Timber Sale Appraisal
Wookie

Sale AT-341-2021-W00826-01

District: Astoria

Date: May 29, 2020

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	$3,638,268.03	$43,221.63	$3,681,489.66
		Project Work:	($213,634.87)
		Advertised Value:	$3,467,854.79

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District: Astoria **Date: May 29, 2020**

Timber Description

Location: Portions of Sections 13, 14, 24, and 25 of T7N, R6W, W.M., Clatsop County, Oregon.

Stand Stocking: 80%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	25	0	97
Western Hemlock / Fir	20	0	95
Alder (Red)	23	0	96

Volume by Grade	2S	3S & 4S 6"-11"	8" - 9"	12"+	6" - 7"	Total
Douglas - Fir	6,520	1,031	0	0	0	7,551
Western Hemlock / Fir	1,517	442	0	0	0	1,959
Alder (Red)	0	0	32	139	6	177
Total	8,037	1,473	32	139	6	9,687

Comments: Pond Values Used: Local Pond Values, April, 2020.

Expected Log Markets: Mist, Willamina, Banks, North Plains, Clatskanie, Tillamook, Wauna, Forest Grove, Warrenton, Longview, WA, Elma, WA, and Chehalis, WA.

PRICING:
Western Red Cedar and other Cedars stumpage = pond value - (Douglas-fir)logging cost.
$842.37/MBF = $1,100/mbf - $257.63/MBF

spruce stumpage = pond value - (Douglas-fir)logging cost.
$203.37/MBF = $461/mbf - $257.63/MBF

Slash Piling (See attached appraisal. Includes move-in, pile materials, and end-hauling) = $25,372.33

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

Machine Washing for Invasive Weed Compliance = $2,000

Ditch Filters:
16 bales of straw @ $12.06/bale = $192.96
8 hours of labor @ $45/hr = $360

RE-OPEN UNSURFACED ROADS:

Clear, Brush, and Unblock Spurs in Units 1, 2, and 3:
24 Hours w/C315 Excavator @ $114/Hr = $2,736
16 Hours w/D6 Dozer @ $128/Hr = $2,048

Apply Pit-Run on Unsurfaced Road Approaches:
44cy Pit-Run/Road Approach x 4 Roads @ $10.45/cy = $1,839.20

Waterbar and Block Unsurfaced Roads:
8 Hours w/C315 Excavator @ $114/Hr = $912

TOTAL Other Costs (with Profit & Risk to be added): $10,088.16

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

ROAD MAINTENANCE
(See attached Road Maintenance Cost Summary Sheet)
TOTAL Road Maintenance: $40,864/9,687 MBF = $4.22/MBF

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Sale AT-341-2021-W00826-01

District: Astoria **Date: May 29, 2020**

Logging Conditions

Combination#: 1

Douglas - Fir	78.00%
Western Hemlock / Fir	78.00%
Alder (Red)	78.00%

Logging System: Cable: Large Tower >=70 **Process:** Manual Falling/Delimbing

yarding distance: Long (1,500 ft) **downhill yarding:** No

tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF

loads / day: 9 **bd. ft / load:** 3950

cost / mbf: $191.28

machines: Log Loader (A)
Tower Yarder (Large)

Combination#: 2

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

Logging System: Shovel **Process:** Manual Falling/Delimbing

yarding distance: Medium (800 ft) **downhill yarding:** No

tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF

loads / day: 10 **bd. ft / load:** 4500

cost / mbf: $87.50

machines: Shovel Logger

Timber Sale Appraisal
Wookie
Sale AT-341-2021-W00826-01

District: Astoria **Date: May 29, 2020**

Logging Costs

Operating Seasons:	4.00	**Profit Risk:**	10%
Project Costs:	$213,634.87	**Other Costs (P/R):**	$10,088.16
Slash Disposal:	$25,372.33	**Other Costs:**	$0.00

Miles of Road

Road Maintenance: $4.22

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	4.0	4.5
Western Hemlock / Fir	$0.00	4.0	4.2
Alder (Red)	$0.00	2.0	3.5

Timber Sale Appraisal
Wookie

Sale AT-341-2021-W00826-01

District: Astoria **Date: May 29, 2020**

Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Brand & Paint	Other	Total
Douglas - Fir									
$168.45	$4.35	$1.81	$54.36	$1.04	$23.00	$2.62	$2.00	$0.00	$257.63
Western Hemlock / Fir									
$168.45	$4.43	$1.81	$59.38	$1.04	$23.51	$2.62	$2.00	$0.00	$263.24
Alder (Red)									
$168.45	$4.39	$1.81	$141.14	$1.04	$31.68	$2.62	$2.00	$0.00	$353.13

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	$0.00	$668.08	$410.45	$0.00
Western Hemlock / Fir	$0.00	$538.36	$275.12	$0.00
Alder (Red)	$0.00	$597.32	$244.19	$0.00

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District: Astoria **Date: May 29, 2020**

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	7,551	$410.45	$3,099,307.95
Western Hemlock / Fir	1,959	$275.12	$538,960.08
Alder (Red)	177	$244.19	$43,221.63

Gross Timber Sale Value

Recovery: $3,681,489.66

Prepared By: Justin Bush **Phone:** 503-325-5451

Road Maintenance Cost Summary (Interim and Post Harvest)

Sale:	**Wookie**	**MBF:**	9,687.00
Date:	March 25, 2020	**$$/MBF:**	$4.22
By:	Michele Huffman		

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	
Interim & Snow Plowing	Grader 14G	$875	1	28	$113	$4,039	
	Dump Truck 12CY	$184	1	10	$89	$1,074	
	Vibratory Roller	$875	1	5	$87	$1,310	
	Rubber Tired Backhoe-small	$361	1	5	$45	$586	
Interim & Snow Plowing	Grader 14G	$875	1	30	$113	$4,265	
	Dump Truck 12CY	$184	1	10	$89	$1,074	
	Vibratory Roller	$875	1	10	$87	$1,745	
	FE Loader C966	$875	1	5	$94	$1,345	
Final Road Maintenance	Grader 14G	$875	1	61	$113	$7,768	
	Dump Truck 12CY	$184	3	20	$89	$2,332	
	FE Loader C966	$875	1	10	$94	$1,815	
	Vibratory Roller	$875	1	61	$87	$6,182	
	Water Truck 2,500 gallon	$214	1	30	$101	$3,244	
	C315 Excavator	$905	1	20	$114	$3,185	
	Labor			20	$45	$900	
Total							**$40,864**

Interim Operations Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	2.5	5.0	2.0	20

Final Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	1.50	9.1	6.1	61
Vibratory Roller	1.50	9.1	6.1	61

Process and compact: All crushed rock roads

West Creek Ridge Road 4.5 Miles
East Kerry Road 1.3 Miles
Wookie Road 1.7 Miles
Unnamed Spurs 1.6 Miles

Grade & Process Total = 9.1 Miles

Site Prep Appraisal

Sale Number: AT-341-2020-W00826-01
Sale Name: Wookie
Date: 03/24/2020

Vegetation Type/Zone	Vegetation Type/Zone Code	Production Rate (hr/ac)	Estimated Piles/Acre	Landing Production Rate (hrs/30 acres)
Doug-fir	A	0.5	0.5	6
Hemlock/Fir	B	1.3	4.5	8
Hemlock/Spruce	C	1.8	6.0	10
Hemlock	D	1.8	6.0	8
Conifer/Hardwood	E	1.0	2.0	8
Whole Tree Yarding	F	0.5	0.5	12

Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area	
1	MC	B	25	33	$145.00	$4,712.50	
2	MC	B	20	26	$145.00	$3,770.00	
3	MC	B	16	21	$145.00	$3,016.00	
					In-unit Piling	**Sub Total =**	$11,498.50

Sale Area	Number of Landings to be Piled	# cable acres per area	Total Cost/Area	Number of In-Unit Piles	Material Cost/Pile	Total Cost/Area	
1	15	59	$2,281.33	127.5	$5.00	$637.50	
2	18	69	$2,668.00	108	$5.00	$540.00	
3	20	90	$3,480.00	92	$5.00	$460.00	
*Cost includes separating firewood					Materials	**Sub Total =**	$1,637.50
					Landing Piling	**Sub Total =**	$8,429.33

Additonal Move-in allowance

Move-In Allowance	Number of Move-In's	Total Move-In Allowance				
$1,290.00	1.5	$1,935.00				
					Move-In	**Sub Total =**	$1,935.00

Slash Endhaul

Dump Truck hrs	Cost/Hour	Total	Loader hrs	Cost/Hour	Total	
8	$89.00	$712.00	8	$145.00	$1,160.00	
					Sub Total =	$1,872.00
					Grand Total =	**$25,372.33**

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Wookie

Project No. 1: ROAD CONSTRUCTION:

Road segment	*Length (Sta)*	*Length (Mile)*	*Cost*	
A to B	7.80	0.15	$8,940.37	
Road Maint.			$134.00	
Move-In			$428.81	
TOTALS	7.80	0.15		$9,503.16

Project No. 2: ROAD IMPROVEMENT:

Road segment	*Length (Sta)*	*Length (Mile)*	*Cost*	
I1 through I43	628.90	11.91	$174,555.89	
Road Maint.			$10,616.00	
Move-In			$8,372.19	
TOTALS		11.91		$193,544.09

SPECIAL PROJECTS (Move-In and Road Maint. are included separetly as needed, for each Special Project)**:**

Description	*Length/Vol.*	*Cost*	
Proj. 3 Road Vacating		$10,587.62	
TOTAL			$10,587.62

GRAND TOTAL **$213,634.87**

Compiled By: D. Farner Date: 03/10/2020

Move In and Maintenance Calculator for Construction and Improvement

SALE NAME: Wookie

Project No. 1: ROAD CONSTRUCTION:

	Road segment	Length/Sta	Length/Mile	Cost	
Remove culvert/construct waterbar	A to B	7.80	0.15	$8,940	
Remove culvert/construct waterbar					
	TOTALS	7.80	0.15		$8,940

Project No. 2: ROAD IMPROVEMENT:

	Road segment	Length/Sta	Length/Mile	Cost	
Remove culvert/construct waterbar					
	I1 through I43	628.90	11.91	$174,555.89	
	TOTALS	628.90	11.91		$174,556

MOVE IN (Construction & Improvement Only)

	Equipment	Length/Mile	Cost	
	Excavator(C330)		$1,581.00	
	Excavator(C315)		$905.00	
	Dump Trucks 20cy x2		$430.00	
	Dump Trucks 12cy x6		$1,104.00	
	Front End Loader (C966)		$875.00	
	Grader (14G)		$875.00	
	Water Truck (2500 gal.)		$214.00	
	Vibratory Roller		$875.00	
Remove culvert/construct waterbar	Backhoe (C580)		$361.00	
	Dozer (D8)		$1,581.00	
	TOTAL			$8,801.00

ROAD MAINTENANCE (Construction & Improvement Only)

	Length/Mile	Cost	
Nicolai, West Kerry, West Cr.	6.2	$10,750.00	
TOTAL			$10,750.00

SUMMARY OF CONSTRUCTION COSTS

ROAD: A to B (7.80 sta.)

