Timber Sale Appraisal
Step Over
Sale FG-341-2018-23-

District: Forest Grove **Date: February 13, 2018**

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	$3,309,810.52	$13,559.76	$3,323,370.28
		Project Work:	($135,580.00)
		Advertised Value:	$3,187,790.28

Timber Sale Appraisal
Step Over
Sale FG-341-2018-23-

District: Forest Grove

Date: February 13, 2018

Timber Description

Location: Portions of Section 32, T3N, R5W, W.M., Washington County, Oregon.

Stand Stocking: 20%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	19	0	98
Western Hemlock / Fir	14	0	95
Alder (Red)	12	0	95

Volume by Grade	2S	3S & 4S 6"-11"	Camprun	Total
Douglas - Fir	3,397	2,090	0	5,487
Western Hemlock / Fir	8	60	0	68
Alder (Red)	0	0	37	37
Total	3,405	2,150	37	5,592

Comments: Pond Values Used: Local Pond Values, December 2017.

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:
$1,365/MBF = $1,580/MBF - $215/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):
None.

Other Costs (No Profit & Risk added):
Machine Time to Block/Waterbar Roads,and Skid Trails:
20 hours x $150/hour = $3,000
Machine Time to Pile Landing Slash and Sort Firewood:
20 hours x $150/hour = $3,000
Equipment Cleaning: 3 pieces x $1,000/Piece = $3,000
Slash Treatment: 30 acres x $200/acre = $6,000

TOTAL Other Costs (No Profit & Risk added) = $15,000

ROAD MAINTENANCE
Move-in: $4,000
General Road Maintenance: 7.8 miles x $1,200/mile = $9,360
TOTAL Road Maintenance: $13,360/5,592 MBF = $2.39/MBF

Timber Sale Appraisal
Step Over
Sale FG-341-2018-23-

District: Forest Grove **Date: February 13, 2018**

Logging Conditions

Combination#: 1

Douglas - Fir	40.00%
Western Hemlock / Fir	40.00%
Alder (Red)	40.00%

Logging System: Cable: Medium Tower >40 - <70 **Process:** Stroke Delimber

yarding distance: Medium (800 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: $163.04

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

Combination#: 2

Douglas - Fir	60.00%
Western Hemlock / Fir	60.00%
Alder (Red)	60.00%

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: 14 **bd. ft / load:** 4600

cost / mbf: $49.25

machines: Stroke Delimber (B)

Timber Sale Appraisal
Step Over
Sale FG-341-2018-23-

District: Forest Grove **Date: February 13, 2018**

Logging Costs

Operating Seasons:	1.00	**Profit Risk:**	15%
Project Costs:	$135,580.00	**Other Costs (P/R):**	$0.00
Slash Disposal:	$0.00	**Other Costs:**	$15,000.00

Miles of Road **Road Maintenance:** $2.39

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

Hauling Costs

Species	$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	$0.00	2.0	4.5
Western Hemlock / Fir	$0.00	2.0	4.0
Alder (Red)	$0.00	1.0	4.0

Timber Sale Appraisal
Step Over
Sale FG-341-2018-23-

District: Forest Grove **Date: February 13, 2018**

Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling / Brand & Paint	Other	Total
Douglas - Fir									
$94.77	$2.44	$0.78	$88.40	$0.00	$27.96	$0.00	$7.00	$2.68	$224.03
Western Hemlock / Fir									
$94.77	$2.51	$0.78	$102.38	$0.00	$30.07	$0.00	$7.00	$2.68	$240.19
Alder (Red)									
$94.77	$2.51	$0.78	$204.75	$0.00	$45.42	$0.00	$7.00	$2.68	$357.91

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	$0.00	$821.51	$597.48	$0.00
Western Hemlock / Fir	$0.00	$702.51	$462.32	$0.00
Alder (Red)	$0.00	$724.39	$366.48	$0.00

Timber Sale Appraisal
Step Over
Sale FG-341-2018-23-

District: Forest Grove **Date: February 13, 2018**

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	5,487	$597.48	$3,278,372.76
Western Hemlock / Fir	68	$462.32	$31,437.76
Alder (Red)	37	$366.48	$13,559.76

Gross Timber Sale Value

Recovery: $3,323,370.28

Prepared By: Eric Foucht **Phone:** 503-359-7473

PROJECT COST SUMMARY SHEET

Timber Sale: Step Over

Sale Number: 341-18-23

PROJECT NO. 1: ROAD CONSTRUCTION AND IMPROVEMENT

CONSTRUCTION

Road Segment	Length	Cost
E to F	22+85	$6,864.52
G to H	18+10	$7,122.82
	40+95 stations	
	0.78 miles	

SUBTOTAL CONSTRUCTION = $13,987.34

IMPROVEMENT

Road Segment	Length	Cost
Point A	-	$1,000.00
B to C	7+15	$590.44
D to E	32+75	$1,924.27
	39+90 stations	
	0.76 miles	

SUBTOTAL IMPROVEMENT = $3,514.71

TOTAL PROJECT NO. 1 COST = $17,502.04

PROJECT NO. 2: SURFACING

Road Segment	Rock Amount	Rock Type	Cost
B to C	451 cy	Jaw-Run	$8,505.86
D to E	190 cy	Jaw-Run	$3,627.10
E to F	1792 cy	Jaw-Run	$35,176.96
G to H	1426 cy	Jaw-Run	$27,992.38
Total	3859 cy	Jaw-Run	

