



Timber Sale Appraisal
Shining C
Sale FG-341-2017-38-

District: Forest Grove

Date: September 02, 2016

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$1,382,008.50	\$137,603.70	\$1,519,612.20
		Project Work:	(\$271,000.00)
		Advertised Value:	\$1,248,612.20



Timber Sale Appraisal
Shining C
Sale FG-341-2017-38-

District: Forest Grove

Date: September 02, 2016

Timber Description

Location: Portions of Sections 16 and 17, T1N, R6W, W.M., Tillamook County, Oregon.

Stand Stocking: 20%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	19	0	98
Alder (Red)	15	0	95

Volume by Grade	2S	3S	4S	CR 14" - 22"	Total
Douglas - Fir	2,717	1,272	186	0	4,175
Alder (Red)	0	0	0	390	390
Total	2,717	1,272	186	390	4,565

Comments: Pond Values Used: 2nd Quarter Calendar Year 2016.

Western Hemlock and Other Conifers Stumpage Price = Pond Value minus Logging Cost:
 $\$161.55/\text{MBF} = \$435/\text{MBF} - \$273.45/\text{MBF}$

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:
 $\$901.55/\text{MBF} = \$1,175/\text{MBF} - 273.45/\text{MBF}$

SCALING COST ALLOWANCE = \$5.00/MBF

BRANDING AND PAINTING COST ALLOWANCE = \$2.00/MBF

FUEL COST ALLOWANCE = \$3.00/Gallon

HAULING COST ALLOWANCE

Hauling costs equivalent to \$780 daily truck cost.

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

Extra Logging Cost: $4,565 \text{ MBF} \times \$10/\text{MBF} = \$45,650$

TOTAL Other Costs (with Profit & Risk to be added) = \$45,650

Other Costs (No Profit & Risk added):

Block/Waterbar Roads/Skid Trails: $10 \text{ hrs} \times \$150/\text{hour} = \$1,500$

Refurbish Recreational Trail: $\$4/\text{foot} \times 1,250' = \$5,000$

Pile Landing Slash: $20 \text{ hrs} \times \$150/\text{hour} = \$3,000$

Equipment Cleaning: $3 \times \$1,000/\text{Piece} = \$3,000$

TOTAL Other Costs (No Profit & Risk added) = \$12,500

ROAD MAINTENANCE

Move-in: \$4,000

General Road Maintenance: $4.2 \text{ miles} \times \$1,200/\text{mile} = \$5,040$

TOTAL Road Maintenance: $\$9,040/4,565 \text{ MBF} = \$1.98/\text{MBF}$



Timber Sale Appraisal Shining C

Sale FG-341-2017-38-

District: Forest Grove

Date: September 02, 2016

Logging Conditions

Combination#: 1 Douglas - Fir 90.01%
 Alder (Red) 73.92%

Logging System: Cable: Large Tower >=70 **Process:** Stroke Delimber

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

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

loads / day: 8 **bd. ft / load:** 4600

cost / mbf: \$168.48

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

Combination#: 2 Douglas - Fir 9.99%
 Alder (Red) 26.08%

Logging System: Shovel **Process:** Stroke Delimber

yarding distance: Short (400 ft) **downhill yarding:** No

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

loads / day: 12 **bd. ft / load:** 4600

cost / mbf: \$57.46

machines: Stroke Delimber (B)



Timber Sale Appraisal
Shining C
Sale FG-341-2017-38-

District: Forest Grove

Date: September 02, 2016

Logging Costs

Operating Seasons: 1.00	Profit Risk: 15%
Project Costs: \$271,000.00	Other Costs (P/R): \$45,650.00
Slash Disposal: \$0.00	Other Costs: \$12,500.00

Miles of Road

Road Maintenance: \$1.98

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

Hauling Costs

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



Timber Sale Appraisal
Shining C
Sale FG-341-2017-38-

District: Forest Grove

Date: September 02, 2016

Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling / Brand & Paint	Other	Total
Douglas - Fir									
\$157.39	\$2.02	\$0.96	\$58.94	\$10.00	\$34.40	\$0.00	\$7.00	\$2.74	\$273.45
Alder (Red)									
\$139.53	\$2.08	\$0.96	\$136.50	\$10.00	\$43.36	\$0.00	\$7.00	\$2.74	\$342.17

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$604.47	\$331.02	\$0.00
Alder (Red)	\$0.00	\$695.00	\$352.83	\$0.00



Timber Sale Appraisal
Shining C
Sale FG-341-2017-38-

District: Forest Grove

Date: September 02, 2016

Summary

Amortized

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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	4,175	\$331.02	\$1,382,008.50
Alder (Red)	390	\$352.83	\$137,603.70

Gross Timber Sale Value

Recovery: \$1,519,612.20

Prepared By: Eric Foucht

Phone: 503-359-7473

TIMBER SALE SUMMARY
Shining C
Contract No. 341-17-38

1. **Location:** Portions of Sections 16 and 17, T1N, R6W, W.M, Tillamook County, Oregon.
2. **Type of Sale:** This timber sale is 111 acres of Modified Clearcut in 2 sale areas. The timber will be sold on a recovery basis at a sealed bid auction.
3. **Revenue Distribution:** 100% BOF, Tillamook County, Tax Code 9-2
4. **Sale Acreage:** Acres are net of stream buffers and road prisms. Acreage was determined using ESRI ArcMap GIS software.
5. **Cruise:** The Timber Sale was cruised by ODF Cruisers in April of 2016. For more information see Cruise Report.
6. **Timber Description:**
Area 1 is a 44 acre moderately stocked stand of 64 year old Douglas-fir with a significant component of red alder and a lesser amount of western hemlock. Area 2 is a 67 acre well-stocked stand of 64 year old Douglas-fir with minor mounts of red alder and western hemlock.

The following table summarizes the ODF cruise estimates for Douglas-fir.

