



"STEWARDSHIP IN FORESTRY"

District: Astoria

Timber Sale Appraisal
Klaskanine Ridge
Combination
Sale 341-15-029

Date: June 04, 2014

cost summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$3,567,456.75	\$219,082.82	\$3,786,539.57
		Project Work:	\$(569,441.00)
		Advertised Value:	\$3,217,098.57



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timber description

Location: Portions of Section 30, T7N, R7W, and portions of Sections 24 & 25, T7N, R8W, W.M., Clatsop County, Oregon.

Stand Stocking: 60%

SpecieName	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	16	0	96
Western Hemlock / Fir	15	0	94
Sitka Spruce	17	0	95
Alder (Red)	13	0	97

Volume by Grade	10" - 11"	12"+	2S	3S	4S	5" - 7"	8" - 9"	Total
Douglas - Fir	0	0	508	859	162	0	0	1,529
Western Hemlock / Fir	0	0	3,870	2,916	661	0	0	7,447
Sitka Spruce	0	0	1,010	503	237	0	0	1,750
Alder (Red)	74	46	0	0	0	266	252	638
Total	74	46	5,388	4,278	1,060	266	252	11,364



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comments: Pond Value Used 1st quarter Calendar Year 2014

Expected Log markets Warrenton, OR; Tillamook, OR; Claskanine, OR;
Mist, OR; Garibaldi, OR; Longview, WA.

Western Red Cedar Stumpage Price = Quarterly Pond Value minus
Logging Cost \$1,175. - \$215.39 = \$959.61

SCALING COST ALLOWANCE: \$5.00/MBF

FUEL COST ALLOWANCE: \$4.00/GALLON

HAULING COST ALLOWANCE: Hauling costs equivalent to \$780. per day
truck cost.

OTHER COSTS (With Profit and Risk):

Branding and Painting: \$1.00/MBF X 11,364 MBF = \$11,364.

Slash and Landing piling in MC (including move-in and pile
material) = \$14,293.

Downhill Line Pull (Area 2): \$7/MBF x 70MBF = \$490

TOTAL OTHER COSTS (With Profit and Risk): \$26,147

OTHER COSTS (No Profit and Risk):

Machine Wash for Invasive Species: \$4,000

Open and close dirt spurs and loggers choice spurs; 3 hours with
D6 dozer: 3hrs x \$113.00/hr = \$339.00

TOTAL FOR OTHER COSTS (No Profit and Risk) = \$4,339



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logging conditions

combination#: 1

Douglas - Fir	22.00%
Western Hemlock / Fir	22.00%
Sitka Spruce	22.00%
Alder (Red)	22.00%

yarding distance: Medium (800 ft) **downhill yarding:** No
logging system: Shovel **Process:** Stroke Delimber
tree size: Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF
loads / day: 5.0 **bd. ft / load:** 4,200
cost / mbf: \$68.49
machines: Stroke Delimber (B)

combination#: 2

Douglas - Fir	31.00%
Western Hemlock / Fir	31.00%
Sitka Spruce	31.00%
Alder (Red)	31.00%

yarding distance: Medium (800 ft) **downhill yarding:** No
logging system: Cable: Large Tower >=70 **Process:** Stroke Delimber
tree size: Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF
loads / day: 8.0 **bd. ft / load:** 4,500
cost / mbf: \$106.30
machines: Log Loader (A)
Stroke Delimber (A)
Tower Yarder (Large)

combination#: 3

Douglas - Fir	35.00%
Western Hemlock / Fir	35.00%
Sitka Spruce	35.00%
Alder (Red)	35.00%

yarding distance: Medium (800 ft) **downhill yarding:** No
logging system: Shovel **Process:** Manual Felling/Delimbing
tree size: Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF
loads / day: 7.0 **bd. ft / load:** 3,800
cost / mbf: \$94.16
machines: Shovel Logger

combination#: 4

Douglas - Fir	12.00%
Western Hemlock / Fir	12.00%
Sitka Spruce	12.00%
Alder (Red)	12.00%



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yarding distance:	Medium (800 ft)	downhill yarding:	No
logging system:	Cable: Medium Tower >40 - <70	Process:	Manual Delimbing
tree size:	Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF		
loads / day:	6.0	bd. ft / load:	4,000
cost / mbf:	\$144.17		
machines:	Log Loader (A) Tower Yarder (Medium)		



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logging costs

Operating Seasons:	3.00	Profit Risk:	12.00%
Project Costs:	\$569,441.00	Other Costs (P/R):	\$26,147.00
Slash Disposal:	\$0.00	Other Costs:	\$4,339.00

Miles of Road

Road Maintenance: \$3.54

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	4.2
Western Hemlock / Fir	\$0.00	3.0	3.0
Sitka Spruce	\$0.00	2.0	3.0
Alder (Red)	\$0.00	2.0	3.8



Timber Sale Appraisal
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 Combination
 Sale 341-15-029

"STEWARDSHIP IN FORESTRY"

District: Astoria

Date: June 04, 2014

logging costs breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling	Other	Total
Douglas - Fir									
\$98.28	\$3.68	\$1.16	\$86.23	\$2.30	\$23.00	\$0.00	\$5.00	\$0.38	\$220.03
Western Hemlock / Fir									
\$98.28	\$3.75	\$1.16	\$82.02	\$2.30	\$22.50	\$0.00	\$5.00	\$0.38	\$215.39
Sitka Spruce									
\$98.28	\$3.72	\$1.16	\$121.87	\$2.30	\$27.28	\$0.00	\$5.00	\$0.38	\$259.99
Alder (Red)									
\$98.28	\$3.65	\$1.16	\$94.39	\$2.30	\$23.97	\$0.00	\$5.00	\$0.38	\$229.13

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$656.70	\$436.67	\$0.00
Western Hemlock / Fir	\$0.00	\$539.95	\$324.56	\$0.00
Sitka Spruce	\$0.00	\$535.87	\$275.88	\$0.00
Alder (Red)	\$0.00	\$572.52	\$343.39	\$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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	1,529	\$436.67	\$667,668.43
Western Hemlock / Fir	7,447	\$324.56	\$2,416,998.32
Sitka Spruce	1,750	\$275.88	\$482,790.00
Alder (Red)	638	\$343.39	\$219,082.82

Gross Timber Sale Value

Recovery: \$3,786,539.57

Prepared by: Edward Holloran

Phone: 503-325-5451

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Klaskanine Ridge Combination

ROAD CONSTRUCTION:

Project No. 1

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Surfaced	1A-1B,1C-1D, 2A-2B,		
	2E-2F,2I-2J, 3A-3B,		
	3C-3D, 3E-3F,4A-4B 4C-4D	96.32	\$126,143
Unsurfaced	2C-2D, 2G-2H	14.75	\$5,968
	TOTAL	111.07	\$132,111

2.10 Miles

ROAD IMPROVEMENT:

Project No. 2

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
	I1 through I4 & I13-I14	123.06	\$37,074
	I5 through I12	342.80	\$55,775
	TOTAL	465.86	\$92,849

8.82 Miles

SPECIAL PROJECTS:

	<u>Description</u>	<u>Cost</u>
Project No. 3	Crushing - Elk Mountain (12,068 cyds.)	\$127,949
Project No. 4	Crushing - Simmons (18,975 cyds.)	\$160,868
Project No. 5	Gate construction and Instalation	\$6,353
Project No. 6	Fill Vacating	\$22,954
Project No. 7	Stream Enhancement	\$9,156
	TOTAL	\$327,280

Project Road Maintenance:

	<u>\$4,754</u>
TOTAL	\$4,754

MOVE IN:

<u>Equipment</u>	<u>Cost</u>
Excavator (C330 @ \$1,406 x 2 + 2 @ \$815)	\$4,442
Excavator (C315 @ \$805 x 1 + 1 @ \$467)	\$1,272
Dozer (D8 @ \$1,406 x 2 + 1 @ \$815)	\$3,627
Large Grader (14G @ \$778)	\$778
Vibratory Roller (@\$778 x 2)	\$1,556
10-12 yd dump truck (@ \$163 x 6)	\$978
20 yd ³ Highway Dump w/ pup trailer (@\$191 X 2)	\$382
Backhoe (C580 @ \$321 x 2)	\$642
Rubber Tired Skidder (C 538 @ \$717)	\$717
Water Truck (2,500 gal @ \$190)	\$190
D 6 Cat (1 @ \$778)	\$778
TOTAL	\$15,362

GRAND TOTAL

\$572,356

Compiled By: Ed Holloran

Date: 04/21/2014

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Klaskanine Ridge Combination

NEW S. CONSTRUCTION: 98.32 STATIONS

1.86 MILES

ROAD: 1A-1B, 1C-1D, 2A-2B, 2E-2F, 2I-2J, 3A-3B

DIRT CONSTRUCTION: 14.75 STATIONS

0.28 MILES

POINTS: 3C-3D, 3E-3F, 4A-4B, 4C-4D, & DIRT SPURS 2C-2D, & 2E-2F

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
3A-3B Clear & scatter per acre	10.6	x	\$1,337.00	=	\$14,172.20
3A-3B End haul w/dump truck per hour	4.00	x	\$79.00	=	\$316.00

SUB TOTAL FOR CLEARING & GRUBBING

\$14,488

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
dirt 2C-2D Balanced Construction per station	6.85	x	\$122.00	=	\$835.70
dirt 2G-2H Drift earth up to 200 feet per station	7.90	x	\$190.00	=	\$1,501.00
1A-1B, 1C-1D, 2A-2B, 3E-3F, 4A-4B Balanced Constructin per station	35.65	x	\$122.00	=	\$4,349.30
2E-2F, 2I-2J, 3A-3B, 3C-3D, 4C-4D Drift earth up to 200 feet per station	59.67	x	\$190.00	=	\$11,337.30
2E-2F & 3A-3B End Haul per yard	4,000	x	\$4.00	=	\$16,000.00
Fill compaction per yard	4,000	x	\$0.70	=	\$2,800.00
2E-2F, 2I-2J, & 3A-3B Cut slope rounding per station	4.95	x	\$43.00	=	\$212.85
Placement of riprap w/exc. (C330) per hour	2.00	x	\$155.00	=	\$310.00
dirt Landing Construction per landing	2.00	x	\$389.00	=	\$778.00
Landing Construction per landing	10.00	x	\$389.00	=	\$3,890.00

SUB TOTAL FOR EXCAVATION

\$42,014

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
2A-2B 6+25	18" CPP	30	\$19.53	\$585.90	1+50	18" CPP	30	\$19.53	\$585.90
12+50	18" CPP	35	\$19.53	\$683.55	8+10*	18" CPP	30	\$19.53	\$585.90
2C-2D 1+50	18" CPP	40	\$19.53	\$781.20					
2E-2F 3+40	18" CPP	30	\$19.53	\$585.90					
6+60*	18" CPP	30	\$19.53	\$585.90					
9+25	18" CPP	40	\$19.53	\$781.20					
14+45	18" CPP	40	\$19.53	\$781.20					
2I-2J 1+40	18" CPP	30	\$19.53	\$585.90					
6+85	18" CPP	35	\$19.53	\$683.55					
9+00	18" CPP	30	\$19.53	\$585.90					
3A-3B 0+30	18" CPP	50	\$19.53	\$976.50					
4+40	18" CPP	30	\$19.53	\$585.90					
9+40*	18" CPP	30	\$19.53	\$585.90					
11+05	18" CPP	50	\$19.53	\$976.50					
13+30	18" CPP	30	\$19.53	\$585.90					
16+10	18" CPP	40	\$19.53	\$781.20					
3C-3D 6+00	18" CPP	30	\$19.53	\$585.90					
3E-3F 1+50	18" CPP	30	\$19.53	\$585.90					

Other/miscellaneous:

Culvert stakes & markers:

Description	Quantity	Rate	Cost
White Fiberglass (Carsonite) 6' x 2½" posts	19	\$20.00	\$380.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$13,856

Subtotal of Clearing, Exc., Culv.

\$70,358

Compiled By: Ed Holloran

Date: 04/21/2014

SALE NAME:		Klaskanine Ridge Combination		Page 1		
SURFACING		Subgrade prep: Description		Stations/ amount	Rate/ sta/amt	Cost
		Grade, Shape and Ditch 16'		98.32	x	\$24.83 \$2,441.29
		Grade, Shape, outslope		14.75	x	\$18.35 \$270.66
		Subgrade Compaction		113.07	x	\$20.19 \$2,282.88

ROAD SEGMENT 1A-1B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost			
Application	Rock Size and Type	Location	Depth of Rock (inches)	1A-1B		0+00 to 4+15							
				Volume (CY) per		Number of							
Base Rock	6"- 0" pit-run	0+00-4+15	6	station	38	stations	4.15	158	\$5.60	\$883			
Junctions	6"- 0" pit-run	0+00	10	junction	40	junctions	1	40	\$5.60	\$224			
Junctions	1½"-0" crushed	0+00	N/A	junction	20	junctions	1	20	\$3.77	\$75			
Landings	6"- 0" pit-run	4+15	N/A	landing	50	landings	1	50	\$5.60	\$280			
Total Rock for Road Segment:				1A-1B		268				\$1,463			

ROAD SEGMENT 1C-1D				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost			
Application	Rock Size and Type	Location	Depth of Rock (inches)	1C-1D		0+00 to 4+50							
				Volume (CY) per		Number of							
Base Rock	6"- 0" pit-run	0+00-4+50	6	station	38	stations	4.50	171	\$5.60	\$958			
Junctions	6"- 0" pit-run	0+00	10	junction	40	junctions	1	40	\$5.60	\$224			
Junctions	1½"-0" crushed	0+00	N/A	junction	20	junctions	1	20	\$4.78	\$96			
Landings	6"- 0" pit-run	4+50	N/A	landing	50	landings	1	50	\$5.60	\$280			
Total Rock for Road Segment:				1C-1D		281				\$1,557			

