



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Humptys Wall
Sale AT-341-2024-W00984-01

District: Astoria

Date: July 18, 2023

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$1,457,950.52	\$113,361.15	\$1,571,311.67
		Project Work:	(\$155,762.00)
		Advertised Value:	\$1,415,549.67



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District: Astoria

Date: July 18, 2023

Timber Description

Location:

Stand Stocking: 80%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	17	0	97
Western Hemlock / Fir	19	0	96
Sitka Spruce	21	0	96
Alder (Red)	16	0	95
Maple	16	0	95

Volume by Grade	2S	3S & 4S 6"-11"	3S 12"+	8" - 9"	10" - 11"	12"+	6" - 7"	Total
Douglas - Fir	938	1,052	56	0	0	0	0	2,046
Western Hemlock / Fir	1,283	733	64	0	0	0	0	2,080
Sitka Spruce	16	6	0	0	0	0	0	22
Alder (Red)	0	0	0	34	126	146	104	410
Maple	0	0	0	11	13	7	4	35
Total	2,237	1,791	120	45	139	153	108	4,593

Comments: Pond Values Used: Local Pond Values, June, 2023.

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

PRICING:

Western Red Cedar and other Cedars stumpage = pond value - (Douglas-fir) logging cost.
\$871.17/MBF = \$1,169/MBF - \$297.83/MBF

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

4 hours of labor (installation/removal) @ \$50/hr = \$200

Total costs with profit & risk: \$2,392.96

Other Costs (No Profit & Risk added): None

SLASH PILING

(See attached appraisal. Includes move-in and pile materials) = \$15,744.80

ROAD MAINTENANCE

(See attached Road Maintenance Cost Summary Sheet)

TOTAL Road Maintenance: \$28,621/4,593 MBF = \$6.23/MBF



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Logging Conditions

Combination#: 1

Douglas - Fir	52.00%
Western Hemlock / Fir	52.00%
Sitka Spruce	52.00%
Alder (Red)	52.00%
Maple	52.00%

Logging System: Cable: Medium Tower >40 - <70
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: 4250

cost / mbf: \$187.72

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

Combination#: 2

Douglas - Fir	48.00%
Western Hemlock / Fir	48.00%
Sitka Spruce	48.00%
Alder (Red)	48.00%
Maple	48.00%

Logging System: Shovel
Process: Manual Falling/Delimbing

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

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

loads / day: 15
bd. ft / load: 4500

cost / mbf: \$148.15

machines: Shovel Logger



"STEWARDSHIP IN FORESTRY"

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Logging Costs

Operating Seasons: 3.00

Profit Risk: 12%

Project Costs: \$155,762.00

Other Costs (P/R): \$2,392.96

Slash Disposal: \$15,744.80

Other Costs: \$0.00

Miles of Road

Road Maintenance: \$6.23

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	5.2
Western Hemlock / Fir	\$0.00	3.0	4.8
Sitka Spruce	\$0.00	2.0	4.2
Alder (Red)	\$0.00	2.0	4.2
Maple	\$0.00	2.0	4.0



"STEWARDSHIP IN FORESTRY"

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District: Astoria

Date: July 18, 2023

Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Brand & Paint	Other	Total
Douglas - Fir									
\$168.73	\$6.42	\$2.87	\$82.53	\$0.52	\$31.33	\$3.43	\$2.00	\$0.00	\$297.83
Western Hemlock / Fir									
\$168.73	\$6.48	\$2.87	\$90.28	\$0.52	\$32.27	\$3.43	\$2.00	\$0.00	\$306.58
Sitka Spruce									
\$168.73	\$6.48	\$2.87	\$154.76	\$0.52	\$40.00	\$3.43	\$2.00	\$0.00	\$378.79
Alder (Red)									
\$168.73	\$6.54	\$2.87	\$156.25	\$0.52	\$40.19	\$3.43	\$2.00	\$0.00	\$380.53
Maple									
\$168.73	\$6.54	\$2.87	\$164.06	\$0.52	\$41.13	\$3.43	\$2.00	\$0.00	\$389.28

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$728.48	\$430.65	\$0.00
Western Hemlock / Fir	\$0.00	\$581.98	\$275.40	\$0.00
Sitka Spruce	\$0.00	\$561.00	\$182.21	\$0.00
Alder (Red)	\$0.00	\$652.13	\$271.60	\$0.00
Maple	\$0.00	\$446.57	\$57.29	\$0.00



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District: Astoria

Date: July 18, 2023

Summary

Amortized

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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	2,046	\$430.65	\$881,109.90
Western Hemlock / Fir	2,080	\$275.40	\$572,832.00
Sitka Spruce	22	\$182.21	\$4,008.62
Alder (Red)	410	\$271.60	\$111,356.00
Maple	35	\$57.29	\$2,005.15

Gross Timber Sale Value

Recovery: \$1,571,311.67

Prepared By: Ryan Simpson

Phone: 503-325-5451

Road Maintenance Cost Summary (Interim and Post Harvest)

Sale: Humptys Wall
Date: July 17, 2022
By: Ryan Simpson *CS*

MBF: 4,593
\$/MBF: \$6.23

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	
Interim Operations	Grader 14G	\$972	1	12	\$126	\$2,484	
	Dump Truck 12CY	\$205	1	12	\$99	\$1,393	
	Rubber tired backhoe	\$401	1	4	\$97	\$789	
	Vibratory Roller	\$972	1	8	\$97	\$1,748	
Final Road Maintenance	Grader 14G	\$972	1	42	\$126	\$6,264	
	Dump Truck 12CY	\$205	2	24	\$99	\$2,786	
	FE Loader C966	\$972	1	12	\$105	\$2,232	
	Vibratory Roller	\$972	1	42	\$97	\$5,046	
	Water Truck 2,500 gallon	\$238	1	24	\$113	\$2,950	
	C315 Excavator	\$1,005	1	12	\$127	\$2,529	
	Labor			8	\$50	\$400	
Total							\$28,621

Interim Operations Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	2.5	3.5	1.4	11
Vibratory Roller	1.5	2.0	1.3	11

Final Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	1.5	7.8	5.2	42
Vibratory Roller	1.5	7.8	5.2	42

Process and compact: All crushed rock roads
Gnat Creek Road 2.1 Miles
Davis Bottom Road 1.2 Miles
Clifton Road 2.0 Miles
Unnamed Spurs: 1.3 Miles
New Surfaced Road Construction 0.2 Miles
Process and Compact 1 Mile of Windy Ridge Road
Grade & Process Total = 7.6 Miles

Site Prep Appraisal

Sale Number: AT-341-2024-W00984-01
 Sale Name: Humptys Wall
 Date: 07/18/2023

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	15	20	\$161.00	\$3,139.50	
2	MC	F	16	8	\$161.00	\$1,288.00	
3	MC	B	26	34	\$161.00	\$5,441.80	
In-unit Piling						Sub Total =	\$9,869.30
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	12	6	\$257.60	79.5	\$5.00	\$397.50	
2	9	9	\$579.60	17	\$5.00	\$85.00	
3	19	48	\$2,060.80	136	\$5.00	\$680.00	
*Cost includes separating firewood					Materials	Sub Total =	\$1,162.50
Additional Move-in allowance					Landing Piling	Sub Total =	\$2,898.00
Move-In Allowance	Number of Move-In's	Total Move-In Allowance					
\$1,610.00	1	\$1,610.00	Brush Piler				
\$205.00	1	\$205.00	Dump Truck (12cy)		Move-In	Sub Total =	\$1,815.00
Slash Endhaul	Dump Truck hrs	Cost/Hour	Total	Loader hrs	Cost/Hour	Total	
8		\$99.00	\$792.00	8	\$161.00	\$1,288.00	
						Sub Total =	\$2,080.00
						Grand Total =	\$15,744.80

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Humptys Wall

Project No. 1: ROAD CONSTRUCTION:

<u>Road segment</u>	<u>Length (Sta)</u>	<u>Length (Mile)</u>	<u>Cost</u>
Surfaced			
2C to 2D, 3A to 3B, 3C to 3D, 3E to 3F, 3G, 3H to 3I	18.05	0.34	\$65,020.67
Unsurfaced			
2A to 2B	1.80	0.03	\$953.77
Road Maint.			\$2,185.14
Move-In			\$4,847.90
TOTALS	19.85	0.38	\$73,007

Project No. 2: ROAD IMPROVEMENT:

<u>Road segment</u>	<u>Length (Sta)</u>	<u>Length (Mile)</u>	<u>Cost</u>
I1 to I2, I3 to I4, I5 to I6	475.2	9.00	\$74,782.16
I7 to I8, I9 to I10, I11 to I12, I13 to I14, I15 to I16, I17 to I18 and I19 to I20			
Road Maint.			\$2,476.86
Move-In			\$5,495.10
TOTALS		9.00	\$82,754

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

<u>Description</u>	<u>Length/Vol.</u>	<u>Cost</u>
TOTAL		

GRAND TOTAL **\$155,762**

Compiled By: Cole Hatcher/Brittany West

Date: 08/07/2023

Move In and Maintenance Calculator for Construction and Improvement

SALE NAME: Humptys Wall

Project No. 1: ROAD CONSTRUCTION:

<u>Road segment</u>	<u>Length/Sta</u>	<u>Length/Mile</u>	<u>Cost</u>
Surfaced			
2C to 2D, 3A to 3B, 3C to 3D, 3E to 3F, 3G, 3H to 3I	18.05	0.34	\$65,020.67
Unsurfaced			
2A to 2B	1.80	0.03	\$953.77
TOTALS	19.85	0.38	\$65,974

Project No. 2: ROAD IMPROVEMENT:

<u>Road segment</u>	<u>Length/Sta</u>	<u>Length/Mile</u>	<u>Cost</u>
I1 to I2, I3 to I4, I5 to I6	475.20	9.00	\$74,782
I7 to I8, I9 to I10, I11 to I12, I13 to I14, I15 to I16, I17 to I18 and I19 to I20			
TOTALS	475.20	9.00	\$74,782

MOVE IN (Construction & Improvement Only)

<u>Equipment</u>	<u>Length/Mile</u>	<u>Cost</u>
Vibratory Roller		\$972
D8 Dozer		\$1,755
C315 Excavator		\$1,005
C330 Excavator		\$1,755
C966 Loader		\$972
14 G Grader		\$972
Off-Hwy. Dump 24cy		\$966
Water Truck (2,500 gal)		\$238
Dump Truck 20cy (x2)		\$478
Dump Truck 10cy (x6)		\$1,230
TOTAL		\$10,343.00

ROAD MAINTENANCE (Construction & Improvement Only)

	<u>Length/Mile</u>	<u>Cost</u>
Final Project Maintenance	2.23	\$4,662.00
TOTAL		\$4,662.00

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Humptys Wall NEW CONSTRUCTION: 19.85 STATIONS 0.38 MILES
ROAD: 2A to 2B(1.8), 2C to 2D(1.55), 3A to 3B(3.1), 3C to 3D(2.6), IMPROVEMENT: STATIONS 0.00 MILES
3E to 3F(1.3), 3G, and 3H to 3I(10.0)