Sale Area	Net Acres	Average DBH	Trees/Acre	Net MBF/Acre
Area 1	44	19	89	28.4
Area 2	67	19	108	38.5

7. **Topography and Logging Method:**

Slopes within the sale areas range from 15% to 85% and have a generally northwest aspect. Elevations range from 1600 to 2320 feet. The following table summarizes the estimated maximum and average horizontal cable corridor length, the estimated maximum and average tractor skid trail length, and the percent harvest method for each Sale Area.

Sale Area	Tractor			Cable		
	Average	Maximum	%	Average	Maximum	%
Area 1	350	720	27	645	1210	73
Area 2	200	330	3	1550	3042	97

8. **Access:** All access to the Timber Sale Area is on surfaced all-weather roads. From Forest Grove travel west on Highway 8 to its intersection with Highway 6. Proceed west onto Highway 6 for approximately 14.3 miles to the South Fork Wilson River Road. Turn left and continue south 2.8 miles to the C-Line Road. Turn right and continue approximately 1 mile to the northeast corner of Area 2.

9. **Projects:**

Project No. 1: Road Construction and Improvement	\$30,022.88
Project No. 2: Rock Crushing and Road Surfacing	\$61,471.97
Project No. 3: Construct Stockpile Site	\$18,173.76
Project No. 4: Construct 3"-0 Rock Stockpile	\$153,618.80
Project No. 5: Grass Seed, Fertilize & Mulch	\$1,412.00
Move in and equipment cleaning;	\$6,300.59
Total Credit for all Projects	\$271,000

PROJECT COST SUMMARY SHEET

Timber Sale: Shining C
 Sale Number: 341-17-38

PROJECT NO. 1: ROAD CONSTRUCTION AND IMPROVEMENT**CONSTRUCTION**

<u>Road Segment</u>	<u>Length</u>	<u>Cost</u>
E to F	27+60	\$20,845.94
G to H	4+00	\$1,476.38
	31+60 stations	
	0.60 miles	

SUBTOTAL CONSTRUCTION = \$22,322.32

IMPROVEMENTS

<u>Road Segment</u>	<u>Length</u>	<u>Cost</u>
A to B	61+00	\$5,630.17
C to D	24+50	\$2,070.39
	85+50 stations	
	1.62 miles	

SUBTOTAL IMPROVEMENTS = \$7,700.56

TOTAL PROJECT NO. 1 COST = \$30,022.88

PROJECT NO. 2: SURFACING

<u>Road Segment</u>	<u>Rock Amount</u>	<u>Rock Type</u>	<u>Cost</u>
A to B	989 cy	1 1/2" - 0	\$10,961.34
C to D	24 cy	1 1/2" - 0	\$241.20
	890 cy	3" - 0	\$12,728.75
E to F	290 cy	1 1/2" - 0	\$3,103.00
	1,776 cy	3" - 0	\$25,923.76
	78 cy	Jaw Run	\$1,102.14
G to H	460 cy	3" - 0	\$6,849.40
	39 cy	Jaw Run	\$562.38
Total	1,303 cy	1 1/2" - 0	
	3,125 cy	3" - 0	
	117 cy	Jaw Run	

TOTAL PROJECT NO. 2 COST = \$61,471.97

PROJECT NO. 3 CONSTRUCT STOCKPILE SITE AT POINT I**CONSTRUCTION**

Stockpile Site 1.31 ac = \$1,982.82

SUBTOTAL CONSTRUCTION = \$1,982.82

SURFACING

Jaw Run 1,202 cy = \$16,190.94

SUBTOTAL SURFACING = \$16,190.94

TOTAL PROJECT NO. 3 COST = \$18,173.76

PROJECT NO. 4 CONSTRUCT 9,500CY STOCKPILE OF 3"-0 AT POINT I

9,500cy Stockpile = 11,020 cy 3"-0 \$153,618.80

TOTAL PROJECT NO. 4 COST = \$153,618.80

PROJECT NO. 5 GRASS SEED, FERTILIZE, & MULCH

TOTAL PROJECT NO. 5 COST = \$1,412.00

MOVE-IN & EQUIPMENT CLEANING

Grader	\$836.47
Loader (into Beaverdam Stockpile)	\$618.87
Roller (smooth/grid) & Compactor	\$522.69
Excavator - Equipment Cleaning	\$1,836.47
Dozer - Equipment Cleaning	\$1,881.05
Dump Trucks	\$470.14
Water Truck	\$134.90

TOTAL MOVE-IN & EQUIPMENT CLEANING COST = \$6,300.59

TOTAL ALL PROJECTS \$271,000.00

SUMMARY OF CONSTRUCTION COST

Timber Sale: Shining C
 Road Segment: A to B

Sale Number: 341-17-38
 Improvement: 61+00 stations
1.16 miles

PROJECT NO. 1

EXCAVATION

Roadside brushing (light)	1.16	mi @	\$700.00	per mi =	\$812.00
Clean ditch & scatter waste material	38.45	sta @	\$12.41	per sta =	\$477.17
Clean culvert inlet & outlet	11	ea @	\$25.00	per ea =	\$275.00
Grade, ditch, & roll	61.00	sta @	\$36.00	per sta =	\$2,196.00
TOTAL EXCAVATION COSTS =					\$3,760.17

CULVERTS - MATERIALS & INSTALLATION

Culverts

90 LF of 18" \$1,800.00

Culvert Markers

7 markers \$70.00

TOTAL CULVERT COSTS = \$1,870.00

PROJECT NO. 1 TOTAL COST = \$5,630.17

PROJECT NO. 2:

SURFACING

3 " deep = 15 cy/sta

A to B	915	cy of	1 1/2" - 0	@	\$10.38	per cy =	\$9,497.70
Turnouts (2)	14	cy of	1 1/2" - 0	@	\$10.38	per cy =	\$145.32
Junction	60	cy of	1 1/2" - 0	@	\$10.38	per cy =	\$622.80
Culvert bedding	72	cy of	1 1/2" - 0	@	\$9.66	per cy =	\$695.52
Rock Total =	1,061						
	989	cy of	1 1/2" - 0		\$10.38	per cy =	\$10,265.82
	72	cy of	1 1/2" - 0		\$9.66	per cy =	\$695.52

PROJECT NO. 2 TOTAL COST = \$10,961.34

PROJECT NO. 5:

Grass seed & fertilizer	0.02	acres	@	\$425.00	per acre =	\$8.50
Mulch	11	bales	@	\$8.00	per bale =	\$88.00

PROJECT NO. 5 TOTAL COST = \$96.50

TOTAL COST = \$16,688.01

SUMMARY OF CONSTRUCTION COST

Timber Sale: Shining C
 Road Segment: C to D

Sale Number: 341-17-38
 Improvement: 24+50 stations
0.46 miles

PROJECT NO. 1

EXCAVATION

Roadside brushing (light)	0.47	mi @	\$700.00	per mi =	\$329.00
Clean ditch & scatter waste material	6.80	sta @	\$12.41	per sta =	\$84.39
Clean culvert inlet & outlet	7	ea @	\$25.00	per ea =	\$175.00
Grade, ditch, & roll	24.50	sta @	\$36.00	per sta =	\$882.00
Improve/Enlarge Landing	1	ea @	\$157.00	per ea =	\$157.00

TOTAL EXCAVATION COSTS = \$1,470.39

CULVERTS - MATERIALS & INSTALLATION

Culverts

30 LF of 18" \$600.00

Culvert Markers

1 markers \$0.00

PROJECT NO. 1 TOTAL COST = \$2,070.39

PROJECT NO. 2:

SURFACING

6 " deep = 31 cy/sta

C to D	760	cy of	3" - 0	@	\$14.31	per cy =	\$10,868.45
Landing	130	cy of	3" - 0	@	\$14.31	per cy =	\$1,860.30
Culvert bedding	24	cy of	1 1/2" - 0	@	\$10.05	per cy =	\$241.20
Rock Total =	914						
	24	cy of	1 1/2" - 0		\$10.05	per cy =	\$241.20
	890	cy of	3" - 0		\$14.31	per cy =	\$12,728.75

PROJECT NO. 2 TOTAL COST = \$12,969.95

PROJECT NO. 5:

Grass seed & fertilizer	0.01	acres	@	\$425.00	per acre =	\$4.25
Mulch	7	bales	@	\$8.00	per bale =	\$56.00

PROJECT NO. 5 TOTAL COST = \$60.25

TOTAL COST = \$15,100.59

SUMMARY OF CONSTRUCTION COST

Timber Sale: Shining C
Road Segment: E to F

Sale Number: 341-17-38
Construction: 27+60 stations
0.52 miles

PROJECT NO. 1

EXCAVATION

Clearing & grubbing (scatter)	2.73	ac @	\$1,078.00	per acre =	\$2,942.94
Clearing & grubbing (end-haul)	0.44	ac @	\$1,993.00	per acre =	\$876.92
Balanced road construction	21.85	sta @	\$110.00	per sta =	\$2,403.50
Drift	1.95	sta @	\$180.00	per sta =	\$351.00
Full Bench End-haul Road Construction					
Excavate & load	4,316	cy @	\$1.64	per cy =	\$7,078.24
Haul	4,316	cy @	\$0.59	per cy =	\$2,546.44
Compact waste area	4,316	cy @	\$0.30	per cy =	\$1,294.80
Turnouts	2	ea @	\$66.00	per ea =	\$132.00
Turnarounds	1	ea @	\$82.50	per ea =	\$82.50
Landing	1	ea @	\$314.00	per ea =	\$314.00
Grade, ditch, & roll	27.60	sta @	\$36.00	per sta =	\$993.60

TOTAL EXCAVATION COSTS = \$19,015.94

CULVERTS - MATERIALS & INSTALLATION

Culverts

90 LF of 18" \$1,800.00

Culvert Markers

3 markers \$30.00

TOTAL CULVERT COSTS = \$1,830.00

PROJECT NO. 1 TOTAL COST = \$20,845.94

PROJECT NO. 2:

SURFACING

12 " deep = 65 cy/sta

9 " deep = 47 cy/sta

0+00 to 18+80 @ 9" depth	884	cy of	3" - 0	@	\$14.60	per cy =	\$12,900.56
18+80 to 27+60 @ 12" depth	572	cy of	3" - 0	@	\$14.60	per cy =	\$8,351.20
Turnouts	58	cy of	3" - 0	@	\$14.60	per cy =	\$846.80
Turnaround	20	cy of	3" - 0	@	\$14.60	per cy =	\$292.00
Junction	12	cy of	3" - 0	@	\$14.60	per cy =	\$175.20
Landing	180	cy of	3" - 0	@	\$14.60	per cy =	\$2,628.00
Curve widening	50	cy of	3" - 0	@	\$14.60	per cy =	\$730.00
Curve widening	8	cy of	1 1/2" - 0	@	\$10.70	per cy =	\$85.60
Subgrade reinforcement	78	cy of	Jaw Run	@	\$14.13	per cy =	\$1,102.14
Traction rock 3" depth (0+00-18+80)	282	cy of	1 1/2" - 0	@	\$10.70	per cy =	\$3,017.40
Rock Total =	2,144						
	290	cy of	1 1/2" - 0		\$10.70	per cy =	\$3,103.00
	1,776	cy of	3" - 0		\$14.60	per cy =	\$25,923.76
	78	cy of	Jaw Run		\$14.13	per cy =	\$1,102.14

PROJECT NO. 2 TOTAL COST = \$30,128.90

PROJECT NO. 5:

Grass seed & fertilizer on E to F	1.59	acres	@	\$425.00	per acre =	\$675.75
Grass seed & fertilizer on Waste Area	0.42	acres	@	\$425.00	per acre =	\$178.50
Mulch	0.42	acres	@	\$600.00	per bale =	\$252.00

PROJECT NO. 5 TOTAL COST = \$1,106.25

TOTAL COST = \$52,081.09

SUMMARY OF CONSTRUCTION COST

Timber Sale: Shining C
 Road Segment: G to H

Sale Number: 341-17-38
 Construction: 4+00 stations
0.08 miles

PROJECT NO. 1

EXCAVATION

Clearing & grubbing (scatter)	0.46	ac @	\$1,078.00	per acre =	\$495.88
Balanced road construction	4.00	sta @	\$110.00	per sta =	\$440.00
Turnarounds	1	ea @	\$82.50	per ea =	\$82.50
Landing	1	ea @	\$314.00	per ea =	\$314.00
Grade, ditch, & roll	4.00	sta @	\$36.00	per sta =	\$144.00

