



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Bull Ridge
Sale 341-15-36

District: Astoria

Date: September 30, 2014

cost summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$1,445,982.37	\$347,048.27	\$1,793,030.64
Project Work:			\$(397,753.00)
Advertised Value:			\$1,395,277.64



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timber description

Location: Portions of Sections 33, 34, and 35, T6N, R7W and Sections 3 and 4, T5N, R7W, W.M., Clatsop County, Oregon.

Stand Stocking: 60%

SpecieName	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	22	0	97
Western Hemlock / Fir	17	0	97
Sitka Spruce	30	0	95
Alder (Red)	16	0	95
Maple	18	0	95

Volume by Grade	2S	3S	4S	Camprun	Total
Douglas - Fir	1,464	435	62	0	1,961
Western Hemlock / Fir	1,140	573	87	0	1,800
Sitka Spruce	10	14	1	0	25
Alder (Red)	0	0	0	918	918
Maple	0	0	0	29	29
Total	2,614	1,022	150	947	4,733



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comments: Pond Values Used: 3rd Quarter Calendar Year 2014.

Expected Log Markets: Mist, Clatskanie, Tillamook, Forest Grove, Longview, and Garibaldi.

Western redcedar and Other Cedars Stumpage Price = Pond Value
minus Logging Cost:
 $\$932.14/\text{MBF} = \$1,140/\text{MBF} - \$207.86/\text{MBF}$

SCALING COST ALLOWANCE = \$5.00/MBF

FUEL COST ALLOWANCE = \$4.00/Gallon

HAULING COST ALLOWANCE

Hauling costs equivalent to \$780 daily truck cost.

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

100% Brand and Paint: $\$1/\text{MBF} \times 4,733/\text{MBF} = \$4,733$

Log Loader Slash & Landing Piling (includes Move-In and Pile Materials): (see attached appraisal) = \$3,609

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

TOTAL Other Costs (with Profit & Risk to be added) = \$10,342

Other Costs (No Profit & Risk added):

None.



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logging conditions

combination#: 1	Douglas - Fir	26.00%	
	Western Hemlock / Fir	26.00%	
	Sitka Spruce	26.00%	
	Alder (Red)	26.00%	
	Maple	26.00%	
yarding distance:	Medium (800 ft)	downhill yarding:	No
logging system:	Cable: Medium Tower >40 - <70	Process:	Manual Falling/Delimbing
tree size:	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF		
loads / day:	12.0	bd. ft / load:	4,000
cost / mbf:	\$72.08		
machines:	Log Loader (A) Tower Yarder (Medium)		
combination#: 2	Douglas - Fir	14.00%	
	Western Hemlock / Fir	14.00%	
	Sitka Spruce	14.00%	
	Alder (Red)	14.00%	
	Maple	14.00%	
yarding distance:	Medium (800 ft)	downhill yarding:	No
logging system:	Shovel	Process:	Manual Falling/Delimbing
tree size:	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF		
loads / day:	14.0	bd. ft / load:	4,000
cost / mbf:	\$44.73		
machines:	Shovel Logger		
combination#: 3	Douglas - Fir	34.00%	
	Western Hemlock / Fir	34.00%	
	Sitka Spruce	34.00%	
	Alder (Red)	34.00%	
	Maple	34.00%	
yarding distance:	Medium (800 ft)	downhill yarding:	No
logging system:	Track Skidder	Process:	Manual Falling/Delimbing
tree size:	Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF		
loads / day:	9.0	bd. ft / load:	4,000
cost / mbf:	\$95.57		
machines:	Log Loader (B) Track Skidder		
combination#: 4	Douglas - Fir	26.00%	
	Western Hemlock / Fir	26.00%	
	Sitka Spruce	26.00%	
	Alder (Red)	26.00%	
	Maple	26.00%	



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yarding distance:	Medium (800 ft)	downhill yarding:	No
logging system:	Cable: Medium Tower >40 - <70	Process:	Manual Falling/Delimbing
tree size:	Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF		
loads / day:	6.0	bd. ft / load:	4,000
cost / mbf:	\$144.17		
machines:	Log Loader (A) Tower Yarder (Medium)		



"STEWARDSHIP IN FORESTRY"

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logging costs

Operating Seasons:	2.00	Profit Risk:	10.00%
Project Costs:	\$397,753.00	Other Costs (P/R):	\$10,342.00
Slash Disposal:	\$0.00	Other Costs:	\$0.00

Miles of Road

Road Maintenance: \$4.13

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

Hauling Costs

Species	\$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	\$0.00	2.0	4.5
Western Hemlock / Fir	\$0.00	3.0	4.0
Sitka Spruce	\$0.00	2.0	4.5
Alder (Red)	\$0.00	2.0	3.3
Maple	\$0.00	2.0	3.0



"STEWARDSHIP IN FORESTRY"

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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									
\$94.98	\$4.25	\$1.85	\$81.15	\$2.19	\$18.44	\$0.00	\$5.00	\$0.00	\$207.86
Western Hemlock / Fir									
\$94.98	\$4.25	\$1.85	\$60.86	\$2.19	\$16.41	\$0.00	\$5.00	\$0.00	\$185.54
Sitka Spruce									
\$94.98	\$4.34	\$1.85	\$82.73	\$2.19	\$18.61	\$0.00	\$5.00	\$0.00	\$209.70
Alder (Red)									
\$94.98	\$4.34	\$1.85	\$112.81	\$2.19	\$21.62	\$0.00	\$5.00	\$0.00	\$242.79
Maple									
\$94.98	\$4.34	\$1.85	\$124.09	\$2.19	\$22.74	\$0.00	\$5.00	\$0.00	\$255.19

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$638.53	\$430.67	\$0.00
Western Hemlock / Fir	\$0.00	\$515.46	\$329.92	\$0.00
Sitka Spruce	\$0.00	\$513.00	\$303.30	\$0.00
Alder (Red)	\$0.00	\$615.00	\$372.21	\$0.00
Maple	\$0.00	\$440.00	\$184.81	\$0.00



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summary

Amortized

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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	1,961	\$430.67	\$844,543.87
Western Hemlock / Fir	1,800	\$329.92	\$593,856.00
Sitka Spruce	25	\$303.30	\$7,582.50
Alder (Red)	918	\$372.21	\$341,688.78
Maple	29	\$184.81	\$5,359.49

Gross Timber Sale Value

Recovery: \$1,793,030.64

Prepared by: Nick Haile

Phone: 503-325-5451

Site Prep Appraisal

Sale Number: 341-15-36
Sale Name: Bull Ridge
Date: 03/06/2013

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	4.0
Hemlock/Spruce	C	2.0	6.0
Hemlock	D	2.0	6.0
Conifer/Hardwood	E	1.5	3.0

Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area
2	MC	A	15	15	\$110.00	\$1,650.00
Sub Total =						\$1,650.00
Sale Area	Number of Landings to be Piled	Cost/Landing Pile*	Total Cost/Area	Number of In-Unit Piles	Material Cost/Pile	Total Cost/Area
2	3	\$263.00	\$789.00	45	\$5.00	\$225.00
*Cost includes separating firewood						
Sub Total =						\$1,014.00
Move-In Allowance	Number of Move-In's	Total Move-In Allowance				
\$945.00	1	\$945.00	Sub Total =			
Grand Total =						\$3,609.00

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Bull Ridge

ROAD CONSTRUCTION:

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
1A-1B, 1C-1D, 1E-1F,	76.55	\$133,219.00
3A-3B, 3C-3D, 3E-3F, 3G	67.55	\$72,452.00
TOTALS		\$205,671

SPECIAL PROJECTS:

<u>Description</u>	<u>Cost</u>
Project #2 Rock Crushing, Stockpiling, and Quarry Development	\$168,523
Project #3 Gate Construction and Installation	\$4,709
Project #4 Vacating Costs	\$2,569
Project Road Maintenance	\$6,968
TOTAL	\$182,769

MOVE IN:

<u>Equipment</u>	<u>Cost</u>
Dozer (D8)	\$1,406.00
Excavator (C330)	\$1,406.00
Excavator (C315)	\$805.00
Dump Trucks (12cy x 6)	\$978.00
Dump Trucks (20cy x 2)	\$382.00
Front End Loader	\$778.00
Grader (14G)	\$778.00
Vibratory Roller	\$778.00
Rubber Tire Skidder (C518)	\$717.00
Water Truck (2,500 gallon)	\$190.00
Backhoe (C 580)	\$321.00
24cy Off Highway Dump	\$774.00
TOTAL	\$9,313.00

GRAND TOTAL **\$397,753**

Compiled By:

FL

N. Haile & K. Kirkpatrick

Date: 04/30/2014

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Bull Ridge
 ROAD: 1A-1B(63.55), 1C-1D(9.7), 1E-1F(2.3)

NEW CONSTRUCTION: 73.55 STATIONS
 IMPROVEMENT: STATIONS
 1.39 MILES
 MILES

POINTS:

CLEARING & GRUBBING

	Method	Acres/amount	x	Rate	=	Cost
1A-1B	Scatter outside of Right of Way	5.8	x	\$ 1,337	=	\$7,754.60
1C-1D	Scatter outside of Right of Way	0.9	x	\$ 1,337	=	\$1,203.30
1E-1F	Scatter outside of Right of Way	0.20	x	\$ 1,337	=	\$267.40
			x		=	

SUB TOTAL FOR CLEARING & GRUBBING

\$9,225

EXCAVATION

	Material	Cy/amount	x	Rate	=	Cost
1A-1B	Common Drift \$/Cy	8,720	x	\$1.80	=	\$15,696.00
	End-haul excavation to 1C-1D \$/CY	2,000	x	\$4.00	=	\$8,000.00
	Embankment Compaction @ Fills \$/CY	5,000	x	\$0.70	=	\$3,500.00
	End-haul excavation to Waste Area	2,000	x	\$4.00	=	\$8,000.00
	Waste Material Compaction \$/CY	2,000	x	\$0.40	=	\$800.00
	Cut Slope Rounding \$/sta.	23	x	\$43.00	=	\$989.00
	Fill Armor Placement w/330 \$/hr	40	x	\$155.00	=	\$6,200.00
	Landing Construction \$/ldg	1	x	\$389.00	=	\$389.00
1C-1D	Common Drift \$/Cy	1,790	x	\$1.80	=	\$3,222.00
	Embankment Compaction @ Fill \$/CY	2,500	x	\$0.70	=	\$1,750.00
	Fill Armor Placement w/330 \$/hr	10	x	\$155.00	=	\$1,550.00
	Cut Slope Rounding \$/sta.	2	x	\$43.00	=	\$86.00
	Landing Construction \$/ldg	1	x	\$389.00	=	\$389.00
1E-1F	Common Drift \$/Cy	550	x	\$1.80	=	\$990.00
	Landing Construction \$/ldg	1	x	\$389.00	=	\$389.00
			x		=	

SUB TOTAL FOR EXCAVATION

\$51,950

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
1A-1B									
10+00	18"CPP	30	\$19.53	\$585.90					
15+00	18"CPP	30	\$19.53	\$585.90					
20+10	18"CPP	30	\$19.53	\$585.90					
26+00	18"CPP	30	\$19.53	\$585.90					
27+35	18"CPP	30	\$19.53	\$585.90					
37+15	18"CPP	30	\$19.53	\$585.90					
1C-1D									
2+90	18"CPP	50	\$19.53	\$976.50					
5+80	18"CPP	30	\$19.53	\$585.90					
9+20	18"CPP	30	\$19.53	\$585.90					
1E-1F									
0+40	18"CPP	30	\$19.53	\$585.90					

	Description	Quantity	Rate	Cost
Other/miscellaneous:				
Culvert stakes & markers:		10	\$20.00	\$200.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$6,450

Subtotal of Clearing, Exc., Culv.

\$67,625

SURFACING				Subgrade prep: Description		Stations/ amount	x	Rate/ sta/amt	Cost
				Grade, Shape and Ditch 16'		75.55	x	\$24.83	\$1,875.91
				Subgrade Compaction		75.55	x	\$20.19	\$1,525.35

ROAD SEGMENT 1A to 1B			Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location		1A to 1B		0+00 to 63+55				
				Volume (CY) per	Number of	Volume (CY)	Number of			
Base Rock	4"-0" crushed	0+00-63+55	8	station	50	stations	63.55	3,178	\$6.57	\$20,876
Junctions	4"-0" crushed	0+00	8	junction	22	junctions	1	22	\$6.57	\$145
Turnouts	4"-0" crushed	4+50, 9+50, 17+90, 23+50, 25+90, 30+90, 36+10, 42+30, 52+00, 56+90	8	TO	22	TO's	10	220	\$6.57	\$1,445
Turnarounds	4"-0" crushed	37+00, 43+20, 61+45	8	TA	n/a	TA's	3	88	\$6.57	\$578
Curve Widening	4"-0" crushed	23+50, 25+90, 55+00	8	curve	n/a	curves	3	66	\$6.57	\$434
Traction Rock	1/2"-0" crushed	1+20-15+20, 27+05- 28+60, 30+60-33+85, 43+50-45+00, 47+00- 48+50, 49+70-51+85, 53+10-59+40, 60+85- 62+35	3	station	19	stations	32	601	\$6.57	\$3,951
Turnouts	1/2"-0" crushed	4+50, 9+50, 30+90, 56+90	3	TO	11	TO's	4	44	\$6.57	\$289
Fill Armor	24"-6" Rip Rap	15+50, 26+80, 44+05, 55+95, 61+60	N/A	fill	n/a	fills	5	1,380	\$11.45	\$15,801
Landings	6"-0" Pit Run	63+55	N/A	Landing	88	Landings	1	66	\$8.49	\$560
Total Rock for Road Segment:			1A to 1B				5,665		\$44,079	

ROAD SEGMENT 1C to 1D			Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location		1C to 1D		0+00 to 9+70				
				Volume (CY) per	Number of	Volume (CY)	Number of			
Base Rock	4"-0" crushed	0+00-9+70	8	station	50	stations	9.70	485	\$6.57	\$3,186
Curve Widening	4"-0" crushed	3+95	8	curve	n/a	curves	1	22	\$6.57	\$145
Turnouts	4"-0" crushed	8+00	N/A	TO	22	TO's	1	22	\$6.57	\$145
Turnarounds	4"-0" crushed	8+00	N/A	TA	11	TA's	1	11	\$6.57	\$72
Junctions	4"-0" crushed	0+00	N/A	junction	22	junctions	1	22	\$6.57	\$145
Traction Rock	1/2"-0" crushed		3	station	19	stations	1	19	\$6.57	\$125
Fill Armor	24"-6" Rip Rap	2+05	N/A	fill	n/a	fills	1	422	\$11.45	\$4,832
Landings	6"-0" Pit Run	9+70	N/A	Landing	66	Landings	1	66	\$8.49	\$560
Total Rock for Road Segment:			1C to 1D				1,069		\$9,209	

