



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Hard Target
Sale AT-341-2022-W00608-01

District: Astoria

Date: July 09, 2021

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$956,328.23	\$627,475.56	\$1,583,803.79
		Project Work:	(\$100,174.00)
		Advertised Value:	\$1,483,629.79



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Date: July 09, 2021

Timber Description

Location:

Stand Stocking: 80%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	29	0	97
Western Hemlock / Fir	23	0	95
Sitka Spruce	22	0	96
Alder (Red)	17	0	95
Maple	24	0	95

Volume by Grade	2S	3S & 4S 6"-11"	8" - 9"	10" - 11"	12"+	6" - 7"	Camprun	Total
Douglas - Fir	1,260	120	0	0	0	0	0	1,380
Western Hemlock / Fir	763	216	0	0	0	0	0	979
Sitka Spruce	64	9	0	0	0	0	0	73
Alder (Red)	0	0	101	510	756	307	0	1,674
Maple	0	0	0	0	0	0	105	105
Total	2,087	345	101	510	756	307	105	4,211

Comments: Pond Values Used: Local Pond Values, July, 2021.

Expected Log Markets: Tillamook, Warrenton, Garibaldi, Banks, North Plains, Forest Grove, Banks, Longview, WA, and Chehalis, WA.

PRICING:

Western Red Cedar and other Cedars stumpage = pond value - (Douglas-fir) logging cost.
\$861.66/MBF = \$1,200/MBF - \$338.34/MBF

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

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

Waterbarring Dirt Spurs post operations.
C315 \$114/hr x 12 HRS = \$1,368

Ditch Filters:

4 bales of straw @ \$12/bale = \$48

1 hour of labor @ \$45/hr = \$45

TOTAL Other Costs (with Profit & Risk to be added):\$3,461

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

SLASH PILING

(See attached appraisal. Includes move-in, pile materials, and end-hauling) = \$12,904

ROAD MAINTENANCE

(See attached Road Maintenance Cost Summary Sheet)

TOTAL Road Maintenance: \$17,912 / 4,211 MBF = \$4.25/MBF



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Logging Conditions

Combination#: 1

Douglas - Fir	82.00%
Western Hemlock / Fir	82.00%
Sitka Spruce	82.00%
Alder (Red)	82.00%
Maple	82.00%

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

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

tree size: Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF

loads / day: 8.5 **bd. ft / load:** 3800

cost / mbf: \$210.53

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

Combination#: 2

Douglas - Fir	18.00%
Western Hemlock / Fir	18.00%
Sitka Spruce	18.00%
Alder (Red)	18.00%
Maple	18.00%

Logging System: Shovel **Process:** Feller Buncher

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

tree size: Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF

loads / day: 10 **bd. ft / load:** 3800

cost / mbf: \$93.10

machines: Feller Buncher w/ Delimber



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Logging Costs

Operating Seasons: 3.00	Profit Risk: 12%
Project Costs: \$100,174.00	Other Costs (P/R): \$3,461.00
Slash Disposal: \$12,904.00	Other Costs: \$0.00

Miles of Road

Road Maintenance: \$4.25

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

Hauling Costs

Species	\$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	\$0.00	2.0	4.9
Western Hemlock / Fir	\$0.00	2.0	4.8
Sitka Spruce	\$0.00	1.0	5.2
Alder (Red)	\$0.00	2.0	3.4
Maple	\$0.00	2.0	3.4



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Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Brand & Paint	Other	Total
Douglas - Fir									
\$189.39	\$4.38	\$3.13	\$99.85	\$0.82	\$35.71	\$3.06	\$2.00	\$0.00	\$338.34
Western Hemlock / Fir									
\$189.39	\$4.46	\$3.13	\$103.91	\$0.82	\$36.21	\$3.06	\$2.00	\$0.00	\$342.98
Sitka Spruce									
\$189.39	\$4.42	\$3.13	\$190.00	\$0.82	\$46.53	\$3.06	\$2.00	\$0.00	\$439.35
Alder (Red)									
\$189.39	\$4.46	\$3.13	\$146.70	\$0.82	\$41.34	\$3.06	\$2.00	\$0.00	\$390.90
Maple									
\$189.39	\$4.46	\$3.13	\$146.70	\$0.82	\$41.34	\$3.06	\$2.00	\$0.00	\$390.90

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$815.65	\$477.31	\$0.00
Western Hemlock / Fir	\$0.00	\$638.28	\$295.30	\$0.00
Sitka Spruce	\$0.00	\$556.36	\$117.01	\$0.00
Alder (Red)	\$0.00	\$761.59	\$370.69	\$0.00
Maple	\$0.00	\$457.00	\$66.10	\$0.00



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Summary

Amortized

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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	1,380	\$477.31	\$658,687.80
Western Hemlock / Fir	979	\$295.30	\$289,098.70
Sitka Spruce	73	\$117.01	\$8,541.73
Alder (Red)	1,674	\$370.69	\$620,535.06
Maple	105	\$66.10	\$6,940.50

Gross Timber Sale Value

Recovery: \$1,583,803.79

Prepared By: Michele Huffman

Phone: 503-325-5451

Road Maintenance Cost Summary (Interim and Post Harvest)

Sale: Hard Target
Date: July 16, 2021
By: Ryan Simpson FL

MBF: 4,211.00
\$/MBF: \$4.25

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Interim Operations	Grader 14G	\$875	1	8	\$113	\$1,779
	Dump Truck 12CY	\$184	1	4	\$89	\$540
	Rubber tired backhoe	\$361	1	4	\$87	\$709
	Vibratory Roller	\$875	1	4	\$87	\$1,223
Interim Operations	Grader 14G	\$875	1	8	\$113	\$1,779
Final Road Maintenance	Grader 14G	\$875	1	22	\$113	\$3,361
	Dump Truck 12CY	\$184	2	12	\$89	\$1,436
	FE Loader C966	\$875	1	8	\$94	\$1,627
	Vibratory Roller	\$875	1	22	\$87	\$2,789
	Water Truck 2,500 gallon	\$214	1	12	\$101	\$1,426
	Rubber tired backhoe	\$361	1	6	\$87	\$883
	Labor			8	\$45	\$360
Total						\$17,912

Interim Operations Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	2.5	2.0	0.8	6

Final Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	1.5	4.2	2.8	22
Vibratory Roller	1.5	4.2	2.8	22

Process and compact: All crushed rock roads

Ebsen Road 2.0 Miles

Sarajarvie Ridge Road 0.5 Miles

Gilmore Ridge Road 0.6 Miles

Unnamed Spur 1.1 Miles

Grade & Process Total = 4.2 Miles

Site Prep Appraisal

Sale Number: AT-341-2022-W00608-01
Sale Name: Hard Target
Date: 07/12/2021

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	E	17	17	\$145.00	\$2,436.00
2	MC	E	10	10	\$145.00	\$1,450.00
3	R/W	E	3	3	\$145.00	\$435.00
In-unit Piling						Sub Total = \$4,321.00

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	7	43	\$1,670.40	41	\$5.00	\$203.00
2	7	90	\$3,480.00	27	\$5.00	\$135.00
Materials						Sub Total = \$338.00

*Cost includes separating firewood

Move-In Allowance	Number of Move-In's	Total Move-In Allowance	Move-In	Sub Total =
\$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	
0	\$89.00	\$0.00	8	\$145.00	\$1,160.00	
Sub Total =						\$1,160.00
Grand Total =						\$12,904.40

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Hard Target

Project No. 1: ROAD CONSTRUCTION:

<u>Road segment</u>	<u>Length (Sta)</u>	<u>Length (Mile)</u>	<u>Cost</u>
1A, 1B-1C			
1D-1E,	12.55	0.24	\$28,037.40
2D, 2E-2F			
1F-1G, 1H-1I	25.00	0.47	\$12,890.43
Road Maint.			\$8,984.64
Move-In			\$4,715.77
TOTALS	37.55	0.71	\$54,628

Project No. 2: ROAD IMPROVEMENT:

<u>Road segment</u>	<u>Length (Sta)</u>	<u>Length (Mile)</u>	<u>Cost</u>
I1 to I2	81.25	1.54	\$19,138.97
Road Maint.			\$4,201.46
Move-In			\$2,205.23
TOTALS		1.54	\$25,546

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>
Project No. 3: Stream Enhancement		\$20,000.00
TOTAL		\$20,000

GRAND TOTAL **\$100,174**

Compiled By: W. Lawrence / C. Hatcher FL Date: 07/12/2021

Move In and Maintenance Calculator for Construction and Improvement

SALE NAME: Hard Target

Project No. 1: ROAD CONSTRUCTION:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Length/Mile</u>	<u>Cost</u>
Surfaced	1A, 1B-1C			
	1D-1E,	12.55	0.24	\$28,037.40
	2A, 2B-2C,			
	2D, 2E-2F			
Unsurfaced	1F-1G, 1H-1I	25.00	0.47	\$12,890.43
TOTALS			0.71	\$40,928

Project No. 2: ROAD IMPROVEMENT:

<u>Road segment</u>	<u>Length/Sta</u>	<u>Length/Mile</u>	<u>Cost</u>
I1 to I2	81.25	1.54	\$19,138.97
TOTALS	81.25	1.54	\$19,139

MOVE IN (Construction & Improvement Only)

<u>Equipment</u>	<u>Length/Mile</u>	<u>Cost</u>
Dozer (D8)		\$1,581.00
Excavator (C330)		\$1,581.00
Grader (14G)		\$875.00
Vibratory Roller		\$875.00
Water Truck (2,500 gallons)		\$214.00
Front End Loader (C966)		\$875.00
Dump Trucks (12cy) x5		\$920.00
TOTAL		\$6,921.00