TOTAL PROJECT NO. 2 COST = $75,302.30

PROJECT NO. 3 GRASS SEED, FERTILIZE, & MULCH

TOTAL PROJECT NO. 3 COST = $799.07

PROJECT NO. 4 CONSTRUCT STOCKPILE SITE, BUILD AND SHAPE STOCKPILE

TOTAL PROJECT NO. 4 COST = $35,556.50

MOVE-IN & EQUIPMENT CLEANING

Grader	$969.76
Roller (smooth/grid) & Compactor	$626.87
Excavator (Large) - Equipment Cleaning	$1,969.76
Dozer (Large) - Equipment Cleaning	$2,014.34
Dump Truck (10cy +)	$690.51
Water Truck	$148.85

TOTAL MOVE-IN & EQUIPMENT CLEANING COST = $6,420.09

TOTAL CREDITS $135,580.00

SUMMARY OF CONSTRUCTION COST

Timber Sale: **Step Over** Timber Sale No. : 341-18-23

Road Segment: Point A

PROJECT NO. 1

EXCAVATION

Install Gate	1	ea @	$1,000.00	per ea =	$1,000.00

PROJECT NO. 1 TOTAL COST = $1,000.00

TOTAL COST = $1,000.00

SUMMARY OF CONSTRUCTION COST

Timber Sale: Step Over Sale Number: 341-18-23

Road Segment: B to C Improvement: 7+15 stations

0.14 miles

PROJECT NO. 1

EXCAVATION						
Roadside brushing	0.14	mi @	$1,300.00	per mi =		$176.04
Improve Landing to 70'	1	ea @	$157.00	per ea =		$157.00
Grade, ditch, & roll	7.15	sta @	$36.00	per sta =		$257.40

PROJECT NO. 1 TOTAL COST = $590.44

PROJECT NO. 2:

SURFACING	8 " deep =	42 cy/sta				
B to C	301	cy of	Jaw-Run	@	$18.86	per cy = $5,676.86
Landing	150	cy of	Jaw-Run	@	$18.86	per cy = $2,829.00
Rock Total =	451					
	451	cy of	Jaw-Run		$18.86	per cy = $8,505.86

PROJECT NO. 2 TOTAL COST = $8,505.86

TOTAL COST = $9,096.30

SUMMARY OF CONSTRUCTION COST

Timber Sale: Step Over Sale Number: 341-18-23

Road Segment: D to E Improvement: 32+75 stations

0.62 miles

PROJECT NO. 1

EXCAVATION

Roadside brushing (medium)	0.62	mi @	$1,000.00	per mi =		$620.27
Clean culvert inlet & outlet	5	ea @	$25.00	per ea =		$125.00
Grade, ditch, & roll	32.75	sta @	$36.00	per sta =		$1,179.00

PROJECT NO. 1 TOTAL COST = $1,924.27

PROJECT NO. 2:

SURFACING

Spot Rock	100	cy of	Jaw-Run	@	$19.09	per cy =	$1,909.00
Landing	90	cy of	Jaw-Run	@	$19.09	per cy =	$1,718.10
Rock Total =	190						
	190	cy of	Jaw-Run		$19.09	per cy =	$3,627.10

PROJECT NO. 2 TOTAL COST = $3,627.10

TOTAL COST = $5,551.37

SUMMARY OF CONSTRUCTION COST

Timber Sale: **Step Over** Timber Sale No. : 341-18-23

Road Segment: **E to F** Construction: 22+85 stations
0.43 miles

PROJECT NO. 1

EXCAVATION					
Clearing and Grubbing (Scatter)	2.10	acres @	$1,078.00	per acre =	$2,261.92
Balanced Road Construction	19.85	sta @	$110.00	per sta =	$2,183.50
Drift	3.00	sta @	$180.00	per sta =	$540.00
Construct Junction (1)	1	sta @	$66.00	per sta =	$66.00
Construct Turnouts (3)	3	ea @	$198.00	per ea =	$594.00
Construct Turnaround	1	ea @	$82.50	per ea =	$82.50
Landing	1	ea @	$314.00	per ea =	$314.00
Grade, Ditch and Roll	22.85	sta @	$36.00	per sta =	$822.60

PROJECT NO. 1 TOTAL COST = $6,864.52

PROJECT NO. 2:

SURFACING	12	" deep =	65 cy/sta				
E to F	1,485	cy of	Jaw-Run	@	$19.63	per cy =	$29,150.55
Turnouts (3)	87	cy of	Jaw-Run	@	$19.63	per cy =	$1,707.81
Turnaround	20	cy of	Jaw-Run	@	$19.63	per cy =	$392.60
Junction	20	cy of	Jaw-Run	@	$19.63	per cy =	$392.60
Landing	180	cy of	Jaw-Run	@	$19.63	per cy =	$3,533.40
Total =	1,792						
	1,792	cy of	Jaw-Run		$19.63	per cy =	$35,176.96

PROJECT NO. 2 TOTAL COST = $35,176.96

PROJECT NO. 3:

Grass seed and fertilize areas of disturbe	1.05	acres @	$425.00	per acre =	$445.88

PROJECT NO. 3 TOTAL COST = $445.88

TOTAL COST = $42,487.36

ROCK PIT DEVELOPMENT & CRUSHING COST SUMMARY

Timber Sale:	Step Over
Sale Number:	341-18-23
Pit Name:	Round Top

Jaw-Run	4,166 cy	(truck measure)
Stockpile:	2,000 cy	(stockpile measure)
Total truck yardage:	6,486 cy	
Total in place yardage:	5,738 cy	