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
Surfaced					
2C to 2D, 3E to 3F, 3G, 3H to 3I (0+00 to 2+50, 5+50 to 9+50)	Scatter outside of right of way	0.86	x	\$1,669.00	= \$1,432.98
3A to 3B, 3C to 3D, 3H to 3I (2+50 to 5+50)	Haul clearing debris w/C330 and Off-Hwy. Dump \$/hr	20.00	x	\$354.00	= \$7,080.00
Unsurfaced					
2A to 2B	Scatter outside of right of way	0.12	x	\$1,669.00	= \$206.90
SUB TOTAL FOR CLEARING & GRUBBING					\$8,720

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
2A to 2B					
0+00	Flared Junction w/C330 \$/hr	1	x	\$195.00	= \$195.00
0+00 to 1+80	Drift earth up to 200' \$/sta.	1.80	x	\$238.00	= \$428.40
2C to 2D					
0+00 to 1+55	Balanced construction \$/sta.	1.55	x	\$238.00	= \$368.90
1+55	Landing Construction \$/ldg	1	x	\$487.00	= \$487.00
3A to 3B					
0+00 to 3+10	End-haul excavation \$/cy	2,330.00	x	\$4.99	= \$11,626.70
0+00 to 3+10	Embankment compaction \$/cy	100.00	x	\$0.87	= \$87.00
0+00 to 3+10	Cutslope rounding \$/sta.	3.10	x	\$54.39	= \$168.61
3+10	Landing Construction \$/ldg	1	x	\$487.00	= \$487.00
3C to 3D					
0+00 to 2+60	Common drift (> 50% slopes) \$/cy	800	x	\$2.62	= \$2,096.00
0+00 to 1+60	End-haul excavation \$/cy	110	x	\$4.99	= \$548.90
0+00 to 2+60	Embankment compaction \$/cy	810	x	\$0.87	= \$704.70
0+00 to 2+60	Cutslope rounding \$/sta.	2.60	x	\$54.39	= \$141.41
2+60	Landing Construction \$/ldg	1	x	\$487.00	= \$487.00
3E to 3F					
0+00 to 1+30	Balanced construction \$/sta.	1.30	x	\$154.00	= \$200.20
0+80, 1+30	Additional time w/C330 \$/hr	3	x	\$195.00	= \$585.00
1+30	Landing Construction \$/ldg	1	x	\$487.00	= \$487.00
3G					
0+00	Landing Construction \$/ldg	1	x	\$487.00	= \$487.00
3H to 3I					
0+ to 2+50, 5+50 to 9+50	Common drift (< 50% slopes) \$/cy	650	x	\$2.25	= \$1,462.50
1+50	Construct waste area w/C330 \$/hr	2	x	\$195.00	= \$390.00
2+50 to 5+50	Common drift (> 50% slopes) \$/cy	1,100	x	\$2.62	= \$2,882.00
2+50 to 5+50	End-haul excavation \$/cy	550	x	\$4.99	= \$2,744.50
0+00 to 9+50	Embankment compaction \$/cy	2,300	x	\$0.87	= \$2,001.00
2+50 to 5+50	Cutslope rounding \$/sta.	3	x	\$54.39	= \$163.17
2+65, 9+50	Build turnout w/C330 \$/hr	2	x	\$195.00	= \$390.00
7+50	Build turnaround w/C330 \$/hr	1	x	\$195.00	= \$195.00
SUB TOTAL FOR EXCAVATION					\$29,814

CULVERT MATERIALS AND INSTALLATION										
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost	
2C to 2D									\$0.00	
0+00	18" CCP	50	\$24.37	\$1,218.50					\$0.00	
3H to 3I									\$0.00	
0+40	18" CCP	30	\$24.37	\$731.10					\$0.00	
5+25	18" CCP	30	\$24.37	\$731.10					\$0.00	
6+50	18" CCP	50	\$24.37	\$1,218.50					\$0.00	
					Description		Quantity	Rate	Cost	
					Other/miscellaneous:					
					Culvert stakes & markers:		Installation of 6' X 2½" white fiberglass posts.	4	\$25.53	\$102.12
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION									\$4,001	

Subtotal of Clearing, Exc., Culv. **\$42,535**

SURFACING						Stations/ amount	x	Rate/ sta/amt	Cost
Subgrade prep: Description									
2A to 2B Grade, Shape and Outslope 14'						1.80	x	\$22.89	\$41.20
2C to 2D, 3A to 3B, 3C to 3D, 3E to 3F, 3H to 3I Grade, Shape and Ditch 16'									
						18.05		x	\$30.98
All road segments Subgrade Compaction						19.85	x	\$25.19	\$500.02

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+80				
				Volume (CY) per		Number of				
Base Rock	4"-0" crushed	0+00 to 0+50	10	station	63	stations	0.50	32	\$8.85	\$279
Junction	1 1/2"-0" crushed	0+00	N/A	junction	22	junctions	1	22	\$8.85	\$195
Total Rock for Road Segment: 2A to 2B								54		\$473

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 1+55				
				Volume (CY) per		Number of				
Base Rock	4"-0" crushed	0+00 to 1+55	10	station	63	stations	1.55	98	\$8.85	\$864
Junction	1 1/2"-0" crushed	0+00	N/A	junction	22	junctions	1	22	\$8.85	\$195
Culvert Bedding and Backfill	1 1/2"-0" crushed	0+00	N/A	culvert	44	culverts	1	44	\$8.85	\$389
Landings	6"-0" pit-run	1+55	N/A	landing	88	landings	1	88	\$7.83	\$689
Total Rock for Road Segment: 2C to 2D								252		\$1,748

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 3+10				
				Volume (CY) per		Number of				
Base Rock	4"-0" crushed	0+00 to 3+10	10	station	63	stations	3.10	195	\$8.85	\$1,728
Junction	1 1/2"-0" crushed	0+00	N/A	junction	22	junctions	1	22	\$8.85	\$195
Traction Rock	1 1/2"-0" crushed	1+00 to 3+00	2	station	13	stations	2	26	\$8.85	\$230
Landings	6"-0" pit-run	3+10	N/A	landing	88	landings	1	88	\$7.83	\$689
Total Rock for Road Segment: 3A to 3B								331		\$2,842

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+60				
				Volume (CY) per		Number of				
Base Rock	4"-0" crushed	0+00 to 2+60	10	station	63	stations	2.60	164	\$8.85	\$1,450
Junction	1 1/2"-0" crushed	0+00	N/A	junction	22	junctions	1	22	\$8.85	\$195
Traction Rock	1 1/2"-0" crushed	1+00 to 2+00	2	station	13	stations	1	13	\$8.85	\$115
Landings	6"-0" pit-run	2+60	N/A	landing	88	landings	1	88	\$7.83	\$689
Total Rock for Road Segment: 3C to 3D								287		\$2,448

[illegible]

SPECIAL PROJECTS				
Description			Cost	
Seed and mulch waste areas				\$ 700.00
pit-run development			440	\$3.24 \$1,425.60
riprap development			132	\$5.36 \$707.52
SUB TOTAL FOR SPECIAL PROJECTS				\$2,833
				<i>Subtotal of Surfacing & Spec. Proj.</i> \$23,439
				<i>Subtotal of Clearing, Exc.,Culv.</i> \$42,535
GRAND TOTAL				\$65,974

Compiled By: Cole Hatcher

Date: 08/04/2023

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Humptys Wall
ROAD: I1 to I2 (293.30), I3 to I4 (20.60), I5 to I6 (15.30),
I7 to I8 (10.70), I9 to I10 (2.30), I11 to I12 (95.10),
I13 to I14 (8.50), I15 to I16 (2.90), I17 to I18 (5.50),
I19 to I20 (21.00)

NEW CONSTRUCTION: STATIONS 0.00 MILES
IMPROVEMENT: 475.20 STATIONS 9.00 MILES

CLEARING & GRUBBING						
Method	Acres/amount	x	Rate	=	Cost	
SUB TOTAL FOR CLEARING & GRUBBING						\$0

EXCAVATION						
Material	Cy/amount	x	Rate	=	Cost	
I1 to I2						
108+90, 129+00 Install rock ditch filters (C315/hr)	2.0	x	\$127.00	=	\$254.00	
I118+50, 127+0						
0, 130+70 Install energy dissipator (\$/dissipator)	3.0	x	\$225.33	=	\$675.99	
217+20 Clear waste area. (C330/hr)	4.0	x	\$195.00	=	\$780.00	
I13 to I4						
11+15, 17+40 Construct turnaround (C315/hr)	2.0	x	\$127.00	=	\$254.00	
20+60 Ditch clearing and brushing (C315/hr)	4.0	x	\$127.00	=	\$508.00	
I15 to I6						
13+90 Open turnaround (C315/hr)	0.5	x	\$127.00	=	\$63.50	
15+30 Landing improvement (C315/hr)	1.0	x	\$127.00	=	\$127.00	
I17 to I8						
7+50 Clean culvert inlet and outlet (C315/hr)	0.50	x	\$127.00	=	\$63.50	
10+70 Open turnaround (C315/hr)	0.50	x	\$127.00	=	\$63.50	
10+70 Mechanically brush vinemapple (C315/hr)	1.00	x	\$127.00	=	\$127.00	
I19 to I10						
0+30 Clean culvert inlet and outlet (C315/hr)	0.50	x	\$127.00	=	\$63.50	
2+30 Remove brush (C315/hr)	4.00	x	\$127.00	=	\$508.00	
2+30 Construct landing (C315/hr)	4.00	x	\$127.00	=	\$508.00	
I111 to I12						
8+80, 58+40, 66+90 Clean culvert inlet and outlet (C315/hr)	0.50	x	\$127.00	=	\$63.50	
I113 to I14						
2+60 Install rock ditch filters (C315/hr)	1.00	x	\$127.00	=	\$127.00	
6+10 Construct turnaround (C315/hr)	1.00	x	\$127.00	=	\$127.00	
8+50 Landing Improvement (C315/hr)	2.00	x	\$127.00	=	\$254.00	
I115 to I16						
2+90 Landing Improvement (C315/hr)	4.00	x	\$127.00	=	\$508.00	
I117 to I18						
Landing improvement (C315/hr)	3.0	x	\$127.00	=	\$381.00	
I119 to I20						
8+05 Clean culvert inlet and outlet (C315/hr)	0.5	x	\$127.00	=	\$63.50	
13+85 Install rock ditch filters (C315/hr)	1.0	x	\$127.00	=	\$127.00	
19+20 Clean culvert inlet and outlet (C315/hr)	0.5	x	\$127.00	=	\$63.50	
SUB TOTAL FOR EXCAVATION						\$5,710

CULVERT MATERIALS AND INSTALLATION									
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
I1 to I2					I19 to I20				
118+50	18" CPP	30	\$24.37	\$731.10	15+60	18" CPP	30	\$24.37	\$731.10
127+00	18" CPP	30	\$24.37	\$731.10					
130+70	18" CPP	30	\$24.37	\$731.10					
			Description	Quantity	Rate	Cost			
Other/miscellaneous:									
Culvert stakes & markers:			6' X 2½" White Fiberglass Posts	23	\$25.53	\$587.19			
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION							\$3,512		
							Subtotal of Clearing, Exc.,Culv. \$9,222		