ROAD MAINTENANCE (Construction & Improvement Only)

	<u>Length/Mile</u>	<u>Cost</u>
Quarry Road, Tidewater, Ebsen, Sarajarvie, Gilmore	4.35	\$13,186.10
TOTAL		\$13,186.10

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: _____
 ROAD: 1A, 1Bto1C(6.20), 1Dto1E(1.35), 1Fto1G(23.50)
 1Hto1I(1.5), 2A, 2Bto2C(1.20), 2D, 2Eto2F(3.80)

NEW CONSTRUCTION: 37.55 STATIONS 0.71 MILES
 IMPROVEMENT: _____ STATIONS 0.00 MILES

POINTS:

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
1A Scatter outside of right of way	0.20	x	\$ 1,503	=	\$300.60
1B to 1C Scatter outside of right of way	0.60	x	\$ 1,503	=	\$901.80
1D to 1E Scatter outside of right of way	0.20	x	\$ 1,503	=	\$300.60
1F to 1G Scatter outside of right of way	2.50	x	\$ 1,503	=	\$3,757.50
1H to 1I Scatter outside of right of way	0.30	x	\$ 1,503	=	\$450.90
2A Scatter outside of right of way	0.20	x	\$ 1,503	=	\$300.60
2B to 2C Scatter outside of right of way	0.25	x	\$ 1,503	=	\$375.75
2D Scatter outside of right of way	0.10	x	\$ 1,503	=	\$150.30
2E to 2F Scatter outside of right of way	0.45	x	\$ 1,503	=	\$676.35

SUB TOTAL FOR CLEARING & GRUBBING \$7,214

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
1A Construct roadside landing (C330) (\$/hr.)	2.0	x	\$175.00	=	\$350.00
1B to 1C Common drift (≤ 50% slopes) (\$/cy)	900.0	x	\$2.02	=	\$1,818.00
Embankment compaction (\$/cy)	900.0	x	\$0.79	=	\$711.00
Landing construction (\$/ldg)	1	x	\$438.00	=	\$438.00
1D to 1E Common drift (≤ 50% slopes) (\$/cy)	150.0	x	\$2.02	=	\$303.00
Embankment compaction (\$/cy)	150.0	x	\$0.79	=	\$118.50
Landing construction (\$/ldg)	1	x	\$438.00	=	\$438.00
1F to 1G Common drift (≤ 50% slopes) (\$/cy)	1,700.0	x	\$2.02	=	\$3,434.00
Embankment compaction (\$/cy)	1,700.0	x	\$0.79	=	\$1,343.00
Landing construction (\$/ldg)	2	x	\$438.00	=	\$876.00
1H to 1I Balanced Construction (\$/Sta.)	1.50	x	\$138.00	=	\$207.00
Landing construction (\$/ldg)	1	x	\$438.00	=	\$438.00
2A Construct roadside landing (C330) (\$/hr.)	2.0	x	\$175.00	=	\$350.00
2B to 2C Drift earth up to 200' (\$/Sta.)	1.20	x	\$214.00	=	\$256.80
Landing construction (\$/ldg)	1	x	\$438.00	=	\$438.00
2D Construct roadside landing (C330) (\$/hr.)	2.0	x	\$175.00	=	\$350.00
2E to 2F Drift earth up to 200' (\$/Sta.)	3.80	x	\$214.00	=	\$813.20
Landing construction (\$/ldg)	1.0	x	\$438.00	=	\$438.00

SUB TOTAL FOR EXCAVATION \$13,121

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
1B to 1C									
0+00	18" CPP	40	\$21.95	\$878.00					
4+70	18" CPP	30	\$21.95	\$658.50					
2E to 2F									
2+00	18" CPP	30	\$21.95	\$658.50					

Description	Quantity	Rate	Cost
Other/miscellaneous:			
Culvert stakes & markers: 6'x2 1/2" white fiberglass (Carsonite) posts	3	\$23.00	\$69.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION \$2,264

Subtotal of Clearing, Exc., Culv. **\$22,599**

SURFACING		Description	Stations/ amount	x	Rate/ sta/amt	Cost
Subgrade prep: 1B -1C, 1D-1E, 2B-2C, 2E -2F		Grade, Shape and Ditch 16'	12.55	x	\$27.91	\$350.27
1B -1C, 1D-1E, 2B-2C, 2E -2F		Subgrade Compaction	12.55	x	\$22.69	\$284.76
1F-1G, 1H-1I		Grade and Shape 14' Outsloped Dirt Road	25.00	x	\$20.63	\$515.75
1F-1G, 1H-1I		Subgrade Compaction Dirt Road	25.00	x	\$22.69	\$567.25

ROAD SEGMENT 1A				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1A		0+00				
				Volume (CY) per		Number of				
Junction Rock	1 1/2"-0" crushed	0+00	N/A	load	11	loads	2.00	22	\$6.05	\$133
Roadside Landing	6"-0" pit-run	0+00	N/A	landing	99	landings	1	99	\$6.63	\$656
Total Rock for Road Segment:				1A				121		

\$789

ROAD SEGMENT 1B to 1C				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1B to 1C		0+00 to 6+20				
				Volume (CY) per		Number of				
Junction Rock	1 1/2"-0" crushed	0+00	N/A	junction	11	junctions	1.00	11	\$6.05	\$67
Base Rock	4"-0" crushed	0+00 to 6+20	10	station	63	stations	6.20	391	\$6.05	\$2,363
Turnarounds	4"-0" crushed	1+85	10	TA	22	TA's	1	22	\$6.05	\$133
Turnouts	4"-0" crushed	3+70	10	TO	33	TO's	1	33	\$6.05	\$200
Traction Rock	1 1/2"-0" crushed	2+50 to 5+00	2	station	13	stations	2.50	33	\$6.05	\$197
Traction Rock Turnouts	1 1/2"-0" crushed	3+70	2	TO	11	TO's	1	11	\$6.05	\$67
Landings	6"-0" pit-run	6+20	N/A	landing	77	landings	1	77	\$6.63	\$511
Total Rock for Road Segment:				1B to 1C				577		

\$3,536

ROAD SEGMENT 1D to 1E				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1D to 1E		0+00 to 1+35				
				Volume (CY) per		Number of				
Junction Rock	4"-0" crushed	0+00	N/A	junction	11	junctions	1	11	\$6.05	\$67
Base Rock	4"-0" crushed	0+00 to 1+35	10	station	63	stations	1.35	86	\$6.05	\$520
Landings	6"-0" pit-run	1+35	N/A	landing	77	landings	1	77	\$6.63	\$511
Total Rock for Road Segment:				1D to 1E				174		

\$1,097

ROAD SEGMENT 1F to 1G				POINT TO POINT	Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost		
Application	Rock Size and Type	Location	Depth of Rock (inches)	1F to 1G	0+00 to 23+50						
				Volume (CY) per	Number of						
Base Rock	4"-0" crushed	0+00 to 1+50	8	station	50	stations	1.50	75	\$6.05	\$454	
Surfacing	1 1/2"-0" crushed	0+00 to 1+50	2	station	13	stations	1.50	20	\$6.05	\$118	
Subgrade Reinforcement	6"-0" pit-run	0+00 to 23+50	N/A	load	11	loads	10.00	110	\$6.63	\$729	
Total Rock for Road Segment:				1F to 1G				205			\$1,301
ROAD SEGMENT 2A				POINT TO POINT	Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost		
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A	0+00						
				Volume (CY) per	Number of						
Junction Rock	1 1/2"-0" crushed	0+00	N/A	load	11	loads	2	22	\$6.05	\$133	
Roadside Landing	6"-0" pit-run	0+00	N/A	landing	77	Landings	1	77	\$6.63	\$511	
Total Rock for Road Segment:				2A				99			\$644
ROAD SEGMENT 2B to 2C				POINT TO POINT	Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost		
Application	Rock Size and Type	Location	Depth of Rock (inches)	2B to 2C	0+00 to 1+20						
				Volume (CY) per	Number of						
Junction Rock	1 1/2"-0" crushed	0+00	N/A	junction	22	junctions	1	22	\$6.05	\$133	
Base Rock	6"-0" pit-run	0+00 to 1+20	10	station	81	stations	1.20	97	\$6.63	\$644	
Landings	6"-0" pit-run	1+20	N/A	landing	77	Landings	1	77	\$6.63	\$511	
Total Rock for Road Segment:				2B to 2C				196			\$1,288
ROAD SEGMENT 2D				POINT TO POINT	Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost		
Application	Rock Size and Type	Location	Depth of Rock (inches)	2D	0+00						
				Volume (CY) per	Number of						
Junction Rock	1 1/2"-0" crushed	0+00	N/A	load	11	loads	2	22	\$6.05	\$133	
Roadside Landing	6"-0" pit-run	0+00	N/A	landing	77	Landings	1	77	\$6.63	\$511	
Total Rock for Road Segment:				2D				99			\$644
ROAD SEGMENT 2E to 2F				POINT TO POINT	Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost		
Application	Rock Size and Type	Location	Depth of Rock (inches)	2E to 2F	0+00 to 3+80						
				Volume (CY) per	Number of						
Junction Rock	1 1/2"-0" crushed	0+00	N/A	junction	22	junctions	1	22	\$6.05	\$133	
Base Rock	6"-0" pit-run	0+00 to 3+80	10	station	81	stations	3.80	308	\$6.63	\$2,041	
Turnaround	6"-0" pit-run	2+70	10	turnaround	17	turnarounds	1	17	\$6.63	\$113	
Landings	6"-0" pit-run	3+80	N/A	landing	77	Landings	1	77	\$6.63	\$511	
Total Rock for Road Segment:				2E to 2F				424			\$2,797
Processing:											
				Description	No.sta	Rate/sta	Cost				
				Water, Process & Compact Base Rock (4"-0"):	14.05	\$63.48	\$891.89				
				Water, Process & Compact Surface / Traction Rock (1 1/2"-0"):	4.00	\$63.48	\$253.92				
				Spread and compact 6"-0" pit-run rock (D8):	5.00	\$35.45	\$177.25				
SUB TOTAL FOR SURFACING				6"-0"pr	4"-0" crushed	1 1/2"-0" crushed	Total				
				1,093	618	184	1,895	\$15,137			
SPECIAL PROJECTS											
					Description	Cy/Amount	Rate	Cost			
					Pit-run development	1,093	\$2.92	\$3,192			
SUB TOTAL FOR SPECIAL PROJECTS										\$3,192	
Subtotal of Surfacing & Spec. Proj.										\$18,329	
Subtotal of Clearing, Exc., Culv.										\$22,599	
GRAND TOTAL										\$40,928	