ROAD SEGMENT 2A-2B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost			
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A-2B		0+00 to 17+10							
				Volume (CY) per		Number of							
Base Rock	6"- 0" pit-run	0+00-17+10	10	station	63	stations	17.10	1,077	\$5.60	\$6,033			
Junctions	6"- 0" pit-run	0+00	10	junction	40	junctions	1	40	\$5.60	\$224			
Turnouts	6"- 0" pit-run	6+00, 10+70	10	TO	48	TO's	2	96	\$5.60	\$538			
Turnarounds	6"- 0" pit-run	15+70	10	TA	20	TA's	1	20	\$5.60	\$112			
Landings	6"- 0" pit-run	11+00, 17+10	N/A	landing	80	landings	2	160	\$5.60	\$896			
Total Rock for Road Segment:				2A-2B		1,393				\$7,802			

ROAD SEGMENT 2C-2D				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost			
Application	Rock Size and Type	Location	Depth of Rock (inches)	2C-2D		0+00 to 6+85							
				Volume (CY) per		Number of							
Base Rock	6"- 0" pit-run	0+00-0+50	10	station	63	stations	0.50	32	\$5.60	\$176			
Total Rock for Road Segment:				2C-2D		32				\$176			

ROAD SEGMENT 2E-2F				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost			
Application	Rock Size and Type	Location	Depth of Rock (inches)	2E-2F		0+00 to 18+20							
				Volume (CY) per		Number of							
Base Rock	6"- 0" pit-run	0+00-18+20	10	station	63	stations	18.20	1,147	\$6.43	\$7,373			
Junctions	6"- 0" pit-run	0+00	10	junction	40	junctions	1	40	\$6.43	\$257			
Junctions	1½"-0" crushed	0+00	N/A	junction	20	junctions	1	20	\$4.90	\$98			
Fill Widening (1 ft /side)	6"- 0" pit-run	9+00 to 9+50	10	station	8	stations	0.50	4	\$6.43	\$26			
Fill Widening (2 ft /side)	6"- 0" pit-run	13+40 to 15+00	10	station	16	stations	1.60	26	\$6.43	\$165			
Turnouts	6"- 0" pit-run	1+35 to 2+45, 4+64 to 6+15, 11+40 to 12+60	10	TO	48	TO's	3	144	\$6.43	\$926			
Turnarounds	6"- 0" pit-run	15+55	10	TA	20	TA's	2	40	\$6.43	\$257			
Dissapator Rock	24" - 6" riprap	6+60	N/A	culvert	20	culverts	1	20	\$7.21	\$144			
Landings	6"- 0" pit-run	18+20	N/A	landing	80	landings	1	80	\$6.43	\$514			
Total Rock for Road Segment:				2E-2F		1,520				\$9,760			

ROAD SEGMENT 2G-2H				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost			
Application	Rock Size and Type	Location	Depth of Rock (inches)	2G-2H		0+00 to 7+90							
				Volume (CY) per		Number of							
Base Rock	6"- 0" pit-run	0+00-0+50	10	station	63	stations	0.50	31	\$6.43	\$199			
Junctions	1½"-0" crushed	0+00	N/A	junction	20	junctions	1	20	\$4.90	\$98			
Total Rock for Road Segment:				2G-2H		51				\$297			

ROAD SEGMENT 2I-2J				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost			
Application	Rock Size and Type	Location	Depth of Rock (inches)	2I-2J		0+00 to 11+05							
				Volume (CY) per		Number of							
Base Rock	6"- 0" pit-run	0+00-11+05	10	station	63	stations	11.05	696	\$6.43	\$4,476			
Junctions	6"- 0" pit-run	0+00	10	junction	40	junctions	1	40	\$6.43	\$257			
Junctions	1½"-0" crushed	0+00	N/A	junction	20	junctions	1	20	\$4.90	\$98			
Fill Widening (1 ft /side)	6"- 0" pit-run	5+45 to 7+05 8+40 to 10+05	10	station	8	stations	3.25	26	\$6.43	\$167			
Turnouts	6"- 0" pit-run	1+90 to 3+45	10	TO	48	TO's	1	48	\$6.43	\$309			
Turnarounds	6"- 0" pit-run	8+55	10	TA	20	TA's	1	20	\$6.43	\$129			
Landings	6"- 0" pit-run	11+05	N/A	landing	80	landings	1	80	\$6.43	\$514			
Total Rock for Road Segment:				2I-2J		930				\$5,950			

ROAD SEGMENT 3A-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-3B		0+00 to 16+32							
				Volume (CY) per		Number of							
Base Rock	6"- 0" pit-run	0+00-16+32	10	station	63	stations	16.32	1,028	\$6.43	\$6,611			
Surface Rock	1½"-0" crushed	0+00-16+32	4	station	25	stations	16.32	408	\$4.90	\$1,999			
Junctions	6"- 0" pit-run	0+00	10	junction	40	junctions	1	40	\$6.43	\$257			
Junctions	1½"-0" crushed	0+00	N/A	junction	20	junctions	1	20	\$4.90	\$98			
Curve Widening (3ft)	6"- 0" pit-run	5+60 to 6+90, 12+00 to 12+40	10	station	14	stations	1.70	24	\$6.43	\$153			
Curve Widening (3ft)	1½"-0" crushed	5+60 to 6+90, 12+00 to 12+40	4	station	5	stations	1.70	9	\$4.90	\$42			
Fill Widening (2 ft /side)	6"- 0" pit-run	9+60 to 12+00	10	station	16	stations	2.40	38	\$6.43	\$247			
Fill Widening (2 ft /side)	1½"-0" crushed	9+60 to 12+00	4	station	8	stations	2.40	19	\$4.90	\$94			
Turnouts	6"- 0" pit-run	3+00 to 4+00, 7+95 to 8+95, 12+35 to 13+35	10	TO	30	TO's	3	90	\$6.43	\$579			
Turnouts	1½"-0" crushed	3+00 to 4+00, 7+95 to 8+95, 12+35 to 13+35	4	TO	11	TO's	3	33	\$4.90	\$162			

Kaskaskia Ridge Combination										Page 2		
ROAD SEGMENT		3A-3B		Continued		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	3A-3B		0+00 to 16+32						
				Volume (CY) per	Number of							
Turnouts	6"- 0" pit-run	15+15 to 16+32	10	TO	48	TO's	1	48	\$6.43	\$309		
Turnouts	1½"-0" crushed	15+15 to 16+32	4	TO	20	TO's	1	24	\$4.90	\$118		
Turnarounds	6"- 0" pit-run	8+00	10	TA	20	TA's	1	20	\$6.43	\$129		
Turnarounds	1½"-0" crushed	8+00	4	TA	10	TA's	1	10	\$4.90	\$49		
Dissapator Rock	24" - 6" riprap	4+40	N/A	culvert	20	culverts	1	20	\$7.21	\$144		
Total Rock for Road Segment												

Total Rock for Road Segment: 3A-3B

1,831

\$10,668

ROAD SEGMENT			3C-3D		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	3C-3D		0+00 to 10+70					
				Volume (CY) per		Number of					
Base Rock	6"- 0" pit-run	0+00-10+70	10	station	63	stations	10.70	674	\$6.43	\$4,334	
Junctions	6"- 0" pit-run	0+00	10	junction	40	junctions	1	40	\$6.43	\$257	
Junctions	1½"-0" crushed	0+00	N/A	junction	20	junctions	1	20	\$4.90	\$98	
Turnouts	6"- 0" pit-run	3+00 to 4+00	10	TO	30	TO's	1	30	\$6.60	\$198	
Turnarounds	6"- 0" pit-run	8+00	10	TA	20	TA's	1	20	\$6.60	\$132	
Landings	6"- 0" pit-run	10+70	N/A	landing	80	landings	1	80	\$6.60	\$528	
Total Rock for Road Segment:				20.6							

Total Rock for Road Segment: 3C-3D

864

\$5,548

ROAD SEGMENT 3E-3F				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	3E-3F		0+00 to 2+30				
				Volume (CY) per		Number of				
Base Rock	6"- 0" pit-run	0+00-2+30	10	station	63	stations	2.30	145	\$6.60	\$956
Junctions	6"- 0" pit-run	0+00	10	junction	40	junctions	1	40	\$6.60	\$264
Junctions	1½"-0" crushed	0+00	N/A	junction	20	junctions	1	20	\$4.90	\$98
Landings	6"- 0" pit-run	2+30	N/A	landing	80	landings	1	80	\$6.43	\$514

Total Rock for Road Segment: 3E-3F

285

\$1,833

ROAD SEGMENT 4A-4B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	4A-4B		0+00 to 4+00				
				Volume (CY) per		Number of				
Base Rock	6"- 0" pit-run	0+00-4+00	10	station	63	stations	2.30	145	\$6.43	\$932
Landings	6"- 0" pit-run	4+00	N/A	landing	80	landings	1	80	\$6.43	\$514

Total Rock for Road Segment: 4A-4B

225

\$1,446

ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	4C-4D		0+00 to 10+00				
				Volume (CY) per		Number of				
Base Rock	6"- 0" pit-run	0+00-10+00	10	station	63	stations	10.00	630	\$6.43	\$4,051
Junctions	6"- 0" pit-run	0+00	10	junction	40	junctions	1	40	\$6.43	\$257
Turnouts	6"- 0" pit-run	3+20 to 4+20	10	TO	30	TO's	1	30	\$6.43	\$193
Turnarounds	6"- 0" pit-run	4+20	10	TA	20	TA's	1	20	\$6.43	\$129
Dissapator Rock	24" - 6" riprap	8+10	N/A	culvert	20	culverts	1	20	\$7.21	\$144
Landings	6"- 0" pit-run	6+40, 10+00	N/A	landing	80	landings	2	160	\$6.43	\$1,029

Total Rock for Road Segment: 4C-4D

900

\$4,774

Processing:

Description	No.sta	Rate/sta	Cost
Water, Process & Compact (3A-3B plus 10 junctions):	16.32+2.5	18.82	\$56.48
Pit run rock compaction w/D8		98.32	\$31.54

SUB TOTAL FOR SURFACING

24"-6"rr	6"-0"pr	4"-0"	1 1/2"-0"	Total
60	7,857		663	8,580

8,580

\$60,433

SPECIAL PROJECTS

Description	Quantity	Rate/Qu.	Cost
Seed and Mulch per acre	2.5	\$528.00	\$1,320.00

SUB TOTAL FOR SPECIAL PROJECTS

\$1,320

Subtotal of Surfacing & Spec. Proj.

\$61,753

Subtotal of Clearing, Exc.,Culv.

\$70,358

GRAND TOTAL

\$132,111

Compiled By: Ed Holloran

Date: 04/21/2014

SALE NAME:	Klaskanine Ridge Combination	(I13-I14) RD. IMP. CONSTRUCTION:	108.60 STATIONS	2.06 MILES
ROAD:	I1 - I2, I3 - I4, I13-I14	(I1-I2 & I3-I4)RD. IMP. CONSTRUCTION:	184.15 STATIONS	3.49 MILES
POINTS:				

EXCAVATION									
Material				Cy/amount	x	Rate	=	Cost	
I1-I2	Ditchout Construction (C315)	(4)	per hour	3.00	x	\$101.00	=	\$303.00	
I1-I2, & I3-I4	Catch Basin Construction (C315)	(9)	per hour	6.00	x	\$101.00	=	\$606.00	
I1-I2 (39.54 st.)	Ditch Reconstruction (C315)		per hour	16.00	x	\$101.00	=	\$1,616.00	
I3-I4 (15.8 st.)	Ditch Reconstruction (C315)		per hour	10.00	x	\$101.00	=	\$1,010.00	
	Load & Haul Ditch Material		per hour	20.00	x	\$79.00	=	\$1,580.00	
					x		=		
I1-I2	Dissipator Rock placement(C315)		per hour	3.00	x	\$101.00	=	\$303.00	
I1-I2	Culvert Replacement(C315)		per hour	2.00	x	\$101.00	=	\$202.00	
					x		=		
	Compact waste material (C315)		per hour	2.00	x	\$101.00	=	\$202.00	
					x		=		
I1-I2 (sta. 16+75)	Subgrad Repair (C330)		per hour	4.00	x	\$155.00	=	\$620.00	
					x		=		
I1-I2 & I3-I4	Construct Turnouts (C315)	(3)	per hour	3.00	x	\$101.00	=	\$303.00	
I1-I2 & I3-I4	Construct T/O Grader (14 G)		per hur	2.00	x	\$100.00	=	\$200.00	
					x		=		
I3-I4	Sod Removal - Hual - Dump Tr.		per hour	4.00	x	\$79.00	=	\$316.00	
SUB TOTAL FOR EXCAVATION									

\$6,942.00

Compiled By: Ed Holloran Date: 03/19/2014

Date: 04/21/2014

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Klaskanin Ridge Combo
 ROAD: 15-16(184+50), 17-18(86+20), 19-110(51+00) 111-112(21+1)
 POINTS:

NEW CONSTRUCTION: _____ STATIONS _____ MILES
 IMPROVEMENT: 342.80 STATIONS 6.49 MILES

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
15 to 16 24+60 to 26+80 Scatter outside of right of way (\$/ac.)	0.15	x	1,337.00	=	\$200.55

