



Timber Sale Appraisal  
Larkin Thin  
Sale AT-341-2023-W00982-01

District: Astoria

Date: August 16, 2022

---

**Cost Summary**

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$800,768.08	\$295.39	\$801,063.47
		Project Work:	(\$89,074.00)
		Advertised Value:	\$711,989.47



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal  
Larkin Thin  
Sale AT-341-2023-W00982-01

District: Astoria

Date: August 16, 2022

---

**Timber Description**

Location:

Stand Stocking: 50%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	13	0	97
Western Hemlock / Fir	10	0	95
Alder (Red)	11	0	95

Volume by Grade	2S	3S & 4S 6"-11"	Camprun	Total
Douglas - Fir	99	1,985	0	2,084
Western Hemlock / Fir	1	183	0	184
Alder (Red)	0	0	1	1
Total	100	2,168	1	2,269



**Comments:** Pond Values Used: Local Pond Values, July, 2022.

Expected Log Markets: Warrenton, Banks, Forest Grove, Tillamook, Wauna, Longview, WA, and Chehalis, WA.

Fuel cost allowances are based on the month local pond values were collected.

**PRICING:**

Western Red Cedar and other Cedars stumpage = pond value - (Douglas-fir) logging cost.  
\$805.37/MBF = \$1,100/MBF - \$294.63/MBF

Spruce = pond value - (Douglas-fir) logging cost.  
\$205.37/MBF = \$500/MBF - \$294.63/MBF

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

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

Temporary skid road culvert install:

C325 log loader: 3 crossings x 2 hours x \$145/hr = \$870

Ditch Filters:

16 bales of straw @ \$12/bale = \$192

4 hours of labor (installation/removal) @ \$45/hr = \$180

Remove Cross drains, waterbar and block unsurfaced road segments:

1A to 1B, 1C to 1D, 1E to 1F, 2A to 2B, 2C to 2D.

Excavator C315:

1 move-in @ \$905/move-in = \$905

8 hours of excavator @ \$114/hr = \$912

Deliver servicable salvaged culverts to ODF office(unsalvageable to recycle): Pickup and culvert trailer 2 hours @ \$48.00/Hr = \$96.00

TOTAL Other Costs (with Profit & Risk to be added):\$5,155

Other Costs (No Profit & Risk added): None

**ROAD MAINTENANCE**

(See attached Road Maintenance Cost Summary Sheet)

TOTAL Road Maintenance: \$17,934/2,293 MBF = \$7.82/MBF



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal  
Larkin Thin  
Sale AT-341-2023-W00982-01

District: Astoria

Date: August 16, 2022

---

**Logging Conditions**

**Combination#: 1**                      Douglas - Fir                      99.00%  
   Western Hemlock / Fir                      99.00%  
   Alder (Red)                      99.00%

**Logging System:** Track Skidder                      **Process:** Harvester Head Delimbing  
**yarding distance:** Medium (800 ft)                      **downhill yarding:** No  
**tree size:** Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF  
**loads / day:** 8                      **bd. ft / load:** 4400  
**cost / mbf:** \$151.82  
**machines:** Forwarder  
                         Harvester

---

**Combination#: 2**                      Douglas - Fir                      1.00%  
   Western Hemlock / Fir                      1.00%  
   Alder (Red)                      1.00%

**Logging System:** Shovel                      **Process:** Harvester Head Delimbing  
**yarding distance:** Short (400 ft)                      **downhill yarding:** No  
**tree size:** Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF  
**loads / day:** 10                      **bd. ft / load:** 4400  
**cost / mbf:** \$121.46  
**machines:** Forwarder  
                         Harvester

---



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal  
Larkin Thin  
Sale AT-341-2023-W00982-01

District: Astoria

Date: August 16, 2022

### Logging Costs

Operating Seasons: 3.00	Profit Risk: 12%
Project Costs: \$89,074.00	Other Costs (P/R): \$5,155.00
Slash Disposal: \$0.00	Other Costs: \$0.00

#### Miles of Road

Road Maintenance: \$7.82

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

#### Hauling Costs

Species	\$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	\$0.00	3.0	4.4
Western Hemlock / Fir	\$0.00	3.0	4.2
Alder (Red)	\$0.00	2.0	3.8



Timber Sale Appraisal  
Larkin Thin  
Sale AT-341-2023-W00982-01

District: Astoria

Date: August 16, 2022

### Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Brand & Paint	Other	Total
<b>Douglas - Fir</b>									
\$151.52	\$8.05	\$5.80	\$93.64	\$2.27	\$31.35	\$0.00	\$2.00	\$0.00	\$294.63
<b>Western Hemlock / Fir</b>									
\$151.52	\$8.21	\$5.80	\$100.00	\$2.27	\$32.14	\$0.00	\$2.00	\$0.00	\$301.94
<b>Alder (Red)</b>									
\$151.52	\$8.21	\$5.80	\$165.78	\$2.27	\$40.03	\$0.00	\$2.00	\$0.00	\$375.61

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$654.75	\$360.12	\$0.00
Western Hemlock / Fir	\$0.00	\$575.19	\$273.25	\$0.00
Alder (Red)	\$0.00	\$671.00	\$295.39	\$0.00



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal  
Larkin Thin  
Sale AT-341-2023-W00982-01

District: Astoria

Date: August 16, 2022

### Summary

#### Amortized

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

#### Unamortized

Specie	MBF	Value	Total
Douglas - Fir	2,084	\$360.12	\$750,490.08
Western Hemlock / Fir	184	\$273.25	\$50,278.00
Alder (Red)	1	\$295.39	\$295.39

#### Gross Timber Sale Value

Recovery: \$801,063.47

Prepared By: John Tillotson

Phone: 503-325-5451

### Road Maintenance Cost Summary (Interim and Post Harvest)

**Sale:** Larkin Thin  
**Date:** August 17, 2022  
**By:** John Tillotson

**MBF:** 2,269  
**\$\$/MBF:** \$7.90

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Interim Operations Entries (1)	Grader 14G	\$875	1	10	\$113	\$2,005
	Dump Truck	\$184	1	6	\$89	\$718
	Rubber Tired Backhoe	\$361	1	4	\$87	\$709
Final Road Maintenance Haul Route	Grader 14G	\$875	1	33	\$113	\$4,604
	Dump Truck 12CY (2 @ \$119)	\$184	2	12	\$89	\$1,436
	Rubber Tired Backhoe	\$361	1	8	\$94	\$1,113
	Vibratory Roller	\$875	1	33	\$87	\$3,746
	C315 Excavator	\$905	1	8	\$114	\$1,817
	Water Truck 2,500 gallon	\$214	1	12	\$101	\$1,426
	Labor			8	\$45	\$360
<b>Total</b>						<b>\$17,934</b>

#### Interim Operations Road Maintenance

Production Rates	Miles/day	Distance(miles)	Days	Hours
Grader	2.5	3.0	1.2	9.6

#### Final Road Maintenance

Production Rates	Miles/day	Distance(miles)	Days	Hours
Grader	1.5	6.1	4.1	33
Vibratory Roller	1.5	6.1	4.1	33

Water process and compact: Crushed rock roads
Grade and compact: Pit-run and powerline roads
Larkin Green Road crushed rock road: 2.9 Miles
Unnamed crushed rock spur roads: 2.0 Miles
Unnamed Pit-run spur roads and powerline road: 1.2 Miles
Water, Grade & Process Total = 4.9 Miles
Grade & Compact only = 1.2 Miles

## SUMMARY OF ALL PROJECT COSTS

SALE NAME Larkin Thin

### Project No. 1: ROAD CONSTRUCTION:

<u>Road segment</u>	<u>Length (Sta)</u>	<u>Length (Mile)</u>	<u>Cost</u>	<u>With additional fuel allowance per project</u>
1A to 1B, 1C to 1D, 1E to 1F, 2A to 2B, and 2C to 2D	32.30	0.61	\$9,688.24	\$10,657
Road Maint.			\$582.05	\$640
Move-In			\$1,115.11	\$1,227
<b>TOTALS</b>	32.30	0.61	\$11,385	\$12,524

### 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, I7 to I8, I9 to I10, I11 to I12, I13 to I14, I15 to I16, I17 to I18, I19 to I20, and I21 to I22	320.7	6.07	\$59,217.15	\$65,139
Road Maint.			\$3,557.62	\$3,913
Move-In			\$6,815.89	\$7,497
<b>TOTALS</b>		6.07	\$69,591	\$76,550

### 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>
<b>TOTAL</b>		

SUBTOTAL \$80,976

10% Increase Fuel Allowance \$8,098

**GRAND TOTAL** **\$89,074**

Compiled By: D. Farner

Date: 08/17/2022

# **Move In and Maintenance Calculator for Construction and Improvement**

**SALE NAME:** Larkin Thin

**Project No. 1: ROAD CONSTRUCTION:**

<u>Road segment</u>	<u>Length/Sta</u>	<u>Length/Mile</u>	<u>Cost</u>
1A to 1B, 1C to 1D, 1E to 1F, 2A to 2B, and 2C to 2D	32.30	0.61	\$9,688
<b>TOTALS</b>	32.30	0.61	\$9,688

**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, I7 to I8, I9 to I10, I11 to I12, I13 to I14, I15 to I16, I17 to I18, I19 to I20, and I21 to I22	320.70	6.07	\$59,217
<b>TOTALS</b>		6.07	\$59,217