Compiled By: W. Lawrence / J. Bush

Date: 04/12/2021

Projects Road Maintenance Cost Summary

Sale: Hard Target
Date: 06-Jul-21
By: W. Lawrence

Type	Equipment/Rationale			Hours	Rate	Cost
Project Work	Grader 14G			39	\$113	\$4,424
Final Haul	Dump Truck 12CY			20	\$89	\$1,780
Road	FE Loader C966			10	\$94	\$940
Maintenance	Vibratory Roller			39	\$87	\$3,406
	Water Truck 2,500 gallon			26	\$101	\$2,636
Total						\$13,186

Production Rates

	Miles/day	Distance(miles)	Days
Grader	1.5	4.35	2.9
Vibratory Roller	1.5	4.35	2.9

NOTE:

Tidewater Quarry Road	0.50	Miles
Tidewater Loop Road	1.70	Miles
Ebsen Road	1.40	Miles
Sarjarvie Ridge Road	0.50	Miles
Gilmore Creek Road	0.25	Miles
TOTAL=	4.35	Miles

**Hard Target
Project No 3. Stream Enhancement**

Location	Site	Number of key pieces per site	Root wad attached	\$/site: root wad placement	Include tops	Placement method	\$/piece*	Cost per Site
SE1-SE2	1	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE1-SE2	2	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE1-SE2	3	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE1-SE2	4	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE1-SE2	5	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE3-SE4	6	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE3-SE4	7	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE3-SE4	8	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE3-SE4	9	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE3-SE4	10	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE3-SE4	11	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE3-SE4	12	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE5-SE6	13	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE5-SE6	14	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE5-SE6	15	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE5-SE6	16	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE5-SE6	17	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE5-SE6	18	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE5-SE6	19	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
SE5-SE6	20	5	2.5	\$250	\$50	Cable	\$140.00	\$1,000
Project Total								\$20,000

*\$/log includes transportation cost of piece up to 0.5 miles.

CRUSHED ROCK COST

SALE NAME: Hard Target
 PROJECT: No. 1 and 2
 Stockpile: Tidewater Loop

MATERIAL: 1 1/2"-0" and 4"0"

DATE: 07/06/2021
 BY: C. Hatcher

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I1 to I2	81.25	1,808			2.00	1.00	1.03	0.20	0.10	4.33
1A		22			2.00	0.80	0.84	0.20	0.10	3.94
1B to 1C		654			2.00	0.90	1.06	0.20	0.10	4.26
1D to 1E		97			2.00	0.90	1.02	0.20	0.10	4.22
1F to 1G		95			2.00	1.10	1.23	0.20	0.10	4.63
1H to 1I										
2A		22			2.00	1.20	1.33	0.20	0.10	4.83
2B to 2C		22			2.00	1.25	1.36	0.20	0.10	4.91
2D		22			2.00	1.25	1.38	0.20	0.10	4.93
2E to 2F		22			2.00	1.30	1.44	0.20	0.10	5.04
TOTAL	81.25	2,764								
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					2.00	0.98	1.05	0.20	0.10	AVERAGE HAUL 4.34
Average Round Trip Distance (miles) 8.67										

ROCK HAUL:

Truck type: D20 No. trucks: _____
 Delay min.: 8 Efficiency: 85% Ave haul: \$4.37 /cy
 Load: \$0.60 /cy
 Spread: \$1.08 /cy
 Truck type: D12 No. trucks: 5
 Delay min.: 6 Efficiency: 85%
 Truck type: D10 No. trucks: _____
 Delay min.: 5 Efficiency: 85% Production: cy/day = 723

CRUSHED ROCK HAUL COSTS 2,764 cy @ \$6.05 /cy

PIT RUN ROCK COST

SALE NAME: Hard Target
 PROJECT: No. 1 and 2
 QUARRY: Tidewater Quarry

MATERIAL: Pit Run

DATE: 07/06/2021
 BY: C. Hatcher

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES						Total Haul	
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH		5 MPH
1I to 1J		44			2.00	0.90	1.03	0.20	0.10	4.23
1A		99			2.00	0.70	0.84	0.20	0.10	3.84
1B to 1C		77			2.00	0.80	1.06	0.20	0.10	4.16
1D to 1E		77			2.00	0.80	1.02	0.20	0.10	4.12
1F to 1G		110			2.00	1.00	1.23	0.20	0.10	4.53
1H to 1I										
2A		77			2.00	1.10	1.32	0.20	0.10	4.72
2B to 2C		174			2.00	1.15	1.35	0.20	0.10	4.80
2D		77			2.00	1.15	1.38	0.20	0.10	4.83
2E to 2F		402			2.00	1.20	1.43	0.20	0.10	4.93
TOTAL		1,137								
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					2.0	1.1	1.3	0.2	0.1	AVERAGE HAUL 4.62
Average Round Trip Distance (miles) 9.24										

ROCK HAUL:

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

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

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

Ave haul: \$4.64 /cy
 Load: \$0.72 /cy
 Spread: \$1.26 /cy

Production: cy/day = 680

PIT RUN ROCK HAUL COSTS 1,137 cy @ \$6.63 /cy

**Hard Target
TIMBER CRUISE REPORT
FY 2022**

1. **Sale Area Location:** Portions of Sections 26, 27, 34 & 35 of T6N, R7W, W.M., Clatsop County, OR.
2. **Fund Distribution:** BOF 100% Tax Code: 8-01 (100%)
3. **Sale Acreage by Area:**

Unit	Harvest Type	Gross Acres	Stream Buffer Acres	Existing R/W Acres	New R/W	Reserve Tree Area	Net Acres	Survey Method
1	Modified Clearcut	78	10	1	2	5	60	GIS
2	Modified Clearcut	125	23	1	1	-	100	GIS
3	R/W (in-unit)	-	-	-	-	-	3	GIS
	R/W (Out-of-unit)*	<1			-	-	<1	GIS
TOTALS		203	33	2	-	5	163	

4. **Cruisers and Cruise Dates:** Kevin Berry, John Choate, John Czarnecki, Michele Huffman, and Ryan Simpson (6/15/2021-6/16/2021).

5. Cruise Method and Computation:

Units 1 and 2: Units 1 and 2 were variable plot cruised with a 33.61 BAF. A total of 64 plots were sampled on a 3.5 by 7 chain spacing with a grade to count ratio of 1:2, resulting in 23 grade plots and 41 count plots.

Plot numbers differ from cruise design due to one dropped count plot.

Unit 3 (R/W): Right-of-Way consists of approximately three acres within the sale boundaries of Units 1 and 2. Volume data from the cruise was applied to Unit 3. There is less than one acre of out-of-unit right-of-way that is non-stocked.

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
1 and 2	HARDT	U12	00MC	163

6. Timber Description:

Units 1 and 2 are modified clearcuts with an average age of 75 years. The stands consist of red alder, Douglas-fir, western hemlock, and minor components of bigleaf maple and spruce. The average take red alder is approximately 17 inches DBH and 56 feet to a merchantable top. The average take Douglas-fir is approximately 29 inches DBH and 110 feet to a merchantable top. The average take western hemlock is approximately 23 inches DBH and 74 feet to a merchantable top. The average take maple is 24 inches DBH and 39 feet to a merchantable top. The average take spruce is 22 inches DBH and 63 feet to a merchantable top. Average net volume to be harvested per acre is 27 MBF. All trees were cruised to a merchantable top of six inches DIB, 40% of form point, or an otherwise anticipated break point. A volume adjustment was applied to account for likely hidden defect in Douglas-fir, western hemlock, and red alder.

Unit 3 (R/W) is similar to the timber description above in Units 1 and 2.