CLEARING & GRUBBING

	Method	Acres/amount	x	Rate	=	Cost
A to B	Clear and scatter	0.72	x	$ 1,503	=	$1,082.16

Remove culvert/construct waterbar

SUB TOTAL FOR CLEARING & GRUBBING $1,082

EXCAVATION

	Material		Cy/amount	x	Rate	=	Cost
Remove culvert/construct waterbar	**A to B**						
0+00	Ditch to exsisting culvert on I5-I6	(C315)	1	x	$114.00	=	$114.00
	Balanced construction	($/sta.)	4	x	$138.00	=	$483.00
1+50	Drift earth up to 200'	($/sta.)	2	x	$214.00	=	$428.00
3+60	Turnaround/ Landing	($/landing)	1.00	x	$219.00	=	$219.00
Remove culvert/construct waterbar	7+80 Landing construction	($/landing)	1.00	x	$438.00	=	$438.00

SUB TOTAL FOR EXCAVATION $1,682

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
A to B				$0.00					$0.00
1+50	18 CPP	30	$21.95	$658.50					$0.00

	Description	Quantity	Rate	Cost
Other/miscellaneous:				
Culvert stakes & markers:	Culvert marker	1	$23.00	$23.00
			$23.00	

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION $682

Subtotal of Clearing, Exc.,Culv. ***$3,446***

Remove culvert/construct waterbar

SURFACING

Subgrade prep: Description	Stations/ amount	x	Rate/ sta/amt	Cost
Subgrade Compaction	7.80	x	$22.69	$176.98

ROAD SEGMENT A to B				POINT TO POINT		Sta. to Sta.					
				A to B		0+00 to 7+80					
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	**Volume (CY) per**		**Number of**		**TOTAL VOLUME (CY)**	**Rate/ Sta./ amt.**	**Cost**	
Remove culvert/construct waterbar											
Surfacing	4"-0"	0+00 - 7+80	8	station	60	stations	7.80	468	$7.73	$3,618	
Turnarounds	4"-0"	3+60	8	turnaround	22	turnarounds	1	22	$7.73	$170	
Landings	6"-0" pit run	3+60	N/A	Landing	22	Landings	1	22	$8.84	$194	
Remove culvert/construct waterbar											
Landings	6"-0" pit run	7+80	N/A	Landing	66	Landings	1	66	$8.84	$583	
Total Rock for Road Segment:			A to B					578			$4,566

Processing:

Description	No.sta	Rate/sta	Cost
Water, Process & Compact Base Rock (4"-0"):	7.8	$63.48	$495.14

Remove culvert/construct waterbar

	6"-0" pr	4"-0" crushed	1 1/2"-0" crushed		Total	
SUB TOTAL FOR SURFACING	88	490			578	**$5,238**

SPECIAL PROJECTS

Description	CY	$/CY	Cost
Pit-Run Development ($/cy)	88	$2.92	$256.96

SUB TOTAL FOR SPECIAL PROJECTS $257

Subtotal of Surfacing & Spec. Proj. *$5,495*
Subtotal of Clearing, Exc.,Culv. *$3,446*

GRAND TOTAL **$8,940**

Compiled By: D. Farner Date: 03/09/2020

SUMMARY OF CONSTRUCTION COSTS

ROAD: I1-I2(235.2 sta.),I2-I4(82.7 sta.),I5-I6(14.35 sta.),I7-I8(7.0 sta.),I9-I10(85.0 sta.), I21-I22(1.75 sta.),I23-I24(9.6 sta.),I25-I26(8.6 sta.),I27-I28(2.8),I29-I30(5.3 sta.),I31-I32(39.25 sta.), I33-I34(14.9 sta.),I35-I36(9.45 sta.),I37-I38(24.0 sta.),I39-I40(10+70 sta.), I4-I42(25.9 sta.),I43-I44(11.0 sta.). **IMPROVEMENT:** 628.90 **STATIONS** 11.91 **MILES**

CLEARING & GRUBBING

	Method	Acres/amount	x	Rate	=	Cost
Remove culvert/construct waterbar			x		=	$0.00

SUB TOTAL FOR CLEARING & GRUBBING $0

EXCAVATION

	Material		Cy/amount	x	Rate	=	Cost
	I1-I2						
35+00	Prep. waste area	(C315 Hrs.)	2.0	x	$114.00	=	$228.00
54+90 to 69+25	Re-establish ditch, end haul	(C315 Hrs.)	8.0	x	$114.00	=	$912.00
	all spoils to waste area	(D. truck Hrs.)	8.0	x	$89.00	=	$712.00
Remove culvert/construct waterbar 109+00	Install ditch filler	(C315 Hrs.)	1.0	x	$114.00	=	$114.00
213+75	Install ditch filter	(C315 Hrs.)	1.0	x	$114.00	=	$114.00
214+80	Install ditch filter	(C315 Hrs.)	1.0	x	$114.00	=	$114.00
217+50	Install ditch filter	(C315 Hrs.)	1.0	x	$114.00	=	$114.00
	I11-I12						
4+80	Improve landing	(C315 Hrs.)	2.0		$114.00	=	$228.00
	I29-I30						
2+40	Improve landing	(C330 Hrs.)	3.0	x	$175.00	=	$525.00
3+20	Expand turnount into						
	turnaround	(C330 Hrs.)	1.0	x	$175.00	=	$175.00
5+30	Expand landing	(C330 Hrs.)	5.00	x	$175.00	=	$875.00
	Labor	(Hrs.)	4.00	x	$45.00	=	$180.00
	I31-I32						
1+00 to 5+00	Clean ditch, end haul ditch	(C315 Hrs.)	5.00	x	$114.00	=	$570.00
	spoils to waste area	(D. truck Hrs.)	5.00	x	$89.00	=	$445.00
21+00	Prep. waste area		2.00	x	$114.00	=	$228.00
	I39-I40						
10+70	Expand landing	(C330 Hrs.)	10.00	x	$175.00	=	$1,750.00
Remove culvert/construct waterbar	**I41-I42**						
12+70 to 14+40	Re-establish ditch, scatter						
	waste	(C315 Hrs.)	4.00	x	$114.00	=	$456.00

SUB TOTAL FOR EXCAVATION $7,740

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
				$0.00					$0.00

	Description	Quantity	Rate	Cost
Other/miscellaneous:				
Culvert stakes & markers:	Culvert marker	20	$23.00	$460.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION $460

Subtotal of Clearing, Exc.,Culv. ***$8,200***

SURFACING	Subgrade prep:	Description	Stations/ amount	x	Rate/ sta/amt	Cost
		(I1-I2, I2-I4, I5-I6, I7-I8, I9-I10, I11-I12,I13-I14,I15-I16,I17-I18,I19-I20,I21-I22, I43-I44)				
		Subgrade Compaction	628.90	x	$22.69	$14,269.74
Remove culvert/construct waterbar		(I1-I2, I2-I4, I5-I6, I7-I8, I9-I10, I11-I12,I13-I14,I15-I16,I17-I18,I19-I20,I21-I22, I23-I24,I25-I26,I27-I28,I29-I30,I31-I32,I33-I34,I35-I36,I37-I38,I39-I40,I4-I42, I43-I44)				
		Sod removal, ditch reconstruction.	40.25	x	$26.20	$1,054.55
Remove culvert/construct waterbar		I9-I10(15.0 sta.),I1-I14(3.8 sta.),I15-I16(4.5 sta.),I19-I20(1.3 sta.),I21-I22(1.75 sta.), I25-I26(8.6 sta.),I29-I30(5.3 sta.), Scatter ditch debris. I9-I10(15.0 sta.),I13-I14(3.8 sta.),I15-I16(4.5 sta.),I19-I20(1.3 sta.),I21-I22(1.75 sta.), I25-I26(8.6 sta.),I29-I30(5.3 sta.),	40.25		$10.08	$405.72

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 Volume (CY) per		0+00 to 235+20 Number of				
Surfacing	1-1/2"-0" crushed	0+00 to 52+45, 130+30 to 235+20	3	station	22	stations	157.35	3,462	$7.73	$26,759
Surfacing	3/4"-0" crushed	52+45 to 130+30	3	station	22	stations	77.85	1,713	$7.73	$13,239
Surface Leveling Rock	3/4"-0" crushed	52+45 to 130+30	N/A	load	11	loads	8	88	$7.73	$680
Surface Leveling Rock	1-1/2"-0" crushed	0+00 to 52+45, 130+30 to 235+20	N/A	load	11	loads	8	88	$7.73	$680
Turnouts	1-1/2"-0" crushed	3+50,10+00, 12+10, 16+60, 21+80, 29+30, 37+20,42+70, 46+50,51+30, 139+80, 141+40, 150+10, 171+15, 186+00, 195+90, 227+15, 230+40	3	turnout	11	turnouts	18	198	$7.73	$1,531
Turnouts	3/4"-0" crushed	70+60, 87+30, 94+30, 99+85, 102+60, 106+40, 110+00, 114+65, 118+70, 123+55,	3	turnout	11	turnouts	10	110	$7.73	$850
Junctions	1-1/2"-0" crushed	148+25, 179+00, 201+25, 216+60, 217+50, 235+20	N/A	junction	11	junctions	8	88	$7.73	$680
Junctions	3/4"-0" crushed	75+70, 130+30	N/A	junction	11	junctions	2	22	$7.73	$170
Ditch Filter	6"- 4" pit-run	109+00, 114+10, 213+75, 214+80, 217+50,	N/A	location	11	locations	5	55	$8.84	$486
Total Rock for Road Segment:			I1 to I2					5,823		$45,076

ROAD SEGMENT	I2 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)	I2 to I4 Volume (CY) per		0+00 to 82+70 Number of				
Surfacing	1-1/2"-0" crushed	0+00 to 82+70	3	station	22	stations	82.7	1,819	$7.73	$14,064
Subgrade Leveling Rock	1-1/2"-0" crushed	0+00 to 82+70	N/A	load	11	loads	8	88	$7.73	$680
Turnouts	1-1/2"-0" crushed	5+40, 11+75, 18+90, 29+60, 36+75, 43+80, 50+20, 60+70, 72+30	3	turnout	11	turnouts	9	99	$7.73	$765
Junctions	1-1/2"-0" crushed	0+70, 25+30, 34+30, 46+45, 57+20, 66+30, 78+90, 82+70	N/A	junction	11	junctions	8	88	$7.73	$680
Total Rock for Road Segment:			I2 to I4					2,094		$16,190

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 Volume (CY) per		0+00 to 10+80 Number of				
Surfacing	4"-0" crushed	0+00 to 10+80	4	station	25	stations	10.8	270	$7.73	$2,087
Junctions	4"-0" crushed	10+40	N/A	junction	11	junctions	1	11	$7.73	$85
Turnouts	4"-0" crushed	5+00, 7+40,	4	turnout	11	turnouts	2	22	$7.73	$170
Turnaround	4"-0" crushed	10+80	4	turnaround	11	turnarounds	1	11	$7.73	$85
Total Rock for Road Segment:			I5 to I6					314		$2,427