ROAD SEGMENT 1E to 1F			Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location		1E to 1F		0+00 to 2+30				
				Volume (CY) per	Number of	Volume (CY)	Number of			
Base Rock	4"-0" crushed	0+00-2+30	8	station	50	stations	2.30	115	\$6.57	\$756
Traction Rock	1/2"-0" crushed		3	station	19	stations	1.5	29	\$6.57	\$187
Fill Armor	24"-6" Rip Rap	0+60	N/A	fill	n/a	fills	1	66	\$11.45	\$756
Landings	6"-0" Pit Run	2+30	N/A	Landing	66	Landings	1	66	\$8.49	\$560
Total Rock for Road Segment:			1E to 1F				276		\$2,259	

Processing:				Description		No.sta	Rate/sta	Cost	
				Water, Process & Compact Base Rock:		75.55	\$56.48	\$4,267	
				Water, Process & Compact Traction Rock:		34.50	\$56.48	\$1,949	
				24"-6"rr	6"-0"pr	4"-0"	1 1/2"-0"	Total	
				1,868	198	4,251	693	7,009	
SUB TOTAL FOR SURFACING						7,009		7,009	\$65,164

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

				Subtotal of Surfacing & Spec. Proj.		\$65,164
				Subtotal of Clearing, Exc., Culv.		\$67,625
GRAND TOTAL						\$132,789

Compiled By: Kraig Kirkpatrick

Date: 04/30/2014

\$35,671

SURFACING				Stations/ amount		Rate/ sta/amt		Cost			
Subgrade prep:				Description		x					
				Grade, Shape and Ditch 16' (3A-3B, 3C-3D, 3E-3F)		67.55		\$21.55 \$1,455.70			
				Subgrade Compaction (3A-3B, 3C-3D, 3E-3F)		67.55		x \$17.52 \$1,183.48			
ROAD SEGMENT 3A to 3B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	3A to 3B		0+00 to 29+15					
				Volume (CY) per	Number of						
Base Rock	4"-0" crushed	3A to 3B	8	station	50	stations	29.14	1,457	\$6.57	\$9,572	
		0+00to3+22, 18+30to19+20, 21+15to22+30, 23+40to27+70									
Surface Rock	1 1/2"-0 crushed		2	station	19	stations	9.57	182	\$6.57	\$1,195	
Trurnarounds	4"-0" crushed	27+25	8	TA	11	TA's	1	11	\$6.57	\$72	
Turnouts	4"-0" crushed	11+25, 15+85,	8	TO	22	TO's	2	44	\$6.57	\$289	
Landings	6"-0" Pit Run	22+50, 3B	N/A	Landing	66	Landings	2	132	\$8.49	\$1,121	
Total Rock for Road Segment:				3A to 3B				1,826			\$12,249
ROAD SEGMENT 3C to 3D				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)		Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	3C to 3D		0+00 to 18+85					
				Volume (CY) per	Number of						
Base Rock	4"-0" crushed	3C to 3D	8	station	50	stations	18.85	943	\$6.57	\$6,192	
Surface Rock	1 1/2"-0 crushed	5+80to16+20	2	station	19	stations	10.40	198	\$6.57	\$1,298	
Trurnarounds	4"-0" crushed	17+20	8	TA	11	TA's	1	11	\$6.57	\$72	
Turnouts	4"-0" crushed	7+65, 12+90	8	TO	22	TO's	2	44	\$6.57	\$289	
Landings	6"-0" Pit Run	3D	N/A	Landing	66	Landings	1	66	\$8.49	\$560	
Total Rock for Road Segment:				3C to 3D				1,261			\$8,412
ROAD SEGMENT 3E to 3F				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)		Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	3E to 3F		0+00 to 19+55					
				Volume (CY) per	Number of						
Base Rock	4"-0" crushed	3E to 3F	8	station	50	stations	19.55	978	\$6.57	\$6,422	
Subgrade Reinforcement	6"-0" Pit Run	4+50	N/A	station	N/A	stations	N/A	100	\$8.49	\$849	
Surface Rock	1 1/2"-0 crushed	14+90to16+00	2	station	19	stations	1.10	21	\$6.57	\$137	
Trurnarounds	4"-0" crushed	17+50	8	TA	11	TA's	1	11	\$6.57	\$72	
		4+70, 9+00,									
Turnouts	4"-0" crushed	13+50	8	TO	22	TO's	3	66	\$6.57	\$434	
Landings	6"-0" Pit Run	3F	N/A	Landing	66	Landings	1	66	\$8.49	\$560	
Total Rock for Road Segment:				3E to 3F				1,241			\$8,475
Processing:				Description		No.sta		Rate/sta			
				Water, Process & Compact:		67.55		\$56.48		\$3,815.22	
				Water, Process & Compact:		21.07		\$56.48		\$1,190.03	
SUB TOTAL FOR SURFACING					6"-0"pr	4"-0"	1 1/2"-0"		Total		
					364	3,564	400		4,328		
SPECIAL PROJECTS				Description		Cost		Subtotal of Surfacing & Spec. Proj.		\$36,780	
								Subtotal of Clearing, Exc.,Culv.		\$35,671	
SUB TOTAL FOR SPECIAL PROJECTS											
GRAND TOTAL										\$72,452	
										\$72,452	

\$36,780

\$35,671

\$0

\$72,452

Compiled By: N. Haile

Date: _____

CRUSHED ROCK COST

SALE NAME:	Bull Ridge
PROJECT:	No. 1
QUARRY:	Hamilton

MATERIAL: Crushed

DATE: 04/08/2014
BY: Kirkpatrick

[illegible]

ROCK HAUL:

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

Ave haul:	\$5.31	/cy
Load:	\$0.48	/cy
Spread:	\$0.78	/cy

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

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

Production: cy/day = 1,016

CRUSHED ROCK HAUL COSTS 8,888 cy @ \$6.57 /cy

PIT RUN ROCK COST

SALE NAME:	Bull Ridge
PROJECT:	No. 1
QUARRY:	Hamilton

MATERIAL: Pit Run

DATE: 04/08/2014
BY: Kirkpatrick

[illegible]

ROCK HAUL:

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

Ave haul:	\$5.13	/cy
Load:	\$1.44	/cy
Spread:	\$1.92	/cy

Truck type:	<u>D12</u>	No. trucks:	<u>3</u>
Delay min.:	<u>6</u>	Efficiency:	<u>85%</u>

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

Production: cy/day = 369

PIT RUN ROCK HAUL COSTS

578 cy @ \$8.49 /cy

RIP RAP ROCK COST

SALE NAME:	Bull Ridge
PROJECT:	No. 1
QUARRY:	Hamilton

MATERIAL: Rip Rap

DATE: 04/08/2014
BY: Kirkpatrick

[illegible]

ROCK HAUL:

Truck type:	D12	No. trucks:	4
Delay min.:	6	Efficiency:	85%
Truck type:	D10	No. trucks:	4
Delay min.:	5	Efficiency:	85%

Ave haul:	\$5.77	/cy
Load:	\$1.38	/cy
Develop:	<u>\$4.30</u>	/cy

Production: cy/day = 438

RIP RAP ROCK HAUL COSTS 1,868 cy @ \$11.45 /cy

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 2	Timber Sale Name: Bull Ridge
Quarry: Hamilton Creek	Swell:
Location: NW 1/4, NW 1/4, Sec. 28, T6N, R7W	Shrink: 16%
County: Clatsop	
By: Kraig Kirkpatrick	Loading Hopper: no
Date: 02/12/14	

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"	20%	CR	862		1,000
1-1/2"-0"	20%	CR	2,000	1,094	3,414
4"-0"	20%	CR	5,000	7,865	13,665
6"-0"		PR		562	562
24"-6"		RR		1,868	1,868
36"		RR			
TOTAL CUBIC YARDS OF ROCK:			7,862	11,389	20,509

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Dump Trucks		\$163		Off Highway Dump Truck	1	\$774	\$774
Screening Plants	1	\$553	\$553	Screening Plant		\$553	
D8 Cat	1	\$1,406	\$1,406	Loading Hopper		\$553	
D6 Cat		\$675		Loader	2	\$805	\$1,610
Drill & Compressor	1	\$1,406	\$1,406				
Powder	1	\$351	\$351	3 Stage Crusher	1	\$2,891	\$2,891
Dump Trucks		\$163					
Excavator	1	\$1,406	\$1,406	Excavator		\$1,406	

SUB TOTAL FOR MOBILIZATION

\$10,397

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	\$3,205	\$3,205
Screening Plants	2	\$273	\$546
Original Calibration	1	\$507	\$507

SUB TOTAL FOR SET UP COSTS

\$4,258

TOTAL MOBILIZATION & SET UP COSTS**\$14,655****2) CLEARING & GRUBBING**

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clear, Grub, Pile, and Burn	2.0	Acres	\$2,702	\$5,404
Off Highway Dump	8	Hours	\$127	\$1,016
Move-in Fire Truck for the burning of the Clearing Debris	1	ea	\$190	\$190

TOTAL CLEARING & GRUBBING COSTS**\$6,610**

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden Removal (excavate, load haul, and spread)	2,000	bcy	\$2.60	\$5,200
		hours		
		bcy		
		bcy		

TOTAL EXCAVATION COSTS

\$5,200

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping	100%	20,509	\$1.75	\$35,891
crushed	18,079	88%	Drill & shoot			\$2.30	
pit run	562	3%	Oversize red			\$5.80	
rip rap	1,868	9%	Other				
Total	20,509						
reject	3,616	17.6%					

TOTAL ROCK DEVELOPMENT COSTS

\$35,891

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	2	\$507.00	\$1,014
Calibrate			
Test	10	\$57.30	\$573
Test			

TOTAL CALIBRATION & TESTING COSTS

\$1,587

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	21,695	\$0.67	\$14,558

TOTAL FEEDING & LOADING COSTS

\$14,558

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed	1,000	3 stage w/s	100	\$3.89	\$3,890
1-1/2"-0"	crushed	3,414	3 stage w/s	120	\$3.24	\$11,067
4"-0"	crushed	13,665	3 stage w/s	150	\$2.59	\$35,438

TOTAL ROCK CRUSHING COSTS

\$50,395

8) STOCKPILING

STOCKPILE SITE PREPARATION

Equipment	Hours	Rate	Total
Dozer	4	\$113.00	\$452
Compactor		\$72.00	
Grader		\$93.00	
Excavator		\$138.00	

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

* No rock hauled for the floor, comes from old pile at the site.

\$452.00

SUB TOTAL

\$452

HAUL & STOCKPILE		# of			
STOCKPILE LOCATION	SIZE	TRUCKS	CU. YDS.	RATE	COST
1. Ebsen Road	3/4"-0"	5	1,000	\$3.64	\$3,640
2. Hamilton Stockpile Site	1-1/2"-0"	5	2,320	\$3.40	\$7,892
3. Hamilton Stockpile Site	4"-0"	5	5,800	\$3.40	\$19,730
4. _____					
5. _____		2			
6. _____					

SUB TOTAL

\$31,262

TOTAL STOCKPILING COSTS

\$31,714

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, haul, and spread reject material to the waste area.	\$5,424
\$1.50 /CY 3,616 CY	
Final Quarry Dev., Access Road Const., Waterbarring, Drainage,	
C330 Excavator 2 \$155	\$310
Compact reject and hauled excavation	
2,880 CY \$0.60	\$1,728
D6 @ Ebsen Rd Stockpile \$/hr 4hrs	\$452

TOTAL MISCELLANEOUS COSTS

\$7,914

10) GRAND TOTAL:

\$168,523

\$/Cubic Yard

\$9.32

Footnotes:

BULL RIDGE

Gate Cost Appraisal

		<u>TOTAL</u>
Hinge Gate w/Pin		\$3,800
Install gate & Blocking Post		
Post		\$ 150
Prep and Placement w/315 excavator \$/hr		\$ 404
Labor 8 hrs. @ \$40 =		\$ 120
MaterialCement @ 3.50/bag =		\$ 70
Delivery of gates	=	\$ 165
<u>TOTAL COST</u>		<u>\$4,709</u>

Bull Ridge-Project No.4

Location/Description	C330 Excavator	C330 Excavator	Labor	Seeding	Straw Mulch	Total
Pt. V1 Fill Removal Waterbar	4 hrs	4 Waterbars				
Pt. V2 Fill Removal Waterbar	8 hrs	4 Waterbars				
Total	12 hrs	8	0.25 ac	50 lb	20 Bales	
Rate	\$155 /hr	### ea	\$628 /ac	\$1.15 /lb	\$10.73 /Bale	
Cost	\$1,860	\$280	\$157	\$58	\$214.60	\$2,569

Prepared by: Kraig Kirkpatrick Date:4-16-14

Projects Road Maintenance Cost Summary

Sale: Bull Ridge
Date: 29-Apr-14
By: Ty Williams

Type	Equipment/Rationale		Hours	Rate	Cost
Final Haul Road Maintenance Haul Route	Grader 14G Dump Truck 12CY FE Loader C966 Vibratory Roller Water Truck 2,500 gallon		24 8 8 24 16	\$100 \$79 \$83 \$77 \$89	\$2,400 \$632 \$664 \$1,848 \$1,424
Total					\$6,968

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	3.7	2.5
Vibratory Roller	1.5	3.7	2.5

Hamilton Creek Road and Ebsen Road to Point 1A.

Projects Road Maintenance Cost Summary

Sale: Bull Ridge
Date: 16-Apr-14
By: Kraig Kirkpatrick

MBF: 4,733
\$/MBF: \$4.13

Type	Equipment/Rationale	Move In	Times	Hours	Rate	Cost
Progressive Operations 1st Entry	Grader 14G	\$778	1	8	\$100	\$1,578
	Dump Truck 12CY x 2	\$163	2	8	\$79	\$1,590
	FE Loader C966	\$778	1	8	\$83	\$1,442
Progressive Operations 2st Entry	Grader 14G	\$778	1	8	\$100	\$1,578
	Dump Truck 12CY x 2	\$163	2	8	\$79	\$1,590
	FE Loader C966	\$778	1	8	\$83	\$1,442
Final Haul Maintenance Haul Route	Grader 14G	\$778	1	24	\$100	\$3,178
	Dump Truck 12CY	\$163	2	8	\$79	\$1,590
	Vibratory Roller	\$778	1	24	\$77	\$2,626
	Water Truck 2,500 gallon	\$190	1	10	\$89	\$1,080
	FE Loader C966	\$778	1	8	\$83	\$1,442
Total						\$19,536

Progressive Ops. 1st Entry	Production Rates	Miles/day	Distance(miles)	Days
	Grader	2.5	2.5	1.0

Progressive Ops. 2nd Entry	Production Rates	Miles/day	Distance(miles)	Days
	Grader	2.5	2.5	1.0

Final Road Maintenance	Production Rates	Miles/day	Distance(miles)	Days
	Grader	1.5	3.8	2.5
	Vibratory Roller	1.5	3.8	2.5

**Bull Ridge
TIMBER CRUISE REPORT
FY 2014**

1. **Sale Area Location:** Areas 1, 2, 3, 3A, and 4 (R/W) are located in Sections 3 and 4 T5N, R7W, and Sections 33, 34, and 35 T6N, R7W, W.M. Clatsop County, Oregon.

