"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Woods Way
Sale FG-341-2018-29-

District: Forest Grove

Date: July 18, 2017

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	$1,820,454.74	$62,571.36	$1,883,026.10
		Project Work:	($327,440.00)
		Advertised Value:	$1,555,586.10

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Woods Way
Sale FG-341-2018-29-

District: Forest Grove **Date: July 18, 2017**

Timber Description

Location: Portions of Sections 9, 10, 15 and 16, 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	Camprun	Total
Douglas - Fir	2,603	1,267	121	0	3,991
Alder (Red)	0	0	0	183	183
Total	2,603	1,267	121	183	4,174

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

Western Hemlock and Other Conifers Stumpage Price = Pond Value minus Logging Cost:
$335.96/MBF = $558.64/MBF - $222.68/MBF

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:
$1,212.10/MBF = $1,434.78/MBF - $222.68/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):
Block/Waterbar Roads/Skid Trails: 10 hrs x $150/hour = $1,500
Pile Landing Slash: 20 hrs x $150/hour = $3,000
Mechanical Site-Prep: 35 acres @ $150/acre = $5,250
Equipment Cleaning: 3 pieces x $1,000/piece = $3,000
TOTAL Other Costs (No Profit & Risk added) = $12,750

ROAD MAINTENANCE
Move-in: $4,000
General Road Maintenance: 6 miles x $1,200/mile = $7,200
TOTAL Road Maintenance: $11,200/4,174 MBF = $2.68/MBF

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Logging Conditions

Combination#: 1

	Douglas - Fir	38.00%
	Alder (Red)	38.00%

Logging System: Cable: Medium Tower >40 - <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: 6 **bd. ft / load:** 4600

cost / mbf: $217.39

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

Combination#: 2

	Douglas - Fir	62.00%
	Alder (Red)	62.00%

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

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

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

loads / day: 10 **bd. ft / load:** 4100

cost / mbf: $77.37

machines: Stroke Delimber (B)

"STEWARDSHIP IN FORESTRY"

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District: Forest Grove **Date: July 18, 2017**

Logging Costs

Operating Seasons:	1.00	**Profit Risk:**	10%
Project Costs:	$327,440.00	**Other Costs (P/R):**	$0.00
Slash Disposal:	$0.00	**Other Costs:**	$12,750.00

Miles of Road **Road Maintenance:** $2.68

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

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Woods Way
Sale FG-341-2018-29-

District: Forest Grove **Date: July 18, 2017**

Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling / Brand & Paint	Other	Total
Douglas - Fir									
$130.58	$2.73	$1.05	$58.94	$0.00	$19.33	$0.00	$7.00	$3.05	$222.68
Alder (Red)									
$130.58	$2.81	$1.05	$136.50	$0.00	$27.09	$0.00	$7.00	$3.05	$308.08

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	$0.00	$678.82	$456.14	$0.00
Alder (Red)	$0.00	$650.00	$341.92	$0.00

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Woods Way
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District: Forest Grove **Date: July 18, 2017**

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	3,991	$456.14	$1,820,454.74
Alder (Red)	183	$341.92	$62,571.36

Gross Timber Sale Value

Recovery: $1,883,026.10

Prepared By: Kenton Burns **Phone:** 503-359-7477

TIMBER SALE SUMMARY
Woods Way
Contract No. 341-18-29

1. **Location:** Portions of Sections 9, 10, 15 and 16 T1N, R6W, W.M., Tillamook County, Oregon.

2. **Type of Sale:** This timber sale is 108 net acres of Modified Clearcut. The timber will be sold on a recovery basis at a sealed bid auction.

3. **Revenue Distribution:** 66% BOF and 34% CSL, Tillamook County, Tax Code 56-1.

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 May of 2017. For more information see Cruise Report.

6. **Timber Description:** The Timber Sale Area consists of an over-stocked 60 year old Douglas-fir stand with minor amounts of western hemlock, and hardwoods. The stand has an average of 191 ft^2 of basal area, an average Douglas-fir DBH of 19 inches, and an estimated average net Douglas-fir volume of approximately 37.7 MBF per acre.

7. **Volume Summary**

SPECIES		2 SAW	3 SAW	4 SAW	Camp Run	TOTAL
Douglas-fir	Cruise Volume	2,656	1,293	123	0	4,072
	Hidden D&B (2%)	(53)	(26)	(2)	()	(81)
	NET TOTAL	2,603	1,267	121	0	3,991
	% of Total	65	32	3	0	
SPECIES		**2 SAW**	**3 SAW**	**4 SAW**	**Camp Run**	**TOTAL**
Red Alder	Cruise Volume	0	0	0	187	187
	Hidden D&B (2%)	()	()	()	4	(4)
	NET TOTAL	0	0	0	183	183
	% of Total	0	0	0		
SPECIES		**2 SAW**	**3 SAW**	**4 SAW**	**Camp Run**	**TOTAL**
Douglas-fir & Red Alder		2,603	1,267	121	183	4,174

8. **Topography and Logging Method:** Slopes within the sale areas range from 5% to 80%, and are north eastern in aspect. The timber sale is 62% ground-based yarding and 38% cable yarding. The average cable corridor length is 450 feet and the average horizontal skid trail length is approximately 350 feet and the maximum is approximately 700 feet.