7. Statistical Analysis and Stand Summary:

Statistics for Stand B.F. volumes

Unit	Estimated CV	Target SE%	Actual CV	Actual SE%
1 & 2	42.0%	11.0%	53.1%	6.6%

8. Volumes by Species and Log Grade:

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

Conifer

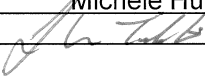
Species	DBH	Net Vol.	2 Saw	3 Saw	4 Saw	% D & B	% Sale
Douglas-fir	29"	1,380	1,260	111	9	7.6%	33%
Western hemlock	23"	979	763	187	29	8.4%	23%
Sitka spruce	22"	73	64	--	9	3.0%	2%
TOTALS	--	2,432	2,087	298	47	--	--

Hardwood

Species	DBH	Net Vol.	12"+	10"-11"	8"-9"	6"-7"	% D & B	% Sale
Red alder	17"	1,674	756	510	101	307	0.6%	40%
Bigleaf maple	24"	105	83	17	3	2	0.7%	2%
TOTALS	--	1,779	839	527	104	309	--	--

TOTAL VOLUME	4,211 MBF
---------------------	------------------

9. Approvals:

Prepared by: Michele Huffman Date: 07/12/2021
 Unit Forester Approval:  Date: 8/2/2021

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

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Hard Target

Units 1 and 2

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 163 **Estimated CV%** 42 Net BF/Acre **SE% Objective** 11% Net BF/Acre

Planned Sale Volume : 4,300 MBF **Estimated Sale Area Value/Acre:** \$7,800/Acre

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

(b) Sample 65 cruise plots (23 grade/ 42 count); (c) Other goals (Determine "automark" thinning standards; X Determine log grades for sale value; X Determine snag and leave tree species and sizes.

B. Cruise Design:

1. Plot Cruises: BAF: 33.61

Cruise Line Direction: Unit 1: 35°/215°, Unit 2: 67°/247°

Cruise Line Spacing 7 (chains) 462 (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, and cedar) 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.

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.

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.

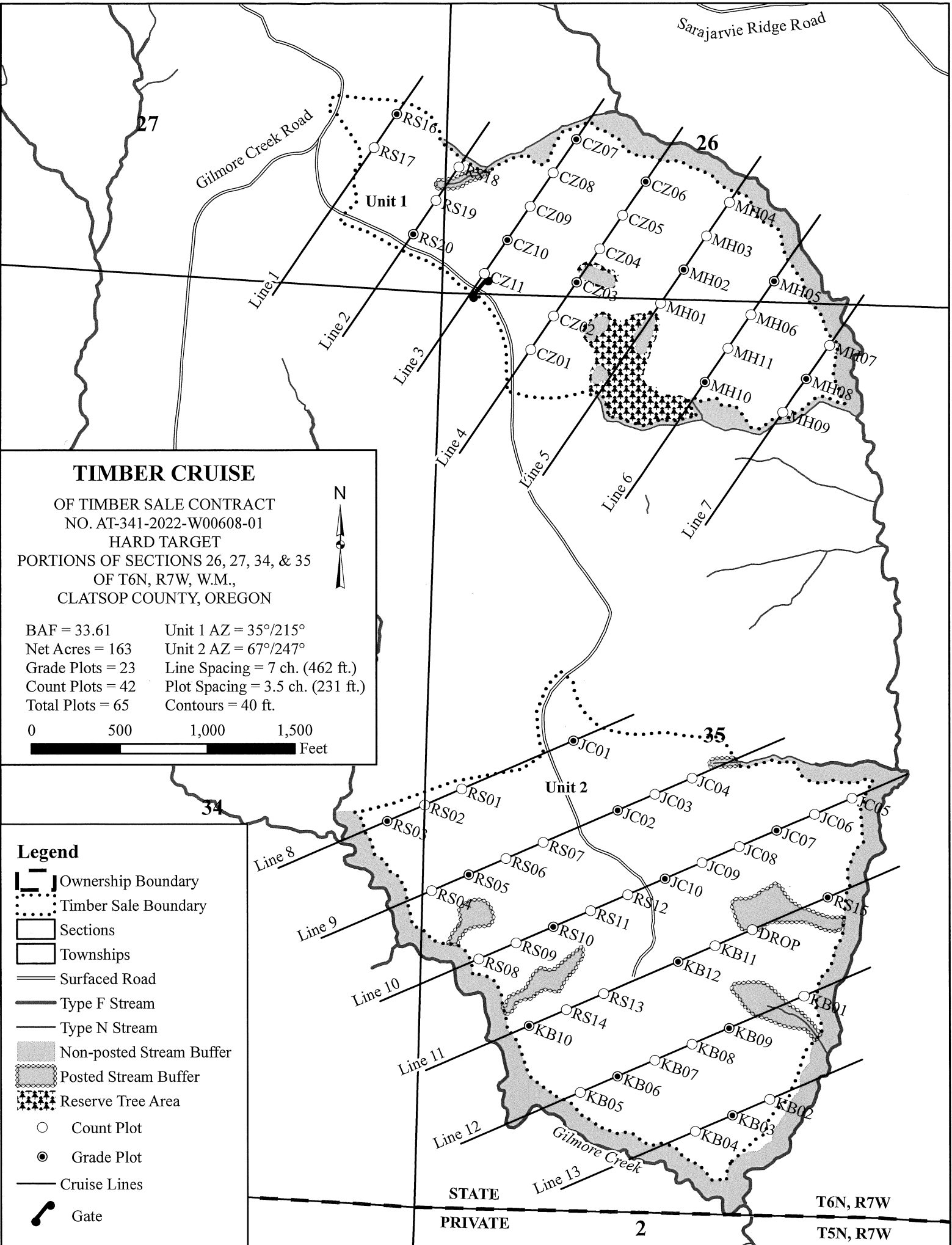
9. **Cruising Equipment:** Relaskop, Rangefinder, Logger’s Tape (with dbh on back), Compass, Allegro II Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint, Permanent Marker.

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: Justin Bush

Approved by: [Signature]

Date: 6/14/2021

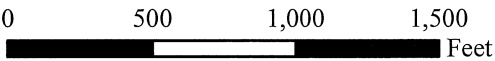


TIMBER CRUISE

OF TIMBER SALE CONTRACT
 NO. AT-341-2022-W00608-01
 HARD TARGET
 PORTIONS OF SECTIONS 26, 27, 34, & 35
 OF T6N, R7W, W.M.,
 CLATSOP COUNTY, OREGON



BAF = 33.61	Unit 1 AZ = 35°/215°
Net Acres = 163	Unit 2 AZ = 67°/247°
Grade Plots = 23	Line Spacing = 7 ch. (462 ft.)
Count Plots = 42	Plot Spacing = 3.5 ch. (231 ft.)
Total Plots = 65	Contours = 40 ft.



Legend

- Ownership Boundary
- Timber Sale Boundary
- Sections
- Townships
- Surfaced Road
- Type F Stream
- Type N Stream
- Non-posted Stream Buffer
- Posted Stream Buffer
- Reserve Tree Area
- Count Plot
- Grade Plot
- Cruise Lines
- Gate

STATE PRIVATE 2 T6N, R7W T5N, R7W

Species, Sort Grade - Board Foot Volumes (Project)

T06N R07W S35 Ty00MC	160.00	Project: HARDT	Page 1
T06N R07W S35 Ty00MC	3.00		
		Acres 163.00	Date 7/16/2021
			Time 8:35:20AM

Spp	So Gr	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre	
							Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
							4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99						
A	DOCU															25	15		0.00	.8
A	DO1S	45	5.5	4,908	4,636	756			100		38	2	60			35	13	195	1.62	23.7
A	DO2S	30	5.2	3,302	3,129	510		100		3	30		67			34	11	137	1.17	22.9
A	DO3S	6	7.8	670	618	101		100		9	41		50			32	8	63	0.77	9.9
A	DO4S	19	5.5	1,991	1,882	307		100		37	28	2	34			25	6	33	0.59	57.0
A Totals		40	5.6	10,871	10,265	1674 1673		55	45		8	34	1	57		30	9	90	0.99	114.3
D	DOCU															4	18		0.00	.6
D	DO2S	91	7.7	8,368	7,727	1,260			17	83		3	1	96		38	18	491	2.83	15.8
D	DO3S	8	7.0	732	681	111		89	11		17	14	23	46		30	10	92	0.98	7.4
D	DO4S	1	7.0	59	55	9		100			100					17	7	26	0.53	2.1
D Totals		33	7.6	9,159	8,463	1380 1379		8	17	76		2	4	3	91	34	15	328	2.25	25.8
H	DO2S	77	8.6	5,121	4,679	763			33	67		1	2	10	87	38	16	389	2.55	12.0
H	DO3S	20	7.7	1,243	1,147	187		73	27		13	11	12	64		33	10	109	1.10	10.5
H	DO4S	3	7.0	190	177	29		100			79	21				20	7	27	0.56	6.6
H Totals		23	8.4	6,554	6,004	979		17	31	52		5	4	10	80	32	12	206	1.73	29.2
S	DO2S	87	3.4	404	390	64			100					100		40	14	280	1.98	1.4
S	DO4S	13		56	56	9		100			100					20	8	40	0.80	1.4
S Totals		2	3.0	460	446	73		13	87		13			87		30	11	160	1.58	2.8
M	DOCU															28	6		0.00	.5
M	DO1S	79	.7	514	511	83			12	88		16	55	17	12	29	19	400	3.30	1.3
M	DO2S	16		104	104	17		100						100		34	10	130	1.00	.8
M	DO3S	3	4.8	20	19	3		100			100					19	8	36	1.48	.5
M	DO4S	2		12	12	2		100				100				30	7	50	1.40	.2
M Totals		3	.7	651	646	105		21	10	69		16	45	30	10	29	12	196	1.85	3.3
Totals			6.8	27,694	25,823	4211 4209		29	32	39		6	17	5	73	31	10	147	1.35	175.4