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

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Non-thinnable	Existing R/W	New R/W	Stream Buffer	Net Acres	Survey Method
1	Partial Cut	68	0	0	1	4	63	GIS
2	Modified Clear Cut	82	0	0	4	5	73	GIS
3	Partial Cut	95	0	0	3	17	75	GIS
3A	Group Selection Cut	4	0	0	0	0	4	GIS
4	Right-of-Way	13	0	0	0	0	13	GIS
TOTALS		262	0	0	8	26	228	

4. **Cruisers and Cruise Dates:** Areas 1, 2, 3, and 3A were cruised by Ty Williams, Derek Bangs, Jenny Johnson, Kevin Berry, Nick Haile, and Dave Rygell during April of 2014.

5. **Cruise Method and Computation:**

Area 1 is a partial cut unit and was variable plot cruised with a 40 BAF on a 4 by 4 chain grid, with every third plot measured and graded. A total of 36 plots were sampled in the Area 1 with 12 measured and graded plots and 24 count plots. Minor species were graded on several of the count plots; these partially graded plots show as grade plots on the statistics page. Cedar was a reserve species and was recorded as leave trees in all sale areas. Hardwoods were regarded as take species and counted towards the basal area.

Area 2 is a modified clear cut unit and was cruised with a 40 BAF on a 3 by 3 chain grid, with every third plot measured and graded. A total of 70 plots were sampled in Area 2, with 25 measured and graded plots, and 45 count plots. Cedar was a reserve species and was recorded as leave trees in all sale areas.

Area 3 is a partial cut unit and was variable plot cruised with a 40 BAF on a 5 by 3 chain grid, with every third plot measured and graded. A total of 47 plots were sampled in the Area 3 with 16 measured and graded plots and 31 count plots. Minor species were graded on several of the count plots; these partially graded plots show as grade plots on the statistics page. Cedar was a reserve species and was recorded as leave trees in all sale areas. Hardwoods are regarded as leave trees but did not count towards the basal area.

Area 3A is a group selection cut unit, and it was cruised with a 40 BAF on a 2 by 2 chain grid, with every other plot measured and graded. A total of 12 plots were sampled in Area 3 with 6 measured and graded plots and 6 count plots. ALL conifers were reserve species and all hardwoods are take species.

Area 4 (Right-of-Way) The cruise for Area 2 was applied to the right-of-way acres to generate the volume for this area.

All cruisers used Corvallis MicroTechnology (CMT) data collectors. Data was downloaded to the Atterbury Super A.C.E. program for computations. 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	T5NR7W04PC	Area1	PC	63
2	T6NR7W34MC	Area2	MC	73
3	T6NR7W34PC	Area3	PC	75
3A	T6NR7W34RAMC	Area3A	RAM	4
4(R/W)	T6NR7W34	RIGHT-OF-WAY	ROW	13

6. Timber Description:

Area 1 is a partial cut unit approximately 83 years old, consisting of mixed conifer and hardwood with some spruce and maple components. The average Douglas-fir tree size to be harvested is 32.6 inches DBH, with an average height of 128 feet to a merchantable top (40% of DBH). The Average Volume (net) is approximately 13.4 MBF/acre

Area 2 is a modified clear cut unit approximately 73 years old consisting of Douglas-fir with minor amounts of western hemlock, red alder, and big-leaf maple. The average Douglas-fir tree size to be harvested is 21.7 inches DBH, with an average height of 89 feet to a merchantable top (40% of DBH). The average volume (net) is approximately 33.0 MBF/acre.

Area 3 is a partial cut unit, approximately 68 years old, consisting of Douglas-fir and western hemlock. The average Douglas-fir tree size to be harvested is 19.8 inches DBH, with an average height of 89 feet to a merchantable top (40% of DBH). The average volume (net) is approximately 13.2 MBF/acre

Area 3A is a group selection cut unit, approximately 68 years old. This unit is mostly red alder with a few scattered conifer. The average red alder size to be harvested is 16.0 inches DBH, with an average height of 51 feet to a merchantable top (7 inches diameter). The average volume (net) is approximately 13.9 MBF/acre.

Area 4 (Right-of-Way) totals 13 acres of out of sale and in-sale right-of-way. The timber type is similar to Sale Area 2 therefore the average cruise volume (net) from this area was applied to these acres. The average volume per acre to be harvested is 33.0 MBF/acre.

7. Statistical Analysis and Stand Summary: See "Statistics" - Type Reports, attached Statistics for Stand B.F. volumes

Areas	Estimated CV%	Target SE%	Actual CV%	Actual SE%
1 (PC)	60.0	12.0	61.0	10.2
2 (MC)	60.0	9.0	60.7	7.2
3 (PC)	60.0	11.0	45.8	6.7
3A (MC)	45.0	15.0	66.5	20.0

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. MBF	2 Saw	3 Saw	4 Saw	Camp Run	% D & B	% Sale
Douglas-fir	22.0"	1,961	1,464	435	62	0	2.6	41
Hemlock/True-fir	17.0"	1,800	1,140	573	87	0	5.9	38
Red alder	15.6"	918	0	0	0	918	2.3	19
Spruce	29.5"	25	10	14	1	0	6.8	1
Maple	18.2"	29	0	0	0	29	17.7	1
TOTALS		4,733						

9. Approvals:

Prepared by: Nick Haile

Date: 4/23/14

Unit Forester Approval: 

Date: 4/29/14

10. Attachments:

Cruise Design and Map – 8 pages
Volume Report - 4 pages
Statistics Reports - 6 pages
Stand Table Summary – 1 page
Log Stock Table - 2 pages

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Bull Ridge **Area** 1

Harvest Type: (PC)

Approx. Cruise Acres: 64 **Estimated CV%** 60 Net BF or
BA/Acre **SE% Objective** 12

Planned Sale Volume: 784 **Estimated Sale Area Value/Acre:** 3,920 \$/Ac

A. Cruise Goals: (a) Grade minimum 100 conifer trees:

Determine log grades for sale value; determine snag and leave tree species and sizes;
Determine "diameter limit" harvest parameters;

B. Cruise Design:

1. Plot Cruises: BAF 40BAF (Full point; Half point) (circle one)

Cruise Line Direction(s) N/S

Cruise Line Spacing 4 chains

Cruise Plot Spacing 4 chains

Grade/Count Ratio 1:2

The BA target is 160 to 180 sq. ft. **Select 4 to 5 leave trees per plot, leaving 5 every third plot.** Mark Leave trees with an "L" using yellow paint on graded plots only. Cruise all take and leave trees. If a cruise line ends up paralleling or in a buffer or a road offset by 1 chain and continue. Plots that would have landed within an unthinnable area through the systematic design have been dropped; pace through these dropped plots. All cedars are a reserve species, but **will not** count towards the leave tree BA. All Hardwoods are not a reserve species and will count towards the leave tree BA. Grade alder as camprun-sawlogs. Record all snags as SN and estimate diameter and total height on grade plots only. The northeast corner of the Timber Sale Area has not been posted.

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". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.

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

3. Top Cruise Diameter (TCD): Minimum top outside bark is 7" 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); DL(Douglas-fir over 30"dbh); HL(Western hemlock over 30" dbh); SL(Sitka spruce over 30" dbh); CL (Western red cedar over 30" dbh); NFL (Noble fir over 30" dbh); SFL (Silver fir over 30" dbh)
B. Sort: Use code "1" (Domestic).
C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.
8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at intervisible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.
ITS and 100% Cruises: Mark cruise "strips" with various colored flagging (not pink). Mark trees measured and graded with yellow paint.
9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back), Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging
10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

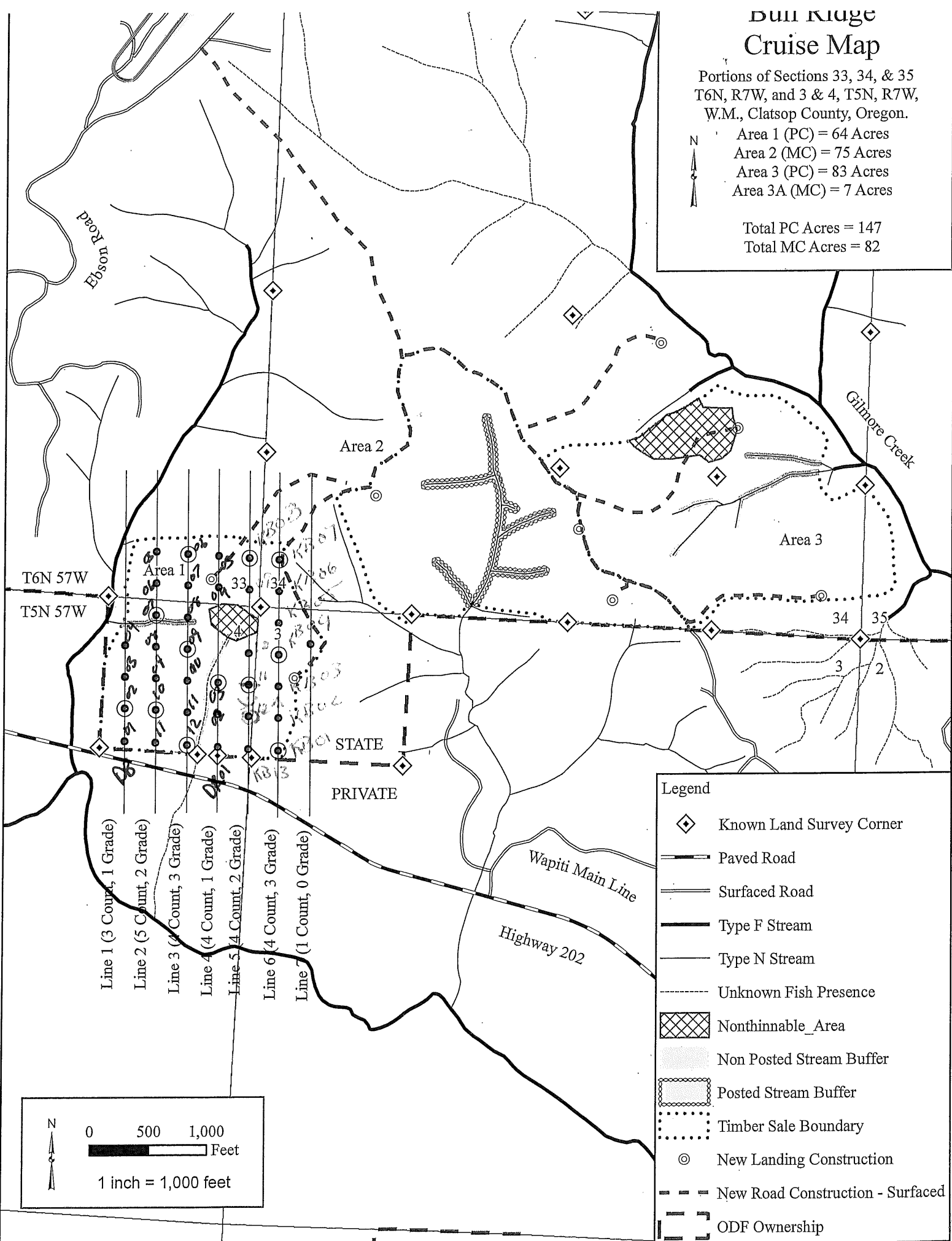
Cruise Design by: Nick Haile
Approved by: _____
Date: 3/24/14

Bull Ridge Cruise Map

Portions of Sections 33, 34, & 35
T6N, R7W, and 3 & 4, T5N, R7W,
W.M., Clatsop County, Oregon.

Area 1 (PC) = 64 Acres
Area 2 (MC) = 75 Acres
Area 3 (PC) = 83 Acres
Area 3A (MC) = 7 Acres

Total PC Acres = 147
Total MC Acres = 82



**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Bull Ridge **Area(s)** 2

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 75 **Estimated CV%** 60 Net BF or BA/Acre **SE% Objective** 9

Planned Sale Volume: 2,775MBF **Estimated Sale Area Value/Acre:** \$ 12,025/ac

- A. Cruise Goals:** (a) Grade minimum 100 conifer trees:
Determine log grades for sale value; Determine snag and leave tree species and sizes;
Determine "diameter limit" harvest parameters;

B. Cruise Design:

- 1. Plot Cruises:** BAF 40 (Full point; Half point) (circle one)
Cruise Line Direction(s) N/S
Cruise Line Spacing 3 chains
Cruise Plot Spacing 3 chains
Grade/Count Ratio 1:2

Record all hardwood as camp run. Record all cedar as leave. Record all snags as SN and record diameter & total height only on grade plots. If plot lands in buffer then offset at least 1/2 chain outside the buffer.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods. Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 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" 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); DL(Douglas-fir over 30"dbh); HL(Western hemlock over 30" dbh); SL(Sitka spruce over 30" dbh); CL (Western red cedar over 30" dbh); NFL (Noble fir over 30" dbh); SFL (Silver fir over 30" dbh)
B. Sort: Use code "1" (Domestic).
C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.
8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at intervisible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.
ITS and 100% Cruises: Mark cruise "strips" with various colored flagging (not pink). Mark trees measured and graded with yellow paint.
9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back), Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging
10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

