



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Hopin Boulder
Sale 341-12-43

District: Astoria

Date: January 27, 2012

cost summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$698,461.09	\$138,147.36	\$836,608.45
		Project Work:	\$(185,083.00)
		Advertised Value:	\$651,525.45



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timber description

Location: Portions of Sections 15, 21, and 22 of T4N, R8W, W.M., Clatsop County, Oregon.

Stand Stocking: 60%

SpecieName	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	24	0	97
Western Hemlock / Fir	18	0	97
Sitka Spruce	22	0	97
Alder (Red)	14	0	96

Volume by Grade	2S	3S	4S	Camprur	Total
Douglas - Fir	241	47	6	0	294
Western Hemlock / Fir	1,390	499	112	0	2,001
Sitka Spruce	173	315	50	0	538
Alder (Red)	0	0	0	393	393
Total	1,804	861	168	393	3,226



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comments: Pond Values Used: 4th Quarter Calendar Year 2011.

Expected Log Markets: Warrenton, OR; Tillamook, OR; Garibaldi, OR; Forest Grove, OR; Mist, OR; Aberdeen, WA., Longview, WA, Morton, WA.

Western redcedar Stumpage Price = Pond Value minus Logging Cost
 $\$625.74/\text{MBF} = \$800.00/\text{MBF} - \$174.26/\text{MBF}$

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):

Additional Logging Costs:

Branding and Painting: $\$1/\text{MBF} \times 3,226 \text{ MBF} = \$3,226$

Slash & Landing Piling (includes Move-In and Pile Materials) =
\$12,235 (see attached appraisal)

Log Loader & Dump Truck Slash Loading and Hauling for Area 2

10-12 cy. Dump Truck Mobilization = \$141

Dump Truck Time $\$73/\text{hr.} \times 8 \text{ hrs.} = \584

Log Loader Time $\$87.50/\text{hr.} \times 10 \text{ hrs.} = \875

Total Slash Hauling Costs for Area 2 = \$1,600

Close Dirt Spur in Area 2. 2 hrs @ $\$120/\text{hr} = \240

Machine Washing for Invasive Weed Control = \$4,000

TOTAL Other Costs (with Profit & Risk to be added) = \$21,301

Other Costs (No Profit & Risk added):

Vacate Temporary Stream Crossing: 2hrs @ $\$94/\text{hr} + \$699 \text{ move in} =$
\$887

Loggers Choice Landings in Area 2. $\$338 \times 2 = \676

TOTAL Other Costs (No Profit & Risk added): \$1,563



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logging conditions

combination#: 1

Douglas - Fir	60.00%
Western Hemlock / Fir	60.00%
Sitka Spruce	60.00%
Alder (Red)	60.00%

yarding distance: Medium (800 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:** 4,500
cost / mbf: \$106.16

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

combination#: 2

Douglas - Fir	40.00%
Western Hemlock / Fir	40.00%
Sitka Spruce	40.00%
Alder (Red)	40.00%

yarding distance: Medium (800 ft) **downhill yarding:** No
logging system: Shovel **Process:** Manual Delimbing
tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 9.0 **bd. ft / load:** 4,500
cost / mbf: \$61.84

machines: Shovel Logger



"STEWARDSHIP IN FORESTRY"

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District: Astoria

Date: January 27, 2012

logging costs

Operating Seasons:	2.00	Profit Risk:	12.00%
Project Costs:	\$185,083.00	Other Costs (P/R):	\$21,301.00
Slash Disposal:	\$0.00	Other Costs:	\$1,563.00

Miles of Road

Road Maintenance: \$7.36

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

Hauling Costs

Species	\$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	\$0.00	3.0	5.0
Western Hemlock / Fir	\$0.00	3.0	4.5
Sitka Spruce	\$0.00	2.0	5.0
Alder (Red)	\$0.00	2.0	3.5



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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									
\$88.43	\$7.58	\$2.72	\$45.37	\$6.60	\$18.08	\$0.00	\$5.00	\$0.48	\$174.26
Western Hemlock / Fir									
\$88.43	\$7.58	\$2.72	\$50.41	\$6.60	\$18.69	\$0.00	\$5.00	\$0.48	\$179.91
Sitka Spruce									
\$88.43	\$7.58	\$2.72	\$68.05	\$6.60	\$20.81	\$0.00	\$5.00	\$0.48	\$199.67
Alder (Red)									
\$88.43	\$7.65	\$2.72	\$98.17	\$6.60	\$24.43	\$0.00	\$5.00	\$0.48	\$233.48

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$509.29	\$335.03	\$0.00
Western Hemlock / Fir	\$0.00	\$425.14	\$245.23	\$0.00
Sitka Spruce	\$0.00	\$402.75	\$203.08	\$0.00
Alder (Red)	\$0.00	\$585.00	\$351.52	\$0.00



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District: Astoria

Date: January 27, 2012

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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	294	\$335.03	\$98,498.82
Western Hemlock / Fir	2,001	\$245.23	\$490,705.23
Sitka Spruce	538	\$203.08	\$109,257.04
Alder (Red)	393	\$351.52	\$138,147.36

Gross Timber Sale Value

Recovery: \$836,608.45

Prepared by: Derek Bangs

Phone: 503-325-5451

Site Prep Appraisal

Sale Number: 341-12-43
Sale Name: Hopin Boulder
Date: 09/28/2011

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	4.5

Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area
1	MC	C	20	39	\$110.00	\$4,290.00
2	MC	C	19	37	\$110.00	\$4,096.40

Sub Total = \$8,386.40

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	3	\$220.00	\$660.00	117	\$5.00	\$585.00
2	5	\$220.00	\$1,100.00	111.72	\$5.00	\$558.60

*Cost includes separating firewood

Sub Total = \$2,903.60

Move-In Allowance	Number of Move-In's	Total Move-In Allowance
\$945.00	1	\$945.00

Sub Total = \$945.00

Grand Total = \$12,235.00

Road Maintenance Cost Summary

Sale: Hopin Boulder
Date: 12-Dec-11
By: Derek Bangs

MBF: 3.226
\$/MBF: \$7.36

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	Production Rates			
							Production Rates	Miles/day	Distance(miles)	Days
Progressive Operations 1st Entry	Grader 14G	\$675	1	20	\$90	\$2,475	Grader	2.5	5.0	2.0
	Dump Truck 10CY x 2	\$282	2	8	\$73	\$1,450				
	FE Loader C966	\$675	1	8	\$74	\$1,267				
Final Road Maintenance	Grader 14G	\$675	1	55	\$90	\$5,625	Grader Vibratory Roller*	1.5	8.3	5.5
	Dump Truck 10CY x 3	\$423	3	16	\$73	\$3,927				
	FE Loader C966	\$675	1	16	\$74	\$1,859				
	Vibratory Roller	\$675	1	40	\$72	\$3,555				
Total	Water Truck 2,500 gallon	\$165	1	40	\$78	\$3,285				
	Labor		1	8	\$37	\$296				
						\$23,739				

*Final Road Maintenance Only

*Maintenance calculations were determined as follows:
Haul Route is determined from sale areas north to Hamlet County Road

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Hopin Boulder

NEW CONSTRUCTION:

Project No. 1

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Rocked Roads	1A-1B, 2A-2B, & 2C-2D.	33.80	\$60,624
Dirt Road	2E-2F	4.00	
TOTALS	0.72 miles	37.80	\$60,624

ROAD IMPROVEMENT:

Project No. 2

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
	11-12, 12-13, 13-14, 15-16, & 17-18.	340.20	\$92,961
TOTALS	6.44 miles	340.20	\$92,961

SPECIAL PROJECTS:

Project No. 3	<u>Quarry Development and Rock Screening</u>	<u>\$23,281</u>
	<u>Project Work Road Maintenance</u>	<u>\$1,291</u>

MOVE IN:

	<u>Equipment</u>	<u>Cost</u>
	Dozer (D8)	\$1,220
	Dump Trucks (12 cy x 4)	\$564
	Dump Trucks (20 cy x 2)	\$332
	F E Loader (C966)	\$675
	Grader (14G)	\$675
	Rubber Tire Skidder (C518)	\$622
	Vibratory Roller	\$675
	Water Truck (2,500 gallon)	\$165
	Backhoe (C 580)	\$279
	Excavator (C330)	\$1,220
	Small Drill (on tilt bed)	\$500
	*Mobilization costs for Quarry work added to Project No. 2 costs	
TOTAL		\$6,927

GRAND TOTAL **\$185,083**

Compiled By: D.Bangs/ J. Long FL

Date: 12/22/2011

Project No. 1

SALE NAME:
ROADS:

Hopin Boulder
1A-1B (3+50), 2A-2B (0+70), 2C-2D (29+60), 2E-2F (4+00)

SUMMARY OF CONSTRUCTION COSTS

NEW CONSTRUCTION: 37.80 STATIONS
IMPROVEMENT: STATIONS

0.72 MILES
MILES

CLEARING & GRUBBING

Method	Acres/amount		Rate	=	Cost
Scatter Outside of R/W	1.5		\$1,161.00	=	\$1,741.50
Endhaul Clearing Debris 2A-2B (Sta. 7+45 to Sta. 24+52) (C330 x 16 hr, 24cy off hwy dump x 16 hr)	2.5		\$4,280.00	=	\$4,280.00
SUB TOTAL FOR CLEARING & GRUBBING					\$6,022