ROAD SEGMENT	I9 to I10			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I9 to I10 Volume (CY) per		0+00 to 85+00 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Subgrade Leveling Rock	4"-0" crushed	0+00 to 85+00	N/A	load	11	loads	7	77	$7.73	$595	
Surfacing	4"-0" crushed	0+00 to 31+50, 4+00 to 85+00	4	station	25	stations	76.5	1,913	$7.73	$14,784	
Surfacing	3/4"-0" crushed	31+50 to 40+00	4	station	25	stations	8.5	213	$7.73	$1,643	
Junctions	4"-0" crushed	19+00, 25+60, 40+00, 45+70(2), 60+00, 66+40, 69+70,	N/A	junction	11	junctions	8	88	$7.73	$680	
Turnouts	4"-0" crushed	4+70, 9+20, 15+00, 20+80, 23+80(2), 31+50, 41+15, 49+80, 57+10, 63+50, 72+30,77+30, 80+20,	4	turnout	11	turnouts	14	154	$7.73		
Turnaround	4"-0" crushed	83+60	4	turnaround	11	turnarounds	1	11	$7.73		
Traction Rock	1-1/2"-0" crushed	72+30 to 77+30	2	station	13	stations	5.0	65	$7.73	$502	
Landings	6"-0" pit run	85+00	N/A	Landing	66	Landings	1	66	$8.84	$583	
Total Rock for Road Segment:			I9 to I10					2586			$18,788
ROAD SEGMENT	I11 to I12			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I11 to I12 Volume (CY) per		0+00 to 4+80 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surfacing	4"-0" crushed	0+00 to 4+80	4	station	25	stations	4.8	120	$7.73	$928	
Turnaround	4"-0" crushed	3+30	4	turnaround	11	turnarounds	1	11	$7.73	$85	
Landings	6"-0" pit run	4+80	N/A	Landing	66	Landings	1	66	$8.84	$583	
Total Rock for Road Segment:			I11 to I12					197			$1,596
ROAD SEGMENT	I13 to I14			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I13 to I14 Volume (CY) per		0+00 to 3+80 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surfacing	4"-0" crushed	0+00 to 3+80	4	station	25	stations	3.8	95	$7.73	$734	
Turnaround	4"-0" crushed	2+25(2)	4	turnaround	11	turnarounds	2	22	$7.73	$170	
Landings	6"-0" pit run	3+80	N/A	Landing	66	Landings	1	66	$8.84	$583	
Total Rock for Road Segment:			I13 to I14					183			$1,488
ROAD SEGMENT	I23 to I24			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I23 to I24 Volume (CY) per		0+00 to 1+50 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surfacing	4"-0" crushed	0+00 to 1+50	4	station	25	stations	1.5	38	$7.73	$290	
Total Rock for Road Segment:			I23 to I24					38			$290
ROAD SEGMENT	I25 to I26			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I25 to I26 Volume (CY) per		0+00 to 8+60 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Subgrade Leveling Rock	4"-0" crushed	0+00 to 8+60	N/A	load	11	loads	2	22	$7.73	$170	
Surfacing	4"-0" crushed	0+00 to 8+60	4	station	25	stations	8.6	215	$7.73	$1,662	
Turnaround	4"-0" crushed	6+50	4	turnaround	11	turnarounds	1	11	$7.73	$85	
Turnouts	4"-0" crushed	2+00	4	turnout	11	turnouts	1	11	$7.73	$85	
Traction Rock	1-1/2"-0" crushed	2+80 to 5+90	2	station	13	stations	3.1	40	$7.73	$312	
Landings	6"-0" pit run	8+60	N/A	Landing	66	Landings	1	66	$8.84	$583	
Total Rock for Road Segment:			I25 to I26					365			$2,897
ROAD SEGMENT	I27 to I28			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I27 to I28 Volume (CY) per		0+00 to 2+80 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surfacing	4"-0" crushed	0+00 to 2+80	4	station	25	stations	2.8	70	$7.73	$541	
Turnaround	4"-0" crushed	1+50	4	turnaround	11	turnarounds	1	11	$7.73	$85	
Landings	6"-0" pit run	2+80	N/A	Landing	66	Landings	1	66	$8.84	$583	
Total Rock for Road Segment:			I27 to I28					147			$1,210
ROAD SEGMENT	I29 to I30			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I29 to I30 Volume (CY) per		0+00 to 5+30 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surfacing	4"-0" crushed	0+00 to 5+30	4	station	25	stations	5.3	133	$7.73	$1,024	
Turnaround	4"-0" crushed	3+20(4)	4	turnaround	11	turnarounds	4	44	$7.73	$340	
Traction Rock	1-1/2"-0" crushed	0+00 to 2+40	2	station	13	stations	2.4	31	$7.73	$241	
Landings	6"-0" pit run	2+40	N/A	Landing	66	Landings	1	66	$8.84	$583	
Landings	6"-0" pit run	2+80	N/A	Landing	100	Landings	1	100	$8.84	$884	
Total Rock for Road Segment:			I29 to I30					374			$3,073

ROAD SEGMENT	I31 to I32			POINT TO POINT		Sta. to Sta.					
				I31 to I32		0+00 to 22+50					
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surfacing	3/4"-0" crushed	0+00 to 21+00	3	station	22	stations	21	462	$7.73	$3,571	
Surfacing	4"-0" crushed	21+00 to 22+50	4	station	25	stations	1.5	38	$7.73	$290	
Turnout	3/4"-0" crushed	5+25, 9+75	3	turnaround	11	turnarounds	2	22	$7.73	$170	
Turnaround	4"-0" crushed	21+50(2)	4	turnaround	11	turnarounds	2	22	$7.73	$170	
Total Rock for Road Segment:			I31 to I32					544			$4,201
ROAD SEGMENT	I37 to I38			POINT TO POINT		Sta. to Sta.					
				I37 to I38		0+00 to 24+00					
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Subgrade Leveling Rock	4"-0" crushed	0+00 to 24+00	N/A	load	11	loads	5	55	$7.73	$425	
Surfacing	4"-0" crushed	0+00 to 24+00	4	station	25	stations	24	600	$7.73	$4,638	
Junction	4"-0" crushed	19+90, 20+50	N/A	turnaround	11	turnarounds	2	22	$7.73	$170	
Turnouts	4"-0" crushed	10+30, 14+50, 16+60	3	turnout	11	turnouts	3	33	$7.73	$255	
Traction Rock	1-1/2"-0" crushed	10+30 to24+00	2	station	13	stations	13.7	178	$7.73	$1,377	
Landings	6"-0" pit run	24+00	N/A	Landing	66	Landings	1	66	$8.84	$583	
Total Rock for Road Segment:			I37 to I38					954			$7,448
ROAD SEGMENT	I39 to I40			POINT TO POINT		Sta. to Sta.					
				I39 to I40		0+00 to 10+70					
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surfacing	4"-0" crushed	0+00 to 10+70	4	station	25	stations	10.7	268	$7.73	$2,068	
Junction	4"-0" crushed	0+80(2)	4	turnaround	11	turnarounds	2	22	$7.73	$170	
Turnout	4"-0" crushed	4+40	4	turnaround	11	turnarounds	1	11	$7.73	$85	
Turnaround	4"-0" crushed	6+0(2)	4	turnaround	11	turnarounds	2	22	$7.73	$170	
Landings	6"-0" pit run	21+00	N/A	Landing	100	Landings	1	100	$8.84	$884	
Total Rock for Road Segment:			I39 to I40					423			$3,377
ROAD SEGMENT	I4 to I42			POINT TO POINT		Sta. to Sta.					
				I4 to I42		0+00 to 25+90					
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surfacing	1-1/2"-0" crushed	0+00 to 25+90	3	station	22	stations	25.9	570	$7.73	$4,405	
Junction	1-1/2"-0" crushed	23+20	3	turnaround	11	turnarounds	1	11	$7.73	$85	
Turnout	1-1/2"-0" crushed	5+50, 10+90, 15+20	3	turnaround	11	turnarounds	3	33	$7.73	$255	
Turnaround	1-1/2"-0" crushed	19+20	3	turnaround	11	turnarounds	1	11	$7.73	$85	
Landings	6"-0" pit run	21+00	N/A	Landing	44	Landings	1	44	$8.84	$389	
Total Rock for Road Segment:			I4 to I42					669			$5,219
ROAD SEGMENT	I43 to I44			POINT TO POINT		Sta. to Sta.					
				I43 to I44		0+00 to 1+50					
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surfacing	1 1/2"-0" crushed	0+00 to 1+50	3	station	22	stations	1.5	33	$7.73	$255	
Total Rock for Road Segment:			I43 to I44					33			$255

Processing:

Description	No.sta	Rate/sta	Cost
Water, Process & Compact Crushed Rock:	525.10	$63.48	$33,333
I1-I2(235.2 sta.),I2-I4(82.7 sta.),I5-I6(10.8 sta.),I9-I10(85.0 sta.),I11-I12(4.8 sta.),I13-I14(3.8 sta.), I23-I24(1.5 sta.),I25-I26(8.6 sta.),I27-I28(2.8 sta.),I29-I30(5.3 sta.),I31-I32(22.5 sta.), I37-I38(24.0 sta.),I39-I40(10.7 sta.),I4-I42(25.9 sta.),I43-I44(1.5 sta.).			
Water, Process & Compact,Traction Rock:	24.20	$63.48	$1,536

	6"-4" pr	6"-0"pr	4"-0" crushed	1 1/2"-0" crushed	3/4"-0" crushed	Total	
SUB TOTAL FOR SURFACING	55	706	4,451	6,903	2,629	14,743	**$164,134**

SPECIAL PROJECTS

Description	Cy/Amount	Rate	Cost
pit-run development	761	$2.92	$2,222.12

SUB TOTAL FOR SPECIAL PROJECTS **$2,222**

Subtotal of Surfacing & Spec. Proj. *$166,356*

Subtotal of Clearing, Exc.,Culv. *$8,200*

GRAND TOTAL **$174,556**

Compiled By: D. Farner Date: 03/10/2020

Wookie

Vacating Costs V1 to V2

Work Description	Station	Pump	C330	C315	D10/12 trk	D-8	Labor	Straw-bales	Seed-lbs
V1: Road block / waterbar	0+00		1.5				1.0	4	1.0
Construct waterbar	3+15		1.0						
Remove culvert/construct waterbar	5+30		1.5						
Construct waterbar	7+85		1.0						
Remove culvert/construct waterbar	10+35		1.5						
Construct waterbar	13+40		1.0						
Construct waterbar	16+80		1.0						
Remove culvert/construct waterbar	19+05		1.5						
Construct waterbar	21+55		1.0						
Construct waterbar	23+40		1.0						
Remove fill and culvert	25+00	4.0	7.0				5.0	14	3.5
Remove fill and culvert	26+30	5.0	10.0				7.0	20	5.0
Construct waterbar	27+10		1.0						
Construct waterbar	28+70		1.0						
Construct waterbar	30+55		1.0						
Construct waterbar	34+05		1.0						
Remove culvert/construct waterbar	36+90		1.5						
Construct waterbar	39+10		1.0						
Remove fill and culvert	40+00	2.0	3.0				3.0	10	2.5
Construct waterbar	40+30		1.0						
Remove fill and culvert	43+05	2.0	3.0				3.0	10	2.5
V2: Road block / waterbar	43+50		1.5				1.0	4	1.0
Haul off old culverts			4.0		4.0				
Total Quantity (Hours)		13.0	48.0	0.0	4.0	0.0	20.0	62.0	15.5
Rates		$12.00	$175.00	$114.00	$89.00	$178.00	$45.00	$12.06	$1.80
Total Dollars		$156	$8,400	$0	$356	$0	$900	$748	$28

Total Cost **$10,588**

CRUSHED ROCK COST

SALE NAME: Wookie
PROJECT: No. 1 and No.2
Stockpile: View Point

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

DATE: 03/09/2020
BY: D. Farner

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
I1 to I2	235.20	5,823			3.00	4.98	0.20	0.20	0.10	8.48
I3 to I4	82.70	2,094			3.00	3.47	0.20	0.20	0.10	6.97
I5 to I6	10.80	314			3.00	3.15	0.20	0.20	0.10	6.65
I9 to I10	85.00	2,520			3.00	4.16	0.20	0.20	0.10	7.66
I11 to I12	4.80	131			3.00	3.80	0.20	0.20	0.10	7.30
I13 to I14	3.80	117			3.00	3.93	0.20	0.20	0.10	7.43
I23 to I24	1.50	38			3.00	4.24	0.20	0.20	0.10	7.74
I25 to I26	8.60	299			3.00	4.68	0.20	0.20	0.10	8.18
I27 to I28	2.80	81			3.00	4.70	0.20	0.20	0.10	8.20
I29 to I30	5.30	208			3.00	4.81	0.20	0.20	0.10	8.31
I31 to I32	22.50	544			3.00	3.8	0.20	0.20	0.10	7.30
I37 to I38	24.00	888			3.00	4.2	0.20	0.20	0.10	7.70
I39 to I40	10.70	223			3.00	4.9	0.20	0.20	0.10	8.40
I41 to I42	25.90	625			3.00	4.5	0.20	0.20	0.10	8.00
I43 to I44	1.50	33			3.00	4.7	0.20	0.20	0.10	8.20
A to B	7.80	490			3.00	3.4	0.20	0.20	0.10	6.90
TOTAL	532.90	14,428								**AVERAGE**
	STA./NO.	CU. YD.								**HAUL**
CUBIC YARD WEIGHTED HAUL					**3.00**	**4.38**	**0.20**	**0.20**	**0.10**	**7.88**

Average Round Trip Distance (miles) 15.76

ROCK HAUL:

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

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

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

Ave haul: $6.23 /cy
Load: $0.54 /cy
Spread: $0.96 /cy

Production: cy/day = 866

CRUSHED ROCK HAUL COSTS 14,428 cy @ **$7.73 /cy**

PIT RUN ROCK COST

SALE NAME: Wookie
PROJECT: No. 1 and No.2
QUARRY: View Point
MATERIAL: Pit Run
DATE: 03/10/2020
BY: D. Farner