**MOVE IN (Construction & Improvement Only)**

<u>Equipment</u>	<u>Length/Mile</u>	<u>Cost</u>
14G Grader		\$875.00
Vibratory Roller		\$875.00
C315 Excavator		\$905.00
C966 Loader		\$875.00
D8 Dozer		\$1,581.00
C568 Excavator		\$1,686.00
12cy Highway Dump Truck (x5)		\$920.00
Water Truck (2,500 gal)		\$214.00
<b>TOTAL</b>		\$7,931.00

**ROAD MAINTENANCE (Construction & Improvement Only)**

	<u>Length/Mile</u>	<u>Cost</u>
Final Project Road Maintenance	2.23	\$4,140
<b>TOTAL</b>		\$4,140



# SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Larkin Thin  
ROAD: 1A-1B(16.15), 1C-1D(4.20), 1E-1F(2.05),  
2A-2B(4.80), 2C-2D(5.10)

NEW CONSTRUCTION: 32.30 STATIONS  
RECONSTRUCTION: 0.00 STATIONS

0.61 MILES  
0.00 MILES

## CLEARING & GRUBBING

Method	Acres/amount	X	Rate	=	Cost
1A-1B					
Remove and scatter individual trees \$/Hr	2.00	X	\$ 175	=	\$0.00 \$350.00
1C-1D, 1E-1F, 2A-2B, 2C-2D					
Scatter outside of right of way	0.90	X	\$ 1,503	=	\$0.00 \$1,352.70 \$0.00

## SUB TOTAL FOR CLEARING & GRUBBING

\$1,703

## EXCAVATION

Material	Cy/amount	X	Rate	=	Cost
1A-1B					
Remove and scatter sod and ferns from existing rockd surface.	16.15	X	\$53.36	=	\$0.00 \$861.76
Improve ditchouts, turnout, turnaround	4.00	X	\$175.00	=	\$700.00
1C-1D, 1E-1F, 2A-2B, 2C-2D					
Balanced Construction	16.15	X	\$138.00	=	\$2,228.70 \$0.00 \$0.00 \$0.00

## SUB TOTAL FOR EXCAVATION

\$3,790

## CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
1A to 1B									
2+00	18" ACSP	40	\$32.08	\$1,283.20					\$0.00
1+1+00	18" ACSP	30	\$32.08	\$962.40					\$0.00
				\$0.00					\$0.00

Description	Quantity	Rate	Cost
Other/miscellaneous:			
Culvert stakes & markers:			
Fiberglass culvert marker	2	\$23.00	\$46.00

## SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$2,292  
Subtotal of Clearing, Exc., Culv. \$7,785

SURFACING		Description		Stations/		Rate/	Cost
Subgrade prep:				amount	x	sta/amt	
		Grade, Shape and outslope 14'		32.30	x	\$20.63	\$666.35
		Subgrade Compaction		32.30	x	\$22.69	\$732.89

ROAD SEGMENT		1A to 1B	POINT TO POINT		Sta. to Sta.	TOTAL	Rate/	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1A to 1B Volume (CY) per	0+00 to 16+15 Number of	VOLUME (CY)	Sta./ amt.	
Junction Rock	1 1/2"-0" crushed	0+00	N/A	junction 22	junctions 1	22	\$5.73	\$126
Total Rock for Road Segment:		1A to 1B				22		\$126

ROAD SEGMENT		1E to 1F	POINT TO POINT		Sta. to Sta.	TOTAL	Rate/	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1E to 1F Volume (CY) per	0+00 to 2+05 Number of	VOLUME (CY)	Sta./ amt.	
Junction Rock	1 1/2"-0" crushed	0+00	N/A	junction 22	junctions 1	22	\$5.73	\$126
Total Rock for Road Segment:		1E to 1F				22		\$126

ROAD SEGMENT		2A to 2B	POINT TO POINT		Sta. to Sta.	TOTAL	Rate/	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A to 2B Volume (CY) per	0+00 to 4+80 Number of	VOLUME (CY)	Sta./ amt.	
Junction Rock	1 1/2"-0" crushed	0+00	N/A	junction 22	junctions 1	22	\$5.73	\$126
Total Rock for Road Segment:		2A to 2B				22		\$126

ROAD SEGMENT		2C to 2D	POINT TO POINT		Sta. to Sta.	TOTAL	Rate/	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2C to 2D Volume (CY) per	0+00 to 5+10 Number of	VOLUME (CY)	Sta./ amt.	
Junction Rock	1 1/2"-0" crushed	0+00	N/A	junction 22	junctions 1	22	\$5.73	\$126
Total Rock for Road Segment:		2C to 2D				22		\$126

Processing:	Description	No sta	Rate/sta	Cost
	Water, Process & Compact Base Rock (4"-0"):			\$0.00

SUB TOTAL FOR SURFACING					6"-0"pr	4"-0" crushed	1 1/2"-0" crushed	Total	\$1,903
							88	88	

SPECIAL PROJECTS									\$0
SUB TOTAL FOR SPECIAL PROJECTS									\$7,903
									\$7,785
GRAND TOTAL									\$9,688

Compiled By: D. Farmer Date: 08/17/2022

Subtotal of Surfacing & Spec. Proj: \$7,903  
Subtotal of Clearing, Exc., Culv. \$7,785

# SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Larkin Thin  
 ROAD 11 to 12(151.15), 13 to 14(5.0), 15 to 16(27.60), 17 to 18(6.6), 19 to 110(31.0), 111 to 112(17.25), IMPROVEMENT: 320.70 STATIONS 0.00 MILES  
 113 to 114(17.8), 115 to 116(19.5), 117 to 118 (15.5), 119 to 120(21.3), 121 to 122(8.0) 6.07 MILES

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

EXCAVATION		Cyl/amount		Rate		=		Cost	
Material									
11 to 12	41+10 Install series of 3 rock ditch filters w/C315	\$/Hr.	1.0		X	\$114.00	=	\$114.00	
15 to 16									
	5+00, 21+40 Increase curve widening C315	\$/Hr.	4.0		X	\$114.00	=	\$456.00	
	5+00 Place riprap to protect utility pole C315	\$/Hr.	1.0		X	\$114.00	=	\$114.00	
16+30 to 17+05	Construct ditches right and left C315	\$/Hr.	2.0		X	\$114.00	=	\$228.00	
17+05	Construct ditchout right C315	\$/Hr.	1.0		X	\$114.00	=	\$114.00	
17+05	Remove culv., prep. for replacement C315	\$/Hr.	4.0		X	\$14.00	=	\$456.00	
17+05	Dewater crossing	\$/Hr.	4.0		X	\$12.00	=	\$48.00	
	Dispose of culverts 12 cu yd dump	\$/Hr.	2.0		X	\$89.00	=	\$178.00	
	Clean ditches and ditchouts w/ C315	\$/Hr.	2.0		X	\$114.00	=	\$228.00	
17 to 18									
	4+35 Locate and clean culvert inlet w/C315	\$/Hr.	1.0		X	\$114.00	=	\$114.00	
	4+35 Cut culvert outlet back 1 foot w/ laborer	\$/Hr.	1.0		X	\$45.00	=	\$45.00	
19 to 110									
	3+70 Construct new turnaround and ditch w/C315	\$/Hr.	1.0		X	\$114.00	=	\$114.00	
	7+15 Construct new turnaround and ditch w/C315	\$/Hr.	1.0		X	\$114.00	=	\$114.00	
	12+35 Construct new turnaround and ditch w/C315	\$/Hr.	1.0		X	\$114.00	=	\$114.00	
	20+10 Construct new turnaround and ditch w/C315	\$/Hr.	1.0		X	\$114.00	=	\$114.00	
	27+10 Construct new turnaround w/C315	\$/Hr.	1.0		X	\$114.00	=	\$0.00	
111 to 112									
	6+15 Construct new turnaround w/C315	\$/Hr.	1.0		X	\$114.00	=	\$114.00	
	12+95 Construct new turnaround w/C315	\$/Hr.	1.0		X	\$114.00	=	\$114.00	
113 to 114									
	15+75 Construct new turnaround w/C315	\$/Hr.	1.0		X	\$114.00	=	\$114.00	



SURFACING									
		Description		Stations/ amount	x	Rate/ sta/amt	Cost		
Subgrade prep:									
11 to 12, 13 to 14, 17 to 18, 19 to 110, 111 to 112, 113 to 114, 115 to 116, 117 to 118, 119 to 120, 121 to 122		Grade, Shape and Ditch 16'		293.10	x	\$27.91	\$8,180.42		
11 to 12 (Sta. 1+7+10 to 151+15), 13 to 14, 17 to 18, 19 to 110, 111 to 112, 113 to 114, 115 to 116, 117 to 118, 119 to 120, 121 to 122		Sod Removal		194.50	x	\$26.20	\$5,095.90		
113 to 114 (Sta. 2+60 to 6+80)		Scatter Ditch Waste		4.20	x	\$26.20	\$110.04		
11 to 12, 13 to 14, 15 to 16, 17 to 18, 19 to 110, 111 to 112, 113 to 114, 115 to 116, 117 to 118, 119 to 120, 121 to 122		Subgrade Compaction		320.70	x	\$22.69	\$7,276.68		
15 to 16 (0+00-7+00, 16+00-27+60)		Grade, Shape and crown 12' (no ditch)		18.60	x	\$20.63	\$383.72		
15 to 16 (7+00 to 16+00)		Grade, Shape and outside 12'		9.00	x	\$20.63	\$185.67		
ROAD SEGMENT									
11 to 12		POINT TO POINT		Sta. to Sta.					
		11 to 12		0+00 to 151+15					
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per load	Number of loads	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Leveling Rock	1 1/2"-0" crushed	103+15, 114+65	N/A	11	2	22	\$5.73	\$126	
Leveling Rock	1 1/2"-0" crushed	40+50, 44+90, 56+95, 85+00, 87+50, 90+85, 98+00, 111+00	N/A	location	locations	8	\$5.73	\$1,008	
		119+25, 125+55	N/A	location	locations	2	\$5.73	\$378	
		42+65, 72+95, 89+10	N/A	turnout	turnouts	3	\$5.73	\$189	
Turnouts	1 1/2"-0" crushed	3+90, 18+50, 26+30, 51+90, 60+65, 66+90, 81+30, 94+65	N/A	11	junctions	8	\$5.73	\$504	
Junctions	1 1/2"-0" crushed	79+10	N/A	junction	junctions	1	\$5.73	\$126	
Turnaround	1 1/2"-0" crushed	31+55	N/A	turnaround	turnarounds	1	\$5.73	\$63	
Rock Ditch Filters	6'-4" pit-run	41+10	N/A	3 filter series	3 filter series	1	\$6.94	\$76	
Total Rock for Road Segment:		11 to 12		POINT TO POINT		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
13 to 14		13 to 14		0+00 to 5+00					
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per load	Number of loads	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Leveling Rock	1 1/2"-0" crushed	0+00 to 5+00	N/A	11	2	22	\$5.73	\$126	
Total Rock for Road Segment:		13 to 14				22		\$126	