SURFACING						Stations/ amount	x	Rate/ sta/amt	Cost	
Subgrade prep:		Description								
Grade, Shape and Ditch 16'		I1-I2 (77.95), I3-I4 (20.60), I5-I6 (15.30), I7-I8 (10.70), I9-I10 (2.30), I11-I12 (35.80), I13-I14 (8.50), I15-I16 (2.90), I17-I18 (5.50), I19-I20 (21.00)				200.55	x	\$30.98	\$6,213.04	
Subgrade Compaction		I1-I2 (77.95), I5-I6 (15.30), I7-I8 (10.70), I9 -I10 (2.30), I11-I12 (35.80),I13-I14 (8.50), I15-I16 (2.90), I17-I18 (5.50), I19-I20 (21.00)				179.95	x	\$25.19	\$4,532.94	
Spot Grade w/ 14G (\$/hr)		I1-I2 (215.35), I11-I12 (59.3)				16.00	x	\$126.00	\$2,016.00	
Sod Removal & Ditch Reconstruction (Grader, Backhoe)		I3-I4 (20.60), I13-I14 (8.50),I15-I16 (2.90) I17-I18 (5.50), I19-I20 (21.00)				58.50	x	\$40.27	\$2,355.80	
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 293+30 Number of				
Surface Leveling Rock	3/4"-0" crushed	115+60, 119+75, 123+90,127+00	N/A	load	11	loads	4	44	\$8.85	\$389
Surfacing	3/4"-0" crushed	127+00 to 161+30, 170+00 to192+50	3	station	19	stations	56.8	1,079	\$8.85	\$9,551
Turnouts	3/4"-0" crushed	133+20, 159+65, 170+65	N/A	turnout	11	turnouts	3	33	\$8.85	\$292
Turnouts	3/4"-0" crushed	181+10, 192+15, 152+15	N/A	turnout	22	turnouts	3	66	\$8.85	\$584
Turnaround	3/4"-0" crushed	147+00, 161+30	N/A	turnaround	22	turnaround	2	44	\$8.85	\$389
Junctions	3/4"-0" crushed	170+00	N/A	junction	22	junctions	1	22	\$8.85	\$195
Surfacing	3/4"-0" crushed	228+65 to 231+75, 236+70 to 242+55, 245+45 to 253+40, 287+75 to	2	station	13	stations	21.2	275	\$8.85	\$2,433
Culvert Bedding and Backfill	3/4"-0" crushed	127+00, 130+70	N/A	culvert	33	culverts	3	99	\$8.85	\$876
Culvert Energy Dissipator	24"-6" riprap	127+00, 130+70	N/A	dissipator	11	dissipators	3	33	\$7.83	\$258
Rock Ditch Filters	6"-4" pit run	108+90, 129+00	N/A	3 filter series	11	3 filter series	2	22	\$7.83	\$172
Total Rock for Road Segment:				I1 to I2				1,717		\$15,141
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 Volume (CY) per		0+00 to 20+60 Number of				
Surface Leveling Rock	4"-0" crushed	0+00 to 20+60	N/A	load	11	loads	5	55	\$8.85	\$487
Turnaround	4"-0" crushed	11+15	N/A	turnaround	44	turnaround	1	44	\$8.85	\$389
Turnaround	4"-0" crushed	17+40	N/A	turnaround	22	turnaround	1	22	\$8.85	\$195
Total Rock for Road Segment:				I3 to I4				121		\$1,071

ROAD SEGMENT 15 to 16				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	15 to 16		0+00 to 15+30				
				Volume (CY) per		Number of				
Surfacing	3/4"-0" crushed	0+00 to 14+30	2	station	13	stations	14.3	186	\$8.85	\$1,645
Curve Widening Surface	3/4"-0" crushed	13+20 to 14+30	N/A	load	11	loads	2	22	\$8.85	\$195
Turnaround	4"-0" crushed	13+90	N/A	turnaround	22	turnaround	1	22	\$8.85	\$195
Turnouts	3/4"-0" crushed	8+50	N/A	turnout	11	turnouts	1	11	\$8.85	\$97
Total Rock for Road Segment:				15 to 16				241		\$2,132
ROAD SEGMENT 17 to 18				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	17 to 18		0+00 to 10+70				
				Volume (CY) per		Number of				
Turnaround	4"-0" crushed	10+70	N/A	turnaround	11	turnaround	1	11	\$8.85	\$97
Total Rock for Road Segment:				17 to 18				11		\$97
ROAD SEGMENT 19 to 110				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	19 to 110		0+00 to 2+30				
				Volume (CY) per		Number of				
Surfacing	4"-0" crushed	0+00 to 2+30	4	station	25	stations	2.3	58	\$8.85	\$509
Landings	6"-0" pit-run	2+30	N/A	landing	88	landings	1	88	\$7.83	\$689
Total Rock for Road Segment:				19 to 110				146		\$1,198
ROAD SEGMENT 111 to 112				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	111 to 112		0+00 to 95+10				
				Volume (CY) per		Number of				
Surfacing	3/4"-0" crushed	0+00 to 35+80	3	station	19	stations	35.8	680	\$8.85	\$6,020
Surface Leveling Rock	3/4"-0" crushed	14+90, 55+20, 59+50, 64+60	N/A	load	11	loads	6	66	\$8.85	\$584
Turnouts	3/4"-0" crushed	2+40, 10+70, 14+90, 31+75	N/A	turnout	11	turnouts	4	44	\$8.85	\$389
Turnouts	3/4"-0" crushed	29+45	N/A	turnout	22	turnouts	1	22	\$8.85	\$195
Junctions	3/4"-0" crushed	0+00	N/A	junction	22	junctions	1	22	\$8.85	\$195
Total Rock for Road Segment:				111 to 112				834		\$7,383
ROAD SEGMENT 113 to 114				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	113 to 114		0+00 to 8+50				
				Volume (CY) per		Number of				
Surfacing	4"-0" crushed	0+00 to 8+50	4	station	25	stations	8.5	213	\$8.85	\$1,881
Turnouts	4"-0" crushed	3+45	N/A	turnout	11	turnouts	1	11	\$8.85	\$97
Turnaround	4"-0" crushed	6+10	N/A	turnaround	22	turnaround	1	22	\$8.85	\$195
Junctions	4"-0" crushed	1+40	N/A	junction	11	junctions	1	11	\$8.85	\$97
Rock Ditch Filters	6"-4" pit-run	2+60	N/A	3 filter series	11	3 filter series	1	11	\$7.83	\$86
Landings	6"-0" pit-run	8+50	N/A	landing	66	landings	1	66	\$7.83	\$517
Total Rock for Road Segment:				113 to 114				334		\$2,873

ROAD SEGMENT I15 to I16				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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Surfacing	4"-0" crushed	0+00 to 5+50	4	station	25	stations	5.5	138	\$8.85	\$1,217																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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Compiled By: Brittany West

Date: 07/20/2023

CRUSHED ROCK COST

SALE NAME: Humpty's Wall

DATE: 08/07/2023

PROJECT: No. 1 and 2.
Stockpile: Hunt Creek Stockpile

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

BY: Cole Hatcher

[illegible]

ROCK HAUL:

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

Ave haul:	\$7.52	/cy
Load:	\$0.48	/cy
Spread:	\$0.84	/cy

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

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

Production: cy/day = 937

CRUSHED ROCK HAUL COSTS 5,274 cy @ \$8.85 /cy

PIT RUN ROCK COST

SALE NAME:	Humptys Wall
PROJECT:	No. 1 and 2
QUARRY:	Hunt Creek Quarry

MATERIAL: 6"-0"pr, 6"-4"pr, 24"-6"rr

DATE: 08/07/2023
BY: Cole Hatcher

[illegible]

ROCK HAUL:

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

Ave haul:	\$6.56	/cy
Load:	\$0.48	/cy
Spread:	\$0.78	/cy

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

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

Production: cy/day = 1,075

PIT RUN ROCK HAUL COSTS

990 cy @ \$7.83 /cy

Projects Road Maintenance Cost Summary

Sale: Humtpys Wall
Date: 04-Aug-23
By: Cole Hatcher

Type	Equipment/Rationale			Hours	Rate	Cost
Project Work	Grader 14G			12	\$126	\$1,512
Final Haul	Dump Truck 12CY			3	\$105	\$315
Road	FE Loader C966			3	\$105	\$315
Maintenance	Vibratory Roller			12	\$97	\$1,164
	Water Truck 2,500 gallon			12	\$113	\$1,356
Total						\$4,662

Production Rates

Grader

Vibratory Roller

Miles/day	Distance(miles)	Days
1.5	2.23	1.5
1.5	2.23	1.5

NOTE: Nicolai Mainline	1.50	Miles
Hunt Creek Road	0.73	Miles
	TOTAL=	2.23 Miles

Humptys Wall **TIMBER CRUISE REPORT** **FY 2024**

1. **Sale Area Location:** Portions of Sections 6, 7, & 18 of T8N, R6W, and Portions of Section 12 of T8N, R7W, W.M., Clatsop County, OR.
2. **Fund Distribution:** BOF 100% Tax Code: 4-03 (100%)
3. **Sale Acreage by Area:**

Unit	Harvest Type	Gross Acres	Stream Buffer Acres	Reserve Tree Area	Existing R/W Acres	New R/W	Net Acres	Survey Method
1	Modified Clearcut	32	9	-	2	-	21	GIS
2	Modified Clearcut	36	9	<1	2	<1	25	GIS
3	Modified Clearcut	92	12	<1	5	1	74	GIS
4	R/W	1	-	-	-	-	1	L x W
TOTALS		161	30	<1	9	1	121	

4. Cruisers and Cruise Dates: Avery Petersen, Michele Huffman, John Czarnecki, and Ryan Simpson (07/10/2023 – 07/14/2023)

5. Cruise Method and Computation:

Units 1 and 2: Units 1 and 2 were stratified into two cruises and combined for a total.

Type A was variable plot cruised with a 40 BAF for conifers and a 33.61 BAF for hardwoods. A total of 27 plots were sampled on a two and a half by five chain spacing with a grade to count ratio of 1:1, resulting in 14 grade plots and 13 count plots. One grade plot was dropped due to its proximity to the existing road.

Type B was variable plot cruised along with Unit 3 with a 54.45 BAF for conifers and a 33.61 BAF for hardwoods. A total of 11 plots were sampled on a three and a half by five and a half chain spacing with a grade to count ratio of 2:1, resulting in 6 grade plots and 5 count plots.

Unit 3: Unit 3 was variable plot cruised with a 54.45 BAF for conifers and a 33.61 BAF for hardwoods. A total of 41 plots were sampled on a three and a half by five and a half chain spacing with a grade to count ratio of 2:1, resulting in 16 grade plots and 25 count plots. One grade plot was dropped due to its proximity to the existing road.

*The reported number of grade plots vary from those indicated on the cruise map for U12B3 due to minor species being graded on one count plot.

Unit 4 (R/W): In-unit Right-of-Way consists of new spur roads and landings within Units 2 and 3. Cruise data for Unit 4 was obtained from the U12B3 cruise and acreages have been adjusted accordingly.

Data was collected on Allegro 2 data collectors and downloaded to the Atterbury SuperACE 2008 program for computing. See the attached Cruise Designs for more details on the cruise method. The cruise calculations were processed in the Astoria District office.