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
I9 to I10	85.00	66			3.00	4.97	0.20	0.20	0.10	8.47
I11 to I12	4.80	66			3.00	3.89	0.20	0.20	0.10	7.39
I13 to I14	3.80	66			3.00	4.25	0.20	0.20	0.10	7.75
I25 to I26	8.60	66			3.00	4.76	0.20	0.20	0.10	8.26
I27 to I28	2.80	66			3.00	4.73	0.20	0.20	0.10	8.23
I29 to I30	5.30	166			3.00	4.86	0.20	0.20	0.10	8.36
I37 to I38	24.00	66			3.00	4.42	0.20	0.20	0.10	7.92
I39 to I40	10.70	100			3.00	5.03	0.20	0.20	0.10	8.53
I4 to I42	25.90	44			3.00	4.75	0.20	0.20	0.10	8.25
A to B	7.80	88			3.00	3.43	0.20	0.20	0.10	6.93
TOTAL	178.70	794								**AVERAGE HAUL**
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					**3.0**	**4.5**	**0.2**	**0.2**	**0.1**	**8.04**
								Average Round Trip Distance (miles)		16.08

ROCK HAUL:

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

Truck type: D12 No. trucks: 7
Delay min. 6 Efficiency: 85%

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

Ave haul: $6.86 /cy
Load: $0.72 /cy
Spread: $1.26 /cy

Production: cy/day = 645

PIT RUN ROCK HAUL COSTS 794 cy @ **$8.84 /cy**

RIP RAP ROCK COST

SALE NAME: ____________________ DATE: ____________________
PROJECT: ____________________ MATERIAL: Rip Rap BY: ____________________
QUARRY: ____________________

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
TOTAL	STA./NO.	CU. YD.								AVERAGE HAUL
CUBIC YARD WEIGHTED HAUL										

Average Round Trip Distance (miles)

ROCK HAUL:

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

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

Ave haul: #VALUE! /cy
Load: #VALUE! /cy
Develop: ________ /cy

Production: cy/day = #VALUE!

RIP RAP ROCK HAUL COSTS cy @ **#VALUE! /cy**

Projects Road Maintenance Cost Summary

Sale: Wookie
By: D. Farner

Remove culvert/construct waterbar

Type	Equipment/Rationale			Hours	Rate	Cost	
Project Work	Grader 14G			36	$113	$4,068	
	Dump Truck 12CY			25	$89	$2,225	
Remove culvert/construct waterbar	FE Loader C966			10	$94	$940	
Maintenance	Vibratory Roller			36	$87	$3,132	
	Water Truck 2,500 gallon			36	$101	$3,636	
Remove culvert/construct waterbar							$14,001
	cost share reduction					-$3,251	
	with Clean Slate						
Total							$10,750

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	6.20	4.1
Vibratory Roller	1.5	6.20	4.1

NOTE:

Nicolai Mainline (shared maintenance with Clean Slate)	2.88	Miles
West Kerry	2.79	Miles
West Creek Ridge Road	0.53	Miles
		Miles
TOTAL=	6.20	Miles

Wookie
TIMBER CRUISE REPORT
FY 2021

1. Sale Area Location: Portions of Section 13, 24, & 25 of T7N, R6W, W.M., Clatsop County, OR.

2. **Fund Distribution:** BOF 100%
Tax Code 30-05 (68%)
8-01 (32%)

3. **Sale Acreage by Unit:**

Unit	Treatment	Gross Acres	Stream Buffer Acres	Existing R/W Acres	Reserve Tree Area	Net Acres	Survey Method
1	Modified Clearcut	100	13	3	0	84	GIS
2	Modified Clearcut	104	9	6	0	89	GIS
3	Modified Clearcut	146	27	6	7	106	GIS
4	R/W	1	0	0	0	1	GIS
TOTALS		**351**	**49**	**15**	**7**	**280**	

4. Cruisers and Cruise Dates:
Units were cruised by Avery Petersen, Kevin Berry, Justin Bush, Michele Huffman, and John Choate in March of 2020.

5. Cruise Method and Computation:

Units 1, 2, & 3: These modified clearcut units were cruised together as a variable plot cruise utilizing a Spiegel Relaskop with a 40 BAF (266 acres), and a stratified portion was cruised utilizing a 54.45 BAF (13 acres in a non-thinned area of Unit 1). 123 plots were sampled on a 5.5 by 4 chain spacing in the 266 acre portion of the cruise, and 14 plots were sampled on a 3.5 by 3 chain spacing in the stratified portion totaling 137 plots. Lines were cruised on an azimuth of 0°/180° in Unit 1, 126°/306° in Unit 2, and 25°/205° in Unit 3. The planned count to grade ratio was 3:1. The final result was 85 count plots and 52 grade plots. Variation from the cruise design can be attributed to three dropped count plots*.

Unit 4: (R/W) consists of one new spur road. This unit is one acre with 0.4 acres non-stocked. This unit was cruised as a variable plot cruise utilizing a Spiegel Relaskop and a 40 BAF. A total of five grade plots were sampled on a 1.5 chain spacing. The line was cruised along the Right-of-Way centerline. No count plots were included.

(*The reported numbers of cruise and grade plots vary from the those indicated in the SuperACE reports for the combined Project Statistics due to measuring cedar on four count plots. Cedars have been removed from the combined U123_TAKE/U111_TAKE data, resulting in accurate numbers of count and grade plots reported for this tract.)

Data was collected on Allegro 2 data collectors and downloaded to the Atterbury SuperACE 2008 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.

UNIT	CRUISE	TRACT	TYPE	ACRES
1, 2, 3	WOOKIE	U123 & U111	00MC	279
4	WOOKIE	U4	00MC	1

6. Timber Description:

Units 1, 2, and 3 are modified clearcuts consisting of 279 acres with an average age of approximately 77 years. The stand consists of western hemlock, Douglas-fir, red alder, and minor components of western red cedar and snags. Red cedar and snags are designated as "leave". Average western hemlock is 20 inches DBH and 64 feet to a merchantable top. Average Douglas-fir is 25 inches DBH and 96 feet to a merchantable top. Average red alder is 23 inches DBH and 56 feet to a merchantable top. Average net volume to be harvested per acre is 35 MBF. All trees were cruised to a merchantable top of six inches DIB, 40% of form point, or an otherwise anticipated break point.

Unit 4 R/W consists of western hemlock with a minor component of snags. Average hemlock is 16 inches DBH and 83 feet to a merchantable top. Average net volume to be harvested per acre is 64 MBF. All trees were cruised to a merchantable top of six inches DIB, 40% of form point, or an otherwise anticipated break point.

7. Statistical Analysis and Stand Summary

Statistics for Stand B.F. volumes

UNIT	Estimated CV	Target SE%	Actual CV	Actual SE%
123	24%	8%	46.3%	4.0%
4(R/W)	28%	10%	31%	15.4%

8. Take Volumes by Species and Log Grade for All Sale Units by MBF:

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

Conifer

Species	DBH	Net Vol.	2 Saw	3 Saw	4 Saw	% D & B	% Sale
western hemlock	20"	1,959	1,517	368	74	2.9%	20%
Douglas-fir	25"	7,551	6,520	890	141	2.5%	78%
TOTALS		**9,510**	**8,037**	**1,258**	**215**		

Hardwood

Species	DBH	Net Vol.	12"+	10"-11"	8"-9"	6"-7"	% D & B	% Sale
Red alder	23"	177	139	0	32	6	1.1%	2%
TOTALS		**177**	**139**	**0**	**32**	**6**		

TOTAL VOLUME	9,687 MBF

9. Approvals:

Prepared by: Michele Huffman **Date:** 03/25/2020

Unit Forester Approval: [signature] **Date:** 4/15/2020

10. Attachments:
Cruise Design and Maps (8 pages)
Volume Reports (3 pages)
Statistics Reports (6 pages)
Stand Table Summary (2 pages)
Log Stock Table (2 pages)

Revised August, 2002

CRUISE DESIGN
ASTORIA DISTRICT

Sale Name: Wookie **Unit(s)** 1, 2, & 3

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 279 **Estimated CV%** 24 Net BF **SE% Objective** 8% Net BF

Planned Sale Volume: 9.2 MMBF **Estimated Sale Area Value/Acre:** $14,000

A. Cruise Goals: (a) Grade minimum 100 conifer trees:
(b) Sample 140 cruise plots; (c) Other goals (____ Determine "automark" thinning standards; _X_ 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:
Variable Plot Cruise: Cruise Line Directions: Unit 1: 0°/180°
Unit 2: 126°/306°
Unit 3: 25°/205°

BAF 40 (Full point, 126 Plots)
Cruise Line Spacing 5.5 chains
Cruise Plot Spacing 4 chains
Grade/Count Ratio 1:3 (38 Grade / 88 Count)

Stratified Cruise (see shaded area in Unit 1 on Cruise Map)
BAF 54.45 (Full point, 14 Plots)
Cruise Line Spacing 3.5 chains
Cruise Plot Spacing 3 chains
Grade/Count Ratio Grade All Plots

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.

1. **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.

2. **Top Cruise Diameter (TCD):** Minimum top outside bark for conifer is 7", 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 20" dbh and 40% of dob @ FP for trees > 20" dbh.

3. **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.

4. **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. log 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). Sort: Use code "1" (Domestic).

   B. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull ; 9 = Utility
   Hardwoods: #1 Sawmill = 12"+ scaling diameter; #2 Sawmill = 10" and 11";
   #3 Sawmill = 8" and 9"; #4 Sawmill = 6" and 7"

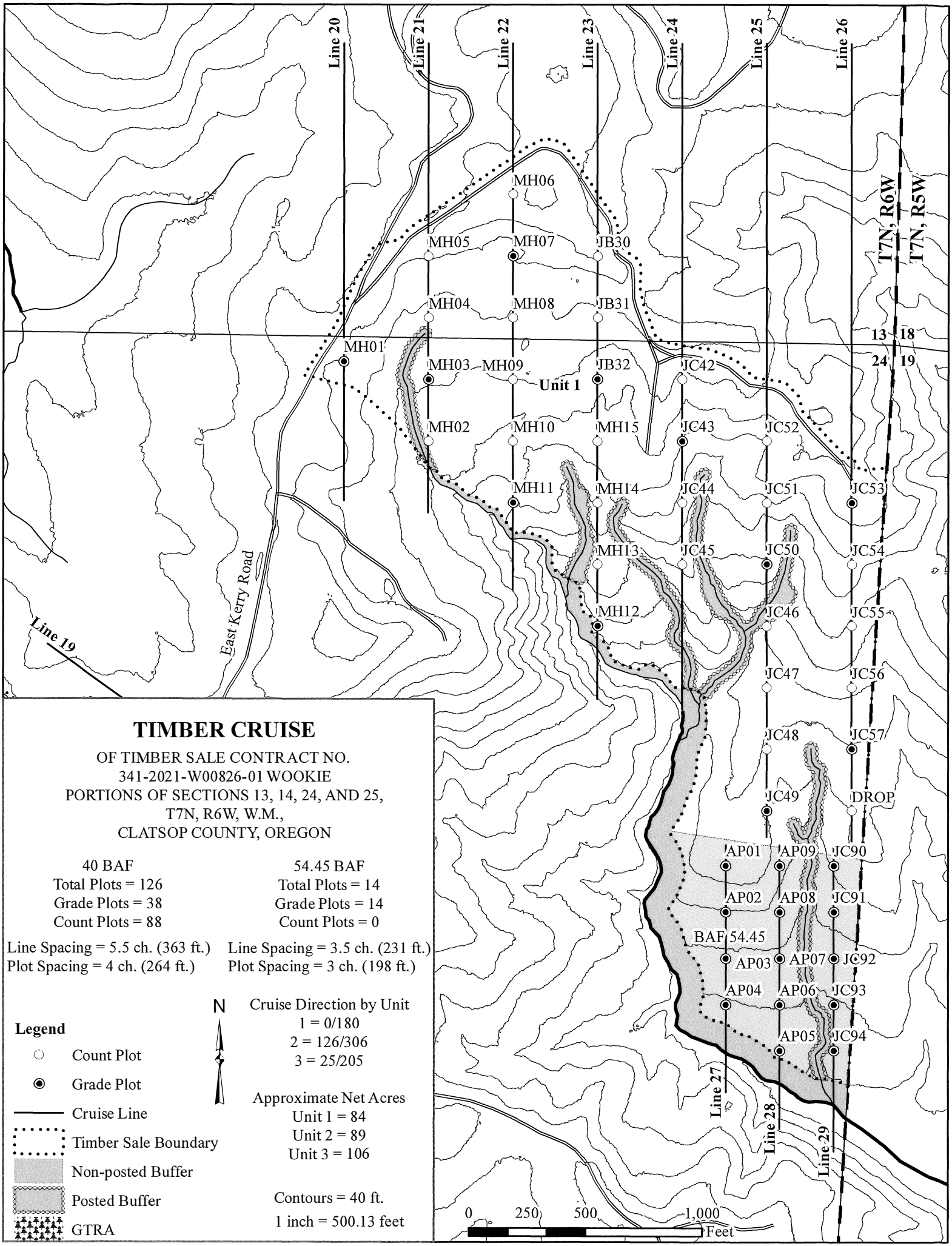
7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally 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 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.