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 Volume (CY) per	0+00 to 27+60 Number of			
Base Rock	4"-0" crushed	16+30 to 19+50	N/A	station	50	stations	2.2	\$630
Leveling Rock	4"-0" crushed	0+00 to 27+60	N/A	load	11	loads	25	\$1,576
Curve widening	4"-0" crushed	5+00, 21+40	N/A	curve	22	curves	2	\$252
Leveling Rock	1 1/2"-0" crushed	0+00 to 27+60	N/A	load	11	loads	7	\$0
Junctions	1 1/2"-0" crushed	0+00	N/A	junction	22	junctions	1	\$126
Traction Rock	1 1/2"-0" crushed	6+00 to 7+00	2	station	13	stations	1.0	\$74
Culvert Bedding and Backfill	1 1/2"-0" crushed	4+00, 12+70, 17+05	N/A	culvert	33	culverts	3	\$567
Culvert Bedding and Backfill	1 1/2"-0" crushed	17+40	N/A	culvert	88	culverts	1	\$504
Utility Pole Protection	24"-12" nrap	5+00	N/A	location	11	locations	1	\$98
Total Rock for Road Segment:			15 to 16	POINT TO POINT			739	\$3,828
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 Volume (CY) per	0+00 to 6+60 Number of			
Leveling Rock	1 1/2"-0" crushed	0+00 to 6+60	N/A	load	11	loads	2	\$126
Total Rock for Road Segment:			17 to 18	POINT TO POINT			22	\$126
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 Volume (CY) per	0+00 to 31+00 Number of			
Leveling Rock	1 1/2"-0" crushed	0+00 to 31+00	N/A	load	11	loads	4	\$252
Turnaround	4"-0" crushed	3+70, 7+15, 12+35, 20+10	N/A	turnaround	11	turnarounds	4	\$252
Turnaround	4"-0" crushed	27+10	N/A	turnaround	22	turnarounds	1	\$126
Landings	6"-0" pit-run	31+00	N/A	landing	88	landings	1	\$611
Total Rock for Road Segment:			19 to 110	POINT TO POINT			198	\$1,241
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 Volume (CY) per	0+00 to 17+25 Number of			
Leveling Rock	1 1/2"-0" crushed	0+00 to 17+25	N/A	load	11	loads	2	\$126
Turnaround	4"-0" crushed	6+15, 12+95	N/A	turnaround	22	turnarounds	2	\$252
Landings	6"-0" pit-run	17+25	N/A	landing	66	landings	1	\$458
Total Rock for Road Segment:			111 to 112	POINT TO POINT			132	\$836
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 Volume (CY) per	0+00 to 17+80 Number of			
Leveling Rock	1 1/2"-0" crushed	2+60	N/A	load	11	loads	1	\$63
Surfacing	1 1/2"-0" crushed	2+60 to 6+80	2	station	13	stations	4.2	\$313
Turnaround	4"-0" crushed	15+75	N/A	turnaround	22	turnarounds	1	\$126
Total Rock for Road Segment:			113 to 114	POINT TO POINT			88	\$502
ROAD SEGMENT		115 to 116	POINT TO POINT		Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	115 to 116 Volume (CY) per	0+00 to 19+50 Number of			
Leveling Rock	1 1/2"-0" crushed	0+00 to 19+50	N/A	load	11	loads	2	\$126
Landings	6"-0" pit-run	19+50	N/A	landing	55	landings	1	\$382
Total Rock for Road Segment:			115 to 116	POINT TO POINT			77	\$508
ROAD SEGMENT		117 to 118	POINT TO POINT		Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	117 to 118 Volume (CY) per	0+00 to 19+60 Number of			
Leveling Rock	1 1/2"-0" crushed	0+00 to 9+10	N/A	load	11	loads	2	\$126
Total Rock for Road Segment:			117 to 118	POINT TO POINT			22	\$126
ROAD SEGMENT		119 to 120	POINT TO POINT		Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	119 to 120 Volume (CY) per	0+00 to 21+30 Number of			
Leveling Rock	1 1/2"-0" crushed	0+00 to 21+30	N/A	load	11	loads	2	\$126
Turnaround	4"-0" crushed	8+45, 17+60	N/A	turnaround	22	turnarounds	2	\$252
Landings	6"-0" pit-run	21+30	N/A	landing	55	landings	1	\$382

Total Rock for Road Segment:		119 to 120	121	\$760	
ROAD SEGMENT		121 to 122	POINT TO POINT	Sta. to Sta.	121
			121 to 122	0+00 to 8+00	
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY)	TOTAL VOLUME (CY)
Leveling Rock	1 1/2"-0" crushed	0+00 to 8+00	N/A	11	22
Junctions	1 1/2"-0" crushed	0+00	N/A	11	11
Turnaround	4"-0" crushed	6+10	N/A	11	11
Total Rock for Road Segment:			121 to 122	44	\$252

Processing:  11 to 12, 17 to 18, 19 to 110, 111 to 112, 113 to 114, 115 to 116, 117 to 118, 119 to 120  15 to 16, 113 to 114, 117 to 118, 119 to 120  15 to 16										

SPECIAL PROJECTS		Description		Cy/Amount	Rate	Cost
		pit-run development		275	\$2.92	\$803.00
		riprap development		11	\$4.83	\$53.13
SUB TOTAL FOR SPECIAL PROJECTS						\$856
						\$50,708
						\$8,509
GRAND TOTAL						\$59,217

Compiled By: D. Fainer Date: 08/16/2022

## Projects Road Maintenance Cost Summary

**Sale:** Larkin Thin  
**Date:** 17-Aug-22  
**By:** D. Farner

Type	Equipment/Rationale			Hours	Rate	Cost	
Project Work	Grader 14G			12	\$113	\$1,344	
Final Haul	Dump Truck 12CY			3	\$89	\$267	
Road	FE Loader C966			3	\$94	\$282	
Maintenance	Vibratory Roller			12	\$87	\$1,035	
	Water Truck 2,500 gallon			12	\$101	\$1,212	
<b>Total</b>							<b>\$4,140</b>

### Production Rates

Grader

Vibratory Roller

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

<b>NOTE:</b> Nicolai Mainline	1.50	Miles
Hunt Creek Road	0.73	Miles
		Miles
		Miles
	<b>TOTAL=</b>	<b>2.23 Miles</b>



## CRUSHED ROCK COST

SALE NAME:	Larkin Thin
PROJECT:	Project No. 1 and 2
Stockpile:	Hunt Creek Stockpiles

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

DATE: 08/16/2022  
BY: D. Farner

[illegible]

ROCK HAUL:

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

Ave haul:	\$4.04	/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 = 781

CRUSHED ROCK HAUL COSTS            1,696 cy @        \$5.73 /cy

## PIT RUN ROCK COST

SALE NAME:	Larkin Thin
PROJECT:	Project No. 1 and 2
QUARRY:	Hunt Creek Stockpiles

MATERIAL: Pit Run

DATE: 08/16/2022  
BY: D. Farner

[illegible]

ROCK HAUL:

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

Ave haul:	\$4.96	/cy
Load:	\$0.72	/cy
Spread:	\$1.26	/cy

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

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

Production: cy/day = 637

### PIT RUN ROCK HAUL COSTS

275 cy @ \$6.94 /cy

RIP RAP ROCK COST

SALE NAME:	Larkin Thin
PROJECT:	Project No. 1 and 2
QUARRY:	Hunt Creek Stockpiles

MATERIAL: Rip Rap

DATE: 08/16/2022  
BY: D. Farner

[illegible]

ROCK HAUL:

Truck type:	D12	No. trucks:	1
Delay min.:	6	Efficiency:	85%
Truck type:	D10	No. trucks:	
Delay min.:	5	Efficiency:	85%

Ave haul: \$3.47 /cy  
Load: \$5.41 /cy  
Develop: \_\_\_\_\_ /cy

Production: cy/day = 182

### RIP RAP ROCK HAUL COSTS

11 cy @ \$8.88 /cy

**Larkin Thin  
TIMBER CRUISE REPORT  
FY 2023**

1. **Sale Area Location:** Portions of Section 25 of T8N, R7W, Sections 19, 20, and 30 of T8N, R6W, W.M., Clatsop County, OR.
2. **Fund Distribution:** BOF 100% Tax Code: 1-03 (42.17%)  
4-03 (57.83%)
3. **Sale Acreage by Area:**

Unit	Harvest Type	Gross Acres	Stream Buffer Acres	Existing R/W Acres	New R/W	Non-Stocked Area	Net Acres	Survey Method
1	Partial Cut	63	7	3	1	-	52	GIS
2	Partial Cut	39	5	1	<1	-	33	GIS
3	Partial Cut	180	2	6	-	-	172	GIS
3A	Partial Cut	88	3	4	-	-	81	GIS
4	R/W	-	-	-	-	-	1	LxW
<b>TOTALS</b>	-	<b>370</b>	<b>17</b>	<b>14</b>	-	-	<b>339</b>	

**4. Cruisers and Cruise Dates:** Kevin Berry, Justin Bush, John Czarnecki, Michele Huffman, and Ryan Simpson (08/15/2022 – 08/16/2022)

**5. Cruise Method and Computation:**

Units 1, 2, & 3: Units 1, 2, & 3 were variable plot cruised with a 27.78 BAF. A total of 66 plots were sampled on a 5.5 by 8 chain spacing with a grade to count ratio of 1:2, resulting in 27 grade plots and 38 count plots\*.