TOTAL EXCAVATION COSTS = \$1,476.38

PROJECT NO. 1 TOTAL COST = \$1,476.38

PROJECT NO. 2:

SURFACING

12 " deep = 65 cy/sta

G to H	260	cy of	3" - 0	@	\$14.89	per cy =	\$3,871.40
Turnaround	20	cy of	3" - 0	@	\$14.89	per cy =	\$297.80
Landing	180	cy of	3" - 0	@	\$14.89	per cy =	\$2,680.20
Subgrade reinforcement	39	cy of	Jaw Run	@	\$14.42	per cy =	\$562.38
Rock Total =	499						
	460	cy of	3" - 0		\$14.89	per cy =	\$6,849.40
	39	cy of	Jaw Run		\$14.42	per cy =	\$562.38

PROJECT NO. 2 TOTAL COST = \$7,411.78

PROJECT NO. 5:

Grass seed & fertilizer	0.23	acres	@	\$425.00	per acre =	\$97.75
-------------------------	------	-------	---	----------	------------	---------

PROJECT NO. 5 TOTAL COST = \$97.75

TOTAL COST = \$8,985.91

SUMMARY OF CONSTRUCTION COST

Timber Sale: Shining C Sale Number: 341-17-38
Point I Construction: Stockpile Site

PROJECT NO. 3

EXCAVATION

Clearing & grubbing (scatter)	1.31	ac @	\$1,078.00	per acre =	\$1,412.18
Grade & roll	1.31	ac @	\$435.60	per ac =	\$570.64
Surface with Jaw-Run at 10" depth	1,202	cy @	\$13.47	per cy =	\$16,190.94

PROJECT NO. 3 TOTAL COST = \$18,173.76

PROJECT NO. 4:

Construct 9,500cy stockpile	<u>11,020</u>	cy of	3" - 0	@	\$13.94	per cy =	\$153,618.80
Rock Total =	<u>11,020</u>						
	11,020	cy of	3" - 0		\$13.94	per cy =	\$153,618.80

PROJECT NO. 4 TOTAL COST = \$153,618.80

PROJECT NO. 5:

Grass seed & fertilizer	0.05	acres	@	\$425.00	per acre =	\$21.25
Mulch	0.05	acres	@	\$600.00	per acre =	\$30.00

PROJECT NO. 5 TOTAL COST = \$51.25

TOTAL COST = \$171,843.81

ROCK PIT DEVELOPMENT & CRUSHING COST SUMMARY

Timber Sale: Shining C

Sale Number: 341-17-38

Pit Name: West C-Line Pit

3" - 0: 3,125 cy (truck measure)

Jaw-run: 1,319 cy (truck measure)

3"-0 Stockpile: 9,500 cy (stockpile measure)

Total truck yardage: 15,464 cy

Total in place yardage: 11,895 cy

Swell: 130%

Shrinkage: 116%

Drill %: 85%

Screening Loss: 15%

Pit development, including clearing & grubbing of waste area, place overburden in waste area, spread & compact.

\$2,433.42

Drill & shoot	<u>\$2.80</u>	/ cy x	<u>13,995</u> cy =	\$39,185.05
Push rock	<u>\$0.80</u>	/ cy x	<u>18,193</u> cy =	\$14,554.45
Load crusher	<u>\$0.80</u>	/ cy x	<u>18,193</u> cy =	\$14,554.45
Screen rock	<u>\$2.90</u>	/ cy x	<u>18,193</u> cy =	\$52,759.87
Waste reject	<u>\$0.80</u>	/ cy x	<u>2,729</u> cy =	\$2,183.17
Crush (3" - 0)	<u>\$2.60</u>	/ cy x	<u>3,125</u> cy =	\$8,125.26
Crush (Jaw-run)	<u>\$2.10</u>	/ cy x	<u>1,319</u> cy =	\$2,769.90
Crush (Stockpile)	<u>\$2.60</u>	/ cy x	<u>11,020</u> cy =	\$28,652.00
Load dump truck	<u>\$0.80</u>	/ cy x	<u>15,464</u> cy =	\$12,371.28

Subtotal: \$177,588.84

Move in & setup drill		\$572.23
Equipment cleaning & move in excavator		\$1,976.56
Equipment cleaning & move in dozer		\$1,946.25
Setup screening plant		\$435.00
Move in loader		\$850.61
Move in crusher		\$2,109.00
Setup crusher		\$2,110.00
Gradation tests	\$71.50 /2,000cy x <u>8</u> tests	\$572.00
Change gradation		\$275.00
Clean up pit		\$500.00
Grass seed, fertilize, and mulch Existing Waste Area		\$358.75

Subtotal: \$11,705.40

TOTAL PRODUCTION COST = \$189,294.24

ROCK DEVELOPMENT COST = \$12.24/cy

CRUISE REPORT
Shining C
341-17-38

1. LOCATION: Portions of Sections 16 and 17, T1N, R6W, W.M, Tillamook County, Oregon.

2. CRUISE DESIGN:

Pre-cruise evaluation indicated that the stand's average DBH is approximately 18 inches and its Coefficient of Variation (CV%) is estimated to be 60%. For sales of this size and approximate value, ODF cruise standards require a Sampling Error (SE%) of 7% at a 68% confidence level, and a minimum sample size of 100 graded trees. Because the CV% is higher than usual, the sample size was increased in order to meet the SE% objective.

3. SAMPLING METHOD:

Sale Areas 1 & 2 were cruised in April 2016 with 24 variable radius grade plots and 24 variable radius count plots using a 40 BAF prism. Plots were laid out on a 4 chain x 6 chain grid. Plots falling on or near existing roads or no-harvest areas were offset 1 chain.

4. CRUISE RESULTS

135 trees were measured and graded producing a cumulative SE% of 5.7% on the Basal Area and 6.0% on the Board Foot Volume.