SUB TOTAL FOR CLEARING & GRUBBING

\$201

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
15 to 16					
24+60 Fill slope improvement/armoring (C315 hrs.)	4.00	x	\$101.00	=	\$404.00
(Dump truck hrs.)	4.00	x	\$79.00	=	\$316.00
Road centerline realignment (2.20 Sta.)					
(C330 hrs.)	6.00	x	\$155.00	=	\$930.00
(D8)	6.00	x	\$158.00	=	\$948.00
(Vibratory Roller)	2.00	x	\$77.00	=	\$154.00
(14G)	2.00	x	\$100.00	=	\$200.00
26+40 Construct ditchout (C315 hrs.)	1.00	x	\$101.00	=	\$101.00
57+50 Fill slope improvement/armoring (C315 hrs.)	4.00	x	\$101.00	=	\$404.00
(Dump truck hrs.)	4.00	x	\$79.00	=	\$316.00
83+05 Deepen ditchline (C315 hrs.)	2.00	x	\$101.00	=	\$202.00
(Dump truck hrs.)	2.00	x	\$79.00	=	\$158.00
84+60 Construct large inlet catch basin (C315 hrs.)	2.00	x	\$101.00	=	\$202.00
(Dump truck hrs.)	2.00	x	\$79.00	=	\$158.00
128+90 Ditchline reestablishment and cut slope improvement (C315 hrs.)	2.00	x	\$101.00	=	\$202.00
(Dump truck hrs.)	2.00	x	\$79.00	=	\$158.00
152+40 Culvert dissipator (C315 hrs.)	1.00	x	\$101.00	=	\$101.00
174+20 Construct ditchout (C315 hrs.)	1.00	x	\$101.00	=	\$101.00
17 to 18					
14+05 Culvert dissipator (C315 hrs.)	1.00	x	\$101.00	=	\$101.00
48+75 Culvert dissipator (C315 hrs.)	1.00	x	\$101.00	=	\$101.00
60+65 Jack open culvert outlet (Labor)	0.50	x	\$40.00	=	\$20.00
19 to 110					
25+50 Culvert dissipator (C315 hrs.)	1.00	x	\$101.00	=	\$101.00
27+80 to 28+60 Ditchline reestablishment and cut slope improvement (C315 hrs.)	2.00	x	\$101.00	=	\$202.00
(Dump truck hrs.)	3.00	x	\$79.00	=	\$237.00
31+00 Sediment catchbasin improvement (C315 hrs.)	3.00	x	\$101.00	=	\$303.00
(Dump truck hrs.)	3.00	x	\$79.00	=	\$237.00
32+80 Ditchline reestablishment and cut slope improvement (C315 hrs.)	2.00	x	\$101.00	=	\$202.00
111 to 112					
1+30 Water use site improvement (C330 hrs.)	5.00	x	\$155.00	=	\$775.00
(Dump truck hrs.)	5.00	x	\$79.00	=	\$395.00
6+10 Slide area slope pull back (C330 hrs.)	5.00	x	\$155.00	=	\$775.00
(Dump truck hrs.)	5.00	x	\$79.00	=	\$395.00
6+60 Remove existing culvert (C330 hrs.)	5.00	x	\$155.00	=	\$775.00
(Dump truck hrs.)	5.00	x	\$79.00	=	\$395.00
6+80 Culvert / fill replacement & armoring (C330 hrs.)	20.00	x	\$155.00	=	\$3,100.00
(Dump truck hrs.)	20.00	x	\$79.00	=	\$1,580.00
(Laborer hrs.)	10.00	x	\$40.00	=	\$400.00
(Hydraulic tamper hrs.)	10.00	x	\$13.00	=	\$130.00
(Hand tamper hrs.)	5.00	x	\$10.00	=	\$50.00
(Rubber tire skidder C518-compaction)	2.00	x	\$92.00	=	\$184.00
Vibratory roller	3.00	x	\$77.00	=	\$231.00
Water truck (2,500gal.)	2.00	x	\$89.00	=	\$178.00
7+55 Culvert dissipator (C315 hrs.)	1.00	x	\$101.00	=	\$101.00
11+30 Sidecast pull back and fill armoring (C315 hrs.)	4.00	x	\$101.00	=	\$404.00
(Dump truck hrs.)	4.00	x	\$79.00	=	\$316.00
13+40 Construct ditchout (C315 hrs.)	1.00	x	\$101.00	=	\$101.00
18+40 Culvert dissipator (C315 hrs.)	1.00	x	\$101.00	=	\$101.00
19+30 Culvert dissipator (C315 hrs.)	1.00	x	\$101.00	=	\$101.00

SUB TOTAL FOR EXCAVATION

\$16,809

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
15 to 16									
26+40	18/CPP	40	\$19.53	\$781.20					
84+60	18/CPP	30	\$19.53	\$585.90					
152+40	18/CPP	30	\$19.53	\$585.90					
158+65	18/CPP	30	\$19.53	\$585.90					
17 to 18									
48+75	18/CPP	30	\$19.53	\$585.90					
19 to 110									
7+00	18/CPP	40	\$19.53	\$781.20					
111 to 112									
6+80	42/ACSP	50		\$1,843.40					
7+55	18/CPP	30	\$19.53	\$585.90					

Other/miscellaneous:

Culvert stakes & markers:

Description	Quantity	Rate	Cost
Fiberglass culvert markers	15	\$20.00	\$300.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$6,635

Subtotal of Clearing, Exc., Culv.

\$23,645

SURFACING						Stations/ amount		Rate/ sta/amt		Cost	
Subgrade prep:						Description		x			
						Grade, Shape and Ditch 16'-includes sod removal (I9-I10, I11-I12)		(Sta.)		72.10	
						Spot grading / subgrade leveling (I5-I6, I7-I8)		(14G hrs.)		30.00	
						Extra grader hours for sod removal(I5-I6 (141+40-145+40),I7-I8,I9-I10,I11-I12)		(14G hrs.)		20.00	
						Scatter sod and ditch material		(Backhoe hrs.)		30.00	
						Subgrade Compaction (I9-I10, I11-I12)		(Sta.)		72.10	
								x		\$24.83	
								x		\$100.00	
								x		\$100.00	
								x		\$77.00	
								x		\$20.19	
										\$1,790.24	
										\$3,000.00	
										\$2,000.00	
										\$2,310.00	
										\$1,455.70	

ROAD SEGMENT I5 to I6				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I5 to I6		0+00 to 184+50				
				Volume (CY) per		Number of				
Subgrade Leveling	¾"-0" crushed	0+00 to 184+50	N/A	Load	11	Loads	40	440	\$3.77	\$1,659
Turnouts	¾"-0" crushed	8+40, 17+05, 32+80, 55+10, 72+50, 94+50, 114+10, 119+30, 121+40, 125+40, 128+90, 137+70, 139+30, 149+50, 156+40, 170+00, 179+10, 181+90	N/A	TO	11	TOs	18	198	\$3.77	\$746
Junctions	¾"-0" crushed	80+60, 132+30, 141+40, 145+40	N/A	Junction	11	Junctions	4	44	\$3.77	\$166
Traction Rock Surfacing	¾"-0" crushed	132+30 to 145+40	2	Station	13	Stations	13	170	\$3.77	\$642
Culvert Bedding/Backfill	1½"-0" crushed	26+40, 84+60, 152+40, 158+65	N/A	Culvert	11	Culverts	4	44	\$3.77	\$166
Fill Improvement/Armoring	6"-0" pit-run	24+60, 57+50	N/A	Load	11	Loads	9	99	\$5.60	\$554
Ditchline Armoring	6"-0" pit-run	83+05	N/A	Load	11	Loads	1	11	\$5.60	\$62
Catchbasin Armoring	6"-0" pit-run	84+60	N/A	Load	11	Loads	1	11	\$5.60	\$62
Culvert Dissipator Rock	24"-6" riprap	152+40	N/A	Culvert	11	Culverts	1	11	\$5.36	\$59
Total Rock for Road Segment:				I5 to I6				1,028		

\$4,116

ROAD SEGMENT I7 to I8				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I7 to I8		0+00 to 86+20				
				Volume (CY) per		Number of				
Subgrade Leveling	¾"-0" crushed	0+00 to 86+20	N/A	Load	11	Loads	25	275	\$3.77	\$1,037
Turnouts	¾"-0" crushed	6+10, 10+50, 12+20, 15+90, 25+40, 28+75, 36+90, 39+30, 51+30, 53+55, 61+35, 68+50, 79+00	N/A	TO	11	TOs	13	143	\$3.77	\$539
Junctions	¾"-0" crushed		N/A	Junction	12	Junctions	2	24	\$3.77	\$90
Culvert Bedding/Backfill	1½"-0" crushed	48+75	N/A	Culvert	11	Culverts	1	11	\$3.77	\$41
Turnout Subgrade Improvement	4"-0" crushed	12+20	N/A	TO	11	TOs	1	11	\$3.77	\$41
Culvert Dissipator Rock	24"-6" riprap	14+05, 48+75	N/A	Culvert	11	Culverts	2	22	\$5.36	\$118
Total Rock for Road Segment:				I7 to I8				486		

\$1,867

ROAD SEGMENT I9 to I10				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I9 to I10		0+00 to 51+00				
				Volume (CY) per		Number of				
Traction Rock Surfacing	¾"-0" crushed	0+00 to 9+50, 20+60 to 22+95, 34+75 to 44+75	2	Station	13	Stations	22	284	\$3.77	\$1,071
Culvert Bedding/Backfill	1½"-0" crushed	7+00	N/A	Culvert	11	Culverts	1	11	\$3.77	\$41
Subgrade Leveling	4"-0" crushed	0+00 to 51+00	N/A	Load	11	Loads	6	66	\$3.77	\$249
Surfacing	4"-0" crushed	0+00 to 51+00	4	Station	25	Stations	51	1,275	\$3.77	\$4,807
Turnouts	4"-0" crushed	1+50, 11+15, 20+80, 24+20, 28+20,	4	TO	11	TOs	5	55	\$3.77	\$207
Junctions	4"-0" crushed	2+65, 9+50, 14+05, 34+75, 49+40	4	Junction	11	Junctions	5	55	\$3.77	\$207
Culvert Dissipator Rock	24"-6" riprap	25+50	N/A	Culvert	11	Culverts	1	11	\$5.36	\$59
Total Rock for Road Segment:				I9 to I10				1,757		

\$6,642

ROAD SEGMENT I11 to I12				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I11 to I12		0+00 to 21+10				
				Volume (CY) per		Number of				
Culvert Bedding/Backfill	1½"-0" crushed	6+80, 7+55	N/A	Culvert	11	Culverts	2	22	\$3.77	\$83
Additional Culvert Bedding	1½"-0" crushed	6+80	N/A	Load	11	Loads	2	22	\$3.77	\$83
Subgrade Leveling	4"-0" crushed	0+00 to 21+10	N/A	Load	11	Loads	5	55	\$3.77	\$207
Surfacing	4"-0" crushed	0+00 to 21+10	4	Station	25	Stations	21	528	\$3.77	\$1,989
Road Surface Reconstruction	4"-0" crushed	6+60	N/A	Load	11	Loads	2	22	\$3.77	
Turnouts	4"-0" crushed	2+45, 9+75, 13+40, 15+40,	4	TO	11	TOs	4	44	\$3.77	\$166
Junctions	4"-0" crushed	16+70	4	Junction	11	Junctions	1	11	\$3.77	\$41
Turnout Subgrade Improvement	4"-0" crushed	15+40	N/A	TO	11	TOs	1	11	\$3.77	\$41
Fill Improvement/Armoring	6"-0" pit-run	6+10, 11+30	N/A	Load	11	Loads	9	99	\$5.60	\$554
Fill Armoring	6"-0" pit-run	6+80	N/A	Load	11	Loads	6	66	\$5.60	\$370
Road Base Reconstruction	6"-0" pit-run	6+60	N/A	Load	11	Loads	4	44	\$5.60	\$246
Additional Culvert Bedding	6"-0" pit-run	6+80	N/A	Load	11	Loads	4	44	\$5.60	\$246
Culvert Dissipator Rock	24"-6" riprap	6+80, 7+55, 18+40, 19+30	N/A	Culvert	11	Culverts	4	44	\$5.36	\$236
Additional Culvert Dissipator Rock	24"-6" riprap	6+80	N/A	Culvert	11	Culverts	1	11	\$5.36	\$59
Total Rock for Road Segment:				I11 to I12				1,023		

\$4,322

Processing:				Description		No.sta	Rate/sta	Cost
				Water, Process & Compact:		72.10	\$56.48	\$4,072
								\$0

SUB TOTAL FOR SURFACING	24'-6' rr	6"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total	4,294	\$31,575	
	99	374	2,133	110	1,578	4,294			
SPECIAL PROJECTS									
Description						Cost			
Seeding and mulching						\$400.00			
Develop riprap (2.0 Hr. C330)						\$155.00			
SUB TOTAL FOR SPECIAL PROJECTS								\$555	
								Subtotal of Surfacing & Spec. Proj.	\$32,130
								Subtotal of Clearing, Exc., Culv.	\$23,645
GRAND TOTAL								\$55,775	

Compiled By: Will Lawrence Ed Holloran

Date: 02/28/2014 03/04/2014

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. <u>3</u>	Timber Sale Name: <u>Klaskanine Ridge Combination</u>	
Quarry: <u>Elk Mountain</u>	Swell: <u> </u>	
Location: <u>NE 1/4, NW 1/4, Sec. 32, T7N, R7W</u>	Shrink: <u>16%</u>	
County: <u>Clatsop</u>		
By: <u>W. Lawrence</u>	Loading Hopper: <u>No</u>	
Date: <u>03/03/2014</u>		

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"	5%	CR	1,000	1,578	2,738
1-1/2"-0"	5%	CR	2,000	150	2,470
4"-0"	5%	CR	2,000	2,133	4,453
6"-0"		PR		2,308	2,308
24"-6"		RR		99	99
36"		RR			
TOTAL CUBIC YARDS OF ROCK:			5,000	6,268	12,068

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Screening Plants	2	\$553	\$1,106	Excavator (C330)	1	\$1,406	\$1,406
3 Stage Crusher	1	\$2,891	\$2,891	Loader	1	\$805	\$805
Drill & Compressor	1	\$1,406	\$1,406	Off Highway Dump Truck	1	\$774	\$774
Powder	1	\$351	\$351	D6 cat	1	\$778	\$778
Second Drill Move-In	1	\$750	\$750				
SUB TOTAL FOR MOBILIZATION				\$10,267			

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	\$3,439	\$3,439
Screening Plants	2	\$293	\$586
Original Calibration	1	\$544	\$544

SUB TOTAL FOR SET UP COSTS \$4,569

TOTAL MOBILIZATION & SET UP COSTS **\$14,836**

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clearing and Grubbing	0.5	Ac.	\$2,345	\$1,173
Pile and Burn (C330)	10.0	Hrs.	\$155	\$1,550
Move in Water Truck for pile burning	1.0	Ea.	\$190	\$190

TOTAL CLEARING & GRUBBING COSTS **\$2,913**

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden Removal				
(C330 and Offroad D.Truck)	6	Hrs.	\$282.00	\$1,692
Access Road opening / construction				
(C330)	10	Hrs.	\$155.00	\$1,550