Unit 3a: Unit 3a was variable plot cruised with a 20 BAF. A total of 31 plots were sampled on a 4.5 by 6 chain spacing with a grade to count ratio of 1:2, resulting in 11 grade plots and 20 count plots\*.

Unit 4 (R/W): In-unit Right-of-Way consists of new spur roads within Units 1 and 2 totaling approximately 1 acre. Cruise data for Unit 4 was obtained from the U123 cruise, and the acreage has been adjusted accordingly. This sale includes less than one acre of unstocked out-of-unit Right-Of-Way.

\*The reported number of grade and count plots vary from those indicated in the cruise map for U123 and U3a due to minor species being graded on count plots.

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 at the Astoria District office.

UNIT(s)	CRUISE	TRACT	TYPE	ACRES
1, 2, & 3	LARKPC	U123	00PC	
3A	LARKPC	U3M	00PC	
4 R/W	LARKPC	U4	00RW	

**6. Timber Description:**

Units 1, 2, & 3 are partial cut units with an age of 38 to 42 years. The stands consist of Douglas-fir, with minor components of red alder, and western hemlock. The average take Douglas-fir is approximately 12.8 inches DBH and 47 feet to a merchantable top. Average net volume to be harvested per acre is 6.8 MBF. All trees were cruised to a merchantable top of six inches DIB, 40% of form point, or an otherwise anticipated break point. The target basal area is 140 square feet, and the target SDI is 36%.

Unit 3A is a partial cut with an average age of 36 years. The stand consists of Douglas-fir and western hemlock with a minor component of red alder. The average take Douglas-fir is approximately 16.1 inches DBH and 55 feet to a merchantable top. The average take western hemlock is approximately 10.1 inches DBH and 28 feet to a merchantable top. Average net volume to be harvested per acre is 6.1 MBF. All trees were cruised to a merchantable top of six inches DBH, 40% of form point, or an otherwise anticipated break point. The target basal area is 140 square feet, and the target SDI is 33%.

Unit 4 (R/W) is similar to the timber description above in Units 1 and 2. Average net volume to be harvested per acre is 22.7 MBF.

## 7. Statistical Analysis and Stand Summary:

Statistics for Stand B.F. volumes

Unit	Estimated CV	Target SE%	Actual CV	Actual SE%
1, 2, 3	35%	13%	27.1	3.3
3a	35%	15%	30.4	5.5

## 8. Volumes by Species and Log Grade:

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

Species	DBH	Net Vol. MBF	2 Saw	3Saw	4 Saw	TONS* (Net)	% D & B	% Sale (MBF)
Douglas-fir	13.2	2,084	99	1,582	403	15,630	2.3	91.9
Western Hemlock	10.1	184	1	107	76	1,472	1.3	8.1
<b>TOTAL NET VOLUME</b>		<b>2,268</b>	<b>100</b>	<b>1,689</b>	<b>479</b>	<b>-</b>	<b>2.2</b>	<b>-</b>
<b>TONS*</b>						<b>17,102</b>		

\* 7.5 tons per MBF Douglas-fir and 8 tons per MBF hemlock conversion rate applied.

### Hardwood

Species	DBH	Net Vol. MBF	Camp run	% D & B	% Sale
Red alder	10.9	1	1	5.3	<1

<b>TOTAL VOLUME</b>	<b>2,269</b>
---------------------	--------------

## 9. Approvals:

Prepared by:

Unit Forester Approval:

*RYAN SIMPSON*

Date:

*8/15/2022*

Date:

*8/24/2022*

10. **Attachments:** Cruise Design and Maps (5 pages)  
Volume Reports (4 pages)  
Statistics Reports (11 pages)  
Stand Table Summary (1 pages)  
Log Stock Table (5 pages)

# CRUISE DESIGN ASTORIA DISTRICT

**Sale Name:** Larkin Thin **Units** U123

**Harvest Type:** Partial Cut

**Approx. Cruise Acres:** 275 **Estimated CV%** 35 Net BF/Acre **SE% Objective** 13 Net BF/Acre

**Planned Sale Volume :** 1,925 MBF **Estimated Sale Area Value/Acre:** \$2,450/Acre

**A. Cruise Goals:** (a) Grade minimum 100 trees  
(b) Sample 67 cruise plots ( 27 grade/ 40 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 27.78 (Full point)  
Cruise Line Directions **Units 1, 2, & 3 (North):** 82°/262°,  
Cruise Line Directions **Units 1, 2, & 3 (South):** 92°/272°,  
Cruise Line Spacing: 8 ch. (528 ft)  
Cruise Plot Spacing: 5.5 ch. (363 ft)  
Grade/Count Ratio 1:2

Basal Area leave target is 140 sq. ft. Cruiser needs to select 5 leave trees per plot. Cruise all take and leave trees.

Take plots as marked on cruise map. Do not take plots in stream buffers. Stream buffers are 25' non-posted. Map out non-thinnable areas larger than 1 acre, but do not drop plots.

All cedar will be reserved. Record all snags as SN. Reserve all spruce larger than 20 inches.

DO NOT RECORD 12', 22' and 32' (for Hardwoods).

DO NOT RECORD 22' LENGTHS.

DO NOT RECORD SNAGS UNDER 12" DBH; DO NOT GRADE SNAGS ON COUNT PLOTS.

All hardwood will be measured to a G, or as appropriate.

**C. Tree Measurements:**

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

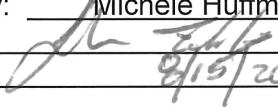
Record dbh to nearest  $\frac{1}{2}$ " for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.

**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 redcedar); 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, 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 Douglas-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, Clinometer, Logger's Tape (with dbh on back), Compass, Allegro II Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.
10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: Michele Huffman  
 Approved by:   
 Date: 8/15/2012



**CRUISE DESIGN  
ASTORIA DISTRICT**

**Sale Name:** Larkin Thin **Units** U3A

**Harvest Type:** Partial Cut

**Approx. Cruise Acres:** 92 **Estimated CV%** 35 Net BF/Acre **SE% Objective** 15 Net BF/Acre

**Planned Sale Volume :** 644 MBF **Estimated Sale Area Value/Acre:** \$2,450/Acre

- A. Cruise Goals:** (a) Grade minimum 70 trees  
(b) Sample 46 cruise plots ( 12 grade/ 21 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 20 (Full point)  
Cruise Line Directions **Units U3M:** 119°/299°,  
Cruise Line Spacing: 6 ch. (396 ft)  
Cruise Plot Spacing: 4.5 ch. (297 ft)  
Grade/Count Ratio 1:2

Basal Area leave target is 140 sq. ft. Cruiser needs to select 7 leave trees per plot. Cruise all take and leave trees.

Take plots as marked on cruise map. Do not take plots in stream buffers. Stream buffers are 25' non-posted. Map out non-thinnable areas larger than 1 acre, but do not drop plots.

All cedar will be reserved. Record all snags as SN. Reserve all spruce larger than 20 inches.

DO NOT RECORD 12', 22' and 32' (for Hardwoods).

DO NOT RECORD 22' LENGTHS.

DO NOT RECORD SNAGS UNDER 12" DBH; DO NOT GRADE SNAGS ON COUNT PLOTS.

All hardwood will be measured to a G, or as appropriate.

**C. Tree Measurements:**

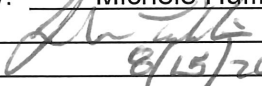
- 1. Diameter:** Minimum DBH to cruise is 6" for conifers and 6" for hardwoods. Trees < 8" DBH will be treated as count trees, so do not grade them if they are on a grade plot. Trees < 8" DBH will not be recorded in the Allegro handhelds. They will instead be recorded on a piece of paper. If tree diameters 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 4" for conifers and 4" for hardwoods or 40 % of dob at 16' form point for trees < 8" DBH. **Do not record in Allegro handhelds.** Minimum top outside bark is 7" for conifers and 7" for hardwoods or 40 % of dob at 16' form point for trees > 8" DBH. Generally, use 7" outside bark for trees < 20" dbh and 40% of dob @ FP for conifer trees > 20" dbh.