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)							Page 1											
		Project: HARDT							Date 7/16/2021											
									Time 8:35:20AM											
T06N R07W S35 T00MC								T06N R07W S35 T00MC												
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt											
06N	07W	35	U12_TAKE	00MC	160.00	64	113	1	W											
Spp	So	Gr	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
				Def%	Gross	Net		Log Scale Dia.			Log Length					Ln	Dia	Bd	CF/Lf	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf	
A	DO	CU														25	15		0.00	.8
A	DO	1S	45	5.5	4,908	4,636	742		100				38	2	60	35	13	195	1.62	23.7
A	DO	2S	30	5.2	3,302	3,129	501		100			3	30	67		34	11	137	1.17	22.9
A	DO	3S	6	7.8	670	618	99		100			9	41	50		32	8	63	0.77	9.9
A	DO	4S	19	5.5	1,991	1,882	301		100			37	28	2	34	25	6	33	0.59	57.0
A	Totals		40	5.6	10,871	10,265	1,642		55	45		8	34	1	57	30	9	90	0.99	114.3
H	DO	2S	77	8.6	5,121	4,679	749		33	67		1	2	10	87	38	16	389	2.55	12.0
H	DO	3S	20	7.7	1,243	1,147	184		73	27		13	11	12	64	33	10	109	1.10	10.5
H	DO	4S	3	7.0	190	177	28		100			79	21			20	7	27	0.56	6.6
H	Totals		23	8.4	6,554	6,004	961		17	31	52	5	4	10	80	32	12	206	1.73	29.2
D	DO	CU														4	18		0.00	.6
D	DO	2S	91	7.7	8,368	7,727	1,236		17	83			3	1	96	38	18	491	2.83	15.8
D	DO	3S	8	7.0	732	681	109		89	11		17	14	23	46	30	10	92	0.98	7.4
D	DO	4S	1	7.0	59	55	9		100			100				17	7	26	0.53	2.1
D	Totals		33	7.6	9,159	8,463	1,354		8	17	76	2	4	3	91	34	15	328	2.25	25.8
M	DO	CU														28	6		0.00	.5
M	DO	1S	79	.7	514	511	82		12	88		16	55	17	12	29	19	400	3.30	1.3
M	DO	2S	16		104	104	17		100					100		34	10	130	1.00	.8
M	DO	3S	3	4.8	20	19	3		100			100				19	8	36	1.48	.5
M	DO	4S	2		12	12	2		100				100			30	7	50	1.40	.2
M	Totals		3	.7	651	646	103		21	10	69	16	45	30	10	29	12	196	1.85	3.3
S	DO	2S	87	3.4	404	390	62		100					100		40	14	280	1.98	1.4
S	DO	4S	13		56	56	9		100			100				20	8	40	0.80	1.4
S	Totals		2	3.0	460	446	71		13	87		13		87		30	11	160	1.58	2.8
Type Totals				6.8	27,694	25,823	4,132		29	32	39	6	17	5	73	31	10	147	1.35	175.4

T06N R07W S35 T00MC		T06N R07W S35 T00MC
Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdBft		
06N 07W 35 U3_R/W 00MC 3.00 64 113 1 W		

Spp	So	Gr	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre		
								Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft		CF/ Lf	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99						
A	DO	CU														25	15		0.00	.8	
A	DO	1S	45	5.5	4,908	4,636	14			100			38	2	60	35	13	195	1.62	23.7	
A	DO	2S	30	5.2	3,302	3,129	9	100				3	30		67	34	11	137	1.17	22.9	
A	DO	3S	6	7.8	670	618	2	100				9	41		50	32	8	63	0.77	9.9	
A	DO	4S	19	5.5	1,991	1,882	6	100				37	28	2	34	25	6	33	0.59	57.0	
A	Totals		40	5.6	10,871	10,265	31		55	45		8	34	1	57	30	9	90	0.99	114.3	
H	DO	2S	77	8.6	5,121	4,679	14			33	67		1	2	10	87	38	16	389	2.55	12.0
H	DO	3S	20	7.7	1,243	1,147	3		73	27		13	11	12	64	33	10	109	1.10	10.5	
H	DO	4S	3	7.0	190	177	1	100				79	21			20	7	27	0.56	6.6	
H	Totals		23	8.4	6,554	6,004	18		17	31	52	5	4	10	80	32	12	206	1.73	29.2	
D	DO	CU														4	18		0.00	.6	
D	DO	2S	91	7.7	8,368	7,727	23			17	83			3	1	96	38	18	491	2.83	15.8
D	DO	3S	8	7.0	732	681	2		89	11		17	14	23	46	30	10	92	0.98	7.4	
D	DO	4S	1	7.0	59	55	0	100				100				17	7	26	0.53	2.1	
D	Totals		33	7.6	9,159	8,463	25		8	17	76	2	4	3	91	34	15	328	2.25	25.8	
M	DO	CU														28	6		0.00	.5	
M	DO	1S	79	.7	514	511	2			12	88		16	55	17	12	29	19	400	3.30	1.3
M	DO	2S	16		104	104	0	100							100	34	10	130	1.00	.8	
M	DO	3S	3	4.8	20	19	0	100				100				19	8	36	1.48	.5	
M	DO	4S	2		12	12	0	100					100			30	7	50	1.40	.2	
M	Totals		3	.7	651	646	2		21	10	69	16	45	30	10	29	12	196	1.85	3.3	
S	DO	2S	87	3.4	404	390	1			100					100	40	14	280	1.98	1.4	
S	DO	4S	13		56	56	0	100				100				20	8	40	0.80	1.4	
S	Totals		2	3.0	460	446	1		13	87		13			87	30	11	160	1.58	2.8	
Type Totals				6.8	27,694	25,823	77		29	32	39	6	17	5	73	31	10	147	1.35	175.4	

TC PSTATS		PROJECT STATISTICS							PAGE	1	
		PROJECT HARDT							DATE	7/16/2021	
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt	
06N	07	35	U12	00MC		163.00	64	401	1	W	
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL			64	401	6.3						
CRUISE			28	131	4.7	15,277	.9				
DBH COUNT											
REFOREST											
COUNT			36	241	6.7						
BLANKS											
100 %											
STAND SUMMARY											
		SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
R ALDER		67	63.8	17.2	56	24.7	102.4	10,871	10,805	3,349	3,349
WHEMLOCK		19	13.1	22.9	74	7.8	37.3	6,554	6,455	1,612	1,612
DOUG FIR		18	8.2	28.7	110	6.9	36.8	9,159	9,100	1,949	1,949
BL MAPLE		8	2.5	23.9	39	1.6	7.9	651	646	173	173
CEDLEAV		6	2.1	24.5	40	1.4	6.8	709	700	181	181
HEMLEAV		1	.4	55.0	85	0.8	6.3	1,249	1,222	272	272
S SPRUCE		1	1.4	22.0	63	0.8	3.7	460	446	132	132
SNAG		1	1.3	21.0	36	0.7	3.2				
DOUGLEAV		5	.5	30.4	116	0.5	2.6	674	674	143	143
SPRUCELV		4	.3	34.2	81	0.4	2.1	367	367	92	92
MAPLELV		1	.1	45.0	55	0.2	1.6	281	281	52	52
TOTAL		<i>131</i>	<i>93.7</i>	<i>20.3</i>	<i>63</i>	<i>46.7</i>	<i>210.6</i>	<i>30,973</i>	<i>30,696</i>	<i>7,956</i>	<i>7,956</i>
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL	68.1	COEFF		SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER		42.3	5.2	178	188	198					
WHEMLOCK		74.2	17.5	611	741	871					
DOUG FIR		47.1	11.4	1,160	1,309	1,459					
BL MAPLE		80.5	30.3	284	408	531					
CEDLEAV		112.8	50.2	644	1,293	1,943					
HEMLEAV											
S SPRUCE											
SNAG											
DOUGLEAV				2,210	2,210	2,210					
SPRUCELV				2,535	2,535	2,535					
MAPLELV											
TOTAL		<i>113.2</i>	<i>10.0</i>	<i>556</i>	<i>618</i>	<i>680</i>	<i>512</i>	<i>128</i>	<i>57</i>		
CL	68.1	COEFF		SAMPLE TREES - CF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER		36.4	4.4	56	58	61					
WHEMLOCK		61.5	14.5	149	175	200					
DOUG FIR		39.9	9.7	247	274	300					
BL MAPLE		71.9	27.1	76	105	133					
CEDLEAV		107.5	47.9	151	289	428					
HEMLEAV											
S SPRUCE											
SNAG											
DOUGLEAV				465	465	465					
SPRUCELV				614	614	614					
MAPLELV											
TOTAL		<i>96.5</i>	<i>8.6</i>	<i>133</i>	<i>146</i>	<i>158</i>	<i>372</i>	<i>93</i>	<i>41</i>		

PROJECT STATISTICS
PROJECT HARDT

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
06N	07	35	U12	00MC	163.00	64	401	1	W

CL	68.1	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
R ALDER		87.9	11.0	57	64	71			
WHEMLOCK		183.7	22.9	10	13	16			
DOUG FIR		145.1	18.1	7	8	10			
BL MAPLE		254.7	31.8	2	3	3			
CEDLEAV		308.0	38.5	1	2	3			
HEMLEAV		671.1	83.8	0	0	1			
S SPRUCE		330.5	41.3	1	1	2			
SNAG		366.5	45.8	1	1	2			
DOUGLEAV		499.5	62.4	0	1	1			
SPRUCELV		692.5	86.5	0	0	1			
MAPLELV		454.5	56.8	0	0	0			
TOTAL		<i>48.9</i>	<i>6.1</i>	<i>88</i>	<i>94</i>	<i>99</i>	<i>96</i>	<i>24</i>	<i>11</i>

