



Timber Sale Appraisal
Tall N Small
Sale AT-341-2017-06-

District: Astoria

Date: April 25, 2017

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$5,733,107.97	\$7,679.88	\$5,740,787.85
		Project Work:	(\$393,992.00)
		Advertised Value:	\$5,346,795.85



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District: Astoria

Date: April 25, 2017

Timber Description

Location: Portions of Sections 35, and 36, T6N, R6W, and portions of Sections 1, 2, 11, 12, 13, 14, 23, and 24, T5N, R6W, W.M., Clatsop County, Oregon.

Stand Stocking: 80%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	20	0	97
Western Hemlock / Fir	17	0	97
Alder (Red)	15	0	95

Volume by Grade	2S	3S	4S	10" - 11"	6" - 7"	Total
Douglas - Fir	10,540	2,626	587	0	0	13,753
Western Hemlock / Fir	165	56	4	0	0	225
Alder (Red)	0	0	0	15	3	18
Total	10,705	2,682	591	15	3	13,996

Comments: Pond Values Used: 1st Quarter Calendar Year 2017 + Local Pond Values, February, 2017.

Expected Log Markets: Mist, Clatskanie, Tillamook, Forest Grove, Banks, Longview (WA), Chehalis (WA), Elma (WA), Warrenton and Garibaldi.

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:
\$1,136.95/MBF = \$1,363/MBF - \$226.05/MBF

SCALING COST ALLOWANCE = \$5.00/MBF

BRANDING AND PAINTING COST ALLOWANCE = \$2.00/MBF

FUEL COST ALLOWANCE = \$3.00/Gallon

HAULING COST ALLOWANCE
Hauling costs equivalent to \$780 daily truck cost.

Other Costs (with Profit & Risk to be added):
Log Loader Slash & Landing Piling (includes Move-in and Pile Materials) = \$15,306.00 (see attached appraisal)
Machine Washing for Invasive Weed Compliance = \$2,000
TOTAL Other Costs (with Profit & Risk to be added) = \$17,306

Other Costs (No Profit & Risk added):
None.



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Logging Conditions

Combination#:	1	Douglas - Fir	31.00%
		Western Hemlock / Fir	31.00%
		Alder (Red)	31.00%
Logging System:	Cable: Medium Tower >40 - <70	Process:	Manual Delimbing
yarding distance:	Medium (800 ft)	downhill yarding:	No
tree size:	Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF		
loads / day:	7	bd. ft / load:	3700
cost / mbf:	\$235.52		
machines:	Log Loader (A) Tower Yarder (Medium)		
Combination#:	2	Douglas - Fir	11.00%
		Western Hemlock / Fir	11.00%
		Alder (Red)	11.00%
Logging System:	Shovel	Process:	Manual Delimbing
yarding distance:	Medium (800 ft)	downhill yarding:	No
tree size:	Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF		
loads / day:	12	bd. ft / load:	3700
cost / mbf:	\$74.94		
machines:	Shovel Logger		
Combination#:	3	Douglas - Fir	45.00%
		Western Hemlock / Fir	45.00%
		Alder (Red)	45.00%
Logging System:	Cable: Medium Tower >40 - <70	Process:	Stroke Delimber
yarding distance:	Long (1,500 ft)	downhill yarding:	No
tree size:	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF		
loads / day:	12	bd. ft / load:	4600
cost / mbf:	\$108.70		
machines:	Log Loader (A) Stroke Delimber (A) Tower Yarder (Medium)		
Combination#:	4	Douglas - Fir	13.00%
		Western Hemlock / Fir	13.00%
		Alder (Red)	13.00%
Logging System:	Shovel	Process:	Stroke Delimber
yarding distance:	Medium (800 ft)	downhill yarding:	No
tree size:	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF		
loads / day:	18	bd. ft / load:	4600
cost / mbf:	\$38.31		
machines:	Stroke Delimber (B)		



"STEWARDSHIP IN FORESTRY"

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Date: April 25, 2017

Logging Costs

Operating Seasons: 3.00	Profit Risk: 10%
Project Costs: \$393,992.00	Other Costs (P/R): \$17,306.00
Slash Disposal: \$0.00	Other Costs: \$0.00

Miles of Road

Road Maintenance: \$2.23

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

Hauling Costs

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



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Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling / Brand & Paint	Other	Total
Douglas - Fir									
\$135.15	\$2.30	\$0.94	\$59.51	\$1.24	\$19.91	\$0.00	\$7.00	\$0.00	\$226.05
Western Hemlock / Fir									
\$135.15	\$2.30	\$0.94	\$59.51	\$1.24	\$19.91	\$0.00	\$7.00	\$0.00	\$226.05
Alder (Red)									
\$135.15	\$2.34	\$0.94	\$117.00	\$1.24	\$25.67	\$0.00	\$7.00	\$0.00	\$289.34

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$638.04	\$411.99	\$0.00
Western Hemlock / Fir	\$0.00	\$523.87	\$297.82	\$0.00
Alder (Red)	\$0.00	\$716.00	\$426.66	\$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
Alder (Red)	0	\$0.00	\$0.00

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	13,753	\$411.99	\$5,666,098.47
Western Hemlock / Fir	225	\$297.82	\$67,009.50
Alder (Red)	18	\$426.66	\$7,679.88

Gross Timber Sale Value

Recovery: \$5,740,787.85

Prepared By: Dave Rygell

Phone: 503-325-5451

Site Prep Appraisal

Sale Number: 341-17-06
Sale Name: Tall N Small
Date: 01/11/2017

Vegetation Type/Zone	Vegetation Type/Zone Code	Production Rate (hr/ac)	Estimated Piles/Acre
Doug-fir	A	1.0	3.0
Hemlock/Fir	B	1.5	4.5
Hemlock/Spruce	C	2.0	6.0
Hemlock	D	2.0	6.0
Conifer/Hardwood	E	1.5	4.5
Whole Tree Yarding	F	0.5	0.5

Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area	
5	MC	A	10.0	10	\$129.00	\$1,290.00	
6	MC	A	19.0	19	\$129.00	\$2,451.00	
7	MC	A	2.0	2	\$129.00	\$258.00	
8	MC	A	9.0	9	\$129.00	\$1,161.00	
In-unit Piling						Sub Total =	\$5,160.00
Sale Area	Number of Landings to be Piled	Cost/Landing Pile	Total Cost/Area	Number of In-Unit Piles	Material Cost/Pile	Total Cost/Area	
5	5	\$516.00	\$2,580.00	30	\$5.00	\$150.00	
6	4	\$516.00	\$2,064.00	57	\$5.00	\$285.00	
7	5	\$516.00	\$2,580.00	6	\$5.00	\$30.00	
8	2	\$516.00	\$1,032.00	27	\$5.00	\$135.00	
*Cost includes separating firewood					Materials	Sub Total =	\$600.00
					Landing Piling	Sub Total =	\$8,256.00
Move-In Allowance	Number of Move-In's	Total Move-In Allowance					
\$1,290.00	1	\$1,290.00			Move-In	Sub Total =	\$1,290.00
						Grand Total =	\$15,306.00

Final Road Maintenance Cost Summary

Sale:	Tall N Small	MBF:	13,996
Date:	11-Jan-17	\$/MBF:	\$2.23
By:	Bryce Rodgers FL		

Type	Equipment/Rationale	Move In	Times	Hours	Rate	Cost
Progressive Operations 1st Entry	Grader 14G	\$778	1	8	\$100	\$1,578
Progressive Operations 2nd Entry	Grader 14G	\$778	1	16	\$100	\$2,378
	Dump Truck 12CY	\$163	1	10	\$79	\$953
	FE Loader C966	\$778	1	4	\$83	\$1,110
	Vibratory Roller	\$778	1	16	\$77	\$2,010
Final Haul Maintenance Haul Route	Grader 14G	\$778	1	72	\$100	\$7,978
	Dump Truck 12CY	\$163	2	10	\$79	\$1,906
	Vibratory Roller	\$778	1	72	\$77	\$6,322
	Water Truck 2,500 gallon	\$190	1	36	\$89	\$3,394
	FE Loader C966	\$778	1	10	\$83	\$1,608
	Labor			10	\$40	\$400
	Rubber Tire Backhoe	\$321	1	16	\$77	\$1,553
Total						\$31,190

Progressive Ops. 1st Entry	Production Rates	Miles/day	Distance(miles)	Days
	Grader	2.5	2.0	0.8
Progressive Ops. 2nd Entry	Production Rates	Miles/day	Distance(miles)	Days
	Grader	2.5	5.0	2.0
Final Road Maintenance	Production Rates	Miles/day	Distance(miles)	Days
	Grader	1.5	14.0	9.3
	Vibratory Roller	1.5	14.0	9.3

* It is anticipated that a full process and compaction will not be required for approximately 2 miles of Sager Creek Mainline due to the roads past performance.

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Tall n Small

ROAD CONSTRUCTION:

Project No. 1

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
1A-1B, 2A-2B, 2C-2D, 2E-2F, 3A-3B, 3C-3D, 4A-4B, 4C-4D, 5A-5B, 5C-5D, 6A-6B, 6C-6D, 7A-7B, 7D-7E	66.70	\$117,198.62
TOTAL		\$ 117,199

ROAD IMPROVEMENT:

Project No. 2

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
I1-I2, I3-I4, I5-I6, I7-I8, I9-I10, I11-I12, I13-I14, I13-I15, I16-I17, I18-I19, I20-I21, I22-I23, I24-I25	639.70	\$115,546.40
		\$ 115,546

SPECIAL PROJECTS:

<u>Description</u>	<u>Cost</u>
Project No. 3. Green Mountain Quarry Development and Rock Crush	\$ 137,876
Project No. 4 Vacating	\$ 1,833
Project No. 5 Stream Enhancement	\$ 5,026
Project Road Maintenance	\$ 8,280

MOVE IN:

<u>Equipment</u>	<u>Cost</u>
Large Grader (14G)	\$ 778
Vibratory Roller	\$ 778
Excavator (C315)	\$ 805
Excavator (C330)	\$ 1,406
Dozer (D8)	\$ 1,406
Small backhoe (C580)	\$ 321
Water truck (2,500 gallons)	\$ 190
10-12 cy highway dump truck X 5	\$ 815
20 cy highway dump truck X 5	\$ 955
Skidder	\$ 778
TOTAL	\$8,232

GRAND TOTAL

TOTAL	\$393,992
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Compiled By: C.Bangs

Date: 02/28/2017

SALE NAME:	Tall n Small	NEW CONSTRUCTION:	66.70	STATIONS	1.26	MILES
ROAD:	1A-1B(7+00), 2A-2B(1+00), 2C-2D(6+50), 2E-2F(2+00), 3A-3B(4+50), 3C-3D(2+00), 4A-4B(12+00), 4C-4D(3+00), 5A-5B(1+00), 5C-5D(15+00), 6A-6B(4+00), 6C-6D(1+90), 7A-7B(4+50), 7D-7E(2+30)	IMPROVEMENT:		STATIONS		MILES
POINTS:	1B, 2B, 2D, 2F, 3B, 3D, 4B, 4D, 5B, 5C-5D Sta. 14+00, 6B, 6D, 7A-7B Sta 1+10, 7B, 7C, 7E					

EXCAVATION		Material	Cyl/amount	x	Rate	=	Cost
1A to 1B	Balanced Construction	\$/sta	7.00	x	\$ 122.00	=	\$ 854.00
2A to 2B	Balanced Construction	\$/sta	1.00	x	\$ 122.00	=	\$ 122.00
2C to 2D	Balanced Construction	\$/sta	6.50	x	\$ 122.00	=	\$ 793.00
2E to 2F	Balanced Construction	\$/sta	2.00	x	\$ 122.00	=	\$ 244.00
3A to 3B	Balanced Construction	\$/sta	4.50	x	\$ 122.00	=	\$ 549.00
3C to 3D	Balanced Construction	\$/sta	2.00	x	\$ 122.00	=	\$ 244.00
4A to 4B	Balanced Construction	\$/sta	9.00	x	\$ 122.00	=	\$ 1,098.00
4A to 4B	Common Drift	\$/sta	3.00	x	\$ 190.00	=	\$ 570.00
4C to 4D	Balanced Construction	\$/sta	3.00	x	\$ 122.00	=	\$ 366.00
5A to 5B	Balanced Construction	\$/sta	1.00	x	\$ 122.00	=	\$ 122.00
5C to 5D	Common drift (less than 50% slopes)		1,450	x	\$ 1.80	=	\$ 2,610.00
	Common drift (greater than 50% slopes)		2,500	x	\$ 2.10	=	\$ 5,250.00
	End-haul excavation		950	x	\$ 4.00	=	\$ 3,800.00
	Embankment compaction		4,900	x	\$ 0.70	=	\$ 3,430.00
	Cutslope rounding		10	x	\$ 43.00	=	\$ 430.00
	Fill Construction (extra D8 time)		8.00	x	\$ 158.00	=	\$ 1,264.00
	Fill Construction (extra excavator time)		4.00	x	\$ 155.00	=	\$ 620.00
	Fill Construction (extra skidder time)		8.00	x	\$ 92.00	=	\$ 736.00
6A to 6B	Balanced Construction	\$/sta	3.00	x	\$ 122.00	=	\$ 366.00
6A to 6B	Common Drift	\$/sta	1.00	x	\$ 190.00	=	\$ 190.00
6C to 6D	Balanced Construction	\$/sta	1.90	x	\$ 122.00	=	\$ 231.80
7A to 7B	Balanced Construction	\$/sta	4.50	x	\$ 122.00	=	\$ 549.00
7D to 7E	Balanced Construction	\$/sta	2.30	x	\$ 122.00	=	\$ 280.60
1B, 2B, 4B, 4C, 3B, 3D, 4B, 4D, 5B, 5C to 5D Sta 14+00, 6B, 6D, 7A- 7B Sta 1+10, 7B,	Landing Construction	\$/landing	16	x	\$ 389.00	=	\$ 6,224.00
				x		=	\$ -
SUB TOTAL FOR EXCAVATION							\$ 30,943.40