5. TREE MEASUREMENT AND GRADING:

All grade plot sample trees were measured and graded following Columbia River Log Scale grade rules and favoring 40 foot segments.

a) **Height Standards:**

Total tree heights were measured to the nearest foot. Bole heights were calculated to a six inch top.

b) **Diameter Standards:** Diameters were measured outside bark at breast height to the nearest inch.

c) **Form Factors** were measured for each grade tree using a form point of 16 feet.

5. DATA PROCESSING

a) **Volumes and Statistics,** Cruise and grown forward volume estimates, and sampling statistics, were derived from Super Ace 2008 cruise software

b) **Deductions:** Two percent of the volume was subtracted from the computed volumes to account for hidden defect and breakage.

6. Cruisers: The sale was cruised by ODF cruisers Mark Savage and Kenton Burns.

Prepared by:

ODF Forester

Date

Reviewed by:

Eric Foucht

Date

TC PSTATS		PROJECT STATISTICS							PAGE 1			
		PROJECT SHNGCFIN							DATE 5/5/2016			
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt			
01N	06	17	00A1	00MC	111.00	48	282	S	W			
01N	06W	17	00A2	00MC								
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL			48	282	5.9							
CRUISE			24	135	5.6	14,722	.9					
DBH COUNT												
REFOREST												
COUNT			24	147	6.1							
BLANKS												
100 %												
STAND SUMMARY												
			SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR			123	108.5	18.8	117	48.1	208.1	39,308	38,469	8,954	8,954
R ALDER			10	21.1	15.0	94	6.7	25.9	3,578	3,578	893	893
WHEMLOCK			2	3.1	15.8	79	1.0	4.2	706	677	160	160
TOTAL			135	132.6	18.1	112	55.9	238.1	43,592	42,724	10,007	10,007
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL	68.1	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR			58.0	5.2	462	488	513					
R ALDER			32.5	10.8	159	178	197					
WHEMLOCK			114.9	107.6		320	664					
TOTAL			61.6	5.3	438	462	487	151	38	17		
CL	68.1	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR			52.0	4.7	109	114	119					
R ALDER			30.7	10.2	40	45	49					
WHEMLOCK			105.1	98.4	1	73	144					
TOTAL			55.4	4.8	103	108	113	123	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			71.4	10.3	97	108	120					
R ALDER			228.6	33.0	14	21	28					
WHEMLOCK			349.9	50.5	2	3	5					
TOTAL			56.6	8.2	122	133	143	128	32	14		
CL	68.1	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR			50.9	7.3	193	208	223					
R ALDER			227.0	32.7	17	26	34					
WHEMLOCK			296.4	42.7	2	4	6					
TOTAL			39.7	5.7	224	238	252	63	16	7		
CL	68.1	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR			52.3	7.5	35,565	38,469	41,373					
R ALDER			235.6	34.0	2,363	3,578	4,793					
WHEMLOCK			325.9	47.0	359	677	996					
TOTAL			41.7	6.0	40,152	42,724	45,296	70	17	8		
CL	68.1	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR			49.5	7.1	8,315	8,954	9,594					
R ALDER			233.0	33.6	593	893	1,193					

TC PSTATS		PROJECT SHNGCFIN						PAGE 2	
								DATE	5/5/2016
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
01N	06	17	00A1	00MC	111.00	48	282	S	W
01N	06W	17	00A2	00MC					
CL	68.1	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
WHEMLOCK			311.9	45.0	88	160	231		
TOTAL			39.0	5.6	9,444	10,007	10,570	61	15

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page 1									
		Project: SHNGCFIN										Date 5/5/2016									
												Time 8:57:39AM									
T01N R06W S17 T00MC										T01N R06W S17 T00MC											
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
01N	06W	17	00A1	00MC	44.00	19	47	S	W												
S So Gr T rt ad Spp		% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log		Logs Per /Acre				
							Log Scale Dia.				Log Length				Ln Ft	Dia In		Bd Ft	CF/ Lf		
							4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99							
DF		2M	67	2.2	19,561	19,124	841			71	29	6	1		93	38	15	318	1.97	60.1	
DF		3M	28	1.3	8,019	7,918	348			93	7			1	3	96	39	8	92	0.64	85.7
DF		4M	5		1,364	1,364	60			100		49	51			19	6	23	0.33	60.2	
DF	Totals		74	1.9	28,943	28,406	1,250			31	50	20	6	4	1	89	33	9	138	1.04	206.0
RA		3M	6		605	605	27			100					100	40	7	70	0.53	8.6	
RA		4M														6	7		0.00	8.6	
RA		R	94		8,091	8,091	356			100		15	12	2	71	30	9	91	0.75	88.5	
RA	Totals		23		8,695	8,695	383			100		14	11	2	73	29	8	82	0.71	105.8	
WH		2M	63	7.5	957	885	39			100					100	40	16	370	1.90	2.4	
WH		3M	31		431	431	19			100					100	40	11	180	1.03	2.4	
WH		4M	6		72	72	3			100		100				22	6	30	0.43	2.4	
WH	Totals		4	4.9	1,459	1,388	61			36	64		5		95	34	11	193	1.24	7.2	
Type Totals				1.6	39,098	38,489	1,694			47	39	14	8	5	1	86	32	9	121	0.94	319.0

