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		35	239	6.8						
CRUISE		18	112	6.2	19,818	.6				
DBH COUNT										
REFOREST										
COUNT		17	127	7.5						
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
WHEMLOCK	64	165.6	13.3	41		160.0	17,316	16,152	4,860	4,632
S SPRUCE	45	67.5	17.1	56		107.4	14,123	13,622	4,010	3,883
R ALDER	3	6.5	12.7	30		5.7	440	440	125	125
TOTAL	<i>112</i>	<i>239.6</i>	<i>14.5</i>	<i>45</i>		<i>273.1</i>	<i>31,879</i>	<i>30,214</i>	<i>8,996</i>	<i>8,640</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	75.3	12.7	145	166	187					
S SPRUCE	118.6	20.0	54	68	81					
R ALDER	308.7	52.2	3	7	10					
TOTAL	<i>44.9</i>	<i>7.6</i>	<i>221</i>	<i>240</i>	<i>258</i>	<i>81</i>	<i>20</i>	<i>9</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		
WHEMLOCK	66.4	11.2	142	160	178					
S SPRUCE	119.0	20.1	86	107	129					
R ALDER	301.0	50.9	3	6	9					
TOTAL	<i>36.1</i>	<i>6.1</i>	<i>256</i>	<i>273</i>	<i>290</i>	<i>52</i>	<i>13</i>	<i>6</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		
WHEMLOCK	70.9	12.0	14,217	16,152	18,086					
S SPRUCE	120.7	20.4	10,842	13,622	16,402					
R ALDER	324.5	54.9	199	440	681					
TOTAL	<i>40.1</i>	<i>6.8</i>	<i>28,164</i>	<i>30,214</i>	<i>32,263</i>	<i>64</i>	<i>16</i>	<i>7</i>		

TC TSTATS		STATISTICS						PAGE 1		
		PROJECT NORISTON						DATE 4/5/2007		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	10W	18	AREAS 23&5	STAY	82.70	35	35	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		35	35	1.0						
CRUISE		19	21	1.1	1,740	1.2				
DBH COUNT										
REFOREST										
COUNT		7	14	2.0						
BLANKS		9								
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
SPRUCELV	13	12.0	20.5	66		27.4	4,270	4,211	1,124	1,118
HEMLEAV	5	5.4	13.9	42		5.7	687	687	187	187
CEDLEAV	1	.5	37.0	50		3.4	289	239	89	89
SNAG	2	3.2	14.0	49		3.4				
TOTAL	21	21.0	18.7	57		40.0	5,246	5,136	1,400	1,394
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
SPRUCELV	136.8	23.1	9	12	15					
HEMLEAV	313.4	53.0	3	5	8					
CEDLEAV	435.7	73.7	0	0	1					
SNAG	331.4	56.0	1	3	5					
TOTAL	101.3	17.1	17	21	25	411	103	46		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
SPRUCELV	131.3	22.2	21	27	34					
HEMLEAV	248.5	42.0	3	6	8					
CEDLEAV	435.7	73.7	1	3	6					
SNAG	331.4	56.0	2	3	5					
TOTAL	90.7	15.3	34	40	46	329	82	37		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
SPRUCELV	136.7	23.1	3,238	4,211	5,183					
HEMLEAV	265.2	44.8	379	687	995					
CEDLEAV	435.7	73.7	63	239	415					
SNAG										
TOTAL	108.7	18.4	4,193	5,136	6,080	473	118	53		