[illegible]

SURFACING		Stations/amount	x	Rate/sta/amt	Cost
Subgrade prep:					
Description					
Grade, Shape and Ditch 16'		65.70	x	\$ 24.83	\$ 1,631.33
Grade, Shape and Outslope 14' (2A to 2B)		1.00	x	\$ 18.35	\$ 18.35
Subgrade Compaction		66.70	x	\$ 20.19	\$ 1,346.67

ROAD SEGMENT 1A to 1B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1A to 1B		0+00 to 7+00				
				Volume (CY) per	Number of					
Base Rock	5'-0" crushed	0+00 to 7+00	10	station	63	stations	7	441	\$8.32	\$ 3,669.12
Junctions	5'-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.32	\$ 166.40
Junctions	1 1/2"-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.59	\$ 171.80
Turnaround	5'-0" crushed	3+00	-	TA	20	TA's	1	20	\$8.95	\$ 179.00
Landing	6'-0" pit-run	7+00	-	landing	50	landings	1	50	\$9.52	\$ 476.00
Total Rock for Road Segment:				1A to 1B				551		\$ 4,662.32
ROAD SEGMENT 2A to 2B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A to 2B		0+00 to 1+00				
				Volume (CY) per	Number of					
Base Rock	5'-0" crushed	0+00 to 1+00	10	station	63	stations	1	63	\$8.32	\$ 524.16
Junctions	5'-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.32	\$ 166.40
Junctions	1 1/2"-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.59	\$ 171.80
Landing	6'-0" pit-run	1+00	-	landing	50	landings	1	50	\$9.52	\$ 476.00
Total Rock for Road Segment:				2A to 2B				153		\$ 1,338.36
ROAD SEGMENT 2C to 2D				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2C to 2D		0+00 to 6+50				
				Volume (CY) per	Number of					
Base Rock	5'-0" crushed	0+00 to 6+50	10	station	63	stations	6.5	410	\$8.32	\$ 3,407.04
Junctions	5'-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.32	\$ 166.40
Junctions	1 1/2"-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.59	\$ 171.80
Landing	6'-0" pit-run	6+50	-	landing	50	landings	1	50	\$9.52	\$ 476.00
Total Rock for Road Segment:				2C to 2D				500		\$ 4,221.24
ROAD SEGMENT 2E to 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 to 2F		0+00 to 2+00				
				Volume (CY) per	Number of					
Base Rock	5'-0" crushed	0+00 to 2+00	10	station	63	stations	2	126	\$8.32	\$ 1,048.32
Junctions	5'-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.32	\$ 166.40
Junctions	1 1/2"-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.59	\$ 171.80
Landing	6'-0" pit-run	2+00	-	landing	50	landings	1	50	\$9.52	\$ 476.00
Total Rock for Road Segment:				2E to 2F				216		\$ 1,862.52
ROAD SEGMENT 3A to 3B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	3A to 3B		0+00 to 4+50				
				Volume (CY) per	Number of					
Base Rock	5'-0" crushed	0+00 to 2+00	10	station	63	stations	4.5	284	\$8.32	\$ 2,358.72
Junctions	5'-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.32	\$ 166.40
Junctions	1 1/2"-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.59	\$ 171.80
Landing	6'-0" pit-run	4+50	-	landing	50	landings	1	50	\$9.52	\$ 476.00
Total Rock for Road Segment:				3A to 3B				374		\$ 3,172.92
ROAD SEGMENT 3C to 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 to 3D		0+00 to 2+00				
				Volume (CY) per	Number of					
Base Rock	5'-0" crushed	0+00 to 2+00	10	station	63	stations	2	126	\$8.32	\$ 1,048.32
Junctions	5'-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.32	\$ 166.40
Junctions	1 1/2"-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.59	\$ 171.80
Landing	6'-0" pit-run	2+00	-	landing	50	landings	1	50	\$9.52	\$ 476.00
Total Rock for Road Segment:				3C to 3D				216		\$ 1,862.52
ROAD SEGMENT 4A to 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 to 4B		0+00 to 12+00				
				Volume (CY) per	Number of					
Base Rock	5'-0" crushed	0+00 to 12+00	10	station	63	stations	12	756	\$8.32	\$ 6,289.92
Junctions	5'-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.32	\$ 166.40
Turnaround	5'-0" crushed	9+10	-	TA	20	TA's	1	20	\$8.32	\$ 166.40
Turnout	5'-0" crushed	6+00	-	TO	20	TO's	1	20	\$8.32	\$ 166.40
Landing	6'-0" pit-run	12+00	-	landing	50	landings	1	50	\$9.52	\$ 476.00
Total Rock for Road Segment:				4A to 4B				866		\$ 7,265.12
ROAD SEGMENT 4C to 4D				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	4C to 4D		0+00 to 3+00				
				Volume (CY) per	Number of					
Base Rock	5'-0" crushed	0+00 to 3+00	10	station	63	stations	3	189	\$8.32	\$ 1,572.48
Junctions	1 1/2"-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.59	\$ 171.80
Junctions	5'-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.32	\$ 166.40
Landing	6'-0" pit-run	3+00	-	landing	50	landings	1	50	\$9.52	\$ 476.00
Total Rock for Road Segment:				4C to 4D				279		\$ 2,386.68
ROAD SEGMENT 5A to 5B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	5A to 5B		0+00 to 1+00				
				Volume (CY) per	Number of					
Base Rock	5'-0" crushed	0+00 to 1+00	10	station	63	stations	1	63	\$8.32	\$ 524.16
Junctions	5'-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.32	\$ 166.40
Landing	6'-0" pit-run	1+00	-	landing	70	landings	1	70	\$9.52	\$ 666.40
Total Rock for Road Segment:				5A to 5B				153		\$ 1,356.96

ROAD SEGMENT				5C to 5D		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	5C to 5D Volume (CY) per		0+00 to 15+00 Number of						
Base Rock	5"-0" crushed	0+00 to 15+00	10	station	63	stations	15	945	\$8.32	\$ 7,862.40		
Junctions	5"-0" crushed	0+00, 15+00	10	junction	40	junctions	2	80	\$8.32	\$ 665.60		
Junctions	5"-0" crushed	14+00	10	junction	63	junctions	1	63	\$8.32	\$ 524.16		
Turnouts	5"-0" crushed	2+85, 6+50, 12+00	10	TO	30	TO's	3	90	\$8.32	\$ 748.80		
Surface Rock	3/4"-0" crushed	0+00 to 15+00	2	station	13	stations	15	195	\$8.24	\$ 1,606.80		
Junctions	3/4"-0" crushed	0+00, 15+00	2	junction	20	junctions	2	40	\$8.24	\$ 329.60		
Turnouts	3/4"-0" crushed	2+85, 6+50, 12+00	2	TO	20	TO's	3	60	\$8.24	\$ 494.40		
Landing	6"-0" pit-run	14+00		landing	60	landings	1	60	\$9.52	\$ 571.20		
Dissipator	24"-6" riprap	2+60, 6+00, 8+50		dissipator	20	dissipators	3	60	\$10.23	\$ 613.80		
Fill Armor	24"-6" riprap	3+50 to 6+00		N/A		N/A		560	\$10.23	\$ 5,728.80		
Ditch Armor	24"-6" riprap	10+75		N/A		N/A		10	\$10.23	\$ 102.30		
Free Drain/Reinforcement	24"-6" riprap	3+50 to 6+00		N/A		N/A		40	\$10.23	\$ 409.20		
Total Rock for Road Segment:				5C to 5D				2,203			\$ 19,657.06	
ROAD SEGMENT				6A to 6B		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	6A to 6B Volume (CY) per		0+00 to 4+00 Number of						
Base Rock	5"-0" crushed	0+00 to 4+00	10	station	63	stations	4	252	\$8.32	\$ 2,096.64		
Junctions	5"-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.32	\$ 166.40		
Turnaround	5"-0" crushed	1+80	-	TA	20	TA's	1	20	\$8.32	\$ 166.40		
Landing	6"-0" pit-run	4+00	-	landing	70	landings	1	70	\$9.52	\$ 666.40		
Total Rock for Road Segment:				6A to 6B				362			\$ 3,095.84	
ROAD SEGMENT				6C to 6D		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	6C to 6D Volume (CY) per		0+00 to 1+90 Number of						
Base Rock	5"-0" crushed	0+00 to 1+90	10	station	63	stations	1.9	120	\$8.32	\$ 995.90		
Junctions	5"-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.32	\$ 166.40		
Landing	6"-0" pit-run	1+90	-	landing	70	landings	1	70	\$9.52	\$ 666.40		
Total Rock for Road Segment:				6C to 6D				210			\$ 1,828.70	
ROAD SEGMENT				7A to 7B		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	7A to 7B Volume (CY) per		0+00 to 4+50 Number of						
Base Rock	5"-0" crushed	0+00 to 4+50	10	station	63	stations	4.5	284	\$8.32	\$ 2,358.72		
Junctions	1 1/2"-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.59	\$ 171.80		
Junctions	5"-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.32	\$ 166.40		
Landing	6"-0" pit-run	1+10, 4+50	-	landing	70	landings	2	140	\$9.52	\$ 1,332.80		
Total Rock for Road Segment:				7A to 7B				464			\$ 4,029.72	
ROAD SEGMENT				Pt 7C		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Pt 7C Volume (CY) per		- Number of						
Junctions	1 1/2"-0" crushed	-	-	junction	20	junctions	1	20	\$8.59	\$ 171.80		
Landing	6"-0" pit-run	-	-	landing	70	landings	1	70	\$9.52	\$ 666.40		
Total Rock for Road Segment:				Pt 7C				90			\$ 838.20	
ROAD SEGMENT				7D to 7E		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	7D to 7E Volume (CY) per		0+00 to 2+30 Number of						
Base Rock	5"-0" crushed	0+00 to 2+30	10	station	63	stations	2.3	145	\$8.32	\$ 1,205.57		
Junctions	1 1/2"-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.59	\$ 171.80		
Junctions	5"-0" crushed	0+00	-	junction	20	junctions	1	20	\$8.32	\$ 166.40		
Landing	6"-0" pit-run	2+30	-	landing	70	landings	1	70	\$9.52	\$ 666.40		
Total Rock for Road Segment:				7D to 7E				255			\$ 2,210.17	
Processing:				Description					No.sta	Rate/sta	Cost	
				Water, Process & Compact: 5"-0" lift 1					66.70	\$ 56.48	\$ 3,767.22	
				Water, Process & Compact: 5"-0" lift 2					66.70	\$ 56.48	\$ 3,767.22	
				Water, Process & Compact: 3/4"-0"					15.00	\$ 56.48	\$ 847.20	
				24"-6"rr	6"-0"pr	5"-0"	1 1/2"-0"	3/4"-0"	Total			
SUB TOTAL FOR SURFACING				670	950	4,775	200	295	6,890		\$ 71,166.32	
SPECIAL PROJECTS				Description					Cost			
				Seed and mulch waste areas					\$ 500.00			
				6"-0" Pit-run development					In Crush costs			
				24"-6" Riprap development					In Crush costs			
SUB TOTAL FOR SPECIAL PROJECTS												

SALE NAME:		NEW CONSTRUCTION:		STATIONS		MILES	
ROAD:		IMPROVEMENT:		639.70		12.12	
<u>I1-12(326+70), I3-14(11+60), I5-16(48+20), I7-18(6+00), I9-110(12+00), I11-112(38+70)</u> <u>I13-114(16+40), I13-115(1+50), I16-117(2+30), I18-119(106+00), I20-121(18+20), I22-123(47+30), I24-125(3+00)</u>							

Method	Acres/amount	x	Rate	=	Cost
19-110(0+00) Grub stumps, reestablish ditch, scatter (C315 Hrs.)	0.5	x	\$ 101.00	=	\$ 50.50
19-110(9+70) Grub stumps, reestablish grade, scatter (C315 Hrs.)	0.5	x	\$ 101.00	=	\$ 50.50
		x		=	\$ -
		x		=	\$ -

	Material	Cyl/amount	x	Rate	=	Cost
I1-I2 (20+90,						
54+20)	Install ditch filters (C315 Hrs.)	2	x	\$ 101.00	=	\$ 202.00
I1-I2 (118+70,						
185+20)	Clean catch basin (C315 Hrs.)	0.25	x	\$ 101.00	=	\$ 25.25
I5-I6(17+20)	Construct ditchout (C315 Hrs.)	0.25	x	\$ 101.00	=	\$ 25.25
I5-I6(26+00)	Clean ditchouts spur landing right (C315 Hrs.)	2.00	x	\$ 101.00	=	\$ 202.00
I9-I10(0+00)	Cut trees in ditch (Labor Hrs.)	0.5	x	\$ 40.00	=	\$ 20.00
I9-I10(4+90)	Construct ditchout (C315 Hrs.)	0.50	x	\$ 101.00	=	\$ 50.50
I9-I10(7+70)	Establish ditchline and drainage (C315 Hrs)	1.00	x	\$ 101.00	=	\$ 101.00
I9-I10(9+70)	Cut trees on road edge (Labor Hrs.)	0.5	x	\$ 40.00	=	\$ 20.00
I9-I10(11+00)	Construct ditchout (C315 Hrs.)	0.5	x	\$ 101.00	=	\$ 50.50
I11-I12(15+00)	Construct ditchout (C315 Hrs.)	0.5	x	\$ 101.00	=	\$ 50.50
I13-I14(9+20-						
11+60)	Cutbank and ditch re-establishment (C315 Hrs.)	4.00	x	\$ 101.00	=	\$ 404.00
I13-I14(9+20-						
11+60)	Endhaul cutbank and ditch waste (10cyd Dump Hrs.)	4.00	x	\$ 79.00	=	\$ 316.00
I13-I15(1+50)	Cut trees on road edge (Labor Hrs.)	1.00		\$ 40.00	=	\$ 40.00
I18-I19						
(10+65)	Install ditch filters (C315 Hrs.)	1.00	x	\$ 101.00		\$ 101.00
I23-24 (10+65)	Excavate and end haul material (C315/dump truck)	1.00		\$ 179.00		\$ 179.00
I18-I19(76+20)	Fill hole in fill slope (C315 Hrs.)	1.00	x	\$ 101.00	=	\$ 101.00
I18-I19(0+00,						
77+90)	Clean culvert inlet (C315 Hrs.)	0.50	x	\$ 101.00	=	\$ 50.50
I18-I19(80+70)	Cut trees on road edge (Labor Hrs.)	0.50		\$ 40.00	=	\$ 20.00
I18-I19(90+30)	Clean culvert inlet and outlet, Construct Ditchout (C315 Hrs)	0.50	x	\$ 101.00	=	\$ 50.50
I20-I21(13+50)	Improve ditchout (C315 Hrs)	0.50	x	\$ 101.00	=	\$ 50.50
			x		=	
			x		=	
			x		=	
			x		=	
			x		=	