TOTAL EXCAVATION COSTS

\$3,242

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping	20%	2,414	\$2.60	\$6,275
crushed	9,661	80%	Drill & shoot	80%	10,041	\$2.70	\$27,110
pit run	2,308	19%	Oversize red	5%	598	\$5.80	\$3,471
rip rap	99	1%	Other				
Total	12,068						
reject	483	4.0%					

TOTAL ROCK DEVELOPMENT COSTS

\$36,857

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	2	\$507.00	\$1,014
Calibrate			
Test	6	\$57.30	\$344
Test			

TOTAL CALIBRATION & TESTING COSTS

\$1,358

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	10,144	\$0.86	\$8,749
Shot rock handling(C330)	40	\$155.00	\$6,200

TOTAL FEEDING & LOADING COSTS

\$14,949

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed	2,738	3 stage w/s	110	\$3.54	\$9,683
1-1/2"-0"	crushed	2,470	3 stage w/s	120	\$3.24	\$8,007
4"-0"	crushed	4,453	2 stage w/s	140	\$2.48	\$11,037

TOTAL ROCK CRUSHING COSTS

\$28,727

8) STOCKPILING

STOCKPILE SITE PREPARATION

Equipment	Hours	Rate	Total
Dozer (D6)	2	\$120.00	\$240.00
Compactor		\$72.00	
Grader		\$90.00	
Excavator		\$138.00	

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

\$240.00

SUB TOTAL

\$240

HAUL & STOCKPILE

STOCKPILE LOCATION	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1. Elk Mountain Stockpile No.1	3/4"-0"	4	1,160	\$3.25	\$3,768
2. Elk Mountain Stockpile No.1	1-1/2"-0"	4	2,320	\$3.25	\$7,536
3. Elk Mountain Stockpile No.2	4"-0"	6	2,320	\$4.05	\$9,403
4. _____					
5. _____					
6. _____					

SUB TOTAL

\$20,706

TOTAL STOCKPILING COSTS

\$20,946

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area.	
\$3.00 /CY 483 CY	\$1,449
Shape / compact the reject material at the waste area.	
\$0.40 /CY 483 CY	\$193
2nd Drilling bench preparation (6hrs. C330)	\$930
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access (10 hrs. C330).	\$1,550

TOTAL MISCELLANEOUS COSTS

\$4,122

10) GRAND TOTAL:

\$127,949

\$/Cubic Yard

\$10.60

Footnotes:

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 3	Timber Sale Name: Klaskanine Ridge Combination	
Quarry: Simmons Ridge	Swell:	
Location: NE 1/4, Sec. 28, T7N, R8W	Shrink:	16%
County: Clatsop		
By: W. Lawrence	Loading Hopper:	No
Date: 03/04/2014		

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"	10%	CR	1,000	91	1,251
1-1/2"-0"	10%	CR	1,000	2,260	3,420
4"-0"	10%	CR	7,000	132	8,252
6"-0"		PR		5,924	5,924
24"-6"		RR		113	113
36"		RR			
TOTAL CUBIC YARDS OF ROCK:			9,000	8,520	18,960

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Screening Plants	2	\$321	\$641	Excavator (C330)	1	\$815	\$815
3 Stage Crusher	1	\$1,677	\$1,677	Loader	1	\$467	\$467
Drill & Compressor	2	\$1,406	\$2,812	Off Highway Dump Truck	1	\$449	\$449
Powder	2	\$351	\$703	D6 cat	1	\$451	\$451

SUB TOTAL FOR MOBILIZATION

\$8,015

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	\$3,439	\$3,439
Screening Plants	2	\$293	\$586
Original Calibration	2	\$544	\$1,088

SUB TOTAL FOR SET UP COSTS

\$5,113

TOTAL MOBILIZATION & SET UP COSTS

\$13,128

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clearing and Grubbing rock source areas(C330)	10.0	Hrs.	\$155	\$1,550
Pile and Burn (C330)	8.0	Hrs.	\$155	\$1,240
Move in Water Truck for pile burning	1.0	Ea.	\$190	\$190

TOTAL CLEARING & GRUBBING COSTS

\$2,980

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Bench preparation and access road opening (C330)	10.0	Hrs.	\$155.00	\$1,550
Quarry Floor improvement (D6)	2.0	Hrs.	\$113.00	\$226

TOTAL EXCAVATION COSTS

\$1,776

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping	70%	13,272	\$2.60	\$34,507
crushed	12,923	68%	Drill & shoot	30%	6,076	\$2.70	\$16,404
pit run	5,924	31%	Oversize red	3%	565	\$5.80	\$3,279
rip rap	113	1%	Other				
Total	18,960						
reject	1,292	6.8%					

TOTAL ROCK DEVELOPMENT COSTS

\$54,191

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	1	\$507.00	\$507
Calibrate			
Test	7	\$57.30	\$401
Test			

TOTAL CALIBRATION & TESTING COSTS

\$908

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	14,215	\$0.83	\$11,756
Shot rock handling(C330)	20	\$155.00	\$3,100

TOTAL FEEDING & LOADING COSTS

\$14,856

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed	1,251	3 stage w/s	110	\$3.54	\$4,424
1-1/2"-0"	crushed	3,420	3 stage w/s	120	\$3.24	\$11,087
4"-0"	crushed	8,252	2 stage w/s	140	\$2.48	\$20,453

TOTAL ROCK CRUSHING COSTS

\$35,964

8) STOCKPILING**STOCKPILE SITE PREPARATION**

Equipment	Hours	Rate	Total
Dozer (D6)	3	\$120.00	\$360.00
Compactor		\$72.00	
Grader		\$90.00	
Excavator		\$138.00	

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

\$360.00

SUB TOTAL

\$360

HAUL & STOCKPILE

STOCKPILE LOCATION	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1. Simmons Ridge Stockpile No.2	3/4"-0"	4	1,160	\$3.32	\$3,849
2. Simmons Ridge Stockpile No.1	1-1/2"-0"	4	1,160	\$3.16	\$3,666
3. Simmons Ridge Stockpile No.1	4"-0"	4	8,120	\$3.16	\$25,663
4.					
5.					
6.					

SUB TOTAL

\$33,178

TOTAL STOCKPILING COSTS

\$33,538

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load and Spread the reject material at the waste area.	
\$0.53 /CY 1,292 CY	\$685
Shape / compact the reject material	
\$0.40 /CY 1,292 CY	\$517
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access (15 hrs. C330).	\$2,325

TOTAL MISCELLANEOUS COSTS

\$3,527

10) GRAND TOTAL:

\$160,868

\$/Cubic Yard

\$8.48

Footnotes:

Gate Cost Appraisal
Klaskanine Ridge Combination

Gate w/Pin	1	\$5,000		<u>TOTAL</u> \$ 5,000
Installation				
Delivery of gate	3 hrs. @	\$ 92/hr.	\$	276
Preparation of road for gate (c315)	3 hrs. @	\$ 101/hr.	\$	303
Placement (C315)	4 hrs. @	\$ 101/hr.	\$	404
Cement	10 bags @	\$5.00/bag	\$	50
Labor	8 hrs @	\$ 40/hr.	\$	320
TOTAL COST				\$ 6,353

KLASKANINE RIDGE COMBINATION
Project No. 6 - Fill Vacating

Location/Description	Cubic Volume	C330 Excavator	D 8 Cat	D 24yd Dump Truck	D 12yd Dump Truck	Labor	Pump	Hand Seeding	Straw Mulch	Total
V1 -V2 Fill and CMP Removal 2nd Excavator Hand Grass Seeding & mulching (labor & seed),	990cyds.	16 hrs 8 hrs	8 hrs	hrs	hrs	8 hrs	8 hrs	0.16 ac	15 bales	\$5,645.43
V3 -V4 Fill and CMP Removal Hand Grass Seeding & mulching (labor & seed),	300 cyds.	4.25 hrs	2 hrs	hrs	hrs	3 hrs	3 hrs	0.05 ac	10 bales	\$1,263.45
V5 -V6 Fill and CMP Removal Hand Grass Seeding & mulching (labor & seed),	1,100 cyds.	20 hrs	hrs	16 hrs	hrs	8 hrs	10 hrs	0.15 ac	15 bales	\$5,807.15
V7 Fill and CMP Removal Mulch Hand Grass Seeding labor &	50 cyds.	2.5 hrs	hrs	hrs	hrs	4 hrs	0 hrs	0.02 ac	3 bales	\$592.25
V8 -V9 Fill and CMP Removal 2nd Excavator Hand Grass Seeding & mulching (labor & seed),	1,020 cyds.	20 hrs 8 hrs	hrs	15 hrs	hrs	8 hrs	10 hrs	0.15 ac	15 bales	\$6,920.15
V10 -V11 Side Cast Pullback Fill and CMP Removal Hand Grass Seeding & mulching (labor & seed),	150 cyds	2 hrs 2.5 hrs	hrs hrs	hrs hrs	hrs	2 hrs	1 hrs	0.30 ac	5 bales	\$1,029.55
V12 -V13 Fill and CMP Removal Hand Grass Seeding & mulching (labor & seed), Haul old culverts away	375	5 hrs	3 hrs	hrs	hrs	3 hrs	3 hrs	0.05 ac	10 bales	\$1,537.70
Totals		88.25 hrs	13 hrs	31 hrs	2 hrs	36 hrs	35 hrs	0.88 ac	73 Bales	\$158
Rates	N/A	\$155 /hr	\$158 /hr	\$127 /hr	\$79 /hr	\$40 /hr	\$10 /hr	\$628.00 /ac	#### /Bale	
Cost		\$13,679	\$2,054	\$3,937	\$158	\$1,440	\$350	\$553	\$783.29	\$22,954

Prepared by: Will Lawrence & Ed Holloran

Date: 02/26/2014 & 02/28/2014

\$22,953.68

KLASKANINE RIDGE COMBINATION
Stream Enhancement

Location	Site	Number of Key Pieces	Smaller Pieces (tops)	Placement method	Helper/ Labor	Rate/Hr.	Hours	\$/Location	\$/Key Piece*	Number of Straw Bales	\$/Bale	Cost per Site
SE1-SE2	1	4	5	Ground based	\$40	\$155	4	\$780	\$86.67	2	\$10.73	\$801.46
SE1-SE2	2	4	5	Ground based	\$40	\$155	4	\$780	\$86.67	2	\$10.73	\$801.46
SE1-SE2	3	4	5	Ground based	\$40	\$155	4	\$780	\$86.67	2	\$10.73	\$801.46
SE3-SE4	7	4	5	Ground based	\$40	\$155	4	\$780	\$86.67	2	\$10.73	\$801.46
SE3-SE4	8	4	5	Ground based	\$40	\$155	4	\$780	\$86.67	2	\$10.73	\$801.46
SE3-SE4	9	4	5	Cable Placement	\$40	\$375	2	\$830	\$92.22	2	\$10.73	\$851.46
SE3-SE4	10	4	5	Cable Placement	\$40	\$375	2	\$830	\$92.22	2	\$10.73	\$851.46
SE3-SE4	11	4	5	Cable Placement	\$40	\$375	2	\$830	\$92.22	2	\$10.73	\$851.46
SE3-SE4	12	4	5	Cable Placement	\$40	\$375	2	\$830	\$92.22	2	\$10.73	\$851.46
SE3-SE4	13	4	5	Cable Placement	\$40	\$375	2	\$830	\$92.22	2	\$10.73	\$851.46
SE3-SE4	14	4	5	Cable Placement	\$40	\$375	2	\$830	\$92.22	2	\$10.73	\$851.46

Grass Seed: \$1.60 per lb. 4 to 5 4 to 5 25 lbs.

22 Subtotal \$9,116
Seed \$40

Ground Based =C 330 excavator

Cable Placement = skyline - 70 foot tower

Project Total **\$9,156**

CRUSHED ROCK COST

SALE NAME:	_____
PROJECT:	_____
QUARRY:	_____

MATERIAL: Crushed
1½" - 0", & 4"-0"

DATE: 03/19/2014
BY: EMH

[illegible]

ROCK HAUL:

Truck type: D20 No. trucks: 2
 Delay min.: 8 Efficiency: 85%

Ave haul:	\$4.12	/cy
Load:		/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 = 1,310

CRUSHED ROCK HAUL COSTS 2,483 cy @ \$4.90 /cy

PIT RUN ROCK COST

SALE NAME:	Klaskanine Ridge Combination
PROJECT:	Nos. 1 & 2
QUARRY:	Simmons

MATERIAL: Pit Run
6" - 0"

DATE: 03/04/2014
BY: EMH

[illegible]

ROCK HAUL:

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

Ave haul:	\$5.11	/cy
Load:	\$0.48	/cy
Spread:	\$0.84	/cy

Truck type:	<u>D12</u>	No. trucks:	<u>8</u>
Delay min.:	<u>6</u>	Efficiency:	<u>85%</u>

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

Production: cy/day = 990

PIT RUN ROCK HAUL COSTS	5,923 cy @	\$6.43 /cy
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RIP RAP ROCK COST

SALE NAME:	Klaskanine Ridge Combination
PROJECT:	Nos. 1 & 2
QUARRY:	Simmons Ridge

MATERIAL: Riprap
24" - 6"

DATE: 03/19/2014
BY: EMH

[illegible]

ROCK HAUL:

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

Ave haul:	\$4.51	/cy
Load:	\$2.70	/cy
Develop:		/cy

Production: cy/day = 280

RIP RAP ROCK HAUL COSTS 116 cy @ \$7.21 /cy

CRUSHED ROCK COST

SALE NAME:	Klaskanine Ridge Combination
PROJECT:	Projects no. 1 & 2
QUARRY:	Elk Mountain

MATERIAL: Crushed
3/4"-0", 1 1/2" - 0", & 4" - 0"

DATE: 02/28/2014
BY: Ed H. & Will L.

[illegible]

ROCK HAUL:

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

Ave haul:	\$3.29	/cy
Load:		/cy
Spread:	\$0.48	/cy

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

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

Production: cy/day = 1,640

CRUSHED ROCK HAUL COSTS 3,861 cy @ \$3.77 /cy

PIT RUN ROCK COST

SALE NAME:	Klaskanine Ridge Combination
PROJECT:	Nos. 1 & 2
QUARRY:	Elk Mountain

MATERIAL: Pit Run
6" - 0"

DATE: 02/19/2014
BY: Ed H & Will L.