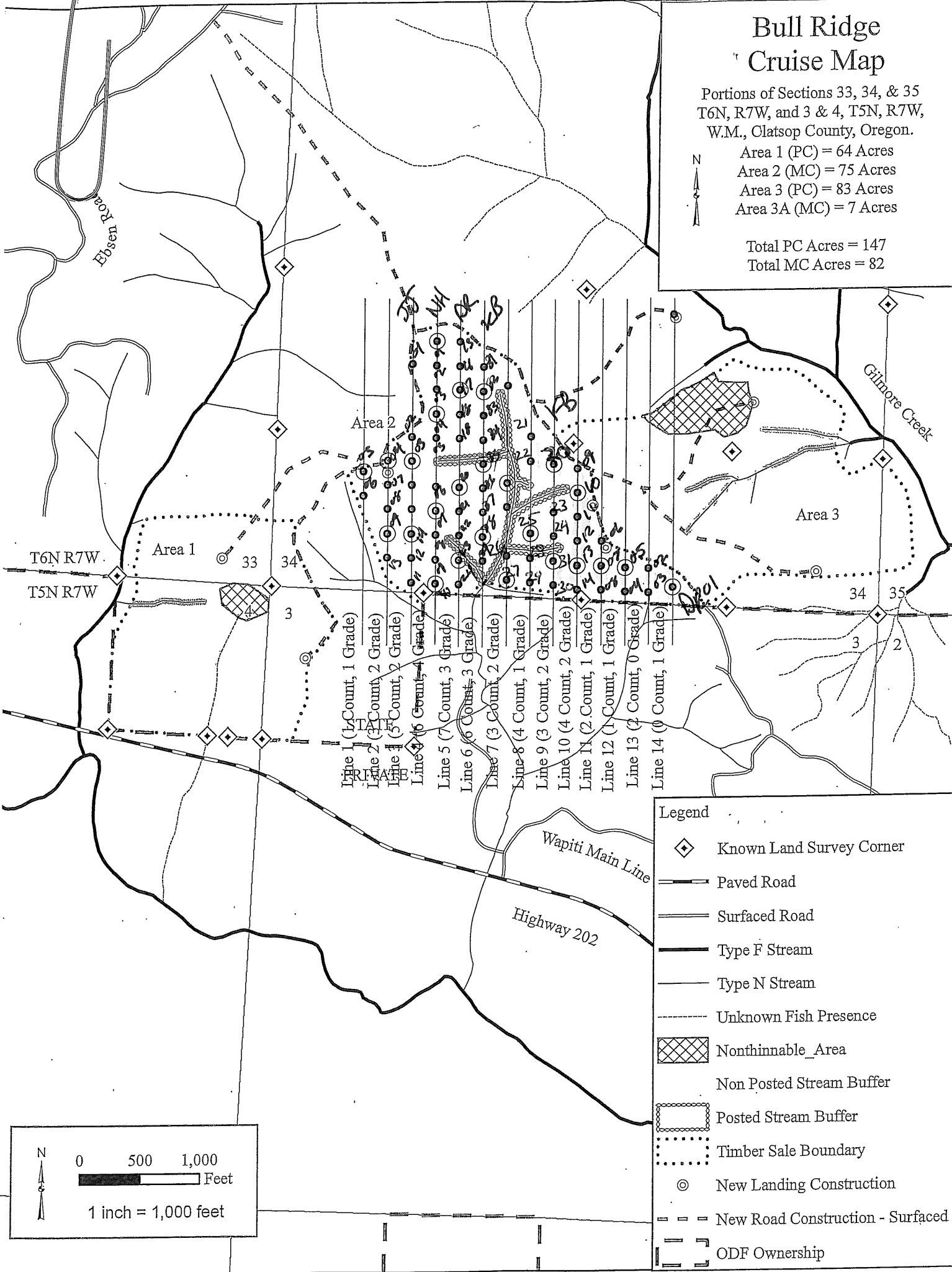
Cruise Design by: Nick Haile
Approved by: 
Date: 3/24/14

Bull Ridge Cruise Map

Portions of Sections 33, 34, & 35
T6N, R7W, and 3 & 4, T5N, R7W,
W.M., Clatsop County, Oregon.

Area 1 (PC) = 64 Acres
Area 2 (MC) = 75 Acres
Area 3 (PC) = 83 Acres
Area 3A (MC) = 7 Acres

Total PC Acres = 147
Total MC Acres = 82



Legend

- Known Land Survey Corner
- Paved Road
- Surfaced Road
- Type F Stream
- Type N Stream
- Unknown Fish Presence
- Nonthinnable Area
- Non Posted Stream Buffer
- Posted Stream Buffer
- Timber Sale Boundary
- New Landing Construction
- New Road Construction - Surfaced
- ODF Ownership



0 500 1,000
Feet
1 inch = 1,000 feet

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Bull Ridge **Area** 3

Harvest Type: (PC)

Approx. Cruise Acres: 83 **Estimated CV%** 60 Net BF or
BA/Acre **SE% Objective** 11

Planned Sale Volume: 1,494 MBF **Estimated Sale Area Value/Acre:** 5,850 \$/Ac

A. Cruise Goals: (a) Grade minimum 100 conifer trees:

Determine log grades for sale value; determine snag and leave tree species and sizes;
Determine "diameter limit" harvest parameters;

B. Cruise Design:

1. Plot Cruises: BAF 40BAF (Full point; Half point) (circle one)

Cruise Line Direction(s) N/S

Cruise Line Spacing 5 chains

Cruise Plot Spacing 3 chains

Grade/Count Ratio 2:1

The BA target is 120 to 140 sq. ft. **Select 3 to 4 leave trees per plot, leaving 4 every other plot.** Mark Leave trees with an "L" using yellow paint on graded plots only. Cruise all take and leave trees. If a cruise line ends up paralleling or in a buffer or a road offset by a half chain and continue. Plots that would have landed within an unthinnable area through the systematic design have been dropped; pace through these dropped plots. All cedars and hardwoods are reserve species, but **will not** count towards the leave tree BA. Grade alder as camprun-sawlogs. Record all snags as SN and estimate diameter and total height.

C. Tree Measurements:

1. Diameter: Minimum DBH to cruise is 8" for conifers and 10" for hardwoods.

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

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

3. Top Cruise Diameter (TCD): Minimum top outside bark is 7" 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); DL(Douglas-fir over 30”dbh); HL(Western hemlock over 30” dbh); SL(Sitka spruce over 30” dbh); CL (Western red cedar over 30” dbh); NFL (Noble fir over 30” dbh); SFL (Silver fir over 30” dbh)
B. Sort: Use code “1” (Domestic).
C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
7. **Deductions:** Estimate visible defect or damage as a “length deduction” (most often), or as a “diameter deduction,” as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a “per tree” basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.
8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at intervisible points, not to exceed 100’ apart. On “measure/grade” plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.
ITS and 100% Cruises: Mark cruise “strips” with various colored flagging (not pink). Mark trees measured and graded with yellow paint.
9. **Cruising Equipment:** Relaskop, Rangefinder, Logger’s Tape (with dbh on back), Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging
10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, 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: Nick Haile
Approved by: _____
Date: 3/24/14

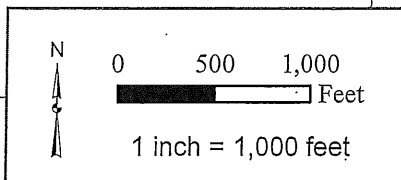
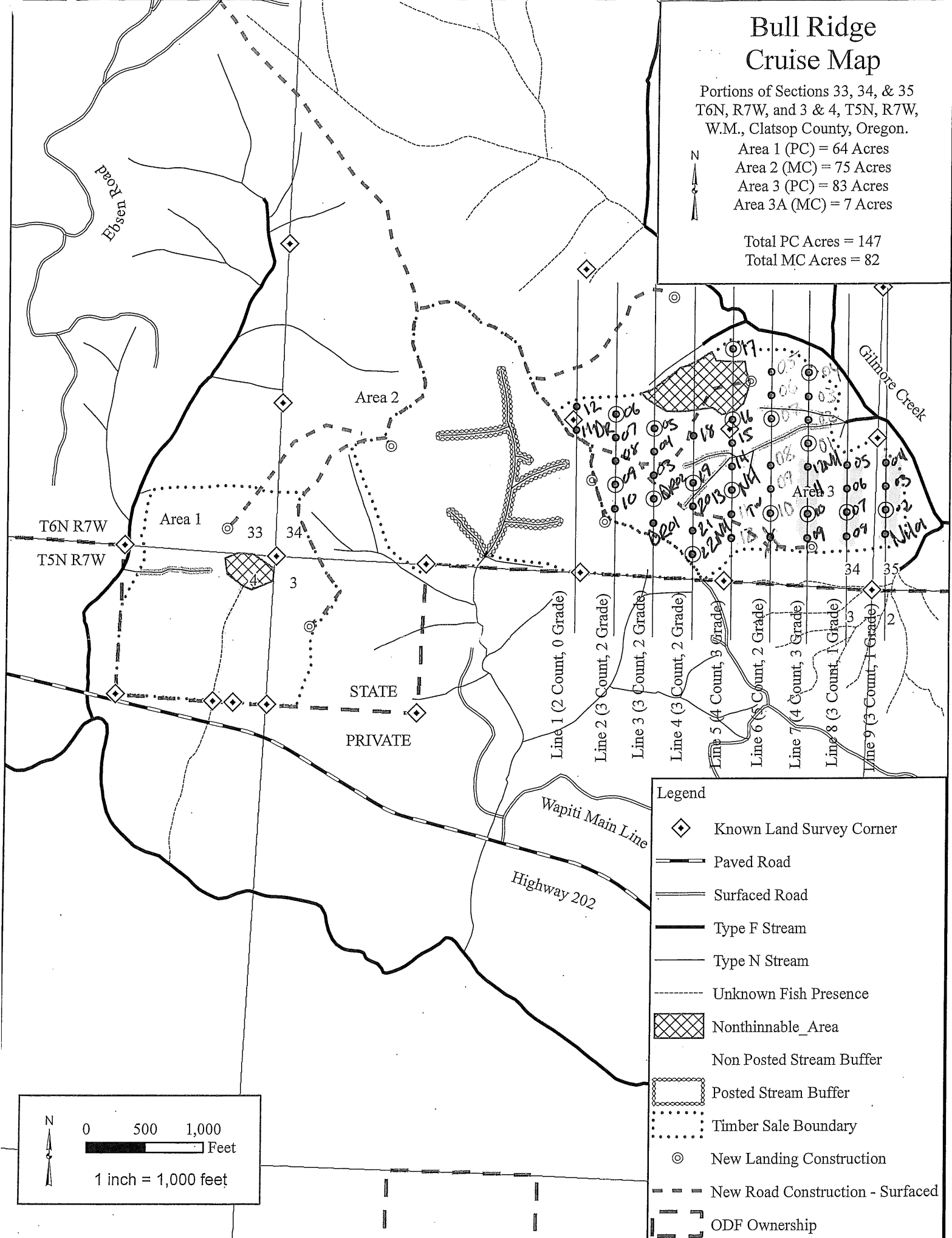
Bull Ridge Cruise Map

Portions of Sections 33, 34, & 35
T6N, R7W, and 3 & 4, T5N, R7W,
W.M., Clatsop County, Oregon.



Area 1 (PC) = 64 Acres
Area 2 (MC) = 75 Acres
Area 3 (PC) = 83 Acres
Area 3A (MC) = 7 Acres

Total PC Acres = 147
Total MC Acres = 82



Legend

- Known Land Survey Corner
- Paved Road
- Surfaced Road
- Type F Stream
- Type N Stream
- Unknown Fish Presence
- Nonthinnable_Area
- Non Posted Stream Buffer
- Posted Stream Buffer
- Timber Sale Boundary
- New Landing Construction
- New Road Construction - Surfaced
- ODF Ownership

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Bull Ridge **Area(s)** 3A

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 6 **Estimated CV%** 45 Net BF or
BA/Acre **SE% Objective** 15

Planned Sale Volume: 81MBF **Estimated Sale Area Value/Acre:** \$ 4,500/ac

A. Cruise Goals: (a) Grade minimum 50 hardwood trees:
Determine log grades for sale value; Determine snag and leave tree species and sizes;
Determine "diameter limit" harvest parameters;

B. Cruise Design:

1. Plot Cruises: BAF 40 (Full point; Half point) (circle one)

Cruise Line Direction(s) 320/140

Cruise Line Spacing 2 chains

Cruise Plot Spacing 2 chains

Grade/Count Ratio 1:1

Record hardwoods as take and record all conifers as leave. Record all snags as SN and record diameter & total height only on grade plots. If plot lands in buffer then offset at least ½ chain outside the buffer. Camprun all hardwoods.

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". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.

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

3. Top Cruise Diameter (TCD): Minimum top outside bark is 7 " 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); DL(Douglas-fir over 30"dbh); HL(Western hemlock over 30" dbh); SL(Sitka spruce over 30" dbh); CL (Western red cedar over 30" dbh); NFL (Noble fir over 30" dbh); SFL (Silver fir over 30" dbh)
B. Sort: Use code "1" (Domestic).
C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
- 7. Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.
- 8. Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at intervisible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.
ITS and 100% Cruises: Mark cruise "strips" with various colored flagging (not pink). Mark trees measured and graded with yellow paint.
- 9. Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back), Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging
- 10. Attachments:** A. Cruise Map (showing cruise unit boundaries, 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: Nick Haile
Approved by: 
Date: 4/10/14

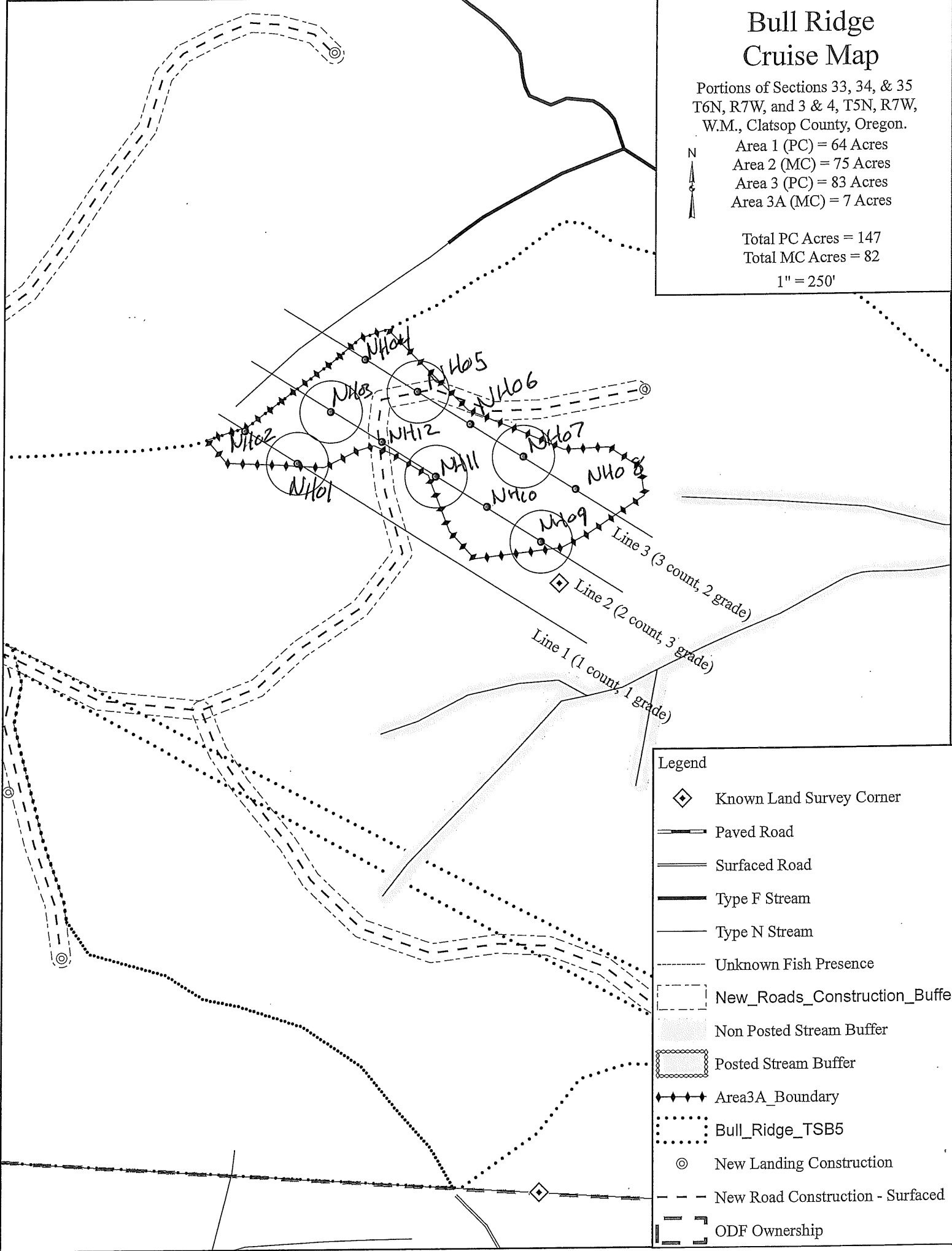
Bull Ridge Cruise Map

Portions of Sections 33, 34, & 35
T6N, R7W, and 3 & 4, T5N, R7W,
W.M., Clatsop County, Oregon.