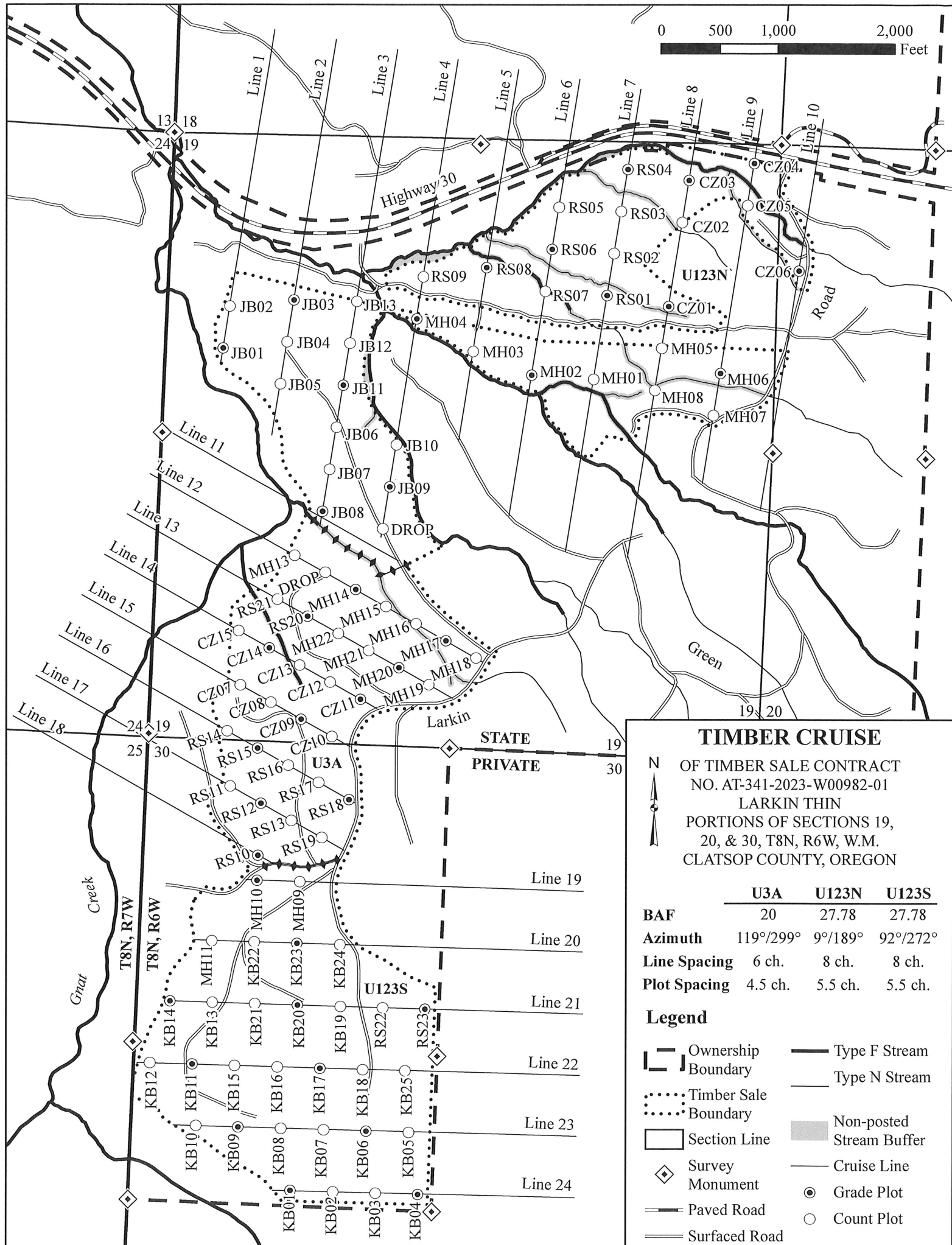


4. **Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 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 redcedar); 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, 0 = Cull.

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 Douglas-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, Clinometer, Logger's Tape (with dbh on back), Compass, Allegro II Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.
10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale).

Cruise Design by: Michele Huffman  
Approved by:   
Date: 8/15/2022



TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																	
<div>T08N R06W S19 Ty00PC257.00</div> <div>T08N R06W S19 Ty00PC81.00</div> <div>T08N R06W S19 TyRW1.00</div>				Project: LARKPC										Page 1							
				Acres 339.00										Date 8/19/2022							
														Time 7:01:22AM							
S Spp	So T	Gr rt	ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre
				Def%	Gross	Net	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		
D		DOCU															25	7		0.00	5.5
D		DO2S		4	1.0	295	292	99		1	99		31	36	15	18	25	13	143	1.46	2.0
D		DO3S		76	2.4	4,783	4,667	1,582		100	0		1	11	32	55	35	8	80	0.71	58.5
D		DO4S		20	2.0	1,213	1,189	403		0	100		38	51	2	8	23	6	27	0.40	44.7
D Totals				92	2.3	6,291	6,148	2,084		0	95	5	10	20	25	45	29	7	55	0.59	110.8
H		DOCU															11	6		0.00	1.8
H		DO2S			2.8	2	2	1		12	88				11	89	39	13	238	1.70	.0
H		DO3S		58	1.4	321	317	107		100	0			24	32	43	34	7	61	0.57	5.2
H		DO4S		42	1.3	228	225	76		100			48	52			20	6	24	0.41	9.2
H Totals				8	1.3	551	543	184		100	0		20	36	19	26	24	6	33	0.46	16.3
A		DO2S		10		0	0	0		100				100			24	8	40	0.58	.0
A		DO3S		53		1	1	0		100				24	29	48	35	6	57	0.54	.0
A		DO4S		37	13.1	1	1	0		100			14	53	33		28	6	33	0.42	.0
A Totals				0	5.3	2	2	1		100			5	42	27	25	31	6	44	0.49	.0
Totals					2.2	6,843	6,693	2,269		0	96	4	11	22	25	43	28	7	53	0.58	127.2

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page 1						
		Project: LARKPC												Date	8/19/2022					
														Time	7:13:34AM					
T08N R06W S19 T00PC										T08N R06W S19 T00PC										
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt											
08N	06W	19	U123TAKE	00PC	257.00	66	64	1	W											
S So Gr Spp T rt ad			% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
			Log Scale Dia.					Log Length				Ln	Dia	Bd	CF/ Lf					
D DO CU																26	7		0.00	6.9
D DO 2S			1	100 100			26	100				100				24	13	150	1.42	.7
D DO 3S			78	2.6	5,492	5,347	1,374	100				10 35 55				35	8	78	0.69	68.4
D DO 4S			21	2.2	1,417	1,385	356	100				38 52 3 8				23	6	26	0.39	53.1
D Totals			100	2.5	7,009	6,833	1,756	99 1				8 20 28 45				29	7	53	0.57	129.1
Type Totals				2.5	7,009	6,833	1,756	99 1				8 20 28 45				29	7	53	0.57	129.1

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page 1								
Project: LARKPC										Date	8/19/2022									
										Time	7:13:34AM									
T08N R06W S19 T00PC										T08N R06W S19 T00PC										
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt											
08N	06W	19	U3ATAKE	00PC	81.00	31	52	1	W											
S So Gr Spp T rt ad		% 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				
D	DO	CU													14	12		0.00	1.0	
D	DO	2S	22	1.3	858	847	69		100			44	14	21	21	25	13	139	1.47	6.1
D	DO	3S	63	1.0	2,438	2,413	195		100			9	23	8	60	33	9	92	0.84	26.1
D	DO	4S	15		544	544	44		100			42	46		12	24	6	31	0.50	17.5
D Totals		63	.9	3,840	3,804	308		78	22			22	24	10	44	28	8	75	0.80	50.7
H	DO	CU														11	6		0.00	7.7
H	DO	3S	58	1.4	1,327	1,309	106		100				24	33	43	34	7	60	0.56	21.7
H	DO	4S	42	1.3	950	938	76		100			47	53			20	6	24	0.41	38.6
H Totals		37	1.3	2,278	2,247	182		100				20	36	19	25	24	6	33	0.46	68.0
Type Totals				1.1	6,117	6,051	490		86	14		21	29	13	37	26	7	51	0.62	118.6

T		Species, Sort Grade - Board Foot Volumes (Type)										Page		1					
Project:										LARKPC		Date		8/19/2022					
												Time		7:13:34AM					
T08N R06W S19 TRW										T08N R06W S19 TRW									
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt										
08N	06W	19	U4	RW	1.00	66	211	1	W										
S So Gr T rt ad Sp			% 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			
D	DO	CU								19	9		0.00		9.7				
D	DO	2S	22	1.7	4,624	4,547	5	13	87	2	9	16	73	36	12	181	1.40	25.1	
D	DO	3S	63	2.3	12,711	12,412	12	99	1		9	34	57	35	8	90	0.77	138.6	
D	DO	4S	15	2.3	3,024	2,954	3	2	98	35	52	4	9	23	6	27	0.43	108.1	
D Totals			88	2.2	20,359	19,913	20	0	79	21	6	15	25	54	30	8	71	0.72	281.6
H	DO	CU								6	16		0.00		.5				
H	DO	2S	31	2.8	716	696	1	12	88			11	89	39	13	238	1.70	2.9	
H	DO	3S	59	.4	1,303	1,298	1	94	6		15	14	71	36	8	88	0.76	14.7	
H	DO	4S	10	1.5	203	200	0	100		54	46			21	6	24	0.45	8.3	
H Totals			10	1.3	2,222	2,194	2	69	31	5	13	12	70	31	8	83	0.82	26.5	
A	DO	2S	10		57	57	0	100			100			24	8	40	0.58	1.4	
A	DO	3S	53		304	304	0	100			24	29	48	35	6	57	0.54	5.4	
A	DO	4S	37	13.1	242	211	0	100		14	53	33		28	6	33	0.42	6.3	
A Totals			3	5.3	604	572	1	100		5	42	27	25	31	6	44	0.49	13.1	
Type Totals				2.2	23,184	22,678	23	0	79	21	6	16	24	55	30	8	71	0.72	321.2