9. **Access:** All access to the Timber Sale Area is on surfaced all-weather roads. 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 left and continue on South Fork Wilson River Road approximately 0.7 mile to Woods Point Road. Turn right onto Woods Point Road and continue approximately 1 mile to the timber sale area.

10. **Projects:**

Project No. 1: Road Construction and Improvement	$55,202.26
Project No. 2: Road Surfacing	$219,680.10
Project No. 3: Crush and Build Stockpile	$41,122.00
Project No. 4: Grass Seed, Fertilize, & Mulch	$2,212.63
Project No. 5: Vacate Road Segment O to N	$1,909.57
Move in and equipment cleaning:	$7,313.34
Total Credit for all Projects (rounded)	$327,440.00

PROJECT COST SUMMARY SHEET

Timber Sale: Woods Way
Sale Number: 341-18-29

PROJECT NO. 1: ROAD CONSTRUCTION AND IMPROVEMENT

CONSTRUCTION

Road Segment	Length	Cost
F to G	32+30	$18,009.90
H to I	4+75	$1,564.32
J to K	5+25	$1,691.22
L to M	12+95	$5,410.42
N to O	4+25	$2,465.40
	59+50 stations	
	1.13 miles	

SUBTOTAL CONSTRUCTION = $29,141.26

IMPROVEMENTS

Road Segment	Length	Cost
A to B	82+70	$10,818.96
C to D	95+15	$14,084.45
E to F	7+40	$1,157.59
	185+25 stations	
	3.51 miles	

SUBTOTAL IMPROVEMENTS = $26,061.00

TOTAL PROJECT NO. 1 COST = $55,202.26

PROJECT NO. 2: SURFACING

Road Segment	Rock Amount	Rock Type	Cost
A to B	838 cy	1 1/2" - 0	$7,941.64
	48 cy	24" - 6"	$533.28
C to D	959 cy	1 1/2" - 0	$11,774.53
	3,809 cy	3" - 0	$75,075.39
E to F	543 cy	3" - 0	$11,098.92
F to G	48 cy	1 1/2" - 0	$610.56
	2,695 cy	3" - 0	$55,948.20
	106 cy	Pit-run	$1,164.94
	48 cy	24" - 6"	$718.56
H to I	504 cy	3" - 0	$10,568.88
J to K	542 cy	3" - 0	$11,257.34
L to M	1,195 cy	3" - 0	$25,334.00
	239 cy	Pit-run	$2,731.77
N to O	140 cy	1 1/2" - 0	$1,563.08
	179 cy	3" - 0	$3,119.97
	24 cy	24" - 6"	$239.04
Total	1,985 cy	1 1/2" - 0	
	9,467 cy	3" - 0	
	345 cy	Pit-run	
	120 cy	24" - 6"	

TOTAL PROJECT NO. 2 COST = $219,680.10

PROJECT NO. 3 CRUSH AND BUILD STOCKPILE

TOTAL PROJECT NO. 3 COST = $41,122.00

PROJECT NO. 4 GRASS SEED, FERTILIZE, & MULCH

TOTAL PROJECT NO. 4 COST = $2,212.63

PROJECT NO. 5 VACATE ROAD SEGMENT O TO N

TOTAL PROJECT NO. 5 COST = $1,909.57

MOVE-IN & EQUIPMENT CLEANING

Grader	$1,130.32
Roller (smooth/grid) & Compactor	$592.14
Excavator (Large) - Equipment Cleaning	$2,130.32
Dozer (Large) - Equipment Cleaning	$2,174.90
Dump Trucks	$170.37
Water Truck	$144.20

TOTAL MOVE-IN & EQUIPMENT CLEANING COST = $7,313.44

TOTAL CREDITS $327,440.00

SUMMARY OF CONSTRUCTION COST

Timber Sale: Woods Way Sale Number: 341-18-29

Road Segment: A to B Improvement: 82+70 stations

1.57 miles

PROJECT NO. 1

EXCAVATION						
Clean or Construct Ditch	41.35	sta @	$60.00	per sta =	$2,481.00	
Haul Ditch & Settling Pond Waste	299	cy @	$2.04	per cy =	$609.04	
Shape and Compact Waste	299	cy @	$0.30	per cy =	$89.57	
Clean culvert inlet & outlet	14	ea @	$25.00	per ea =	$350.00	
Construct Settling Ponds	10	ea @	$25.00	per ea =	$250.00	
Grade, ditch, & roll	82.70	sta @	$40.50	per sta =	$3,349.35	
				TOTAL EXCAVATION COSTS =		$7,128.96

CULVERTS - MATERIALS & INSTALLATION

Culverts			
180	LF of 18"	$3,600.00	
Culvert Markers			
9	markers	$90.00	
		TOTAL CULVERT COSTS =	$3,690.00

PROJECT NO. 1 TOTAL COST = $10,818.96

PROJECT NO. 2:

SURFACING		4 " deep =	20 cy/sta				
0+00 to 35+90	718	cy of	1 1/2" - 0	@	$9.58	per cy =	$6,878.44
Culvert bedding and backfill	120	cy of	1 1/2" - 0	@	$8.86	per cy =	$1,063.20
Energy Dissipator	48	cy of	24" - 6"	@	$11.11	per cy =	$533.28
Rock Total =	886						
	838	cy of	1 1/2" - 0				
	48	cy of	24" - 6"				