UNIT(s)	CRUISE	TRACT	TYPE	ACRES
1A and 2A	HWALL	U12A	00MC	31
1B, 2B, and 3	HWALL	U12B3	00MC	89
4 (R/W)	HWALL	RW	00MC	1

6. Timber Description:

Units 1 and 2 are modified clearcuts. Type A has an average age of 40 years, and Type B has an average age of 62. Type A consists of Douglas-fir, western hemlock, and minor components of red alder and bigleaf maple. The average take Douglas-fir is approximately 14 inches DBH and 65 feet to a merchantable top. The average take western hemlock is approximately 16 inches DBH and 79 feet to a merchantable top. The average take red alder is approximately 12 inches DBH and 56 feet to a merchantable top. The average take bigleaf maple is approximately 13 inches DBH and 26 feet to a merchantable top. Average net volume to be harvested per

acre is 32 MBF. All trees were cruised to a merchantable top of six inches DIB, 40% of form point, or an otherwise anticipated break point. Type B was cruised with Unit 3.

Unit 3 is a modified clearcut with an average age of 55 years. Unit 3 and Type B consist of western hemlock, Douglas-fir, and minor components of red alder, bigleaf maple, and Sitka spruce. The average take western hemlock is approximately 20 inches DBH and 80 feet to a merchantable top. The average take Douglas-fir is approximately 20 inches DBH and 86 feet to a merchantable top. The average take red alder is approximately 16 inches DBH and 63 feet to a merchantable top. The average take bigleaf maple is approximately 17 inches DBH and 46 feet to a merchantable top. The average take Sitka spruce is approximately 21 inches DBH and 53 feet to a merchantable top. Average net volume to be harvested per acre is 40 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) is similar to the timber description above in Unit 3 and Type B. Average net volume to be harvested per acre is 40 MBF.

7. Statistical Analysis and Stand Summary:

Statistics for Stand B.F. volumes

Type	Estimated CV	Target SE%	Actual CV	Actual SE%
1A & 2A	45.0%	12.0%	32.9%	6.5%
1B, 2B, & 3	50.0%	11.0%	43.8%	6.1%

8. Volumes by Species and Log Grade:

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	19"	2,080	1,283	704*	93	0.6%	45%
Douglas-fir	17"	2,046	938	982**	126	0.8%	45%
Sitka spruce	21"	22	16	6	--	0.0%	<1%
TOTALS	--	4,148	2,237	1,692	219	--	--

*This sale includes approximately 64 MBF of 12"+ 3-Saw western hemlock.

*This sale includes approximately 56 MBF of 12"+ 3-Saw Douglas-fir.

Hardwood

Species	DBH	Net Vol.	12"+	10"-11"	8"-9"	6"-7"	% D & B	% Sale
Red alder	16"	411	146	126	34	104	0.2%	9%
Bigleaf maple	16"	35	7	13	11	4	1.8%	1%
TOTALS	--	445	153	139	45	108	--	--

TOTAL VOLUME	4,593 MBF
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9. Approvals:

Prepared by: Ryan Simpson

Date: 07/18/2023

Unit Forester Approval: [Signature]

Date: 8/28/2023

10. **Attachments:** Cruise Design and Map (6 pages)
Volume Report (4 pages)
Statistics Report (5 pages)
Log Stock Table (3 pages)
Stand Table Summary (2 pages)

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Humptys Wall

Types 1A & 2A

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 31 **Estimated CV%** 45 Net BF/Acre **SE% Objective** 12% Net BF/Acre

Planned Sale Volume: 800 MBF **Estimated Sale Area Value/Acre:** \$10,000/Acre

A. Cruise Goals: (a) Grade minimum 80 conifer trees.
(b) Sample 27 plots (14 grade/ 13 count); (c) Other goals (____ Determine "automark" thinning standards;
X Determine log grades for sale value; ____ Determine snag and leave tree species and sizes.

B. Cruise Design:

1. Plot Cruises: BAF(Conifer) 40
BAF(Hardwood) 33.61

Unit 1A:

Cruise Line Direction: 139°/319°
Cruise Line Spacing 5 (chains) 330 (Feet)
Cruise Plot Spacing 2.5 (chains) 165 (Feet)
Grade/Count Ratio 1:1

Unit 2A:

Cruise Line Direction: 157°/337°
Cruise Line Spacing 5 (chains) 330 (Feet)
Cruise Plot Spacing 2.5 (chains) 165 (Feet)
Grade/Count Ratio 1:1

Take plots as marked on cruise map.

Grade minor species (true fir, spruce, cedar, maple, etc.) on count plots if encountered.

DO NOT: record any 22' log lengths, or any 12', 24', or 32' log lengths for hardwoods.

DO NOT: record snags < 12" DBH or record snag measurements on count plots.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 8" for hardwoods.
Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 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 conifer trees > 20" 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. Hardwoods shall be recorded in 8’ and 10’ multiples.
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); SN (Snag). For “leave trees”, add an “L” to the species code (such as DL, HL, CL, etc.)
- B. Sort: Use code “1” (Domestic).
- C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
Hardwoods: Alder Grades: 12” + = 1 Sawmill; 10”-12” = 2 Sawmill; 10”-8” = 3 Sawmill; and 8”-6” 4 Sawmill, or R = Camp Run; 0 = Cull.
All Maple Camp Run = R
- Grade oversized 3-SAW (DIB $\geq$ 12”, knots $> 2\frac{1}{2}$ ” inside scaling cylinder affecting $> 50\%$ of log)
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), Compass, Allegro II Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint, Permanent Marker.
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: Ryan Simpson
Approved by: _____
Date: _____

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Humptys Wall

Types 1B, 2B, & 3

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 90 **Estimated CV%** 50 Net BF/Acre **SE% Objective** 11% Net BF/Acre

Planned Sale Volume: 2,700 MBF **Estimated Sale Area Value/Acre:** \$12,000/Acre

A. Cruise Goals: (a) Grade minimum 80 conifer trees.

(b) Sample 52 plots (22 grade/ 30 count); (c) Other goals (____ Determine "automark" thinning standards;
X Determine log grades for sale value; ____ Determine snag and leave tree species and sizes.

B. Cruise Design:

1. Plot Cruises: BAF(Conifer) 54.45
BAF(Hardwood) 33.61

Unit 1B:

Cruise Line Direction: 165°/345°
Cruise Line Spacing 5.5 (chains) 363 (Feet)
Cruise Plot Spacing 3.5 (chains) 231 (Feet)
Grade/Count Ratio 1:2

Unit 2B:

Cruise Line Direction: 11°/191°
Cruise Line Spacing 5.5 (chains) 363 (Feet)
Cruise Plot Spacing 3.5 (chains) 231 (Feet)
Grade/Count Ratio 1:2

Unit 3:

Cruise Line Direction: 33°/213°
Cruise Line Spacing 5.5 (chains) 363 (Feet)
Cruise Plot Spacing 3.5 (chains) 231 (Feet)
Grade/Count Ratio 1:2

Take plots as marked on cruise map.

Grade minor species (true fir, spruce, cedar, maple, etc.) on count plots if encountered.

DO NOT: record any 22' log lengths, or any 12', 24', or 32' log lengths for hardwoods.

DO NOT: record snags < 12" DBH or record snag measurements on count plots.

C. Tree Measurements:

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

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

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

3. **Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 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 conifer trees > 20" 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. Hardwoods shall be recorded in 8' and 10' multiples.
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); SN (Snag). For "leave trees", add an "L" to the species code (such as DL, HL, CL, etc.)
- B. **Sort:** Use code "1" (Domestic).
- C. **Grade:** A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
Hardwoods: Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill, or R = Camp Run; 0 = Cull.
All Maple Camp Run = R
- Grade oversized 3-SAW (DIB $\geq$ 12", knots > 2½" inside scaling cylinder affecting > 50% of log)
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.
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9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back), Compass, Allegro II Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint, Permanent Marker.
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: Ryan Simpson

Approved by: _____

Date: _____

TIMBER CRUISE MAP

OF TIMBER SALE CONTRACT
NO. AT-341-2024-W00984-01
HUMPTYS WALL
PORTIONS OF SECTIONS 6, 7, & 18
OF T8N, R6W, W.M., AND
PORTIONS OF SECTION 12
OF T8N, R7W, W.M.,
CLATSOP COUNTY, OREGON

Types 1A & 2A

BAF (Conifer)	40
BAF (Hardwood)	33.61
Line Spacing	5 ch. (330 ft.)
Plot Spacing	2.5 ch. (165 ft.)
Grade Plots	14
Count Plots	13
Total Plots	27

Types 1B, 2B, & 3

BAF (Conifer)	54.45
BAF (Hardwood)	33.61
Line Spacing	5.5 ch. (363 ft.)
Plot Spacing	3.5 ch. (231 ft.)
Grade Plots	22
Count Plots	30
Total Plots	52

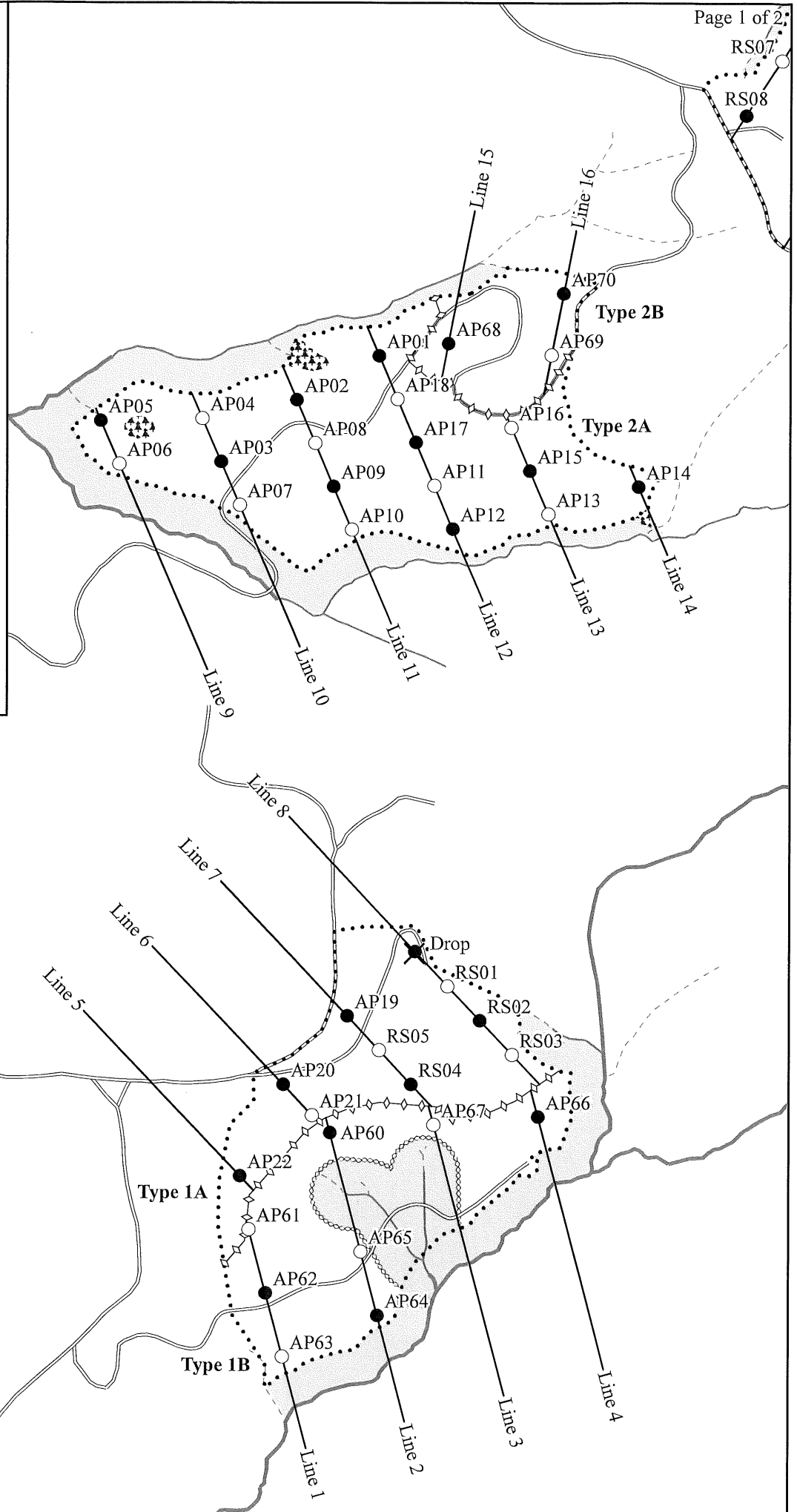
Unit	Azimuth
1A	139°/319°
1B	165°/345°
2A	157°/337°
2B	11°/191°
3	33°/213°