EXCAVATION

Sta. 3+50		1A-1B				
		Balanced Construction Field Design \$/sta.				\$371.00
		Landing Construction	3.50	X	\$106.00	\$338.00
Sta. 0+70		2A-2B				
		Balanced Construction Field Design \$/sta.				\$74.20
		Landing Construction	0.70	X	\$106.00	\$338.00
Sta. 29+60		2C-2D				
		Common drift excavation \$\$/cy	1,689	X	\$1.60	\$2,702.40
		Embankment compaction \$\$/cy	4,707	X	\$0.60	\$2,824.20
		Cut Slope Rounding \$\$/Sta	10.5	X	\$37.00	\$388.50
		End Haul Excavation Sta.	5,213	X	\$3.50	\$18,245.50
		Drill and Shoot Sta 21+60 to 24+02 (2 days)	20	X	\$225.00	\$4,500.00
		Powder				\$1,000.00
		Landing Construction 2D, Sta. 9+00, Sta.13+45	2	X	\$338.00	\$676.00
		Compact Waste Area	1,000	X	\$0.30	\$300.00
Sta. 4+00		2E-2F				
		Balanced Construction Field Design \$/sta.	4.00	X	\$106.00	\$424.00
		Landing Construction	1.00	X	\$338.00	\$338.00
SUB TOTAL FOR EXCAVATION						\$32,520

CULVERT MATERIALS AND

Location	Dialtype	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
1A to 1B	18"CPP	40	\$17.64	\$705.60			
2A to 2B	18"CPP	40	\$17.64	\$705.60			
2C to 2D	18"CPP	50	\$17.64	\$882.00			
2C to 2D	18"CPP	35	\$17.64	\$617.40			
2C to 2D	18"CPP	35	\$17.64	\$617.40			
SUB TOTAL FOR CULVERTS & INSTALLATION							\$3,528.00

Other/miscellaneous:

Description	Quantity	Rate	Cost
Labor 2 hrs. @\$38.00 hr. for waste area	2	\$38.00	\$76.00
Grass seed mix 10lbs X \$1.40/lb	10	\$1.40	\$14.00
Straw bales @\$10.00 ea. X 20 bales for waste area	20	\$10.00	\$200.00
Culvert stakes & markers:			
Install 6' Fiberglass Markers @\$18.00 each	5	\$18.00	\$90.00
SUB TOTAL FOR OTHER			\$380

Grand Total:

\$42,449

Project No. 1 New Road Construction

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Hopin Boulder
 ROAD: 1A-1B (3+50), 2A-2B (0+70), 2C-2D(29+60)

NEW CONSTRUCTION: 33.80 STATIONS 0.64 MILES
 IMPROVEMENT: 0.00 STATIONS 0.00 MILES

SURFACING					Stations/ amount		Rate/ sta/amt		Cost	
Subgrade prep:				Description		33.80	x	\$21.55	\$728.39	
				Grade, Shape and Ditch						
				Subgrade Compaction		33.80	x	\$17.52	\$592.18	
ROAD SEGMENT		1A to 1B		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1A to 1B		0+00 to 3+50				
				Volume (CY) per		Number of				
Base Rock	6"-0" Pit-run	0+00 to 3+50	12	station	75	stations	3.50	263	\$4.21	\$1,105
Junction Rock	6"-0" Pit-run	0+00	12	junction	22	junctions	1	22	\$4.21	\$93
Junction Rock	1 1/2"-0" Crushed	0+00	2	junction	11	junctions	1	11	\$4.10	\$45
Landing	6"-0" Pit-run	1B	N/A	landing	80	landings	1	80	\$4.21	\$337
Total Rock for Road Segment:				1A to 1B				376		\$1,580
ROAD SEGMENT		2A to 2B		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A to 2B		30+80				
				Volume (CY) per		Number of				
Base Rock	6"-0" Pit-run	0+00 to 0+70	12	station	75	stations	0.70	53	\$4.21	\$221
Junction Rock	6"-0" Pit-run	0+00	12	junction	22	junctions	1	22	\$4.21	\$93
Junction Rock	1 1/2"-0" Crushed	0+00	2	junction	11	junctions	1	11	\$4.10	\$45
Landing	6"-0" Pit-run	2D	N/A	landing	80	landings	1	80	\$4.21	\$337
Total Rock for Road Segment:				2A to 2B				166		\$696
ROAD SEGMENT		2C to 2D		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2C to 2D		0+00 to 29+60				
				Volume (CY) per		Number of				
Base Rock	6"-0" Pit-run	0+00 to 29+60	12	station	75	stations	29.60	2,220	\$4.21	\$9,346
Traction Rock	3/4"-0" Crushed	2+00 to 15+00	2	station	13	stations	13.00	169	\$4.84	\$818
Traction Rock	3/4"-0" Crushed	21+60 to 28+60	2	station	13	stations	7.00	91	\$4.87	\$443
Turnouts	6"-0" Pit-run		12	turnout	33	turnouts	6	198	\$4.21	\$834
Turnouts	3/4"-0" Crushed		2	turnout	11	turnouts	4	44	\$4.87	\$214
Junction Rock	6"-0" Pit-run	0+00	12	junction	22	junctions	1	22	\$4.21	\$93
Junction Rock	1 1/2"-0" Crushed	0+00	2	junction	11	junctions	1	11	\$4.10	\$45
Dissipator	24"-6" Riprap	8+00, 25+60	N/A	dissipator	10	dissipators	2	20	\$6.90	\$138
Landing	6"-0" Pit-run	2D, 9+00	N/A	landing	80	landings	2	160	\$4.21	\$674
Total Rock for Road Segment:				2C to 2D				2,935		\$12,605
Description						No.sta	Rate/sta	Cost		
Processing:				Spread & Compact Pit Run Rock w/D8		33.8	\$29.40	\$994		
				Water, Process & Compact Traction Rock		20.0	\$49.02	\$980		
									\$1,974	
SUB TOTAL FOR SURFACING									\$18,174	
SUB TOTAL FOR SURFACING				24"-6"	6"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total	
				20	3,119		33	304	3,476	
SPECIAL PROJECTS				Description		Cost				
SUB TOTAL FOR SPECIAL PROJECTS								\$0		
GRAND TOTAL								\$18,174		

Project No. 2

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Hopin Boulder

NEW CONSTRUCTION:

STATIONS

0.00 MILES

ROAD: I1-I2 (55+40), I2-I3 (62+10), I3-I4 (159+20), I5 to I6 (67+00),

IMPROVEMENT:

350.20

STATIONS

6.63 MILES

POINTS: I7 to I8 (6+50)

CLEARING & GRUBBING

Method	Qty/amount	x	Rate	=	Cost
Clear road prism/ditches/culverts (C580 - hrs.)	10.00	x	\$72.00	=	\$720.00
SUB TOTAL FOR CLEARING & GRUBBING					\$720

EXCAVATION

	Material	Cy/hours/amount	x	Rate	=	Cost
12+60-14+40	I1 to I2					
	Scatter Ditch Waste Materials (sta.)	55.4	x	\$10.78	=	\$597.21
	Excavate, Load, and Haul Ditch Waste Materials (sta.)	1	x	\$19.89	=	\$19.89
	I2 to I3					
	Scatter Ditch Waste Materials (sta.)	62.1	x	\$10.78	=	\$669.44
	I3 to I4					
	Scatter Ditch Waste Materials (sta.)	159.2	x	\$10.78	=	\$1,716.18
	Excavate, Load, and Haul Ditch Waste Materials (sta.)	0.5	x	\$19.89	=	\$9.95
	Remove log lodged in fill @ Sta. 16+50	2	x	\$144.00	=	\$288.00
	Sidecast Pullback \$/sta.	1	x	\$484.00	=	\$484.00
79+00-80+05	End-haul Excavated Material \$/CY	200	x	\$3.50	=	\$700.00
	Armor Placement w/330C \$/hr	4	x	\$144.00	=	\$576.00
	Waste Material Compaction \$/CY	200	x	\$0.30	=	\$60.00
	Sidecast Pullback \$/sta.	1	x	\$484.00	=	\$508.20
	End-haul Excavated Material \$/CY	1,821	x	\$3.50	=	\$6,373.50
82+20-83+00	Cut Slope Rounding - \$/sta.	1	x	\$37.00	=	\$38.85
	Waste Material Compaction \$/CY	1,821	x	\$0.30	=	\$546.30
	330 Excavator - place drain rock at culvert & dissipator \$/hr	8	x	\$144.00	=	\$1,152.00
	Sidecast Pullback \$/sta.	1	x	\$484.00	=	\$484.00
	330 Excavator - armor sidecast area \$/hr	4	x	\$144.00	=	\$576.00
116+60-117+90	Sidecast Pullback \$/sta.	2	x	\$484.00	=	\$728.00
	End-haul Excavated Material \$/CY	200	x	\$3.50	=	\$700.00
	Waste Material Compaction \$/CY	200	x	\$0.30	=	\$60.00
	I5 to I6					
	Scatter Ditch Waste Materials (sta.)	67.0	x	\$10.78	=	\$722.26
	Turnaround Construction (Sta. 58+00, Sta. 64+00)	2	x	\$338.00	=	\$676.00
	Landing Construction (Sta. 26+70, Sta. 59+60, Pt. I6)	3	x	\$338.00	=	\$1,014.00
	I7 to I8					
	Scatter Ditch Waste Materials (sta.)	6.5	x	\$10.78	=	\$70.07
SUB TOTAL FOR EXCAVATION						\$18,768

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost
I2 to I3				
8+80	18"CPP	40	\$17.64	\$705.60
24+90	18"CPP	30	\$17.64	\$529.20
41+00	18"CPP	30	\$17.64	\$529.20
59+10	18"CPP	40	\$17.64	\$705.60
I3 to I4				
16+50	18"CPP	40	\$17.64	\$705.60
27+20	18"CPP	40	\$17.64	\$705.60
61+90	18"CPP	40	\$17.64	\$705.60
68+10	18"CPP	40	\$17.64	\$705.60
73+70	18"CPP	40	\$17.64	\$705.60
79+45	18"CPP	30	\$17.64	\$529.20
121+10	18"CPP	40	\$17.64	\$705.60
I5 to I6				
0+00	18"CPP	40	\$17.64	\$705.60

SPECIAL PROJECTS

Description

	Quantity	Rate	Cost
Replace Missing Culvert Markers	12	\$18.00	\$216.00
Add markers to new culverts	12	\$18.00	\$216.00
10 oz. non-woven fabric \$/yd.	83	\$2.60	\$215.80

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$8,586

Subtotal of Clearing, Exc., Culv.