PROJECT NO. 2 TOTAL COST = $8,474.92

PROJECT NO. 4:

Grass seed & fertilizer	0.57	acres	@	$425.00	per acre =	$242.07	
Bio bags	8	each	@	$5.00	per each =	$40.00	
					PROJECT NO. 4 TOTAL COST =		$282.07

TOTAL COST = $19,575.95

SUMMARY OF CONSTRUCTION COST

Timber Sale: Woods Way Sale Number: 341-18-29

Road Segment: C to D Improvement: 95+15 stations

1.80 miles

PROJECT NO. 1

EXCAVATION						
Clean or Construct Ditch	95.15	sta @	$60.00	per sta =	$5,709.00	
Haul Ditch Waste	687	cy @	$2.04	per cy =	$1,401.45	
Shape and Compact Waste	687	cy @	$0.30	per cy =	$206.10	
Clean culvert inlet & outlet	18	ea @	$25.00	per ea =	$450.00	
Construct turnaround	1	ea @	$82.50	per ea =	$82.50	
Improve roadside landing	2	ea @	$165.00	per ea =	$330.00	
Grade, ditch, & roll	95.15	sta @	$36.00	per sta =	$3,425.40	
				TOTAL EXCAVATION COSTS =		$11,604.45

CULVERTS - MATERIALS & INSTALLATION

Culverts

120 LF of 18" $2,400.00

Culvert Markers

8 markers $80.00

TOTAL CULVERT COSTS = $2,480.00

PROJECT NO. 1 TOTAL COST = $14,084.45

PROJECT NO. 2:

SURFACING		8 " deep = 6 " deep =	42 cy/sta 31 cy/sta				
Surfacing rock (0+00 to 57+50)	1,783	cy of	3" - 0	@	$19.71	per cy =	$35,142.93
Traction rock (0+00 to 57+50)	863	cy of	1 1/2" - 0	@	$12.35	per cy =	$10,658.05
Surfacing rock (57+50 to 95+15)	1,582	cy of	3" - 0	@	$19.71	per cy =	$31,181.22
Turnouts	228	cy of	3" - 0	@	$19.71	per cy =	$4,493.88
Turnaround	14	cy of	3" - 0	@	$19.71	per cy =	$275.94
Junction	12	cy of	3" - 0	@	$19.71	per cy =	$236.52
Roadside Landing	190	cy of	3" - 0	@	$19.71	per cy =	$3,744.90
Culvert bedding	96	cy of	1 1/2" - 0	@	$11.63	per cy =	$1,116.48
Rock Total =	4,768						
	959	cy of	1 1/2" - 0				
	3,809	cy of	3" - 0				

PROJECT NO. 2 TOTAL COST = $86,849.92

PROJECT NO. 4:

Grass seed & fertilizer	0.66	acres	@	$425.00	per acre =	$278.51
Bio Bags	40	bags	@	$5.00	per bag =	$200.00

PROJECT NO. 4 TOTAL COST = $478.51

TOTAL COST = $101,412.88

SUMMARY OF CONSTRUCTION COST

Timber Sale: Woods Way Sale Number: 341-18-29

Road Segment: E to F Improvement: 7+40 stations

0.14 miles

PROJECT NO. 1

EXCAVATION						
Roadside brushing (medium)	0.14	mi @	$1,000.00	per mi =		$140.16
Clean or Construct Ditch	7.40	sta @	$60.00	per sta =		$444.00
Haul Ditch Waste	53	cy @	$2.04	per cy =		$109.00
Shape and Compact Waste	53	cy @	$0.30	per cy =		$16.03
Clean culvert inlet & outlet	1	ea @	$25.00	per ea =		$25.00
Inprove Landing	1	ea @	$157.00	per ea =		$157.00
Grade, ditch, & roll	7.40	sta @	$36.00	per sta =		$266.40

PROJECT NO. 1 TOTAL COST = $1,157.59

PROJECT NO. 2:

SURFACING		10 " deep =	53 cy/sta				
E to F	393	cy of	3" - 0	@	$20.44	per cy =	$8,032.92
Landing	150	cy of	3" - 0	@	$20.44	per cy =	$3,066.00
Rock Total =	543						
	543	cy of	3" - 0				

PROJECT NO. 2 TOTAL COST = $11,098.92

PROJECT NO. 4:

Grass seed & fertilizer	0.05	acres	@	$425.00	per acre =	$21.66

PROJECT NO. 4 TOTAL COST = $21.66

TOTAL COST = $12,278.17

SUMMARY OF CONSTRUCTION COST

Timber Sale: Woods Way Sale Number: 341-18-29

Road Segment: F to G Construction: 32+30 stations

0.61 miles

PROJECT NO. 1

EXCAVATION					
Clearing & grubbing (scatter)	3.71	ac @	$1,078.00	per acre =	$3,999.38
Balanced road construction	32.30	sta @	$110.00	per sta =	$3,553.00
Construct Fill at 3+70					
Drift fill material	2.00	sta @	$180.00	per sta =	$360.00
End-haul Puncheon and Construct Fill					
Excavate & load	347	cy @	$1.64	per cy =	$569.46
Haul	226	cy @	$2.04	per cy =	$460.43
Drift fill material	5	sta @	$180.00	per sta =	$900.00
Compact fill	347	cy @	$0.50	per cy =	$173.62
Compact waste area	226	cy @	$0.30	per cy =	$67.71
Construct Settling Ponds	3	ea @	$20.00	per ea =	$60.00
Turnouts	2	ea @	$66.00	per ea =	$132.00
Turnarounds	1	ea @	$82.50	per ea =	$82.50
Roadside landing	3	ea @	$165.00	per ea =	$495.00
Landing	1	ea @	$314.00	per ea =	$314.00
Grade, ditch, & roll	32.30	sta @	$36.00	per sta =	$1,162.80