9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back), Compass, Cruise Cards 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: Justin Bush
Approved by: _____
Date: 4/8/2020



TIMBER CRUISE

OF TIMBER SALE CONTRACT NO.
341-2021-W00826-01 WOOKIE
PORTIONS OF SECTIONS 13, 14, 24, AND 25,
T7N, R6W, W.M.,
CLATSOP COUNTY, OREGON

40 BAF	54.45 BAF
Total Plots = 126	Total Plots = 14
Grade Plots = 38	Grade Plots = 14
Count Plots = 88	Count Plots = 0
Line Spacing = 5.5 ch. (363 ft.)	Line Spacing = 3.5 ch. (231 ft.)
Plot Spacing = 4 ch. (264 ft.)	Plot Spacing = 3 ch. (198 ft.)

Legend

- Count Plot
- Grade Plot
- Cruise Line
- Timber Sale Boundary
- Non-posted Buffer
- Posted Buffer
- GTRA

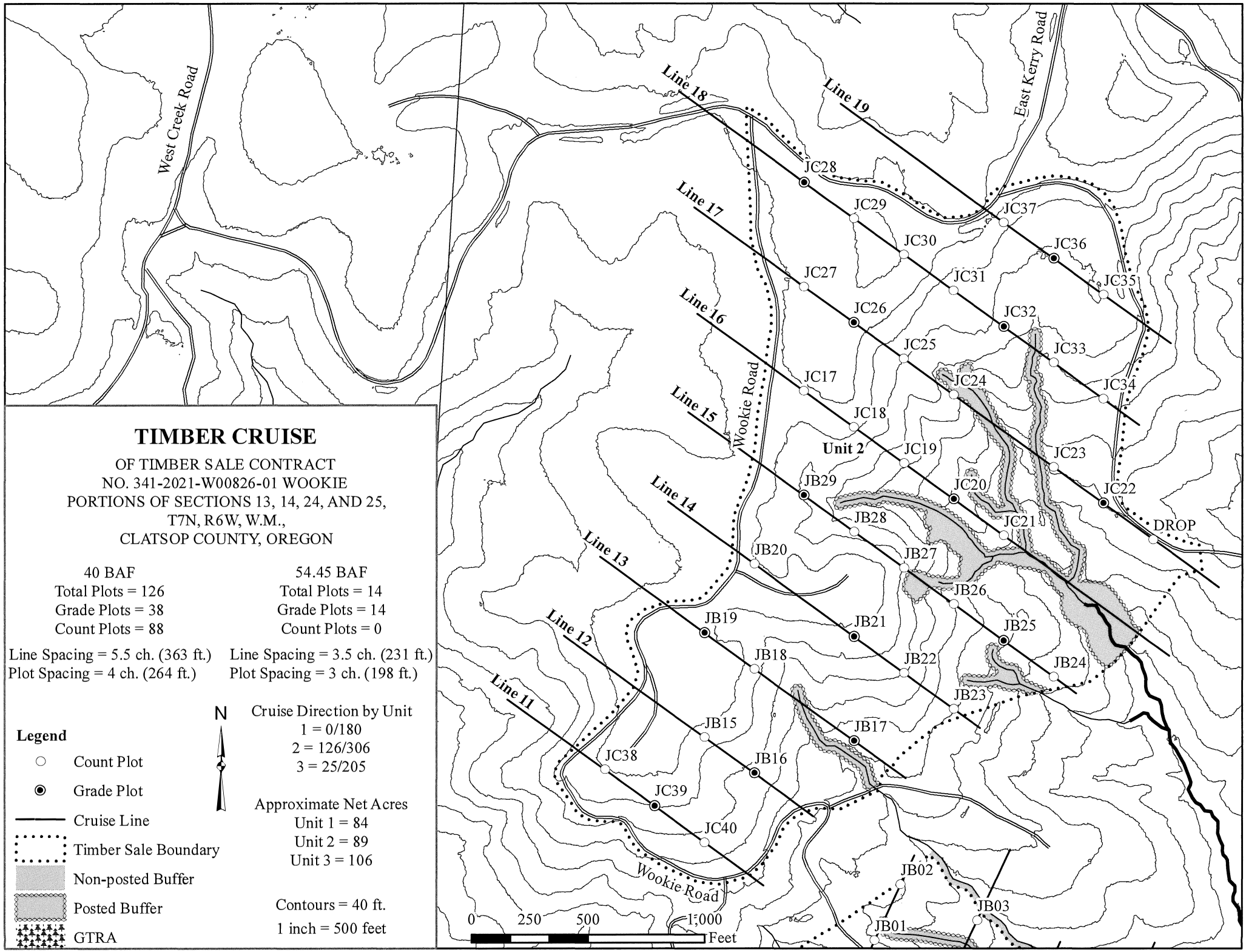
N

Cruise Direction by Unit
1 = 0/180
2 = 126/306
3 = 25/205

Approximate Net Acres
Unit 1 = 84
Unit 2 = 89
Unit 3 = 106

Contours = 40 ft.

1 inch = 500.13 feet



TIMBER CRUISE

OF TIMBER SALE CONTRACT
NO. 341-2021-W00826-01 WOOKIE
PORTIONS OF SECTIONS 13, 14, 24, AND 25,
T7N, R6W, W.M.,
CLATSOP COUNTY, OREGON

40 BAF	54.45 BAF
Total Plots = 126	Total Plots = 14
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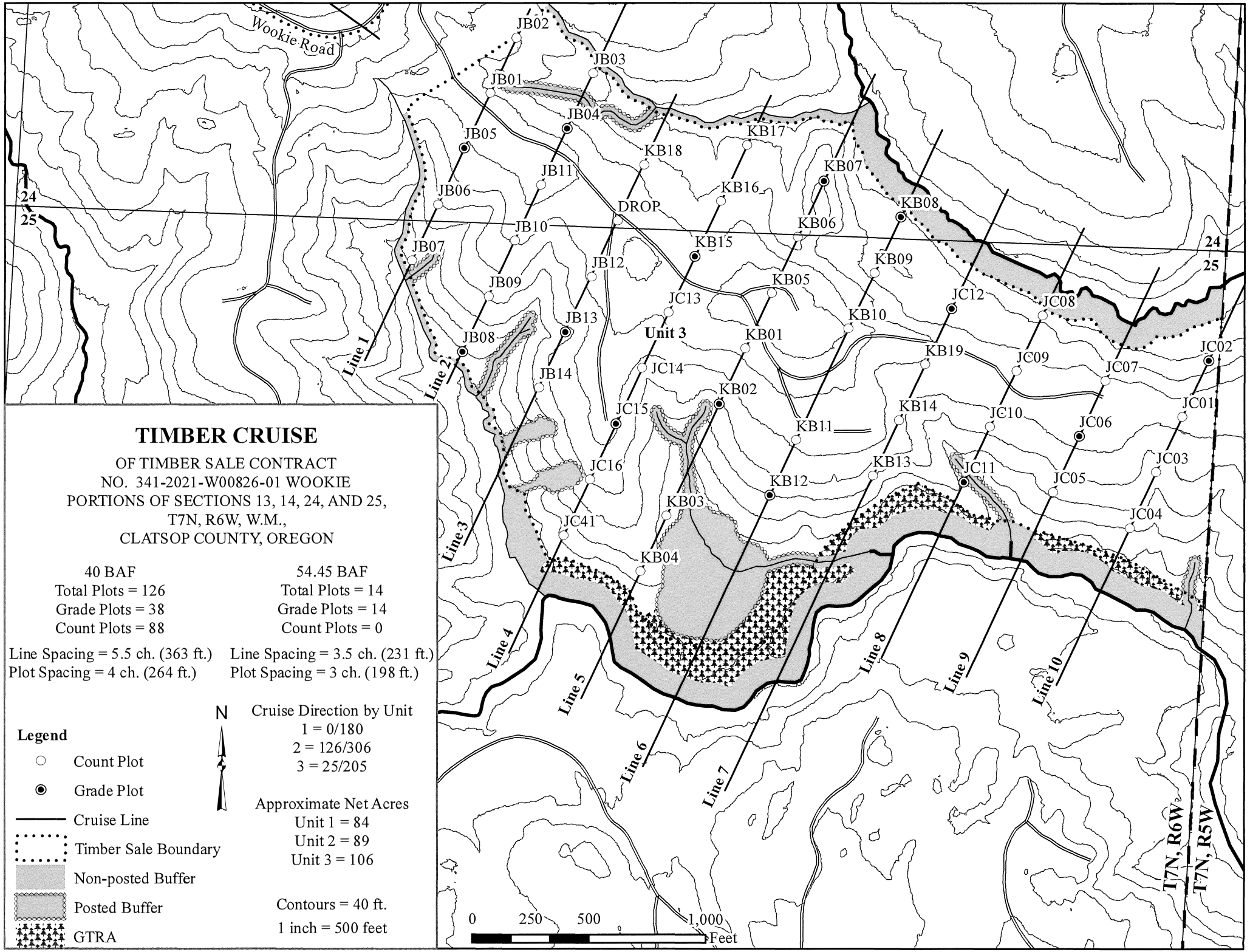


TIMBER CRUISE

OF TIMBER SALE CONTRACT
NO. 341-2021-W00826-01 WOOKIE
PORTIONS OF SECTIONS 13, 14, 24, AND 25,
T7N, R6W, W.M.,
CLATSOP COUNTY, OREGON

40 BAF	54.45 BAF
Total Plots = 126	Total Plots = 14
Grade Plots = 38	Grade Plots = 14
Count Plots = 88	Count Plots = 0
Line Spacing = 5.5 ch. (363 ft.)	Line Spacing = 3.5 ch. (231 ft.)
Plot Spacing = 4 ch. (264 ft.)	Plot Spacing = 3 ch. (198 ft.)

Legend

- Count Plot
- Grade Plot
- Cruise Line
- Timber Sale Boundary
- Non-posted Buffer
- Posted Buffer
- GTRA

N

Cruise Direction by Unit
1 = 0/180
2 = 126/306
3 = 25/205

Approximate Net Acres
Unit 1 = 84
Unit 2 = 89
Unit 3 = 106

Contours = 40 ft.

1 inch = 500 feet

Revised August, 2002

CRUISE DESIGN
ASTORIA DISTRICT

Sale Name: Wookie **Unit(s)** 4 (R/W)

Harvest Type: Clearcut, New Road Construction

Approx. Cruise Acres: 0.6 **Estimated CV%** 28 Net BF **SE% Objective** 10% Net BF

Planned Sale Volume: 35 MBF **Estimated Sale Area Value/Acre:** $12,250

A. Cruise Goals: (a) Grade minimum 20 conifer trees:
(b) Sample 5 cruise plots; (c) Other goals (____ Determine "automark" thinning standards; X 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:

Variable Plot Cruise: Cruise Line Directions: Along Right-of-Way centerline
BAF 40 (Full point, 5 Plots)
Cruise Line Spacing N/A
Cruise Plot Spacing 1.5 chains
Grade/Count Ratio Grade All Plots

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.

1. **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.