\$28,074

Project No. 2 Road Improvement

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Hopin Boulder

NEW CONSTRUCTION: 0.00

STATIONS 0.00 MILES

ROAD: I1-I2 (55+40), I2-I3 (62+10), I3-I4 (149+20), I5 to I6 (67+00),
I7 to I8 (6+50)

IMPROVEMENT: 340.20

STATIONS 6.44 MILES

SURFACING				Description		Stations/ amount		Rate/ sta/amt		Cost	
Subgrade prep:				Grade, Shape and Ditch		340.20		x		\$21.55 \$7,331.31	
				Subgrade Compaction I1-I2 (55+40), I2-I3 (62+10), I3-I4 (149+20), I5-I6 (67+00)		333.70		x		\$17.52 \$5,846.42	

CRUSHED ROCK COST

SALE NAME:	Hopin Boulder
PROJECT:	Project Nos. 1 & 2
QUARRY:	Cougar Mtn. Stockpiles

MATERIAL: 3/4"-0" Crushed
4"-0" Crushed

DATE: 12/22/2011
BY: D. Bangs

[illegible]

ROCK HAUL:

Truck type:	<u>D20</u>	No. trucks:	<u>2</u>
Delay min.:	<u>8</u>	Efficiency:	<u>85%</u>

Ave haul:	\$3.69	/cy
Load:	\$0.45	/cy
Spread:	\$0.73	/cy

Truck type:	<u>D12</u>	No. trucks:	<u>4</u>
Delay min.:	<u>6</u>	Efficiency:	<u>85%</u>

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

Production: cy/day = 1,040

CRUSHED ROCK HAUL COSTS 3,168 cy @ \$4.87 /cy

CRUSHED ROCK COST

SALE NAME:	Hopin Boulder
PROJECT:	Project Nos. 1 & 2
QUARRY:	Sweethome Stockpiles

MATERIAL: 1 1/2"-0" Crushed
Screened/Reject

DATE: 12/22/2011
BY: D. Bangs

[illegible]

ROCK HAUL:

Truck type:	<u>D20</u>	No. trucks:	<u>2</u>
Delay min.:	<u>8</u>	Efficiency:	<u>85%</u>

Ave haul:	\$2.87	/cy
Load:	\$0.45	/cy
Spread:	\$0.78	/cy

Truck type: D12 No. trucks: 2
 Delay min.: 6 Efficiency: 85%

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

Production: cy/day = 932

CRUSHED ROCK HAUL COSTS 4,254 cy @ \$4.10 /cy

PIT RUN ROCK COST

SALE NAME:	Hopin Boulder
PROJECT:	Project Nos. 1 & 2
QUARRY:	Cougar Mtn.

MATERIAL: Pit Run

DATE: 12/22/2011
BY: D. Bangs

[illegible]

ROCK HAUL:

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

Ave haul:	\$2.98	/cy
Load:	\$0.45	/cy
Spread:	\$0.78	/cy

Truck type:	<u>D12</u>	No. trucks:	<u>5</u>
Delay min.:	<u>6</u>	Efficiency:	<u>85%</u>

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

Production: cy/day = 980

PIT RUN ROCK HAUL COSTS	3,400 cy @	\$4.21 /cy
-------------------------	------------	------------

RIP RAP ROCK COST

SALE NAME:	Hopin Bolder
PROJECT:	Project No. 2
QUARRY:	Fall Creek

MATERIAL: Rip Rap

DATE: 12/08/2011
BY: J. Long

[illegible]

ROCK HAUL:

Truck type:	D12	No. trucks:	2
Delay min.:	6	Efficiency:	85%
Truck type:	D10	No. trucks:	2
Delay min.:	5	Efficiency:	85%

Ave haul:	\$4.38	/cy
Load:	\$2.52	/cy
Develop:		/cy

Production: cy/day = 266

RIP RAP ROCK HAUL COSTS 397 cy @ \$6.90 /cy

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 3 Timber Sale Name: Hopin Boulder
 Quarry: Cougar Mountain & Fall Creek Quarry and Sweethome Stockpile Swell:
 Location: Cougar Mnt. NE 1/4,NW 1/4, Sec 14 T4N, R8W W. M. Shrink: 16%
Fall Creek NW 1/4, Sec 20, T4N, R8W, W.M.
 County: Clatsop
 By: Kraig Kirkpatrick Loading Hopper: no
 Date: 12/02/11

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
6"-0"	40%	PR		3,399	3,399
24"-6"		RR		309	309
TOTAL CUBIC YARDS OF ROCK:				3,708	3,708

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Screening Plants	2	\$515	\$1,031				
D6 Cat		\$675		Loader	2	\$699	\$1,398
Excavator	1	\$144	\$144				

Note: Excavator was costed for mobilization elsewhere. Allowed 1 hour travel time.

SUB TOTAL FOR MOBILIZATION \$2,573

EQUIPMENT SET UP	TIMES	RATE	COST
Screening Plants	2	\$273	\$546

SUB TOTAL FOR SET UP COSTS \$546

TOTAL MOBILIZATION & SET UP COSTS **\$3,119**

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Pile and burn	0.1	acre	\$2,345	\$235
Move-in Fire Truck for the burning of the Clearing Debris	1	ea.	\$83	\$83

TOTAL CLEARING & GRUBBING COSTS **\$318**

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Load and haul	800	bcy	\$1.50	\$1,200
Excavation (C330)	2	hrs.	\$144	\$288

TOTAL EXCAVATION COSTS **\$1,488**

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping	100%	5,068	\$1.44	\$7,297
crushed			Drill & shoot				
pit run	3,399	92%	Oversize red				
rip rap	309	8%	Other				
Total	3,708						
reject	1,360	36.7%					

Note: Unit ripping rate based on an C330 excavator producing 100 bcy/hour.

TOTAL ROCK DEVELOPMENT COSTS **\$7,297**

5) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	5,068	\$0.64	\$3,243

Note: Loading rate based on \$102/hr * 8hrs/day / 1281 bcy/day = \$0.64/bcy

TOTAL FEEDING & LOADING COSTS **\$3,243**

6) ROCK SCREENING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
6"-0"	Pit-run	3,308	Screen	148	\$0.42	\$1,389
*1 1/2"-0"	Crushed Rock	5,600	Screen	148	\$0.42	\$2,352

Note: Screening rate based on: \$500/day / 148 cy/hr * 8 hrs/day = \$0.423/cy

*Screen the 1 1/2"-0" at the Sweethome stockpile site.

TOTAL ROCK CRUSHING COSTS

\$3,741

7) MISCELLANEOUS COSTS

DESCRIPTION			COST
Reject Handling			
Load & haul to S.P. site	\$1.86	1,360	\$2,529
Compact reject	\$0.30	1320	\$396
Over Burden Handling			
Compact Over burden	\$0.30	800	\$240
Spread reject & over burden (C330)	2.5	\$144	\$360
Quarry maintenance			
Waterbar & block access road(C330):	1.5	\$144	\$216
Slope floor to drain (Cat 14G):	0.5	\$93	\$47
Waste Site Prep			
Move existing woody debris (C330)	2	\$144	\$288

TOTAL MISCELLANEOUS COSTS

\$4,075

9) GRAND TOTAL:

\$23,281

\$/Cubic Yard

\$6.85

Projects Road Maintenance Cost Summary

Sale: Hopin Boulder
Date: 28-Nov-11
By: J. Long FL

Type	Equipment/Rationale		Hours	Rate	Cost
Final Haul	Grader 14G		5	\$93	\$465
Road	Dump Truck 12CY		2	\$73	\$146
Maintenance	FE Loader C966		2	\$77	\$154
Haul Route	Vibratory Roller		5	\$72	\$360
	Water Truck 2,500 gallon		2	\$83	\$166
Total					\$1,291

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	0.7	0.5
Vibratory Roller	1.5	0.7	0.5

Cougar Mountain Road from Quarry to Pt. 14.

Hopin Boulder TIMBER CRUISE REPORT FY 2012

1. **Sale Area Location:** Areas 1 and 2 are located in portions of Sections 15, 21, and 22, T4N, R8W, W.M., Clatsop County, Oregon.