[illegible]

ROCK HAUL:

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

Ave haul:	\$4.33	/cy
Load:	\$0.48	/cy
Spread:	\$0.78	/cy

Truck type:	<u>D12</u>	No. trucks:	<u>8</u>
Delay min.:	<u>6</u>	Efficiency:	<u>85%</u>

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

Production: cy/day = 1,166

PIT RUN ROCK HAUL COSTS	2,308 cy @	\$5.60 /cy
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RIP RAP ROCK COST

SALE NAME:	Klaskanine Ridge Combination
PROJECT:	Nos. 1 & 2
QUARRY:	Elk Mountain

MATERIAL: Rip Rap
24" - 6"

DATE: 02/19/2014
BY: Ed H & Will L.

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES								Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH		
1A-1B										2.08 2.40 3.12 3.05	
1C-1D											
2A-2B											
2C-2D											
I5-I6	184.50	11.00		0.50	0.50	0.50	0.25	0.15	0.18		
I7-I8	86.20	22.00		0.50	0.50	0.55	0.25	0.40	0.20		
I9-I10	51.00	11.00		0.50	0.50	0.75	0.75	0.37	0.25		
I11-I12	21.10	55.00		0.50	0.50	0.75	0.75	0.30	0.25		

ROCK HAUL:

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

Ave haul:	\$3.56	/cy
Load:	\$1.80	/cy
Develop:		/cy

Production: cy/day = 355

RIP RAP ROCK HAUL COSTS

99 cy @ \$5.36 /cy

Projects Road Maintenance Cost Summary

Sale: Klaskanine Ridge Combination
Date: 2/28/14
By: Ed Holloran

Type	Equipment/Rationale			Hours	Rate	Cost
Final Project Haul Road Maintenance	Grader 14G			20.0	\$100	\$2,000
	Dump Truck 12CY			2.0	\$79	\$158
	FE Loader C966			2.0	\$83	\$166
	Vibratory Roller			20.0	\$77	\$1,540
	Water Truck 2,500 gallon			10.0	\$89	\$890
Total						\$4,754

Production Rates

Grader

Vibratory Roller

Miles/day	Distance(miles)	Days
1.5	3.70	2.5
1.5	3.70	2.5

Simmons Ridge Quarry to West Simmons Road = 1.9 miles

Elk Mountain Quarry to Leonard Basin Road = 1.8 miles

Road Maintenance Cost Summary (Interim and Post Harvest)

Sale: Klaskanine Ridge Combination
Date: March 6, 2014
By: Ed Holloran

MBF: 11,364
\$/MBF: \$3.54

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Interim Operations Entries - 3	Grader 14G	\$778	3	72	\$100	\$9,534
	Dump Truck 12CY	\$163	2	8	\$79	\$958
	Rubber Tired Backhoe-small	\$321	2	4	\$77	\$950
Final Road Maintenance	Grader 14G	\$778	1	107	\$100	\$11,478
	Dump Truck 12CY	\$163	3	16	\$79	\$1,753
	FE Loader C966	\$778	1	8	\$83	\$1,442
	Vibratory Roller	\$778	1	96	\$77	\$8,170
	Water Truck 2,500 gallon	\$190	1	40	\$89	\$3,750
	Rubber Tired Backhoe-small	\$321	1	16	\$77	\$1,553
	Labor			16	\$40	\$640
Total						\$40,228

Interim Operations Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	4.0	28.80	7.2	72

Final Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Process - Grader	1.5	14.4	9.6	96
Grade only	2	2.2	1.1	11
Vibratory Roller	1.5	14.4	9.6	96

Process and compact: All crushed rock roads - Simmons Ridge & Klaskanine Ridge Roads (4.2 miles), Spur 30 (0.6 miles), I13-I14 Campbell Group Road (3.5 miles), California Barrel Road System (6.1miles)

Grade & Process Total = 14.4 miles

Grade and shape 4" - 0" (old Spur 30) and pit-run roads = 2.2 miles

**KLASKANINE RIDGE COMBINATION
FY 2014
TIMBER CRUISE REPORT**

1. **Sale Area Location:** Areas 1, 2, 3, 4, 5, and 6 are located in portions of Section 30, T7N, R8W, and Sections 24, and 25 T7N, R8W, W.M., Clatsop County, Oregon.

2. **Fund Distribution: Fund:** BOF 100% CSL 0%
Tax Code: 1-02 100%

3. **Sale Acreage by Area:**

Area	Harvest Type	Gross Acres	Stream Buffer Acres	New R/W Acres	Existing R/W Acres	Net Acreage
1	PC	48	4	1	2	41
2	PC	145	27	6	0	112
3	MC	84	12	3	1	68
4	MC	84	10	2	0	72
5	MC	27	2	0	0	25
6	RW	11				11
TOTALS		399	56	11	3	329

4. **Cruisers and Cruise Dates:** Areas 1 and 2 were cruised by Andrew Arvin, John Choate with Jon Long, and Ed Holloran. Areas 3, 4, and 5 were cruised by Andrew Arvin, John Choate, and Skyler Hoefer assisted. The cruise was performed in early December, 2013, and January, 2014.
5. **Cruise Method and Computation:** Area 1 is a partial cut unit with a residual basal area target of 130. A variable plot cruise with a 27.78 BAF was used in this Area. These plots were located on a 6 chain by 3 chain grid, with a count/cruise plot ratio of 1 to 2. A total of 23 plots were sampled, with 8 measured plots and 15 count plots.

Area 2 is a partial cut unit with a residual basal area target of 160. A variable plot cruise with a 40 BAF was used. 39 plots were sampled on a grid of 8 chains by 4 chains, with a count/cruise plot ratio of 1 to 1. There were 19 measured plots and 20 count plots sampled.

Areas 3, 4, & 5 are modified clearcut units. A variable plot cruise with a 54.45 BAF was used. 42 plots were sampled on a grid of 8 chains by 5 chains, with a count/cruise plot ratio of 1 to 2. There were 16 measured plots and 26 count plots sampled.

Area 6 R/W was calculated applying road R/W acreage and using cruise per acre volumes from all Areas. There is approximately 1 acre of R/W in Area 1, and 6 acres in Area 2, 3 acres in Area 3 and 2 acres in Area 4, for a total of 11 acres.

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

AREAS	PROJECT	TRACT	CRUISE TYPE
1	KRC	A1	PC1, TAKE, STAY
2	KRC	A2	PC2, TAKE, STAY
3, 4, & 5	KRC	A345	MCC
6 R/W	KRC	A6	R/W

6. **Timber Description:** Area 1 is approximately 35 years old plantation of Douglas-fir, with some alder and hemlock. The average Douglas-fir tree size for harvest is approximately 13 inches DBH, with an average merchantable tree height of 33 feet. The average alder tree size is approximately 8 inches DBH with an average merchantable tree height of 17 feet. The average hemlock tree size is approximately 14 inches DBH, with an average merchantable tree height of 41 feet. The average volume per acre to be harvested

(net) is approximately 5 MBF. All trees were cruised to a merchantable top of 6 inch DIB. or 40% fp. This unit was cruised to a leave basal area target of 120 square feet.

7. Area 2 is approximately 78 year-old timber, consisting of a mixed conifer stand, of western hemlock sitka spruce, Douglas-fir, cedar, and scattered alder. The average take hemlock tree size is approximately 18 inches DBH, with an average merchantable tree height of 68 feet. The average take spruce tree size is approximately 14 inches DBH, with an average merchantable tree height of 42 feet. The average take alder tree size is approximately 15 inches DBH, with an average merchantable tree height of 39 feet. The average take Douglas-fir tree size to be harvested is approximately 22 inches DBH, with an average merchantable tree height of 77 feet. The average volume per acre to be harvested (net) is approximately 23 MBF. All trees were cruised to a merchantable top of 6 inch DIB. or 40% fp. This unit was cruised to a leave basal area target of 160 square feet.

Areas 3, 4, & 5 these stands are approximately 80 year-old timber, consisting of a mixed conifer stand, of western hemlock, sitka spruce, Douglas-fir, cedar, and scattered alder. The average take hemlock tree size is approximately 15 inches DBH, with an average merchantable tree height of 55 feet. The average take spruce tree size is approximately 19 inches DBH, with an average merchantable tree height of 73 feet. The average take Douglas-fir tree size to be harvested is approximately 19 inches DBH, with an average merchantable tree height of 77 feet. The average take alder tree size is approximately 13 inches DBH, with an average merchantable tree height of 36 feet. The average volume per acre to be harvested (net) is approximately 48 MBF. All trees were cruised to a merchantable top of 6 inch DIB. or 40% fp.

Area 6 R/W The volume to remove from Area 6 R/W is approximately 54 MBF per acre. This is a combination of all cruise units.

Cedar was a reserved species in Areas 1, 2, 3, 4, and 5.

7. **Statistical Analysis: (See also "Statistics Reports," attached.)**

Area	Target CV	Target SE%	Actual CV	Actual SE%
1	40	10	25.1	5.4
2	55	10	36.6	5.9
3, 4, & 5	52	10	41.5	6.4

The statistics are for all areas and Take and Leave trees combined based on Net BF/Acre.

8. **Take Volumes by Species and Log Grades for All Sale Areas by MBF:** (See "Species, Sort Grade-Board Feet Volumes (Project)", "Statistics (Project)", and the "Stand Table Summary" attached). Volumes do not include "in-growth." The majority of defect and breakage was taken out during the cruise.

Species	DBH	Net Vol.	2 Saw	3Saw	4 Saw	% D & B	% Sale
W. Hemlock & True Fir	15	7,447	3,870	2,916	661	8	66
Sitka Spruce	17	1,750	1,010	503	237	8	15
Douglas-fir	16	1,529	508	859	162	9	13

Species	DBH	Net Vol.	12"+	10"-11"	8"-9"	6"-7"	% D & B	% Sale
Red Alder	13	638	46	74	252	266	10	6

TOTAL NET VOLUME	11,364
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Alder grades based on small end diameter. Diameter break downs used were: 12"+ = 1 Saw; 10" – 11" = 2 Saw; 8" – 9" = 3 Saw; 6" – 7" = 4 Saw. These volumes were converted and reported as shown above and in the contract.

9. Prepared by: Edward M. Holloran

Date: March 21, 2014

10. Approved by: Jh Till

Date: 4/9/2014

11. Attachments:
- Cruise Plans & Maps – (7 pages)
 - Species, Sort, Grade Reports – Take (5 pages)
 - Statistics Reports – (6 pages)
 - Stand Table Report – (3 page)
 - Log Stock Table Report – Take (3 pages)

X:\Sunset Unit\2014 FY Sales\Klaskanine Ridge Combo\Sale Prep\Cruise\Cruise Report KRC .docx

1. **Diameter:** Minimum DBH to cruise is 8" for conifers and 8" 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). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)
 B. Sort: Use code "1" (Domestic).
 C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
 D. Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill.
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, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale).
 B. Data Recorder Instructions
 C. Other

Cruise Design by: Ed Holloran

Approved by: John Tabb

Date: 12/20/13

CRUISE DESIGN ASTORIA DISTRICT

Sale Name: Klaskanine Ridge Combo Area(s) 2

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

Approx. Cruise Acres: 120 Estimated CV% 55 Net BF or BA/Acre SE% Objective 10 Net BF or BA/Acre

Planned (Unit) Sale Volume: 2,145 MBF Estimated Sale Area Value/Acre: \$4,500
(10.5 MMBF with \$7,788/Acre for the sale)

- A. **Cruise Goals:** (a) Grade minimum 100 conifer and 30 hardwood trees:
(b) Sample 38 cruise plots; (c) Other goals (X Determine "automark" thinning standards; Determine log grades for sale value; Determine snag and leave tree species and sizes; Determine LWD (down wood) cubic feet and decay classes; Determine "diameter limit" harvest parameters;

B. **Cruise Design:**

1. **Plot Cruises:** BAF 40 for all species (Full point; Half point) (circle one)

Fixed Plot Size Plot Radius feet

Cruise Line Direction(s) 90° / 270°

Cruise Line Spacing 8 (chains) (feet)

Cruise Plot Spacing 4 (chains) (feet)

Grade/Count Ratio 1 : 1

This is a partial cut with a planned residual B/A of 160.

Leave 4 leave trees per cruise plot (considering cutting all alder).

If plot falls clearly inside a buffer drop the plot. Take plots as marked on map. All cedar are leave trees. Grade all alder as shown on page 2. All other hardwoods grade as Camp Run.

C. **Tree Measurements:**

1. **Diameter:** Minimum DBH to cruise is 8" for conifers and 8" 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). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)
B. Sort: Use code "1" (Domestic).
C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
D. Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill.
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, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale).
B. Data Recorder Instructions
C. Other

Cruise Design by: Ed Holloran

Approved by: JL Tiller

Date: 12/20/13

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CRUISE DESIGN ASTORIA DISTRICT

Sale Name: Klaskanine Ridge Combo Area(s) 3, 4 & 5

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

Approx. Cruise Acres: 168 Estimated CV% 52 ^{Net BF or} BA/Acre SE% Objective 10 ^{Net BF or} BA/Acre

Planned (Unit) Sale Volume: 8,100 MBF Estimated Sale Area Value/Acre: \$12,180
(10.5 MMBF with \$7,788/Acre for the sale)

- A. **Cruise Goals:** (a) Grade minimum 75 conifer and 30 hardwood trees:
(b) Sample 44 cruise plots; (c) Other goals (X Determine "automark" thinning standards; Determine log grades for sale value; Determine snag and leave tree species and sizes; Determine LWD (down wood) cubic feet and decay classes; Determine "diameter limit" harvest parameters;

B. **Cruise Design:**

1. **Plot Cruises:** BAF 54.45 for all species (Full point; Half point) (circle one)
Fixed Plot Size Plot Radius feet
Cruise Line Direction(s) 0° / 180°
Cruise Line Spacing 8 (chains) (feet)
Cruise Plot Spacing 5 (chains) (feet)
Grade/Count Ratio 1 : 2

If plot falls clearly inside a buffer drop the plot. Take plots as marked on map. All cedar are leave trees. Grade all alder as shown on page 2. All other hardwoods grade as Camp Run.