TOTAL EXCAVATION COSTS = $12,329.90

CULVERTS - MATERIALS & INSTALLATION

Culverts		
150	LF of 18"	$3,000.00
90	LF of 24"	$2,610.00
Culvert Markers		
7	markers	$70.00

TOTAL CULVERT COSTS = $5,680.00

PROJECT NO. 1 TOTAL COST = $18,009.90

PROJECT NO. 2:

SURFACING		12 " deep =	65 cy/sta				
F to G	2,100	cy of	3" - 0	@	$20.76	per cy =	$43,596.00
Turnouts	58	cy of	3" - 0	@	$20.76	per cy =	$1,204.08
Turnaround	20	cy of	3" - 0	@	$20.76	per cy =	$415.20
Junction	24	cy of	3" - 0	@	$20.76	per cy =	$498.24
Roadside Landing	285	cy of	3" - 0	@	$20.76	per cy =	$5,916.60
Landing	180	cy of	3" - 0	@	$20.76	per cy =	$3,736.80
Culvert bedding	48	cy of	1 1/2" - 0	@	$12.72	per cy =	$610.56
Curve widening	28	cy of	3" - 0	@	$20.76	per cy =	$581.28
Subgrade reinforcement	106	cy of	Pit-run	@	$10.99	per cy =	$1,164.94
Energy Dissipator	48	cy of	24" - 6"	@	$14.97	per cy =	$718.56
Rock Total =	2,897						
	48	cy of	1 1/2" - 0				
	2,695	cy of	3" - 0				
	106	cy of	Pit-run				
	48	cy of	24" - 6"				

PROJECT NO. 2 TOTAL COST = $58,442.26

PROJECT NO. 4:

Grass seed & fertilizer	1.86	acres	@	$425.00	per acre =	$788.38	
Mulch	4	bales	@	$8.00	per bale =	$32.00	

PROJECT NO. 4 TOTAL COST = $820.38

TOTAL COST = $77,272.54

SUMMARY OF CONSTRUCTION COST

Timber Sale: Woods Way Sale Number: 341-18-29

Road Segment: H to I Construction: 4+75 stations

0.09 miles

PROJECT NO. 1

EXCAVATION						
Clearing & grubbing (scatter)	0.44	ac @	$1,078.00	per acre =	$474.32	
Balanced road construction	4.75	sta @	$110.00	per sta =	$522.50	
Turnarounds	1	ea @	$82.50	per ea =	$82.50	
Landing	1	ea @	$314.00	per ea =	$314.00	
Grade, ditch, & roll	4.75	sta @	$36.00	per sta =	$171.00	

PROJECT NO. 1 TOTAL COST = $1,564.32

PROJECT NO. 2:

SURFACING		12 " deep =	64 cy/sta				
H to I	304	cy of	3" - 0	@	$20.97	per cy =	$6,374.88
Turnaround	20	cy of	3" - 0	@	$20.97	per cy =	$419.40
Landing	180	cy of	3" - 0	@	$20.97	per cy =	$3,774.60
Rock Total =	504						
	504	cy of	3" - 0				

PROJECT NO. 2 TOTAL COST = $10,568.88

PROJECT NO. 4:

Grass seed & fertilizer	0.22	acres	@	$425.00	per acre =	$93.50	

PROJECT NO. 4 TOTAL COST = $93.50

TOTAL COST = $12,226.70

SUMMARY OF CONSTRUCTION COST

Timber Sale: Woods Way Sale Number: 341-18-29

Road Segment: J to K Construction: 5+25 stations

0.10 miles

PROJECT NO. 1

EXCAVATION						
Clearing & grubbing (scatter)	0.49	ac @	$1,078.00	per acre =	$528.22	
Balanced road construction	5.25	sta @	$110.00	per sta =	$577.50	
Turnarounds	1	ea @	$82.50	per ea =	$82.50	
Landing	1	ea @	$314.00	per ea =	$314.00	
Grade, ditch, & roll	5.25	sta @	$36.00	per sta =	$189.00	

PROJECT NO. 1 TOTAL COST = $1,691.22

PROJECT NO. 2:

SURFACING		12 " deep =	65 cy/sta				
J to K	342	cy of	3" - 0	@	$20.77	per cy =	$7,103.34
Turnaround	20	cy of	3" - 0	@	$20.77	per cy =	$415.40
Landing	180	cy of	3" - 0	@	$20.77	per cy =	$3,738.60
Rock Total =	542						
	542	cy of	3" - 0				

PROJECT NO. 2 TOTAL COST = $11,257.34

PROJECT NO. 4:

Grass seed & fertilizer	0.25	acres	@	$425.00	per acre =	$104.13	

PROJECT NO. 4 TOTAL COST = $104.13

TOTAL COST = $13,052.69

SUMMARY OF CONSTRUCTION COST

Timber Sale: Woods Way Sale Number: 341-18-29

Road Segment: L to M Construction: 12+95 stations

0.25 miles

PROJECT NO. 1

EXCAVATION						
Clearing & grubbing (scatter)	1.49	ac @	$1,078.00	per acre =	$1,606.22	
Balanced road construction	12.95	sta @	$110.00	per sta =	$1,424.50	
Turnouts	2	ea @	$66.00	per ea =	$132.00	
Turnarounds	1	ea @	$82.50	per ea =	$82.50	
Roadside landing	1	ea @	$165.00	per ea =	$165.00	
Landing	1	ea @	$314.00	per ea =	$314.00	
Grade, ditch, & roll	12.95	sta @	$36.00	per sta =	$466.20	
				TOTAL EXCAVATION COSTS =		$4,190.42

CULVERTS - MATERIALS & INSTALLATION

Culverts

60 LF of 18" $1,200.00

Culvert Markers

2 markers $20.00

TOTAL CULVERT COSTS = $1,220.00

PROJECT NO. 1 TOTAL COST = $5,410.42

PROJECT NO. 2:

SURFACING		12 " deep =	65 cy/sta				
L to M	842	cy of	3" - 0	@	$21.20	per cy =	$17,850.40
Turnouts	58	cy of	3" - 0	@	$21.20	per cy =	$1,229.60
Turnaround	20	cy of	3" - 0	@	$21.20	per cy =	$424.00
Roadside Landing	95	cy of	3" - 0	@	$21.20	per cy =	$2,014.00
Landing	180	cy of	3" - 0	@	$21.20	per cy =	$3,816.00
Subgrade reinforcement	239	cy of	Pit-run	@	$11.43	per cy =	$2,731.77
Rock Total =	1,434						
	1,195	cy of	3" - 0				
	239	cy of	Pit-run				

PROJECT NO. 2 TOTAL COST = $28,065.77

PROJECT NO. 4:

Grass seed & fertilizer	0.75	acres	@	$425.00	per acre =	$316.63	

PROJECT NO. 4 TOTAL COST = $316.63

TOTAL COST = $33,792.82

SUMMARY OF CONSTRUCTION COST

Timber Sale: Woods Way Sale Number: 341-18-29

Road Segment: N to O Construction: 4+25 stations

0.08 miles

PROJECT NO. 1

EXCAVATION

Clearing & grubbing (scatter)	0.30	ac @	$1,078.00	per acre =	$323.40
Drift road construction	4.25	sta @	$180.00	per sta =	$765.00
Grade, ditch, & roll	4.25	sta @	$36.00	per sta =	$153.00

TOTAL EXCAVATION COSTS = $1,241.40

CULVERTS - MATERIALS & INSTALLATION

Culverts		**Bands**		
30	LF of 30"	$1,170.00	1 ea of 30"	$44.00
Culvert Markers				
1	markers	$10.00		

TOTAL CULVERT COSTS = $1,224.00

PROJECT NO. 1 TOTAL COST = $2,465.40

PROJECT NO. 2:

SURFACING 3 " deep = 15 cy/sta

8 " deep = 42 cy/sta

Base Rock	179	cy of	3" - 0	@	$17.43	per cy =	$3,119.97
Surfacing	64	cy of	1 1/2" - 0	@	$11.35	per cy =	$726.40
Junction	40	cy of	1 1/2" - 0	@	$11.35	per cy =	$454.00
Culvert bedding and backfill	36	cy of	1 1/2" - 0	@	$10.63	per cy =	$382.68
Energy dissipator	24	cy of	24" - 6"	@	$9.96	per cy =	$239.04
Rock Total =	343						
	140	cy of	1 1/2" - 0				
	179	cy of	3" - 0				
	24	cy of	24" - 6"				

PROJECT NO. 2 TOTAL COST = $4,922.09

PROJECT NO. 4:

Grass seed & fertilizer	0.15	acres	@	$425.00	per acre =	$63.75
Mulch	4	bales	@	$8.00	per bale =	$32.00

PROJECT NO. 4 TOTAL COST = $95.75

TOTAL COST = $7,483.24

SUMMARY OF CONSTRUCTION COST

Timber Sale: Woods Way Sale Number: 341-18-29

Road Segment: O to N Vacate: 3+10 stations

0.06 miles

PROJECT NO. 5

EXCAVATION					
Road ripping and Sidecast pull back	1.55	sta @	$50.00	per sta =	$77.50
Road Prism Removal					
Excavate & load material	269	cy @	$1.64	per cy =	$440.97
Push material	350	cy @	$0.90	per cy =	$314.59
Compact material	350	cy @	$0.30	per cy =	$104.87
Culvert and Fill Removal					
Remove existing culvert	1	ea @	$150.00	per ea =	$150.00
Excavate fill	154	cy @	$1.64	per cy =	$252.56
Push material	200	cy @	$0.90	per cy =	$180.18
Compact material	200	cy @	$0.30	per cy =	$60.06
Construct Tank Trap	2	ea @	$55.00	per ea =	$110.00