CL	68.1	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
R ALDER		85.2	10.6	92	102	113			
WHEMLOCK		178.2	22.3	29	37	46			
DOUG FIR		139.9	17.5	30	37	43			
BL MAPLE		249.2	31.1	5	8	10			
CEDLEAV		306.1	38.2	4	7	9			
HEMLEAV		671.1	83.8	1	6	12			
S SPRUCE		330.5	41.3	2	4	5			
SNAG		366.5	45.8	2	3	5			
DOUGLEAV		525.3	65.6	1	3	4			
SPRUCELV		629.4	78.6	0	2	4			
MAPLELV		454.5	56.8	1	2	2			
TOTAL		<i>37.4</i>	<i>4.7</i>	<i>201</i>	<i>211</i>	<i>220</i>	<i>56</i>	<i>14</i>	<i>6</i>

CL	68.1	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
R ALDER		87.1	10.9	9,630	10,805	11,980			
WHEMLOCK		180.6	22.6	4,999	6,455	7,912			
DOUG FIR		139.1	17.4	7,519	9,100	10,681			
BL MAPLE		264.2	33.0	433	646	859			
CEDLEAV		395.4	49.4	354	700	1,046			
HEMLEAV		671.1	83.8	198	1,222	2,247			
S SPRUCE		330.5	41.3	262	446	630			
SNAG									
DOUGLEAV		549.0	68.6	212	674	1,135			
SPRUCELV		602.6	75.3	91	367	642			
MAPLELV		454.5	56.8	122	281	441			
TOTAL		<i>53.1</i>	<i>6.6</i>	<i>28,658</i>	<i>30,696</i>	<i>32,734</i>	<i>113</i>	<i>28</i>	<i>13</i>

TC PSTATS		PROJECT STATISTICS							PAGE	1	
		PROJECT HARDT							DATE	7/16/2021	
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
06N	07	35	U12 TAKE	00MC	163.00	128	716	1	W		
06N	07W	35	U3_R/W	00MC							
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL			128	716	5.6						
CRUISE			46	226	4.9	14,500	1.6				
DBH COUNT											
REFOREST											
COUNT			82	490	6.0						
BLANKS											
100 %											
STAND SUMMARY											
		SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
R ALDER		134	63.8	17.2	56	24.7	102.4	10,871	10,805	3,349	3,349
WHEMLOCK		38	13.1	22.9	74	7.8	37.3	6,554	6,455	1,612	1,612
DOUG FIR		36	8.2	28.7	110	6.9	36.8	9,159	9,100	1,949	1,949
BL MAPLE		16	2.5	23.9	39	1.6	7.9	651	646	173	173
S SPRUCE		2	1.4	22.0	63	0.8	3.7	460	446	132	132
TOTAL		<i>226</i>	<i>89.0</i>	<i>19.7</i>	<i>63</i>	<i>42.4</i>	<i>188.0</i>	<i>27,694</i>	<i>27,452</i>	<i>7,217</i>	<i>7,217</i>
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL	68.1	COEFF	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER		42.2	3.6	181	188	195					
WHEMLOCK		73.2	11.9	653	741	829					
DOUG FIR		46.4	7.7	1,208	1,309	1,411					
BL MAPLE		77.7	20.0	326	408	489					
S SPRUCE				320	320	320					
TOTAL		<i>112.9</i>	<i>7.5</i>	<i>441</i>	<i>476</i>	<i>512</i>	<i>509</i>	<i>127</i>	<i>57</i>		
CL	68.1	COEFF	SAMPLE TREES - CF			# OF TREES REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER		36.2	3.1	56	58	60					
WHEMLOCK		60.7	9.8	158	175	192					
DOUG FIR		39.3	6.5	256	274	292					
BL MAPLE		69.4	17.9	86	105	124					
S SPRUCE				95	95	95					
TOTAL		<i>90.0</i>	<i>6.0</i>	<i>109</i>	<i>116</i>	<i>123</i>	<i>323</i>	<i>81</i>	<i>36</i>		
CL	68.1	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER		155.4	13.7	55	64	73					
WHEMLOCK		271.9	24.0	10	13	16					
DOUG FIR		222.7	19.7	7	8	10					
BL MAPLE		365.3	32.3	2	3	3					
S SPRUCE		467.2	41.3	1	1	2					
TOTAL		<i>122.8</i>	<i>10.8</i>	<i>79</i>	<i>89</i>	<i>99</i>	<i>603</i>	<i>151</i>	<i>67</i>		
CL	68.1	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER		152.5	13.5	89	102	116					
WHEMLOCK		264.7	23.4	29	37	46					
DOUG FIR		216.3	19.1	30	37	44					
BL MAPLE		357.9	31.6	5	8	10					
S SPRUCE		467.2	41.3	2	4	5					
TOTAL		<i>114.2</i>	<i>10.1</i>	<i>169</i>	<i>188</i>	<i>207</i>	<i>520</i>	<i>130</i>	<i>58</i>		

PROJECT STATISTICS
PROJECT HARDT

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
06N	07	35	U12 TAKE	00MC	163.00	128	716	1	W
06N	07W	35	U3 R/W	00MC					

CL	68.1	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
R ALDER		154.4	13.6	9,332	10,805	12,279			
WHEMLOCK		267.9	23.7	4,928	6,455	7,982			
DOUG FIR		215.3	19.0	7,370	9,100	10,830			
BL MAPLE		378.0	33.4	430	646	862			
S SPRUCE		467.2	41.3	262	446	629			
TOTAL		<i>123.1</i>	<i>10.9</i>	<i>24,467</i>	<i>27,452</i>	<i>30,438</i>	<i>605</i>	<i>151</i>	<i>67</i>

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT HARDT		DATE 7/16/2021				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
06N	07W	35	U12 TAKE	00MC	160.00	64	358	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES				
TOTAL		64	358	5.6						
CRUISE		23	113	4.9	14,233		.8			
DBH COUNT										
REFOREST										
COUNT		41	245	6.0						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
R ALDER	67	63.8	17.2	56	24.7	102.4	10,871	10,805	3,349	3,349
WHEMLOCK	19	13.1	22.9	74	7.8	37.3	6,554	6,455	1,612	1,612
DOUG FIR	18	8.2	28.7	110	6.9	36.8	9,159	9,100	1,949	1,949
BL MAPLE	8	2.5	23.9	39	1.6	7.9	651	646	173	173
S SPRUCE	1	1.4	22.0	63	0.8	3.7	460	446	132	132
TOTAL	<i>113</i>	<i>89.0</i>	<i>19.7</i>	<i>63</i>	<i>42.4</i>	<i>188.0</i>	<i>27,694</i>	<i>27,452</i>	<i>7,217</i>	<i>7,217</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER	42.3	5.2	178	188	198					
WHEMLOCK	74.2	17.5	611	741	871					
DOUG FIR	47.1	11.4	1,160	1,309	1,459					
BL MAPLE	80.5	30.3	284	408	531					
S SPRUCE										
TOTAL	<i>113.1</i>	<i>10.6</i>	<i>426</i>	<i>476</i>	<i>527</i>	<i>511</i>	<i>128</i>	<i>57</i>		
CL: 68.1 %	COEFF	SAMPLE TREES - CF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER	36.4	4.4	56	58	61					
WHEMLOCK	61.5	14.5	149	175	200					
DOUG FIR	39.9	9.7	247	274	300					
BL MAPLE	71.9	27.1	76	105	133					
S SPRUCE										
TOTAL	<i>90.2</i>	<i>8.5</i>	<i>106</i>	<i>116</i>	<i>125</i>	<i>325</i>	<i>81</i>	<i>36</i>		
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER	87.9	11.0	57	64	71					
WHEMLOCK	183.7	22.9	10	13	16					
DOUG FIR	145.1	18.1	7	8	10					
BL MAPLE	254.7	31.8	2	3	3					
S SPRUCE	330.5	41.3	1	1	2					
TOTAL	<i>54.8</i>	<i>6.8</i>	<i>83</i>	<i>89</i>	<i>95</i>	<i>120</i>	<i>30</i>	<i>13</i>		
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER	85.2	10.6	92	102	113					
WHEMLOCK	178.2	22.3	29	37	46					
DOUG FIR	139.9	17.5	30	37	43					
BL MAPLE	249.2	31.1	5	8	10					
S SPRUCE	330.5	41.3	2	4	5					
TOTAL	<i>43.9</i>	<i>5.5</i>	<i>178</i>	<i>188</i>	<i>198</i>	<i>77</i>	<i>19</i>	<i>9</i>		