Area 1 (PC) = 64 Acres
Area 2 (MC) = 75 Acres
Area 3 (PC) = 83 Acres
Area 3A (MC) = 7 Acres

Total PC Acres = 147
Total MC Acres = 82

1" = 250'



Legend

- Known Land Survey Corner
- Paved Road
- Surfaced Road
- Type F Stream
- Type N Stream
- Unknown Fish Presence
- New_Roads_Construction_Buffe
- Non Posted Stream Buffer
- Posted Stream Buffer
- Area3A_Boundary
- Bull_Ridge_TSB5
- New Landing Construction
- New Road Construction - Surfaced
- ODF Ownership

TC		PSPCSTGR Species, Sort Grade - Board Foot Volumes (Project)																
T05N R07W S04 TyAITA THRU T06N R07W S34 TyTAKE						Project: BULLRDG								Page 1				
						Acres 228.00								Date 4/21/2014 Time 10:14:10AM				
S So Gr Spp 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				
D	DOCU		100.0	156											6		0.00	1.1
D	DO2S	74	.9	6,481	6,422	1,464			47	53		0	3	97	40	416	2.32	15.4
D	DO3S	22	.5	1,918	1,907	435		100			2	5	21	73	36	105	0.84	18.1
D	DO4S	4		272	272	62	4	92	4		32	46	3	19	23	33	0.45	8.3
D Totals		41	2.6	8,827	8,601	1,961	0	25	35	40	1	3	7	89	34	200	1.40	42.9
A	DOCU		100.0	88											30		0.00	1.9
A	DOCR	100	.2	4,033	4,026	918	1	59	33	7	2	34	34	30	30	83	0.86	48.4
A Totals		19	2.3	4,121	4,026	918	1	59	33	7	2	34	34	30	30	80	0.83	50.3
H	DOCU		100.0	389											10		0.00	5.5
H	DO2S	63	1.5	5,077	5,000	1,140			53	47	4		17	79	37	373	2.23	13.4
H	DO3S	32	1.1	2,542	2,515	573	0	93	3	3	2	9	18	71	36	87	0.70	29.0
H	DO4S	5	1.7	390	383	87	3	95	2		8	78		14	24	33	0.42	11.6
H Totals		38	5.9	8,398	7,899	1,800	0	34	35	31	4	7	17	73	32	133	1.05	59.5
M	DOCU		100.0	27											40		0.00	.1
M	DOCR	100		125	125	29		74	26		15	14	35	37	33	64	0.93	1.9
M Totals		1	17.7	152	125	29		74	26		15	14	35	37	33	60	0.85	2.1
S	DOCU		100.0	8											6		0.00	.0
S	DO2S	41		45	45	10			100				100		32	1100	6.66	.0
S	DO3S	56		60	60	14			71	29		36		64	32	337	2.55	.2
S	DO4S	3		3	3	1	100				100				18	30	0.94	.1
S Totals		1	6.8	115	108	25		3	39	58	3	20	42	35	25	304	2.78	.4
Totals			4.0	21,613	20,759	4,733	0	35	35	30	3	10	16	71	32	134	1.08	155.2

T		Species, Sort Grade - Board Foot Volumes (Type)												Page		1												
TSPCSTGR		Project: BULLRDG												Date		4/21/2014												
														Time		10:33:58AM												
T05N R07W S04 TA1TA										T05N R07W S04 TA1TA																		
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt																			
05N	07W	04	AREA1	A1TA	63.00	36	27	1	W																			
S Spp		So T		Gr rt		% 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				
A	DO	CU			00.0	21													9		0.00	2.1						
A	DO	CR	100		.5	2,851	2,838		179	5	65	29		3	17	26	54	31	65	0.70	43.8							
A Totals			21		1.2	2,872	2,838		179	5	65	29		3	17	26	54	30	62	0.69	46.0							
H	DO	CU			00.0	246												10		0.00	1.7							
H	DO	2S	84		1.3	3,539	3,493		220			17	83			8	92	39	536	2.91	6.5							
H	DO	3S	16		.6	663	659		42	5	57	38		14	13	50	23	29	99	1.03	6.7							
H Totals			31		6.7	4,448	4,152		262	1	9	20	70	2	2	15	81	31	279	2.03	14.9							
D	DO	CU			00.0	127												6		0.00	.6							
D	DO	2S	95		1.1	6,170	6,104		385			15	85		1	4	95	38	633	3.16	9.6							
D	DO	3S	5			275	275		17	100				10		21	69	32	108	1.07	2.6							
D Totals			48		2.9	6,573	6,380		402		4	14	82	0	1	5	94	36	498	2.76	12.8							
M	DO	CR	100			31	31		2	100				100				30	60	1.20	.5							
M Totals			0			31	31		2	100				100				30	60	1.20	.5							
Type Totals					3.8	13,924	13,400		844	1	19	19	61	2	5	12	81	31	181	1.37	74.1							

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page		1			
				Project: BULLRDG												Date		4/21/2014			
																Time		10:33:58AM			
T06N R07W S34 TROW												T06N R07W S34 TROW									
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
06N	07W	34	AREA2	ROW	13.00	70	158	1	W												
S So Gr Spp T rt ad			% 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/ Lf			
										4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft		
A	DO	CU		00.0	218													40		0.00	3.4
A	DO	CR	100		7,946	7,946	103			55	36	9		2	40	35	23	30	90	0.91	88.0
A Totals			24	2.7	8,165	7,946	103			55	36	9		2	40	35	23	31	87	0.87	91.3
H	DO	CU		00.0	683													11		0.00	10.5
H	DO	2S	68	2.1	8,179	8,010	104				64	36		4		9	87	39	367	2.19	21.8
H	DO	3S	25	2.3	2,985	2,916	38			92	1	7		3	14	23	60	34	83	0.76	35.2
H	DO	4S	7	2.1	833	815	11			97	3			10	72		17	25	35	0.45	23.6
H Totals			36	7.4	12,680	11,741	153			30	44	27		4	8	12	75	30	129	1.10	91.2
D	DO	CU		00.0	203													8		0.00	1.1
D	DO	2S	70	.3	9,030	9,000	117				54	46				3	97	40	401	2.31	22.5
D	DO	3S	25	.9	3,240	3,212	42			100				2	6	13	79	36	108	0.86	29.6
D	DO	4S	5		539	539	7			5	90	5		21	49	4	26	25	37	0.47	14.7
D Totals			39	2.0	13,012	12,751	166			0	29	38	33	1	3	6	89	35	188	1.35	67.9
M	DO	CU		00.0	71													40		0.00	.4
M	DO	CR	100		309	309	4			72	28			16	7	37	40	33	64	0.91	4.8
M Totals			1	18.7	381	309	4			72	28			16	7	37	40	34	60	0.83	5.2
S	DO	CU		00.0	21													6		0.00	.1
S	DO	2S	41		120	120	2				100					100		32	1100	6.66	.1
S	DO	3S	56		158	158	2				71	29			36		64	32	337	2.55	.5
S	DO	4S	3		8	8	0			100				100				18	30	0.94	.3
S Totals			1	6.8	306	286	4			3	39	58		3	20	42	35	25	304	2.78	.9
Type Totals				4.4	34,544	33,033	429			0	36	40	25	3	14	16	67	32	129	1.09	256.5

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)														Page 1					
		Project: BULLRDG														Date 4/21/2014					
																Time 10:33:58AM					
T06N R07W S34 TTAKE										T06N R07W S34 TTAKE											
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
06N	07W	34	AREA2	TAKE	73.00	70	158	1	W												
S So Gr Spp T rt ad			%	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre		
			Net BdFt	Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf			
										4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99				
A	DO	CU		100.0	218													40		0.00	3.4
A	DO	CR	100		7,946	7,946	580			55	36	9		2	40	35	23	30	90	0.91	88.0
A Totals			24	2.7	8,165	7,946	580			55	36	9		2	40	35	23	31	87	0.87	91.3
H	DO	CU		100.0	683													11		0.00	10.5
H	DO	2S	68	2.1	8,179	8,010	585				64	36		4		9	87	39	367	2.19	21.8
H	DO	3S	25	2.3	2,985	2,916	213			92	1	7		3	14	23	60	34	83	0.76	35.2
H	DO	4S	7	2.1	833	815	59			97	3			10	72		17	25	35	0.45	23.6
H Totals			36	7.4	12,680	11,741	857			30	44	27		4	8	12	75	30	129	1.10	91.2
D	DO	CU		100.0	203													8		0.00	1.1
D	DO	2S	70	.3	9,030	9,000	657				54	46				3	97	40	401	2.31	22.5
D	DO	3S	25	.9	3,240	3,212	235			100				2	6	13	79	36	108	0.86	29.6
D	DO	4S	5		539	539	39			5	90	5		21	49	4	26	25	37	0.47	14.7
D Totals			39	2.0	13,012	12,751	931			0	29	38	33	1	3	6	89	35	188	1.35	67.9
M	DO	CU		100.0	71													40		0.00	.4
M	DO	CR	100		309	309	23			72	28			16	7	37	40	33	64	0.91	4.8
M Totals			1	18.7	381	309	23			72	28			16	7	37	40	34	60	0.83	5.2
S	DO	CU		100.0	21													6		0.00	.1
S	DO	2S	41		120	120	9				100					100		32	1100	6.66	.1
S	DO	3S	56		158	158	12				71	29			36		64	32	337	2.55	.5
S	DO	4S	3		8	8	1			100				100				18	30	0.94	.3
S Totals			1	6.8	306	286	21			3	39	58		3	20	42	35	25	304	2.78	.9
Type Totals				4.4	34,544	33,033	2,411			0	36	40	25	3	14	16	67	32	129	1.09	256.5

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)											Page 1					
Project: BULLRDG											Date	4/21/2014						
											Time	10:33:58AM						
T06N R07W S34 TTAKE											T06N R07W S34 TTAKE							
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt									
06N	07W	34	AREA3	TAKE	75.00	47	19	1	W									
S So Gr T rt ad Spp		% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
							Log Scale Dia.				Log Length				Ln	Bd	CF/	
			Def%	Gross	Net		4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft	Lf	
H	DO	CU		100.0	191							5		0.00		3.3		
H	DO	2S	43		3,082	3,082	231		57	43	7		50	43	33	301	1.94	
H	DO	3S	53		3,749	3,749	281		100			3	10	87	38	89	0.62	
H	DO	4S	4		231	231	17	17	83			100			22	28	0.32	
H Totals		53	2.6	7,253	7,062	530	1	56	25	19	3	5	27	65	34	110	0.79	
D	DO	CU		100.0	133							5		0.00		1.5		
D	DO	2S	66	2.2	4,166	4,076	306		70	30				100	40	313	1.84	
D	DO	3S	30		1,883	1,883	141		100			3	37	60	36	99	0.79	
D	DO	4S	4		208	208	16		100		63	37			21	25	0.39	
D Totals		47	3.5	6,391	6,168	463		34	47	20	2	2	11	84	33	147	1.13	
Type Totals			3.0	13,644	13,230	992	0	46	35	19	3	4	20	74	33	125	0.93	

T		Species, Sort Grade - Board Foot Volumes (Type)														Page		1			
TSPCSTGR		Project: BULLRDG														Date		4/21/2014			
																Time		10:33:58AM			
T06N R07W S34 TTAKE														T06N R07W S34 TTAKE							
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees				CuFt		BdFt	
06N		07W		34		AREA3A		TAKE		4.00		12		25				1		W	
S So Gr Spp T rt ad				% 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/ Lf		
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft			
A DO CR				100	1.5	14,136	13,921	56	1	80	13	6	5	6	49	40	30	78	0.87	177.8	
A Totals				100	1.5	14,136	13,921	56	1	80	13	6	5	6	49	40	30	78	0.87	177.8	
Type Totals					1.5	14,136	13,921	56	1	80	13	6	5	6	49	40	30	78	0.87	177.8	

TC PSTATS		PROJECT STATISTICS								PAGE	1	
		PROJECT				BULLRDG				DATE	4/21/2014	
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt		
05N 06N	07 07W	04 34	AREA1 AREA3A	AITA TAKE	THR	228.00	235	1,064	1	W		
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL			235	1064	4.5							
CRUISE			74	387	5.2	19,145	2.0					
DBH COUNT												
REFOREST												
COUNT			124	671	5.4							
BLANKS			37									
100 %												
STAND SUMMARY												
			SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
R ALDER			124	34.8	15.6	46		45.9	4,121	4,026	1,302	1,264
WHEMLOCK			115	30.3	17.0	65		47.8	8,398	7,899	2,036	1,962
DOUG FIR			131	16.6	22.0	91		43.8	8,827	8,601	2,080	2,053
BL MAPLE			13	2.1	18.2	35		3.8	152	125	74	59
S SPRUCE			4	.1	29.5	68		.6	115	108	26	25
TOTAL			387	84.0	17.6	62		142.0	21,613	20,759	5,518	5,363
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL	68.1	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
R ALDER			116.7	10.6	151	169	187					
WHEMLOCK			120.6	11.2	518	584	650					
DOUG FIR			75.3	6.6	679	727	774					
BL MAPLE			77.8	22.4	58	75	92					
S SPRUCE			67.3	38.4	634	1,030	1,426					
TOTAL			117.3	6.0	459	488	518	549	137	61		
CL	68.1	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
R ALDER			192.0	12.5	30	35	39					
WHEMLOCK			188.2	12.3	27	30	34					
DOUG FIR			212.8	13.9	14	17	19					
BL MAPLE			516.3	33.6	1	2	3					
S SPRUCE			797.4	52.0	0	0	0					
TOTAL			110.4	7.2	78	84	90	486	122	54		
CL	68.1	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
R ALDER			166.7	10.9	41	46	51					
WHEMLOCK			171.9	11.2	42	48	53					
DOUG FIR			202.1	13.2	38	44	50					
BL MAPLE			474.7	30.9	3	4	5					
S SPRUCE			758.1	49.4	0	1	1					
TOTAL			100.6	6.6	133	142	151	404	101	45		
CL	68.1	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
R ALDER			164.9	10.7	3,593	4,026	4,458					
WHEMLOCK			178.0	11.6	6,982	7,899	8,815					
DOUG FIR			213.2	13.9	7,406	8,601	9,796					
BL MAPLE			510.5	33.3	83	125	167					
S SPRUCE			773.1	50.4	53	108	162					
TOTAL			119.9	7.8	19,136	20,759	22,381	574	144	64		