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	LARKPC			DATE	8/19/2022	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
08N	06W	19	U123	00PC	257.00	66	526	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		66	526	8.0						
CRUISE		28	209	7.5	51,340		.4			
DBH COUNT										
REFOREST										
COUNT		38	310	8.2						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUGLEAV	109	78.7	16.3	62	28.2	114.1	13,240	12,970	3,903	3,903
DOUG FIR	63	83.5	12.8	47	20.8	74.5	6,999	6,823	2,133	2,133
HEMLEAV	24	15.5	15.1	55	5.0	19.4	2,222	2,194	678	678
ALDRLEAV	8	11.7	10.9	36	2.3	7.6	604	572	197	197
SNAG	5	10.4	10.2	60	1.8	5.9				
TOTAL	209	199.8	14.3	54	58.6	221.4	23,064	22,558	6,911	6,911
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUGLEAV	42.2	4.0	180	188	195					
DOUG FIR	55.7	7.0	90	96	103					
HEMLEAV	53.9	11.2	164	185	205					
ALDRLEAV	23.9	9.0	45	50	55					
SNAG										
TOTAL	59.3	4.1	144	150	156		140	35	16	
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUGLEAV	33.0	4.1	75	79	82					
DOUG FIR	75.6	9.3	76	83	91					
HEMLEAV	144.3	17.7	13	16	18					
ALDRLEAV	299.1	36.8	7	12	16					
SNAG	269.9	33.2	7	10	14					
TOTAL	31.5	3.9	192	200	207		40	10	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	
DOUGLEAV	29.9	3.7	110	114	118					
DOUG FIR	74.9	9.2	68	75	81					
HEMLEAV	144.5	17.8	16	19	23					
ALDRLEAV	298.5	36.7	5	8	10					
SNAG	255.1	31.4	4	6	8					
TOTAL	25.8	3.2	214	221	228		26	7	3	
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUGLEAV	32.3	4.0	12,455	12,970	13,485					
DOUG FIR	76.5	9.4	6,181	6,823	7,465					
HEMLEAV	145.6	17.9	1,801	2,194	2,586					
ALDRLEAV	303.6	37.3	358	572	785					
SNAG										
TOTAL	27.1	3.3	21,806	22,558	23,310		29	7	3	

TC TSTATS				STATISTICS			PAGE	2	
				PROJECT	LARKPC		DATE	8/19/2022	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
08N	06W	19	U123	00PC	257.00	66	526	1	W
CL:	68.1 %	COEFF		TONS/ACRE			# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
CL:	68.1 %	COEFF		TONS/ACRE			# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUGLEAV		32.5	4.0	95	99	103			
DOUG FIR		76.7	9.4	48	52	57			
HEMLEAV		145.5	17.9	45	54	64			
ALDRLEAV									
SNAG									
TOTAL		38.3	4.7	196	206	216	58	15	6



TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	LARKPC			DATE	8/19/2022		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
08N	06W	19	U3A	00PC	81.00	31	327	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TREES	SAMPLE					
						TREES					
TOTAL		31	327	10.5							
CRUISE		12	132	11.0	15,585		.8				
DBH COUNT											
REFOREST											
COUNT		19	190	10.0							
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	
HEMLEAV		49	75.9	14.8	54	23.5	90.3	9,537	9,446	2,981	
DOUG FIR		20	27.2	16.1	55	9.6	38.7	3,840	3,804	1,145	
DOUGLEAV		23	15.7	20.9	65	8.2	37.4	4,044	3,978	1,204	
WHEMLOCK		32	60.8	10.1	28	10.6	33.5	2,278	2,247	738	
ALDRLEAV		7	12.3	12.4	31	2.9	10.3	896	851	249	
SNAG		1	.5	15.0	64	0.2	.6		249	249	
TOTAL		132	192.4	14.2	46	56.0	211.0	20,594	20,326	6,318	
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		
HEMLEAV		37.1	5.3	130	138	145					
DOUG FIR		32.5	7.4	142	154	165					
DOUGLEAV		29.9	6.4	250	267	284					
WHEMLOCK		71.8	12.7	40	45	51					
ALDRLEAV		61.9	25.2	78	104	131					
SNAG											
TOTAL		65.5	5.7	130	137	145	171	43	19		
CL: 68.1 %		COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
HEMLEAV		59.0	10.6	68	76	84					
DOUG FIR		128.4	23.0	21	27	33					
DOUGLEAV		120.2	21.6	12	16	19					
WHEMLOCK		123.6	22.2	47	61	74					
ALDRLEAV		161.6	29.0	9	12	16					
SNAG		556.8	99.9	0	1	1					
TOTAL		46.1	8.3	176	192	208	85	21	9		
CL: 68.1 %		COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
HEMLEAV		59.7	10.7	81	90	100					
DOUG FIR		126.5	22.7	30	39	47					
DOUGLEAV		118.5	21.3	29	37	45					
WHEMLOCK		119.6	21.5	26	34	41					
ALDRLEAV		149.0	26.7	8	10	13					
SNAG		556.8	99.9	0	1	1					
TOTAL		31.0	5.6	199	211	223	38	10	4		
CL: 68.1 %		COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
HEMLEAV		61.4	11.0	8,404	9,446	10,487					
DOUG FIR		127.6	22.9	2,933	3,804	4,675					
DOUGLEAV		119.8	21.5	3,123	3,978	4,833					
WHEMLOCK		120.1	21.5	1,763	2,247	2,731					
ALDRLEAV		152.9	27.4	618	851	1,085					
SNAG											

TC TSTATS				STATISTICS				PAGE	2
				PROJECT		LARKPC		DATE	8/19/2022
<b>TWP</b>	<b>RGE</b>	<b>SECT</b>	<b>TRACT</b>	<b>TYPE</b>	<b>ACRES</b>	<b>PLOTS</b>	<b>TREES</b>	<b>CuFt</b>	<b>BdFt</b>
<b>08N</b>	<b>06W</b>	<b>19</b>	<b>U3A</b>	<b>00PC</b>	81.00	31	327	1	W
CL: 68.1 %	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.	S.E.%	LOW	AVG	HIGH		5	10	15
<b>TOTAL</b>	30.4	5.5	19,215	20,326	21,436		37	9	4
CL: 68.1 %	COEFF		TONS/ACRE				# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15
HEMLEAV	61.9	11.1	212	239	265				
DOUG FIR	127.4	22.9	22	29	35				
DOUGLEAV	119.7	21.5	24	30	37				
WHEMLOCK	119.4	21.4	16	20	25				
ALDRLEAV									
SNAG									
<b>TOTAL</b>	38.2	6.9	296	318	340		58	15	6

TC PSTATS			PROJECT STATISTICS						PAGE 1			
			PROJECT		LARKPC		DATE		8/19/2022			
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt			
08N	06	19	U123TAKE	00PC	339.00	163	815	1	W			
08N	06W	19	U3ATAKE	00PC								
08N	06W	19	U4	RW								
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL			163	815	5.0							
CRUISE			61	324	5.3	28,779	1.1					
DBH COUNT												
REFOREST												
COUNT			88	484	5.5							
BLANKS			14									
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			255	70.3	13.2	48	18.3	66.3	6,291	6,148	1,908	1,908
WHEMLOCK			56	14.6	10.1	28	2.5	8.1	551	543	178	178
R ALDER			8	.0	10.9	36	0.0	.0	2	2	1	1
SNAG			5	.0	10.2	60	0.0	.0				
TOTAL			324	84.9	12.7	45	20.9	74.4	6,843	6,693	2,087	2,087
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			56.3	3.5	135	140	145					
WHEMLOCK			93.2	12.4	92	105	118					
R ALDER			23.9	9.0	45	50	55					
SNAG												
TOTAL			65.2	3.6	125	130	134	170	42	19		
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			150.4	11.8	62	70	79					
WHEMLOCK			346.7	27.1	11	15	19					
R ALDER			483.5	37.8	0	0	0					
SNAG			439.4	34.4	0	0	0					
TOTAL			130.7	10.2	76	85	94	682	171	76		
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			143.4	11.2	59	66	74					
WHEMLOCK			338.1	26.5	6	8	10					
R ALDER			482.6	37.8	0	0	0					
SNAG			417.2	32.6	0	0	0					
TOTAL			129.2	10.1	67	74	82	666	167	74		
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			144.0	11.3	5,455	6,148	6,840					
WHEMLOCK			337.1	26.4	400	543	687					
R ALDER			490.3	38.4	1	2	2					
SNAG												
TOTAL			132.6	10.4	5,998	6,693	7,387	702	175	78		
CL	68.1	COEFF	TONS/ACRE					# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15			
DOUG FIR			144.4	11.3	42	47	53					
WHEMLOCK			335.9	26.3	4	5	6					
R ALDER												

TC PSTATS		PROJECT STATISTICS							PAGE	2
		PROJECT LARKPC							DATE	8/19/2022
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
08N	06	19	U123TAKE	00PC		339.00	163	815	1	W
08N	06W	19	U3ATAKE	00PC						
08N	06W	19	U4	RW						
CL	68.1		COEFF	TONS/ACRE				# OF PLOTS REQ.	INF. POP.	
SD:	1.00		VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
SNAG										
TOTAL			131.6	10.3	47	52	58	691	173	77