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

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	GTRA	Existing R/W	New R/W	Stream Buffer	Net Acres	Survey Method
1	Modified Clearcut	47	1	3	1	4	38	GIS
2	Modified Clearcut	72	0	2	2	8	60	GIS
3	Right-of-Way	4*	0	0	0	0	4*	GIS
TOTALS		123	1	5	3	12	102	

*1 acre of Right-of-Way is outside of the Timber Sale Area.

4. **Cruisers and Cruise Dates:** All areas were cruised by Derek Bangs, Jasen McCoy, Jon Long, Jay Morey, and Bryce Rodgers on September 21, 2011.

5. **Cruise Method and Computation:** Areas 1 and 2 are modified clearcut units and were variable plot cruised using a 40 BAF. These plots are located on a 3 chain by 7 chain grid, with every third plot measured and graded. A total of 50 plots were sampled, with 17 measured and graded plots, and 33 count plots. Cedar was a reserved species in Areas 1 and 2.

Area 3 R/W Right-of-way volume was calculated by multiplying the R/W acreage and the average volume per acre from the plots in Areas 1 and 2. Right-of-way totals 4 acres

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

AREA	CRUISE	TRACT	TYPE	ACRES
1 and 2	T4NR8W21	AREA12	TAKE	98
3	T4NR8W21	AREA12	ROW	4

6. **Timber Description:** Areas 1 and 2 are modified clearcut units, approximately 70 to 85 year-old, consisting of Douglas-fir, western hemlock, Sitka Spruce, red alder, and cedar. The average Douglas-fir tree size to be harvested is approximately 24 inches DBH, with an average height of 93 feet to a merchantable top (6 inch d.i.b./40% fp). The average hemlock tree size is approximately 18 inches DBH and 54 feet to a merchantable top (6 inch d.i.b./40%fp). The average alder tree size is approximately 14 inches DBH and 43 feet to a merchantable top (6 inch d.i.b.). The average volume per acre to be harvested (net) is 31.5 MBF.

Area 3 R/W is similar to the timber description mentioned above for Areas 1 and 2. The average volume (net) is 34.6 MBF/acre.

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

Statistics for Stand B.F. volumes

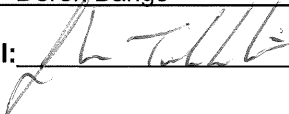
Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1 & 2 (MC)	65%	11%	48.6%	6.9%

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

Species	DBH	Net Vol.	2 Saw	3Saw	4 Saw	CampRun	% D & B	% Sale
Douglas-fir	24"	294	241	47	6	-	6%	9%
Hemlock/True-fir	18"	2,001	1,390	499	112	-	8%	62%
Alder	14"	393	-	-	-	393	4%	12%
Spruce '22" *	22"	497	137	314	46	-	7%	16%
Spruce <22" *		41	36	1	4	-	7%	1%
TOTALS		3,226	1,804	861	168	393		

* These diameter break downs are scaling diameters (small end).

9. Approvals:

Prepared by: Derek Bangs Date: December 02, 2011
 Unit Forester Approval:  Date: 1/5/12

10. Attachments:

Cruise Designs and Maps - 4 pages
 Volume Report - 3 pages
 Statistics Report - 3 pages
 Log Stock Tables - 3 pages
 Stand Table Summary - 2 pages

X:\Sunset Unit\2012 FY Sales\Hopin_Boulder\Sale Prep\CruiseReport.docx

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Hopin Boulder **Areas** 1 & 2

Harvest Type: (MC) Clearcut

Approx. Cruise Acres: 106 **Estimated CV%** 65 Net BF/Acre **SE% Objective** 11

Planned Sale Volume : 3,180 MBF **Estimated Sale Area Value/Acre:** \$6,000/Ac
(30 MBF/Ac.)

A. Cruise Goals: (a) Grade minimum 70 conifer and 10 hardwood trees:
(b) Sample 52 cruise plots (1 grade/2 count); (c) Other goals (X Determine
volume and quality)

B. Cruise Design:

1. Plot Cruises: BAF 40.0 (Full point; Half point) (circle one) sighting at 4.5 feet.

Cruise Line Direction(s) Area 1 (N – S) Area 2 (25°/335°)
Cruise Line Spacing 7 (chains)
Cruise Plot Spacing 3 (chains)
Grade/Count Ratio 1:2

If a plot ends up in a buffer adjust by pacing on through or offsetting one chain. Take
plots as marked on map. All cedar are leave trees. Record all snags as SN. Grade all
hardwoods as CampRun.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods.
Record dbh to nearest ½" for trees < 16", to nearest 1" for trees 16-24", and to nearest
2" for trees > 24".
- 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 merchantable 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
Hardwoods: R = CampRun

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: Derek Bangs Approved by: Jon Long Date: 9-13-11



Hopin Boulder Cruise Map

Portions of Sections 15, 21,
and 22 T4N, R8W, W.M.,
Clatsop County, Oregon.

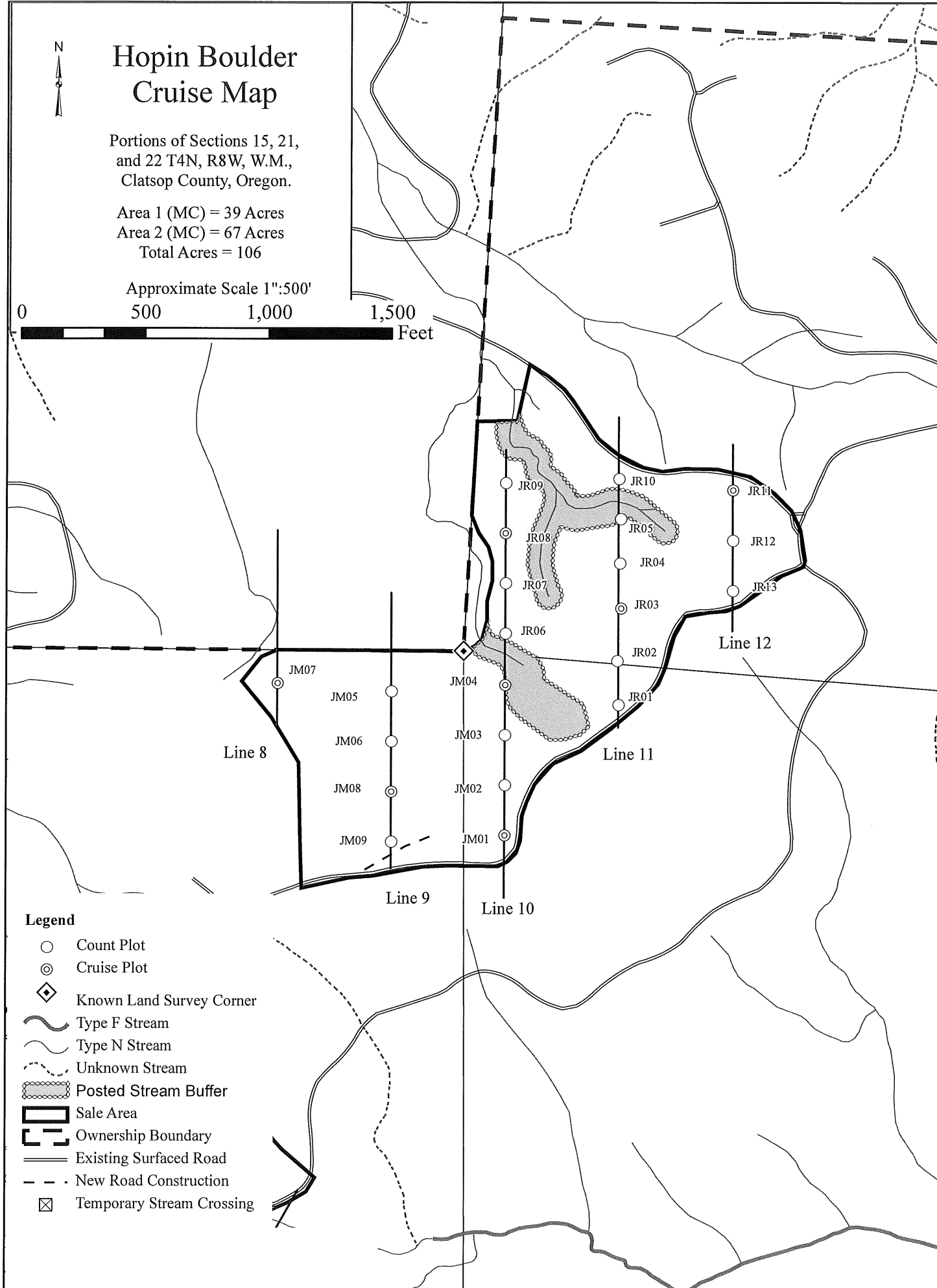
Area 1 (MC) = 39 Acres

Area 2 (MC) = 67 Acres

Total Acres = 106

Approximate Scale 1":500'

0 500 1,000 1,500
Feet



Legend

- Count Plot
- ⊙ Cruise Plot
- ◆ Known Land Survey Corner
- ~ Type F Stream
- ~ Type N Stream
- - - Unknown Stream
- ▨ Posted Stream Buffer
- ▭ Sale Area
- ▭ Ownership Boundary
- ▬ Existing Surfaced Road
- - - New Road Construction
- ⊠ Temporary Stream Crossing



Hopin Boulder Cruise Map

Portions of Sections 15, 21,
and 22 T4N, R8W, W.M.,
Clatsop County, Oregon.