0 250 500 1,000 Feet

Legend

- Timber Sale Boundary
- Surfaced Road
- Type F Stream
- Type N Stream - Perennial
- Type N Stream - Seasonal
- Non-Posted Stream Buffers
- Posted Stream Buffers
- Reserve Tree Area
- Cruise Boundary
- Cruise Line
- Count Plot
- Grade Plot



TIMBER CRUISE MAP

OF TIMBER SALE CONTRACT
NO. AT-341-2024-W00984-01
HUMPTYS WALL
PORTIONS OF SECTIONS 6, 7, & 18
OF T8N, R6W, W.M., AND
PORTIONS OF SECTION 12
OF T8N, R7W, W.M.,
CLATSOP COUNTY, OREGON

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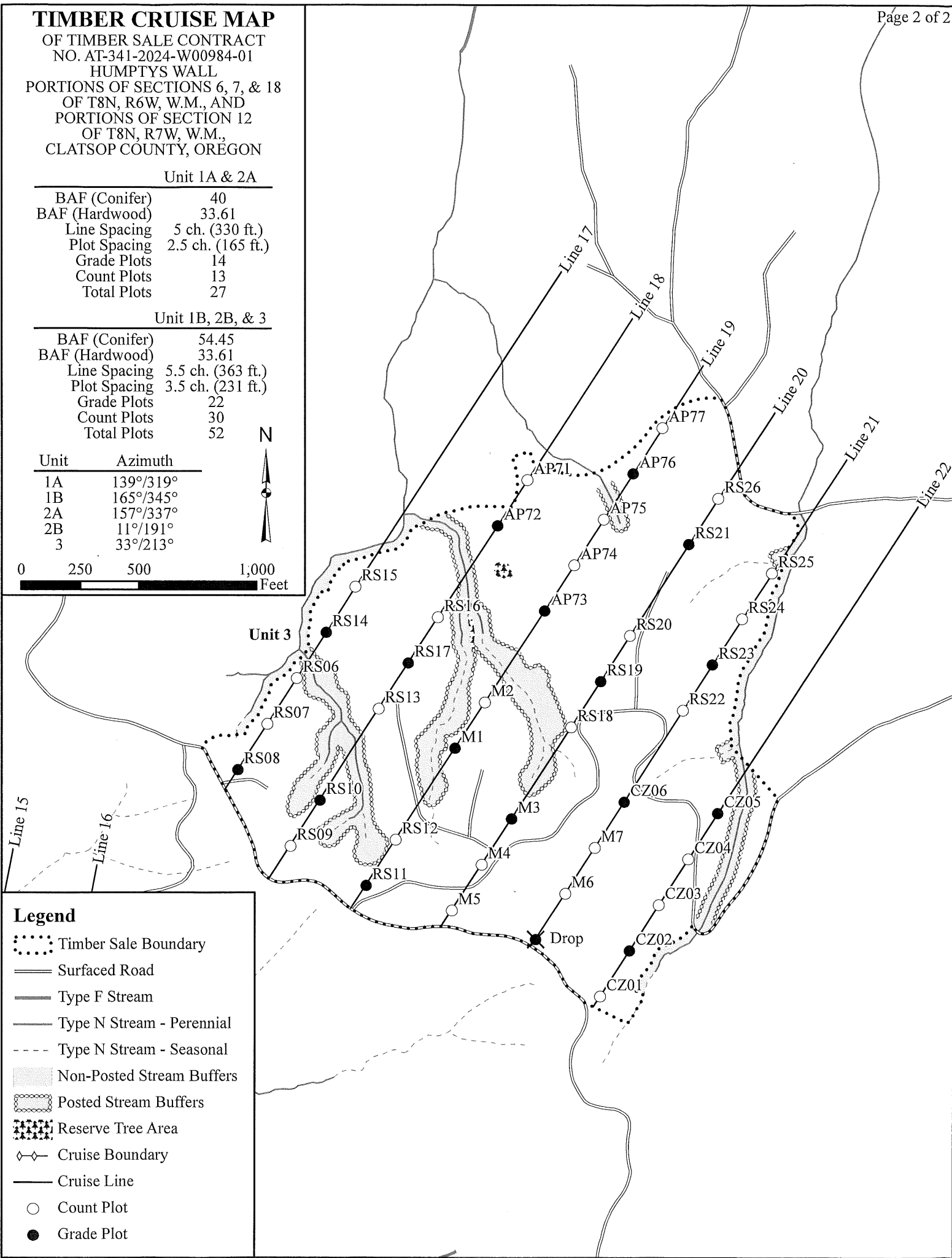
Unit 1B, 2B, & 3

BAF (Conifer)	54.45
BAF (Hardwood)	33.61
Line Spacing	5.5 ch. (363 ft.)
Plot Spacing	3.5 ch. (231 ft.)
Grade Plots	22
Count Plots	30
Total Plots	52

Unit	Azimuth
1A	139°/319°
1B	165°/345°
2A	157°/337°
2B	11°/191°
3	33°/213°

N

0 250 500 1,000 Feet



Legend

- Timber Sale Boundary
- Surfaced Road
- Type F Stream
- Type N Stream - Perennial
- Type N Stream - Seasonal
- Non-Posted Stream Buffers
- Posted Stream Buffers
- Reserve Tree Area
- Cruise Boundary
- Cruise Line
- Count Plot
- Grade Plot

TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																	
T08N R06W S18 Ty00MC1.00 T08N R06W S18 Ty00MC31.00 T08N R06W S18 Ty00MC89.00				Project: HWALL				Acres121.00				Page1 Date8/9/2023 Time7:50:18AM									
S Spp	So Gr T rt 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			
			4-5	6-11	12-16		17+	12-20	21-30	31-35	36-99										
H	DOCU														12	18		0.00		2.7	
H	DO2S	61	.5	10,661	10,604	1,283			47	53	1	4	2	94	38	16	380	2.32		27.9	
H	DO3S	34	.9	5,866	5,815	704		91	9		2	1	25	72	36	8	104	0.79		55.9	
H	DO4S	5		770	770	93		100			64	32	5		19	6	26	0.43		29.3	
H Totals		45	.6	17,297	17,189	2,080		35	32	32	4	4	10	82	32	10	149	1.17		115.7	
D	DO2S	45	1.1	7,841	7,752	938			82	18				100	40	14	304	1.92		25.5	
D	DO3S	48	.3	8,140	8,119	982		94	6			7	12	81	37	8	103	0.76		78.8	
D	DO4S	7	1.7	1,061	1,043	126		100			72	21	7		19	6	25	0.41		42.5	
D Totals		45	.8	17,042	16,914	2,0462,047		51	41	8	4	5	6	85	33	9	115	0.95		146.8	
M	DOCU														24	8		0.00		.8	
M	DO1S	19	7.4	59	55	7			100			100			30	15	250	1.87		.2	
M	DO2S	37	.9	108	107	13		100					57	43	36	10	135	1.18		.8	
M	DO3S	32		93	93	11		100				52		48	31	9	79	0.89		1.2	
M	DO4S	12		32	32	4		100			100				14	7	20	0.43		1.6	
M Totals		1	1.8	293	287	35		81	19		11	36	21	32	25	9	63	0.78		4.6	
A	DOCU														10	17		0.00		.5	
A	DO1S	35		1,215	1,215	147			100				10	90	39	13	266	1.67		4.6	
A	DO2S	31	.7	1,047	1,040	126		100				29	6	65	35	10	137	1.04		7.6	
A	DO3S	8		282	282	34		100			12			88	35	8	71	0.71		4.0	
A	DO4S	26		858	858	104	8	92			23	25	16	37	26	6	38	0.48		22.8	
A Totals		9	.2	3,403	3,395	411		2	62	36	7	15	9	69	30	8	86	0.82		39.4	
S	DO2S	72		136	136	16			100			100			30	14	210	2.00		.6	
S	DO3S	28		52	52	6		100			100				20	11	80	1.00		.6	
S Totals		0		188	188	2223		28	72		28	72			25	13	145	1.60		1.3	
Totals			0.6	38,222	37,974	4,5944,595		0	45	36	18	5	6	8	81	32	9	123	1.02		307.8

T	Species, Sort Grade - Board Foot Volumes (Type)										Page		1							
	Project: HWALL										Date	8/9/2023								
											Time	7:50:19AM								
T08N R06W S18 T00MC										T08N R06W S18 T00MC										
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt											
08N	06W	18	RW	00MC	1.00	52	98	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/ Lf					
H DO CU																				
H DO 2S			68	.5	13,421	13,357	13		44	56	1	4	1	94	38	16	397	2.40	33.6	
H DO 3S			27	1.3	5,354	5,286	5	88	12		2	1	31	67	36	9	104	0.82	50.9	
H DO 4S			5		882	882	1	100			64	31	5		19	7	27	0.44	32.9	
H Totals			49	.7	19,657	19,525	20	28	33	38	4	4	9	82	31	10	162	1.29	120.3	
D DO 2S			59	1.2	9,585	9,465	9		81	19				100	40	14	317	2.00	29.8	
D DO 3S			36	.3	5,593	5,578	6	89	11			12	13	75	36	9	122	0.93	45.7	
D DO 4S			5		790	790	1	100			78	22			19	6	26	0.47	30.9	
D Totals			39	.8	15,967	15,833	16	36	52	12	4	5	4	86	32	10	149	1.22	106.4	
A DO CU															10	17		0.00	.6	
A DO 1S			39		1,634	1,634	2		100				10	90	39	13	266	1.67	6.1	
A DO 2S			31	.8	1,285	1,276	1	100				32	7	62	34	10	136	1.05	9.4	
A DO 3S			9		380	380	0	100			12			88	35	8	71	0.71	5.3	
A DO 4S			21		851	851	1	11	89		21	33	21	24	26	6	37	0.50	23.2	
A Totals			10	.2	4,150	4,140	4	2	58	39	5	17	10	68	30	8	93	0.87	44.6	
M DO CU															6	26		0.00	.1	
M DO 1S			19	7.4	80	74	0		100			100			30	15	250	1.87	.3	
M DO 2S			37	.9	146	144	0	100					57	43	36	10	135	1.18	1.1	
M DO 3S			32		125	125	0	100				52		48	31	9	79	0.89	1.6	
M DO 4S			12		43	43	0	100			100				14	7	20	0.43	2.1	
M Totals			1	1.8	393	386	0	81	19		11	36	21	32	24	9	74	0.93	5.2	
S DO 2S			72		183	183	0		100			100			30	14	210	2.00	.9	
S DO 3S			28		70	70	0	100			100				20	11	80	1.00	.9	
S Totals			1		252	252	0	28	72		28	72			25	13	145	1.60	1.7	
Type Totals				.7	40,420	40,137	40	0	35	41	23	4	7	8	81	31	10	144	1.19	278.2