TC TSTATS				STATISTICS				PAGE	1			
				PROJECT	LARKPC	DATE 8/19/2022						
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt			
08N	06W	19	U123TAKE	00PC	257.00	66	177	1	W			
				TREES	ESTIMATED	PERCENT						
				PER PLOT	TREES	SAMPLE						
						TREES						
PLOTS		TREES										
TOTAL		66		177		2.7						
CRUISE		22		63		2.9		21,454 .3				
DBH COUNT												
REFOREST												
COUNT		35		114		3.3						
BLANKS		9										
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		63		83.5	12.8	47	20.8	74.5	7,009	6,833	2,133	2,133
TOTAL		63		83.5	12.8	47	20.8	74.5	7,009	6,833	2,133	2,133
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		55.8		7.0	90	97	103					
TOTAL		55.8		7.0	90	97	103	124	31	14		
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		75.6		9.3	76	83	91					
TOTAL		75.6		9.3	76	83	91	228	57	25		
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		74.9		9.2	68	75	81					
TOTAL		74.9		9.2	68	75	81	224	56	25		
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		76.5		9.4	6,189	6,833	7,476					
TOTAL		76.5		9.4	6,189	6,833	7,476	234	58	26		
CL: 68.1 %	COEFF	TONS/ACRE						# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH			5	10	15		
DOUG FIR		76.7		9.4	48	53	58					
TOTAL		76.7		9.4	48	53	58	235	59	26		

TC TSTATS				STATISTICS PROJECT LARKPC				PAGE 1 DATE 8/19/2022			
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
08N	06W	19	U3ATAKE	00PC	81.00	31	112	1	W		
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		31	112	3.6							
CRUISE		11	52	4.7	7,128		.7				
DBH COUNT											
REFOREST											
COUNT		15	60	4.0							
BLANKS		5									
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		20	27.2	16.1	55	9.6	38.7	3,840	3,804	1,145	1,145
WHEMLOCK		32	60.8	10.1	28	10.6	33.5	2,278	2,247	738	738
TOTAL		52	88.0	12.3	36	20.6	72.3	6,117	6,051	1,883	1,883
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		32.5	7.4	142	154	165					
WHEMLOCK		71.8	12.7	40	45	51					
TOTAL		76.3	10.6	78	87	96	232	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		
DOUG FIR		128.4	23.0	21	27	33					
WHEMLOCK		123.6	22.2	47	61	74					
TOTAL		86.1	15.4	74	88	102	296	74	33		
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		126.5	22.7	30	39	47					
WHEMLOCK		119.6	21.5	26	34	41					
TOTAL		77.5	13.9	62	72	82	240	60	27		
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		127.6	22.9	2,933	3,804	4,675					
WHEMLOCK		120.1	21.5	1,763	2,247	2,731					
TOTAL		84.2	15.1	5,137	6,051	6,965	283	71	31		
CL:	68.1 %	COEFF		TONS/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		127.4	22.9	22	29	35					
WHEMLOCK		119.4	21.4	16	20	25					
TOTAL		81.5	14.6	42	49	57	265	66	29		

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT LARKPC				DATE	8/19/2022		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
08N	06W	19	U4	RW	1.00	66	526	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
TOTAL		66	526	8.0							
CRUISE		28	209	7.5	197		105.9				
DBH COUNT											
REFOREST											
COUNT		38	310	8.2							
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		172	159.8	14.7	55	49.2	188.6	20,359	19,913	6,067	6,067
WHEMLOCK		24	15.5	15.1	55	5.0	19.4	2,222	2,194	678	678
R ALDER		8	11.7	10.9	36	2.3	7.6	604	572	197	197
SNAG		5	10.4	10.2	60	1.8	5.9				
TOTAL		209	197.4	14.3	54	58.5	221.4	23,184	22,678	6,941	6,941
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		54.1	4.1	148	154	161					
WHEMLOCK		53.9	11.2	164	185	205					
R ALDER		23.9	9.0	45	50	55					
SNAG											
TOTAL		59.3	4.1	144	150	156	140	35	16		
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		39.6	4.9	152	160	168					
WHEMLOCK		144.3	17.7	13	16	18					
R ALDER		299.1	36.8	7	12	16					
SNAG		269.9	33.2	7	10	14					
TOTAL		29.1	3.6	190	197	204	34	8	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		36.0	4.4	180	189	197					
WHEMLOCK		144.5	17.8	16	19	23					
R ALDER		298.5	36.7	5	8	10					
SNAG		255.1	31.4	4	6	8					
TOTAL		25.8	3.2	214	221	228	26	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		37.7	4.6	18,989	19,913	20,836					
WHEMLOCK		145.6	17.9	1,801	2,194	2,586					
R ALDER		303.6	37.3	358	572	785					
SNAG											
TOTAL		28.3	3.5	21,890	22,678	23,467	32	8	4		
CL:	68.1 %	COEFF	TONS/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		37.7	4.6	146	153	160					
WHEMLOCK		146.3	18.0	16	20	24					
R ALDER											
SNAG											
TOTAL		31.9	3.9	166	173	179	41	10	5		

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT LARKPC				DATE	8/19/2022	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
08N	06W	19	U123LEAVE	00PC	257.00	66	352	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
PLOTS		TREES								
TOTAL		66		352		5.3				
CRUISE		28		146		5.2		30,146		.5
DBH COUNT										
REFOREST										
COUNT		38		201		5.3				
BLANKS										
100 %										
STAND SUMMARY										
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUGLEAV		109	78.7	16.3	62	28.2	114.1	13,268	12,991	3,903
HEMLEAV		24	16.5	15.1	55	5.3	20.6	2,377	2,347	724
ALDRLEAV		8	11.7	10.9	36	2.3	7.6	604	572	197
SNAG		5	10.4	10.2	60	1.8	5.9			
TOTAL		146	117.3	15.2	59	38.0	148.2	16,248	15,910	4,824
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUGLEAV		42.2	4.0	181	188	196				
HEMLEAV		53.9	11.2	165	185	206				
ALDRLEAV		23.9	9.0	45	50	55				
SNAG										
TOTAL		52.6	4.4	166	174	181		111	28	12
CL: 68.1 %	COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUGLEAV		33.0	4.1	75	79	82				
HEMLEAV		140.2	17.2	14	17	19				
ALDRLEAV		299.1	36.8	7	12	16				
SNAG		269.9	33.2	7	10	14				
TOTAL		32.9	4.0	113	117	122		43	11	5
CL: 68.1 %	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUGLEAV		29.9	3.7	110	114	118				
HEMLEAV		140.4	17.3	17	21	24				
ALDRLEAV		298.5	36.7	5	8	10				
SNAG		255.1	31.4	4	6	8				
TOTAL		13.3	1.6	146	148	151		7	2	1
CL: 68.1 %	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUGLEAV		32.3	4.0	12,476	12,991	13,507				
HEMLEAV		141.2	17.4	1,939	2,347	2,755				
ALDRLEAV		303.6	37.3	358	572	785				
SNAG										
TOTAL		12.7	1.6	15,661	15,910	16,159		6	2	1



TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	LARKPC			DATE	8/19/2022	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
08N	06W	19	U3A	LEAVE	00PC	81.00	31	215	1	W
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		31	215	6.9						
CRUISE		12	80	6.7	8,457			.9		
DBH COUNT										
REFOREST										
COUNT		19	130	6.8						
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
HEMLEAV		49	75.9	14.8	54	23.5	90.3	9,537	9,446	2,981
DOUGLEAV		23	15.7	20.9	65	8.2	37.4	4,044	3,978	1,204
ALDRLEAV		7	12.3	12.4	31	2.9	10.3	896	851	249
SNAG		1	.5	15.0	64	0.2	.6			
TOTAL		80	104.4	15.6	53	35.1	138.7	14,477	14,275	4,435
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
HEMLEAV		37.1	5.3	130	138	145				
DOUGLEAV		29.9	6.4	250	267	284				
ALDRLEAV		61.9	25.2	78	104	131				
SNAG										
TOTAL		52.0	5.8	160	170	180	108	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
HEMLEAV		59.0	10.6	68	76	84				
DOUGLEAV		120.2	21.6	12	16	19				
ALDRLEAV		161.6	29.0	9	12	16				
SNAG		556.8	99.9	0	1	1				
TOTAL		29.0	5.2	99	104	110	34	8	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
HEMLEAV		59.7	10.7	81	90	100				
DOUGLEAV		118.5	21.3	29	37	45				
ALDRLEAV		149.0	26.7	8	10	13				
SNAG		556.8	99.9	0	1	1				
TOTAL		18.2	3.3	134	139	143	13	3	1	
CL:	68.1 %	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15
HEMLEAV		61.4	11.0	8,404	9,446	10,487				
DOUGLEAV		119.8	21.5	3,123	3,978	4,833				
ALDRLEAV		152.9	27.4	618	851	1,085				
SNAG										
TOTAL		20.8	3.7	13,743	14,275	14,807	17	4	2	





TC		PLOGSTVT		Project Log Stock Table - TONS													
T08N R06W S19 Ty00PC		257.00		Project: LARKPC										Page 3			
T08N R06W S19 Ty00PC		81.00		Acres 339.00										Date 8/23/2022			
T08N R06W S19 TyRW		1.00												Time 4:25:38PM			
S Spp	T	So Gr rt de	Log Len	TONS	% Spc	Tons 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+
Total		All Species		17,488	100.0	0	7733	5203	3800	587	165						