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	HARDT			DATE	7/16/2021	
TWP	RGE	SECT	TRACT	TYPE	ACRES		PLOTS	TREES	CuFt	BdFt
06N	07W	35	U12 TAKE	00MC	160.00		64	358	1	W
CL:	68.1%	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
CL:	68.1%	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
R ALDER		87.1	10.9	9,630	10,805	11,980				
WHEMLOCK		180.6	22.6	4,999	6,455	7,912				
DOUG FIR		139.1	17.4	7,519	9,100	10,681				
BL MAPLE		264.2	33.0	433	646	859				
S SPRUCE		330.5	41.3	262	446	630				
TOTAL		55.1	6.9	25,562	27,452	29,342	121	30	13	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	HARDT		DATE	7/16/2021		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
06N	07W	35	U3 R/W	00MC	3.00	64	358	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		64	358	5.6						
CRUISE		23	113	4.9	267	42.3				
DBH COUNT										
REFOREST										
COUNT		41	245	6.0						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
R ALDER	67	63.8	17.2	56	24.7	102.4	10,871	10,805	3,349	3,349
WHEMLOCK	19	13.1	22.9	74	7.8	37.3	6,554	6,455	1,612	1,612
DOUG FIR	18	8.2	28.7	110	6.9	36.8	9,159	9,100	1,949	1,949
BL MAPLE	8	2.5	23.9	39	1.6	7.9	651	646	173	173
S SPRUCE	1	1.4	22.0	63	0.8	3.7	460	446	132	132
TOTAL	<i>113</i>	<i>89.0</i>	<i>19.7</i>	<i>63</i>	<i>42.4</i>	<i>188.0</i>	<i>27,694</i>	<i>27,452</i>	<i>7,217</i>	<i>7,217</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
R ALDER		42.3	5.2	178	188	198				
WHEMLOCK		74.2	17.5	611	741	871				
DOUG FIR		47.1	11.4	1,160	1,309	1,459				
BL MAPLE		80.5	30.3	284	408	531				
S SPRUCE										
TOTAL		<i>113.1</i>	<i>10.6</i>	<i>426</i>	<i>476</i>	<i>527</i>	<i>511</i>	<i>128</i>	<i>57</i>	
CL:	68.1 %	COEFF	SAMPLE TREES - CF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
R ALDER		36.4	4.4	56	58	61				
WHEMLOCK		61.5	14.5	149	175	200				
DOUG FIR		39.9	9.7	247	274	300				
BL MAPLE		71.9	27.1	76	105	133				
S SPRUCE										
TOTAL		<i>90.2</i>	<i>8.5</i>	<i>106</i>	<i>116</i>	<i>125</i>	<i>325</i>	<i>81</i>	<i>36</i>	
CL:	68.1 %	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
R ALDER		87.9	11.0	57	64	71				
WHEMLOCK		183.7	22.9	10	13	16				
DOUG FIR		145.1	18.1	7	8	10				
BL MAPLE		254.7	31.8	2	3	3				
S SPRUCE		330.5	41.3	1	1	2				
TOTAL		<i>54.8</i>	<i>6.8</i>	<i>83</i>	<i>89</i>	<i>95</i>	<i>120</i>	<i>30</i>	<i>13</i>	
CL:	68.1 %	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
R ALDER		85.2	10.6	92	102	113				
WHEMLOCK		178.2	22.3	29	37	46				
DOUG FIR		139.9	17.5	30	37	43				
BL MAPLE		249.2	31.1	5	8	10				
S SPRUCE		330.5	41.3	2	4	5				
TOTAL		<i>43.9</i>	<i>5.5</i>	<i>178</i>	<i>188</i>	<i>198</i>	<i>77</i>	<i>19</i>	<i>9</i>	
CL:	68.1 %	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
R ALDER		87.1	10.9	9,630	10,805	11,980				
WHEMLOCK		180.6	22.6	4,999	6,455	7,912				

STATISTICS
PROJECT HARDT

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
06N	07W	35	U3 R/W	00MC	3.00	64	358	1	W
CL: 68.1%		COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0		VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR		139.1	17.4	7,519	9,100	10,681			
BL MAPLE		264.2	33.0	433	646	859			
S SPRUCE		330.5	41.3	262	446	630			
TOTAL		<i>55.1</i>	<i>6.9</i>	<i>25,562</i>	<i>27,452</i>	<i>29,342</i>	<i>121</i>	<i>30</i>	<i>13</i>

Log Stock Table - MBF

T06N R07W S35 Ty00MC 160.00
 T06N R07W S35 Ty00MC 3.00

Project: **HARDT**
 Acres **163.00**

Page **1**
 Date **7/16/2021**
 Time **8:59:03AM**

Spp	S T	So Gr rt de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches										
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39
A		DO 1S	28	22	7.1	21	1.2					21						
A		DO 1S	30	278		278	15.8					209	70					
A		DO 1S	34	19		19	1.1					19						
A		DO 1S	38	133		133	7.5					51	82					
A		DO 1S	40	348		345	19.6					285	59					
A		DO 2S	18	8		8	.4					8						
A		DO 2S	20	10		10	.6					10						
A		DO 2S	30	162		162	9.2					162						
A		DO 2S	36	25		25	1.4					25						
A		DO 2S	38	154		153	8.7					153						
A		DO 2S	40	179		179	10.2					179						
A		DO 3S	20	10		10	.5				10							
A		DO 3S	30	47	6.8	44	2.5				44							
A		DO 3S	40	53		53	3.0				53							
A		DO 4S	16	11		11	.6			11								
A		DO 4S	18	48		48	2.7			48								
A		DO 4S	20	59		59	3.4			56	3							
A		DO 4S	24	8		8	.5			8								
A		DO 4S	26	48		48	2.7			48								
A		DO 4S	28	18		18	1.0			18								
A		DO 4S	30	14		14	.8			14								
A		DO 4S	34	6		6	.3			6								
A		DO 4S	38	29		29	1.7			29								
A		DO 4S	40	81	1.9	80	4.5			80								
A		Totals		1,772		1,761	39.4			320	109	537	565	230				
D		DO 2S	24	12		12	.8						12					
D		DO 2S	26	29	15.8	24	1.6						24					
D		DO 2S	32	18		18	1.2						18					
D		DO 2S	38	42		42	2.9						21	21				
D		DO 2S	40	1,263		1,258	84.8					98	38	490	294	338		
D		DO 3S	18	8		8	.5					8						
D		DO 3S	20	12		12	.8				8	4						
D		DO 3S	24	11		11	.8					5	6					
D		DO 3S	26	6		6	.4					6						
D		DO 3S	32	22		22	1.5				7	8	7					
D		DO 3S	34	6		6	.4			6								

T06N R07W S35 Ty00MC 160.00	Project: HARDT	Page 2
T06N R07W S35 Ty00MC 3.00	Acres 163.00	Date 7/16/2021
		Time 8:59:03AM

S 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+
D	DO 3S	36	8		8	.5				8								
D	DO 3S	40	47		47	3.1			18	28								
D	DO 4S	16	7		7	.4			3	4								
D	DO 4S	18	3		3	.2			3									
D	Totals		1,493		1,483	33.1			9	47	59	112	113	511	294	338		
H	DO 2S	20	5		5	.5						5						
H	DO 2S	30	18		18	1.7						18						
H	DO 2S	32	90	5.0	86	8.2							36	50				
H	DO 2S	36	37		37	3.5						37						
H	DO 2S	40	684	1.5	675	64.1						70	104	203	197	100		
H	DO 3S	14	4		4	.3							4					
H	DO 3S	16	4		4	.4					4							
H	DO 3S	18	4		4	.3					4							
H	DO 3S	20	17	8.7	16	1.5				4			12					
H	DO 3S	24	4		4	.4				4								
H	DO 3S	30	18		18	1.7							18					
H	DO 3S	32	6		6	.6						6						
H	DO 3S	34	18		18	1.7			18									
H	DO 3S	36	19		19	1.8						19						
H	DO 3S	38	43		43	4.1				10		33						
H	DO 3S	40	67		67	6.3			14			30	22					
H	DO 4S	14	2		2	.2				2								
H	DO 4S	16	6		6	.6			6									
H	DO 4S	20	16		16	1.6			4	12								
H	DO 4S	30	6		6	.6			6									
H	Totals		1,068	1.5	1,052	23.5			49	32	96	130	159	239	247	100		
S	DO 2S	40	66	3.4	64	87.5							64					
S	DO 4S	20	9		9	12.5				9								
S	Totals		75	3.0	73	1.6				9			64					
M	DO 1S	16	13		13	12.7									13			
M	DO 1S	24	16		16	15.3										16		
M	DO 1S	26	15	4.0	14	13.7										14		
M	DO 1S	28	15		15	14.3							15					
M	DO 1S	32	14		14	13.4							14					
M	DO 1S	40	10		10	9.7					10							

Log Stock Table - MBF

T06N R07W S35 Ty00MC 160.00
 T06N R07W S35 Ty00MC 3.00

Project: **HARDT**
 Acres **163.00**

Spp	S T	So Gr rt de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches												
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+	
M		DO 2S	34	17		17	16.1					17								
M		DO 3S	16	0	33.3	0	.3				0									
M		DO 3S	20	3		3	2.6				3									
M		DO 4S	30	2		2	1.9			2										
M		Totals		106		105	2.4			2	3	17	10		29	13	31			
Total		All Species		4,514		4,475	100.0			380	201	709	817	565	779	555	469			