2. **Top Cruise Diameter (TCD):** Minimum top outside bark for conifer is 7", 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 20" dbh and 40% of dob @ FP for trees > 20" dbh.

3. **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.

4. **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. log 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). Sort: Use code "1" (Domestic).

   B. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull ; 9 = Utility
   Hardwoods: #1 Sawmill = 12"+ scaling diameter; #2 Sawmill = 10" and 11"; #3 Sawmill = 8" and 9"; #4 Sawmill = 6" and 7"

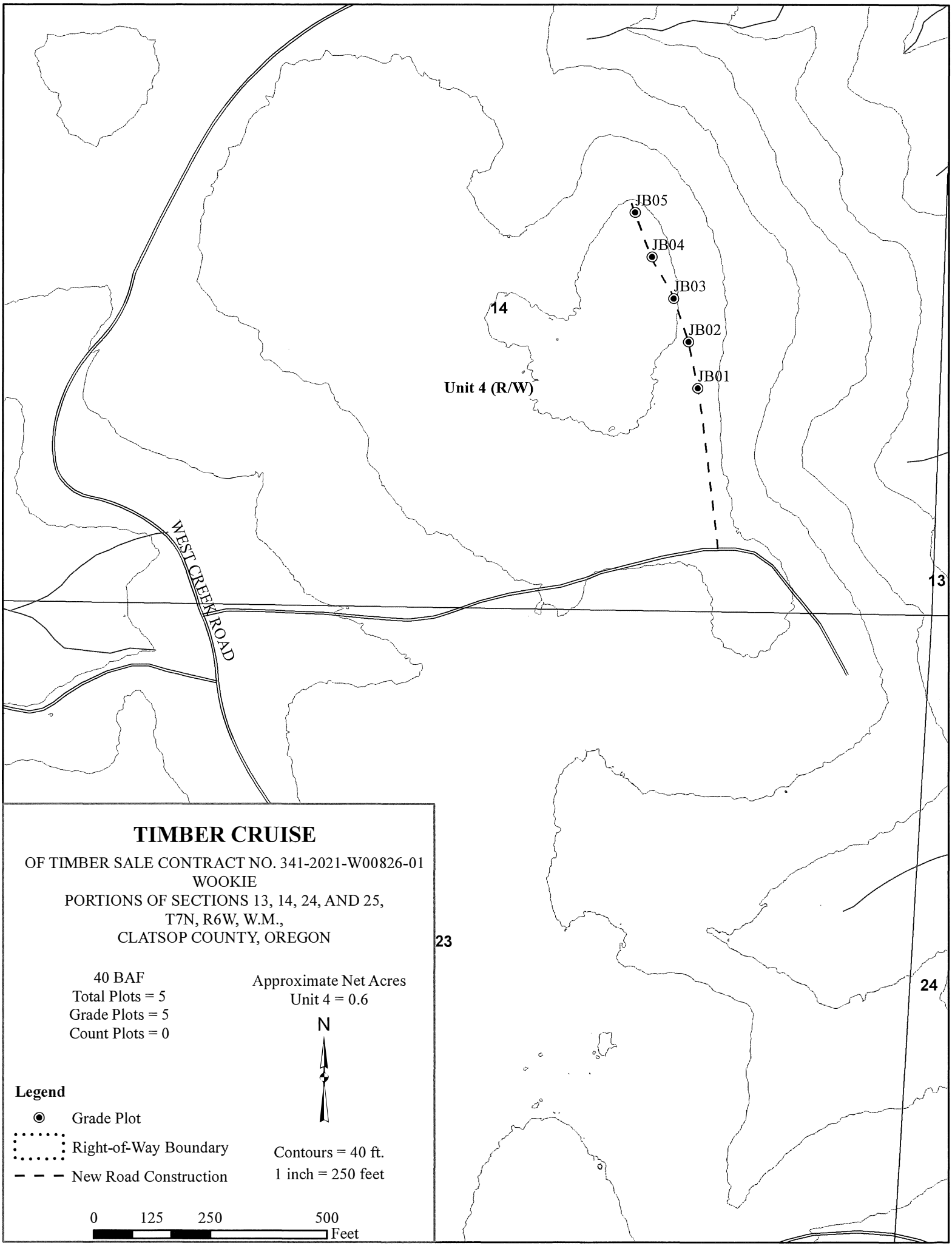
7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally 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 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.

9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back), Compass, Cruise Cards 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: Justin Bush
Approved by: _____
Date: 4/8/2020



TIMBER CRUISE

OF TIMBER SALE CONTRACT NO. 341-2021-W00826-01
WOOKIE
PORTIONS OF SECTIONS 13, 14, 24, AND 25,
T7N, R6W, W.M.,
CLATSOP COUNTY, OREGON

40 BAF
Total Plots = 5
Grade Plots = 5
Count Plots = 0

Approximate Net Acres
Unit 4 = 0.6

N

Legend

- Grade Plot
- Right-of-Way Boundary
- New Road Construction

Contours = 40 ft.
1 inch = 250 feet

0 125 250 500 Feet

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T07N R06W S14 Ty00MC	1.00
T07N R06W S24 Ty00MC	13.00
T07N R06W S24 Ty00MC	266.00

Project: WOOKIE
Acres 280.00

Page 1
Date 3/25/2020
Time 11:40:26AM

Spp	S T	So Gr rt ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
H		DOCU		100.0	105											12	24		0.00	.4
H		DO2S	77	1.9	5,520	5,417	1,517			37	63	0	3	8	89	39	16	384	2.29	14.1
H		DO3S	19	.0	1,313	1,313	368		95	5		3	4	33	60	35	8	96	0.89	13.7
H		DO4S	4	.6	264	263	74		100			73	27			20	7	27	0.51	9.6
H	**Totals**		20	2.9	7,202	6,993	1,959 ~~1,958~~		22	29	49	3	4	13	80	32	11	185	1.45	37.8
D		DOCU		100.0	385											12	21		0.00	1.6
D		DO2S	86	1.2	23,578	23,287	6,520			40	60	1	2	3	94	39	16	422	2.37	55.1
D		DO3S	12	.5	3,194	3,178	890		96	4		6	16	37	40	33	9	98	0.91	32.3
D		DO4S	2	.6	508	505	141		100			80	20			18	7	29	0.55	17.2
D	**Totals**		78	2.5	27,665	26,970	7,551 ~~7,552~~		13	35	52	3	4	7	86	33	13	254	1.75	106.3
A		DO1S	78	1.4	503	496	139			65	35		27		73	35	15	319	2.28	1.6
A		DO3S	18		113	113	32		100				46		54	31	9	83	1.27	1.4
A		DO4S	4		22	22	6		100				100			24	6	30	0.63	.7
A	**Totals**		2	1.1	638	632	177		21	51	28		33		67	31	11	172	1.65	3.7
Totals				2.6	35,505	34,594	9,687 ~~9,686~~		15	34	51	3	5	8	84	33	12	234	1.68	147.8

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T07N R06W S24 Ty00MC 13.00
T07N R06W S24 Ty00MC 266.00

Project: **WOOKIE**

Acres **279.00**

Date 4/1/2020
Time 12:31:15PM

Spp	S T	So Gr rt ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
H		DOCU		100.0	103											12	24		0.00	.4
H		DO2S	78	1.9	5,417	5,315	1,483			36	64		3	8	88	39	16	387	2.30	13.7
H		DO3S	18		1,223	1,223	341		94	6		3	4	33	60	35	8	95	0.91	12.8
H		DO4S	4	.6	252	251	70		100			74	26			20	7	27	0.52	9.1
H	**Totals**		20	3.0	6,996	6,789	1,894		21	29	50	3	4	13	80	32	11	188	1.48	36.1
D		DOCU		100.0	386											12	21		0.00	1.6
D		DO2S	86	1.2	23,662	23,370	6,520			40	60	1	2	3	94	39	16	422	2.37	55.3
D		DO3S	12	.5	3,205	3,189	890		96	4		6	16	37	40	33	9	98	0.91	32.4
D		DO4S	2	.6	510	507	141		100			80	20			18	7	29	0.55	17.3
D	**Totals**		78	2.5	27,764	27,066	7,552		13	35	52	3	4	7	86	33	13	254	1.75	106.7
A		DO1S	78	1.4	505	498	139			65	35		27		73	35	15	319	2.28	1.6
A		DO3S	18		114	114	32		100				46		54	31	9	83	1.27	1.4
A		DO4S	4		22	22	6		100				100			24	6	30	0.63	.7
A	**Totals**		2	1.1	641	634	177		21	51	28		33		67	31	11	172	1.65	3.7
Totals				2.6	35,400	34,489	9,623		15	34	51	3	5	8	84	33	12	235	1.69	146.5

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T07N R06W S14 Ty00MC 1.00

Project: **WOOKIE**

Acres **1.00**

Date 4/1/2020

Time 12:31:52PM

Spp	S T	So Gr rt ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
H		DOCU		100.0	591											7	15		0.00	9.8
H		DO2S	52	1.1	34,115	33,737	34			75	25	1		4	95	39	14	298	1.65	113.2
H		DO3S	42	.1	26,556	26,523	27		100			1	1	34	64	36	8	99	0.66	267.7
H		DO4S	6		3,583	3,583	4		100			43	57			21	6	26	0.43	136.4
H	**Totals**		100	1.5	64,845	63,843	64		47	40	13	3	3	16	77	32	9	121	0.88	527.1
Totals				1.5	64,845	63,843	64		47	40	13	3	3	16	77	32	9	121	0.88	527.1

TC PSTATS

PROJECT STATISTICS

PROJECT WOOKIE

DATE 3/25/2020

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
07N	06	14	U4	00MC	280.00	142	693	1	W
07N	06W	24	U111	00MC					
07N	06W	24	U123	00MC					

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	142	693	4.9		
CRUISE	61	297	4.9	19,035	1.6
DBH COUNT					
REFOREST					
COUNT	79	377	4.8		
BLANKS	2				
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	95	19.8	20.3	65	9.9	44.4	7,202	6,993	1,819	1,786
DOUG FIR	165	37.9	24.9	96	25.8	128.7	27,665	26,970	6,239	6,171
SNAG	27	3.4	19.7	52	1.6	7.2				
R ALDER	4	2.1	22.6	56	1.2	5.9	638	632	189	189
CEDLEAV	6	4.7	13.5	20	1.3	4.6	219	170	82	68
TOTAL	*297*	*68.0*	*22.7*	*78*	*40.1*	*190.8*	*35,725*	*34,764*	*8,329*	*8,213*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	SAMPLE TREES - BF LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
WHEMLOCK	61.2	6.3	465	496	527			
DOUG FIR	58.6	4.6	860	901	942			
SNAG								
R ALDER	63.9	36.5	216	340	464			
CEDLEAV	116.5	51.9	36	75	114			
TOTAL	*78.6*	*4.6*	*635*	*665*	*695*	*247*	*62*	*27*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	TREES/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	112.9	9.5	18	20	22			
DOUG FIR	71.6	6.0	36	38	40			
SNAG	255.5	21.4	3	3	4			
R ALDER	450.1	37.7	1	2	3			
CEDLEAV	406.1	34.1	3	5	6			
TOTAL	*47.8*	*4.0*	*65*	*68*	*71*	*91*	*23*	*10*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	BASAL AREA/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	109.6	9.2	40	44	48			
DOUG FIR	68.7	5.8	121	129	136			
SNAG	271.4	22.8	6	7	9			
R ALDER	455.9	38.2	4	6	8			
CEDLEAV	385.8	32.3	3	5	6			
TOTAL	*44.6*	*3.7*	*184*	*191*	*198*	*80*	*20*	*9*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	NET BF/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	109.8	9.2	6,349	6,993	7,637			
DOUG FIR	67.9	5.7	25,435	26,970	28,504			
SNAG								
R ALDER	456.0	38.2	390	632	873			
CEDLEAV	409.8	34.4	111	170	228			
TOTAL	*49.3*	*4.1*	*33,326*	*34,764*	*36,202*	*97*	*24*	*11*

PROJECT STATISTICS

PROJECT WOOKIE

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
07N	06	14	U4	00MC	280.00	142	693	1	W
07N	06W	24	U111	00MC					
07N	06W	24	U123	00MC					