C. **Tree Measurements:**

1. **Diameter:** Minimum DBH to cruise is 8" for conifers and 8" 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). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)
B. Sort: Use code "1" (Domestic).
C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
D. Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill.
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, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale).
B. Data Recorder Instructions
C. Other

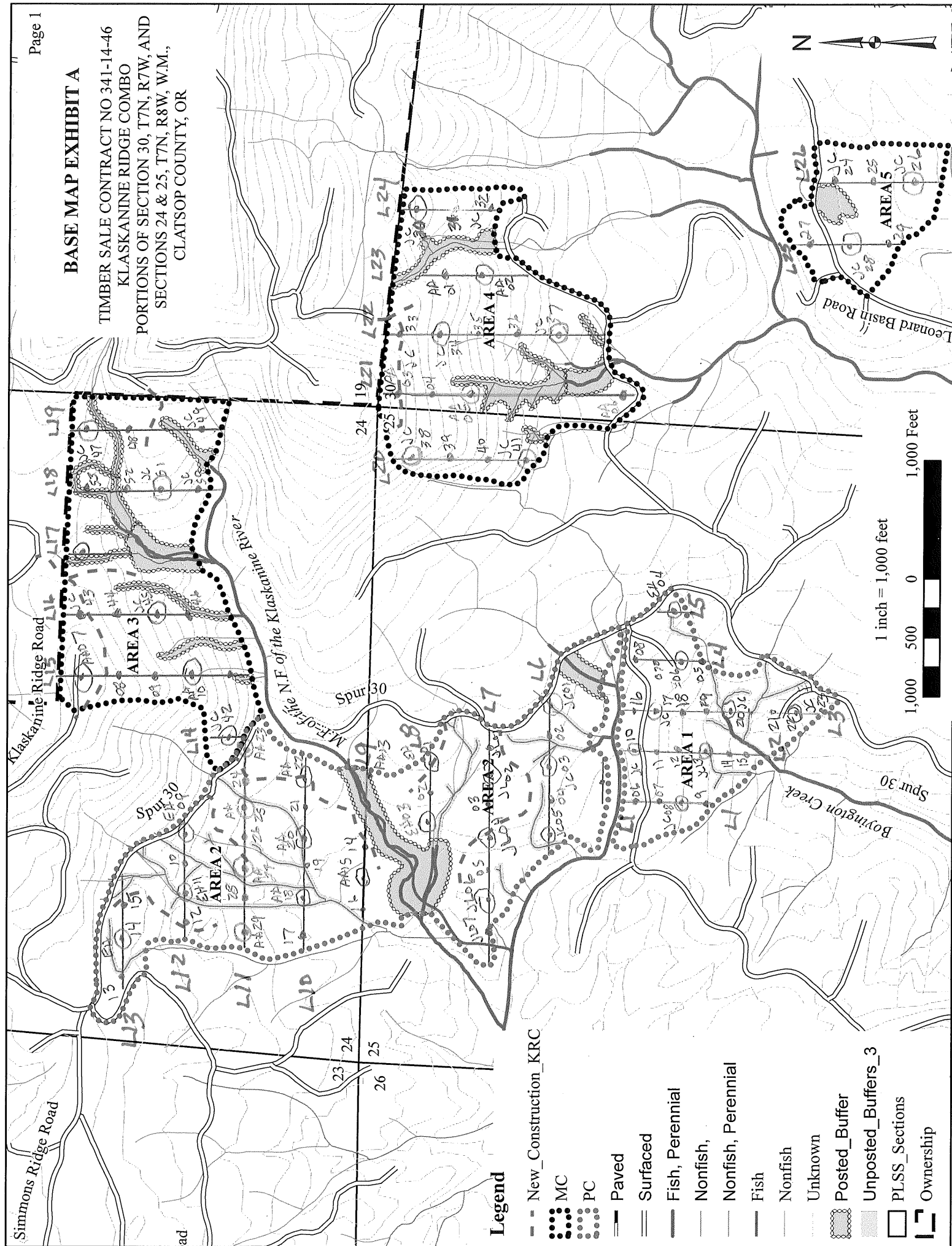
Cruise Design by: Ed Holloran

Approved by: [Signature]

Date: 12/20/13

BASE MAP EXHIBIT A

TIMBER SALE CONTRACT NO 341-14-46
KLASKANINE RIDGE COMBO
PORTIONS OF SECTION 30, T7N, R7W, AND
SECTIONS 24 & 25, T7N, R8W, W.M.,
CLATSOP COUNTY, OR



TC		Species, Sort Grade - Board Foot Volumes (Project)																	
T07N R07W S30 Ty0MCC THRU T07N R08W S25 TyRW					Project: KRC										Page 1				
					Acres 329.00										Date 3/20/2014 Time 12:44:52PM				
Spp	So Gr T rt ad	%	Bd. Ft. per Acre			Total Net MBF	Percent of 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					
H	DOCU															6		0.00	5.3
H	DO2S	50	1.4	11,365	11,205	3,686		2	69	30	0	2	10	87	38	316	1.91	35.5	
H	DO3S	40	2.7	9,090	8,845	2,910		83	13	4	1	1	35	62	36	99	0.80	89.6	
H	DO4S	10		2,010	2,010	661	0	98	1		49	41	1	10	21	32	0.44	63.7	
H Totals		64	1.8	22,465	22,060	7,157 7,250	0	43	40	17	5	5	19	70	31	114	0.97	194.1	
A	DOCU														5		0.00	1.1	
A	DO1S	7		140	140	46			100		38			62	28	155	1.50	.9	
A	DO2S	11	1.3	229	226	74		34	24	41	24		41	34	32	288	2.14	.8	
A	DO3S	40	9.9	849	765	252		100	0			19	46	35	35	85	0.89	9.0	
A	DO4S	42	6.3	865	810	266 267	6	93	1		25	10	43	22	25	36	0.55	22.7	
A Totals		6	6.8	2,083	1,941	638 639	2	82	11	5	16	12	41	31	27	56	0.73	34.5	
S	DOCU														5		0.00	1.3	
S	DO2S	57	1.3	3,111	3,069	1,010			51	49			17	83	39	351	2.09	8.7	
S	DO3S	29	4.7	1,604	1,528	503		61	32	8	0	6	25	68	36	119	1.05	12.9	
S	DO4S	14	1.8	734	721	237	6	90	4	0	35	25	13	27	24	38	0.54	19.0	
S Totals		15	2.4	5,448	5,318	1,750	1	30	39	31	5	5	19	71	30	127	1.14	41.9	
D	DOCU														10		0.00	1.3	
D	DO2S	33	4.1	1,612	1,545	508		12	33	55	2	2	16	80	36	325	2.14	4.8	
D	DO3S	56	5.5	2,764	2,612	859		74	20	6	0	2	28	70	36	106	0.87	24.7	
D	DO4S	11	1.8	503	493	162	4	90	6		42	40	7	11	22	30	0.51	16.3	
D Totals		13	4.7	4,879	4,651	1,529 1,530	0	55	22	22	5	6	22	67	31	99	0.92	47.0	
SF	DO2S	97		558	558	184				100				100	40	985	4.41	.6	
SF	DO3S	3		17	17	6		100					100		32	60	1.13	.3	
SF Totals		2		575	575	190 189		3		97			3	97	37	677	3.47	.9	
Totals			2.6	35,450	34,546	11,366	0	44	35	20	6	6	21	68	30	108	0.97	318.4	

11,364

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page 1						
		Project: KRC												Date 3/20/2014						
														Time 11:50:27AM						
T07N R07W S30 T0MCC										T07N R07W S30 T0MCC										
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt											
07N	07W	30	A345	0MCC	165.00	42	108	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		
H DO CU																				
H DO 2S			46	1.6	14,587	14,359	2,369		2	66	31		2	6	92	39	326	1.96	44.1	
H DO 3S			43	2.4	13,585	13,257	2,187		84	13	3	1	0	33	65	36	99	0.79	133.7	
H DO 4S			11		3,265	3,265	539		100			48	41		11	21	31	0.42	104.5	
H Totals			64	1.8	31,437	30,881	5,095		48	36	16	5	6	17	72	31	108	0.92	284.8	
S DO CU																				
S DO 2S			60	1.1	4,850	4,794	791			49	51			13	87	39	361	2.10	13.3	
S DO 3S			28	4.3	2,330	2,230	368		58	42			8	26	66	36	115	1.03	19.4	
S DO 4S			12		912	912	150	9	86	5		38	17	9	36	23	42	0.58	21.5	
S Totals			16	1.9	8,091	7,936	1,309	1	26	42	31	4	4	16	75	31	144	1.22	55.1	
D DO 2S			39	3.5	2,518	2,430	401		14	31	54			13	87	38	334	2.09	7.3	
D DO 3S			56	4.3	3,651	3,495	577		77	23				27	73	37	112	0.85	31.3	
D DO 4S			5		249	249	41		100			47	53			21	31	0.54	8.1	
D Totals			13	3.8	6,417	6,173	1,019		53	25	21	2	2	20	76	34	132	1.03	46.6	
A DO 3S			61	10.2	1,599	1,436	237		100				17	47	36	35	87	0.89	16.6	
A DO 4S			39	4.6	962	917	151		100			33	6	46	16	23	33	0.52	28.0	
A Totals			5	8.1	2,561	2,354	388		100			13	12	47	28	28	53	0.69	44.6	
SF DO 2S			97		1,084	1,084	179			100					100	40	985	4.41	1.1	
SF DO 3S			3		33	33	5		100					100		32	60	1.13	.6	
SF Totals			2		1,117	1,117	184		3		97			3	97	37	677	3.47	1.7	
Type Totals					2.3	49,623	48,461	7,996	0	47	33	20	5	5	18	71	31	112	0.96	432.8

T		Species, Sort Grade - Board Foot Volumes (Type)										Page		1					
TSPCSTGR		Project: KRC										Date		2/10/2014					
												Time		1:25:51PM					
T07N R08W S25 TTAKE										T07N R08W S25 TTAKE									
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt										
07N	08W	25	A1	TAKE	41.00	23	26	1	W										
S So Gr Spp T rt ad			%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
								Log Scale Dia.				Log Length				Ln	Bd	CF/	
			Net	Def%	Gross	Net	Net MBF	4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft	Lf	
D	DO	CU														18		0.00	3.7
D	DO	2S	4		202	202	8		100			100				16	110	1.56	1.8
D	DO	3S	54	12.4	3,004	2,631	108	80	20				15	41	44	34	62	0.73	42.3
D	DO	4S	42	3.2	2,081	2,015	83	8	92			45	24	11	20	23	28	0.48	70.7
D Totals			93	8.3	5,287	4,848	199	3	82	15		23	18	27	32	27	41	0.60	118.6
A	DO	4S	100		315	315	13	100				100				16	20	0.25	15.7
A Totals			6		315	315	13	100				100				16	20	0.25	15.7
H	DO	3S	100		68	68	3	100						100		40	60	0.68	1.1
H Totals			1		68	68	3	100						100		40	60	0.68	1.1
Type Totals				7.8	5,670	5,231	214	9	77	14		27	17	25	31	26	39	0.57	135.5

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page 1						
		Project: KRC												Date 3/9/2014						
														Time 7:46:40AM						
T07N R08W S24 TTAKE										T07N R08W S24 TTAKE										
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt											
07N	08W	24	A2	TAKE	112.00	39	89	1	W											
S So Gr Spp T rt ad			%	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/		
			Net BdFt						4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft	Lf	
H	DO	CU															7		0.00	11.2
H	DO	2S	60	1.1	10,131	10,020	1,122				74	26	1	2	20	77	37	294	1.81	34.1
H	DO	3S	34	3.7	5,736	5,524	619			76	16	8	1	5	40	54	35	97	0.84	56.8
H	DO	4S	6		903	903	101		2	90	8		53	38	5	5	21	33	0.57	27.0
H	Totals		72	1.9	16,770	16,447	1,842		0	31	51	18	4	5	26	66	30	128	1.10	129.0
S	DO	CU															4		0.00	2.3
S	DO	2S	47	2.3	1,513	1,478	166				63	37			39	61	37	291	1.90	5.1
S	DO	3S	31	6.1	1,045	981	110			73		27			24	76	37	126	1.07	7.8
S	DO	4S	22	5.1	722	685	77		100				30	39	21	9	24	31	0.49	21.8
S	Totals		14	4.2	3,281	3,145	352			45	29	26	7	9	30	54	27	85	0.92	37.0
A	DO	CU															5		0.00	3.0
A	DO	1S	19		366	366	41				100		41			59	28	150	1.48	2.4
A	DO	2S	34	1.3	640	632	71		34	24	41		24		41	34	32	288	2.14	2.2
A	DO	3S	3		60	60	7		100						100		28	50	1.04	1.2
A	DO	4S	44	9.7	907	819	92		2	95	3		2	19	44	35	32	47	0.64	17.2
A	Totals		8	4.9	1,974	1,878	210		1	56	29	14	17	12	33	38	28	72	0.87	26.1
D	DO	CU															5		0.00	1.9
D	DO	2S	32	10.4	498	447	50				39	61		20	51	29	33	295	2.28	1.5
D	DO	3S	56	3.9	817	785	88			50		50			3	97	39	232	1.57	3.4
D	DO	4S	12		161	161	18			56	44		7	93			23	49	0.65	3.3
D	Totals		6	5.6	1,477	1,393	156			35	18	47	1	17	18	64	26	138	1.38	10.1
Type Totals				2.7	23,501	22,863	2,561		0	35	44	21	5	7	27	62	29	113	1.05	202.1

T		Species, Sort Grade - Board Foot Volumes (Type)														Page		1	
TSPCSTGR		Project: KRC														Date		3/20/2014	
																Time		11:56:52AM	
T07N R08W S25 TRW										T07N R08W S25 TRW									
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt										
07N	08W	25	A6	RW	11.00	104	332	1	W										
S So Gr T rt ad Spp			% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
								Log Scale Dia.				Log Length				Ln	Bd	CF/	