TC TLOGSTVB				Log Stock Table - MBF Project: SHNGCFIN																
T01N R06W S17 T00MC										T01N R06W S17 T00M										
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page	1											
01N	06W	17	00A1	00MC	44.00	19	47	Date	5/5/2016											
									Time	8:57:40AM										
Spp	T	S	So	Gr	Log	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
DF			2M		16	15		15	1.2							15				
DF			2M		20	32		32	2.5							32				
DF			2M		28	12		12	1.0						12					
DF			2M		40	803	2.4	783	62.7					93	368	243	79			
DF			3M		26	2		2	.1				2							
DF			3M		28	2		2	.2				2							
DF			3M		34	10		10	.8			3	7							
DF			3M		36	42		42	3.4			22	20							
DF			3M		38	28		28	2.3			22	6							
DF			3M		40	268	1.6	264	21.1			58	116	66	24					
DF			4M		12	5		5	.4			5								
DF			4M		16	4		4	.3			4								
DF			4M		18	10		10	.8			10								
DF			4M		20	10		10	.8			8	1							
DF			4M		22	14		14	1.1			12	1							
DF			4M		24	7		7	.5			7								
DF			4M		26	2		2	.1			2								
DF			4M		28	2		2	.1			2								
DF			4M		30	7		7	.6			7								
DF			Totals			1,274	1.9	1,250	73.8			163	156	66	117	380	289	79		
RA			3M		40	27		27	7.0			27								
RA			4M		6															
RA		R	13			6		6	1.5			6								
RA		R	19			8		8	2.2			8								
RA		R	20			40		40	10.5				21	19						
RA		R	25			9		9	2.2			9								
RA		R	28			11		11	2.8			11								
RA		R	29			23		23	6.0			23								
RA		R	31			8		8	2.2			8								
RA		R	40			251		251	65.7				67	184						
RA			Totals			383		383	22.6			91	88	204						
WH			2M		40	42	7.5	39	63.8							39				
WH			3M		40	19		19	31.0					19						
WH			4M		22	3		3	5.2			3								
WH			Totals			64	4.9	61	3.6			3		19		39				
Total All Species						1,720	1.6	1,694	100.0			257	243	289	117	380	328	79		

TC TSTNDSUM				Stand Table Summary												
				Project		SHNGCFIN										
T01N R06W S17 T00MC										T01N R06W S17 T00MC						
Twp	Rge	Sec	Tract	Type			Acres		Plots	Sample Trees			Page: 1			
01N	06W	17	00A1	00MC			44.00		19	47			Date: 05/05/20			
															Time: 8:57:38AM	
S Spc	T	Sample		FF	Av	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
		DBH	Trees	16'	Tot				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
DF		10	2	80	91	16.900	9.22	16.90	13.7	60.0	6.61	232	1,014	291	102	45
DF		12	3	83	106	17.604	13.83	29.34	14.6	50.0	12.19	428	1,467	536	188	65
DF		13	1	85	103	5.000	4.61	10.00	16.0	60.0	4.55	160	600	200	70	26
DF		19	3	84	127	7.022	13.83	21.07	27.3	102.2	16.40	576	2,153	722	253	95
DF		20	3	89	126	6.338	13.83	19.01	32.2	140.0	17.47	613	2,662	769	270	117
DF		21	4	86	121	7.665	18.44	22.99	34.3	139.2	22.49	789	3,200	990	347	141
DF		22	2	82	122	3.492	9.22	10.48	35.9	135.0	10.71	376	1,414	471	165	62
DF		23	3	86	126	4.792	13.83	15.97	37.3	163.0	16.97	596	2,604	747	262	115
DF		24	5	79	126	7.335	23.04	22.01	44.4	166.7	27.87	978	3,668	1,226	430	161
DF		25	5	84	133	6.760	23.04	21.63	48.0	211.9	29.57	1,038	4,583	1,301	457	202
DF		26	1	85	133	1.250	4.61	3.75	55.4	220.0	5.92	208	825	261	91	36
DF		30	1	83	147	.939	4.61	2.82	80.0	376.7	6.42	225	1,061	282	99	47
DF		31	1	83	135	.879	4.61	2.64	77.8	323.3	5.85	205	853	257	90	38
DF		32	3	76	132	2.476	13.83	7.43	80.4	310.0	17.02	597	2,302	749	263	101
DF		Totals	37	83	114	88.452	170.53	206.03	34.1	137.9	200.05	7,019	28,406	8,802	3,089	1,250
RA		12	1	83	89	8.637	6.78	17.27	10.5	35.0	5.00	182	605	220	80	27
RA		14	2	85	88	12.691	13.57	25.38	17.9	72.5	12.53	455	1,840	551	200	81
RA		15	1	80	113	5.528	6.78	16.58	14.0	60.0	6.36	231	995	280	102	44
RA		16	4	88	96	19.434	27.13	38.87	26.6	112.5	28.41	1,033	4,373	1,250	454	192
RA		18	1	83	98	3.839	6.78	7.68	33.5	115.0	7.07	257	883	311	113	39
RA		Totals	9	85	95	50.129	61.05	105.79	20.4	82.2	59.36	2,159	8,695	2,612	950	383
WH		22	1	93	124	2.393	6.32	7.18	42.2	193.3	9.69	303	1,388	426	133	61
WH		Totals	1	93	124	2.393	6.32	7.18	42.2	193.3	9.69	303	1,388	426	133	61
Totals		47		84	108	140.973	237.89	319.00	29.7	120.7	269.10	9481	38,489	11,841	4,172	1,694

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page		1						
				Project: SHNGCFIN										Date		5/5/2016						
														Time		8:54:44AM						
T01N R06W S17 T00MC												T01N R06W S17 T00MC										
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt				
01N		06W		17		00A2		00MC		67.00		29		88		S		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/ Ft In Ft Lf					
									4-5 6-11 12-16 17+				12-20 21-30 31-35 36-99									
DF				CU													9 12 0.00				2.7	
DF				2M	64	2.6	29,619	28,857	1,933	66 34				1 99				39 15 330 1.74				87.4
DF				3M	31	1.9	14,559	14,284	957	100				0 3 97				39 8 104 0.68				137.6
DF				4M	5		1,936	1,936	130	100				51 49				19 6 22 0.34				88.8
DF				Totals	99	2.2	46,115	45,077	3,020	36 42 22				3 2 1 94				33 9 142 0.97				316.5
WH				3M	100		211	211	14	100				100				38 6 60 0.49				3.5
WH				Totals	0		211	211	14	100				100				38 6 60 0.49				3.5
RA				R	100		217	217	15	100				27 73				16 8 37 0.64				5.9
RA				Totals	0		217	217	15	100				27 73				16 8 37 0.64				5.9
Type Totals						2.2	46,543	45,505	3,049	37 42 21				3 3 1 93				33 9 140 0.96				326.0