TC		PSTNDSUM		Stand Table Summary							Page		1			
										Date:		7/16/2021				
T06N R07W S35 Ty00MC 160.00				Project				HARDT		Time:		8:59:04AM				
T06N R07W S35 Ty00MC 3.00				Acres				163.00		Grown Year:						
S Spec	T	DBH	Sample Trees	Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
				FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
A		11	4	87	77	4.632	3.06	6.95	14.0	46.7		97	324		159	53
A		12	4	86	75	3.892	3.06	5.84	17.0	46.7		99	272		162	44
A		13	4	86	71	3.316	3.06	4.97	19.3	56.7		96	282		157	46
A		14	2	86	88	1.430	1.53	2.86	20.0	75.0		57	214		93	35
A		15	4	87	72	2.491	3.06	3.74	27.0	80.0		101	299		164	49
A		16	16	86	72	8.757	12.23	16.42	24.5	80.7		403	1,325		657	216
A		17	24	86	68	11.636	18.34	20.36	28.4	89.0		579	1,813		944	296
A		18	22	87	74	9.514	16.81	18.16	31.9	104.8		579	1,903		943	310
A		19	18	87	70	6.986	13.76	13.20	34.4	111.2		454	1,467		740	239
A		20	14	87	76	4.904	10.70	9.81	39.1	132.1		384	1,296		626	211
A		21	8	86	72	2.542	6.11	5.08	41.6	138.7		212	705		345	115
A		22	8	87	67	2.316	6.11	4.05	46.7	137.1		189	556		309	91
A		23	2	87	88	.530	1.53	1.06	57.0	200.0		60	212		98	35
A		24	2	86	78	.487	1.53	.97	40.0	140.0		39	136		63	22
A		28	2	86	49	.357	1.53									
A		Totals	134	86	72	63.791	102.41	113.48	29.5	95.2		3,349	10,805		5,460	1,761
D		20	2	85	109	.936	2.04	2.81	28.0	100.0		79	281		128	46
D		24	2	85	150	.650	2.04	1.95	59.3	253.3		116	494		189	81
D		25	6	87	142	1.797	6.13	5.39	60.1	254.4		324	1,372		528	224
D		26	2	88	132	.554	2.04	1.66	59.3	250.0		99	415		161	68
D		28	4	88	124	.955	4.08	2.87	69.0	316.7		198	907		322	148
D		31	2	88	146	.390	2.04	1.17	96.7	456.7		113	534		184	87
D		32	4	85	146	.731	4.08	2.19	99.0	473.3		217	1,038		354	169
D		33	6	87	159	1.032	6.13	3.78	95.1	479.1		360	1,812		586	295
D		34	4	88	139	.648	4.08	1.94	111.5	563.3		217	1,095		353	178
D		37	2	86	146	.274	2.04	.82	134.3	670.0		110	550		180	90
D		41	2	86	159	.223	2.04	.67	176.0	900.0		118	601		192	98
D		Totals	36	87	139	8.189	36.76	25.26	77.2	360.3		1,949	9,100		3,177	1,483
H		14	2	92	45	1.836	1.96	1.84	22.0	60.0		40	110		66	18
H		17	4	81	93	2.490	3.92	4.98	32.5	105.0		162	523		264	85
H		18	2	77	72	1.111	1.96	2.22	29.0	80.0		64	178		105	29
H		19	2	86	89	.997	1.96	1.99	38.0	120.0		76	239		123	39
H		21	2	83	116	.816	1.96	2.45	39.7	150.0		97	367		158	60
H		22	2	85	117	.743	1.96	2.23	43.3	183.3		97	409		158	67
H		24	2	88	127	.625	1.96	1.87	58.3	256.7		109	481		178	78
H		26	6	85	97	1.597	5.89	3.73	67.6	255.7		252	953		410	155
H		28	4	83	111	.918	3.92	2.75	66.0	290.0		182	799		296	130
H		30	2	86	108	.400	1.96	1.20	77.0	343.3		92	412		151	67
H		31	2	86	124	.374	1.96	1.12	89.3	420.0		100	472		164	77
H		32	2	86	97	.351	1.96	.70	117.5	490.0		83	344		135	56
H		34	2	84	65	.311	1.96	.62	93.5	340.0		58	212		95	34
H		37	2	78	141	.263	1.96	.79	137.3	610.0		108	481		177	78
H		40	2	86	110	.225	1.96	.67	136.0	706.7		92	477		150	78
H		Totals	38	84	92	13.056	37.29	29.17	55.3	221.3		1,612	6,455		2,628	1,052
M		15	2	87	70	.802	.98	.80	34.0	130.0		27	104		44	17
M		20	2	60	33	.451	.98									
M		24	2	87	55	.313	.98	.31	81.0	200.0		25	63		41	10
M		25	2	87	58	.289	.98	.58	48.0	180.0		28	104		45	17
M		27	2	86	53	.248	.98	.50	50.0	190.0		25	94		40	15
M		30	2	87	53	.201	.98	.20	112.0	430.0		22	86		37	14
M		37	2	87	49	.132	.98	.26	88.5	395.0		23	104		38	17

Stand Table Summary

T06N R07W S35 Ty00MC	160.00
T06N R07W S35 Ty00MC	3.00

Project HARDT
Acres 163.00

Time: 8:59:04AM
Grown Year:

S Spec T	Sample DBH	Trees	Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
			FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
M	44	2	86	46	.093	.98	.19	119.0	485.0		22	90		36	15
M	Totals	16	82	55	2.529	7.88	2.84	61.0	227.5		173	646		282	105
S	22	2	86	75	1.393	3.68	2.79	47.5	160.0		132	446		216	73
S	Totals	2	86	75	1.393	3.68	2.79	47.5	160.0		132	446		216	73
Totals		226	86	81	88.958	188.01	173.53	41.6	158.2		7,217	27,452		11,763	4,475

LOGGING PLAN MAP

OF TIMBER SALE CONTRACT

NO. AT-341-2022-W00608-01

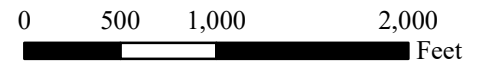
HARD TARGET

PORTIONS OF SECTIONS 26, 27, 34, & 35

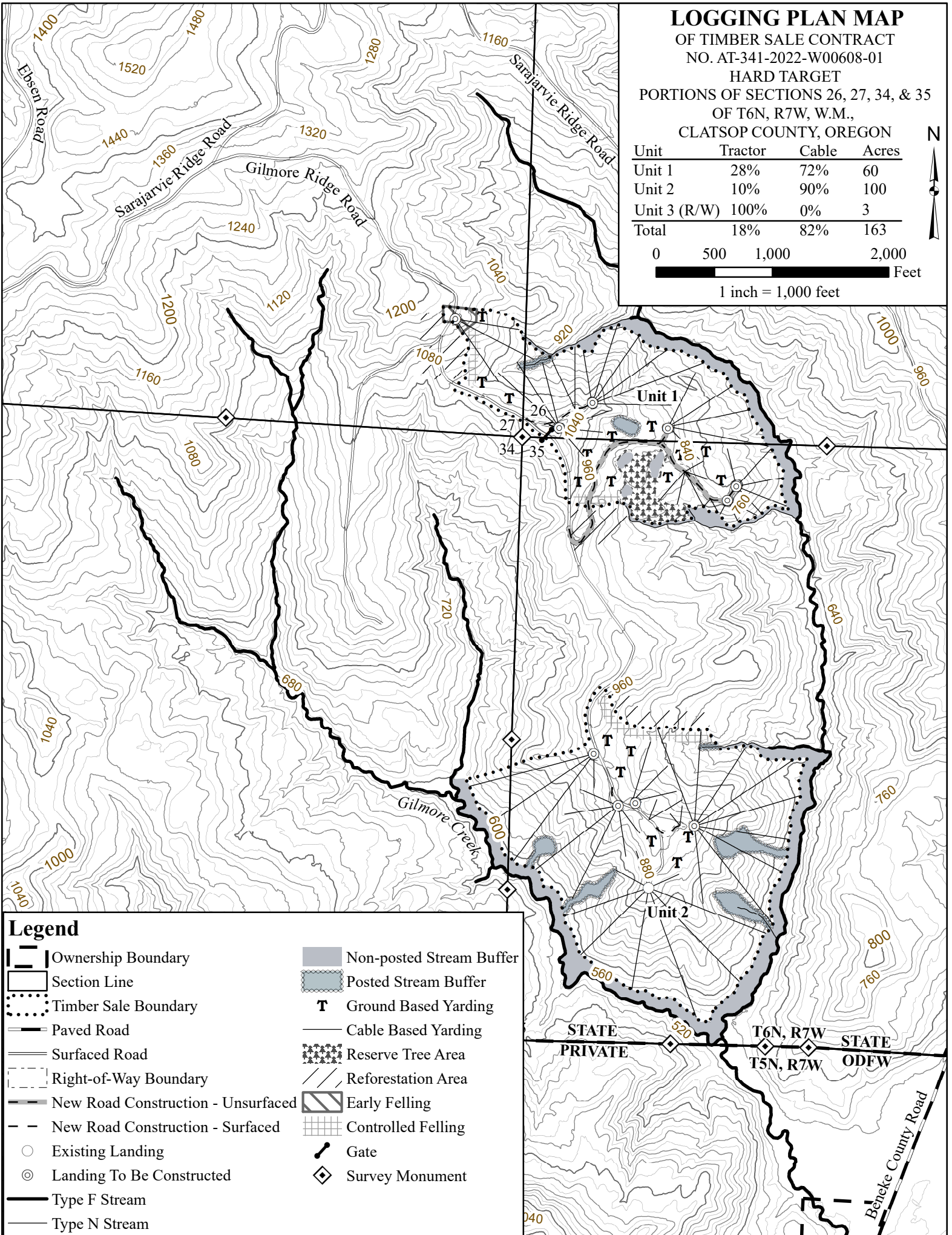
OF T6N, R7W, W.M.,

CLATSOP COUNTY, OREGON

Unit	Tractor	Cable	Acres
Unit 1	28%	72%	60
Unit 2	10%	90%	100
Unit 3 (R/W)	100%	0%	3
Total	18%	82%	163



1 inch = 1,000 feet



Legend

- Ownership Boundary
- Section Line
- Timber Sale Boundary
- Paved Road
- Surfaced Road
- Right-of-Way Boundary
- New Road Construction - Unsurfaced
- New Road Construction - Surfaced
- Existing Landing
- Landing To Be Constructed
- Type F Stream
- Type N Stream
- Non-posted Stream Buffer
- Posted Stream Buffer
- Ground Based Yarding
- Cable Based Yarding
- Reserve Tree Area
- Reforestation Area
- Early Felling
- Controlled Felling
- Gate
- Survey Monument