TC PSTATS		PROJECT STATISTICS							PAGE	1		
		PROJECT KRC							DATE	3/20/2014		
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt		
07N 07N	07 08W	30 25	A345 A6	0MCC RW	THR	329.00	208	1,270	1	W		
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL			208	1270	6.1							
CRUISE			91	555	6.1	63,169	.9					
DBH COUNT												
REFOREST												
COUNT			116	683	5.9							
BLANKS			1									
100 %												
STAND SUMMARY												
			SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK			285	109.4	15.5	58		143.8	22,465	22,060	5,770	5,770
DOUG FIR			132	28.0	16.0	54		39.2	4,879	4,651	1,335	1,335
S SPRUCE			69	21.6	17.0	60		34.1	5,448	5,318	1,435	1,435
R ALDER			55	27.8	13.6	35		28.0	2,083	1,941	684	684
SNAG			12	4.8	17.4	45		8.0				
PS FIR			2	.3	36.0	115	0	2.0	575	575	110	110
TOTAL			555	192.0	15.6	54		255.2	35,450	34,546	9,335	9,335
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL	68.1	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK		198.6	13.8	94	109	125						
DOUG FIR		226.4	15.7	24	28	32						
S SPRUCE		277.6	19.3	17	22	26						
R ALDER		338.9	23.5	21	28	34						
SNAG		449.5	31.2	3	5	6						
PS FIR		806.9	55.9	0	0	0						
TOTAL		141.1	9.8	173	192	211	796	199	88			
CL	68.1	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK		171.4	11.9	127	144	161						
DOUG FIR		250.2	17.3	32	39	46						
S SPRUCE		313.7	21.8	27	34	42						
R ALDER		323.7	22.4	22	28	34						
SNAG		458.6	31.8	5	8	11						
PS FIR		806.9	55.9	1	2	3						
TOTAL		136.0	9.4	231	255	279	740	185	82			
CL	68.1	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK		173.7	12.0	19,404	22,060	24,717						
DOUG FIR		300.1	20.8	3,683	4,651	5,619						
S SPRUCE		374.1	25.9	3,938	5,318	6,697						
R ALDER		313.6	21.7	1,519	1,941	2,364						
SNAG												
PS FIR		806.9	55.9	253	575	897						
TOTAL		151.1	10.5	30,927	34,546	38,165	913	228	101			

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT KRC				DATE	2/10/2014	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
07N	08W	25	A1	0PC1	41.00	23	180	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				TREES	TREES	TREES				
TOTAL		23	180	7.8						
CRUISE		9	62	6.9	8,696	.7				
DBH COUNT										
REFOREST										
COUNT		14	111	7.9						
BLANKS										
100 %										
STAND SUMMARY										
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUGLEAV		32	88.6	15.7	52	119.6	11,064	10,521	3,520	3,520
DOUG FIR		24	102.5	12.5	33	87.0	5,287	4,848	1,901	1,901
R ALDER		1	15.7	7.5	17	4.8	315	315	63	63
SNAG		3	3.7	13.5	26	3.6				
HEMLEAV		1	.6	20.0	45	1.2	50	50	28	28
WHEMLOCK		1	1.1	14.0	41	1.2	68	68	31	31
TOTAL		62	212.1	13.7	40	217.4	16,784	15,802	5,543	5,543
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV		25.7	5.5	84	89	93				
DOUG FIR		61.6	13.1	89	102	116				
R ALDER		282.3	60.2	6	16	25				
SNAG		335.8	71.6	1	4	6				
HEMLEAV		479.6	102.3		1	1				
WHEMLOCK		479.6	102.3		1	2				
TOTAL		25.8	5.5	200	212	224	28	7	3	
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		25.7	5.5	113	120	126				
DOUG FIR		58.0	12.4	76	87	98				
R ALDER		282.3	60.2	2	5	8				
SNAG		350.9	74.8	1	4	6				
HEMLEAV		479.6	102.3		1	2				
WHEMLOCK		479.6	102.3		1	2				
TOTAL		25.7	5.5	205	217	229	28	7	3	
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV		26.5	5.7	9,926	10,521	11,117				
DOUG FIR		59.8	12.7	4,230	4,848	5,466				
R ALDER		282.3	60.2	125	315	505				
SNAG										
HEMLEAV		479.6	102.3		50	101				
WHEMLOCK		479.6	102.3		68	137				
TOTAL		25.1	5.4	14,956	15,802	16,648	26	7	3	

TC TSTATS				STATISTICS			PAGE 1			
				PROJECT KRC		DATE 3/9/2014				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
07N	08W	24	A2	0PC2	112.00	39	327	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
PLOTS		TREES								
TOTAL		39	327	8.4						
CRUISE		19	169	8.9		19,448	.9			
DBH COUNT										
REFOREST										
COUNT		20	158	7.9						
BLANKS										
100 %										
STAND SUMMARY										
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
WHEMLOCK		58	59.7	18.1	68	106.7	16,770	16,447	4,282	4,282
HEMLEAV		44	33.6	20.9	77	80.0	15,790	15,577	3,732	3,732
SPRUCELV		15	12.6	23.2	53	36.9	7,019	6,908	1,619	1,619
DOUGLEAV		12	7.8	28.7	93	34.9	6,939	6,831	1,585	1,585
S SPRUCE		11	25.1	14.0	42	26.7	3,281	3,145	924	924
R ALDER		12	19.7	15.5	39	25.6	1,974	1,878	642	642
DOUG FIR		8	3.6	21.7	77	9.2	1,477	1,393	367	367
ALDRLEAV		5	4.3	18.7	53	8.2	781	758	253	253
SNAG		4	7.3	13.4	67	7.2				
TOTAL		169	173.6	18.8	63	335.4	54,031	52,937	13,405	13,405
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %		COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		91.0	14.6	51	60	68				
HEMLEAV		89.7	14.4	29	34	38				
SPRUCELV		138.7	22.2	10	13	15				
DOUGLEAV		116.9	18.7	6	8	9				
S SPRUCE		181.3	29.0	18	25	32				
R ALDER		212.9	34.1	13	20	26				
DOUG FIR		233.5	37.4	2	4	5				
ALDRLEAV		331.0	53.0	2	4	7				
SNAG		251.4	40.3	4	7	10				
TOTAL		41.3	6.6	162	174	185	68	17	8	
CL: 68.1 %		COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		93.2	14.9	91	107	123				
HEMLEAV		70.7	11.3	71	80	89				
SPRUCELV		114.9	18.4	30	37	44				
DOUGLEAV		115.2	18.5	28	35	41				
S SPRUCE		179.9	28.8	19	27	34				
R ALDER		187.6	30.0	18	26	33				
DOUG FIR		210.0	33.6	6	9	12				
ALDRLEAV		319.9	51.2	4	8	12				
SNAG		251.5	40.3	4	7	10				
TOTAL		30.9	4.9	319	335	352	38	10	4	
CL: 68.1 %		COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		97.9	15.7	13,870	16,447	19,024				
HEMLEAV		73.0	11.7	13,756	15,577	17,399				
SPRUCELV		119.0	19.1	5,592	6,908	8,224				
DOUGLEAV		119.7	19.2	5,522	6,831	8,141				
S SPRUCE		195.8	31.3	2,159	3,145	4,131				

TC TSTATS				STATISTICS				PAGE	2
				PROJECT		KRC		DATE	3/9/2014
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
07N	08W	24	A2	0PC2	112.00	39	327	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
R ALDER		166.9	26.7	1,376	1,878	2,379			
DOUG FIR		211.0	33.8	923	1,393	1,864			
ALDRLEAV		324.6	52.0	364	758	1,152			
SNAG									
TOTAL		36.6	5.9	49,832	52,937	56,043	54	13	6

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT KRC				DATE 3/20/2014		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
07N	07W	30	A345	0MCC	165.00	42	266	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	42	266	6.3							
CRUISE	18	108	6.0		43,214		.2			
DBH COUNT										
REFOREST										
COUNT	24	147	6.1							
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
WHEMLOCK	61	170.0	14.8	55		202.2	31,437	30,881	8,101	8,101
S SPRUCE	16	24.3	18.8	73		46.7	8,091	7,936	2,097	2,097
DOUG FIR	12	21.5	18.8	77		41.5	6,417	6,173	1,660	1,660
R ALDER	12	36.2	13.3	36		35.0	2,561	2,354	855	855
SNAG	6	9.4	17.4	45		15.6				
PS FIR	1	.6	36.0	115	0	3.9	1,117	1,117	214	214
TOTAL	108	261.9	15.5	56		344.9	49,623	48,461	12,927	12,927
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	73.4	11.3	151	170	189					
S SPRUCE	153.5	23.7	19	24	30					
DOUG FIR	192.4	29.7	15	21	28					
R ALDER	200.3	30.9	25	36	47					
SNAG	189.1	29.2	7	9	12					
PS FIR	364.9	56.3	0	1	1					
TOTAL	37.9	5.8	247	262	277	57	14	6		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	58.7	9.0	184	202	221					
S SPRUCE	173.9	26.8	34	47	59					
DOUG FIR	185.2	28.6	30	41	53					
R ALDER	193.8	29.9	25	35	45					
SNAG	193.8	29.9	11	16	20					
PS FIR	364.9	56.3	2	4	6					
TOTAL	28.5	4.4	330	345	360	32	8	4		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	61.1	9.4	27,970	30,881	33,793					
S SPRUCE	202.5	31.3	5,456	7,936	10,416					
DOUG FIR	183.5	28.3	4,425	6,173	7,922					
R ALDER	194.5	30.0	1,647	2,354	3,060					
SNAG										
PS FIR	364.9	56.3	488	1,117	1,746					
TOTAL	41.5	6.4	45,360	48,461	51,562	69	17	8		

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT KRC				DATE 3/20/2014		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
07N	08W	25	A6	RW	11.00	104	763	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		104	763	7.3						
CRUISE		46	332	7.2	2,966		11.2			
DBH COUNT										
REFOREST										
COUNT		58	413	7.1						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
WHEMLOCK	165	111.1	17.1	63		177.0	29,367	28,874	7,371	7,371
DOUG FIR	88	95.9	15.9	49		131.9	14,909	14,240	4,214	4,214
S SPRUCE	42	27.9	18.0	55		49.2	8,178	7,996	2,060	2,060
R ALDER	30	30.7	14.1	36		33.5	2,616	2,472	850	850
SNAG	6	3.8	17.4	45		6.3				
PS FIR	1	.2	36.0	115	0	1.6	451	451	86	86
TOTAL	332	269.7	16.5	54		399.5	55,522	54,033	14,581	14,581
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
WHEMLOCK	99.8	9.8	100	111	122					
DOUG FIR	147.9	14.5	82	96	110					
S SPRUCE	175.9	17.2	23	28	33					
R ALDER	227.3	22.3	24	31	38					
SNAG	319.7	31.4	3	4	5					
PS FIR	583.0	57.2	0	0	0					
TOTAL	38.3	3.8	260	270	280		59	15	7	
CL: 68.1 %	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
WHEMLOCK	91.9	9.0	161	177	193					
DOUG FIR	131.2	12.9	115	132	149					
S SPRUCE	175.5	17.2	41	49	58					
R ALDER	222.2	21.8	26	34	41					
SNAG	326.5	32.0	4	6	8					
PS FIR	583.0	57.2	1	2	2					
TOTAL	31.1	3.0	387	399	412		39	10	4	
CL: 68.1 %	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
WHEMLOCK	96.3	9.4	26,148	28,874	31,599					
DOUG FIR	123.8	12.1	12,510	14,240	15,969					
S SPRUCE	189.7	18.6	6,509	7,996	9,484					
R ALDER	209.9	20.6	1,963	2,472	2,980					
SNAG										
PS FIR	583.0	57.2	193	451	709					
TOTAL	46.6	4.6	51,561	54,033	56,504		87	22	10	