TC PSTATS

PROJECT STATISTICS

PROJECT WOOKIE

DATE 4/1/2020

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
07N	06	24	U111	00MC	279.00	137	648	1	W
07N	06W	24	U123	00MC					

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	137	648	4.7		
CRUISE	56	252	4.5	18,721	1.3
DBH COUNT					
REFOREST					
COUNT	79	377	4.8		
BLANKS	2				
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	165	38.1	24.9	96	25.9	129.2	27,764	27,066	6,261	6,193
WHEMLOCK	59	19.1	20.4	64	9.6	43.5	6,996	6,789	1,772	1,739
SNAG	18	3.1	20.5	52	1.5	7.0				
R ALDER	4	2.1	22.6	56	1.2	5.9	641	634	190	190
CEDLEAV	6	4.7	13.5	20	1.3	4.7	220	170	82	68
TOTAL	*252*	*67.1*	*22.8*	*78*	*39.8*	*190.2*	*35,621*	*34,660*	*8,305*	*8,190*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	SAMPLE TREES - BF LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	58.6	4.6	860	901	942			
WHEMLOCK	59.6	7.7	493	535	576			
SNAG								
R ALDER	63.9	36.5	216	340	464			
CEDLEAV	116.5	51.9	36	75	114			
TOTAL	*74.0*	*4.7*	*688*	*722*	*756*	*218*	*55*	*24*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	TREES/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	67.8	5.8	36	38	40			
WHEMLOCK	114.8	9.8	17	19	21			
SNAG	275.7	23.5	2	3	4			
R ALDER	441.8	37.7	1	2	3			
CEDLEAV	398.5	34.0	3	5	6			
TOTAL	*46.5*	*4.0*	*64*	*67*	*70*	*86*	*22*	*10*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	BASAL AREA/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	64.8	5.5	122	129	136			
WHEMLOCK	110.0	9.4	39	44	48			
SNAG	276.4	23.6	5	7	9			
R ALDER	447.4	38.2	4	6	8			
CEDLEAV	378.5	32.3	3	5	6			
TOTAL	*41.4*	*3.5*	*183*	*190*	*197*	*68*	*17*	*8*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	NET BF/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	63.9	5.5	25,589	27,066	28,544			
WHEMLOCK	111.4	9.5	6,143	6,789	7,435			
SNAG								
R ALDER	447.6	38.2	392	634	876			
CEDLEAV	402.1	34.3	112	170	229			
TOTAL	*46.3*	*4.0*	*33,291*	*34,660*	*36,029*	*86*	*21*	*10*

TC TSTATS

STATISTICS

PAGE 1

PROJECT WOOKIE

DATE 4/1/2020

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
07N	06W	14	U4	00MC	1.00	5	45	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	5	45	9.0		
CRUISE	5	45	9.0	314	14.3
DBH COUNT					
REFOREST COUNT					
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	36	211.1	15.8	83	72.4	288.0	64,845	63,843	14,952	14,822
SNAG	9	103.0	11.3	51	21.4	72.0				
TOTAL	*45*	*314.1*	*14.5*	*73*	*94.6*	*360.0*	*64,845*	*63,843*	*14,952*	*14,822*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

SAMPLE TREES - BF

CL: 68.1 % / SD: 1.0	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
WHEMLOCK	62.4	10.4	388	433	478			
SNAG								
TOTAL	*86.0*	*12.8*	*302*	*346*	*391*	*295*	*74*	*33*

TREES/ACRE

CL: 68.1 % / SD: 1.0	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	58.1	28.9	150	211	272			
SNAG	62.1	30.8	71	103	135			
TOTAL	*46.7*	*23.2*	*241*	*314*	*387*	*108*	*27*	*12*

BASAL AREA/ACRE

CL: 68.1 % / SD: 1.0	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	28.5	14.1	247	288	329			
SNAG	46.5	23.1	55	72	89			
TOTAL	*23.6*	*11.7*	*318*	*360*	*402*	*27*	*7*	*3*

NET BF/ACRE

CL: 68.1 % / SD: 1.0	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	31.0	15.4	54,021	63,843	73,664			
SNAG								
TOTAL	*31.0*	*15.4*	*54,021*	*63,843*	*73,664*	*47*	*12*	*5*

TC PSTATS

PROJECT STATISTICS

PROJECT WOOKIE

DATE 3/25/2020

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
07N	06	14	U4	00MC	280.00	142	653	1	W
07N	06W	24	U111_TAKE	00MC					
07N	06W	24	U123_TAKE	00MC					

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	142	653	4.6		
CRUISE	57	273	4.8	16,869	1.6
DBH COUNT					
REFOREST					
COUNT	82	380	4.6		
BLANKS	3				
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	95	19.8	20.3	65	9.9	44.4	7,202	6,993	1,819	1,786
DOUG FIR	165	37.9	24.9	96	25.8	128.7	27,665	26,970	6,239	6,171
SNAG	9	.4	11.3	51	0.1	.3				
R ALDER	4	2.1	22.6	56	1.2	5.9	638	632	189	189
TOTAL	*273*	*60.2*	*23.4*	*84*	*37.1*	*179.2*	*35,505*	*34,594*	*8,247*	*8,145*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	SAMPLE TREES - BF LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
WHEMLOCK	61.2	6.3	465	496	527			
DOUG FIR	58.6	4.6	860	901	942			
SNAG								
R ALDER	63.9	36.5	216	340	464			
TOTAL	*70.2*	*4.2*	*691*	*722*	*753*	*197*	*49*	*22*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	TREES/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	112.9	9.5	18	20	22			
DOUG FIR	71.6	6.0	36	38	40			
SNAG	603.4	50.6	0	0	1			
R ALDER	450.1	37.7	1	2	3			
TOTAL	*49.5*	*4.2*	*58*	*60*	*63*	*98*	*24*	*11*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	BASAL AREA/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	109.6	9.2	40	44	48			
DOUG FIR	68.7	5.8	121	129	136			
SNAG	570.4	47.8	0	0	0			
R ALDER	455.9	38.2	4	6	8			
TOTAL	*48.2*	*4.0*	*172*	*179*	*186*	*93*	*23*	*10*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	NET BF/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	109.8	9.2	6,349	6,993	7,637			
DOUG FIR	67.9	5.7	25,435	26,970	28,504			
SNAG								
R ALDER	456.0	38.2	390	632	873			
TOTAL	*50.1*	*4.2*	*33,141*	*34,594*	*36,047*	*100*	*25*	*11*

TC PSTATS

PROJECT STATISTICS

PROJECT WOOKIE

DATE 4/1/2020

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
07N	06	24	U111_TAKE	00MC	279.00	137	608	1	W
07N	06W	24	U123_TAKE	00MC					

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	137	608	4.4		
CRUISE	52	228	4.4	16,555	1.4
DBH COUNT					
REFOREST					
COUNT	82	380	4.6		
BLANKS	3				
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	165	38.1	24.9	96	25.9	129.2	27,764	27,066	6,261	6,193
WHEMLOCK	59	19.1	20.4	64	9.6	43.5	6,996	6,789	1,772	1,739
R ALDER	4	2.1	22.6	56	1.2	5.9	641	634	190	190
TOTAL	*228*	*59.3*	*23.5*	*84*	*36.8*	*178.6*	*35,400*	*34,489*	*8,223*	*8,122*

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	58.6	4.6	860	901	942			
WHEMLOCK	59.6	7.7	493	535	576			
R ALDER	63.9	36.5	216	340	464			
TOTAL	*63.7*	*4.2*	*763*	*796*	*830*	*162*	*41*	*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	67.8	5.8	36	38	40			
WHEMLOCK	114.8	9.8	17	19	21			
R ALDER	441.8	37.7	1	2	3			
TOTAL	*48.6*	*4.1*	*57*	*59*	*62*	*94*	*24*	*10*

CL 68.1	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR	64.8	5.5	122	129	136			
WHEMLOCK	110.0	9.4	39	44	48			
R ALDER	447.4	38.2	4	6	8			
TOTAL	*45.2*	*3.9*	*172*	*179*	*185*	*82*	*20*	*9*

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	63.9	5.5	25,589	27,066	28,544			
WHEMLOCK	111.4	9.5	6,143	6,789	7,435			
R ALDER	447.6	38.2	392	634	876			
TOTAL	*47.1*	*4.0*	*33,104*	*34,489*	*35,875*	*88*	*22*	*10*

TC PSTNDSUM

Stand Table Summary

Page 1
Date: 3/25/2020

T07N R06W S14 Ty00MC	1.00
T07N R06W S24 Ty00MC	13.00
T07N R06W S24 Ty00MC	266.00

Project WOOKIE
Acres 280.00

Time: 11:45:25AM
Grown Year:

Spc	S T	DBH	Sample Trees	FF 16'	Tot Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
D		13	1	88	78	1.121	1.03	2.24	15.5	55.0		35	123		97	35
D		14	1	88	56	.169	.18	.17	24.0	60.0		4	10		11	3
D		15	2	88	99	.294	.36	.59	23.5	87.5		14	52		39	14
D		17	2	88	128	.229	.36	.57	30.4	116.0		17	66		49	19
D		18	4	87	121	2.339	4.13	6.43	30.5	113.6		196	731		549	205
D		19	11	88	100	4.474	8.81	9.75	36.0	127.2		351	1,240		983	347
D		20	6	88	112	2.060	4.49	5.23	37.4	142.1		196	744		548	208
D		21	5	88	109	1.439	3.46	3.46	42.2	155.5		146	538		408	151
D		22	7	88	125	2.094	5.53	6.28	42.3	178.6		266	1,122		745	314
D		23	13	88	123	3.769	10.88	11.31	45.4	193.9		514	2,193		1,438	614
D		24	14	89	122	3.519	11.06	9.84	52.5	220.4		516	2,169		1,446	607
D		25	10	87	116	2.031	6.92	5.84	52.7	221.4		308	1,293		863	362
D		26	14	86	134	2.767	10.20	8.30	61.4	257.6		509	2,138		1,427	599
D		27	10	88	137	1.527	6.07	4.67	65.7	306.5		307	1,431		860	401
D		28	11	86	145	1.861	7.96	5.54	73.6	333.3		407	1,846		1,141	517
D		29	12	85	143	2.146	9.84	6.48	80.7	370.0		523	2,396		1,463	671
D		30	9	88	143	1.373	6.74	4.12	87.1	404.5		359	1,667		1,004	467
D		31	8	88	138	1.252	6.56	3.76	87.6	422.4		329	1,586		921	444
D		32	3	88	130	.402	2.25	1.21	92.8	453.9		112	548		314	153
D		33	6	85	131	.900	5.35	2.70	97.0	436.3		262	1,178		734	330
D		34	4	87	122	.656	4.13	1.80	105.4	507.3		190	915		532	256
D		35	2	87	125	.309	2.07	.77	126.4	602.0		98	466		274	130
D		36	2	87	155	.292	2.07	.88	132.2	666.7		116	585		325	164
D		37	2	86	129	.277	2.07	.83	120.8	596.7		100	495		281	139
D		38	2	86	146	.262	2.07	.79	144.0	720.0		113	567		317	159
D		42	1	80	157	.107	1.03	.32	172.3	806.7		56	260		155	73
D		43	1	86	136	.102	1.03	.31	171.3	856.7		53	263		147	74
D		46	1	56	126	.090	1.03	.27	80.0	290.0		21	78		60	22
D		50	1	86	133	.076	1.03	.23	229.7	1183.3		52	269		146	75
D		Totals	165	87	123	37.938	128.72	104.69	58.9	257.6		6,171	26,970		17,278	7,552
H		9	1	91	68	.065	.03	.06	11.0	50.0		1	3		2	1
H		10	4	86	35	2.702	1.47	2.81	8.7	25.4		24	71		68	20
H		11	3	86	23	1.959	1.29	2.05	8.7	33.6		18	69		50	19
H		12	1	85	69	1.573	1.24	1.57	24.0	70.0		38	110		106	31
H		13	3	90	101	.423	.39	.88	19.5	80.0		17	70		48	20
H		14	4	88	112	.533	.57	1.24	22.0	89.3		27	110		76	31
H		15	5	92	131	.240	.29	.70	23.1	100.0		16	70		45	20
H		16	5	92	134	.211	.29	.63	26.4	109.8		17	70		47	19
H		17	6	86	107	.971	1.53	2.00	35.6	123.8		71	247		199	69
H		18	5	90	97	.936	1.65	2.11	34.3	134.2		72	283		202	79
H		19	7	88	85	1.559	3.07	3.33	35.9	122.5		119	408		335	114
H		20	4	86	95	.745	1.63	1.66	40.9	147.6		68	244		190	68
H		21	9	87	98	1.300	3.13	2.86	47.8	180.8		137	517		383	145
H		22	3	89	113	.090	.24	.27	44.6	192.4		12	52		34	15
H		23	2	88	121	.072	.21	.22	51.1	221.5		11	48		31	13
H		24	3	87	108	.796	2.50	1.99	59.0	236.8		118	472		330	132
H		25	4	85	115	1.141	3.89	3.01	63.0	260.5		189	783		530	219
H		26	8	87	104	1.127	4.15	2.71	69.3	276.1		188	748		526	210
H		27	3	86	132	.136	.54	.36	75.2	362.5		27	132		77	37
H		28	6	86	86	1.452	6.21	2.91	82.2	318.1		239	926		670	259
H		29	2	86	99	.309	1.42	.66	91.2	380.4		60	250		168	70
H		30	1	86	143	.252	1.24	.76	96.7	473.3		73	357		204	100
H		31	2	86	90	.472	2.47	.94	104.0	425.0		98	401		275	112