[illegible]

	Description	Quantity	Rate	Cost
Other/miscellaneous:				
Culvert stakes & markers:	Culvert Markers	6	\$20.00	\$120.00

<i>Subtotal of Clearing, Exc., Culv.</i>	\$7,554
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SURFACING		Stations/ amount	x	Rate/ sta/amt	Cost
Subgrade prep:	Description				
I1-I2 (0+00-143+50), I3-I4, I5-I6, I7-I8, I9-I10, I11-I12, I13-I14, I13-I15 I16-I17, I18-I19, I20-I21, I22-I23, I24-I25	Grade, Shape and Ditch 16' (includes incidental ditch prep)	455.00	x	\$24.83	\$ 11,297.65
I13-I15	Grade, Shape and Ditch 16' outslope	1.5	x	\$18.35	\$ 27.53
I7-I8, I9-I10, I11-I12, I13-I14, I13-I15, I16-I17, I18-I19, I20-I21	Subgrade Compaction	201	x	\$20.19	\$ 4,060.21
	Additional grader time re-establish ditches and remove sod - \$/hr	24	x	\$100.00	\$ 2,400.00
	Scatter ditch waste material & road sod w/315 - \$/hr	16	x	\$101.00	\$ 1,616.00
I1-I2 (143+50-326+70)	Additional grader time rip/shape runing surface with grader/ditches - \$/hr	16	x	\$100.00	\$ 1,600.00

ROAD SEGMENT				I1 to I2		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I1 to I2		0+00 to 326+70						
				Volume (CY) per	Number of							
Leveling Rock	3/4"-0" crushed	0+00 to 51+00	-	load	10	loads	5	50	\$8.24	\$412		
Culvert Bedding/Backfill	3/4"-0" crushed	24+90	-	load	10	loads	4	40	\$8.24	\$330		
Leveling Rock	1 1/2"-0" crushed	51+00 to 143+50	-	load	10	loads	5	50	\$8.59	\$430		
Leveling Rock	5"-0" crushed	143+50 to 326+70	-	load	10	loads	29	290	\$8.32	\$2,413		
Leveling Rock	1 1/2"-0" crushed	143+50 to 326+70	-	load	10	loads	1	10	\$8.59	\$86		
Ditch Filters	6"-4" pit-run	20+90, 54+20	-	location	10	locations	2	20	\$9.52	\$190		
Culvert Bedding/Backfill	1 1/2"-0" crushed	65+90, 199+70	-	culvert	30	culverts	2	60	\$8.59	\$515		
Total Rock for Road Segment:				I1 to I2				520		\$ 4,375.60		
ROAD SEGMENT				I3 to I4		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I3 to I4		0+00 to 11+60						
				Volume (CY) per	Number of							
Leveling Rock	1 1/2"-0" crushed	0+00 to 11+60	-	load	10	load	8	80	\$8.59	\$687		
Total Rock for Road Segment:				I3 to I4				80		\$687		
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 48+20						
				Volume (CY) per	Number of							
Leveling Rock	1 1/2"-0" crushed	0+00 to 26+00	-	load	10	loads	12	120	\$8.59	\$1,031		
Culvert Bedding/Backfill	1 1/2"-0" crushed	12+50	-	load	30	loads	1.0	30	\$8.59	\$258		
Leveling Rock	5"-0" crushed	26+00 to 48+20	-	load	10	loads	12	120	\$8.32	\$998		
Dissipator	24" 6" Riprap	12+50	-	dissipator	10	dissipators	1	10	\$10.23	\$102		
Total Rock for Road Segment:				I5 to I6				280		\$2,389		
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 6+00						
				Volume (CY) per	Number of							
Leveling Rock	5"-0" crushed	-	-	load	10	load	3	30	\$8.32	\$250		
Base Rock	5"-0" crushed	0+00 to 6+00	6	station	38	stations	6	228	\$8.32	\$1,897		
Total Rock for Road Segment:				I7 to I8				258		\$2,147		
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 12+00						
				Volume (CY) per	Number of							
Base Rock	5"-0" crushed	1+00 to 4+20	6	station	38	stations	4.2	160	\$8.32	\$1,328		
Leveling Rock	5"-0" crushed	4+20 to 12+00	-	load	10	loads	3	30	\$8.32	\$250		
Base Rock	5"-0" crushed	4+20 to 12+00	10	station	63	stations	7.8	491	\$8.32	\$4,088		
Inside curve widening	5"-0" crushed	0+00, 9+70	-	location	20	locations	2	40	\$8.32	\$333		
Turnouts	5"-0" crushed	0+30, 3+90	-	turnout	20	turnouts	2	40	\$8.32	\$333		
Turnaround	5"-0" crushed	4+70	-	turnaround	20	turnarounds	1	20	\$8.32	\$166		
Surfacing	3/4"-0" crushed	0+00 to 4+20	2	station	13	stations	4.2	55	\$8.24	\$450		
Junctions	3/4"-0" crushed	0+00	-	junction	20	junctions	1.0	20	\$8.24	\$165		
Subgrade Reinforcement	6"-0" Pit-run	7+70 to 8+80	-	load	10	loads	5.0	50	\$9.52	\$476		
Landings	6"-0" Pit-run	12+00	-	Landing	70	Landings	1	70	\$9.52	\$666		
Total Rock for Road Segment:				I9 to I10				976		\$8,255		
ROAD SEGMENT				I11-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-I12		0+00 to 38+70						
				Volume (CY) per	Number of							
Leveling Rock	5"-0" crushed	0+00 to 38+70	-	load	10	loads	10	100	\$8.32	\$832		
Base Rock	5"-0" crushed	0+00 to 38+70	4	station	25	stations	38.7	968	\$8.32	\$8,050		
Turnouts	5"-0" crushed	28+20	4	turnout	20	turnouts	1	20	\$8.32	\$166		
Turnaround	5"-0" crushed	21+20	4	turnaround	20	turnarounds	1.0	20	\$8.32	\$166		
Surfacing	1 1/2"-0" crushed	5+80 to 14+80, 23+80 to 30+00	2	station	13	stations	15.2	198	\$8.59	\$1,697		
Landings	6"-0" Pit-run	38+70	-	Landing	70	Landings	1	70	\$9.52	\$666		
Total Rock for Road Segment:				I11-I12				1,375		\$ 11,578.18		

Date: 02/22/2017

CRUSHED ROCK COST

SALE NAME:	Tall n Small
PROJECT:	1 and 2
QUARRY:	Cow Creek Stockpile

MATERIAL: 3/4" Crushed

DATE: 02/27/2017
BY: C.Bangs

[illegible]

ROCK HAUL:

Truck type	<u>D20</u>	No. trucks:	<u>5</u>
Delay min.	<u>8</u>	Efficiency:	<u>85%</u>

Ave haul:	\$6.98	/cy
Load:	\$0.48	/cy
Spread:	\$0.78	/cy

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

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

Production: cy/day = 1,025

CRUSHED ROCK HAUL COSTS 460 cy @ \$8.24 /cy

CRUSHED ROCK COST

SALE NAME:	Tall n Small
PROJECT:	1 and 2
QUARRY:	Northrup and Cow Creek

MATERIAL: 1 1/2" Crushed

DATE: 02/27/2017
BY: C.Bangs

[illegible]

ROCK HAUL:

Truck type	<u>D20</u>	No. trucks:	<u>5</u>
Delay min.	<u>8</u>	Efficiency:	<u>85%</u>

Ave haul:	\$7.27	/cy
Load:	\$0.48	/cy
Spread:	\$0.84	/cy

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

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

Production: cy/day = 984

CRUSHED ROCK HAUL COSTS 1,584 cy @ \$8.59 /cy

CRUSHED ROCK COST

SALE NAME:	Tall n Small
PROJECT:	Road Const. and Improvement
QUARRY:	Green Mtn. No. 1

MATERIAL: 5"-0" Crushed

DATE: 02/24/2017
BY: C.Bangs

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 to 1B	7.00	481		1.0	2.0	1.5	1.5	1.3	0.4	7.66	
2A to 2B	1.00	83		1.0	2.0	2.0	1.7	1.3	0.3	8.19	
2C to 2D	6.50	430		1.0	2.0	2.0	1.7	1.3	0.3	8.21	
2E to 2F	2.00	146		1.0	2.0	2.0	1.7	1.3	0.3	8.21	
3A to 3B	4.50	304		1.0	2.0	2.8	1.7	1.5	0.3	9.29	
3C to 3D	2.00	146		1.0	2.0	2.8	1.7	1.5	0.3	9.29	
4A to 4B	12.00	796		1.0	2.0	2.5	1.7	1.6	0.3	9.10	
4C to 4D	3.00	226		1.0	2.0	2.5	1.7	1.6	0.3	9.10	
5A to 5B	1.00	83		1.0	2.0	1.5	1.4	1.4	0.3	7.60	
5C to 5D	15.00	1,178		1.0	2.0	1.5	1.8	1.7	0.3	8.26	
6A to 6B	4.00	292		1.0	2.0	1.0	1.3	1.2	0.3	6.78	
6C to 6D	1.90	140		1.0	2.0	1.0	1.3	1.2	0.3	6.78	
7A to 7B	4.50	304		1.0	2.0	0.5	0.5	1.3	0.3	5.53	
7D to 7E	2.30	165		1.0	2.0	0.5	0.5	1.3	0.4	5.56	
I1 to I2	326.70	290		1.0	2.0	1.0	1.3	1.0	0.3	6.46	
I5 to I6	48.20	120		1.0	2.0	2.5	1.8	1.4	0.3	8.91	
I7 to I8	6.00	258		1.0	2.0	2.5	1.7	1.5	0.3	9.00	
I9 to I10	12.00	781		1.0	2.0	2.5	1.3	1.2	0.4	8.35	
I11 to I12	38.70	1,108		1.0	2.0	1.5	1.4	1.4	0.3	7.60	
I13 to I14	16.40	500		1.0	2.0	1.5	1.8	1.7	0.4	8.36	
I13 to I15	1.50	20		1.0	2.0	1.5	1.8	1.7	0.4	8.36	
I16 to I17	2.30	87		1.0	2.0	1.5	1.6	1.4	0.4	7.82	
I18 to I19	106.00	998		1.0	2.0	1.5	1.3	1.4	0.3	7.46	
I20 to I21	18.20	525		1.0	2.0	1.0	1.3	1.2	0.3	6.77	
I22 to I23	47.30	230		1.0	2.0	0.5	0.5	1.3	0.3	5.53	

ROCK HAUL:

Truck type	<u>D20</u>	No. trucks:	<u>5</u>
Delay min.	<u>8</u>	Efficiency:	<u>85%</u>

Ave haul:	\$7.24	/cy
Load:	\$0.24	/cy
Spread:	\$0.84	/cy

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

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

Production: cy/day = 989

CRUSHED ROCK HAUL COSTS 9,691 cy @ \$8.32 /cy

PIT RUN ROCK COST

SALE NAME:	Tall n Small
PROJECT:	Road Const. and Improvement
QUARRY:	Green Mtn. No. 1

MATERIAL: Pit Run

DATE: 02/27/2017
BY: C.Bangs

[illegible]

ROCK HAUL:

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

Ave haul:	\$8.02	/cy
Load:	\$0.54	/cy
Spread:	\$0.96	/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 = 473

PIT RUN ROCK HAUL COSTS	1,437 cy @	\$9.52 /cy
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RIP RAP ROCK COST

SALE NAME:	Tall n Small
PROJECT:	Road Const. and Improvement
QUARRY:	Green Mtn. No. 1

MATERIAL: Rip Rap

DATE: 02/27/2017
BY: C.Bangs

[illegible]

ROCK HAUL:

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

Ave haul:	\$8.85	/cy
Load:	\$1.38	/cy
Develop:		/cy

Production: cy/day = 428

RIP RAP ROCK HAUL COSTS 780 cy @ \$10.23 /cy

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. <u>3</u>	Timber Sale Name: <u>Tall n Small</u>
Quarry: <u>Green Mountain</u>	Swell: _____
Location: <u>NE 1/4, Section 34, T5N, R6W, W.M.</u>	Shrink: <u>16%</u>
County: <u>Clatsop</u>	
By: <u>C.Bangs</u>	Loading Hopper: <u>Yes</u>
Date: <u>02/28/2017</u>	

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"		CR			
5"-0"	35%	CR		9,694	9,694
6"-0"		PR		1,437	1,437
24"-6"		RR		780	780
36"		RR			
TOTAL CUBIC YARDS OF ROCK:				11,911	11,911

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Dump Trucks	2	\$163	\$326	Off Highway Dump Truck	1	\$553	\$553
Screening Plants	1	\$553	\$553	Loading Hopper	1	\$553	\$553
D6 Cat	1	\$778	\$778	Loader	1	\$805	\$805
Drill & Compressor	1	\$1,406	\$1,406	2 Stage Crusher	1	\$2,175	\$2,175
Powder	1	\$351	\$351				
Excavator	1	\$1,406	\$1,406				
	1						

SUB TOTAL FOR MOBILIZATION

\$8,905

EQUIPMENT SET UP	TIMES	RATE	COST
2 Stage Crusher	1	\$2,175	\$2,175
Screening Plants	1	\$293	\$293
Loading Hopper	1	\$293	\$293
Original Calibration	1	\$544	\$544

SUB TOTAL FOR SET UP COSTS

\$3,305

TOTAL MOBILIZATION & SET UP COSTS

\$12,210

2) CLEARING & GRUBBING

DESCRIPTION		QUANTITY	UNIT	RATE	COST
Clear, Load, Haul to Waste Area	Excavator	20.0	hr	\$155	\$3,100
Slash and Stumps, prep waste area	OR Truck	20.0	hr	\$125	\$2,500
Pile & Burn Slash and Stumps(1 exc)		20.0	hr	\$155	\$3,100
Move-in Fire Truck for the burning of the Clearing Debris		1.0	ea	\$190	\$190

TOTAL CLEARING & GRUBBING COSTS

\$8,890

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden Removal (excavate, load haul, spread, compact)	3,000	bcy	\$3.50	\$10,500

TOTAL EXCAVATION COSTS \$10,500

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping			\$2.20	
crushed	9,694	81%	Drill & shoot	100%	15,304	\$2.70	\$41,321
pit run	1,437	12%	Oversize red	5%	557	\$5.80	\$3,228
rip rap	780	7%	Other				
Total	11,911						
reject	3,393	28.5%					

TOTAL ROCK DEVELOPMENT COSTS \$44,549

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate			
Calibrate			
Test	5	\$57.30	\$287
Test			

TOTAL CALIBRATION & TESTING COSTS \$287

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	13,087	\$0.78	\$10,189
Shot Rock Handling	80	\$155.00	\$12,400
(Excavator) Hrs.			