TC TSTATS				STATISTICS				PAGE	1
				PROJECT BULLRDG				DATE	4/21/2014
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	07W	04	AREA1	00PC	63.00	36	238	1	W
				TREES	ESTIMATED	PERCENT			
				PER PLOT	TOTAL	SAMPLE			
					TREES	TREES			
TOTAL	36	238	6.6						
CRUISE	13	80	6.2		6,719		1.2		
DBH COUNT									
REFOREST									
COUNT	23	150	6.5						
BLANKS									
100 %									
STAND SUMMARY									
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC
HEMLEAV	21	7.4	37.9	104		57.8	15,780	14,055	3,042
DOUGLEAV	11	7.3	33.4	112		44.4	12,427	12,307	2,470
ALDRLEAV	7	30.7	15.9	51		42.2	3,861	3,861	1,281
R ALDER	9	37.9	13.5	38		37.8	2,872	2,838	964
MAPLELV	8	10.8	20.8	29		25.6	2,542	2,403	638
DOUG FIR	6	3.7	32.6	128		21.1	6,389	6,218	1,224
WHEMLOCK	9	6.6	24.2	76		21.1	3,965	3,652	898
SPRUCELV	7	.5	53.3	101		7.8	2,325	2,169	422
SNAG	1	1.2	29.0	50		5.6			
BL MAPLE	1	.5	20.0	31		1.1	31	31	18
TOTAL	80	106.7	21.3	56		264.4	50,192	47,533	10,957
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	
HEMLEAV	43.8	9.8	2,006	2,224	2,442				
DOUGLEAV	61.4	19.4	1,864	2,313	2,762				
ALDRLEAV	60.9	24.8	112	149	185				
R ALDER	94.9	33.5	83	124	166				
MAPLELV	119.5	45.0	321	585	849				
DOUG FIR	34.6	15.4	1,572	1,858	2,145				
WHEMLOCK	67.0	23.7	612	801	991				
SPRUCELV	66.6	27.1	3,877	5,317	6,758				
SNAG									
BL MAPLE									
TOTAL	113.1	12.6	1,470	1,683	1,895	510	128	57	
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
HEMLEAV	92.3	15.4	6	7	9				
DOUGLEAV	139.7	23.3	6	7	9				
ALDRLEAV	147.3	24.5	23	31	38				
R ALDER	193.4	32.2	26	38	50				
MAPLELV	163.9	27.3	8	11	14				
DOUG FIR	277.6	46.2	2	4	5				
WHEMLOCK	187.8	31.3	5	7	9				
SPRUCELV	309.5	51.5	0	1	1				
SNAG	305.6	50.9	1	1	2				
BL MAPLE	600.0	99.9	0	1	1				
TOTAL	73.6	12.3	94	107	120	217	54	24	
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	94.3	15.7	49	58	67				
DOUGLEAV	142.3	23.7	34	44	55				

TC TSTATS				STATISTICS				PAGE	2
				PROJECT	BULLRDG				
								DATE	4/21/2014
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	07W	04	AREA1	00PC	63.00	36	238	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
ALDRLEAV		141.3	23.5	32	42	52			
R ALDER		187.6	31.2	26	38	50			
MAPLELV		145.6	24.3	19	26	32			
DOUG FIR		273.6	45.6	11	21	31			
WHEMLOCK		199.9	33.3	14	21	28			
SPRUCELV		296.6	49.4	4	8	12			
SNAG		305.6	50.9	3	6	8			
BL MAPLE		600.0	99.9	0	1	2			
TOTAL		40.0	6.7	247	264	282	64	16	7
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		96.2	16.0	11,804	14,055	16,306			
DOUGLEAV		145.8	24.3	9,318	12,307	15,296			
ALDRLEAV		140.3	23.4	2,959	3,861	4,763			
R ALDER		186.1	31.0	1,958	2,838	3,717			
MAPLELV		146.9	24.5	1,815	2,403	2,991			
DOUG FIR		273.1	45.5	3,390	6,218	9,045			
WHEMLOCK		208.3	34.7	2,385	3,652	4,919			
SPRUCELV		300.8	50.1	1,082	2,169	3,255			
SNAG									
BL MAPLE		600.0	99.9	0	31	61			
TOTAL		61.0	10.2	42,703	47,533	52,362	149	37	17

TC TSTATS				STATISTICS				PAGE	1				
				PROJECT	BULLRDG	DATE 4/21/2014							
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt				
06N	07W	34	AREA2	00MC	73.00	70	441	1	W				
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES						
TOTAL			70	441	6.3								
CRUISE			25	167	6.7	10,527		1.6					
DBH COUNT													
REFOREST													
COUNT			45	274	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	
R ALDER			45	59.3	16.4	49		86.9	8,165	7,946	2,531	2,439	
WHEMLOCK			47	49.5	16.9	59		77.1	12,680	11,741	3,160	3,028	
DOUG FIR			58	27.3	21.7	89		70.3	13,012	12,751	3,190	3,156	
BL MAPLE			6	5.2	18.0	35		9.1	381	309	183	144	
SNAG			8	2.4	22.1	65		6.3					
S SPRUCE			2	.4	29.5	68		1.7	306	286	68	65	
CEDLEAV			1	.2	24.0	45		.6	22	18	14	14	
TOTAL			167	144.2	17.9	60		252.0	34,566	33,052	9,147	8,845	
CONFIDENCE LIMITS OF THE SAMPLE													
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR													
CL: 68.1 %		COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.			
SD: 1.0		VAR.%		S.E.%		LOW AVG HIGH		5 10		15			
R ALDER		123.1		18.5		148 182 216							
WHEMLOCK		128.2		18.7		459 564 669							
DOUG FIR		72.3		9.5		616 680 744							
BL MAPLE		83.6		37.2		48 77 105							
SNAG													
S SPRUCE		82.4		77.1		235 1,030 1,825							
CEDLEAV													
TOTAL		120.3		9.3		418 461 504		577 144		64			
CL: 68.1 %		COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.			
SD: 1.0		VAR.%		S.E.%		LOW AVG HIGH		5 10		15			
R ALDER		88.9		10.6		53 59 66							
WHEMLOCK		121.3		14.5		42 50 57							
DOUG FIR		150.3		18.0		22 27 32							
BL MAPLE		337.1		40.3		3 5 7							
SNAG		343.4		41.0		1 2 3							
S SPRUCE		501.3		59.9		0 0 1							
CEDLEAV		836.7		99.9		0 0 0							
TOTAL		42.5		5.1		137 144 152		72 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			
R ALDER		84.8		10.1		78 87 96							
WHEMLOCK		118.9		14.2		66 77 88							
DOUG FIR		140.2		16.7		59 70 82							
BL MAPLE		308.7		36.9		6 9 13							
SNAG		299.4		35.8		4 6 9							
S SPRUCE		476.0		56.8		1 2 3							
CEDLEAV		836.7		99.9		0 1 1							
TOTAL		41.3		4.9		240 252 264		68 17		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			
R ALDER		91.1		10.9		7,082 7,946 8,811							
WHEMLOCK		121.6		14.5		10,036 11,741 13,446							
DOUG FIR		137.9		16.5		10,652 12,751 14,851							

TC TSTATS				STATISTICS			PAGE	2	
				PROJECT	BULLRDG		DATE	4/21/2014	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
06N	07W	34	AREA2	00MC	73.00	70	441	1	W
CL: 68.1 %		COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0		VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
BL MAPLE		332.9	39.8	186	309	432			
SNAG									
S SPRUCE		485.7	58.0	120	286	451			
CEDLEAV		836.7	99.9	0	18	36			
TOTAL		60.7	7.2	30,655	33,052	35,448	147	37	16

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT BULLRDG				DATE	4/21/2014		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
06N	07W	34	AREA3	00PC	75.00	47	308	1	W		
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		47	308	6.6							
CRUISE		19	88	4.6		10,034		.9			
DBH COUNT											
REFOREST											
COUNT		28	199	7.1							
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
DOUGLEAV		24	19.1	26.0	102		70.6	16,085	16,014	3,593	3,580
HEMLEAV		13	23.2	18.3	61		42.6	8,958	7,587	1,941	1,716
WHEMLOCK		11	29.9	15.3	76		38.3	7,253	7,062	1,744	1,706
R ALDER		16	21.2	18.0	60		37.4	5,023	5,008	1,350	1,350
DOUG FIR		8	15.9	19.8	89		34.0	6,391	6,168	1,590	1,566
ALDRLEAV		9	18.7	15.0	65		23.0	3,314	3,314	912	912
SNAG		1	2.8	21.0	15		6.8				
CEDLEAV		4	1.5	26.8	50		6.0	884	581	209	146
BL MAPLE		1	.7	25.0	35		2.6	112	112	49	49
SPRUCELV		1	.6	16.0	60		.9	104	104	30	30
TOTAL		88	133.8	19.0	73		262.1	48,125	45,950	11,418	11,054
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15		
DOUGLEAV		49.0	10.2	875	975	1,075					
HEMLEAV		218.1	62.9	459	1,235	2,012					
WHEMLOCK		122.9	38.8	263	430	597					
R ALDER		65.3	16.8	247	297	347					
DOUG FIR		66.3	25.0	371	495	619					
ALDRLEAV		34.0	12.0	169	192	215					
SNAG											
CEDLEAV		123.1	70.3	483	1,628	2,772					
BL MAPLE											
SPRUCELV											
TOTAL		171.4	18.3	571	698	826	1,173	293	130		
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15		
DOUGLEAV		79.3	11.6	17	19	21					
HEMLEAV		115.6	16.8	19	23	27					
WHEMLOCK		175.5	25.6	22	30	38					
R ALDER		149.4	21.8	17	21	26					
DOUG FIR		187.5	27.3	12	16	20					
ALDRLEAV		216.2	31.5	13	19	25					
SNAG		254.6	37.1	2	3	4					
CEDLEAV		324.5	47.3	1	2	2					
BL MAPLE		506.5	73.8	0	1	1					
SPRUCELV		685.6	99.9	0	1	1					
TOTAL		46.2	6.7	125	134	143	85	21	9		
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15		
DOUGLEAV		77.6	11.3	63	71	79					
HEMLEAV		106.3	15.5	36	43	49					
WHEMLOCK		162.9	23.7	29	38	47					
R ALDER		148.4	21.6	29	37	46					

TC TSTATS				STATISTICS				PAGE	2
				PROJECT BULLRDG				DATE	4/21/2014
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
06N	07W	34	AREA3	00PC	75.00	47	308	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
DOUG FIR		184.9	27.0	25	34	43			
ALDRLEAV		220.0	32.1	16	23	30			
SNAG		254.6	37.1	4	7	9			
CEDLEAV		312.4	45.5	3	6	9			
BL MAPLE		506.5	73.8	1	3	4			
SPRUCELV		685.6	99.9	0	1	2			
TOTAL		37.4	5.4	248	262	276	56	14	6
CL: 68.1 %		COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0		VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15
DOUGLEAV		78.3	11.4	14,186	16,014	17,842			
HEMLEAV		107.2	15.6	6,401	7,587	8,773			
WHEMLOCK		165.4	24.1	5,360	7,062	8,765			
R ALDER		149.7	21.8	3,915	5,008	6,101			
DOUG FIR		183.7	26.8	4,516	6,168	7,819			
ALDRLEAV		224.5	32.7	2,230	3,314	4,398			
SNAG									
CEDLEAV		373.5	54.4	265	581	898			
BL MAPLE		506.5	73.8	29	112	195			
SPRUCELV		685.6	99.9	0	104	207			
TOTAL		45.8	6.7	42,882	45,950	49,019	84	21	9

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	BULLRDG			DATE	4/21/2014		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
06N	07W	34	AREA3A	RAM	4.00	12	61	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
TOTAL			12	61	5.1						
CRUISE			6	37	6.2	549		6.7			
DBH COUNT											
REFOREST											
COUNT			6	24	4.0						
BLANKS											
100 %											
STAND SUMMARY											
SAMPLE			TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
TREES			/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
R ALDER			25	110.4	16.0	51	153.3	14,136	13,921	4,602	4,602
HEMLEAV			6	15.6	18.8	78	30.0	5,586	5,523	1,356	1,356
DOUGLEAV			3	3.6	22.6	95	10.0	2,003	1,988	475	475
SNAG			2	5.1	15.5	23	6.7				
SPRUCELV			1	2.4	16.0	38	3.3	215	215	76	76
TOTAL			37	137.1	16.5	54	203.3	21,940	21,646	6,509	6,509
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
R ALDER		67.1	13.7	119	138	157					
HEMLEAV		133.5	59.5	247	608	970					
DOUGLEAV		93.9	64.9	278	793	1,309					
SNAG											
SPRUCELV											
TOTAL		167.2	27.5	188	259	330	1,116	279	124		
CL:	68.1 %	COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
R ALDER		73.1	22.0	86	110	135					
HEMLEAV		191.1	57.5	7	16	25					
DOUGLEAV		198.8	59.9	1	4	6					
SNAG		346.4	104.3		5	10					
SPRUCELV		346.4	104.3		2	5					
TOTAL		52.6	15.8	115	137	159	120	30	13		
CL:	68.1 %	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
R ALDER		71.9	21.7	120	153	187					
HEMLEAV		198.0	59.6	12	30	48					
DOUGLEAV		180.9	54.5	5	10	15					
SNAG		346.4	104.3		7	14					
SPRUCELV		346.4	104.3		3	7					
TOTAL		53.4	16.1	171	203	236	124	31	14		
CL:	68.1 %	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
R ALDER		77.3	23.3	10,683	13,921	17,159					
HEMLEAV		211.1	63.6	2,012	5,523	9,033					
DOUGLEAV		188.6	56.8	859	1,988	3,116					
SNAG											
SPRUCELV		346.4	104.3		215	439					
TOTAL		66.5	20.0	17,314	21,646	25,979	192	48	21		