PROJECT NO. 5 TOTAL COST = $1,690.73

PROJECT NO. 4:

Grass seed & fertilizer	0.21	acres	@	$425.00	per acre =	$90.74
Mulch	0.21	acrea	@	$600.00	per bale =	$128.10

PROJECT NO. 4 TOTAL COST = $218.84

TOTAL COST = $1,909.57

SUMMARY OF CONSTRUCTION COST

Timber Sale: Woods Way Sale Number: 341-18-29

PROJECT NO. 3

Crush 2,500 cy 3"-0 (stockpile measurement)	2,900	cy of	3" - 0	@	$12.60	per cy =	$36,540.00
Rock haul	2,900	cy of	3" - 0	@	$0.48	per cy =	$1,392.00
Build & shape stockpile	2,900	cy of	3" - 0	@	$1.10	per cy =	$3,190.00

PROJECT NO. 3 TOTAL COST = $41,122.00

ROCK PIT DEVELOPMENT & CRUSHING COST SUMMARY

Timber Sale:	Woods Way
Sale Number:	341-18-29
Pit Name:	West C-Line

1 1/2" - 0:	1,985 cy	(truck measure)
3" - 0:	9,467 cy	(truck measure)
Stockpile:	2,500 cy	(stockpile measure)
Total truck yardage:	14,352 cy	
Total in place yardage:	11,040 cy	

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

Pit development, including clearing & grubbing of waste area, place overburden in waste area, spread & compact.					$5,171.41
Drill & shoot	$2.80	/ cy x	12,988	cy =	$36,367.06
Push rock	$0.80	/ cy x	8,442	cy =	$6,753.88
Load crusher	$0.80	/ cy x	16,885	cy =	$13,507.76
Screen rock	$2.90	/ cy x	16,885	cy =	$48,965.65
Waste reject	$0.80	/ cy x	2,533	cy =	$2,026.16
Crush (1 1/2" - 0)	$3.30	/ cy x	1,985	cy =	$6,550.50
Crush (3" - 0)	$3.30	/ cy x	9,467	cy =	$31,241.10
Crush (3" - 0 Stockpile)	$3.30	/ cy x	2,900	cy =	$9,570.00
Load dump truck	$0.80	/ cy x	14,352	cy =	$11,481.60
				Subtotal:	$171,635.13

Move in & setup drill					$503.83
Equipment cleaning & move in excavator					$1,874.06
Setup screening plant					$435.00
Move in loader					$773.64
Move in crusher					$2,109.00
Setup crusher					$2,110.00
Gradation tests	$71.50	/2,000cy x	8	tests	$572.00
Change gradation					$275.00
Clean up pit					$500.00
				Subtotal:	$9,152.53

TOTAL PRODUCTION COST = $180,787.66

ROCK DEVELOPMENT COST = $12.60/cy

ROCK PIT DEVELOPMENT & CRUSHING COST SUMMARY

Timber Sale:	Woods Way
Sale Number:	341-18-29
Pit Name:	West C-Line

Pit-run:	345 cy	(truck measure)
24" - 6":	120 cy	(truck measure)
Total truck yardage:	465 cy	
Total in place yardage:	358 cy	
Swell:	130%	

Drill & shoot	$2.80	/ cy x	358	cy =	$1,001.54
Load dump truck	$0.80	/ cy x	465	cy =	$372.00
				Subtotal:	$1,373.54

TOTAL PRODUCTION COST = $1,373.54

ROCK DEVELOPMENT COST = $2.95/cy

CRUISE REPORT
Woods Way
341-18-29

1. LOCATION: Portions of Sections 9, 10, 15 & 16 T1N, R6W W.M.
Tillamook County, Oregon.

2. CRUISE DESIGN:
Pre-cruise evaluation indicated that the stand's average DBH is approximately 17 inches and its Coefficient of Variation is about 55%. For sales of this size and approximate value, ODF cruise standards require a Sampling Error of 9% at a 68% confidence level, and a minimum sample size of 100 graded trees. The cruise design chosen for this sale is a variable radius sample plot using a 40 BAF prism and employing a combination of count and measure plots at a ratio of 1 measured plot to 1 count plots.

3. SAMPLING METHOD:
The Timber Sale Area was cruised in May, 2017. The Timber Sale Area was sampled with 23 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
121 trees were measured and graded producing a cumulative Sampling Error of 7.3% on the Basal Area and 7.3% on the Board Foot Volume.

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 Kenton Burns and Mark Savage.

Prepared by: _____ 6-20-17
ODF Forester Date

Reviewed by: Erik Marcy 6-20-17
Erik Marcy Date

TC PSTATS

PROJECT STATISTICS

PROJECT WOODRAW

DATE 5/24/2017

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
01N	06	09	00A1	00MC	108.00	37	190	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	37	190	5.1		
CRUISE	23	121	5.3	12,094	1.0
DBH COUNT					
REFOREST					
COUNT	14	69	4.9		
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-T	112	100.6	18.7	123	44.3	191.4	38,634	37,703	8,431	8,431
R ALDER-T	8	10.7	14.9	103	3.4	13.0	1,761	1,735	421	421
WHEMLOCK-T	1	.7	17.0	76	0.3	1.1	89	89	27	27
TOTAL	*121*	*112.0*	*18.3*	*121*	*48.0*	*205.4*	*40,484*	*39,527*	*8,879*	*8,879*