TOTAL FEEDING & LOADING COSTS \$22,589

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed		3 stage w/s	110		
1-1/2"-0"	crushed		3 stage w/s	120		
5"-0"	crushed	9,694	2 stage w/s	140	\$2.48	\$24,027

TOTAL ROCK CRUSHING COSTS \$24,027

8) STOCKPILING

STOCKPILE SITE PREPARATION

Equipment	Hours	Rate	Total
Dozer		\$120.00	
Compactor		\$72.00	
Grader		\$90.00	
Excavator		\$138.00	

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

SUB TOTAL

HAUL & STOCKPILE		# of				
STOCKPILE LOCATION	SIZE	TRUCKS	CU. YDS.	RATE	COST	
1.						
2.						
3.						
4.						
5.						
6.						

SUB TOTAL

TOTAL STOCKPILING COSTS

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area.	\$12,825
\$3.78 /CY 3,393 CY	
Final Quarry Dev., Access Road Const., Waterbarring, Drainage,	\$2,000
Block Quarry Access	

TOTAL MISCELLANEOUS COSTS \$14,825

10) GRAND TOTAL: \$137,876

\$/Cubic Yard \$14.22

Footnotes:

**Tall n Small
Stream Enhancement
Project No. 4**

Location	Site	Number of Logs	\$/Tree*	Number of Straw Bales	\$/Bale	Cost per Site
SE1-SE2	1	5	\$250.00	2	\$11.00	\$1,272.00
SE1-SE2	2	6	\$250.00	2	\$11.00	\$1,522.00
SE1-SE2	3	7	\$250.00	2	\$11.00	\$1,772.00

Location	Site	No. Trees	Day Rate for Cutter	# of days	Cost per Site
SE3-SE4	1	6	\$420.00	1	\$420.00

Grass Seed 25lbs. @\$1.60 lb=\$40.00

*\$/Tree includes transportation cost of tree up to 1 mile.

Subtotal	\$4,566
Seed	\$40
Cable Subtotal	\$4,606
Hand Saw Subtotal	\$420
Project Total	\$5,026

Projects Road Maintenance Cost Summary

Sale: Tall N Small
Date: 28-Feb-17
By: C.Bangs FL

Type	Equipment/Rationale		Hours	Rate	Cost
Projects Road Maintenance	Grader 14G		30	\$100	\$3,000
	Dump Truck 12CY		8	\$79	\$632
	FE Loader C966		4	\$83	\$332
	Vibratory Roller		26	\$77	\$2,002
	Water Truck 2,500 gallon		26	\$89	\$2,314
Total					\$8,280

Production Rates			
Miles/day	Distance(miles)	Days	
1.5	5.0	3.3	
1.5	5.0	3.3	
Roads to maintain: Northrup Road (0.8 miles), Foster Road (.7 miles), Northrup Pit Road (0.6mi) Light			
Green Mountain Quarry to 12 (4.7 miles) Full			

**Tall n Small
TIMBER CRUISE REPORT
FY 2017**

1. Sale Area Location: Areas 1 through 9 are located in portions of Sections 35, and 36, of T6N, R6W, and portions of Sections 1, 2, 11, 12, 13, 14, 23, and 24, of T5N, R6W, W.M., Clatsop County, Oregon

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

3. Sale Acreage by Area:

Area	Treatment	Gross Acres	Stream Buffer	Existing Surface Roads	New Road Construction	Non-thinable	Net Acres	Survey Method
1	Partial Cut	63.6	5.3	2.3	0.6	0.4	55	GIS
2	Partial Cut	52.1	3.2	1.2	1	1.7	45	GIS
3	Partial Cut	33.1	1.3	2.2	0.6		29	GIS
4	Partial Cut	63.3	10.3	2.7	1.2	1.1	48	GIS
5	Modified Clearcut	82.2	7.1	2.9	1.2		71	GIS
6	Modified Clearcut	36.2	5.9	0.7	0.6		29	GIS
7	Modified Clearcut	75.5	13.5	1.6	0.4		60	GIS
8	Modified Clearcut	41.8	10.4	0.4			31	GIS
9	Right of way	6					6	GIS
TOTALS		453.8	57.0	14.0	5.6	3.2	374	

4. Cruisers and Cruise Dates:

Areas 1, 2, 3, and 4 were cruised by Dave Rygell, John Choate, Corey Valencia, and Bryce Rogers on December 29, 2016. Areas 5, 6, 7, and 8 were cruised by Dave Rygell, Matt Dimick, John Choate, Jake Hatcher, Corey Valencia, Bryce Rogers and Derek Bangs January 5 and 6, 2017.

5. Cruise Method and Computation:

Areas 1, 2, 3, and 4 are partial cut units and were variable plot cruised using a 33.61 BAF. These plots are located on a 3 chain by 9 chain grid, with every third plot measured and graded. A total of 54 plots were sampled, with 17 graded plots and 37 count plots.

Areas 5, 6, 7, and 8 are modified clearcut units and were variable plot cruised using a 40 BAF. These plots are located on a 3 chain by 9 chain grid, with every third plot measured and graded. A total of 57 plots were sampled, with 21 measured plots and 36 count plots.

Data was collected on Allegro 2 data collectors, and downloaded to the Atterbury Super A.C.E. program for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria district office.

AREA	CRUISE	TRACT	TYPE	ACRES
1, 2, 3, and 4	Tallsmal	A1234	PCED	177
5, 6, 7, and 8	Tallsmal	A5678	MCED	191
9 R/W	Tallsmal	A1234	PCRW + MCRW	6

6. Timber Description:

Areas 1, 2, 3, and 4 are "auto-mark" thinning units, approximately 37 years-old, consisting of Douglas-fir and western hemlock, and red alder. The average Douglas-fir tree size is 13.2 inches DBH, with an average height of 48 feet to a merchantable top (7 inch d.o.b.) The average Western hemlock is 13.6 inches DBH with an average height of 41 feet to a merchantable top (7 inch d.o.b). The net volume per acre to be harvested is 5.8 MBF/acre.

6. Timber Description: (cont.)

Areas 5, 6, 7, and 8 are modified clearcut unit, approximately 71 to 80 years-old, consisting Douglas-fir and western hemlock, with minor amounts of red alder. The average Douglas-fir tree size is 23.1 inches DBH, with an average height of 95 feet to a merchantable top. The average western hemlock is 22.7 inches DBH with an average height of 86 feet to a merchantable top. The average red alder tree size is 16 inches DBH with an average height of 67 feet to a merchantable top. The net volume per acre to be harvested is 66.7 MBF/acre.

Area 9 R/W is a mix of all of the sale areas. Approximately 4 acres is similar to the timber description above in Areas 1, 2, 3, and 4. The average volume per acre to be harvested on these areas is 21.3 MBF/acre. Approximately 2 acres is similar to the timber description mentioned above in Areas 5, 6, 7, and 8. The average volume per acre to be harvested 66.7 MBF/acre.

7. Statistical Analysis and Stand Summary

Statistics for Stand B.F. volumes

Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1, 2, 3, and 4	47%	12%	32.6	4.4%
5, 6, 7, and 8	47%	8%	33.9	4.5%

8. Volumes by Species and Log Grade:

Volumes by Species and Grade for All Sale Areas: (MBF) Volumes do not include "in-growth."

Species	DBH	Net Vol.	2 Saw	3 Saw	4 Saw	10"-11"	6"-7"	Camp Run	% D & B	% Sale
Douglas-fir	20.1"	13,753	10,540	2,626	587	-	-	-	2.6%	98%
Hemlock	17.4"	225	165	56	4	-	-	-	-	2%
Red Alder and other Hardwoods	15.4"	18	-	-	-	15	3	-	-	<1
TOTALS		13,996	10,720	2,670	588	15	3			

9. Approvals:

Prepared by:

Unit Forester Approval:

Dave Rygell

Date: 1-10-2017

Date: 3/30/17

10. Attachments:

Cruise Designs and Maps – 7 pages
Volume Reports - 5 pages
Statistics Reports -7 pages
Stand Table Summary – 2 page
Log Stock Tables – 2 pages

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Tall n Small **Area** 1, 2, 3, and 4

Harvest Type: (PC) "Partial Cut"

Approx. Cruise Acres: 177 **Estimated CV%** 47% Net BF **SE% Objective** 12 Net BF

Planned Sale Volume : 880 MBF **Estimated Sale Area Value/Acre:** \$1,750

A. Cruise Goals: Grade minimum 90 conifer. Other goals X Determine "automark" thinning standards; X Determine log grades for sale value; X Determine snag and leave tree species and sizes.

B. Cruise Design:

- 1. Plot Cruises:** BAF 33.61 (Full point; Half point) (circle one)
Cruise Line Direction(s) Areas 1&4 = N-S, Areas 2&3 = E-W
Cruise Line Spacing 9 (chains)
Cruise Plot Spacing 3 (chains)
Grade/Count Ratio 1/2

The BA target is 150 sqft. Leave 4 trees per plot. Alder does not count for Basal Area. Record all hardwood as camp run. Record all cedar as leave trees. Cruise all snags as SN and estimate total height and diameter on grade plots only. If plot lands in buffer then offset at least 1/2 chain outside the buffer

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods. Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.
- 5. Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to

maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.

6. Species, Sort, and Grade Codes:

- A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)
- B. Sort: Use code "1" (Domestic).
- C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camprun; 0 = Cull

- 7. Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

- 8. Standard Field Procedures: Plot Type Cruises:** Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

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

- 10. Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: Dave Rygell

Approved by: _____

Date: 12/09/2016

EXHIBIT "A"

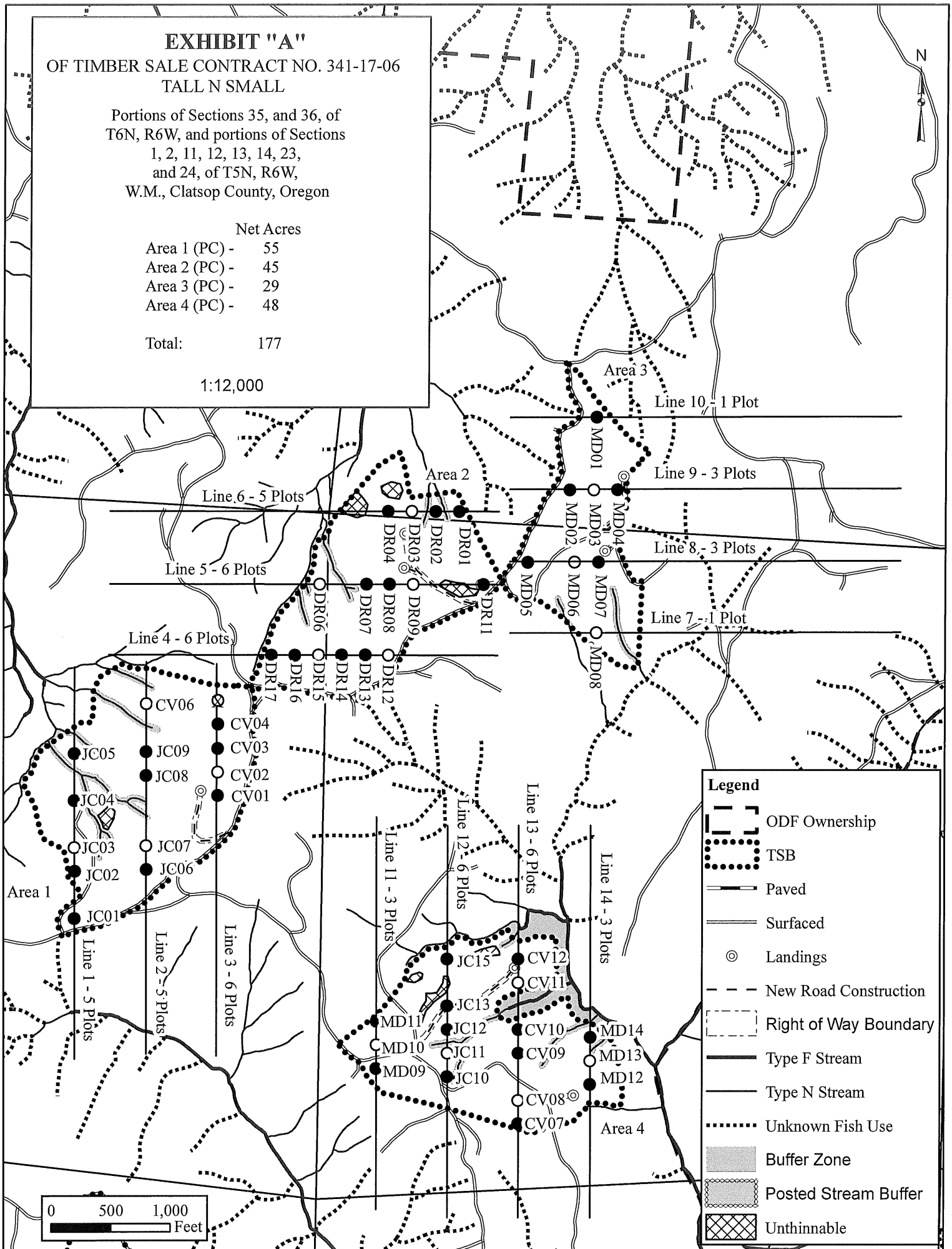
OF TIMBER SALE CONTRACT NO. 341-17-06
TALL N SMALL