TC TSTATS				STATISTICS				PAGE	1
				PROJECT BULLRDG				DATE	4/21/2014
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	07W	04	AREA1	A1LV	63.00	36	165	1	W
				TREES	ESTIMATED	PERCENT			
				PER PLOT	TOTAL	SAMPLE			
					TREES	TREES			
TOTAL	36	165	4.6						
CRUISE	13	55	4.2		3,653		1.5		
DBH COUNT									
REFOREST									
COUNT	23	106	4.6						
BLANKS									
100 %									
STAND SUMMARY									
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC
HEMLEAV	21	7.4	37.9	104		57.8	15,780	14,055	3,042
DOUGLEAV	11	7.3	33.4	112		44.4	12,427	12,307	2,470
ALDRLEAV	7	30.7	15.9	51		42.2	3,861	3,861	1,281
MAPLELV	8	10.8	20.8	29		25.6	2,542	2,403	638
SPRUCELV	7	.5	53.3	101		7.8	2,325	2,169	422
SNAG	1	1.2	29.0	50		5.6			
TOTAL	55	58.0	24.1	62		183.3	36,935	34,794	7,852
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
HEMLEAV	43.8	9.8	2,006	2,224	2,442				
DOUGLEAV	61.4	19.4	1,864	2,313	2,762				
ALDRLEAV	60.9	24.8	112	149	185				
MAPLELV	119.5	45.0	321	585	849				
SPRUCELV	66.6	27.1	3,877	5,317	6,758				
SNAG									
TOTAL	100.9	13.6	1,808	2,092	2,377		406	102	45
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15
HEMLEAV	92.3	15.4	6	7	9				
DOUGLEAV	139.7	23.3	6	7	9				
ALDRLEAV	147.3	24.5	23	31	38				
MAPLELV	163.9	27.3	8	11	14				
SPRUCELV	309.5	51.5	0	1	1				
SNAG	305.6	50.9	1	1	2				
TOTAL	70.6	11.8	51	58	65		199	50	22
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	94.3	15.7	49	58	67				
DOUGLEAV	142.3	23.7	34	44	55				
ALDRLEAV	141.3	23.5	32	42	52				
MAPLELV	145.6	24.3	19	26	32				
SPRUCELV	296.6	49.4	4	8	12				
SNAG	305.6	50.9	3	6	8				
TOTAL	25.2	4.2	176	183	191		25	6	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	96.2	16.0	11,804	14,055	16,306				
DOUGLEAV	145.8	24.3	9,318	12,307	15,296				
ALDRLEAV	140.3	23.4	2,959	3,861	4,763				
MAPLELV	146.9	24.5	1,815	2,403	2,991				

TC TSTATS				STATISTICS				PAGE	2
				PROJECT		BULLRDG		DATE	4/21/2014
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	07W	04	AREA1	A1LV	63.00	36	165	1	W
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		300.8	50.1	1,082	2,169	3,255			
SNAG									
TOTAL		40.4	6.7	32,454	34,794	37,135	65	16	7

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	BULLRDG		DATE		4/21/2014		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
06N	07W	34	AREA2	LEAV	73.00	68	12	1	W		
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		68	12	.2							
CRUISE		6	9	1.5		191		4.7			
DBH COUNT											
REFOREST											
COUNT		3	3	1.0							
BLANKS		59									
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
SNAG		8	2.4	22.1	65	6.5					
CEDLEAV		1	.2	24.0	45	.6		22	19	14	14
TOTAL		9	2.6	22.2	63	7.1		22	19	14	14
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		
SNAG											
CEDLEAV											
TOTAL		300.0	105.9	11		23	4,036	1,009	448		
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
SNAG		338.1	41.0	1	2	3					
CEDLEAV		824.6	99.9	0	0	0					
TOTAL		317.3	38.4	2	3	4	4,021	1,005	447		
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
SNAG		294.6	35.7	4	6	9					
CEDLEAV		824.6	99.9	0	1	1					
TOTAL		275.9	33.4	5	7	9	3,040	760	338		
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
SNAG											
CEDLEAV		824.6	99.9	0	19	37					
TOTAL		824.6	99.9	0	19	37	27,153	6,788	3,017		

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	BULLRDG	DATE 4/21/2014				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
06N	07W	34	AREA3	LEAV	75.00	47	223	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL				47	223	4.7				
CRUISE				18	69	3.8	6,574	1.0		
DBH COUNT										
REFOREST										
COUNT				29	144	5.0				
BLANKS										
100 %										
STAND SUMMARY										
				SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS
				TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC
DOUGLEAV				24	19.1	26.0	102		70.6	16,085
ALDRLEAV				25	39.6	16.7	62		60.4	8,325
HEMLEAV				13	23.2	18.3	61		42.6	8,958
SNAG				1	2.8	21.0	15		6.8	
CEDLEAV				4	1.5	26.8	50		6.0	884
MAPLELV				1	.7	25.0	35		2.6	112
SPRUCELV				1	.6	16.0	60		.9	104
TOTAL				69	87.7	19.9	69		189.8	34,468
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.	
SD: 1.0				VAR.%	S.E.%	LOW	AVG	HIGH	5	10
DOUGLEAV				49.0	10.2	875	975	1,075		
ALDRLEAV				64.0	13.1	225	259	293		
HEMLEAV				218.1	62.9	459	1,235	2,012		
SNAG										
CEDLEAV				123.1	70.3	483	1,628	2,772		
MAPLELV										
SPRUCELV										
TOTAL				173.5	20.9	605	765	924	1,202	301
CL: 68.1 %				COEFF		TREES/ACRE			# OF PLOTS REQ.	
SD: 1.0				VAR.%	S.E.%	LOW	AVG	HIGH	5	10
DOUGLEAV				79.3	11.6	17	19	21		
ALDRLEAV				103.4	15.1	34	40	46		
HEMLEAV				115.6	16.8	19	23	27		
SNAG				254.6	37.1	2	3	4		
CEDLEAV				324.5	47.3	1	2	2		
MAPLELV				506.5	73.8	0	1	1		
SPRUCELV				685.6	99.9	0	1	1		
TOTAL				35.3	5.1	83	88	92	50	12
CL: 68.1 %				COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.	
SD: 1.0				VAR.%	S.E.%	LOW	AVG	HIGH	5	10
DOUGLEAV				77.6	11.3	63	71	79		
ALDRLEAV				103.2	15.0	51	60	70		
HEMLEAV				106.3	15.5	36	43	49		
SNAG				254.6	37.1	4	7	9		
CEDLEAV				312.4	45.5	3	6	9		
MAPLELV				506.5	73.8	1	3	4		
SPRUCELV				685.6	99.9	0	1	2		
TOTAL				20.4	3.0	184	190	195	17	4
CL: 68.1 %				COEFF		NET BF/ACRE			# OF PLOTS REQ.	
SD: 1.0				VAR.%	S.E.%	LOW	AVG	HIGH	5	10
DOUGLEAV				78.3	11.4	14,186	16,014	17,842		
ALDRLEAV				105.5	15.4	7,031	8,309	9,587		
HEMLEAV				107.2	15.6	6,401	7,587	8,773		

TC TSTATS				STATISTICS				PAGE	1
				PROJECT	BULLRDG	DATE			
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
06N	07W	34	AREA3A	LEAV	4.00	12	16	1	W
				TREES	ESTIMATED	PERCENT			
				PER PLOT	TOTAL	SAMPLE			
					TREES	TREES			
TOTAL	12	16	1.3						
CRUISE	6	13	2.2		124		10.4		
DBH COUNT									
REFOREST									
COUNT	2	3	1.5						
BLANKS	4								
100 %									
STAND SUMMARY									
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC
HEMLEAV	7	20.0	17.5	68		33.3	5,630	5,570	1,405
DOUGLEAV	3	3.6	22.6	95		10.0	2,003	1,988	475
SNAG	2	5.1	15.5	23		6.7			
SPRUCELV	1	2.4	16.0	38		3.3	215	215	76
TOTAL	13	31.1	17.7	62		53.3	7,848	7,772	1,956
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	
HEMLEAV	145.3	59.1	217	530	843				
DOUGLEAV	93.9	64.9	278	793	1,309				
SNAG									
SPRUCELV									
TOTAL	143.6	41.4	279	475	672	891	223	99	
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
HEMLEAV	154.3	46.5	11	20	29				
DOUGLEAV	198.8	59.9	1	4	6				
SNAG	346.4	104.3		5	10				
SPRUCELV	346.4	104.3		2	5				
TOTAL	113.4	34.2	20	31	42	560	140	62	
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	176.0	53.0	16	33	51				
DOUGLEAV	180.9	54.5	5	10	15				
SNAG	346.4	104.3		7	14				
SPRUCELV	346.4	104.3		3	7				
TOTAL	125.2	37.7	33	53	73	683	171	76	
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	206.0	62.0	2,115	5,570	9,025				
DOUGLEAV	188.6	56.8	859	1,988	3,116				
SNAG									
SPRUCELV	346.4	104.3		215	439				
TOTAL	171.6	51.7	3,756	7,772	11,789	1,282	320	142	

TC TSTATS				STATISTICS				PAGE	2
				PROJECT		BULLRDG		DATE	4/21/2014
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
06N	07W	34	AREA3	LEAV	75.00	47	223	1	W
CL: 68.1 %				NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0		COEFF	S.E.%	LOW	AVG	HIGH	5	10	15
		VAR.							
SNAG									
CEDLEAV		373.5	54.4	265	581	898			
MAPLELV		506.5	73.8	29	112	195			
SPRUCELV		685.6	99.9	0	104	207			
TOTAL		26.0	3.8	31,469	32,708	33,946	27	7	3

TC PSTNDSUM		Stand Table Summary										Page 1			
												Date: 4/21/2014			
T05N R07W S04 TyA1TA THRU T06N R07W S34 TyTAKE					Project BULLRDG					Time: 10:28:41AM					
					Acres 228.00					Grown Year:					
S Spec 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
D	13	4	86	92	.992	.91	1.98	15.7	52.5		31	104	71	24	
D	14	2	89	100	.428	.46	.86	21.0	85.0		18	73	41	17	
D	15	1	81	87	1.141	1.40	2.28	22.5	70.0		51	160	117	36	
D	16	9	86	113	2.312	3.23	5.63	24.4	91.2		137	513	313	117	
D	17	10	85	110	1.450	2.29	2.90	33.4	120.0		97	348	221	79	
D	18	1	86	120	.792	1.40	1.58	38.0	135.0		60	214	137	49	
D	19	4	87	124	.464	.91	1.39	31.5	121.7		44	169	100	39	
D	20	7	86	125	1.270	2.77	3.60	36.8	145.3		132	523	302	119	
D	21	8	83	130	.760	1.83	2.09	41.8	158.2		87	331	199	75	
D	22	6	86	122	.519	1.37	1.39	46.2	192.5		64	267	146	61	
D	23	12	83	126	1.762	5.09	4.64	49.1	191.7		228	890	520	203	
D	24	8	81	116	.582	1.83	1.45	54.1	197.0		79	287	179	65	
D	25	7	86	138	.813	2.77	2.30	60.4	255.5		139	589	318	134	
D	26	5	85	143	.486	1.79	1.33	70.8	309.8		94	413	215	94	
D	27	8	85	126	.460	1.83	1.26	63.2	265.5		80	336	182	77	
D	28	4	84	128	.214	.91	.53	79.4	320.0		42	171	97	39	
D	29	2	86	116	.100	.46	.30	67.0	290.0		20	87	46	20	
D	30	8	85	140	.743	3.65	2.23	83.4	366.3		186	817	424	186	
D	31	5	86	151	.342	1.79	.86	98.5	496.2		84	426	193	97	
D	32	1	85	166	.157	.88	.63	85.2	422.5		54	265	122	61	
D	33	6	86	140	.231	1.37	.69	103.8	500.0		72	346	164	79	
D	35	3	89	140	.200	1.33	.53	132.6	669.8		70	355	160	81	
D	36	4	84	126	.129	.91	.39	100.2	476.7		39	185	89	42	
D	38	1	86	174	.111	.88	.45	121.8	647.5		54	288	124	66	
D	39	1	88	158	.106	.88	.32	160.0	846.7		51	269	116	61	
D	42	2	89	116	.048	.46	.14	145.0	733.3		21	105	47	24	
D	50	2	85	95	.034	.46	.10	172.3	713.3		17	72	40	16	
D	Totals	131	85	120	16.645	43.85	41.87	49.0	205.4		2,053	8,601	4,682	1,961	
H	9	6	87	46	4.204	1.86	2.80	8.5	30.0		24	84	54	19	
H	10	5	87	117	4.370	2.38	7.60	13.6	51.5		103	392	236	89	
H	11	2	88	84	.938	.62	.94	19.0	70.0		18	66	41	15	
H	12	2	90	102	2.916	2.29	4.37	20.7	83.3		90	365	206	83	
H	13	8	88	79	2.687	2.48	4.03	19.7	61.7		79	249	181	57	
H	14	1	91	113	1.071	1.15	2.14	25.0	105.0		54	225	122	51	
H	15	3	87	86	1.438	1.76	2.37	27.7	93.6		66	222	150	51	
H	16	3	85	70	.883	1.23	1.77	22.8	77.5		40	137	92	31	
H	17	2	89	99	.393	.62	.79	36.0	130.0		28	102	64	23	
H	18	2	87	106	1.296	2.29	3.24	29.4	116.0		95	376	217	86	
H	19	7	85	113	1.255	2.47	3.45	34.0	127.3		117	440	268	100	
H	20	11	87	112	1.944	4.24	4.98	40.4	158.4		201	789	458	180	
H	21	17	86	90	2.314	5.57	4.37	47.1	165.9		206	725	469	165	
H	22	11	88	102	1.606	4.24	3.45	49.2	190.9		170	658	387	150	
H	23	5	88	110	.826	2.38	2.05	52.7	208.2		108	427	246	97	
H	24	2	89	129	.197	.62	.59	60.0	270.0		35	160	81	36	
H	25	2	83	110	.182	.62	.54	54.7	210.0		30	114	68	26	
H	26	3	89	88	.334	1.23	.50	78.9	323.0		40	162	90	37	
H	28	4	81	110	.290	1.24	.72	76.0	288.0		55	208	125	48	
H	30	1	88	135	.125	.61	.38	92.3	446.7		35	168	79	38	
H	31	1	85	130	.117	.61	.23	105.0	510.0		25	119	56	27	
H	32	2	88	110	.220	1.23	.55	105.4	484.0		58	266	132	61	
H	34	1	86	129	.097	.61	.29	87.7	463.3		26	135	58	31	
H	36	4	87	136	.336	2.38	1.01	132.3	703.6		134	710	305	162	
H	38	2	75	71	.079	.62	.16	127.0	390.0		20	61	46	14	