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.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
SAMPLE TREES - BF								
DOUG FIR-T	70.1	6.6	511	547	583			
R ALDER-T	33.1	12.5	143	164	184			
WHEMLOCK-T								
TOTAL	*73.9*	*6.7*	*484*	*518*	*553*	*218*	*54*	*24*
SAMPLE TREES - CF								
DOUG FIR-T	63.5	6.0	114	121	128			
R ALDER-T	23.4	8.8	37	40	44			
WHEMLOCK-T								
TOTAL	*66.9*	*6.1*	*108*	*115*	*122*	*179*	*45*	*20*
TREES/ACRE						# OF PLOTS REQ.		
DOUG FIR-T	67.8	11.1	89	101	112			
R ALDER-T	300.7	49.4	5	11	16			
WHEMLOCK-T	608.3	99.9	0	1	1			
TOTAL	*59.2*	*9.7*	*101*	*112*	*123*	*140*	*35*	*16*
BASAL AREA/ACRE								
DOUG FIR-T	44.4	7.3	177	191	205			
R ALDER-T	300.1	49.3	7	13	19			
WHEMLOCK-T	608.3	99.9	0	1	2			
TOTAL	*38.2*	*6.3*	*193*	*205*	*218*	*58*	*15*	*6*
NET BF/ACRE								
DOUG FIR-T	44.3	7.3	34,958	37,703	40,448			
R ALDER-T	328.0	53.9	800	1,735	2,669			
WHEMLOCK-T	608.3	99.9	0	89	178			
TOTAL	*39.3*	*6.5*	*36,975*	*39,527*	*42,079*	*62*	*15*	*7*
NET CUFT FT/ACRE								
DOUG FIR-T	43.7	7.2	7,826	8,431	9,036			
R ALDER-T	310.9	51.1	206	421	636			

TC PSTATS

PROJECT STATISTICS

PROJECT WOODRAW

DATE 5/24/2017

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
01N	06	09	00A1	00MC	108.00	37	190	S	W

			NET CUFT FT/ACRE			# OF PLOTS REQ.		
CL 68.1	COEFF							INF. POP.
SD: 1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
WHEMLOCK-T	608.3	99.9	0	27	54			
TOTAL	*38.5*	*6.3*	*8,318*	*8,879*	*9,441*	*59*	*15*	*7*

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T01N R06W S09 Ty00MC 108.00

Project: **WOODRAW2**

Acres **108.00**

Page **1**
Date **5/24/2017**
Time **11:47:32AM**

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of 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														9	19		0.00	1.8
DF			2M	65	2.6	25,240	24,593	2,656			66	34	1	2		97	39	15	331	1.79	74.2
DF			3M	31	2.3	12,249	11,969	1,293		100				0	5	95	39	8	98	0.61	122.2
DF			4M	4	.3	1,145	1,141	123		100			33	67			21	6	26	0.33	44.1
DF Totals				95	2.4	38,634	37,703	4,072		35	43	22	1	4	2	94	36	10	156	0.98	242.4
WH			CU														25	5		0.00	.7
WH			3M	100		89	89	10		100					100		34	10	130	1.16	.7
WH Totals				0		89	89	10		100					100		30	8	65	0.67	1.4
RA			CU														27	7		0.00	1.8
RA			CR	100	1.5	1,761	1,735	187		69	31		14	13		74	32	9	89	0.68	19.5
RA Totals				4	1.5	1,761	1,735	187		69	31		14	13		74	31	9	81	0.63	21.4
Totals					2.4	40,484	39,527	4,269		36	43	21	2	4	2	93	35	10	149	0.95	265.2

TC PLOGSTVB

Log Stock Table - MBF

T01N R06W S09 Ty00MC 108.00

Project: WOODRAW2
Acres 108.00

Page 1
Date 5/24/2017
Time 11:47:31AM

Spp	ST	Sort	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		2M		16	15		15	.4								15				
DF		2M		22	15		15	.4						15						
DF		2M		24	40		40	1.0								40				
DF		2M		40	2,657	2.6	2,587	63.5						570	682	1159	128	18	28	
DF		3M		22	1		1	.0					1							
DF		3M		28	4		4	.1			4									
DF		3M		32	18		18	.4			18									
DF		3M		34	44		44	1.1			44									
DF		3M		36	68		68	1.7			68									
DF		3M		38	23		23	.6			23									
DF		3M		40	1,164	2.6	1,134	27.8			226	286	621							
DF		4M		12	4		4	.1			4									
DF		4M		14	15		15	.4			15									
DF		4M		16	14		14	.3			14									
DF		4M		18	4		4	.1			4									
DF		4M		20	4		4	.1			4									
DF		4M		22	14	3.1	13	.3			13									
DF		4M		24	14		14	.3			14									
DF		4M		26	16		16	.4			16									
DF		4M		28	10		10	.3			10									
DF		4M		30	29		29	.7			29									
DF		Totals			4,172	2.4	4,072	95.4			507	286	623	585	682	1214	128	18	28	
WH		3M		34	10		10	100.0					10							
WH		Totals			10		10	.2					10							
RA		CR		16	14	20.0	11	6.1						11						
RA		CR		20	14		14	7.4			6	8								
RA		CR		24	7		7	3.5			7									
RA		CR		26	17		17	9.3			7		11							
RA		CR		38	9		9	4.7			9									
RA		CR		40	129		129	69.0			20	38	25	47						
RA		Totals			190	1.5	187	4.4			47	46	35	59						
Total		All Species			4,372	2.4	4,269	100.0			554	332	668	643	682	1214	128	18	28	