Swell:	130%
Shrinkage:	116%
Screening Loss:	15%

Pit development, including clearing & grubbing of waste area, place overburden in waste area, spread & compact.					$5,915.00
Drill & Shoot or Rip rock	$2.45	/ cy x	5,738	cy =	$14,058.04
Load crusher	$0.80	/ cy x	7,459	cy =	$5,967.49
Screen rock	$2.90	/ cy x	7,459	cy =	$21,632.17
Waste reject	$0.80	/ cy x	1,119	cy =	$895.12
Crush (Jaw-run)	$2.10	/ cy x	4,166	cy =	$8,749.46
Crush (Stockpile)	$2.10	/ cy x	2,320	cy =	$4,872.00
Load dump truck	$0.80	/ cy x	6,486	cy =	$5,189.13
				Subtotal:	$67,278.41

Equipment cleaning & move in excavator	$1,942.40
Equipment cleaning & move in dozer	$1,918.16
Move in screening plant	$1,408.00
Move in loader	$826.66
Move in crusher	$1,408.00
Setup screening plant	$435.00
Setup crusher	$968.00
Subtotal:	$8,906.22

TOTAL PRODUCTION COST =	$76,184.63
ROCK DEVELOPMENT COST =	$11.75/cy

SUMMARY OF CONSTRUCTION COST

Timber Sale: **Step Over** Timber Sale No. : 341-18-23

Road Segment: **G to H** Construction: 18+10 stations
0.34 miles

PROJECT NO. 1

EXCAVATION

Clearing and Grubbing (Scatter)	1.66	acres @	$1,078.00	per acre =	$1,791.72	
Balanced Road Construction	18.10	sta @	$110.00	per sta =	$1,991.00	
Construct Junction (1)	1	sta @	$66.00	per sta =	$66.00	
Construct Turnouts (2)	2	ea @	$198.00	per ea =	$396.00	
Construct Turnaround	1	ea @	$82.50	per ea =	$82.50	
Landing	1	ea @	$314.00	per ea =	$314.00	
Grade, Ditch and Roll	18.10	sta @	$36.00	per sta =	$651.60	
				TOTAL EXCAVATION COSTS=		**$5,292.82**

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 = $7,122.82

PROJECT NO. 2:

SURFACING	12	" deep =	65 cy/sta				
G to H	1,177	cy of	Jaw-Run	@	$19.63	per cy =	$23,104.51
Turnouts	29	cy of	Jaw-Run	@	$19.63	per cy =	$569.27
Turnaround	20	cy of	Jaw-Run	@	$19.63	per cy =	$392.60
Junction	20	cy of	Jaw-Run	@	$19.63	per cy =	$392.60
Landing	180	cy of	Jaw-Run	@	$19.63	per cy =	$3,533.40
Total =	1,426						
	1,426	cy of	Jaw-Run		$19.63	per cy =	$27,992.38

PROJECT NO. 2 TOTAL COST = $27,992.38

PROJECT NO. 3:

Grass seed and fertilize areas of disturbed s	0.83	acres @	$425.00	per acre =	$353.19	

PROJECT NO. 3 TOTAL COST = $353.19

TOTAL COST = $35,468.39

SUMMARY OF CONSTRUCTION COST

Timber Sale: Step Over Sale Number: 341-18-23

Road Segment Point I

PROJECT NO. 4

Clearing & grubbing (scatter)	0.28		acres	@	$1,078.00	per ac =	$299.44
Expand and construct site	0.23		acres	@	$2,994.00	per ac =	$687.33
Grade, shape and roll site	0.28		acres	@	$435.60	per ac =	$121.00
Surface stockpile site	307	cy of	Jaw-Run	@	$12.14	per cy =	$3,731.93
Crush 2,000 cy & haul	2,320	cy of	Jaw-Run	@	$12.14	per cy =	$28,164.80
Build & shape stockpile	2,320	cy of	Jaw-Run	@	$1.10	per cy =	$2,552.00

PROJECT NO. 4 TOTAL COST = $35,556.50

TIMBER SALE SUMMARY
Step over
Contract No. 341-18-23

1. **Location:** Portions of Section 32, T3N, R5W, W.M., Washington County, Oregon.

2. **Type of Sale:** This timber sale is 114 net acres of Modified Clearcut. The timber will be sold on a recovery basis at a sealed bid auction.

3. **Revenue Distribution:** 100% BOF, Washington County.

4. **Sale Acreage:** Acres are net of stream buffers and road prisms. Acreage was determined using ESRI ArcMap GIS software.

5. **Cruise**: Type 1 was cruised by ODF Cruisers in June of 2015 and Type 2 was cruised by ODF cruisers in December of 2017. For more information see Cruise Report.

6. **Timber Description:** The Timber Sale Area consists of two timber types. Type 1 is an 84 acre well-stocked 82 year old unmanaged Douglas-fir stand with minor amounts of western hemlock and red alder. This type has an average of 265 ft^2 of basal area (all species), an average Douglas-fir DBH of 18 inches, and an estimated average net Douglas-fir volume of approximately 53.4 MBF per acre. The Type 2 is a 30 acre portion of a 82 year old stand of Douglas-fir that was partially cut in 2005. It is has 144 square feet of basal area, an average diameter of 26", and an average net volume of 33.4 MBF per acre.

7. **Topography and Logging Method:** Slopes within the sale areas range from 15% to 55%, and are northern in aspect. The timber sale is 60% ground-based yarding and 40 cable yarding. The longest cable corridor length is 1650' and the average is 812'. The average horizontal skid trail length is approximately 480 feet and the maximum is approximately 850 feet.