TC TSTATS		STATISTICS					PAGE 1			
		PROJECT NORISTON					DATE 4/5/2007			
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	10W	18	AREAS 23&5	00MC	82.70	35	264	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	35	264	7.5							
CRUISE	20	123	6.2		20,615		.6			
DBH COUNT										
REFOREST										
COUNT	15	132	8.8							
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
WHEMLOCK	64	165.6	13.3	41		160.0	17,316	16,152	4,860	4,632
S SPRUCE	45	67.5	17.1	56		107.4	14,123	13,622	4,010	3,883
SPRUCELV	8	6.0	25.8	86		21.7	3,826	3,798	984	980
R ALDER	3	6.5	12.7	30		5.7	440	440	125	125
CEDLEAV	1	.5	37.0	50		3.4	289	239	89	89
SNAG	2	3.2	14.0	49		3.4				
TOTAL	123	249.3	14.9	46		301.7	35,995	34,250	10,069	9,709
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	75.3	12.7	145	166	187					
S SPRUCE	118.6	20.0	54	68	81					
SPRUCELV	174.9	29.6	4	6	8					
R ALDER	308.7	52.2	3	7	10					
CEDLEAV	435.7	73.7	0	0	1					
SNAG	331.4	56.0	1	3	5					
TOTAL	42.1	7.1	232	249	267	71	18	8		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	66.4	11.2	142	160	178					
S SPRUCE	119.0	20.1	86	107	129					
SPRUCELV	169.2	28.6	16	22	28					
R ALDER	301.0	50.9	3	6	9					
CEDLEAV	435.7	73.7	1	3	6					
SNAG	331.4	56.0	2	3	5					
TOTAL	29.5	5.0	287	302	317	35	9	4		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	70.9	12.0	14,217	16,152	18,086					
S SPRUCE	120.7	20.4	10,842	13,622	16,402					
SPRUCELV	167.4	28.3	2,723	3,798	4,873					
R ALDER	324.5	54.9	199	440	681					
CEDLEAV	435.7	73.7	63	239	415					
SNAG										
TOTAL	32.9	5.6	32,345	34,250	36,156	43	11	5		

Log Stock Table - MBF

T04N R10W S18 TyTAKE
THRU
T04N R10W S18 TyTAKE

Project: **NORISTON**
Acres **133.90**

Page **1**
Date **2/15/2007**
Time **3:56:12PM**

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+
H		DO 2S	12	0	7.7	0	.0								0				
H		DO 2S	16	0	2.2	0	.0						0	0					
H		DO 2S	18	16		16	1.0				16								
H		DO 2S	20	0		0	.0						0						
H		DO 2S	24	16		16	1.0					16							
H		DO 2S	28	0		0	.0						0						
H		DO 2S	30	0		0	.0						0						
H		DO 2S	32	187	2.1	183	11.6						40	94	49				
H		DO 2S	40	77		77	4.9						51	1	26				
H		DO 3S	12	11		11	.7						11						
H		DO 3S	16	5	30.1	3	.2			1		2			0				
H		DO 3S	20	26		26	1.6					12	13						
H		DO 3S	24	14		14	.9				14								
H		DO 3S	26	0		0	.0				0								
H		DO 3S	28	14		14	.9				14								
H		DO 3S	30	22		22	1.4			19	0	3							
H		DO 3S	32	386	3.4	373	23.5		2	79	123	152	17						
H		DO 3S	33	5		5	.3			5									
H		DO 3S	34	17		17	1.1			17	0		0						
H		DO 3S	36	41		41	2.6			41	0								
H		DO 3S	38	8		8	.5			8									
H		DO 3S	40	413		413	26.1			115	130	167	0		0				
H		DO 4S	8	7		7	.4					7							
H		DO 4S	12	36		36	2.3			36	0								
H		DO 4S	13	2		2	.1			2									
H		DO 4S	14	16		16	1.0			16	0								
H		DO 4S	16	107		107	6.7			97	10								
H		DO 4S	17	0		0	.0			0									
H		DO 4S	18	6		6	.4		2	5									
H		DO 4S	20	53		53	3.4			41		12							
H		DO 4S	22	13		13	.8			13									
H		DO 4S	24	46		46	2.9			46									
H		DO 4S	26	37	1.3	37	2.3			37									
H		DO 4S	27	0		0	.0			0									
H		DO 4S	28	0		0	.0			0									
H		DO 4S	30	21		21	1.3			3	18								
H		DO 4S	32	0	8.6	0	.0			0	0								