Portions of Sections 35, and 36, of
T6N, R6W, and portions of Sections
1, 2, 11, 12, 13, 14, 23,
and 24, of T5N, R6W,
W.M., Clatsop County, Oregon

	Net Acres
Area 1 (PC) -	55
Area 2 (PC) -	45
Area 3 (PC) -	29
Area 4 (PC) -	48

Total: 177

1:12,000



**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Tall n Small **Area(s)** 5, 6, 7, and 8

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 191 **Estimated CV%** 47 Net BF or
BA/Acre **SE% Objective** 8

Planned Sale Volume: 8,470 MBF **Estimated Sale Area Value/Acre:** \$15,360

A. Cruise Goals: (a) Grade minimum 90 trees:

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

B. Cruise Design:

1. Plot Cruises: BAF 40 Full point

Cruise Line Direction(s) Areas 5&7 = N-S, Areas 6&8 = E-W

Cruise Line Spacing 9 chains

Cruise Plot Spacing 3 chains

Grade/Count Ratio 1:2

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

C. Tree Measurements:

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

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

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

3. Top Cruise Diameter (TCD): Minimum top outside bark is 7" or 40% of dob at 16' form point. Generally, use 7" outside bark for trees less than 18" dbh and 40% of dob @ FP for trees greater than 18" dbh.

4. Form Factors: (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; Hardwood form factors are a Standard 87.

5. Tree Segments: Record log segments in "standard" 32" and 40' log lengths whenever possible. Do not record odd segments just to maximize grade. The maximum segment length is 40'. The minimum segment length is 12' for conifer and 8' for hardwoods. Minimum merchantable diameter for conifer is 8" dbh and 10" dbh for hardwoods. One foot of trim is assumed for each merchantable segment.

- 6. Species, Sort, and Grade Codes:** A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple); DL(Douglas-fir over 30"dbh); HL(Western hemlock over 30" dbh); SL(Sitka spruce over 30" dbh); CL (Western red cedar over 30" dbh); NFL (Noble fir over 30" dbh); SFL (Silver fir over 30" dbh)
B. Sort: Use code "1" (Domestic).
C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; 0 = Cull
Hardwoods: Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill; 0 = Cull.
- 7. Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.
- 8. Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at intervisible points. On "measure/grade" plots paint the tree diameter on each tree starting with the first tree right of the cruise line direction and continuing clockwise.
- 9. Cruising Equipment:** Relaskop, Rangefinder, Biltmore Stick, Compass, Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging.
- 10. Attachments:** A. Cruise Map (showing cruise unit boundaries, cruise lines and plot locations, BAF or plot size, measure/count plot ratio, north arrow, and scale bar.

Cruise Design by: Dave Rygell

Approved by: _____

Date: _____

EXHIBIT "A"

OF TIMBER SALE CONTRACT NO. 341-17-06
TALL N SMALL

Portions of Sections 35, and 36, of
T6N, R6W, and portions of Sections
1, 2, 11, 12, 13, 14, 23,
and 24, of T5N, R6W,
W.M., Clatsop County, Oregon

	Net Acres
Area 5 (MC) -	71
Area 6 (MC) -	29
Area 7 (MC) -	60
Area 8 (MC) -	31
Total:	191

1:12,000

Legend

- ODF Ownership
- TSB
- Paved
- Surfaced
- Landings
- New Road Construction
- Right of Way Boundary
- Type F Stream
- Type N Stream
- Unknown Fish Use
- Buffer Zone
- Posted Stream Buffer

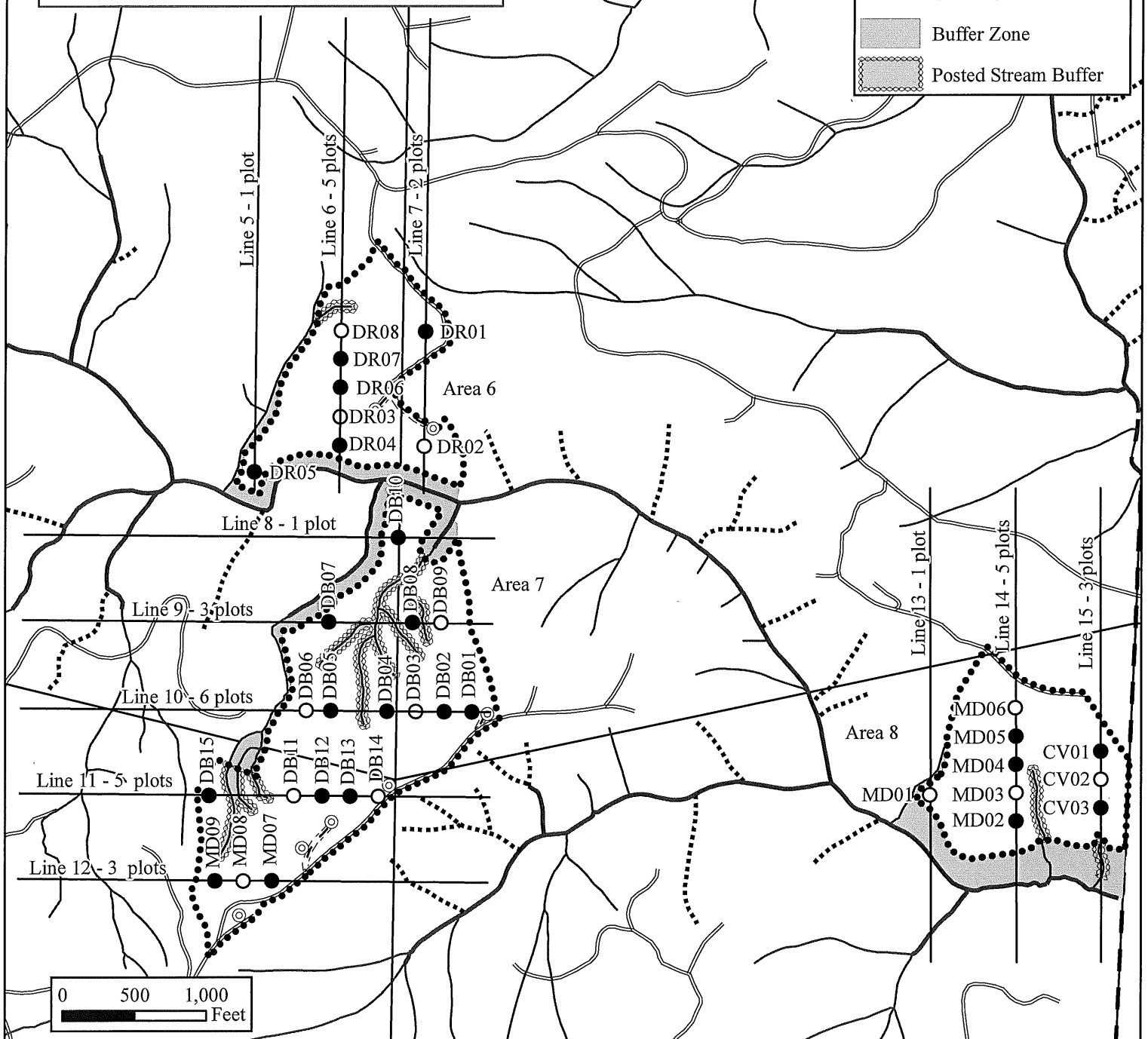


EXHIBIT "A"

OF TIMBER SALE CONTRACT NO. 341-17-06
TALL N SMALL

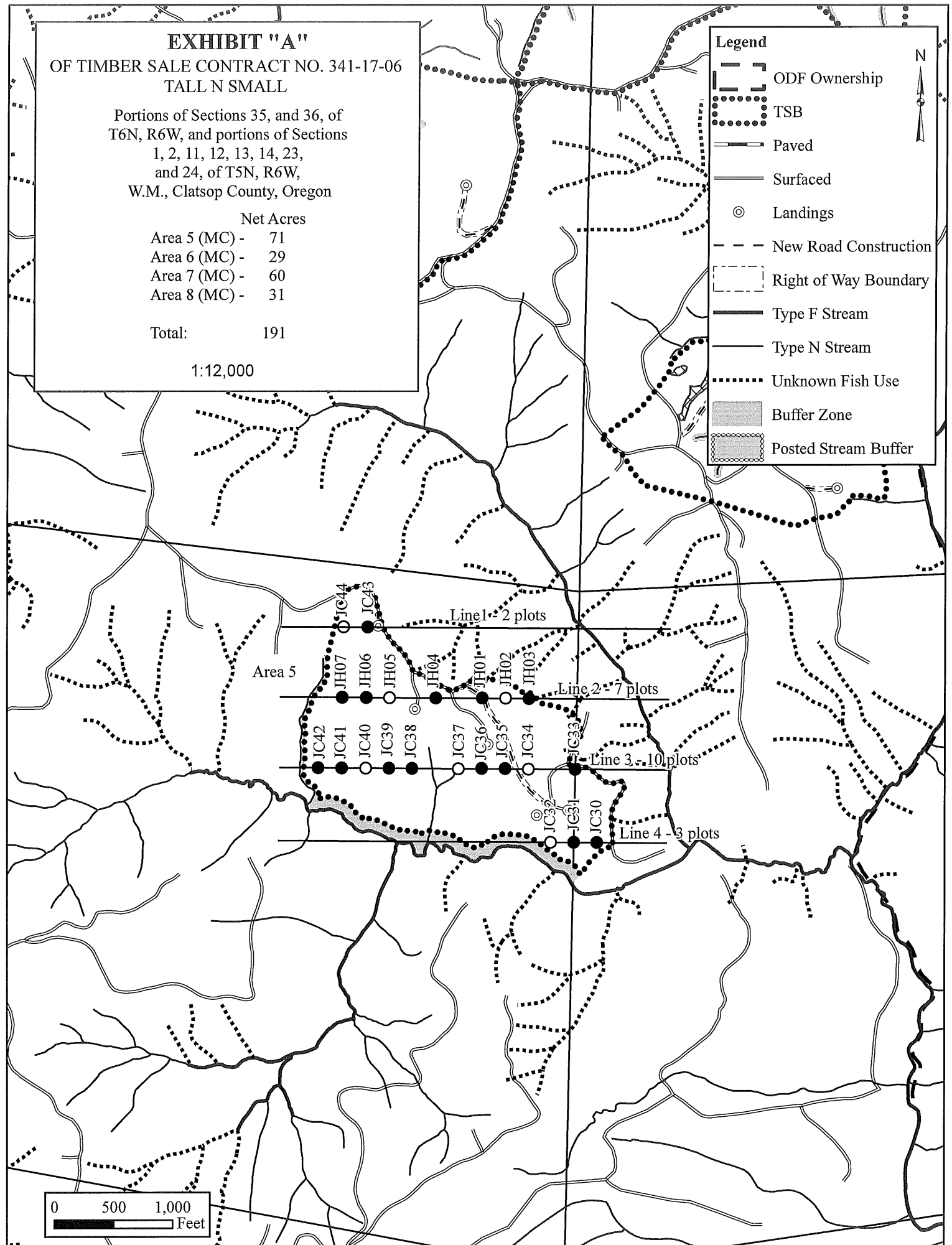
Portions of Sections 35, and 36, of
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Legend

- ODF Ownership
- TSB
- Paved
- Surfaced
- Landings
- New Road Construction
- Right of Way Boundary
- Type F Stream
- Type N Stream
- Unknown Fish Use
- Buffer Zone
- Posted Stream Buffer



TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																	
T05N R06W S01 TyPCRW THRU T06N R06W S01 TyMCT				Project:		TALLSMAL												Page		1	
				Acres		374.00												Date		1/11/2017	
																		Time		1:32:30PM	
Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre
									Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf	
					Def%	Gross	Net		4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
D		DOCU			100.0	554											7	17		0.00	4.3
D		DO2S		76	1.3	28,546	28,183	10,540		2	35	63	0	1	6	93	38	15	405	2.27	69.6
D		DO3S		19	.5	7,060	7,023	2,626	0	95	4	1	1	6	33	59	35	8	94	0.77	74.9
D		DO4S		5	.8	1,582	1,570	587	4	88	8		29	22	42	7	24	7	38	0.49	41.5
D Totals				98	2.6	37,742	36,776	13,753	0	24	28	49	2	3	12	83	33	11	193	1.36	190.4
A		DO2S		82		39	39	15		100					100		40	10	150	1.08	.3
A		DO3S		16		8	8	3		100				100			25	6	30	0.44	.3
A		DOCR		2		1	1	0	100						100		36	3	10	0.39	.1
A Totals				0		47	47	18	1	99				16		84	33	7	81	0.78	.6
H		DO2S		73		440	440	165			38	62			100		40	15	375	2.05	1.2
H		DO3S		25	.1	150	150	56	0	100				0	14	85	39	6	68	0.72	2.2
H		DO4S		2		11	11	4		100			100				16	9	39	0.67	.3
H Totals				2	.0	601	601	225	0	27	28	46	2	0	4	94	37	9	164	1.17	3.7
M		DOCU			100.0	2											32	6		0.00	.0
M Totals					100.0	2											32	6		0.00	.0
Totals					2.5	38,392	37,424	13,746	0	24	28	48	2	3	12	83	33	11	192	1.35	194.6