8. **Access:** All access to the Timber Sale Area is on surfaced all-weather roads. From Forest Grove, travel north on Highway 8 to its junction with Highway 6. Turn left and travel west approximately 3.5 miles to Timber Road. Turn right, proceed north on Timber Road approximately 6.5 miles and turn left onto Cochran Road. Continue west on Cochran Road for 3.8 miles to the Round Top Road and turn left. Continue an additional 1.5 miles and bear left onto Rice Road. Continue 3.6 miles on Rice Road to the southeast corner of the Timber Sale Area.

9. **Projects:**

Project No. 1: Road Construction and Improvement	$17,502.04
Project No. 2: Road Surfacing	$75,302.30
Project No. 3: Grass Seed, Fertilize, and Mulch	$799.07
Project No. 4: Construct stockpile site. Build and shape stockpile	$35,556.50
Move in and equipment cleaning:	$6,420.09
Total Credit for all Projects (rounded)	$135,580.00

CRUISE REPORT
STEPOVER
341-18-23

1. LOCATION: Portions of Section 32, T3N, R5W, W.M., Washington County, Oregon.

2. CRUISE DESIGN:
The timber sale area is comprised of two distinct timber types having similar ages but different management histories. These types were stratified and cruised separately.
Pre-cruise evaluation of Type 1 estimated an average DBH of approximately 18 inches and a Coefficient of Variation (CV) of 50%. An evaluation of Type 2 showed that its average diameter was 26 inches and the CV was about 40%. For sales of this size and approximate value, ODF cruise standards require a combined Sampling Error of 11% at a 68% confidence level, and a minimum sample size total of 100 graded trees. Statistical analysis indicated that 18 variable radius grade plots and 17 variable radius count plots utilizing a 40 BAF prism would produce an adequate sample size in Type 1. A similar analysis showed that 8 variable radius count plots and 7 measure plots using a 20 BAF prism was an adequate sample method for Type 2.

3. SAMPLING METHOD:
Type 1 was sampled in June of 2015 with 18 variable radius grade plots and 19 variable radius count plots laid out on a 4 chain x 5 chain grid. Cruisers utilized a combination of 20 BAF and 40 BAF prisms. Type 2 was sampled in December of 2017 with 8 variable radius grade plots and 7 variable radius count plots laid out on a 4x4 chain grid. A 20 BAF prism was used for this cruise. In both types, plots falling on or near existing roads or no-harvest areas were offset 1 chain.

4. CRUISE RESULTS
A total of 254 trees were measured and graded producing a cumulative Sampling Error of 6.5% on the Basal Area and 6.2% on the Board Foot Volume. Volume estimates were processed separately for each type and are combined in the Volume Summary.

5. TREE MEASUREMENT AND GRADING:
All sample trees were measured and graded following Columbia River Log Scale grade rules and favored 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 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 Joe Koch, Mark Savage and Kenton Burns.

Prepared by: _____ 12/18/17
Kenton Burns Date

Reviewed by: _____ 12/18/2017
Eric Foucht Date

TC PSTATS

PROJECT STATISTICS

PROJECT STEPOVER

DATE 12/13/2017

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
03N	005	32	001	00A2	114.00	50	461	S	W
03N	05W	32	001	A1					

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	50	461	9.2		
CRUISE	26	254	9.8	14,496	1.8
DBH COUNT					
REFOREST					
COUNT	24	207	8.6		
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	246	120.2	18.6	122	52.4	225.7	49,311	49,099	10,276	10,276
WHEMLOCK	4	3.4	14.3	95	1.0	3.8	605	605	136	136
R ALDER	3	3.3	11.8	75	0.7	2.5	329	329	67	67
WR CEDAR	1	.3	29.0	120	0.2	1.3	229	229	57	57
TOTAL	*254*	*127.2*	*18.3*	*120*	*54.5*	*233.3*	*50,474*	*50,262*	*10,536*	*10,536*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	SAMPLE TREES - BF LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	93.3	5.9	778	827	876			
WHEMLOCK	45.8	26.2	155	210	265			
R ALDER	50.5	34.9	93	143	193			
WR CEDAR								
TOTAL	*94.8*	*5.9*	*761*	*809*	*857*	*359*	*90*	*40*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	SAMPLE TREES - CF LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	79.7	5.1	156	164	172			
WHEMLOCK	46.3	26.4	35	48	60			
R ALDER	54.5	37.7	19	30	42			
WR CEDAR								
TOTAL	*81.0*	*5.1*	*153*	*161*	*169*	*262*	*66*	*29*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	TREES/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	70.5	10.0	108	120	132			
WHEMLOCK	410.1	57.9	1	3	5			
R ALDER	370.9	52.4	2	3	5			
WR CEDAR	522.7	73.9	0	0	0			
TOTAL	*68.3*	*9.7*	*115*	*127*	*139*	*186*	*47*	*21*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	BASAL AREA/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	46.2	6.5	211	226	240			
WHEMLOCK	383.8	54.2	2	4	6			
R ALDER	321.2	45.4	1	3	4			
WR CEDAR	522.7	73.9	0	1	2			
TOTAL	*46.3*	*6.5*	*218*	*233*	*249*	*86*	*21*	*10*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	NET BF/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	43.7	6.2	46,065	49,099	52,133			
WHEMLOCK	379.5	53.6	281	605	929			
R ALDER	310.5	43.9	185	329	474			
WR CEDAR	522.7	73.9	60	229	397			