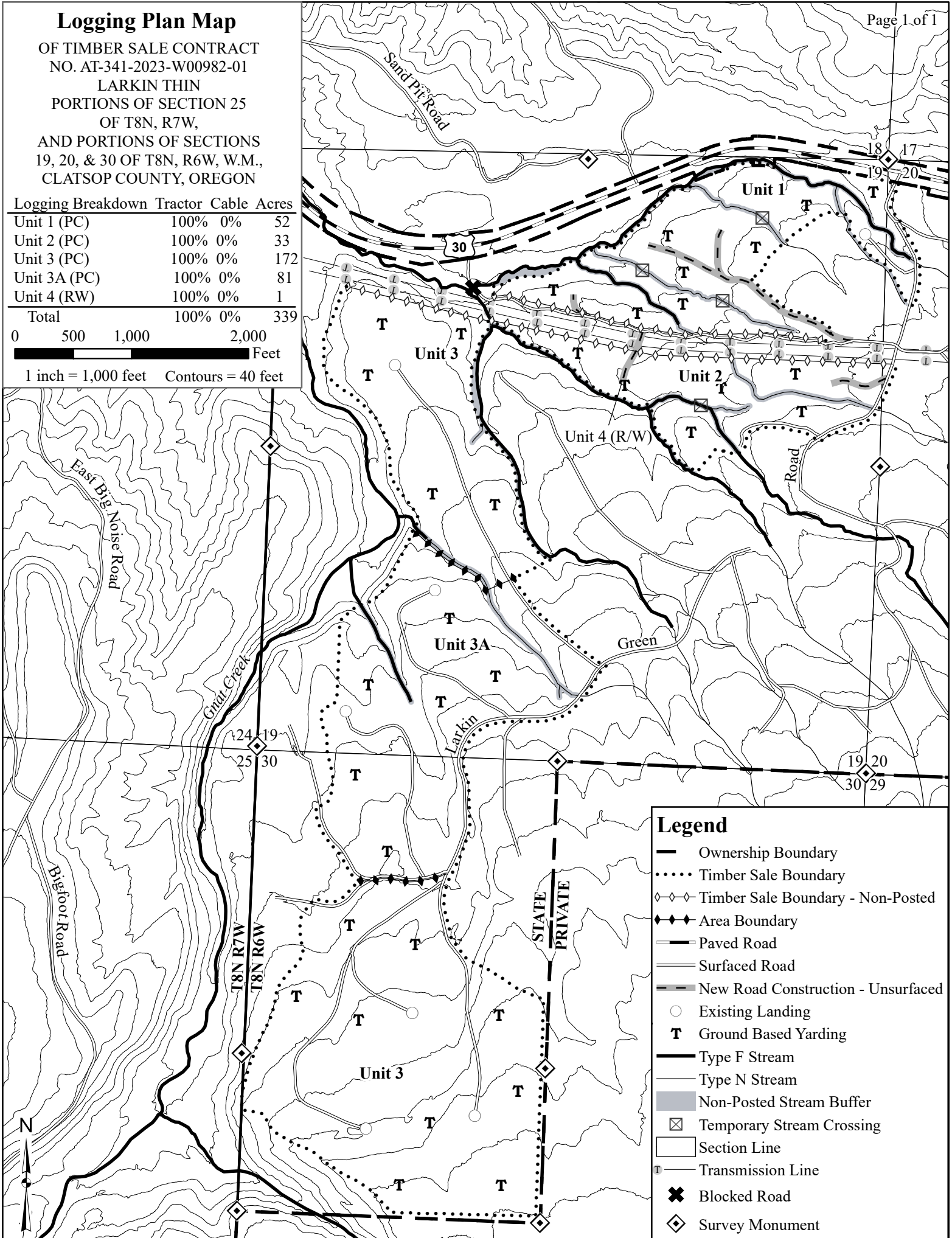
TC		PSTNDSUM		Stand Table Summary										Page Date:		1 8/23/2022	
<div>T08N R06W S19 Ty00PC257.00 T08N R06W S19 Ty00PC81.00 T08N R06W S19 TyRW1.00</div>					ProjectLARKPC					Time:		4:25:37PM					
					Acres339.00					Grown Year:							
S Spc	T	Tot						Average Log		Net		Net		Totals			
		DBH	Sample 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	
D		9	4	85	45	4.073	1.80	4.07	8.0	35.0	1.07	33	143	362	110	48	
D		10	8	83	63	6.777	3.60	6.78	11.5	37.8	1.92	78	256	652	264	87	
D		11	16	83	70	10.515	6.76	12.02	13.7	43.2	3.89	164	519	1,320	556	176	
D		12	22	84	77	11.871	9.00	14.07	15.8	53.4	5.63	223	751	1,910	756	255	
D		13	36	84	82	12.494	11.29	22.05	15.3	47.4	8.20	337	1,044	2,781	1,141	354	
D		14	16	84	79	3.821	4.08	7.21	17.5	52.4	3.08	126	377	1,046	429	128	
D		15	31	84	83	7.890	9.49	14.99	19.9	61.2	6.99	298	917	2,370	1,009	311	
D		16	26	85	95	5.096	6.85	10.19	24.3	83.7	6.53	247	853	2,212	838	289	
D		17	24	83	89	2.935	4.57	5.87	27.4	86.1	3.92	161	506	1,330	545	171	
D		18	29	83	82	3.390	5.96	5.25	29.5	97.3	3.87	155	511	1,312	526	173	
D		19	21	80	86	.747	1.42	1.49	28.8	84.5	.98	43	126	333	146	43	
D		20	10	86	72	.436	.95	.87	32.7	112.9	.74	29	98	250	97	33	
D		21	5	86	75	.207	.48	.42	34.7	101.1	.32	14	42	107	49	14	
D		22	4	85	102	.005	.01	.01	45.3	163.7	.01	1	2	5	2	1	
D		23	3	84	89	.003	.01	.01	49.6	154.9	.01	0	1	3	1	0	
D		Totals	255	84	76	70.260	66.29	105.29	18.1	58.4	47.18	1,908	6,148	15,995	6,470	2,084	
H		8	2	86	19	1.435	.50	1.44	4.0	15.0	.17	6	22	58	19	7	
H		9	11	81	36	5.950	2.51	4.11	8.1	26.9	.89	33	111	300	113	38	
H		10	5	79	61	1.990	1.00	1.99	12.7	39.8	.63	25	79	215	86	27	
H		11	4	83	62	1.592	1.00	2.01	12.7	35.9	.58	26	72	195	87	24	
H		12	9	80	69	2.296	1.76	2.62	19.0	53.6	1.12	50	140	381	168	48	
H		13	3	81	67	.590	.50	.89	15.7	43.4	.33	14	38	112	47	13	
H		14	3	84	73	.471	.50	.94	17.5	57.5	.43	16	54	147	56	18	
H		15	4	82	64	.224	.26	.45	16.1	50.5	.22	7	23	73	25	8	
H		16	2	83	65	.003	.00	.01	27.3	76.7	.00	0	0	1	0	0	
H		17	2	84	84	.003	.00	.01	28.5	90.0	.00	0	1	2	1	0	
H		18	4	85	89	.006	.01	.01	31.3	103.9	.01	0	1	3	1	0	
H		19	1	86	77	.001	.00	.00	35.0	115.0	.00	0	0	1	0	0	
H		20	1	86	72	.001	.00	.00	37.0	110.0	.00	0	0	1	0	0	
H		21	1	85	89	.001	.00	.00	43.0	140.0	.00	0	0	1	0	0	
H		22	3	85	87	.003	.01	.01	50.5	163.4	.01	0	1	3	1	0	
H		23	1	85	93	.001	.00	.00	57.5	210.0	.00	0	0	1	0	0	
H		Totals	56	81	49	14.568	8.07	14.48	12.3	37.5	4.41	178	543	1,494	605	184	
A		10	3	86	63	.015	.01	.02	13.7	43.3		0	1		1	0	
A		11	2	86	64	.008	.01	.01	11.3	30.0		0	0		0	0	
A		12	3	87	62	.011	.01	.01	21.3	60.0		0	1		1	0	
A		Totals	8	86	63	.035	.02	.04	15.0	43.6		1	2		2	1	
SN		8	1	89	58	.010	.00										
SN		10	3	87	59	.019	.01										
SN		20	1	85	90	.002	.00										
SN		Totals	5	88	60	.031	.02										
Totals			324	83	72	84.894	74.40	119.81	17.4	55.9	51.59	2,087	6,693	17,488	7,076	2,269	

# Logging Plan Map

OF TIMBER SALE CONTRACT  
NO. AT-341-2023-W00982-01  
LARKIN THIN  
PORTIONS OF SECTION 25  
OF T8N, R7W,  
AND PORTIONS OF SECTIONS  
19, 20, & 30 OF T8N, R6W, W.M.,  
CLATSOP COUNTY, OREGON

Logging Breakdown	Tractor	Cable	Acres
Unit 1 (PC)	100%	0%	52
Unit 2 (PC)	100%	0%	33
Unit 3 (PC)	100%	0%	172
Unit 3A (PC)	100%	0%	81
Unit 4 (RW)	100%	0%	1
Total	100%	0%	339

0 500 1,000 2,000 Feet  
1 inch = 1,000 feet Contours = 40 feet



## Legend

- Ownership Boundary
- Timber Sale Boundary
- Timber Sale Boundary - Non-Posted
- Area Boundary
- Paved Road
- Surfaced Road
- New Road Construction - Unsurfaced
- Existing Landing
- Ground Based Yarding
- Type F Stream
- Type N Stream
- Non-Posted Stream Buffer
- Temporary Stream Crossing
- Section Line
- Transmission Line
- Blocked Road
- Survey Monument