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page		1				
				Project: TALLSMAL										Date		1/11/2017				
														Time		1:32:47PM				
T05N R06W S01 TPCTK										T05N R06W S01 TPCTK										
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt		
05N		06W		01		A1234		PCTK		177.00		54		29		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 Dia Bd CF/ Ft In Ft Lf				
								4-5 6-11 12-16 17+				12-20 21-30 31-35 36-99								
D DO CU				00.0 10												4 10 0.00				1.0
D DO 2S			10	5.4 636 602			107	74 26				55 45				36 8 83 0.83				7.3
D DO 3S			72	.8 4,071 4,038			715	100				30 70				37 8 83 0.66				48.5
D DO 4S			18	995 995			176	3 97				42 12 46				22 6 29 0.40				33.9
D Totals			97	1.3 5,712 5,635			997	1 97 3				7 2 35 55				31 7 62 0.60				90.6
H DO 3S			100	186 186			33	100				100				40 6 60 0.64				3.1
H Totals			3	186 186			33	100				100				40 6 60 0.64				3.1
Type Totals				1.3 5,898 5,821			1,030	1 97 3				7 2 34 56				31 7 62 0.60				93.7

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)														Page 1				
Project: TALLSMAL														Date 1/11/2017						
														Time 1:32:47PM						
T05N R06W S01 TPCRW										T05N R06W S01 TPCRW										
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt											
05N	06W	01	A1234	PCRW	4.00	54	101	1	W											
S So Gr T rt ad Spp			% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
			Def%	Gross	Net	Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/			
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf	
D	DO	CU		00.0	183											14	11		0.00	3.2
D	DO	2S	31	1.3	6,514	6,430	26		20	80			3	27	71	37	11	177	1.38	36.4
D	DO	3S	57	.8	12,031	11,929	48	1	99			0	3	27	70	37	8	95	0.78	125.6
D	DO	4S	12		2,333	2,333	9	10	90			48	22	28	2	22	6	28	0.45	82.9
D Totals			97	1.7	21,061	20,692	83	2	74	25		6	5	27	63	32	8	83	0.80	248.0
H	DO	3S	94	3.1	548	531	2	7	93				7	41	52	32	6	54	0.66	9.9
H	DO	4S	6		33	33	0		100			100				20	6	20	0.50	1.7
H Totals			3	2.9	581	565	2	6	94			6	6	38	49	30	6	49	0.64	11.5
A	DO	CR	100		59	59	0	100						100		36	3	10	0.39	5.9
A Totals			0		59	59	0	100						100		36	3	10	0.39	5.9
M	DO	CU		00.0	141											32	6		0.00	2.8
M Totals				00.0	141											32	6		0.00	2.8
Type Totals				2.4	21,842	21,316	85	2	74	24		6	5	27	62	32	8	79	0.77	268.2

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page		1						
				Project: TALLSMAL												Date		1/11/2017						
																Time		1:32:47PM						
T06N R06W S01 TMCTK												T06N R06W S01 TMCTK												
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt						
06N		06W		01		A5678		MCTK		191.00		57		158		1		W						
				%					Percent Net Board Foot Volume								Average Log				Logs Per /Acre			
S So Gr				Net	Bd. Ft. per Acre			Total	Log Scale Dia.				Log Length				Ln Dia Bd CF/							
Spp T rt ad				BdFt	Def%	Gross	Net	Net MBF	4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf				
D DO CU					100.0	1,060												8 18				0.00		7.4
D DO 2S				82	1.2	54,598	53,928	10,300	2 35 64				0 1 5 94				38 16 423 2.34				127.5			
D DO 3S				14	.4	9,698	9,658	1,845	93 6 2				2 9 35 54				34 9 98 0.83				98.1			
D DO 4S				4	1.1	2,105	2,081	398	5 84 11				23 26 41 11				25 7 44 0.54				47.7			
D Totals				98	2.7	67,462	65,668	12,543	0 18 30 53				1 3 11 85				34 12 234 1.57				280.7			
H DO 2S				86	853		853	163	38 62				100				40 15 375 2.05				2.3			
H DO 3S				11	110		110	21	100				34 66				36 8 89 0.92				1.2			
H DO 4S				3	21		21	4	100				100				16 9 40 0.69				.5			
H Totals				1	983		983	188	13 33 54				2 4 94				36 12 244 1.62				4.0			
A DO 2S				83	75		75	14	100				100				40 10 150 1.08				.5			
A DO 3S				17	15		15	3	100				100				25 6 30 0.44				.5			
A Totals				0	90		90	17	100				17 83				33 8 90 0.83				1.0			
Type Totals					2.6	68,535	66,741	12,748	0 18 30 53				1 3 10 85				34 12 234 1.57				285.7			

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page 1					
		Project: TALLSMAL												Date 1/11/2017					
														Time 1:32:47PM					
T06N R06W S01 TMCRW										T06N R06W S01 TMCRW									
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt										
06N	06W	01	A5678	MCRW	2.00	57	158	1	W										
S So Gr T rt ad Spp			%	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log		Logs Per /Acre	
			Net BdFt					Log Scale Dia.				Log Length				Ln	Dia		Bd
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	
D DO CU			100.0	1,060												8	18		0.00
D DO 2S			82	1.2	54,598	53,928	108		2	35	64	0	1	5	94	38	16	423	2.34
D DO 3S			14	.4	9,698	9,658	19		93	6	2	2	9	35	54	34	9	98	0.83
D DO 4S			4	1.1	2,105	2,081	4	5	84	11		23	26	41	11	25	7	44	0.54
D Totals			98	2.7	67,462	65,668	131	0	18	30	53	1	3	11	85	34	12	234	1.57
H DO 2S			86		853	853	2		38	62					100	40	15	375	2.05
H DO 3S			11		110	110	0	100						34	66	36	8	89	0.92
H DO 4S			3		21	21	0	100				100				16	9	40	0.69
H Totals			1		983	983	2	13	33	54		2		4	94	36	12	244	1.62
A DO 2S			83		75	75	0	100							100	40	10	150	1.08
A DO 3S			17		15	15	0	100				100				25	6	30	0.44
A Totals			0		90	90	0	100				17			83	33	8	90	0.83
Type Totals				2.6	68,535	66,741	133	0	18	30	53	1	3	10	85	34	12	234	1.57

TC PSTATS			PROJECT STATISTICS							PAGE 1		
			PROJECT		TALLSMAL		DATE 2/15/2017					
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt		
05N 06N	06 06W	01 01	A1234 A5678	PCR MCTK	THR	374.00	222	1,303	1	W		
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL			222	1303	5.9							
CRUISE			70	446	6.4	32,239	1.4					
DBH COUNT												
REFOREST												
COUNT			136	851	6.3							
BLANKS			16									
100 %												
STAND SUMMARY												
			SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR			429	83.4	20.1	78	41.0	184.1	37,742	36,776	8,649	8,554
WHEMLOCK			12	2.5	17.4	57	1.0	4.1	601	601	160	160
R ALDER			4	.3	15.4	61	0.1	.4	47	47	15	15
BL MAPLE			1	.0	9.0	32	0.0	.0	2		0	
TOTAL			446	86.2	20.0	77	42.2	188.7	38,392	37,424	8,824	8,729
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL	68.1	COEFF	SAMPLE TREES - BF						# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH			5	10	15	
DOUG FIR			80.4	3.9	666	693	720					
WHEMLOCK			93.5	28.2	238	332	425					
R ALDER			103.3	59.0	39	95	151					
BL MAPLE												
TOTAL			82.1	3.9	650	676	703		269	67	30	
CL	68.1	COEFF	TREES/ACRE						# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH			5	10	15	
DOUG FIR			130.7	8.8	76	83	91					
WHEMLOCK			510.3	34.2	2	2	3					
R ALDER			1195.7	80.2	0	0	1					
BL MAPLE			1051.2	70.5	0	0	0					
TOTAL			128.9	8.6	79	86	94		663	166	74	
CL	68.1	COEFF	BASAL AREA/ACRE						# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH			5	10	15	
DOUG FIR			148.3	9.9	166	184	202					
WHEMLOCK			472.4	31.7	3	4	5					
R ALDER			1288.6	86.4	0	0	1					
BL MAPLE			1051.2	70.5	0	0	0					
TOTAL			146.5	9.8	170	189	207		858	214	95	
CL	68.1	COEFF	NET BF/ACRE						# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH			5	10	15	
DOUG FIR			163.6	11.0	32,741	36,776	40,810					
WHEMLOCK			553.3	37.1	378	601	824					
R ALDER			1454.9	97.6	1	47	93					
BL MAPLE												
TOTAL			162.7	10.9	33,341	37,424	41,508		1,057	264	117	

TC TSTATS				STATISTICS				PAGE 1			
				PROJECT	TALLSMAL		DATE 1/11/2017				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06W	01	A1234	PCED	177.00	54	336	1	W		
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		54	336	6.2							
CRUISE		17	101	5.9	28,439	.4					
DBH COUNT											
REFOREST											
COUNT		37	235	6.4							
BLANKS											
100 %											
STAND SUMMARY											
		SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUGLEAV		67	81.5	17.4	65	32.2	134.4	15,318	15,028	4,605	4,561
DOUG FIR		27	60.4	13.2	48	15.8	57.3	5,712	5,635	1,698	1,695
HEMLEAV		2	6.9	12.8	33	1.7	6.2	404	381	142	142
R ALDER		2	5.9	12.5	36	1.4	5.0	59	59	82	82
WHEMLOCK		2	3.1	13.6	41	0.8	3.1	186	186	79	79
BL MAPLE		1	2.8	9.0	32	0.4	1.2	141		34	
TOTAL		101	160.7	15.4	55	52.9	207.3	21,819	21,289	6,640	6,559
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV		38.3	4.7	194	203	213					
DOUG FIR		45.8	9.0	99	109	118					
HEMLEAV		123.7	115.9		80	173					
R ALDER				10	10	10					
WHEMLOCK		.0	.0	60	60	60					
BL MAPLE											
TOTAL		52.6	5.2	158	167	175	111	28	12		
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV		25.4	3.4	79	82	84					
DOUG FIR		90.8	12.3	53	60	68					
HEMLEAV		261.2	35.5	4	7	9					
R ALDER		380.2	51.7	3	6	9					
WHEMLOCK		379.3	51.6	1	3	5					
BL MAPLE		514.7	70.0	1	3	5					
TOTAL		33.9	4.6	153	161	168	46	11	5		
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV		24.3	3.3	130	134	139					
DOUG FIR		89.5	12.2	50	57	64					
HEMLEAV		258.5	35.2	4	6	8					
R ALDER		380.2	51.7	2	5	8					
WHEMLOCK		379.3	51.6	2	3	5					
BL MAPLE		514.7	70.0	0	1	2					
TOTAL		26.5	3.6	200	207	215	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	3.6	14,486	15,028	15,569					
DOUG FIR		90.4	12.3	4,942	5,635	6,328					
HEMLEAV		270.3	36.8	241	381	522					
R ALDER		380.2	51.7	28	59	89					

TC TSTATS				STATISTICS				PAGE	2
				PROJECT	TALLSMAL			DATE	1/11/2017
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	06W	01	A1234	PCED	177.00	54	336	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
WHEMLOCK		379.3	51.6	90	186	282			
BL MAPLE									
TOTAL		32.6	4.4	20,347	21,289	22,231	42	11	5

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	TALLSMAL	DATE				1/11/2017	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06W	01	A1234	PCTK	177.00	54	97	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
PLOTS		TREES		TREES		TREES					
TOTAL		54		97		1.8					
CRUISE		11		29		2.6		11,241		.3	
DBH COUNT											
REFOREST											
COUNT		27		68		2.5					
BLANKS		16									
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
DOUG FIR		27		60.4	13.2	48	15.8	57.3	5,712	5,635	1,698
WHEMLOCK		2		3.1	13.6	41	0.8	3.1	186	186	79
TOTAL		29		63.5	13.2	48	16.6	60.4	5,898	5,821	1,777
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15	
DOUG FIR		45.8	9.0	99	109	118					
WHEMLOCK		.0	.0	60	60	60					
TOTAL		47.0	8.9	96	105	115	92		23	10	
CL:	68.1 %	COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15	
DOUG FIR		90.8	12.3	53	60	68					
WHEMLOCK		379.3	51.6	1	3	5					
TOTAL		89.7	12.2	56	64	71	321		80	36	
CL:	68.1 %	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15	
DOUG FIR		89.5	12.2	50	57	64					
WHEMLOCK		379.3	51.6	2	3	5					
TOTAL		86.8	11.8	53	60	67	301		75	33	
CL:	68.1 %	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15	
DOUG FIR		90.4	12.3	4,942	5,635	6,328					
WHEMLOCK		379.3	51.6	90	186	282					
TOTAL		87.9	12.0	5,125	5,821	6,517	309		77	34	