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page		1			
				Project: HWALL										Date		8/9/2023			
														Time		7:50:19AM			
T08N R06W S18 T00MC										T08N R06W S18 T00MC									
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt	
08N		06W		18		U12A		00MC		31.00		27		77		1		W	
S So Gr T rt ad Spp			%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
								Log Scale Dia.				Log Length				Ln	Dia	Bd	
			Net BdFt	Def%	Gross	Net		4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	
D			DO	2S	13		2,777	2,777	86		100				100	39	12	212	1.43
D			DO	3S	78	.3	15,536	15,497	480		100		1	12	87	38	8	89	0.64
D			DO	4S	9	3.8	1,850	1,780	55		100		65	19	16	20	6	23	0.35
D			Totals		63	.5	20,163	20,053	622		86	14	6	3	11	81	33	7	76
H			DO	CU												10	15		0.00
H			DO	2S	25	1.3	2,648	2,613	81		100			8	92	39	13	235	1.63
H			DO	3S	70		7,352	7,352	228		97	3	1		14	85	38	8	105
H			DO	4S	5		443	443	14		100		63	37		19	6	23	0.37
H			Totals		33	.3	10,444	10,408	323		73	27	3	2	12	83	34	9	101
A			DO	2S	28		355	355	11		100				100	40	10	150	0.97
A			DO	4S	72		879	879	27		100		28		72	26	6	40	0.44
A			Totals		4		1,234	1,234	38		100		20		80	28	7	51	0.52
M			DO	CU												26	6		0.00
M			Totals													26	6		0.00
Type Totals						.5	31,840	31,695	983		82	18	6	2	11	81	33	8	81

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page		1					
				Project: HWALL												Date		8/9/2023					
																Time		7:50:19AM					
T08N R06W S18 T00MC												T08N R06W S18 T00MC											
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt					
08N		06W		18		U12B3		00MC		89.00		52		98		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						
H				DO	CU																		
H				DO	2S	68	.5	13,421	13,357	1,189		44	56	1	4	1	94	38	16	397	2.40	33.6	
H				DO	3S	27	1.3	5,354	5,286	470	88	12		2	1	31	67	36	9	104	0.82	50.9	
H				DO	4S	5		882	882	79	100			64	31	5		19	7	27	0.44	32.9	
H				Totals		49	.7	19,657	19,525	1,738	28	33	38	4	4	9	82	31	10	162	1.29	120.3	
D				DO	2S	59	1.2	9,585	9,465	842		81	19				100	40	14	317	2.00	29.8	
D				DO	3S	36	.3	5,593	5,578	496	89	11			12	13	75	36	9	122	0.93	45.7	
D				DO	4S	5		790	790	70	100			78	22			19	6	26	0.47	30.9	
D				Totals		39	.8	15,967	15,833	1,409	36	52	12	4	5	4	86	32	10	149	1.22	106.4	
A				DO	CU													10	17		0.00	.6	
A				DO	1S	39		1,634	1,634	145		100				10	90	39	13	266	1.67	6.1	
A				DO	2S	31	.8	1,285	1,276	114	100				32	7	62	34	10	136	1.05	9.4	
A				DO	3S	9		380	380	34	100			12			88	35	8	71	0.71	5.3	
A				DO	4S	21		851	851	76	11	89		21	33	21	24	26	6	37	0.50	23.2	
A				Totals		10	.2	4,150	4,140	368	2	58	39	5	17	10	68	30	8	93	0.87	44.6	
M				DO	CU													6	26		0.00	.1	
M				DO	1S	19	7.4	80	74	7		100			100			30	15	250	1.87	.3	
M				DO	2S	37	.9	146	144	13	100					57	43	36	10	135	1.18	1.1	
M				DO	3S	32		125	125	11	100				52		48	31	9	79	0.89	1.6	
M				DO	4S	12		43	43	4	100		100					14	7	20	0.43	2.1	
M				Totals		1	1.8	393	386	34	81	19		11	36	21	32	24	9	74	0.93	5.2	
S				DO	2S	72		183	183	16		100			100			30	14	210	2.00	.9	
S				DO	3S	28		70	70	6	100			100				20	11	80	1.00	.9	
S				Totals		1		252	252	22	28	72		28	72			25	13	145	1.60	1.7	
Type Totals							.7	40,420	40,137	3,572	0	35	41	23	4	7	8	81	31	10	144	1.19	278.2

TC PSTATS		PROJECT STATISTICS								PAGE	1	
		PROJECT				HWALL				DATE	8/9/2023	
TWP	RGE	SC	TRACT	TYPE		ACRES		PLOTS	TREES	CuFt	BdFt	
08N	06	18	RW	00MC		121.00		131	652	1	W	
08N	06W	18	U12A	00MC								
08N	06W	18	U12B3	00MC								
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES		PERCENT SAMPLE TREES				
TOTAL			131	652	5.0							
CRUISE			58	271	4.7	16,710		1.6				
DBH COUNT												
REFOREST												
COUNT			71	373	5.3							
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			99	66.7	17.1	75	25.7	106.2	17,042	16,914	4,546	4,546
WHEMLOCK			104	48.1	18.9	80	21.6	93.8	17,297	17,189	4,296	4,296
R ALDER			51	19.7	15.6	62	6.6	26.3	3,403	3,395	958	958
BL MAPLE			15	2.9	16.0	41	1.0	4.0	293	287	88	88
S SPRUCE			2	.6	21.0	53	0.3	1.6	188	188	52	52
TOTAL			271	138.1	17.5	74	55.3	231.8	38,222	37,974	9,940	9,940
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		66.1	6.6	306	327	349						
WHEMLOCK		72.0	7.0	490	527	564						
R ALDER		68.2	9.5	193	213	234						
BL MAPLE		53.2	14.2	109	127	145						
S SPRUCE				290	290	290						
TOTAL		82.7	5.0	352	371	390			273	68	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		138.9	12.1	59	67	75						
WHEMLOCK		169.4	14.8	41	48	55						
R ALDER		267.9	23.4	15	20	24						
BL MAPLE		672.6	58.7	1	3	5						
S SPRUCE		797.2	69.6	0	1	1						
TOTAL		97.0	8.5	126	138	150			376	94	42	
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		141.1	12.3	93	106	119						
WHEMLOCK		152.0	13.3	81	94	106						
R ALDER		277.0	24.2	20	26	33						
BL MAPLE		630.6	55.1	2	4	6						
S SPRUCE		797.2	69.6	0	2	3						
TOTAL		97.4	8.5	212	232	252			379	95	42	
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		146.4	12.8	14,752	16,914	19,077						
WHEMLOCK		156.3	13.6	14,845	17,189	19,534						
R ALDER		287.4	25.1	2,544	3,395	4,247						
BL MAPLE		848.5	74.1	74	287	500						
S SPRUCE		797.2	69.6	57	188	318						
TOTAL		103.1	9.0	34,557	37,974	41,391			424	106	47	

TC PSTATS				PROJECT STATISTICS				PAGE	2
				PROJECT		HWALL		DATE	8/9/2023
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
08N	06	18	RW	00MC	121.00	131	652	1	W
08N	06W	18	U12A	00MC					
08N	06W	18	U12B3	00MC					

TC TSTATS				STATISTICS				PAGE	1			
				PROJECT	HWALL			DATE	8/9/2023			
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt			
08N	06W	18	RW	00MC	1.00	52	252	1	W			
			PLOTS	TREES	TREES	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL			52	252	4.8							
CRUISE			22	97	4.4	117		83.0				
DBH COUNT												
REFOREST												
COUNT			29	151	5.2							
BLANKS			1									
100 %												
STAND SUMMARY												
			SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK			38	49.1	19.8	80	23.6	104.7	19,657	19,525	4,823	4,823
DOUG FIR			27	41.6	20.4	86	20.9	94.2	15,967	15,833	4,204	4,204
R ALDER			24	22.4	16.3	63	8.0	32.3	4,150	4,140	1,168	1,168
BL MAPLE			7	2.9	16.8	46	1.1	4.5	393	386	118	118
S SPRUCE			1	.9	21.0	53	0.5	2.1	252	252	70	70
TOTAL			97	116.9	19.3	78	54.1	237.9	40,420	40,137	10,383	10,383
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL: 68.1 %			COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD: 1.0			VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
WHEMLOCK			63.6	10.3	561	626	691					
DOUG FIR			47.5	9.3	408	450	492					
R ALDER			67.8	14.1	189	220	251					
BL MAPLE			45.8	18.6	110	136	161					
S SPRUCE												
TOTAL			76.4	7.8	404	438	472		233	58	26	
CL: 68.1 %			COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0			VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
WHEMLOCK			110.7	15.3	42	49	57					
DOUG FIR			108.2	15.0	35	42	48					
R ALDER			177.3	24.6	17	22	28					
BL MAPLE			540.2	74.8	1	3	5					
S SPRUCE			504.9	70.0	0	1	1					
TOTAL			49.6	6.9	109	117	125		98	25	11	
CL: 68.1 %			COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0			VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
WHEMLOCK			87.9	12.2	92	105	117					
DOUG FIR			106.8	14.8	80	94	108					
R ALDER			175.9	24.4	24	32	40					
BL MAPLE			465.9	64.5	2	5	7					
S SPRUCE			504.9	70.0	1	2	4					
TOTAL			39.1	5.4	225	238	251		61	15	7	
CL: 68.1 %			COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0			VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
WHEMLOCK			89.6	12.4	17,100	19,525	21,949					
DOUG FIR			107.8	14.9	13,469	15,833	18,198					
R ALDER			185.1	25.7	3,078	4,140	5,202					
BL MAPLE			538.1	74.6	98	386	674					
S SPRUCE			504.9	70.0	76	252	429					
TOTAL			43.8	6.1	37,700	40,137	42,573		77	19	9	