TC PSTATS

PROJECT STATISTICS

PROJECT STEPOVER

DATE 12/13/2017

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
03N	005	32	001	00A2	114.00	50	461	S	W
03N	05W	32	001	A1					

NET BF/ACRE

CL 68.1 SD: 1.00	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
TOTAL	*44.2*	*6.2*	*47,125*	*50,262*	*53,398*	*78*	*19*	*9*

NET CUFT FT/ACRE

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	43.9	6.2	9,638	10,276	10,913			
WHEMLOCK	375.9	53.1	64	136	209			
R ALDER	308.0	43.5	38	67	97			
WR CEDAR	522.7	73.9	15	57	99			
TOTAL	*44.4*	*6.3*	*9,875*	*10,536*	*11,197*	*79*	*20*	*9*

TC TLOGSTVB

Log Stock Table - MBF

Project: STEPOVER

T03N R05W S32 TA1

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
03N	05W	32	001	A1	84.00	35	191

T03N R05W S32 TA1

Date 12/13/2017

Time 3:55:01PM

Spp	S T	So Grt	Gr de	Log Len	Gross MBF	% Def	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches: 2-3 4-5	6-7 8-9	10-11 12-13	14-15 16-19	20-23 24-29	30-39 40+
DF			CU	9										
DF			CU	31										
DF			2M	18	6		6	.1			6			
DF			2M	22	8		8	.2				8		
DF			2M	28	10		10	.2				10		
DF			2M	30	2		2	.0				2		
DF			2M	36	3		3	.1				3		
DF			2M	38	3		3	.1				3		
DF			2M	40	2,591	.3	2,582	56.4			351	648 669	418	399 98
DF			3M	30	31		31	.7		8 7	14 2			
DF			3M	32	53		53	1.2		27 20	7			
DF			3M	34	43		43	.9		20 23				
DF			3M	36	42		42	.9		38 3	1			
DF			3M	38	57		57	1.3		26 12	11 9			
DF			3M	40	1,550	.3	1,546	33.8		252 454	700 112	19 8		
DF			4M	12	28		28	.6		23 4	0 0			
DF			4M	14	15		15	.3		15				
DF			4M	16	14		14	.3		13 0				
DF			4M	18	21		21	.5		17	2 1			
DF			4M	20	13		13	.3		13				
DF			4M	22	4		4	.1		4				
DF			4M	24	31		31	.7		31				
DF			4M	25	1		1	.0		1				
DF			4M	26	11		11	.2		9 2				
DF			4M	28	11		11	.2		11				
DF			4M	30	35		35	.8		35				
DF			4M	32	4		4	.1		4				
DF			Totals		4,588		4,575	97.2		546 526	736 482	682 689	418	399 98
WH			2M	40	8		8	12.2			8			
WH			3M	38	7		7	10.0		7				
WH			3M	40	48		48	69.0		15	32			
WH			4M	12	0		0	.5		0				
WH			4M	14	3		3	3.9		3				
WH			4M	26	3		3	4.4		3				
WH			Totals		69		69	1.5		13 15	32 8			
RA			3M	40	18		18	46.9			18			
RA			4M	16	2		2	4.7		2				
RA			4M	22	2		2	6.3		2				
RA			CR	32	16		16	42.2		16				
RA			Totals		38		38	.8		20	18			
RC			2M	40	19		19	72.3				19		
RC			3M	40	6		6	24.1			6			
RC			4M	16	1		1	3.6		1				
RC			Totals		26		26	.6		1	6	19		
Total All Species					4,720		4,708	100.0		580 541	786 496	682 708	418	399 98

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: STEPOVER

Page 1
Date 12/13/2017
Time 3:55:01PM

T03N R05W S32 TA1

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
03N	05W	32	001	A1	84.00	35	191	S	W

T03N R05W S32 TA1

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF			CU														16	6		0.00	1.3
DF			2M	57	.3	31,228	31,132	2,615			47	53	0	1		99	40	16	432	2.11	72.0
DF			3M	38	.2	21,154	21,105	1,773		92	8	0		2	5	93	39	8	107	0.63	196.9
DF			4M	5		2,232	2,232	188		99	1		48	50	2		19	6	23	0.32	96.1
DF	**Totals**			97	.3	54,614	54,470	4,575		40	30	30	2	3	2	93	34	9	149	0.93	366.2
WH			2M	12		100	100	8			100					100	40	13	240	1.25	.4
WH			3M	79		649	649	55		100						100	40	8	109	0.62	6.0
WH			4M	9		72	72	6		100			50	50			18	6	22	0.33	3.2
WH	**Totals**			1		821	821	69		88	12		4	4		91	32	8	86	0.60	9.6
RA			3M	46		210	210	18		100						100	40	10	150	0.81	1.4
RA			4M	11		49	49	4		100			43	57			19	7	35	0.41	1.4
RA			CR	43		189	189	16		100					100		32	7	60	0.35	3.1
RA	**Totals**			1		447	447	38		100			5	6	42	47	31	8	75	0.50	5.9
RC			2M	72		224	224	19				100				100	40	19	600	3.61	.4
RC			3M	24		75	75	6			100					100	40	12	200	1.38	.4
RC			4M	4		11	11	1		100			100				16	7	30	0.53	.4
RC	**Totals**			1		310	310	26		4	24	72	4			96	32	13	277	2.16	1.1
Type Totals					.3	56,192	56,048	4,708		41	30	30	2	3	2	92	34	9	146	0.92	382.9