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	TALLSMAL			DATE	1/11/2017		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06W	01	A1234	PCRW	4.00	54	333	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
TOTAL				54	333	6.2					
CRUISE				17	101	5.9		638		15.8	
DBH COUNT											
REFOREST											
COUNT				37	232	6.3					
BLANKS											
100 %											
STAND SUMMARY											
				SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET
				TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC
										CF/AC	CF/AC
DOUG FIR				94	141.0	15.8	58	48.2	191.7	21,061	20,692
WHEMLOCK				4	9.9	13.2	37	2.6	9.3	581	565
R ALDER				2	5.9	12.5	36	1.4	5.0	59	59
BL MAPLE				1	2.8	9.0	32	0.4	1.2	141	34
TOTAL				101	159.5	15.4	55	52.8	207.3	21,842	21,316
										6,655	6,573
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL: 68.1 %				COEFF		SAMPLE TREES - BF				# OF TREES REQ.	
SD: 1.0				VAR.%		S.E.%		LOW		AVG	
								HIGH		5	
DOUG FIR				47.0		4.8		167		176	
WHEMLOCK				83.3		47.6		37		70	
R ALDER								10		10	
BL MAPLE										10	
TOTAL				52.6		5.2		158		167	
								175		111	
										28	
										12	
CL: 68.1 %				COEFF		TREES/ACRE				# OF PLOTS REQ.	
SD: 1.0				VAR.%		S.E.%		LOW		AVG	
								HIGH		5	
DOUG FIR				37.8		5.1		134		141	
WHEMLOCK				226.1		30.7		7		10	
R ALDER				380.2		51.7		3		6	
BL MAPLE				514.7		70.0		1		3	
TOTAL				28.4		3.9		153		159	
								166		32	
										8	
										4	
CL: 68.1 %				COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.	
SD: 1.0				VAR.%		S.E.%		LOW		AVG	
								HIGH		5	
DOUG FIR				35.5		4.8		182		192	
WHEMLOCK				225.7		30.7		6		9	
R ALDER				380.2		51.7		2		5	
BL MAPLE				514.7		70.0		0		1	
TOTAL				26.5		3.6		200		207	
								215		28	
										7	
										3	
CL: 68.1 %				COEFF		NET BF/ACRE				# OF PLOTS REQ.	
SD: 1.0				VAR.%		S.E.%		LOW		AVG	
								HIGH		5	
DOUG FIR				37.3		5.1		19,644		20,692	
WHEMLOCK				231.6		31.5		387		565	
R ALDER				380.2		51.7		28		59	
BL MAPLE										89	
TOTAL				33.6		4.6		20,343		21,316	
								22,289		45	
										11	
										5	

TC TSTATS				STATISTICS				PAGE 1			
				PROJECT	TALLSMAL	DATE 1/11/2017					
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06W	01	A1234	PCLV	177.00	54	239	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
PLOTS				TREES							
TOTAL				54	239	4.4					
CRUISE				17	72	4.2	17,198	.4			
DBH COUNT											
REFOREST											
COUNT				37	167	4.5					
BLANKS											
100 %											
STAND SUMMARY											
SAMPLE				TREES	AVG	BOLE	REL	BASAL	GROSS	NET	
TREES				/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	
									CF/AC	CF/AC	
DOUGLEAV				67	81.5	17.4	65	32.2	134.4	15,318	15,028
HEMLEAV				2	6.9	12.8	33	1.7	6.2	404	381
R ALDER				2	5.9	12.5	36	1.4	5.0	59	59
BL MAPLE				1	2.8	9.0	32	0.4	1.2	141	34
TOTAL				72	97.2	16.6	60	36.0	146.9	15,921	15,468
										4,863	4,785
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUGLEAV		38.3	4.7	194	203	213					
HEMLEAV		123.7	115.9		80	173					
R ALDER				10	10	10					
BL MAPLE											
TOTAL		45.8	5.4	181	192	202	84	21	9		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUGLEAV		25.4	3.4	79	82	84					
HEMLEAV		261.2	35.5	4	7	9					
R ALDER		380.2	51.7	3	6	9					
BL MAPLE		514.7	70.0	1	3	5					
TOTAL		24.0	3.3	94	97	100	23	6	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		24.3	3.3	130	134	139					
HEMLEAV		258.5	35.2	4	6	8					
R ALDER		380.2	51.7	2	5	8					
BL MAPLE		514.7	70.0	0	1	2					
TOTAL		13.6	1.8	144	147	150	7	2	1		
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	3.6	14,486	15,028	15,569					
HEMLEAV		270.3	36.8	241	381	522					
R ALDER		380.2	51.7	28	59	89					
BL MAPLE											
TOTAL		22.2	3.0	15,001	15,468	15,935	20	5	2		

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	TALLSMAL		DATE	1/11/2017			
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
06N	06W	01	A5678	MCEP	191.00	57	457	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
TOTAL		57	457	8.0							
CRUISE		21	165	7.9		21,601		.8			
DBH COUNT											
REFOREST											
COUNT		36	289	8.0							
BLANKS											
100 %											
STAND SUMMARY											
		SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
		TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR		154	103.2	23.1	95	62.5	300.4	67,462	65,668	15,072	14,892
SNAG		7	7.6	18.9	66	3.4	14.7				
WHEMLOCK		3	1.8	22.7	86	1.0	4.9	983	983	233	233
R ALDER		1	.5	16.0	67	0.2	.7	90	90	27	27
TOTAL		165	113.1	22.8	92	67.2	320.7	68,535	66,741	15,332	15,152
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUG FIR		58.2	4.7	860	902	944					
SNAG											
WHEMLOCK		38.0	26.3	440	597	754					
R ALDER											
TOTAL		63.6	5.0	812	854	896	162	40	18		
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUG FIR		41.8	5.5	98	103	109					
SNAG		246.1	32.6	5	8	10					
WHEMLOCK		302.6	40.0	1	2	2					
R ALDER		755.0	99.9	0	1	1					
TOTAL		35.1	4.7	108	113	118	49	12	5		
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUG FIR		35.1	4.6	286	300	314					
SNAG		227.3	30.1	10	15	19					
WHEMLOCK		310.5	41.1	3	5	7					
R ALDER		755.0	99.9	0	1	1					
TOTAL		29.9	4.0	308	321	333	36	9	4		
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUG FIR		34.8	4.6	62,642	65,668	68,693					
SNAG											
WHEMLOCK		320.6	42.4	566	983	1,400					
R ALDER		755.0	99.9	0	90	181					
TOTAL		33.9	4.5	63,744	66,741	69,739	46	11	5		

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	TALLSMAL			DATE	1/11/2017	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
06N	06W	01	A5678	MCRW	2.00	57	437	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		57	437	7.7						
CRUISE		21	158	7.5	211	74.9				
DBH COUNT										
REFOREST										
COUNT		36	276	7.7						
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
DOUG FIR		154	103.2	23.1	95	62.5	300.4	67,462	65,668	15,072
WHEMLOCK		3	1.8	22.7	86	1.0	4.9	983	983	233
R ALDER		1	.5	16.0	67	0.2	.7	90	90	27
TOTAL		158	105.5	23.1	94	63.7	306.0	68,535	66,741	15,332
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15	
DOUG FIR		58.2	4.7	860	902	944				
WHEMLOCK		38.0	26.3	440	597	754				
R ALDER										
TOTAL		58.8	4.7	850	892	933	138	34	15	
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15	
DOUG FIR		41.8	5.5	98	103	109				
WHEMLOCK		302.6	40.0	1	2	2				
R ALDER		755.0	99.9	0	1	1				
TOTAL		39.8	5.3	100	105	111	63	16	7	
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15	
DOUG FIR		35.1	4.6	286	300	314				
WHEMLOCK		310.5	41.1	3	5	7				
R ALDER		755.0	99.9	0	1	1				
TOTAL		33.9	4.5	292	306	320	46	11	5	
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15	
DOUG FIR		34.8	4.6	62,642	65,668	68,693				
WHEMLOCK		320.6	42.4	566	983	1,400				
R ALDER		755.0	99.9	0	90	181				
TOTAL		33.9	4.5	63,744	66,741	69,739	46	11	5	

TC TSTATS				STATISTICS				PAGE 1			
				PROJECT	TALLSMAL	DATE 1/11/2017					
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
06N	06W	01	A5678	MCTK	191.00	57	436	1	W		
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		57	436	7.6							
CRUISE		21	158	7.5	20,149	.8					
DBH COUNT											
REFOREST											
COUNT		36	275	7.6							
BLANKS											
100 %											
STAND SUMMARY											
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC	
DOUG FIR		154	103.2	23.1	95	62.5	300.4	67,462	65,668	15,072	14,892
WHEMLOCK		3	1.8	22.7	86	1.0	4.9	983	983	233	233
R ALDER		1	.5	16.0	67	0.2	.7	90	90	27	27
TOTAL		158	105.5	23.1	94	63.7	306.0	68,535	66,741	15,332	15,152
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL: 68.1 %		COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		58.2	4.7	860	902	944					
WHEMLOCK		38.0	26.3	440	597	754					
R ALDER											
TOTAL		58.8	4.7	850	892	933	138	34	15		
CL: 68.1 %		COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		41.8	5.5	98	103	109					
WHEMLOCK		302.6	40.0	1	2	2					
R ALDER		755.0	99.9	0	1	1					
TOTAL		39.8	5.3	100	105	111	63	16	7		
CL: 68.1 %		COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		35.1	4.6	286	300	314					
WHEMLOCK		310.5	41.1	3	5	7					
R ALDER		755.0	99.9	0	1	1					
TOTAL		33.9	4.5	292	306	320	46	11	5		
CL: 68.1 %		COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		34.8	4.6	62,642	65,668	68,693					
WHEMLOCK		320.6	42.4	566	983	1,400					
R ALDER		755.0	99.9	0	90	181					
TOTAL		33.9	4.5	63,744	66,741	69,739	46	11	5		

TC		PSTNDSUM										Stand Table Summary										Page		1	
																						Date:		1/11/2017	
T05N R06W S01 TyPCRW THRU T06N R06W S01 TyMCT					Project					TALLSMAL					Time:		1:54:24PM								
					Acres					374.00					Grown Year:										
S Spc	T	Tot				Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals											
		DBH	Sample Trees	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF									
D		9	4	85	53	4.643	2.05	4.64	9.0	40.0		42	186		156	69									
D		11	15	86	94	10.795	7.12	15.37	14.9	57.0		229	876		857	328									
D		12	6	84	71	3.917	3.08	5.22	15.7	50.0		82	261		308	98									
D		13	8	87	82	4.450	4.10	6.68	19.2	66.7		128	445		479	166									
D		14	14	85	86	3.942	4.21	6.88	19.6	65.6		135	452		504	169									
D		15	17	84	101	5.872	7.21	11.74	22.7	77.8		267	913		997	342									
D		16	24	87	91	5.243	7.32	10.49	24.8	88.2		260	925		972	346									
D		17	18	77	100	2.705	4.26	5.40	29.1	90.3		157	487		587	182									
D		18	28	86	104	4.726	8.35	11.74	30.0	109.5		352	1,286		1,318	481									
D		19	13	87	105	2.100	4.13	5.22	32.6	117.6		170	614		636	230									
D		20	24	87	108	3.779	8.25	10.33	32.8	124.4		339	1,285		1,268	480									
D		21	24	87	120	3.820	9.19	10.15	41.9	165.4		426	1,679		1,592	628									
D		22	14	87	129	2.304	6.08	6.90	43.8	183.8		302	1,268		1,130	474									
D		23	16	87	131	2.457	7.09	7.36	47.7	198.1		351	1,457		1,312	545									
D		24	13	87	134	1.929	6.06	5.78	53.3	224.4		308	1,297		1,152	485									
D		25	23	88	137	3.254	11.09	9.76	58.0	255.0		566	2,488		2,116	931									
D		26	32	87	142	4.368	16.10	13.38	64.5	285.9		863	3,824		3,227	1,430									
D		27	16	88	141	2.025	8.05	6.08	70.8	320.0		430	1,944		1,609	727									
D		28	20	88	140	2.354	10.06	6.83	77.0	358.6		526	2,448		1,967	915									
D		29	20	89	145	2.194	10.06	6.58	83.1	399.0		547	2,626		2,047	982									
D		30	8	85	146	.820	4.03	2.46	87.3	394.2		215	970		803	363									
D		31	12	88	145	1.152	6.04	3.46	91.1	443.3		315	1,532		1,177	573									
D		32	6	88	154	.541	3.02	1.80	97.1	488.0		175	879		654	329									
D		33	10	87	135	.847	5.03	2.54	99.9	482.0		254	1,225		949	458									
D		34	10	88	147	.798	5.03	2.39	115.3	574.7		276	1,376		1,033	515									
D		35	16	86	137	1.205	8.05	3.62	112.8	540.8		408	1,955		1,525	731									
D		36	6	86	148	.427	3.02	1.28	127.9	632.2		164	810		613	303									
D		38	6	83	137	.383	3.02	1.02	124.6	578.8		127	592		477	221									
D		40	2	82	140	.115	1.01	.35	144.3	666.7		50	231		187	86									
D		42	4	84	126	.209	2.01	.63	145.0	708.3		91	445		340	166									
D		Totals	429	86	107	83.375	184.14	186.06	46.0	197.7		8,554	36,776		31,992	13,754									
H		11	1	86	24	.038	.02	.04	8.0	10.0		0	0		1	0									
H		12	2	82	65	.969	.76	.97	22.0	60.0		21	58		80	22									
H		16	3	82	53	.563	.79	.58	31.5	60.9		18	35		68	13									
H		20	2	89	92	.387	.84	.77	47.0	170.0		36	132		136	49									
H		24	2	91	124	.269	.84	.81	56.0	256.7		45	207		169	77									
H		25	2	91	106	.248	.84	.50	78.0	340.0		39	169		145	63									
H		Totals	12	85	76	2.475	4.11	3.67	43.7	164.0		160	601		599	225									
A		12	1	87	41	.034	.03	.03	13.0	10.0		0	0		2	0									
A		13	1	86	41	.029	.03	.03	15.0	10.0		0	0		2	0									
A		16	2	87	87	.259	.36	.52	27.0	90.0		14	47		52	17									
A		Totals	4	87	78	.322	.42	.58	25.6	81.4		15	47		56	18									
M		9	1	86	64	.030	.01																		
M		Totals	1	86	64	.030	.01																		
Totals			446	86	106	86.202	188.68	190.30	45.9	196.7		8,729	37,424		32,647	13,997									