TC TSTATS				STATISTICS				PAGE 1					
				PROJECT	HWALL		DATE 8/9/2023						
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt				
08N	06W	18	U12A	00MC	31.00	27	148	1	W				
				TREES	ESTIMATED	PERCENT							
				PER PLOT	TOTAL	SAMPLE							
					TREES	TREES							
TOTAL				27	148	5.5							
CRUISE				14	77	5.5	6,186	1.2					
DBH COUNT													
REFOREST													
COUNT				13	71	5.5							
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				45	139.7	13.6	65	38.2	140.7	20,163	20,053	5,541	5,541
WHEMLOCK				28	45.0	15.9	79	15.6	62.2	10,444	10,408	2,766	2,766
R ALDER				3	12.1	11.5	56	2.6	8.7	1,234	1,234	347	347
BL MAPLE				1	2.7	13.0	26	0.7	2.5				
TOTAL				77	199.5	14.0	67	57.2	214.2	31,840	31,695	8,654	8,654
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	54.3	8.1	165	180	195								
WHEMLOCK	38.7	7.4	238	257	276								
R ALDER	43.5	30.1	79	113	147								
BL MAPLE													
TOTAL	52.5	6.0	191	203	215					110	27	12	
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	53.2	10.4	125	140	154								
WHEMLOCK	126.6	24.8	34	45	56								
R ALDER	272.9	53.5	6	12	19								
BL MAPLE	360.3	70.6	1	3	5								
TOTAL	29.8	5.8	188	200	211					37	9	4	
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	50.7	9.9	127	141	155								
WHEMLOCK	111.8	21.9	49	62	76								
R ALDER	274.7	53.8	4	9	13								
BL MAPLE	360.3	70.6	1	2	4								
TOTAL	26.8	5.3	203	214	225					30	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	
DOUG FIR	53.9	10.6	17,933	20,053	22,173								
WHEMLOCK	120.0	23.5	7,960	10,408	12,857								
R ALDER	278.1	54.5	561	1,234	1,906								
BL MAPLE													
TOTAL	32.9	6.5	29,648	31,695	33,741					45	11	5	

TC TSTATS				STATISTICS				PAGE	1			
				PROJECT	HWALL			DATE	8/9/2023			
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt			
08N	06W	18	U12B3	00MC	89.00	52	252	1	W			
				TREES	ESTIMATED	PERCENT						
				PER PLOT	TOTAL	SAMPLE						
					TREES	TREES						
PLOTS			TREES									
TOTAL			52	252	4.8							
CRUISE			22	97	4.4	10,407	.9					
DBH COUNT												
REFOREST												
COUNT			29	151	5.2							
BLANKS			1									
100 %												
STAND SUMMARY												
SAMPLE			TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
TREES			/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
WHEMLOCK			38	49.1	19.8	80	23.6	104.7	19,657	19,525	4,823	4,823
DOUG FIR			27	41.6	20.4	86	20.9	94.2	15,967	15,833	4,204	4,204
R ALDER			24	22.4	16.3	63	8.0	32.3	4,150	4,140	1,168	1,168
BL MAPLE			7	2.9	16.8	46	1.1	4.5	393	386	118	118
S SPRUCE			1	.9	21.0	53	0.5	2.1	252	252	70	70
TOTAL			97	116.9	19.3	78	54.1	237.9	40,420	40,137	10,383	10,383
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL: 68.1 %			COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0			VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK			63.6	10.3	561	626	691					
DOUG FIR			47.5	9.3	408	450	492					
R ALDER			67.8	14.1	189	220	251					
BL MAPLE			45.8	18.6	110	136	161					
S SPRUCE												
TOTAL			76.4	7.8	404	438	472	233	58	26		
CL: 68.1 %			COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0			VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK			110.7	15.3	42	49	57					
DOUG FIR			108.2	15.0	35	42	48					
R ALDER			177.3	24.6	17	22	28					
BL MAPLE			540.2	74.8	1	3	5					
S SPRUCE			504.9	70.0	0	1	1					
TOTAL			49.6	6.9	109	117	125	98	25	11		
CL: 68.1 %			COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0			VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK			87.9	12.2	92	105	117					
DOUG FIR			106.8	14.8	80	94	108					
R ALDER			175.9	24.4	24	32	40					
BL MAPLE			465.9	64.5	2	5	7					
S SPRUCE			504.9	70.0	1	2	4					
TOTAL			39.1	5.4	225	238	251	61	15	7		
CL: 68.1 %			COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0			VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK			89.6	12.4	17,100	19,525	21,949					
DOUG FIR			107.8	14.9	13,469	15,833	18,198					
R ALDER			185.1	25.7	3,078	4,140	5,202					
BL MAPLE			538.1	74.6	98	386	674					
S SPRUCE			504.9	70.0	76	252	429					
TOTAL			43.8	6.1	37,700	40,137	42,573	77	19	9		

Log Stock Table - MBF

T08N R06W S18 Ty00MC	1.00
T08N R06W S18 Ty00MC	31.00
T08N R06W S18 Ty00MC	89.00

Project: HWALL
Acres 121.00

Page	1
Date	8/9/2023
Time	7:50:21AM

S T Spp	So Gr rt	Log de Len	Gross MBF	Def. %	Net MBF	% Sp	Net Volume by Scaling Diameter in Inches											
							2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
H	DO	2S	16	8		8	.4						8					
H	DO	2S	20	3		3	.2					3						
H	DO	2S	24	23		23	1.1					11	11					
H	DO	2S	28	11		11	.5					11						
H	DO	2S	30	15		15	.7							15				
H	DO	2S	32	13		13	.6						13					
H	DO	2S	34	7		7	.3						7					
H	DO	2S	36	46		46	2.2					9	37					
H	DO	2S	38	20		20	.9						20					
H	DO	2S	40	1,145		1,138	54.7						72	343	537	150	36	
H	DO	3S	18	6		6	.3					6						
H	DO	3S	20	7		7	.3					7						
H	DO	3S	28	4		4	.2				4							
H	DO	3S	32	103		102	4.9			45	17	29	12					
H	DO	3S	34	77		77	3.7			29	10	29	8					
H	DO	3S	36	62		62	3.0			33	6	18		6				
H	DO	3S	38	9		9	.4			2	6							
H	DO	3S	40	444	1.2	438	21.1			43	102	256	38					
H	DO	4S	12	1		1	.1			0	1							
H	DO	4S	14	11		11	.5			9	2							
H	DO	4S	16	34		34	1.6			25	9							
H	DO	4S	18	4		4	.2			2	2							
H	DO	4S	20	9		9	.4			6	3							
H	DO	4S	24	28		28	1.3			28								
H	DO	4S	26	2		2	.1			2								
H	DO	4S	32	4		4	.2				4							
H	Totals			2,093		2,080	45.3			224	165	344	163	445	552	150	36	
D	DO	2S	36	10		10	.5					10						
D	DO	2S	40	939	1.1	928	45.3					273	332	324				
D	DO	3S	24	27		27	1.3					27						
D	DO	3S	28	8		8	.4			8								
D	DO	3S	30	33		33	1.6				3	30						
D	DO	3S	32	89		89	4.3			13	33	43						
D	DO	3S	34	33		33	1.6			10	9	14						
D	DO	3S	36	110	1.2	109	5.3			15	55	39						
D	DO	3S	38	8		8	.4			8								

Log Stock Table - MBF

T08N R06W S18 Ty00MC	1.00
T08N R06W S18 Ty00MC	31.00
T08N R06W S18 Ty00MC	89.00

Project: HWALL
Acres 121.00

S T Spp	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
D	DO	3S	40	676		675	33.0			177	161	281	31	25					
D	DO	4S	12	1		1	.1			1									
D	DO	4S	14	4		4	.2			4									
D	DO	4S	16	42		42	2.0			42									
D	DO	4S	18	10		10	.5			10									
D	DO	4S	20	35		35	1.7			27	8								
D	DO	4S	24	12		12	.6			5	7								
D	DO	4S	26	8		8	.4			8									
D	DO	4S	28	7		7	.3			7									
D	DO	4S	32	11	20.0	9	.4			9									
D	Totals			2,062		2,047	44.5			342	277	434	314	356	324				
M	DO	1S	30	7	7.4	7	19.2						7						
M	DO	2S	32	1	8.3	1	3.8					1							
M	DO	2S	34	6		6	17.7					6							
M	DO	2S	40	6		6	15.9					6							
M	DO	3S	24	2		2	5.7				2								
M	DO	3S	30	4		4	11.0				4								
M	DO	3S	36	5		5	15.7				5								
M	DO	4S	12	2		2	5.9			2									
M	DO	4S	16	2		2	5.3			2									
M	Totals			35	1.8	35	.8			4	11	13		7					
A	DO	1S	34	15		15	3.7						15						
A	DO	1S	40	132		132	32.1					66	66						
A	DO	2S	24	4		4	.9					4							
A	DO	2S	26	10	9.1	9	2.1					9							
A	DO	2S	28	11		11	2.8					11							
A	DO	2S	30	12		12	3.0					12							
A	DO	2S	34	8		8	1.8					8							
A	DO	2S	40	82		82	20.0					82							
A	DO	3S	20	4		4	1.0			4									
A	DO	3S	40	30		30	7.4			4	27								
A	DO	4S	16	16		16	3.8		5	10									
A	DO	4S	18	2		2	.4			2									

TC PLOGSTVB		Log Stock Table - MBF																	
T08N R06W S18 Ty00MC		1.00		Project: HWALL										Page 3					
T08N R06W S18 Ty00MC		31.00		Acres 121.00										Date 8/9/2023					
T08N R06W S18 Ty00MC		89.00												Time 7:50:21AM					
S T Spp	So Gr rt de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches												
							2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+	
A	DO	4S	20	7	7	1.6			7										
A	DO	4S	24	8	8	2.0			8										
A	DO	4S	26	2	2	.4			2										
A	DO	4S	30	16	16	3.9			16										
A	DO	4S	32	7	7	1.7			7										
A	DO	4S	34	10	10	2.3		3	7										
A	DO	4S	36	15	15	3.7			15										
A	DO	4S	40	23	23	5.6			23										
A	Totals			412	411	8.9		8	103	27	126	66	81						
S	DO	2S	30	16	16	72.4						16							
	DO	3S	20	6	6	27.6				6									
S	Totals			23	23	.5				6		16							
Total	All Species			4,625	4,595	100.0		8	672	480	924	543	906	875	150	36			