Log Stock Table - MBF

T04N R10W S18 TyTAKE
THRU
T04N R10W S18 TyTAKE

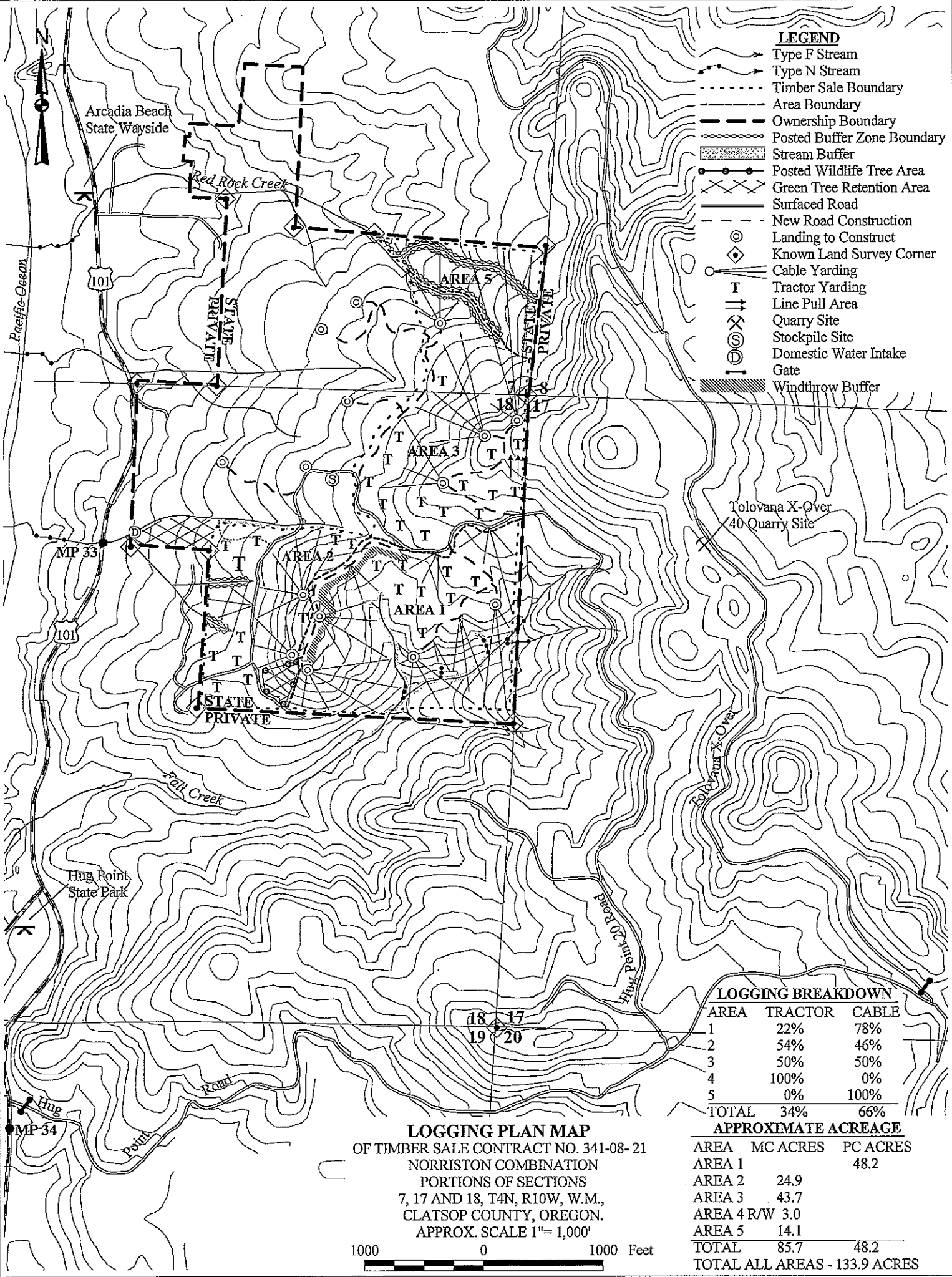
Project: **NORISTON**
Acres **133.90**

Page **3**
Date **2/15/2007**
Time **3:56:12PM**

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+
S		DO 4S	40	9	38.9	5	.5				5								
S		Totals		1,201		1,193	42.1			202	61	185	261	257	157	71	1		
C		DO 2S	40	0		0	.3							0					
C		DO 3S	16	0	10.2	0	.4						0	0					
C		DO 3S	30	2		2	8.3					2							
C		DO 3S	32	2	5.3	1	6.4			1	0	0	0	0		0			
C		DO 3S	34	0		0	1.5			0									
C		DO 3S	36	0		0	.3			0									
C		DO 3S	38	0		0	.1			0									
C		DO 3S	40	0		0	.9			0									
C		DO 4S	12	0		0	.1			0	0								
C		DO 4S	14	6		6	25.8			5	1	0							
C		DO 4S	16	3		3	12.7			3	0	0							
C		DO 4S	18	1		1	4.4			1									
C		DO 4S	20	1		1	4.4			1									
C		DO 4S	22	2		2	7.6			2									
C		DO 4S	24	5		5	20.9			5									
C		DO 4S	26	1		1	5.2			1									
C		DO 4S	28	0		0	.4			0									
C		DO 4S	30	0		0	.2			0									
C		DO 4S	40	0		0	.1		0										
C		Totals		23		23	.8		0	19	1	2	0	0		0			
Total		All Species		2,864		2,838	100.0		8	837	352	576	409	352	232	71	1		