TC		Stand Table Summary										Page		2		
												Date:		4/21/2014		
T05N R07W S04 TyA1TA THRU T06N R07W S34 TyTAKE					Project BULLRDG					Time: 10:28:41AM						
					Acres 228.00					Grown Year:						
S Spc	T	Tot			Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals			
		Sample DBH	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF	
H		40	2	88	91	.071	.62	.21	107.0	593.3		23	126		52	29
H		47	2	89	110	.051	.62	.15	193.3	940.0		30	145		68	33
H		48	2	89	91	.049	.62	.15	169.0	776.7		25	115		57	26
H		49	2	92	110	.047	.62	.14	200.7	1080.0		28	153		65	35
H		Totals	115	87	94	30.339	47.84	54.00	36.3	146.3		1,962	7,899		4,473	1,801
A		10	2	86	45	4.253	2.32	4.25	10.0	25.0		43	106		97	24
A		11	2	87	77	1.103	.73	1.10	21.0	70.0		23	77		53	18
A		12	1	87	56	1.477	1.16	1.48	20.0	60.0		30	89		67	20
A		13	14	87	65	6.699	6.18	9.98	17.4	53.5		174	534		396	122
A		14	18	87	62	5.170	5.53	6.05	22.2	68.8		134	417		307	95
A		15	13	86	62	2.394	2.94	2.74	24.2	71.2		66	195		151	45
A		16	12	86	64	2.761	3.86	4.48	25.1	79.2		112	355		256	81
A		17	15	87	67	3.318	5.23	5.71	28.4	87.7		162	501		369	114
A		18	4	87	69	.824	1.46	1.24	36.0	110.0		44	136		101	31
A		19	11	86	49	2.177	4.29	2.60	37.5	97.3		98	253		223	58
A		20	11	87	66	2.200	4.80	4.40	34.5	116.8		152	514		346	117
A		21	3	87	68	.347	.84	.65	40.1	130.5		26	85		59	19
A		22	5	87	61	.592	1.56	1.14	38.4	140.6		44	161		100	37
A		23	2	87	78	.252	.73	.50	51.5	190.0		26	96		59	22
A		24	2	87	69	.403	1.27	.77	54.7	184.7		42	143		96	33
A		25	5	87	35	.459	1.56	.49	53.2	149.2		26	73		59	17
A		26	2	87	59	.197	.73	.39	52.5	210.0		21	83		47	19
A		31	2	88	129	.139	.73	.42	98.0	500.0		41	208		93	48
A		Totals	124	87	61	34.768	45.89	48.41	26.1	83.2		1,264	4,026		2,882	918
M		11	2	85	57	.871	.57	.87	17.0	50.0		15	44		34	10
M		14	2	86	53	.538	.57	.54	26.0	60.0		14	32		32	7
M		20	1	87	37	.141	.31	.14	36.0	60.0		5	8		12	2
M		24	2	82	17	.183	.57	.18	34.0	100.0		6	18		14	4
M		27	2	81	27	.145	.57	.14	51.0	60.0		7	9		17	2
M		28	2	75	56	.134	.57									
M		38	2	82	46	.073	.57	.07	163.0	190.0		12	14		27	3
M		Totals	13	84	49	2.084	3.76	1.95	30.4	64.2		59	125		135	29
S		25	2	89	71	.095	.32	.19	59.5	215.0		11	41		26	9
S		38	2	82	103	.041	.32	.12	108.3	543.3		13	67		30	15
S		Totals	4	87	81	.136	.65	.31	78.7	344.3		25	108		56	25
Totals			387	87	84	83.971	141.98	146.54	36.6	141.7		5,363	20,759		12,228	4,733

TC PLOGSTVB				Log Stock Table - MBF															
T05N R07W S04 TyA1TA THRU T06N R07W S34 TyTAKE				Project: BULLRDG				Page 1											
				Acres 228.00				Date 4/21/2014											
								Time 10:29:35AM											
S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
D	DO	CU	5	10	100.0														
D	DO	CU	6	20	100.0														
D	DO	CU	12	6	100.0														
D	DO	2S	21	3		3	.1					3							
D	DO	2S	32	39	1.8	38	2.0					12	5	15	6				
D	DO	2S	40	1,436		1,423	72.6					219	295	407	300	188	14		
D	DO	3S	14	0		0	.0			0									
D	DO	3S	15	2		2	.1					2							
D	DO	3S	17	1		1	.0				1								
D	DO	3S	19	1		1	.1					1							
D	DO	3S	20	4		4	.2					4							
D	DO	3S	21	1		1	.1					1							
D	DO	3S	22	3		3	.2			1		2							
D	DO	3S	25	1		1	.1			1									
D	DO	3S	27	9		9	.5				2	8							
D	DO	3S	29	5		5	.2				5								
D	DO	3S	32	74		74	3.8			4	32	38							
D	DO	3S	33	6		6	.3			6									
D	DO	3S	34	5		5	.2			5									
D	DO	3S	35	7		7	.3			7									
D	DO	3S	36	2		2	.1				2								
D	DO	3S	37	4		4	.2				4								
D	DO	3S	38	9		9	.5			9									
D	DO	3S	40	303		300	15.3			28	100	172							
D	DO	4S	15	5		5	.3			5									
D	DO	4S	17	7		7	.4			1	3		1	1					
D	DO	4S	20	7		7	.4			7									
D	DO	4S	22	8		8	.4			8									
D	DO	4S	23	6		6	.3		2	3									
D	DO	4S	27	4		4	.2			4									
D	DO	4S	28	4		4	.2			4									
D	DO	4S	30	6		6	.3			6									
D	DO	4S	32	2		2	.1			2									
D	DO	4S	36	4		4	.2			4									
D	DO	4S	38	8		8	.4			8									
D	Totals			2,012	2.6	1,961	41.4		2	115	149	228	235	302	422	306	188	14	

Log Stock Table - MBF

T05N R07W S04 TyAITA
THRU
T06N R07W S34 TyTAKE

Project: **BULLRDG**
Acres **228.00**

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S Spp	T	So Gr rt de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
A		DO CU	9	1	100.0														
A		DO CU	39	9	100.0														
A		DO CU	40	9	100.0														
A		DO CR	10	0		0	.0			0									
A		DO CR	11	0		0	.0			0									
A		DO CR	16	9		9	1.0			6	3								
A		DO CR	18	9		9	.9			2	3	4							
A		DO CR	19	1		1	.1			1									
A		DO CR	20	4		4	.4			4									
A		DO CR	21	31		31	3.4			6		12			13				
A		DO CR	22	7		7	.7			7									
A		DO CR	24	120		120	13.1			40	3	16	14	30	16				
A		DO CR	25	3		3	.3			3									
A		DO CR	26	34		34	3.7			10	11	14							
A		DO CR	27	10		10	1.1			10									
A		DO CR	28	44		44	4.8			2	25	16							
A		DO CR	29	14		14	1.6			14									
A		DO CR	30	45		45	4.9			9	6	14		17					
A		DO CR	31	18		18	2.0			1	0	17							
A		DO CR	32	202		201	21.9			9	5	33	117	16	22				
A		DO CR	33	3		3	.4			3									
A		DO CR	34	87		87	9.5			6		18	20		16		27		
A		DO CR	35	4		4	.4					4							
A		DO CR	36	23		23	2.5			23									
A		DO CR	37	37		37	4.0			37									
A		DO CR	39	9		9	1.0			9									
A		DO CR	40	190		189	20.6	10	1	54	48	29	18	29					
A		DO CR	41	16		16	1.7			16									
A		Totals		940	2.3	918	19.4	10	1	271	104	165	181	93	67		27		
H		DO CU	2	1	100.0														
H		DO CU	3	3	100.0														
H		DO CU	4	3	100.0														
H		DO CU	6	53	100.0														
H		DO CU	10	21	100.0														
H		DO CU	12	1	100.0														
H		DO CU	20	6	100.0														
H		DO 2S	16	29		29	1.6							16				13	

Log Stock Table - MBF

T05N R07W S04 TyA1TA
THRU
T06N R07W S34 TyTAKE

Project: **BULLRDG**
Acres **228.00**

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Date **4/21/2014**
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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+
H	DO	2S	20	17	11.9	15	.8												15
H	DO	2S	32	201	1.2	199	11.0						23	31	55	25	48	16	
H	DO	2S	38	4		4	.2						4						
H	DO	2S	40	907	1.4	894	49.6						136	347	161	150	54	45	
H	DO	3S	18	3		3	.2		2			1							
H	DO	3S	20	11		11	.6				2	9							
H	DO	3S	21	2		2	.1				2								
H	DO	3S	26	23		23	1.3					6		3			13		
H	DO	3S	27	8		8	.5				3	3	3						
H	DO	3S	28	5		5	.3				5								
H	DO	3S	29	5		5	.3				5								
H	DO	3S	30	7		7	.4				5	3							
H	DO	3S	32	104	5.7	98	5.5				14	14	57		13				
H	DO	3S	33	6		6	.4				6								
H	DO	3S	36	21		21	1.2				21								
H	DO	3S	37	18		18	1.0				18								
H	DO	3S	38	4		4	.2				4								
H	DO	3S	40	363		362	20.1				150	102	105	5					
H	DO	4S	15	3		3	.1				1				2				
H	DO	4S	16	2		2	.1				2								
H	DO	4S	17	1		1	.1				1								
H	DO	4S	20	1		1	.1				1								
H	DO	4S	21	9		9	.5		3		5	1							
H	DO	4S	22	18		18	1.0				18								
H	DO	4S	24	19		19	1.1				19								
H	DO	4S	26	3		3	.2				3								
H	DO	4S	28	12		12	.7				12								
H	DO	4S	30	6		6	.3				6								
H	DO	4S	40	14	11.1	12	.7				12								
H	Totals			1,915	5.9	1,801	38.1		5	295	141	182	170	397	231	174	116	74	15
M	DO	CU	40	6	100.0														
M	DO	CR	16	4		4	14.6						4						
M	DO	CR	24	2		2	6.9				2								
M	DO	CR	30	2		2	6.8				2								
M	DO	CR	34	10		10	34.8			10									
M	DO	CR	39	11		11	36.9			7			3						

Log Stock Table - MBF

T05N R07W S04 TyA1TA
THRU
T06N R07W S34 TyTAKE

Project: **BULLRDG**
Acres **228.00**

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S Spp	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+
M		Totals			35	17.7	29	.6			17	4	7							
S		DO	CU	6	2	100.0														
S		DO	2S	32	10		10	41.9								10				
S		DO	3S	22	5		5	20.2					1			4				
S		DO	3S	40	9		9	35.2							9					
S		DO	4S	18	1		1	2.6			1									
S		Totals			26	6.8	25	.5			1		1		9	4	10			
Total		All Species			4,928	4.0	4,733	100.0	10	8	698	398	575	594	792	728	485	342	88	15

Logging Plan Map

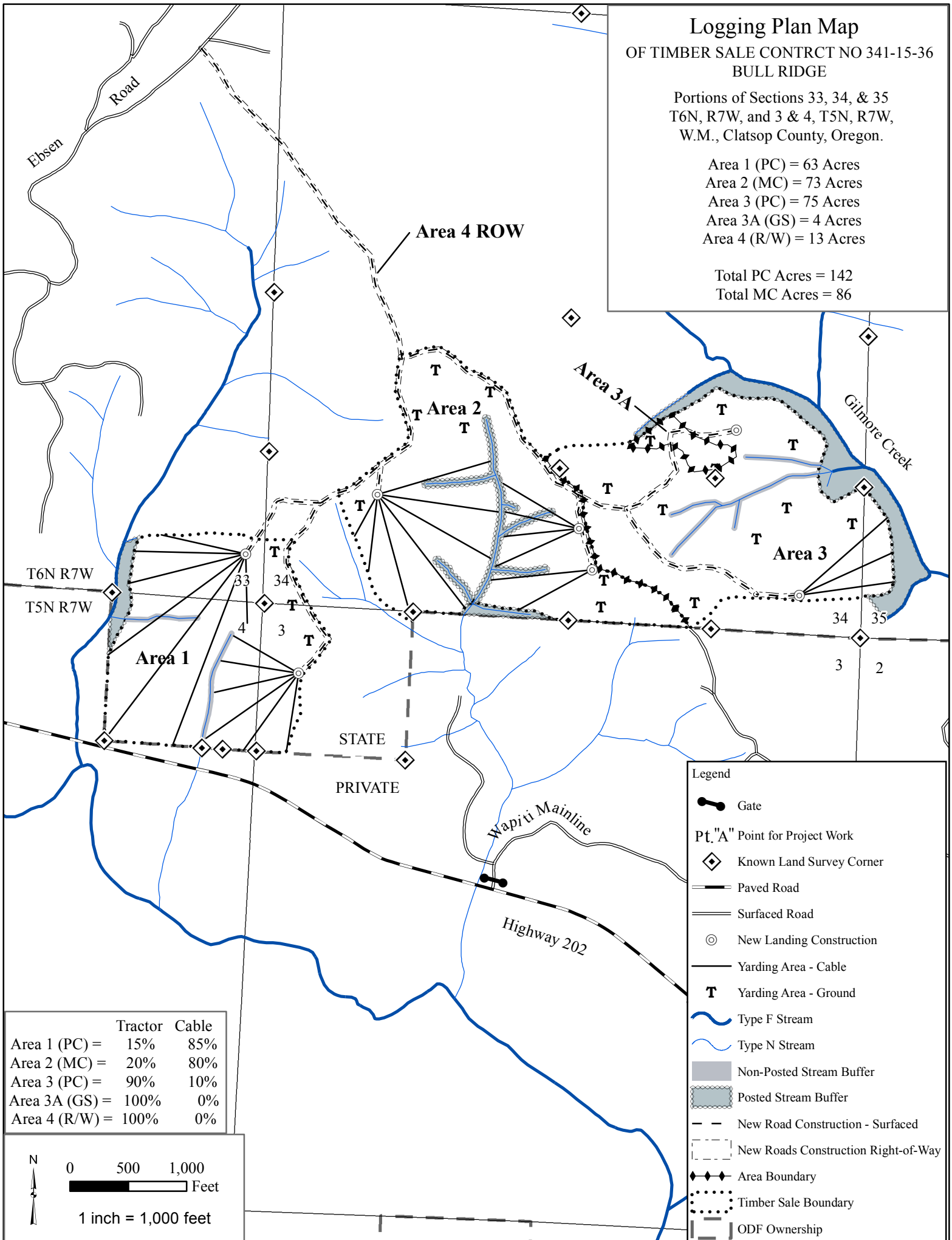
OF TIMBER SALE CONTRCT NO 341-15-36

BULL RIDGE

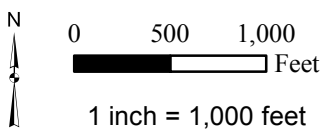
Portions of Sections 33, 34, & 35
T6N, R7W, and 3 & 4, T5N, R7W,
W.M., Clatsop County, Oregon.

Area 1 (PC) = 63 Acres
Area 2 (MC) = 73 Acres
Area 3 (PC) = 75 Acres
Area 3A (GS) = 4 Acres
Area 4 (R/W) = 13 Acres

Total PC Acres = 142
Total MC Acres = 86



	Tractor	Cable
Area 1 (PC) =	15%	85%
Area 2 (MC) =	20%	80%
Area 3 (PC) =	90%	10%
Area 3A (GS) =	100%	0%
Area 4 (R/W) =	100%	0%



Legend

- Gate
- Pt. "A" Point for Project Work
- Known Land Survey Corner
- Paved Road
- Surfaced Road
- New Landing Construction
- Yarding Area - Cable
- Yarding Area - Ground
- Type F Stream
- Type N Stream
- Non-Posted Stream Buffer
- Posted Stream Buffer
- New Road Construction - Surfaced
- New Roads Construction Right-of-Way
- Area Boundary
- Timber Sale Boundary
- ODF Ownership