TC TSTNDSUM

Stand Table Summary

Project STEPOVER

T03N R05W S32 TA1

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
03N	05W	32	001	A1	84.00	35	191

T03N R05W S32 TA1
Page: 1
Date: 12/13/20
Time: 3:55:00PM

Spc	S T	DBH	Sample Trees	FF 16'	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
DF		9	1	91	88	5.038	2.23	5.04	10.9	60.0	1.57	55	302	132	46	25
DF		10	4	90	99	12.243	6.68	20.40	9.1	44.0	5.32	187	898	447	157	75
DF		11	6	89	100	11.804	7.79	21.92	10.7	48.5	6.68	234	1,062	561	197	89
DF		12	8	90	107	18.421	14.47	36.84	13.5	60.8	14.21	498	2,239	1,193	419	188
DF		13	3	89	114	4.830	4.45	9.66	17.6	86.2	4.85	170	833	407	143	70
DF		14	5	89	120	7.287	7.79	14.57	21.2	98.6	8.79	308	1,437	738	259	121
DF		15	10	88	120	12.696	15.58	27.21	22.2	99.3	17.19	603	2,703	1,444	507	227
DF		16	14	88	120	17.535	24.48	47.82	20.7	92.7	28.27	992	4,432	2,375	833	372
DF		17	5	88	129	3.530	5.56	9.18	26.3	113.1	6.88	241	1,038	578	203	87
DF		18	11	88	125	8.187	14.47	23.30	26.4	110.8	17.50	614	2,582	1,470	516	217
DF		19	11	89	132	7.913	15.58	23.74	29.6	129.3	20.02	702	3,069	1,682	590	258
DF		20	11	87	131	7.142	15.58	21.43	33.2	147.9	20.26	711	3,168	1,702	597	266
DF		21	8	88	134	4.164	10.02	12.49	37.3	174.4	13.28	466	2,179	1,116	392	183
DF		22	13	87	132	7.167	18.92	20.24	41.8	194.0	24.10	846	3,925	2,024	710	330
DF		23	10	87	142	4.243	12.24	13.11	45.9	214.4	17.16	602	2,812	1,441	506	236
DF		24	6	88	146	2.126	6.68	7.09	47.4	225.0	9.58	336	1,594	805	282	134
DF		25	7	87	147	2.612	8.90	8.49	54.1	255.8	13.08	459	2,171	1,099	386	182
DF		26	7	87	151	2.415	8.90	8.75	53.2	260.0	13.28	466	2,276	1,116	391	191
DF		27	2	85	149	.560	2.23	1.68	67.2	313.3	3.22	113	526	270	95	44
DF		28	6	88	147	1.562	6.68	5.73	60.3	318.2	9.85	346	1,822	827	290	153
DF		29	4	86	142	1.213	5.56	4.37	63.4	312.2	7.89	277	1,364	662	232	115
DF		30	5	88	150	1.587	7.79	5.89	69.8	365.0	11.72	411	2,152	985	346	181
DF		33	2	84	145	.375	2.23	1.31	86.4	430.0	3.23	113	564	271	95	47
DF		34	7	84	154	1.412	8.90	5.12	91.2	462.8	13.31	467	2,369	1,118	392	199
DF		35	1	88	160	.167	1.11	.67	93.1	517.5	1.77	62	345	148	52	29
DF		36	2	87	155	.315	2.23	.79	119.9	692.0	2.69	94	545	226	79	46
DF		37	1	88	160	.298	2.23	1.19	104.9	590.0	3.57	125	704	300	105	59
DF		38	6	88	160	.848	6.68	3.39	112.1	640.4	10.84	380	2,172	910	319	182
DF		39	1	89	160	.134	1.11	.54	120.8	682.5	1.85	65	366	155	54	31
DF		40	2	88	165	.255	2.23	1.02	125.9	715.0	3.66	128	729	308	108	61
DF		43	1	87	170	.110	1.11	.44	147.5	867.5	1.86	65	383	156	55	32
DF		45	1	90	190	.101	1.11	.40	185.2	1110.0	2.13	75	447	179	63	38
DF		48	2	89	180	.266	3.34	1.15	181.4	1096.9	5.95	209	1,263	500	175	106
DF		Totals	183	88	120	148.556	254.86	364.98	31.3	149.2	325.54	11,423	54,470	27,345	9,595	4,575
WH		13	1	90	80	1.594	1.47	3.19	13.3	55.0	1.35	42	175	114	35	15
WH		14	1	93	109	1.375	1.47	2.75	21.7	105.0	1.91	60	289	160	50	24
WH		15	1	93	90	1.197	1.47	2.39	21.0	90.0	1.61	50	216	135	42	18
WH		18	1	93	120	.416	.73	1.25	26.2	113.3	1.05	33	141	88	27	12
WH		Totals	4	92	95	4.582	5.14	9.58	19.3	85.7	5.92	185	821	497	155	69
RA		10	1	90	70	3.143	1.71	3.14	11.3	60.0	.98	36	189	82	30	16
RA		15	2	92	85	1.397	1.71	2.79	20.0	92.5	1.54	56	258	129	47	22
RA		Totals	3	91	75	4.540	3.43	5.94	15.4	75.3	2.52	92	447	211	77	38
RC		29	1	80	120	.374	1.71	1.12	69.2	276.7	1.82	78	310	153	65	26
RC		Totals	1	80	120	.374	1.71	1.12	69.2	276.7	1.82	78	310	153	65	26
Totals			191	89	118	158.052	265.14	381.61	30.9	146.9	335.80	11777	56,048	28,207	9,892	4,708