TC TLOGSTVB				Log Stock Table - MBF																
				Project: SHNGCFIN																
T01N R06W S17 T00MC										T01N R06W S17 T00M										
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page	1											
01N	06W	17	00A2	00MC	67.00	29	88	Date	5/5/2016											
								Time	8:54:45AM											
S	So	Gr	Log	Gross	%	Net	%	Net Volume by Scaling Diameter in Inches												
Spp	T	rt	de	Len	MBF	Def	MBF	Spc	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
DF			CU																	
DF			CU	6																
DF			CU	23																
DF			CU	24																
DF			2M	14	6		6	.2								6				
DF			2M	16	11	14.3	10	.3							10					
DF			2M	18	15	22.6	12	.4									12			
DF			2M	40	1,953	2.4	1,906	63.1						448	644	616	198			
DF			3M	26	2		2	.1				2								
DF			3M	30	2		2	.1				2								
DF			3M	32	12		12	.4				12								
DF			3M	34	17		17	.6				12	5							
DF			3M	36	40		40	1.3				35	4							
DF			3M	38	59		59	2.0				49	10							
DF			3M	40	844	2.2	825	27.3				75	333	417						
DF			4M	12	15		15	.5				15								
DF			4M	14	5		5	.2				5								
DF			4M	16	12		12	.4				12								
DF			4M	18	13		13	.4				13								
DF			4M	20	21		21	.7				21								
DF			4M	22	5		5	.2				5								
DF			4M	24	3		3	.1				3								
DF			4M	26	18		18	.6				18								
DF			4M	27	3		3	.1				3								
DF			4M	28	14		14	.5				14								
DF			4M	30	21		21	.7				21								
DF			Totals		3,090	2.2	3,020	99.1				315	354	417	448	654	622	210		
WH			3M	38	14		14	100.0				14								
WH			Totals		14		14	.5				14								
RA			R	9																
RA			R	18	4		4	27.3				4								
RA			R	22	11		11	72.7					11							
RA			Totals		15		15	.5				4	11							
Total All Species					3,118	2.2	3,049	100.0				329	358	428	448	654	622	210		

TC TSTNDSUM				Stand Table Summary												
Project SHNGCFIN																
T01N R06W S17 T00MC												T01N R06W S17 T00MC				
Twp	Rge	Sec	Tract	Type				Acres		Plots	Sample Trees		Page: 1			
01N	06W	17	00A2	00MC				67.00		29	88		Date: 05/05/20			
												Time: 8:54:44AM				
S Spc	T	Sample		Av	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net	Net	Totals			
		DBH	Trees	FF 16'				Ht Tot	Net Cu.Ft.		Net Bd.Ft.	Cu.Ft. Acre	Bd.Ft. Acre	Tons	Cunits	MBF
DF		10	2	91	96	9.704	5.29	19.41	7.9	37.5	4.40	154	728	295	103	49
DF		12	3	89	103	10.108	7.94	20.22	13.2	55.0	7.59	266	1,112	509	179	74
DF		13	3	88	108	8.613	7.94	17.23	15.9	66.7	7.79	273	1,148	522	183	77
DF		14	1	88	105	2.476	2.65	4.95	18.4	80.0	2.60	91	396	174	61	27
DF		15	3	86	111	7.229	8.87	17.37	22.9	110.1	11.34	398	1,913	760	267	128
DF		16	7	85	107	13.267	18.52	28.43	23.5	91.3	19.01	667	2,597	1,273	447	174
DF		17	2	88	127	3.358	5.29	10.07	22.5	86.7	6.46	227	873	433	152	58
DF		18	12	87	124	19.200	33.93	53.11	31.2	149.6	47.16	1,655	7,947	3,160	1,109	532
DF		19	3	87	129	4.032	7.94	12.10	28.2	114.4	9.71	341	1,384	650	228	93
DF		20	5	85	123	6.065	13.23	18.19	29.9	116.7	15.50	544	2,123	1,039	364	142
DF		21	6	86	125	6.601	15.88	18.70	36.9	157.1	19.67	690	2,938	1,318	462	197
DF		22	5	86	131	5.012	13.23	15.04	40.0	174.0	17.14	601	2,616	1,149	403	175
DF		23	6	86	131	5.503	15.88	16.51	43.9	190.6	20.68	725	3,146	1,385	486	211
DF		24	6	84	130	5.351	16.81	16.05	52.0	239.2	23.80	835	3,839	1,595	560	257
DF		25	3	84	126	2.329	7.94	6.99	50.1	210.0	9.98	350	1,467	669	235	98
DF		26	9	85	138	6.759	24.92	21.71	57.0	269.3	35.27	1,238	5,848	2,363	829	392
DF		27	4	83	130	2.662	10.59	7.99	58.5	238.3	13.32	467	1,904	892	313	128
DF		28	4	84	136	2.476	10.59	7.43	66.4	290.0	14.05	493	2,154	942	330	144
DF		32	1	81	132	.474	2.65	1.42	84.9	366.7	3.44	121	521	231	81	35
DF		33	1	82	119	.446	2.65	.89	98.1	475.0	2.49	87	423	167	59	28
DF		Totals	86	87	118	121.665	232.73	313.81	32.6	143.6	291.41	10,225	45,077	19,524	6,851	3,020
RA		16	1	74	79	1.976	2.76	5.93	10.5	36.7	1.71	62	217	114	42	15
RA		Totals	1	74	79	1.976	2.76	5.93	10.5	36.7	1.71	62	217	114	42	15
WH		12	1	82	59	3.512	2.76	3.51	18.7	60.0	2.10	66	211	140	44	14
WH		Totals	1	82	59	3.512	2.76	3.51	18.7	60.0	2.10	66	211	140	44	14
Totals			88	86	116	127.153	238.24	323.25	32.0	140.8	295.21	10352	45,505	19,779	6,936	3,049

VOLUME SUMMARY

Volumes in MBF
Shining C
341-17-38

April 2016

AREA 1: MC (44 ACRES)