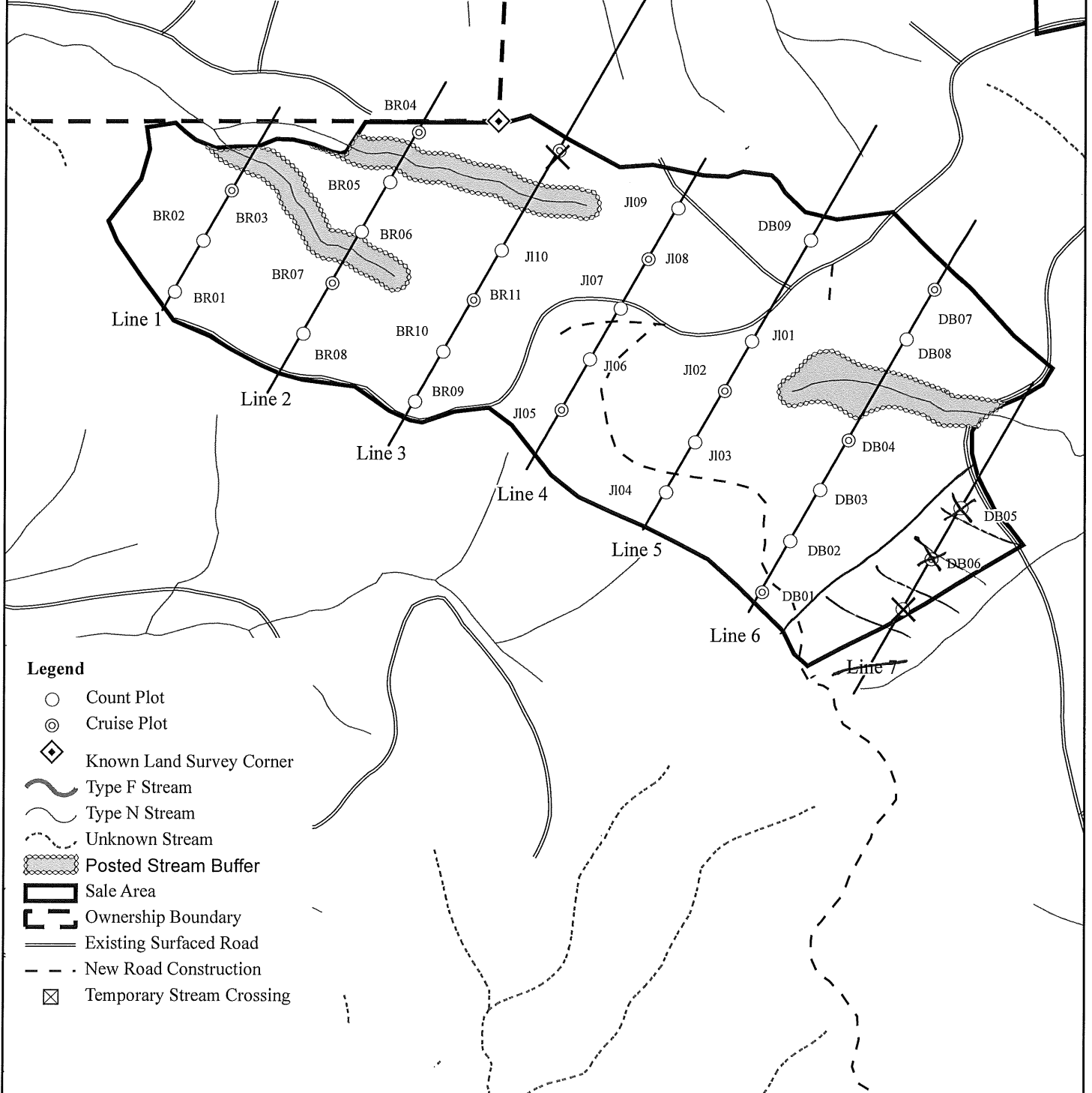
Area 1 (MC) = 39 Acres

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Total Acres = 106

Approximate Scale 1":500'

0 500 1,000 1,500 Feet



Legend

- Count Plot
- ⊙ Cruise Plot
- ◊ Known Land Survey Corner
- ~ Type F Stream
- ~ Type N Stream
- - - Unknown Stream
- ▨ Posted Stream Buffer
- ▨ Sale Area
- - - Ownership Boundary
- Existing Surfaced Road
- - - New Road Construction
- ⊠ Temporary Stream Crossing

TC PSCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																	
T04N R08W S21 TyROW4.00 T04N R08W S21 TyTAKE98.00			Project: DEMO Acres102.00												Page1 Date12/2/2011 Time8:44:16AM				
S Spp	So Gr T 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					
A	DOCU		100.0	72											9		0.00	.9	
A	DOCR	100	2.5	3,950	3,850	393		70	24	6	6	24	23	47	31	76	0.79	50.8	
A Totals		12	4.3	4,022	3,850	393		70	24	6	6	24	23	47	30	74	0.78	51.7	
H	DOCU		100.0	1,252											15		0.00	13.9	
H	DO2S	69	3.3	14,086	13,628	1,390		2	43	55	2		17	80	37	384	2.36	35.5	
H	DO3S	25	1.5	4,966	4,894	499		86	7	7	5	4	21	69	36	96	0.83	51.1	
H	DO4S	6	1.0	1,110	1,099	112		7	93		29	71			21	29	0.49	38.2	
H Totals		62	8.4	21,414	19,621	2,001		0	28	32	40	5	5	17	30	141	1.20	138.7	
S	DOCU		100.0	328											8		0.00	4.9	
S	DO2S	32	.0	1,698	1,698	173			14	86			30	70	36	596	3.66	2.8	
S	DO3S	58	2.5	3,173	3,092	315		24	52	24		5	51	45	34	209	1.50	14.8	
S	DO4S	10	.4	490	489	50		7	84	0	8	14	36	42	26	57	0.67	8.5	
S Totals		17	7.2	5,690	5,279	538		1	22	35	42	1	6	43	28	170	1.47	31.1	
C	DO4S	100		3	3	0		100			100				16	30	0.56	.1	
C Totals		0		3	3	0		100			100				16	30	0.56	.1	
D	DOCU		100.0	130											6		0.00	1.1	
D	DO2S	82	2.0	2,408	2,360	241			32	68	3	6	36	55	34	379	2.28	6.2	
D	DO3S	16		458	458	47		84	16			15	34	51	35	107	0.86	4.3	
D	DO4S	2		57	57	6		100				100			23	40	0.67	1.4	
D Totals		9	5.8	3,053	2,876	293		15	29	55	3	10	35	53	31	221	1.59	13.0	
Totals			7.5	34,182	31,628	3,226		0	31	31	38	4	8	24	64	30	135	1.17	234.6

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page		1		
				Project: DEMO												Date		12/2/2011		
																Time		8:50:00AM		
T04N R08W S21 TTAKE												T04N R08W S21 TTAKE								
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt		
04N		08W		21		AREA12		TAKE		98.00						1		W		
S So Gr T rt ad Spp			% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
								Log Scale Dia.				Log Length				Ln	Bd	CF/		
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft	Lf		
H DO CU				00.0	1,233											15		0.00	13.9	
H DO 2S			69	3.2	14,015	13,560	1,329		2	44	54	2		17	80	37	381	2.35	35.5	
H DO 3S			25	1.4	4,955	4,885	479		86	6	7	5	4	22	69	36	95	0.83	51.2	
H DO 4S			6	.8	1,107	1,098	108		7	93		28	72			21	29	0.49	38.1	
H Totals			62	8.3	21,311	19,543	1,915		0	28	32	40	5	5	17	73	30	141	1.20	138.7
A DO CU				00.0	72											9		0.00	.9	
A DO CR			100	2.5	3,950	3,850	377		70	24	6	6	24	23	47	31	76	0.79	50.8	
A Totals			12	4.3	4,022	3,850	377		70	24	6	6	24	23	47	30	74	0.78	51.7	
S DO CU				00.0	288											8		0.00	4.9	
S DO 2S			32		1,690	1,690	166			14	86			30	70	36	592	3.65	2.9	
S DO 3S			59	2.5	3,179	3,099	304		25	52	23		5	51	45	34	208	1.50	14.9	
S DO 4S			9		449	449	44		8	92		15	39	46		26	52	0.63	8.6	
S Totals			17	6.6	5,606	5,238	513		1	22	35	41	1	6	44	49	28	167	1.46	31.3
D DO CU				00.0	130											6		0.00	1.1	
D DO 2S			82	2.0	2,408	2,360	231			32	68	3	6	36	55	34	379	2.28	6.2	
D DO 3S			16		458	458	45		84	16			15	34	51	35	107	0.86	4.3	
D DO 4S			2		57	57	6		100				100			23	40	0.67	1.4	
D Totals			9	5.8	3,053	2,876	282		15	29	55	3	10	35	53	31	221	1.59	13.0	
Type Totals				7.3	33,991	31,507	3,088		0	31	31	37	4	8	24	64	30	134	1.16	234.7