TC PSTNDSUM

Stand Table Summary

Date: 3/25/2020

T07N R06W S14 Ty00MC	1.00
T07N R06W S24 Ty00MC	13.00
T07N R06W S24 Ty00MC	266.00

Project WOOKIE
Acres 280.00

Time: 11:45:25AM
Grown Year:

Spc	S T	DBH	Sample Trees	FF 16'	Tot Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
H		32	2	89	93	.443	2.47	.89	116.0	460.0		103	407		287	114
H		36	1	55	125	.175	1.24	.52	58.7	200.0		31	105		86	29
H		39	1	55	96	.149	1.24	.30	40.0	130.0		12	39		33	11
H		Totals	95	86	82	19.830	44.39	37.42	47.7	186.9		1,786	6,993		5,001	1,958
A		19	1	86	67	.745	1.47	1.49	31.5	105.0		47	157		131	44
A		22	1	86	49	.556	1.47	.56	55.0	110.0		31	61		86	17
A		24	1	86	84	.467	1.47	.93	60.5	230.0		57	215		158	60
A		28	1	87	85	.343	1.47	.69	80.0	290.0		55	199		154	56
A		Totals	4	86	69	2.112	5.87	3.67	51.5	172.2		189	632		529	177
SN		8	2	81	35	.164	.06									
SN		10	1	88	73	.052	.03									
SN		13	2	87	56	.062	.06									
SN		14	2	88	66	.053	.06									
SN		15	1	89	60	.023	.03									
SN		20	1	88	62	.013	.03									
SN		Totals	9	85	51	.368	.26									
Totals			273	87	107	60.248	179.24	145.77	55.9	237.3		8,145	34,594		22,807	9,686

TC PLOGSTVB

Log Stock Table - MBF

T07N R06W S14 Ty00MC	1.00
T07N R06W S24 Ty00MC	13.00
T07N R06W S24 Ty00MC	266.00

Project: WOOKIE
Acres 280.00

Date 3/25/2020
Time 11:45:53AM

Spp	S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches 2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
H		DO	CU	6	11	100.0														
H		DO	CU	8	0	100.0														
H		DO	CU	12	3	100.0														
H		DO	CU	20	15	100.0														
H		DO	2S	20	0		0	.0							0					
H		DO	2S	30	47	3.9	45	2.3										45		
H		DO	2S	32	132	3.7	127	6.5						48	0	35	45			
H		DO	2S	40	1,366	1.6	1,344	68.6						257	158	696	233			
H		DO	3S	16	6		6	.3					6							
H		DO	3S	20	4		4	.2				4								
H		DO	3S	24	1		1	.1					1							
H		DO	3S	26	6		6	.3					6							
H		DO	3S	28	2		2	.1			1	1								
H		DO	3S	30	6		6	.3				6								
H		DO	3S	32	99		99	5.1			33	14	32	19						
H		DO	3S	34	23		23	1.2				23								
H		DO	3S	36	13		13	.7			2	8	3							
H		DO	3S	38	5		5	.3			1	4								
H		DO	3S	40	202		202	10.3			53	35	114							
H		DO	4S	16	26		26	1.3			21	5								
H		DO	4S	18	6	7.0	6	.3			4	1								
H		DO	4S	20	22		22	1.1			16	6								
H		DO	4S	24	13		13	.7			9	4								
H		DO	4S	26	1		1	.0			1									
H		DO	4S	28	6		6	.3			6									
H		Totals			2,017	2.9	1,958	20.2			147	112	163	324	159	730	278	45		
D		DO	CU	6	13	100.0														
D		DO	CU	7	9	100.0														
D		DO	CU	12	16	100.0														
D		DO	CU	16	46	100.0														
D		DO	CU	18	19	100.0														
D		DO	CU	20	4	100.0														
D		DO	2S	16	40		40	.5						10	3	4		23		
D		DO	2S	24	57	1.9	56	.7						9	5	15	26			
D		DO	2S	30	77		77	1.0						77						
D		DO	2S	32	228		227	3.0						91	39	74		22		

TC PLOGSTVB

Log Stock Table - MBF

T07N R06W S14 Ty00MC	1.00
T07N R06W S24 Ty00MC	13.00
T07N R06W S24 Ty00MC	266.00

Project: WOOKIE
Acres 280.00

Date 3/25/2020
Time 11:45:53AM

Spp	S T	Sort	Grade	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	2S	40	6,200	1.3	6,121	81.1						735	779	2427	1604	483	94	
D		DO	3S	16	21		21	.3					21							
D		DO	3S	18	4		4	.1					4							
D		DO	3S	20	30		30	.4				17	8	5						
D		DO	3S	24	35		35	.5				5	30							
D		DO	3S	26	22		22	.3				5	16							
D		DO	3S	28	15		15	.2				8	7							
D		DO	3S	30	75		75	1.0			5	18	46			6				
D		DO	3S	32	315		312	4.1			32	74	194	12						
D		DO	3S	34	18		18	.2			2		16							
D		DO	3S	36	47		47	.6			9	27	11							
D		DO	3S	38	1		1	.0			1									
D		DO	3S	40	312		310	4.1			51	136	108	14						
D		DO	4S	14	4	22.8	3	.0			3									
D		DO	4S	16	76		76	1.0			29	47								
D		DO	4S	18	7		7	.1			4	3								
D		DO	4S	20	27		27	.4			16	11								
D		DO	4S	24	24		24	.3			11	13								
D		DO	4S	26	2		2	.0			2									
D		DO	4S	30	2		2	.0			2									
D		Totals			7,746	2.5	7,552	78.0			168	364	461	954	826	2525	1630	529	94	
A		DO	1S	30	38		38	21.2						38						
A		DO	1S	40	103	1.9	101	57.3								101				
A		DO	3S	24	8		8	4.4				8								
A		DO	3S	28	7		7	3.8				7								
A		DO	3S	38	17		17	9.7				17								
A		DO	4S	24	6		6	3.5			6									
A		Totals			179	1.1	177	1.8			6	32		38		101				
Total		All Species			9,942	2.6	9,686	100.0			321	509	624	1315	985	3357	1908	574	94	

LOGGING PLAN MAP

of Timber Sale Contract
No. 341-2021-W00826-01
WOOKIE
Portions of Section 13, 14, 24, & 25
of T7N, R6W, W.M., Clatsop County, Oregon

Approximate Scale:
1 inch = 1,000 feet

Approximate Net Acres	
Unit 1(MC) =	84
Unit 2(MC) =	89
Unit 3(MC) =	106
Unit 4(R/W) =	1
Total =	280

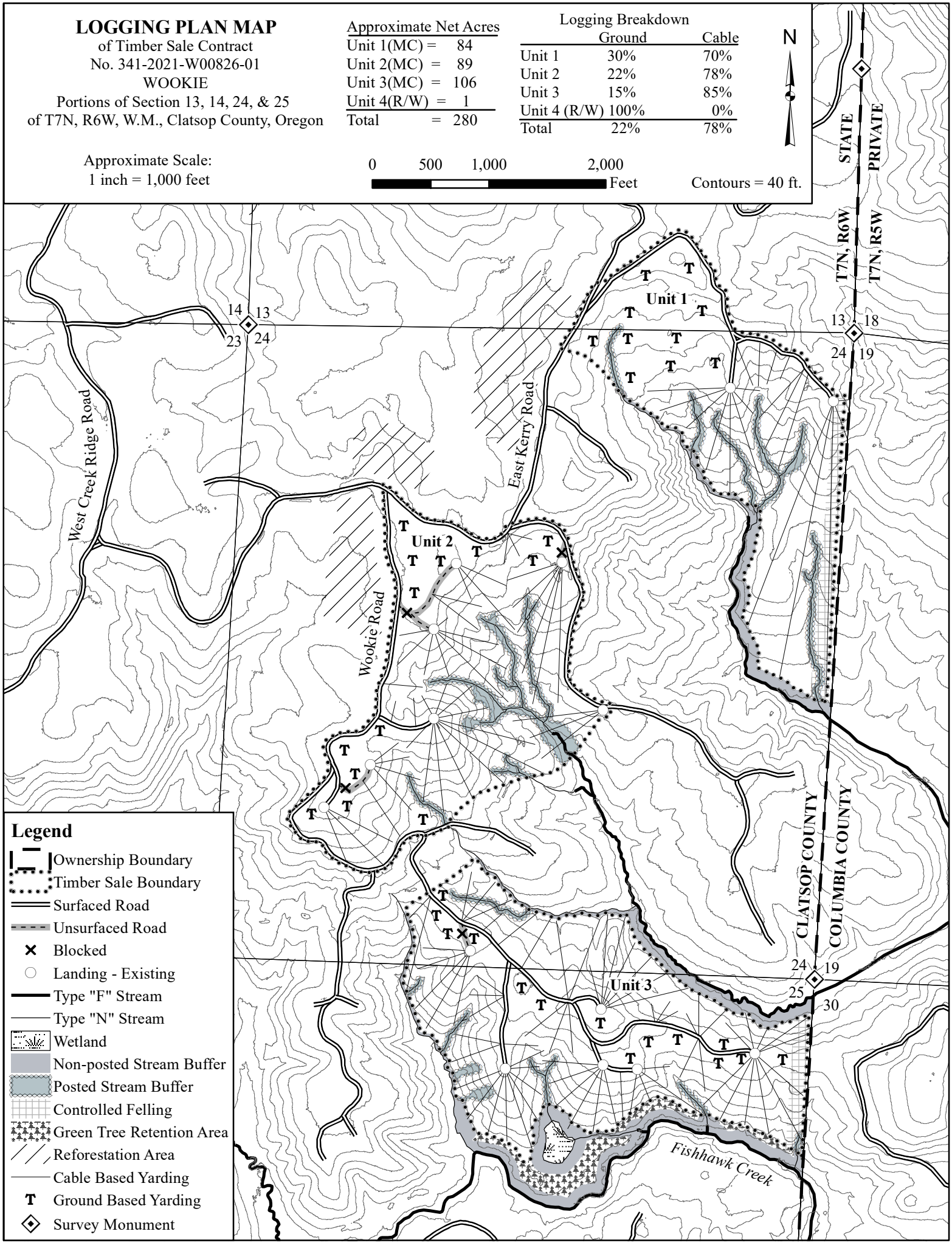
Logging Breakdown

	Ground	Cable
Unit 1	30%	70%
Unit 2	22%	78%
Unit 3	15%	85%
Unit 4 (R/W)	100%	0%
Total	22%	78%

0 500 1,000 2,000 Feet

Contours = 40 ft.

N



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Contours = 40 ft.

N