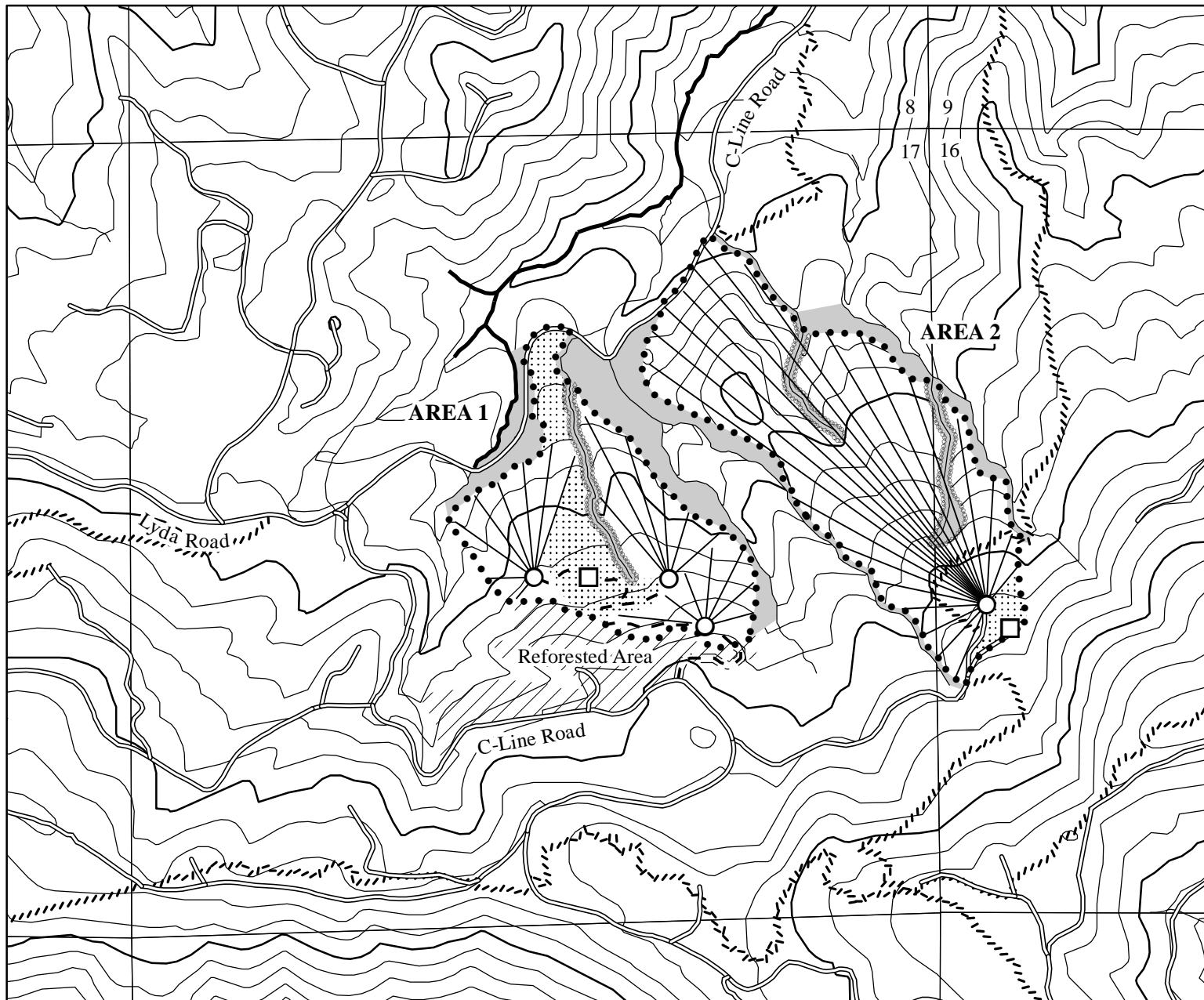
SPECIES		2 SAW	3 SAW	4 SAW	CR	TOTAL
Douglas-fir	Cruise Volume	840	341	60		1,241
	Hidden D&B (2%)	(17)	(7)	(1)		(25)
	NET TOTAL	823	334	59		1,216
	% of Total	68	27	5		
Red Alder	Cruise Volume				383	383
	Hidden D&B (2%)				(8)	(8)
	NET TOTAL				375	375
	% of Total				100	

AREA 2: MC (67 ACRES)

SPECIES		2 SAW	3 SAW	4 SAW	CR	TOTAL
Douglas-fir	Cruise Volume	1,933	957	130		3,020
	Hidden D&B (2%)	(39)	(19)	(3)		(60)
	NET TOTAL	1,894	938	127		2,960
	% of Total	64	32	4		
Red Alder	Cruise Volume				15	15
	Hidden D&B (2%)				()	()
	NET TOTAL				15	15
	% of Total				100	

SALE TOTAL

SPECIES		2 SAW	3 SAW	4 SAW	CR	TOTAL
Douglas-fir		2,717	1,272	186		4,175
Red alder					390	390
Total						4,565



LEGEND

- Timber Sale Boundary
- Roads
- - New Road Construction
- == Posted Right of Way Boundary
- //// Recreation Trail
- Type F Stream
- Type N Stream
- Stream Buffer
- ▨ Posted Stream Buffer Boundary
- Cable Landing
- Tractor Landing
- ▨ Tractor Yarding Area
- ▨ Cable Yarding Area
- 400 Foot Contour Band
- 80 Foot Contour Band

LOGGING PLAN

FOR TIMBER SALE CONTRACT # 341-17-38
SHINING C
PORTIONS OF SECTIONS 16 & 17, T1N, R6W, W.M.
TILLAMOOK COUNTY, OREGON

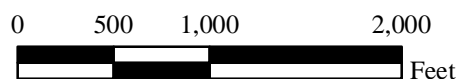
Forest Grove District GIS
June, 2016

This product is for informational use and may not be
suitable for legal, engineering, or surveying purposes.



1:12,000

1 inch = 1,000 feet



APPROXIMATE NET ACRES TRACTOR CABLE

AREA 1	12	32
AREA 2	2	65
TOTAL	14	97