TC PSTNDSUM

Stand Table Summary

Page 1
Date: 5/24/2017

T01N R06W S09 Ty00MC 108.00

Project WOODRAW2
Acres 108.00

Time: 11:47:33AM
Grown Year:

Spc	S T	DBH	Sample Trees	FF 16'	Tot Av Ht	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	88	88	3.867	1.71	3.87	9.8	60.0	1.08	38	232	117	41	25
DF		10	2	87	90	6.265	3.42	6.26	12.8	60.0	2.28	80	376	246	86	41
DF		11	4	86	94	10.355	6.83	15.53	11.8	45.0	5.24	184	699	565	198	75
DF		12	2	86	103	4.351	3.42	8.70	12.9	50.0	3.19	112	435	345	121	47
DF		14	4	86	116	6.393	6.83	12.79	19.7	90.0	7.19	252	1,151	777	273	124
DF		15	6	88	114	8.353	10.25	18.10	21.9	98.5	11.30	397	1,782	1,221	428	192
DF		16	4	88	119	4.894	6.83	12.24	22.2	91.0	7.75	272	1,113	837	294	120
DF		17	5	89	122	5.419	8.54	14.09	25.4	107.7	10.20	358	1,517	1,101	386	164
DF		18	4	88	133	3.867	6.83	11.60	26.0	111.7	8.59	301	1,296	928	326	140
DF		19	5	88	136	4.339	8.54	13.02	30.2	128.7	11.20	393	1,675	1,210	425	181
DF		20	10	89	140	7.831	17.08	23.49	35.0	163.7	23.41	821	3,845	2,529	887	415
DF		21	5	87	135	3.552	8.54	10.65	37.5	170.7	11.39	400	1,818	1,230	432	196
DF		22	12	88	139	7.766	20.50	23.95	39.7	182.2	27.11	951	4,362	2,928	1,027	471
DF		23	12	87	143	7.106	20.50	20.73	47.5	214.6	28.03	984	4,447	3,027	1,062	480
DF		24	8	86	143	4.351	13.67	11.96	51.2	226.8	17.45	612	2,714	1,884	661	293
DF		25	7	87	135	3.508	11.96	10.53	54.3	237.6	16.30	572	2,501	1,761	618	270
DF		26	5	86	145	2.317	8.54	6.95	60.7	268.7	12.03	422	1,867	1,299	456	202
DF		27	6	85	149	2.578	10.25	6.45	73.1	338.0	13.43	471	2,179	1,450	509	235
DF		28	4	84	145	1.598	6.83	4.00	74.0	326.0	8.43	296	1,303	910	319	141
DF		30	3	84	148	1.044	5.13	3.13	80.1	351.1	7.15	251	1,100	772	271	119
DF		31	2	84	149	.652	3.42	1.96	86.6	400.0	4.82	169	782	521	183	84
DF		46	1	81	178	.148	1.71	.59	160.8	860.0	2.71	95	509	293	103	55
DF		Totals	112	87	123	100.555	191.35	240.58	35.0	156.7	240.29	8,431	37,703	25,952	9,106	4,072
RA		13	1	94	96	1.759	1.62	3.52	15.8	75.0	1.53	56	264	165	60	29
RA		14	3	80	110	4.551	4.86	9.10	18.0	71.7	4.52	164	652	488	177	70
RA		15	1	91	83	1.321	1.62	2.64	19.9	75.0	1.44	52	198	156	57	21
RA		16	1	94	108	1.161	1.62	2.32	30.1	135.0	1.92	70	314	208	76	34
RA		17	1	93	105	1.029	1.62	1.03	43.6	200.0	1.23	45	206	133	48	22
RA		18	1	73	103	.918	1.62	.92	36.9	110.0	.93	34	101	101	37	11
RA		Totals	8	86	103	10.739	12.97	19.53	21.6	88.8	11.58	421	1,735	1,251	455	187
WH		17	1	75	76	.686	1.08	.69	39.3	130.0	.86	27	89	93	29	10
WH		Totals	1	75	76	.686	1.08	.69	39.3	130.0	.86	27	89	93	29	10
Totals			121	87	121	111.980	205.41	260.79	34.0	151.6	252.74	8,879	39,527	27,296	9,590	4,269

LOGGING PLAN

FOR TIMBER SALE CONTRACT # 341-18-29
WOODS WAY
PORTIONS OF SECTIONS 9, 10, 15 & 16 T1N, R6W W.M.
TILLAMOOK COUNTY, OREGON.

Legend

- Timber Sale Boundary
- Roads
- NewConstruction
- Type F Stream
- Type N Stream
- Stream Buffer
- Stream Buffer Boundary
- Cable Yarding Area
- Tractor Yarding Area
- Cable Landing
- Tractor Landing
- ODF Ownership Boundary
- 40 Ft. Contour
- Sections

N

Forest Grove District GIS
April, 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
	67	41
TOTAL		108