TC TSTNDSUM														Stand Table Summary													
Project														NORISTON													
T04N R10W S18 TSTAY														T04N R10W S18 TSTAY													
Twp Rge Sec Tract				Type				Acres		Plots		Sample Trees		Page: 1													
04N 10W 18 AREA 1				STAY				48.20		27		242		Date: 02/15/2001													
														Time: 3:55:20PM													
S Spc	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											
HL		9	1	89	35	1.677	.74	1.68	7.0	20.0		12	34		6	2											
HL		10	4	85	38	5.579	2.96	5.58	9.2	27.3		51	152		25	7											
HL		11	16	85	50	18.178	11.85	17.06	13.9	43.4		237	739		114	36											
HL		12	11	86	64	10.710	8.15	14.57	15.4	49.4		224	720		108	35											
HL		13	18	86	63	14.596	13.33	19.42	17.2	54.6		335	1,061		161	51											
HL		14	12	87	65	8.367	8.89	13.22	19.4	63.1		256	835		124	40											
HL		15	9	88	62	5.432	6.67	8.45	20.4	70.7		173	598		83	29											
HL		16	16	87	82	8.593	11.85	16.62	26.0	94.7		432	1,574		208	76											
HL		17	13	87	88	6.138	9.63	12.28	30.1	106.9		369	1,312		178	63											
HL		18	10	85	77	4.192	7.41	7.55	33.9	107.8		256	813		123	39											
HL		19	4	76	71	1.505	2.96	2.26	35.0	93.3		79	211		38	10											
HL		20	2	81	85	.679	1.48	1.02	31.7	106.7		32	109		16	5											
HL		21	2	81	92	.616	1.48	1.23	42.5	140.0		52	172		25	8											
HL		22	6	82	79	1.684	4.44	3.65	41.3	137.7		151	502		73	24											
HL		23	3	84	98	.770	2.22	1.80	53.6	200.0		96	359		46	17											
HL		24	3	82	90	.707	2.22	1.41	54.8	186.7		78	264		37	13											
HL		25	1	81	94	.217	.74	.65	36.0	160.0		23	104		11	5											
HL		26	4	80	84	.804	2.96	1.81	50.4	166.7		91	301		44	15											
HL		27	2	87	78	.373	1.48	.56	92.0	310.0		51	173		25	8											
HL		28	1	66	83	.173	.74	.35	26.0	95.0		9	33		4	2											
HL		29	1	83	89	.161	.74	.32	88.5	310.0		29	100		14	5											
HL		Totals	139	86	64	91.151	102.96	131.46	23.1	77.3		3,035	10,166		1,463	490											
SL		12	3	85	52	2.913	2.22	3.86	13.6	42.9		53	165		25	8											
SL		13	1	83	31	.804	.74																				
SL		15	4	83	64	2.414	2.96	4.83	18.9	57.5		91	278		44	13											
SL		16	3	87	61	1.592	2.22	2.65	24.2	74.0		64	196		31	9											
SL		18	4	84	69	1.677	2.96	3.35	29.1	92.5		98	310		47	15											
SL		19	3	87	62	1.129	2.22	1.88	34.2	100.0		64	188		31	9											
SL		20	1	85	71	.340	.74	.68	37.5	130.0		25	88		12	4											
SL		21	3	83	73	.924	2.22	1.85	40.8	126.7		75	234		36	11											
SL		22	2	84	81	.561	1.48	1.12	49.0	165.0		55	185		27	9											
SL		23	3	82	121	.770	2.22	1.28	63.4	230.0		81	295		39	14											
SL		24	1	86	91	.236	.74	.47	25.0	85.0		12	40		6	2											
SL		25	3	84	83	.652	2.22	1.30	65.8	240.0		86	313		41	15											
SL		27	1	86	106	.186	.74	.56	63.3	296.7		35	166		17	8											
SL		28	1	71	99	.173	.74	.35	52.5	210.0		18	73		9	4											
SL		30	1	68	56	.151	.74	.30	44.5	140.0		13	42		6	2											
SL		32	1	86	97	.133	.74	.27	121.0	490.0		32	130		15	6											
SL		Totals	35	84	67	14.654	25.93	24.75	32.5	109.2		804	2,704		387	130											
CL		9	2	74	17	3.353	1.48																				
CL		10	4	75	20	5.579	2.96	4.07	7.0	20.0		29	81		14	4											
CL		11	2	71	17	2.245	1.48	2.24	8.0	20.0		18	45		9	2											
CL		12	1	73	26	.943	.74	.94	10.0	20.0		9	19		5	1											
CL		13	7	72	53	5.625	5.19	5.63	17.4	37.1		98	209		47	10											
CL		14	8	76	40	5.648	5.93	5.65	18.0	40.0		102	226		49	11											
CL		15	9	72	48	5.432	6.67	5.43	23.9	42.2		130	229		63	11											
CL		16	6	72	44	3.183	4.44	3.71	19.9	37.1		74	138		36	7											
CL		17	2	78	41	.969	1.48	.97	27.3	45.4		26	44		13	2											
CL		18	5	73	52	2.144	3.70	2.56	30.5	40.4		78	104		38	5											
CL		19	1	78	71	.376	.74	.75	24.0	70.0		18	53		9	3											
CL		20	1	70	30	.340	.74	.34	29.0	40.0		10	14		5	1											