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page		1	
				Project: DEMO												Date		12/2/2011	
																Time		8:49:49AM	
T04N R08W S21 TROW												T04N R08W S21 TROW							
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees								CuFt	BdFt			
04N	08W	21	AREA12	ROW	4.00										1	W			
S So Gr T rt ad Spp			% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
								Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf	
							4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
H	DO	CU		100.0	1,704										15		0.00	15.0	
H	DO	2S	70	3.5	15,820	15,273	61	2	35	63	4		15	81	37	445	2.65	34.3	
H	DO	3S	24	2.1	5,236	5,126	21	76	13	12	9	7	19	65	36	104	0.89	49.3	
H	DO	4S	6	4.9	1,184	1,126	5	6	94		34	66			21	28	0.49	40.5	
H	Totals		62	10.1	23,943	21,525	86	0	24	28	48	7	5	15	73	29	155	1.31	139.1
A	DO	CU		100.0	72										9		0.00	.9	
A	DO	CR	100	2.5	3,950	3,850	15	70	24	6	6	24	23	47	31	76	0.79	50.8	
A	Totals		11	4.3	4,022	3,850	15	70	24	6	6	24	23	47	30	74	0.78	51.7	
S	DO	CU		100.0	1,327										10		0.00	4.8	
S	DO	2S	30	.5	1,895	1,885	8		10	90			21	79	37	705	3.98	2.7	
S	DO	3S	46	2.8	3,020	2,934	12	20	44	37		5	41	54	34	240	1.68	12.2	
S	DO	4S	24	3.0	1,510	1,465	6	2	24	4	71	5	14	18	63	27	186	1.59	7.9
S	Totals		18	18.9	7,752	6,284	25	0	15	24	61	1	6	30	64	28	228	1.85	27.5
D	DO	CU		100.0	130										6		0.00	1.1	
D	DO	2S	82	2.0	2,408	2,360	9		32	68	3	6	36	55	34	379	2.28	6.2	
D	DO	3S	16		458	458	2	84	16			15	34	51	35	107	0.86	4.3	
D	DO	4S	2		57	57	0	100				100			23	40	0.67	1.4	
D	Totals		8	5.8	3,053	2,876	12	15	29	55	3	10	35	53	31	221	1.59	13.0	
C	DO	4S	100		73	73	0	100			100				16	30	0.56	2.4	
C	Totals		0		73	73	0	100			100				16	30	0.56	2.4	
Type Totals				10.9	38,842	34,608	138	0	27	27	46	6	8	20	66	29	148	1.26	233.8

TC TSTATS				STATISTICS				PAGE 1			
				PROJECT	DEMO	DATE 12/2/2011					
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
04N	08W	21	AREA12	00CC	102.00	50	313	1	W		
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		50	313	6.3							
CRUISE		20	114	5.7	14,543	.8					
DBH COUNT											
REFOREST											
COUNT		30	182	6.1							
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		46	80.8	17.7	54		138.4	21,311	19,543	5,264	5,015
R ALDER		22	38.1	14.4	43		43.2	4,022	3,850	1,240	1,227
S SPRUCE		12	11.9	21.4	76		29.6	5,606	5,238	1,342	1,286
DOUG FIR		10	4.4	23.7	93		13.6	3,053	2,876	657	637
SNAG		8	1.4	34.9	43		9.6	196		66	
HEMLEAV		8	3.0	22.1	41		8.0	1,748	1,444	348	305
SPRUCELV		7	.5	46.5	95		6.4	1,663	1,091	312	218
CEDLEAV		1	2.4	11.0	17		1.6	73	73	22	22
TOTAL		114	142.6	17.9	53		250.4	37,671	34,114	9,251	8,711
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		
WHEMLOCK		84.1	12.4	417	476	535					
R ALDER		108.9	23.7	111	145	180					
S SPRUCE		66.7	20.1	505	632	758					
DOUG FIR		58.4	19.4	674	836	998					
SNAG											
HEMLEAV		83.5	31.5	1,217	1,776	2,335					
SPRUCELV		53.1	21.6	1,705	2,176	2,646					
CEDLEAV											
TOTAL		129.6	12.1	544	619	694	671	168	75		
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		84.1	11.9	71	81	90					
R ALDER		134.3	19.0	31	38	45					
S SPRUCE		186.8	26.4	9	12	15					
DOUG FIR		231.2	32.7	3	4	6					
SNAG		253.3	35.8	1	1	2					
HEMLEAV		488.0	69.0	1	3	5					
SPRUCELV		506.9	71.6	0	1	1					
CEDLEAV		494.9	69.9	1	2	4					
TOTAL		47.7	6.7	133	143	152	91	23	10		
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		80.3	11.3	123	138	154					
R ALDER		128.0	18.1	35	43	51					
S SPRUCE		182.8	25.8	22	30	37					
DOUG FIR		227.1	32.1	9	14	18					
SNAG		179.8	25.4	7	10	12					
HEMLEAV		416.5	58.9	3	8	13					
SPRUCELV		541.0	76.4	2	6	11					
CEDLEAV		494.9	69.9	0	2	3					

TC TSTATS				STATISTICS				PAGE	2
				PROJECT	DEMO			DATE	12/2/2011
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	08W	21	AREA12	00CC	102.00	50	313	1	W
CL:	68.1 %	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
TOTAL		42.4	6.0	235	250	265	72	18	8
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		80.9	11.4	17,309	19,543	21,777			
R ALDER		140.6	19.9	3,085	3,850	4,615			
S SPRUCE		190.3	26.9	3,829	5,238	6,646			
DOUG FIR		221.8	31.3	1,974	2,876	3,777			
SNAG									
HEMLEAV		493.8	69.8	436	1,444	2,451			
SPRUCELV		481.7	68.1	348	1,091	1,834			
CEDLEAV		494.9	69.9	22	73	124			
TOTAL		48.6	6.9	31,770	34,114	36,458	94	24	10

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	DEMO	DATE				12/2/2011
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	08W	21	AREA12	TAKE	98.00	50	281	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		50	281	5.6						
CRUISE		17	90	5.3	13,245	.7				
DBH COUNT										
REFOREST										
COUNT		32	185	5.8						
BLANKS		1								
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		46	80.8	17.7	54	138.4	21,311	19,543	5,264	5,015
R ALDER		22	38.1	14.4	43	43.2	4,022	3,850	1,240	1,227
S SPRUCE		12	11.9	21.4	76	29.6	5,606	5,238	1,342	1,286
DOUG FIR		10	4.4	23.7	93	13.6	3,053	2,876	657	637
TOTAL		90	135.2	17.5	54	224.8	33,991	31,507	8,503	8,166
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	
WHEMLOCK		84.1	12.4	417	476	535				
R ALDER		108.9	23.7	111	145	180				
S SPRUCE		66.7	20.1	505	632	758				
DOUG FIR		58.4	19.4	674	836	998				
TOTAL		92.4	9.7	412	456	500	341	85	38	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		84.1	11.9	71	81	90				
R ALDER		134.3	19.0	31	38	45				
S SPRUCE		186.8	26.4	9	12	15				
DOUG FIR		231.2	32.7	3	4	6				
TOTAL		52.8	7.5	125	135	145	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	
WHEMLOCK		80.3	11.3	123	138	154				
R ALDER		128.0	18.1	35	43	51				
S SPRUCE		182.8	25.8	22	30	37				
DOUG FIR		227.1	32.1	9	14	18				
TOTAL		48.9	6.9	209	225	240	95	24	11	
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		80.9	11.4	17,309	19,543	21,777				
R ALDER		140.6	19.9	3,085	3,850	4,615				
S SPRUCE		190.3	26.9	3,829	5,238	6,646				
DOUG FIR		221.8	31.3	1,974	2,876	3,777				
TOTAL		52.1	7.4	29,187	31,507	33,827	108	27	12	

Log Stock Table - MBF

T04N R08W S21 TyROW 4.00
T04N R08W S21 TyTAKE 98.00

Project: DEMO
Acres 102.00

Page 1
Date 12/2/2011
Time 8:50:52AM

S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
A	DO	CU	9	7	100.0														
A	DO	CR	14	4	50.0	2	.5			2									
A	DO	CR	16	21	5.4	20	5.0			5					15				
A	DO	CR	17	3		3	.7			3									
A	DO	CR	22	18		18	4.6			15		3							
A	DO	CR	26	8		8	1.9			8									
A	DO	CR	30	68		68	17.4			40	8	21							
A	DO	CR	32	93	1.2	91	23.3			13	28	20	30						
A	DO	CR	38	13	14.3	11	2.9			11									
A	DO	CR	40	176	2.4	172	43.7			50		47	50			24			
A	Totals			410	4.3	393	12.2			147	36	91	80		15	24			
H	DO	CU	2	0	100.0														
H	DO	CU	6	40	100.0														
H	DO	CU	8	16	100.0														
H	DO	CU	10	11	100.0														
H	DO	CU	12	20	100.0														
H	DO	CU	20	2	100.0														
H	DO	CU	23	9	100.0														
H	DO	CU	36	29	100.0														
H	DO	CU	38	0	100.0														
H	DO	2S	14	3		3	.1						3						
H	DO	2S	18	31	1.3	30	1.5								7	24			
H	DO	2S	20	1	4.7	1	.1												1
H	DO	2S	32	243	1.4	239	12.0					27	31	41	98	42			
H	DO	2S	40	1,159	3.7	1,116	55.8						134	247	367	182	180	5	
H	DO	3S	12	19	19.0	15	.8									15			
H	DO	3S	15	3	3.9	3	.2			2							1		
H	DO	3S	19	4		4	.2					4			0				
H	DO	3S	20	4		4	.2			4									
H	DO	3S	23	22	5.0	21	1.0							0		21			
H	DO	3S	25	0	4.0	0	.0								0				
H	DO	3S	29	0		0	.0								0				
H	DO	3S	32	109	1.9	107	5.4			10	20	47	31						
H	DO	3S	36	14		14	.7				14								
H	DO	3S	38	7	5.9	7	.3					7							
H	DO	3S	40	323		323	16.1			125	37	159	1						