TC PSTNDSUM		Stand Table Summary										Page	1		
												Date:	3/20/2014		
T07N R07W S30 Ty0MCC THRU T07N R08W S25 TyRW		Project KRC										Time:	12:44:53PM		
		Acres 329.00										Grown Year:			
S Spec T	DBH	Sample Trees	Tot FF 16'	Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Net Bd.Ft.	Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	T o t a l s		
													Tons	Cunits	MBF
H	8	5	91	42	9.835	3.43	9.84	6.0	29.9		59	294		194	97
H	9	6	89	42	11.535	5.10	11.53	8.3	33.3		96	384		316	126
H	10	8	88	71	12.457	6.79	12.46	14.7	55.0		184	685		605	225
H	11	6	92	47	6.151	4.06	6.15	13.6	50.0		84	308		275	101
H	12	8	85	83	7.331	5.76	13.82	14.2	45.3		196	626		644	206
H	13	8	86	73	3.997	3.68	5.84	19.8	60.2		115	351		380	116
H	14	8	88	83	3.971	4.25	7.77	19.4	67.8		151	527		496	173
H	15	21	86	92	10.492	12.88	20.44	24.5	88.2		502	1,804		1,650	593
H	16	15	86	95	5.572	7.78	11.14	28.7	103.8		320	1,157		1,053	381
H	17	14	86	97	4.913	7.74	9.83	33.5	116.5		329	1,145		1,084	377
H	18	21	88	99	6.365	11.25	14.65	33.5	124.3		492	1,821		1,617	599
H	19	27	89	96	5.442	10.71	11.89	38.0	138.1		452	1,642		1,487	540
H	20	30	89	105	6.320	13.79	14.38	44.3	170.4		637	2,450		2,095	806
H	21	14	88	100	1.867	4.49	4.34	42.3	162.5		184	706		605	232
H	22	18	86	105	3.604	9.51	8.76	49.8	194.0		436	1,699		1,434	559
H	23	21	87	102	3.694	10.66	8.83	53.9	205.8		476	1,818		1,566	598
H	24	9	87	108	1.844	5.79	5.32	50.3	205.3		268	1,093		881	360
H	25	12	90	108	1.123	3.83	3.17	58.0	257.6		184	818		606	269
H	26	11	88	106	1.470	5.42	4.22	60.9	266.0		257	1,123		845	369
H	27	5	88	117	.454	1.81	1.35	70.6	322.0		96	436		314	143
H	28	5	89	123	.180	.77	.54	75.0	344.4		40	186		133	61
H	30	7	86	126	.503	2.47	1.51	88.0	397.0		133	599		437	197
H	31	1	85	113	.007	.04	.02	76.3	383.3		2	8		5	3
H	32	4	86	108	.317	1.77	.95	82.2	392.8		78	374		257	123
H	34	1	86	125	.006	.04	.02	110.7	506.7		2	9		6	3
H	Totals	285	88	79	109.449	143.81	188.78	30.6	116.9		5,770	22,060		18,985	7,258
S	9	4	82	48	3.913	1.73	3.91	8.5	25.0		33	98		109	32
S	10	1	83	31	.072	.04	.07	9.0	20.0		1	1		2	0
S	11	2	82	55	1.310	.86	1.31	16.0	40.0		21	52		69	17
S	12	2	82	78	1.913	1.50	3.83	12.5	35.0		48	134		157	44
S	13	2	82	37	.938	.86	.94	17.0	40.0		16	38		52	12
S	14	3	82	93	1.442	1.54	2.85	22.5	74.5		64	212		210	70
S	15	2	80	81	.704	.86	1.41	23.0	70.0		32	99		107	32
S	17	4	86	80	1.906	3.00	3.81	29.8	92.5		113	353		373	116
S	18	6	85	100	1.828	3.23	3.66	40.9	139.4		150	510		492	168
S	19	6	85	88	2.289	4.51	4.58	40.2	123.3		184	565		605	186
S	20	4	88	105	1.377	3.00	3.44	41.4	166.0		143	571		469	188
S	21	2	83	107	.359	.86	1.08	34.7	143.3		37	155		123	51
S	23	8	88	108	1.861	5.37	5.06	51.9	208.9		263	1,058		864	348
S	24	2	89	127	.478	1.50	1.43	55.0	253.3		79	363		260	120
S	25	4	82	99	.277	.94	.56	74.2	228.4		42	129		138	42
S	26	3	92	120	.418	1.54	1.24	68.8	325.5		85	405		281	133
S	28	1	83	97	.009	.04	.02	93.0	350.0		2	6		6	2
S	29	1	86	138	.009	.04	.03	89.3	410.0		2	11		8	3
S	30	4	86	109	.482	2.37	1.27	82.6	383.3		105	487		345	160
S	31	1	80	91	.007	.04	.01	103.0	330.0		2	5		5	2
S	34	2	85	109	.012	.08	.03	122.0	548.0		4	17		12	6
S	37	1	83	124	.005	.04	.02	119.3	553.3		2	9		6	3
S	39	1	82	120	.005	.04	.01	140.0	680.0		2	10		7	3
S	40	1	83	112	.004	.04	.01	142.3	706.7		2	10		6	3
S	42	1	86	127	.004	.04	.01	179.0	903.3		2	11		7	4
S	52	1	82	138	.003	.04	.01	276.3	1436.7		2	11		7	4

TC		PSTNDSUM		Stand Table Summary										Page Date:		2 3/20/2014	
T07N R07W S30 Ty0MCC THRU T07N R08W S25 TyRW					Project KRC					Time: 12:44:53PM							
					Acres 329.00					Grown Year:							
S Sp	T	DBH	Sample Trees	Tot FF 16'	Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals			
									Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF	
S		Totals	69	84	81	21.626	34.13	40.61	35.3	130.9		1,435	5,318	4,722	1,750		
D		9	2	82	26	1.136	.50	1.14	5.0	20.0		6	23	19	7		
D		10	6	84	39	2.859	1.51	2.86	8.9	23.2		25	66	84	22		
D		11	6	82	49	2.281	1.51	2.28	13.7	40.0		31	91	103	30		
D		12	10	82	44	3.194	2.51	3.19	13.8	32.0		44	102	145	34		
D		13	11	74	70	1.905	1.76	2.56	18.7	41.1		48	105	158	35		
D		14	6	86	67	.657	.70	.84	21.7	60.0		18	51	60	17		
D		15	10	84	91	2.435	2.99	4.05	25.4	85.5		103	347	339	114		
D		16	21	85	88	4.519	6.31	8.68	24.9	82.2		216	713	710	235		
D		17	4	86	100	1.195	1.88	2.39	31.1	113.1		74	270	245	89		
D		18	12	86	98	4.152	7.34	8.30	32.9	110.5		273	918	897	302		
D		19	10	84	77	.836	1.65	1.42	30.9	101.6		44	144	144	47		
D		21	2	83	76	.209	.50	.42	39.5	95.0		16	40	54	13		
D		22	2	84	69	.038	.10	.08	34.0	115.0		3	9	8	3		
D		23	2	88	110	.618	1.78	1.85	43.0	173.3		80	322	262	106		
D		24	6	85	105	.314	.99	.77	50.8	180.4		39	139	128	46		
D		25	1	86	108	.015	.05	.03	68.5	260.0		2	8	7	3		
D		27	7	86	110	1.021	4.06	3.05	57.4	223.5		175	682	576	224		
D		28	1	85	118	.012	.05	.04	63.7	256.7		2	9	7	3		
D		29	4	85	120	.411	1.88	1.23	67.2	297.6		83	367	273	121		
D		31	1	89	133	.010	.05	.03	87.3	426.7		3	12	8	4		
D		32	2	80	120	.079	.44	.24	70.7	286.7		17	68	55	22		
D		34	1	86	142	.008	.05	.02	111.7	526.7		3	13	9	4		
D		35	1	82	95	.008	.05	.02	121.5	425.0		2	6	6	2		
D		36	1	85	161	.007	.05	.02	135.0	676.7		3	14	9	5		
D		39	3	86	142	.059	.49	.18	146.2	741.9		26	132	86	44		
D		Totals	132	84	75	27.976	39.20	45.68	29.2	101.8		1,335	4,651	4,393	1,530		
A		8	4	87	23	6.382	2.14	6.38	4.7	20.0		30	128	98	42		
A		11	2	87	49	2.273	1.50	2.27	14.0	40.0		32	91	105	30		
A		12	6	85	56	3.858	3.03	3.86	20.2	50.0		78	193	257	63		
A		13	4	82	42	1.659	1.53	1.66	19.0	45.0		32	75	104	25		
A		14	2	86	56	.715	.76	.72	29.0	60.0		21	43	68	14		
A		15	11	86	50	5.544	6.80	6.77	23.5	58.1		159	393	522	129		
A		16	8	87	56	4.298	6.00	6.45	24.2	65.0		156	419	513	138		
A		17	4	87	70	1.437	2.27	2.87	24.2	80.0		69	230	228	76		
A		18	5	84	51	.887	1.57	.89	40.9	113.7		36	101	119	33		
A		19	2	87	82	.388	.76	.78	37.0	120.0		29	93	95	31		
A		20	1	87	89	.017	.04	.03	43.0	145.0		1	5	5	2		
A		21	1	83	61	.016	.04	.03	34.5	110.0		1	3	4	1		
A		22	3	87	53	.304	.80	.61	27.5	110.1		17	67	55	22		
A		47	2	86	64	.063	.76	.13	184.5	795.0		23	101	77	33		
A		Totals	55	86	47	27.841	28.01	33.44	20.4	58.1		684	1,941	2,249	639		
SF		36	2	92	125	.283	2.00	.85	129.7	676.7		110	575	363	189		
SF		Totals	2	92	125	.283	2.00	.85	129.7	676.7		110	575	363	189		
SN		15	2	88	69	1.088	1.34										
SN		16	4	85	48	1.913	2.67										
SN		18	2	88	50	.756	1.34										
SN		19	2	86	109	.678	1.34										
SN		25	2	89	37	.392	1.34										

TC PSTNDSUM		Stand Table Summary										Page 3				
												Date: 3/20/2014				
T07N R07W S30 Ty0MCC THRU T07N R08W S25 TyRW					Project KRC					Time: 12:44:53PM						
					Acres 329.00					Grown Year:						
S Spe	T	Tot						Average Log		Net	Net	Totals				
		Sample	FF	Av	Trees/	BA/	Logs	Net	Net							
		DBH	Trees	16'	Ht	Acre	Acre	Acre	Cu.Ft.	Bd.Ft.	Tons/	Cu.Ft.	Bd.Ft.	Tons	Cunits	MBF
SN		Totals	12	87	61	4.827	8.01									
Totals			555	87	74	192.002	255.16	309.37	30.2	111.7		9,335	34,546		30,712	11,366

TC PLOGSTVB			Log Stock Table - MBF																	
T07N R07W S30 Ty0MCC THRU T07N R08W S25 TyRW						Project: KRC						Page 2								
						Acres 329.00						Date 3/20/2014								
												Time 12:44:51PM								
S T Spp	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	20-21	22-29	30-39	40+		
A	DO	3S	30	44	9.1	40	6.3					40								
A	DO	3S	32	130	10.6	116	18.1					115	1							
A	DO	3S	38	38	16.7	31	4.9			31										
A	DO	3S	40	60	6.0	57	8.9			29	28									
A	DO	4S	16	66		66	10.4		16	50	0									
A	DO	4S	22	9		9	1.5			9										
A	DO	4S	24	8		8	1.2			5			3							
A	DO	4S	26	11		11	1.7			11										
A	DO	4S	32	130	12.0	115	18.0			115										
A	DO	4S	36	24		24	3.8			24										
A	DO	4S	40	36	6.5	34	5.3			34										
A	Totals			685	6.8	639	5.6		16	315	28	181	48	2	18			31		
S	DO	2S	32	177	1.1	175	10.0							33	142					
S	DO	2S	40	846	1.4	834	47.7						308	136	195	96	94	5		
S	DO	3S	20	0		0	.0							0						
S	DO	3S	30	38	16.6	32	1.8				32									
S	DO	3S	32	124	4.2	119	6.8			10	5	46	55		1	1				
S	DO	3S	34	8		8	.5			8										
S	DO	3S	36	3	3.8	3	.2					0			1		2			
S	DO	3S	38	31		31	1.8			30					1					
S	DO	3S	40	323	4.1	310	17.7			11	43	119	104		32		1			
S	DO	4S	16	55		55	3.1			36	10		9							
S	DO	4S	20	29		29	1.7			29										
S	DO	4S	22	10		10	.6			10										
S	DO	4S	24	26		26	1.5			19	7									
S	DO	4S	26	12		12	.7			12										
S	DO	4S	28	0		0	.0								0					
S	DO	4S	30	10		10	.6			10										
S	DO	4S	32	36	12.1	31	1.8		14	17	0									
S	DO	4S	40	63		63	3.6				63									
S	Totals			1,792	2.4	1,750	15.4		14	194	161	166	475	170	372	97	97	5		
D	DO	2S	16	9		9	.6							9						
D	DO	2S	22	12	4.3	11	.8										11			
D	DO	2S	32	89	6.2	83	5.4						31	29	23					
D	DO	2S	40	420	3.8	404	26.4					60		18	310	4	12			

TC PLOGSTVB				Log Stock Table - MBF															
T07N R07W S30 Ty0MCC THRU T07N R08W S25 TyRW				Project: KRC				Acres 329.00				Page 3							
								Date 3/20/2014											
								Time 12:44:51PM											
Spp	S T	So Gr rt de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-21	22-29	30-39	40+
D		DO 3S	16	1		1	.0					0	0						
D		DO 3S	20	2		2	.1					1		1					
D		DO 3S	24	13	6.5	12	.8			0				12					
D		DO 3S	26	1	16.7	1	.1				1								
D		DO 3S	28	0		0	.0					0							
D		DO 3S	30	8	25.0	6	.4			6									
D		DO 3S	32	186	7.3	172	11.3			30	24	41	76						
D		DO 3S	34	65		65	4.2			65									
D		DO 3S	36	69		68	4.5			51		17							
D		DO 3S	38	2		2	.2				2								
D		DO 3S	40	563	5.9	530	34.6			50	13	335	77	1	15	14	23		
D		DO 4S	16	44		44	2.9		0	35	2	8							
D		DO 4S	18	4		4	.3			4									
D		DO 4S	20	20		20	1.3			20									
D		DO 4S	22	16		16	1.0			16									
D		DO 4S	24	11		11	.7			3	1			6					
D		DO 4S	26	10		10	.7			7			3						
D		DO 4S	28	18		18	1.2			18									
D		DO 4S	30	13	24.1	10	.6			10									
D		DO 4S	32	0		0	.0			0									
D		DO 4S	34	11		11	.7			11									
D		DO 4S	36	7		7	.5		7										
D		DO 4S	40	11		11	.7			11									
D		Totals		1,605	4.7	1,530	13.5		7	338	44	463	199	66	347	18	47		
SF		DO 2S	40	184		184	97.0							56		128			
SF		DO 3S	32	6		6	3.0			6									
SF		Totals		189		189	1.7			6				56		128			
Total		All Species		11,663	2.6	11,366	100.0		39	2279	854	1876	1877	1628	1946	376	456	35	

LOGGING PLAN MAP

TIMBER SALE CONTRACT NO 341-15-29
KLASKANINE RIDGE COMBO
PORTIONS OF SECTION 30, T7N, R7W, AND
SECTIONS 24 & 25, T7N, R8W, W.M.,
CLATSOP COUNTY, OR

Legend

- Timber Sale Boundary
- ⊙ Landing To Be Constructed
- Existing Landing
- Ownership
- Survey Monument
- Area Boundary
- Section Line
- Surfaced Road
- Cable Logging
- Line Pull Area
- Ground Based Logging
- Type F Stream
- Type N Stream
- Posted Stream Buffer
- Unposted Stream Buffer

APPROXIMATE NET ACRES

AREA	MC ACRES	PC ACRES
Area 1	41	
Area 2		112
Area 3	68	
Area 4	72	
Area 5	25	
Area 6 R/W	11	
TOTALS =	176	153

TOTAL SALE ACRES = 329

LOGGING BREAKDOWN

AREA	TRACTOR	CABLE
Area 1	56%	44%
Area 2	81%	19%
Area 3	29%	71%
Area 4	25%	75%
Area 5	100%	0%
Area 6 R/W	100%	0%
TOTAL	57%	43%