TC TLOGSTVB

Log Stock Table - MBF

Project: STEPOVER

T03N R005 S32 T00A2

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
03N	005	32	001	00A2	30.00	15	63

T03N R005 S32 T00A2

Date 12/13/2017

Time 3:53:43PM

Spp	S T	So Grade	Log Len	Gross MBF	% Def	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches 2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
DF		CU	39																
DF		2M	40	863	1.3	851	83.3						58	126	415	206	46		
DF		3M	28	1		1	.1				1								
DF		3M	30	1		1	.1				1								
DF		3M	32	2		2	.1				2								
DF		3M	34	6		6	.6			3	1	2							
DF		3M	36	15		15	1.5			5	8	2							
DF		3M	38	11		11	1.1			6	3	2							
DF		3M	40	125	.5	124	12.1			20	24	29	51						
DF		4M	12	4		4	.4			3	1								
DF		4M	14	1		1	.1			1									
DF		4M	16	1		1	.1			0	1								
DF		4M	18	1		1	.1			1									
DF		4M	20	0		0	.0			0									
DF		4M	24	1		1	.1			1									
DF		4M	26	1		1	.1			1									
DF		4M	28	2		2	.2			2									
DF		4M	30	1		1	.1			1									
DF		Totals		1,034	1.2	1,022	100.0			44	41	34	110	126	415	206	46		
Total All Species				1,034	1.2	1,022	100.0			44	41	34	110	126	415	206	46		

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: STEPOVER

Page 1
Date 12/13/2017
Time 3:53:43PM

T03N R005 S32 T00A2

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
03N	005	32	001	00A2	30.00	15	63	S	W

T03N R005 S32 T00A2

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF			CU														39	6		0.00	.5
DF			2M	83	1.3	28,758	28,373	851			27	73				100	40	17	474	2.28	59.8
DF			3M	15	.4	5,338	5,319	160		68	32			1	5	94	39	9	115	0.83	46.2
DF			4M	2		370	370	11		100			62	38			16	6	18	0.39	20.2
DF	**Totals**			100	1.2	34,465	34,061	1,022		12	27	61	1	1	1	98	36	12	269	1.56	126.8
Type Totals					1.2	34,465	34,061	1,022		12	27	61	1	1	1	98	36	12	269	1.56	126.8

TC TSTNDSUM

Stand Table Summary

Project STEPOVER

T03N R005 S32 T00A2

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
03N	005	32	001	00A2	30.00	15	63

T03N R005 S32 T00A2

Page: 1
Date: 12/13/20
Time: 3:53:42PM

Spc	S T	DBH	Sample Trees	FF 16'	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
DF		17	2	87	123	2.900	4.57	8.70	21.2	91.7	5.25	184	798	158	55	24
DF		18	2	87	99	2.587	4.57	6.47	25.4	102.0	4.69	164	660	141	49	20
DF		20	1	88	113	1.048	2.29	3.14	30.6	133.3	2.74	96	419	82	29	13
DF		21	1	86	134	.950	2.29	2.85	35.6	156.7	2.90	102	447	87	30	13
DF		23	2	86	138	1.584	4.57	4.75	45.2	200.0	6.12	215	951	184	64	29
DF		24	8	88	145	5.821	18.29	16.01	51.0	236.8	23.25	816	3,791	698	245	114
DF		25	9	87	148	6.035	20.57	19.45	54.2	256.9	30.03	1,054	4,995	901	316	150
DF		26	10	87	144	6.199	22.86	19.84	57.6	274.4	32.57	1,143	5,443	977	343	163
DF		27	6	87	145	3.449	13.71	11.50	60.3	286.5	19.76	693	3,294	593	208	99
DF		28	5	86	140	2.673	11.43	8.02	69.4	342.0	15.85	556	2,742	475	167	82
DF		29	7	89	144	3.488	16.00	10.96	74.9	381.4	23.40	821	4,181	702	246	125
DF		30	1	87	153	.466	2.29	1.86	63.7	315.0	3.38	119	587	101	36	18
DF		31	1	89	163	.436	2.29	1.74	75.9	395.0	3.77	132	689	113	40	21
DF		32	3	86	146	1.228	6.86	4.50	77.8	397.3	9.98	350	1,788	299	105	54
DF		33	1	86	151	.385	2.29	1.15	102.2	530.0	3.36	118	612	101	35	18
DF		34	3	88	155	1.088	6.86	3.99	92.6	482.7	10.53	369	1,925	316	111	58
DF		36	1	87	166	.323	2.29	1.29	101.7	572.5	3.75	131	741	112	39	22
DF		Totals	63	87	140	40.659	144.00	126.23	56.0	269.8	201.33	7,064	34,061	6,040	2,119	1,022
Totals			63	87	140	40.659	144.00	126.23	56.0	269.8	201.33	7064	34,061	6,040	2,119	1,022

VOLUME SUMMARY

STEP OVER

Sale No. 314-18-23

December 2017

VOULUMES IN MBF

Type 1: MC (84 ACRES)