Stand Table Summary																
TC TSTNDSUM																
Project NORISTON																
T04N R10W S18 TSTAY										T04N R10W S18 TSTAY						
Page: 2																
Date: 02/15/2001																
Time: 3:55:20PM																
Twp		Rge		Sec		Tract			Type		Acres		Plots		Sample Trees	
04N		10W		18		AREA 1			STAY		48.20		27		242	
Spc	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
CL		21	3	72	52	.924	2.22	.92	46.0	60.0		42	55		20	3
CL		22	2	74	63	.561	1.48	.84	44.3	126.7		37	107		18	5
CL		23	4	72	62	1.027	2.96	1.80	39.1	90.0		70	162		34	8
CL		24	1	76	44	.236	.74	.24	55.0	60.0		13	14		6	1
CL		25	1	71	40	.217	.74	.22	56.0	50.0		12	11		6	1
CL		26	1	69	70	.201	.74	.40	51.0	110.0		20	44		10	2
CL		27	1	72	62	.186	.74	.37	50.0	110.0		19	41		9	2
CL		28	1	66	111	.173	.74	.35	80.5	180.0		28	62		13	3
CL		42	1	89	88	.077	.74	.08	92.0	230.0		7	18		3	1
CL		Totals	63	73	39	39.441	46.67	37.52	22.4	44.7		841	1,675		406	81
SN		16	1	86	17	.531	.74									
SN		18	1	88	89	.443	.74									
SN		19	1	72	44	.376	.74									
SN		24	1	86	26	.236	.74									
SN		44	1	71	140	.070	.74									
SN		Totals	5	83	49	1.656	3.70									
Totals		242		82 58		146.902 179.26		193.73		24.2 75.1		4680 14,546		2,256 701		



- LEGEND**
- Type F Stream
 - Type N Stream
 - - - Timber Sale Boundary
 - - - Area Boundary
 - - - Ownership Boundary
 - - - Posted Buffer Zone Boundary
 - ▨ Stream Buffer
 - Posted Wildlife Tree Area
 - ⊗ Green Tree Retention Area
 - Surfaced Road
 - - - New Road Construction
 - ⊙ Landing to Construct
 - ◇ Known Land Survey Corner
 - ⊕ Cable Yarding
 - T Tractor Yarding
 - ⇄ Line Pull Area
 - ⊗ Quarry Site
 - ⊗ Stockpile Site
 - ⊙ Domestic Water Intake
 - ⊕ Gate
 - ▨ Windthrow Buffer

LOGGING BREAKDOWN

AREA	TRACTOR	CABLE
1	22%	78%
2	54%	46%
3	50%	50%
4	100%	0%
5	0%	100%
TOTAL	34%	66%

APPROXIMATE ACREAGE

AREA	MC ACRES	PC ACRES
AREA 1		48.2
AREA 2	24.9	
AREA 3	43.7	
AREA 4 R/W	3.0	
AREA 5	14.1	
TOTAL	85.7	48.2
TOTAL ALL AREAS - 133.9 ACRES		

LOGGING PLAN MAP
 OF TIMBER SALE CONTRACT NO. 341-08-21
 NORRISTON COMBINATION
 PORTIONS OF SECTIONS
 7, 17 AND 18, T4N, R10W, W.M.,
 CLATSOP COUNTY, OREGON.
 APPROX. SCALE 1"= 1,000'