Log Stock Table - MBF

T04N R08W S21 TyROW 4.00
T04N R08W S21 TyTAKE 98.00

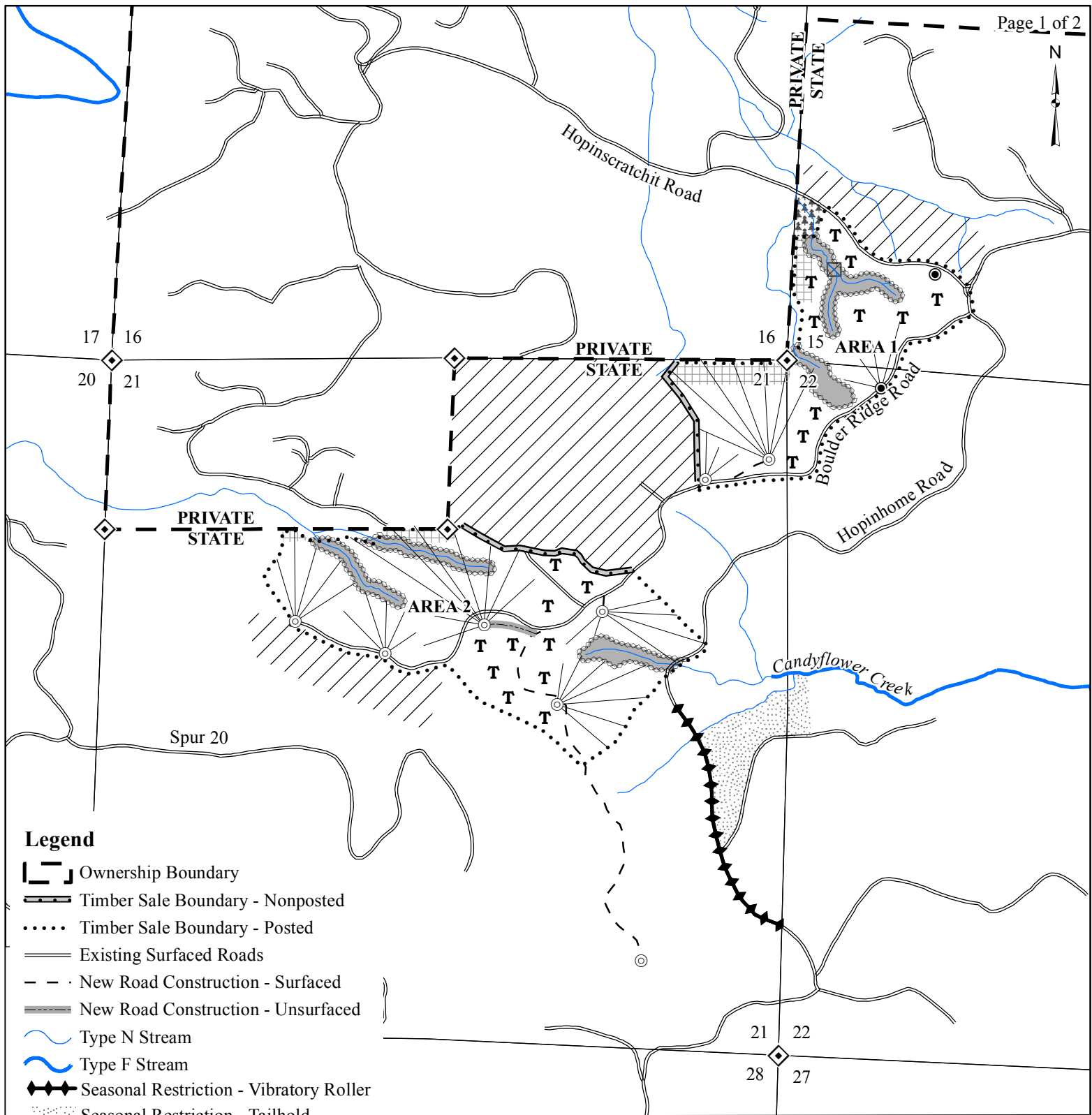
Project: DEMO
Acres 102.00

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Date 12/2/2011
Time 8:50:52AM

S T Spp	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
S	DO	4S	38	0	5.3	0	.0						0						
S	DO	4S	40	4	4.2	3	.6							0		2	1		
S	Totals			580	7.2	538	16.7	3	24	13	81	66	122	72	117	34	5	1	
C	DO	4S	16	0		0	100.0		0										
C	Totals			0		0	.0		0										
D	DO	CU	6	13	100.0														
	DO	2S	12	8		8	2.8							8					
	DO	2S	26	15		15	.5.3						15						
	DO	2S	32	88	2.2	86	29.2				17	9	42	18					
	DO	2S	40	134	2.2	131	44.8				23		61		48				
	DO	3S	23	2		2	.8				2								
	DO	3S	27	2		2	.8				2								
	DO	3S	28	2		2	.6			2									
	DO	3S	32	16		16	5.5		3	6		7							
	DO	3S	40	24		24	8.1		6		18								
	DO	4S	21	2		2	.7		2										
	DO	4S	24	4		4	1.3			4									
	D	Totals			311	5.8	293	9.1		11	11	23	40	16	118	26	48		
Total	All Species			3,487	7.5	3,226	100.0	11	412	148	439	386	427	677	451	263	10	3	

TC		PSTNDSUM		Stand Table Summary										Page		1	
														Date:		12/2/2011	
T04N R08W S21 TyROW4.00 T04N R08W S21 TyTAKE98.00				Project DEMO										Time:		8:51:21AM	
				Acres102.00										Grown Year:			
S Spc	T	Sample		Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals			
		DBH	Trees	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF	
H		9	2	88	17	6.784	3.00	6.78	5.0	20.0		34	136		35	14	
H		10	3	80	53	5.690	3.10	5.69	10.9	29.7		62	169		63	17	
H		11	4	86	33	9.083	5.99	4.54	11.0	30.0		50	136		51	14	
H		12	2	92	58	3.816	3.00	3.82	19.0	60.0		73	229		74	23	
H		13	4	86	49	6.503	5.99	6.50	20.0	50.0		130	325		133	33	
H		14	6	87	71	8.411	8.99	11.21	21.7	75.0		244	841		249	86	
H		15	4	92	66	4.884	5.99	7.33	24.0	80.0		176	586		179	60	
H		16	4	90	65	4.293	5.99	6.44	28.0	90.0		180	580		184	59	
H		17	4	87	69	3.803	5.99	7.61	25.0	87.5		190	665		194	68	
H		18	2	89	108	1.696	3.00	3.39	42.5	155.0		144	526		147	54	
H		19	6	89	96	4.566	8.99	10.66	37.0	137.1		394	1,461		402	149	
H		20	1	82	79	.049	.11	.10	36.0	110.0		4	11		4	1	
H		21	8	89	102	4.984	11.99	11.21	48.4	190.0		543	2,131		554	217	
H		22	2	89	106	1.135	3.00	3.41	42.7	176.7		145	602		148	61	
H		24	8	87	119	3.816	11.99	10.49	51.4	220.0		539	2,309		550	235	
H		25	6	85	98	2.638	8.99	5.28	52.2	198.3		275	1,046		281	107	
H		26	4	89	105	1.626	5.99	4.06	67.2	280.0		273	1,138		279	116	
H		27	2	85	84	.754	3.00	1.51	49.5	205.0		75	309		76	32	
H		28	3	86	103	.726	3.10	1.43	91.9	364.4		131	520		134	53	
H		29	6	86	111	1.960	8.99	5.23	80.9	345.0		423	1,803		431	184	
H		30	4	87	105	1.221	5.99	3.05	88.4	364.0		270	1,111		275	113	
H		32	4	87	123	1.073	5.99	2.68	103.4	502.0		277	1,347		283	137	
H		36	3	84	105	.439	3.10	.88	144.8	548.6		127	482		130	49	
H		37	2	85	108	.401	3.00	1.20	118.7	506.7		143	610		146	62	
H		38	2	85	79	.381	3.00	.76	136.5	575.0		104	438		106	45	
H		41	1	89	120	.012	.11	.03	159.3	823.3		6	29		6	3	
H		48	2	89	126	.017	.21	.05	215.7	1150.0		11	58		11	6	
H		49	1	83	125	.008	.11	.02	223.0	990.0		5	24		6	2	
H		Totals	100	87	69	80.767	138.71	125.37	40.1	156.5		5,028	19,621		5,128	2,001	
S		15	2	88	88	1.992	2.44	3.98	25.0	95.0		100	378		102	39	
S		16	2	81	49	1.751	2.44	1.75	28.0	100.0		49	175		50	18	
S		18	2	85	93	1.383	2.44	2.77	36.5	125.0		101	346		103	35	
S		20	6	86	105	3.361	7.33	8.96	37.0	140.0		332	1,255		338	128	
S		24	2	89	121	.778	2.44	2.33	58.0	276.7		135	646		138	66	
S		26	2	82	121	.663	2.44	1.99	62.3	276.7		124	550		126	56	
S		27	2	87	108	.615	2.44	1.84	55.3	263.3		102	486		104	50	
S		29	2	83	108	.533	2.44	1.07	108.0	440.0		115	469		117	48	
S		32	2	86	113	.438	2.44	.88	129.0	570.0		113	499		115	51	
S		36	1	69	103	.011	.07	.02	70.5	305.0		1	6		2	1	
S		38	1	90	135	.009	.07	.03	161.0	866.7		5	25		5	3	
S		41	2	78	99	.267	2.44	.53	195.0	725.0		104	387		106	39	
S		48	1	88	110	.006	.07	.01	234.0	1060.0		3	13		3	1	
S		50	1	89	116	.005	.07	.02	189.7	1000.0		3	16		3	2	
S		56	2	83	109	.009	.15	.01	219.0	1013.3		3	13		3	1	
S		58	1	94	122	.004	.07	.01	366.0	1930.0		3	16		3	2	
S		Totals	31	85	95	11.823	29.85	26.20	49.3	201.5		1,292	5,279		1,318	538	
A		10	4	89	45	7.201	3.93	7.20	11.5	40.0		83	288		84	29	
A		11	2	87	47	2.975	1.96	2.98	13.0	40.0		39	119		39	12	
A		12	4	86	49	5.000	3.93	5.00	17.5	45.0		88	225		89	23	
A		14	8	86	66	7.347	7.85	11.02	21.2	61.7		233	680		238	69	
A		15	2	87	48	1.600	1.96	1.60	25.0	70.0		40	112		41	11	
A		16	10	87	65	7.032	9.82	11.25	26.4	82.5		297	928		303	95	