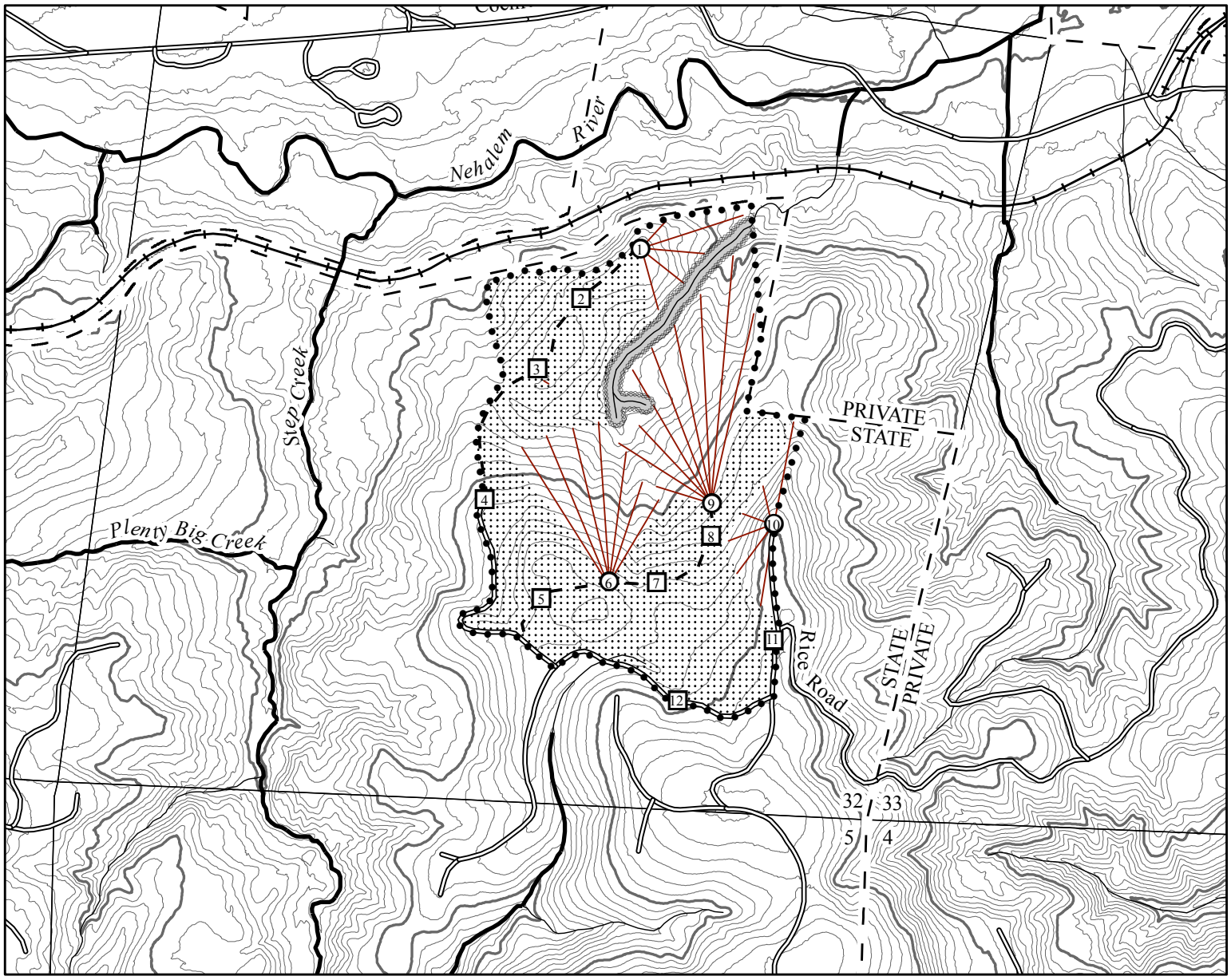
SPECIES		2 SAW	3 SAW	4 SAW	CR	TOTAL
Douglas-fir	Cruise Volume	2,615	1,773	188		4,576
	Hidden D&B (2%)	(52)	(35)	(4)		(92)
	NET TOTAL	2,563	1,738	184		4,484
	% of Total	57	39	4		
Western hemlock	Cruise Volume	8	55	6	0	69
	Hidden D&B (2%)	()	(1)	()	()	(1)
	NET TOTAL	8	54	6	0	68
	% of Total	12	79	9	0	
Red alder	Cruise Volume	0	0	0	38	38
	Hidden D&B (2%)	()	()	()	(1)	(1)
	NET TOTAL	0	0	0	37	37
	% of Total	0	0	0	100	

Type 2: MC (30 ACRES)

SPECIES		2 SAW	3 SAW	4 SAW	CR	TOTAL
Douglas-fir	Cruise Volume	851	160	11		1,022
	Hidden D&B (2%)	(17)	(3)	()		(20)
	NET TOTAL	834	157	11		1,002
	% of Total	83	16	1		

SALE TOTAL

SPECIES	2 SAW	3 SAW	4 SAW	CR	TOTAL
Douglas-fir	3,397	1,895	195	0	5,487
Western hemlock	8	54	6	0	68
Red alder	0	0	0	37	37
TOTAL	3,405	1,949	201	37	5,592



LOGGING PLAN

FOR TIMBER SALE CONTRACT 341-18 -23
STEP OVER
PORTIONS OF SECTION 32
T3N, R5W, W.M.,
WASHINGTON COUNTY, OREGON

Legend

- Timber Sale Boundary
- Surfaced Roads
- New Road Construction
- Railroad Track
- Type F Stream
- Type N Stream
- Stream Buffer
- Posted Stream Buffer Boundary
- Cable Yarding Area
- Tractor Yarding Area
- Cable Landing
- Tractor Landing
- ODF Ownership Boundary
- Section Line
- 20 Foot Contour
- 200 Foot Contour

Forest Grove District GIS
December, 2017
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

0 500 1,000 2,000
Feet

APPROXIMATE NET ACRES

TRACTOR	CABLE
68	46