TC TSTNDSUM					Stand Table Summary									
					Project TALLSMAL									
T05N R06W S01 TPCLV					T05N R06W S01 TPCLV									
Twp	Rge	Sec	Tract		Type	Acres	Plots	Sample Trees	Page: 1					
05N	06W	01	A1234		PCLV	177.00	54	72	Date: 01/11/20					
									Time: 1:54:46PM					
S Spc	T	Sample		Av	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net	Net	T o t a l s	
		DBH	Trees	FF Ht 16' Tot				Net	Net		Cu.Ft.	Bd.Ft.		
								Cu.Ft.	Bd.Ft.		Acre	Acre	Tons	Cunits MBF
DL		11	1	82	80	3.040	2.01	3.04	19.0	60.0	58	182	102	32
DL		14	6	85	83	11.262	12.04	18.77	19.9	63.0	374	1,183	661	209
DL		15	3	84	86	4.905	6.02	9.81	20.8	66.7	204	654	362	116
DL		16	10	84	88	14.371	20.07	28.74	24.0	82.5	690	2,371	1,221	420
DL		17	10	86	92	12.730	20.07	24.19	28.7	100.5	695	2,431	1,230	430
DL		18	12	85	84	13.626	24.08	28.39	29.2	94.0	828	2,668	1,465	472
DL		19	5	85	78	5.096	10.03	10.19	31.0	97.0	316	989	559	175
DL		20	8	85	89	7.358	16.05	14.72	38.1	120.0	560	1,766	991	313
DL		21	6	85	84	5.005	12.04	10.01	40.0	126.7	400	1,268	709	224
DL		22	2	87	92	1.520	4.01	3.04	48.7	170.0	148	517	262	91
DL		23	2	89	91	1.391	4.01	2.78	51.7	192.5	144	536	255	95
DL		24	1	83	103	.639	2.01	1.28	62.5	215.0	80	275	141	49
DL		25	1	82	76	.589	2.01	1.18	54.5	160.0	64	188	114	33
DL		Totals	67	85	86	81.532	134.44	156.13	29.2	96.3	4,561	15,028	8,073	2,660
HL		11	1	86	24	4.716	3.11	4.72	8.0	10.0	38	47	67	8
HL		16	1	86	70	2.229	3.11	4.46	23.5	75.0	105	334	185	59
HL		Totals	2	86	39	6.944	6.22	9.17	15.5	41.6	142	381	252	68
A		12	1	87	41	3.170	2.49	3.17	13.0	10.0	41	32	73	6
A		13	1	86	41	2.701	2.49	2.70	15.0	10.0	41	27	72	5
A		Totals	2	87	41	5.871	4.98	5.87	13.9	10.0	82	59	145	10
M		9	1	86	64	2.818	1.24							
M		Totals	1	86	64	2.818	1.24							
Totals			72	85	80	97.165	146.89	171.18	28.0	90.4	4785	15,468	8,470	2,738

Log Stock Table - MBF

T05N R06W S01 TyPCRW
THRU
T06N R06W S01 TyMCT

Project: TALLSMAL
Acres 374.00

Page 2
Date 1/11/2017
Time 1:56:20PM

S T	So Gr rt de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
							2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
D	DO 4S	15	0		0	.0		0										
D	DO 4S	16	106		106	.8		4	80	21								
D	DO 4S	18	28		28	.2			23	4								
D	DO 4S	20	24		24	.2		0	10	13								
D	DO 4S	22	30		30	.2			16	14								
D	DO 4S	24	5		5	.0			0	4								
D	DO 4S	25	23		23	.2		13	5	5								
D	DO 4S	26	27		27	.2		0	27									
D	DO 4S	27	11		11	.1					5	6						
D	DO 4S	28	19		19	.1			19									
D	DO 4S	30	13		13	.1		0	13	0								
D	DO 4S	31	75		75	.5			75									
D	DO 4S	32	88	5.2	84	.6		7	19	7	11		40					
D	DO 4S	33	26		26	.2					26							
D	DO 4S	34	62		62	.5			62									
D	DO 4S	40	43		43	.3			34		9							
D	Totals		14,115	2.6	13,754	98.3		26	968	991	1291	1368	1742	3735	2262	1371		
A	DO 2S	40	15		15	82.2					15							
A	DO 3S	25	3		3	16.4			3									
A	DO CR	36	0		0	1.3	0											
A	Totals		18		18	.1	0		3		15							
H	DO 2S	40	165		165	73.2					20		42	102				
H	DO 3S	22	0		0	.1		0										
H	DO 3S	32	1	7.1	1	.4					1							
H	DO 3S	34	7		7	3.2			7									
H	DO 3S	40	48		48	21.3			34		14							
H	DO 4S	16	4		4	1.8				4								
H	DO 4S	20	0		0	.1			0									
H	Totals		225		225	1.6		0	41	4	15	20	42	102				
M	DO CU	32	1	100.0														
M	Totals		1	100.0														
Total	All Species		14,359	2.5	13,997	100.0	0	27	1012	995	1320	1388	1784	3837	2262	1371		

LOGGING PLAN

OF TIMBER SALE CONTRACT NO. 341-17-06
TALL N SMALL

PORTIONS OF SECTIONS 35 AND 36, OF
T6N, R6W, AND PORTIONS OF SECTIONS
1, 2, 11, 12, 13, 14, 23,
AND 24, OF T5N, R6W,
W.M., CLATSOP COUNTY, OREGON

	Net Acres
Area 1 (PC) -	55
Area 2 (PC) -	45
Area 3 (PC) -	29
Area 4 (PC) -	48
Area 5 (MC) -	71
Area 6 (MC) -	29
Area 7 (MC) -	60
Area 8 (MC) -	31
Area 9 (R/W) -	6
Total Acres:	374

1 inch = 1,000 feet



Legend



ODF Ownership



Timber Sale Area Posted



Timber Sale Area Unposted



Type F Stream



Type N Stream



Buffer Zone



Posted Stream Buffer



Paved Road



Surfaced Road



New Road Construction



Existing Landings



New Landing Construction



Pt. "A" Point for Project Work



Non-thinnable Area



Reforestation Area



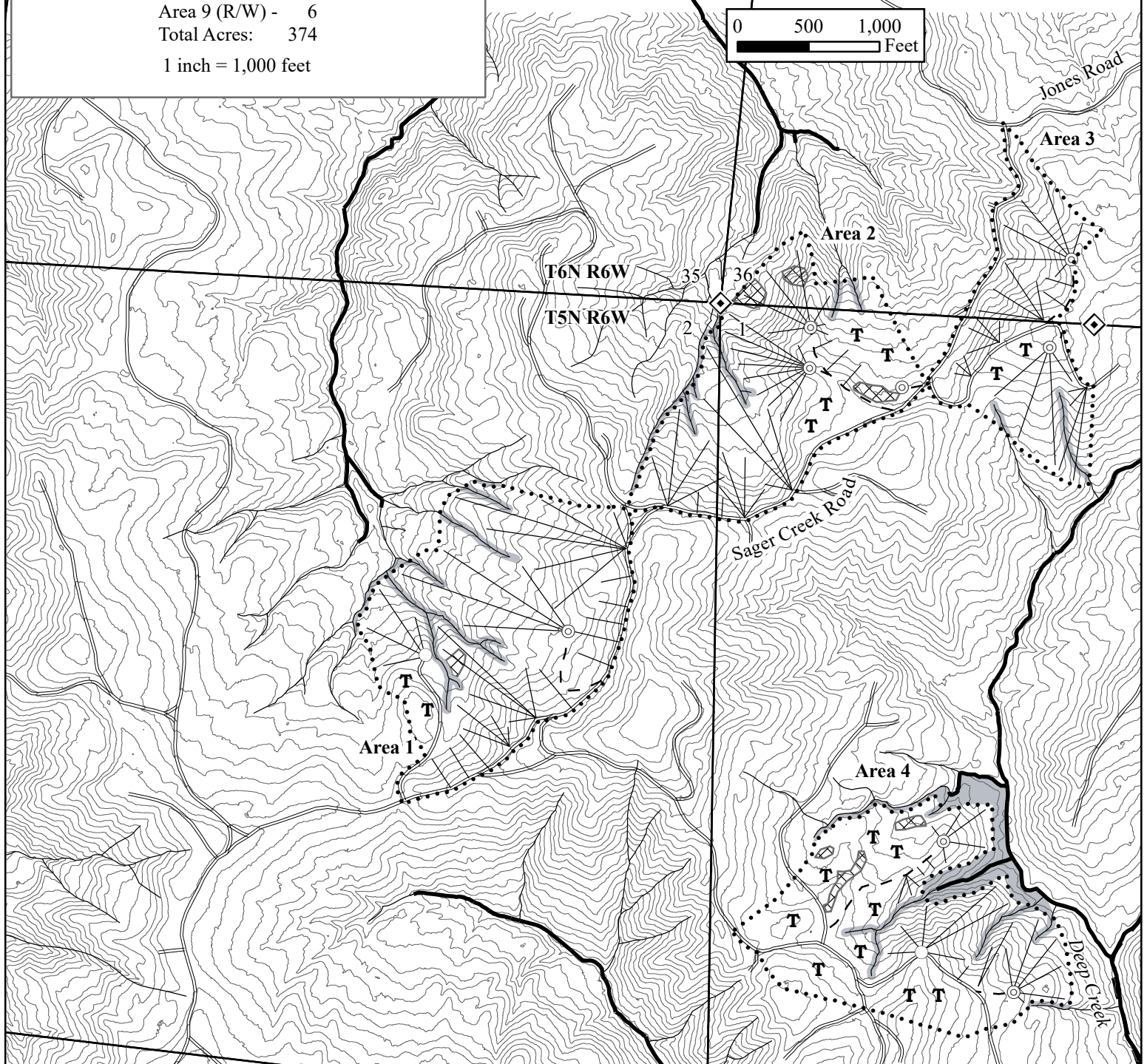
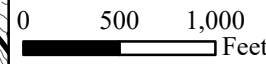
Survey Monument



Cable Yarding



Tractor Yarding



LOGGING PLAN

OF TIMBER SALE CONTRACT NO. 341-17-06
TALL N SMALL

PORTIONS OF SECTIONS 35 AND 36, OF
T6N, R6W, AND PORTIONS OF SECTIONS
1, 2, 11, 12, 13, 14, 23,
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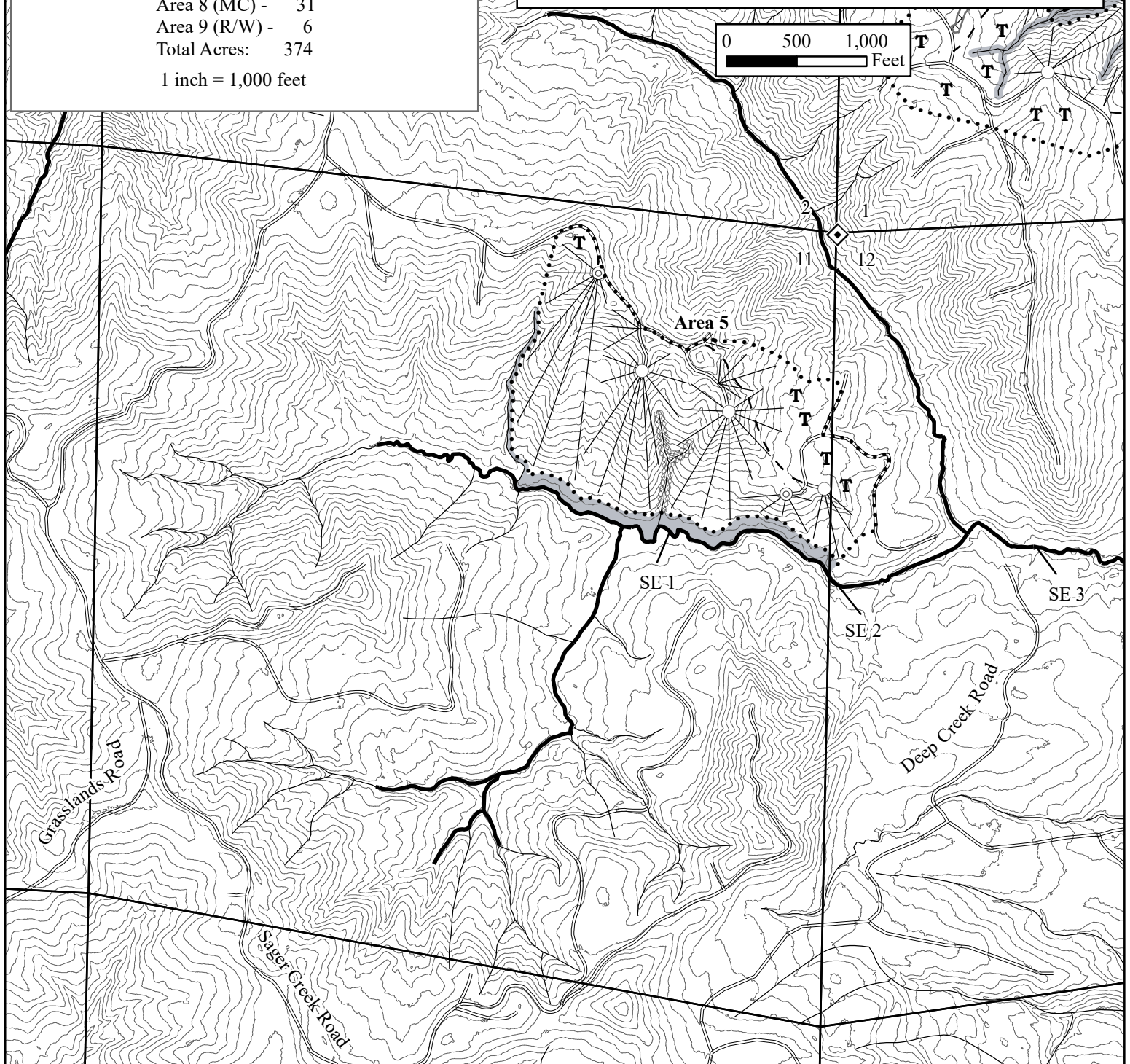
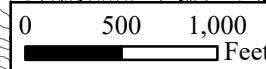
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Legend

	ODF Ownership		New Road Construction
	Timber Sale Area Posted		Existing Landings
	Timber Sale Area Unposted		New Landing Construction
	Type F Stream		Point for Project Work
	Type N Stream		Non-thinnable Area
	Buffer Zone		Reforestation Area
	Posted Stream Buffer		Survey Monument
	Paved Road		Cable Yarding
	Surfaced Road		Tractor Yarding



LOGGING PLAN

OF TIMBER SALE CONTRACT NO. 341-17-06
TALL N SMALL

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