TC		PSTNDSUM										Stand Table Summary										Page		2	
																						Date:		12/2/2011	
T04N R08W S21 TyROW4.00 T04N R08W S21 TyTAKE98.00												Project		DEMO		Time:		8:51:21AM							
												Acres		102.00		Grown Year:									
S Sp	T	Sample		Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals											
		DBH	Trees	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF									
A		17	6	87	87	3.737	5.89	6.23	35.6	114.0		222	710		226	72									
A		18	2	87	61	1.111	1.96	2.22	27.5	85.0		61	189		62	19									
A		20	2	87	73	.900	1.96	1.80	29.0	110.0		52	198		53	20									
A		21	2	87	48	.816	1.96	.82	51.0	160.0		42	131		42	13									
A		32	2	86	78	.352	1.96	.70	102.0	385.0		72	271		73	28									
A		Totals	44	87	59	38.072	43.20	50.82	24.2	75.8		1,227	3,850		1,252	393									
D		16	2	88	112	.974	1.36	1.95	30.5	120.0		59	234		61	24									
D		19	2	91	78	.691	1.36	1.38	32.0	115.0		44	159		45	16									
D		23	2	88	136	.471	1.36	1.41	50.0	216.7		71	306		72	31									
D		24	2	89	125	.433	1.36	1.30	46.0	196.7		60	255		61	26									
D		25	2	87	136	.399	1.36	1.20	56.3	240.0		67	287		69	29									
D		26	2	89	120	.369	1.36	1.11	56.3	253.3		62	280		64	29									
D		28	4	88	137	.636	2.72	2.23	56.9	275.7		127	614		129	63									
D		32	2	92	134	.244	1.36	.73	100.7	490.0		74	358		75	37									
D		34	2	92	140	.216	1.36	.65	113.0	590.0		73	382		75	39									
D		Totals	20	89	120	4.432	13.60	11.95	53.3	240.6		637	2,876		650	293									
C		11	1	80	19	.095	.06	.10	9.0	30.0		1	3		1	0									
C		Totals	1	80	19	.095	.06	.10	9.0	30.0		1	3		1	0									
Totals			196	87	70	135.190	225.43	214.43	38.2	147.5		8,186	31,628		8,349	3,226									



Legend

- Ownership Boundary
- Timber Sale Boundary - Nonposted
- Timber Sale Boundary - Posted
- Existing Surfaced Roads
- New Road Construction - Surfaced
- New Road Construction - Unsurfaced
- Type N Stream
- Type F Stream
- Seasonal Restriction - Vibratory Roller
- Seasonal Restriction - Tailhold
- Posted Stream Buffer
- Green Tree Retention Area
- Controlled Felling Area
- Reforestation Area
- Yarding Area - Cable
- Yarding Area - Ground
- Temporary Stream Crossing
- Known Land Survey Corner
- New Construction Landing
- Logger's Choice Landing

LOGGING PLAN MAP

OF TIMBER SALE CONTRACT NO. 341-12-43
HOPIN BOULDER
PORTIONS OF SECTIONS 15, 21 AND 22 OF
T4N, R8W, W.M., CLATSOP COUNTY, OREGON.
APPROXIMATE SCALE 1"= 1,000'

1,000 500 0 1,000 Feet

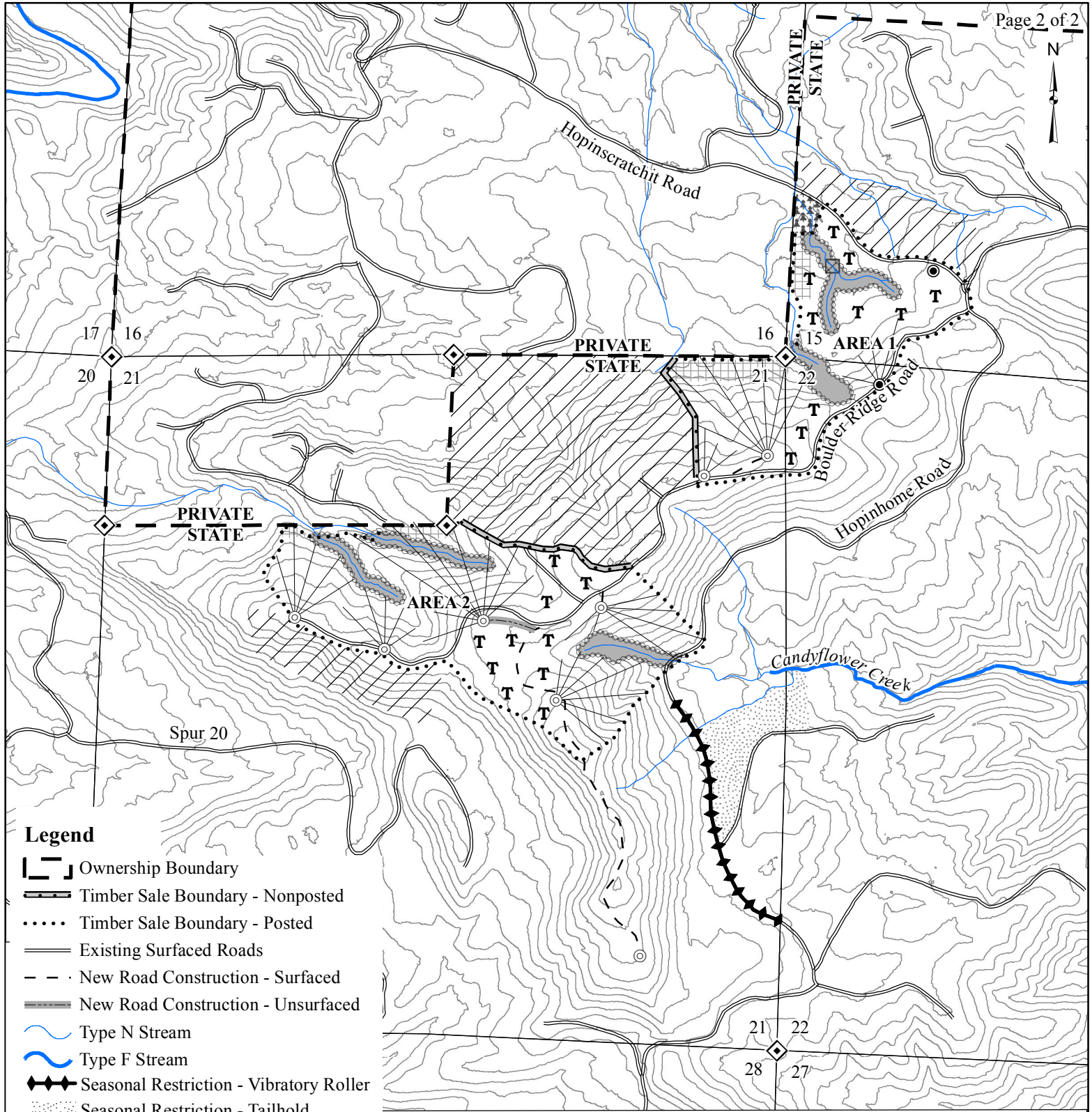


APPROXIMATE NET ACREAGE

AREA	MC ACRES
AREA 1	38
AREA 2	60
AREA 3 R/W	4
TOTAL	102

LOGGING BREAKDOWN

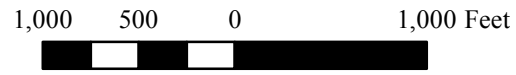
AREA	CABLE	TRACTOR
1	40%	60%
2	70%	30%
TOTAL	60%	40%



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