TC		PSTNDSUM		Stand Table Summary								Page		1			
												Date:		8/9/2023			
T08N R06W S18 Ty00MC1.00 T08N R06W S18 Ty00MC31.00 T08N R06W S18 Ty00MC89.00				Project				HWALL				Time:		7:50:22AM			
				Acres				121.00				Grown Year:					
S SpC	T	Sample		Tot					Average Log		Net		Net		Totals		
		DBH	Trees	FF	Av	Trees/ Acre	BA/ Acre	Logs Acre	Net Cu.Ft.	Net Bd.Ft.	Tons/ Acre	Cu.Ft. Acre	Bd.Ft. Acre	Tons	Cunits	MBF	
H		9	2	86	104	4.639	2.05	9.28	8.0	35.0		74	325		90	39	
H		10	2	85	100	3.758	2.05	7.52	10.0	40.0		75	301		91	36	
H		11	3	87	119	3.968	2.62	7.94	15.2	57.8		120	459		146	56	
H		13	1	89	116	.618	.57	1.24	22.5	90.0		28	111		34	13	
H		14	5	86	115	2.663	2.85	5.86	23.0	89.1		135	522		163	63	
H		15	7	86	111	3.990	4.90	8.44	26.6	97.5		225	823		272	100	
H		16	8	84	96	3.914	5.47	8.24	27.1	97.4		223	802		270	97	
H		17	3	85	100	1.661	2.62	3.32	33.9	122.2		113	406		136	49	
H		18	3	86	97	1.482	2.62	2.96	38.1	128.9		113	382		137	46	
H		19	5	83	91	2.371	4.67	4.74	29.6	97.4		140	462		170	56	
H		20	4	83	116	1.461	3.19	4.38	35.2	134.9		154	591		187	72	
H		21	12	84	124	4.355	10.48	12.83	41.9	167.3		537	2,147		650	260	
H		22	6	86	102	2.329	6.15	6.21	43.5	170.0		270	1,056		327	128	
H		23	4	81	99	1.421	4.10	3.55	49.2	164.0		175	583		211	70	
H		24	5	85	119	1.486	4.67	3.62	61.4	249.5		222	904		269	109	
H		25	4	85	141	1.203	4.10	3.61	65.3	286.7		236	1,034		285	125	
H		26	6	83	131	1.668	6.15	5.00	66.1	277.8		331	1,390		400	168	
H		27	6	85	115	1.546	6.15	4.12	71.1	288.8		293	1,191		355	144	
H		28	6	81	113	1.438	6.15	3.83	73.2	296.2		281	1,136		340	137	
H		29	2	86	104	.447	2.05	1.34	69.0	323.3		92	433		112	52	
H		31	2	82	117	.391	2.05	1.17	83.7	370.0		98	434		119	53	
H		32	2	82	145	.367	2.05	1.10	103.7	476.7		114	525		138	63	
H		33	2	85	113	.345	2.05	1.04	94.7	456.7		98	473		119	57	
H		35	2	67	118	.307	2.05	.92	64.3	256.7		59	236		72	29	
H		38	2	81	136	.260	2.05	.78	112.7	593.3		88	463		106	56	
H		Totals	104	85	110	48.089	93.83	113.05	38.0	152.0		4,296	17,189		5,198	2,080	
D		9	2	84	107	3.627	1.60	7.25	8.8	35.0		63	254		77	31	
D		10	3	83	56	4.407	2.40	4.41	11.7	36.7		51	162		62	20	
D		11	3	85	120	3.642	2.40	7.28	13.0	45.0		95	328		115	40	
D		12	6	84	95	6.121	4.81	9.18	17.9	58.9		164	541		199	65	
D		13	4	86	91	4.555	4.20	6.29	22.2	75.5		140	475		169	58	
D		14	6	85	115	4.497	4.81	8.99	22.3	84.2		201	757		243	92	
D		15	6	84	95	4.727	5.80	9.45	22.7	79.7		215	753		260	91	
D		16	6	86	126	4.155	5.80	10.74	25.3	97.6		272	1,049		329	127	
D		17	8	84	97	4.697	7.40	9.39	29.4	99.1		276	931		334	113	
D		18	4	85	117	1.814	3.21	4.99	28.5	105.5		142	526		172	64	
D		19	10	86	105	5.583	10.99	15.02	29.4	104.8		442	1,575		535	191	
D		20	7	85	121	3.937	8.59	11.81	33.2	123.7		393	1,461		475	177	
D		21	6	86	121	3.238	7.79	8.63	41.1	148.8		355	1,284		430	155	
D		22	6	86	113	2.950	7.79	7.87	43.6	170.0		343	1,338		415	162	
D		23	8	83	119	3.599	10.38	9.90	47.8	181.8		473	1,800		573	218	
D		24	4	86	133	1.653	5.19	4.96	51.7	206.7		256	1,025		310	124	
D		25	4	83	134	1.523	5.19	4.57	55.5	216.7		254	990		307	120	
D		26	4	84	144	1.408	5.19	4.22	64.5	266.7		273	1,127		330	136	
D		28	2	81	157	.607	2.60	1.82	75.7	296.7		138	540		167	65	
D		Totals	99	85	107	66.744	106.15	146.81	31.0	115.2		4,546	16,914		5,501	2,047	
A		10	1	87	114	1.364	.74	2.73	12.0	45.0		33	123		40	15	
A		11	1	86	91	1.128	.74	2.26	12.0	40.0		27	90		33	11	
A		12	2	86	110	1.275	1.00	3.83	13.0	46.7		50	179		60	22	
A		13	4	86	65	2.262	2.00	3.44	15.4	50.5		53	174		64	21	
A		14	8	87	58	3.748	4.01	5.62	18.8	63.3		106	356		128	43	
A		15	5	86	105	2.239	2.75	6.11	21.3	82.3		130	503		158	61	

TC		PSTNDSUM		Stand Table Summary										Page 2		
														Date: 8/9/2023		
T08N R06W S18 Ty00MC 1.00 T08N R06W S18 Ty00MC 31.00 T08N R06W S18 Ty00MC 89.00				Project HWALL Acres 121.00										Time: 7:50:22AM Grown Year:		
S Spce T	Sample		Tot					Average Log		Net		Net		Totals		
	DBH	Trees	FF 16'	Av Ht	Trees/Acre	BA/Acre	Logs Acre	Net Cu.Ft.	Net Bd.Ft.	Tons/Acre	Cu.Ft. Acre	Bd.Ft. Acre	Tons	Cunits	MBF	
A	16	4	87	67	1.435	2.00	2.87	22.5	72.5		65	208		78	25	
A	17	6	86	89	1.906	3.00	3.81	31.5	106.7		120	407		145	49	
A	18	2	87	91	.567	1.00	1.13	36.5	120.0		41	136		50	16	
A	19	2	86	93	.509	1.00	1.02	42.5	150.0		43	153		52	18	
A	20	4	87	70	.918	2.00	.92	51.5	175.0		47	161		57	19	
A	21	8	86	96	1.666	4.01	3.75	43.6	158.9		163	595		198	72	
A	22	2	87	87	.379	1.00	.76	53.5	205.0		41	156		49	19	
A	23	2	87	92	.347	1.00	.69	56.0	225.0		39	156		47	19	
A	Totals	51	86	84	19.742	26.27	38.93	24.6	87.2		958	3,395		1,159	411	
M	13	1	86	32	.692	.64										
M	14	4	87	68	.899	.96	1.80	16.8	52.5		30	94		36	11	
M	15	2	86	67	.392	.48	.78	20.0	75.0		16	59		19	7	
M	17	2	87	73	.305	.48	.61	26.5	85.0		16	52		20	6	
M	18	2	87	31	.272	.48	.27	26.0	60.0		7	16		9	2	
M	20	2	87	64	.220	.48	.22	56.0	250.0		12	55		15	7	
M	30	2	66	49	.098	.48	.10	67.0	110.0		7	11		8	1	
M	Totals	15	86	55	2.879	4.00	3.78	23.2	75.9		88	287		106	35	
S	21	2	83	78	.648	1.56	1.30	40.0	145.0		52	188		63	23	
S	Totals	2	83	78	.648	1.56	1.30	40.0	145.0		52	188		63	23	
Totals		271	85	104	138.101	231.81	303.87	32.7	125.0		9,940	37,974		12,027	4,595	

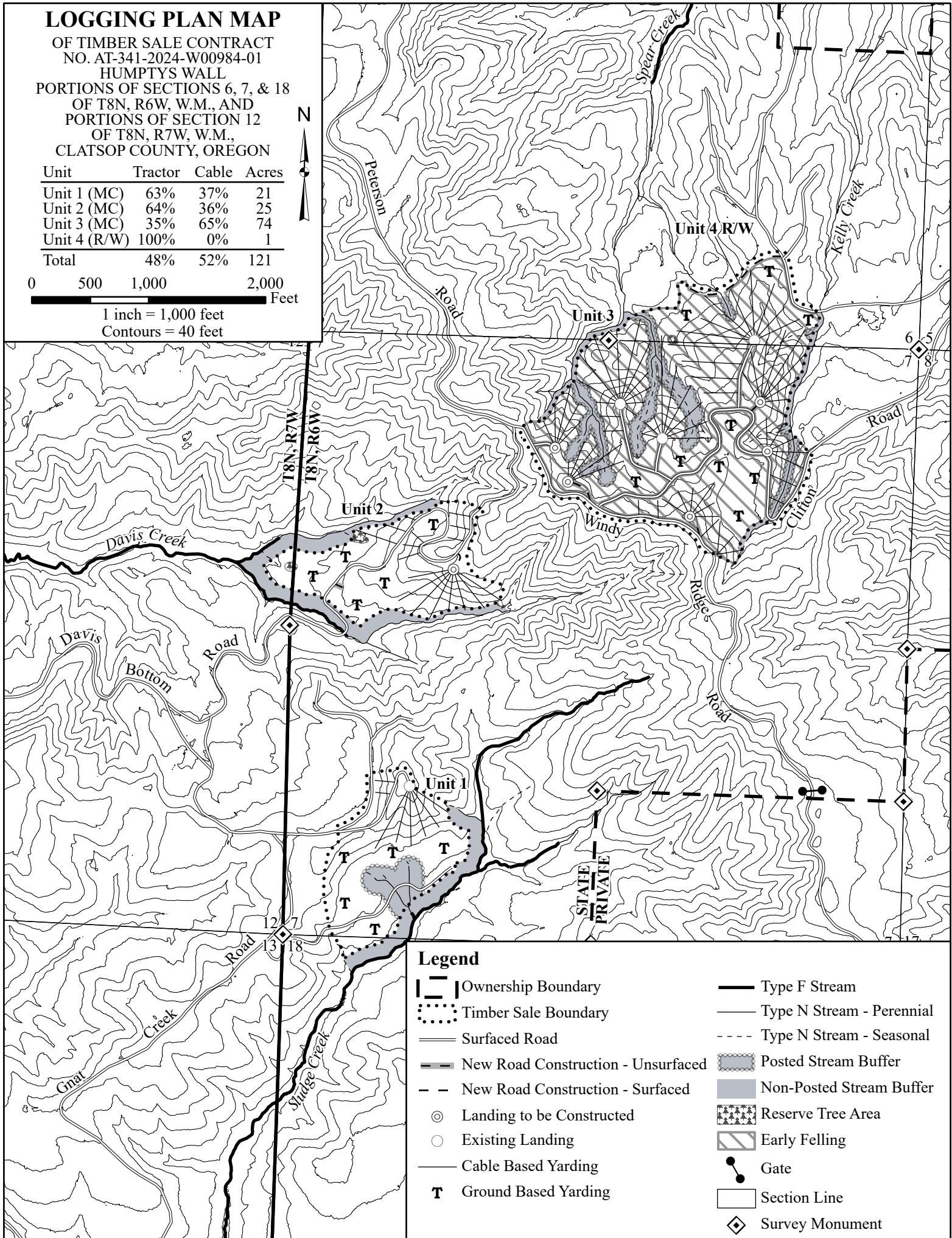
LOGGING PLAN MAP

OF TIMBER SALE CONTRACT
NO. AT-341-2024-W00984-01
HUMPTY'S WALL
PORTIONS OF SECTIONS 6, 7, & 18
OF T8N, R6W, W.M., AND
PORTIONS OF SECTION 12
OF T8N, R7W, W.M.,
CLATSOP COUNTY, OREGON

Unit	Tractor	Cable	Acres
Unit 1 (MC)	63%	37%	21
Unit 2 (MC)	64%	36%	25
Unit 3 (MC)	35%	65%	74
Unit 4 (R/W)	100%	0%	1
Total	48%	52%	121

0 500 1,000 2,000 Feet

1 inch = 1,000 feet
Contours = 40 feet



Legend

- Ownership Boundary
- Timber Sale Boundary
- Surfaced Road
- New Road Construction - Unsurfaced
- New Road Construction - Surfaced
- Landing to be Constructed
- Existing Landing
- Cable Based Yarding
- Ground Based Yarding
- Type F Stream
- Type N Stream - Perennial
- Type N Stream - Seasonal
- Posted Stream Buffer
- Non-Posted Stream Buffer
- Reserve Tree Area
- Early Felling
- Gate
- Section Line
- Survey Monument