



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Buck Shot
Sale AT-341-2021-W00818-01

District: Astoria

Date: April 08, 2020

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$3,504,456.73	\$4,960.45	\$3,509,417.18
		Project Work:	(\$486,383.00)
		Advertised Value:	\$3,023,034.18



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District: Astoria

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Timber Description

Location: Portions of Sections 24, 25 of T5N, R6W, W.M, Clatsop County, Oregon

Stand Stocking: 80%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	28	0	98
Western Hemlock / Fir	17	0	97
Red Cedar	21	0	98
Alder (Red)	9	0	96

Volume by Grade	2S	3S & 4S 6"-11"	3S	4S	Total
Douglas - Fir	7,412	545	0	0	7,957
Western Hemlock / Fir	134	32	0	0	166
Red Cedar	163	0	22	36	221
Alder (Red)	0	0	0	29	29
Total	7,709	577	22	65	8,373

Comments: Pond Values Used: Local Pond Values, April 2020.

Expected Log Markets: Mist, Willamina, Wauna, Banks, North Plains, Clatskanie, Tillamook, Forest Grove, Warrenton, Elma, WA, Longview, WA, Vancouver, WA and Chehalis, WA

Sitka spruce stumpage = pond value - (Douglas-fir) logging cost.
\$202.36/MBF = \$461/mbf - \$258.64/MBF

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

Install and Remove Temporary Stream Crossing w/ Log Loader (Unit 3)

2 Hrs @ \$175/Hr = \$350

2 Hrs Labor @ \$40/Hr = \$80

6 Straw Bales @ \$10/Bale = \$60

Total = \$490

Loggers Choice Spur Construction (Unit 2)

10 Hours w/ C330 Excavator @ \$155/Hr = \$1,550

10 Hours w/ D8 Dozer @ \$178 = \$1,780

Waterbar and Block: 4 Hrs w/ Log Loader @ \$175 = \$700

Total = \$4,030

Waterbar, Block and Remove Pipes on Road Segment 1A to 1B and 1C to 1D

10 Hrs w/ C330 Excavator @ \$175 = \$1,750

Line Pull (Unit 1 & 2, 2 Acres):

\$20/MBF x 94 MBF = \$1,880

Controlled Felling (Unit 2 & 3, 3 Acres):

\$20/MBF x 141 MBF = \$2,820

Slash and Landing Piling (Includes move-in and pile materials) = \$20,395

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

Ditch Filters:

20 bales of straw @ \$10.00/bale = \$200

8 hours of labor @ \$40/hr = \$320

Total = \$520

TOTAL Other Costs (with Profit & Risk to be added): \$33,885

Other Costs (No Profit & Risk added):

None.

ROAD MAINTENANCE

(See attached Road Maintenance Cost Summary Sheet)

TOTAL Road Maintenance: \$33,745/8,373 MBF = \$4.03/MBF



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Logging Conditions

Combination#: 1

Douglas - Fir	20.00%
Western Hemlock / Fir	20.00%
Red Cedar	20.00%
Alder (Red)	20.00%

Logging System: Cable: Medium Tower >40 - <70 **Process:** Manual Falling/Delimbing
yarding distance: Medium (800 ft) **downhill yarding:** No
tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 9 **bd. ft / load:** 4600
cost / mbf: \$159.42
machines: Log Loader (A)
Tower Yarder (Medium)

Combination#: 2

Douglas - Fir	80.00%
Western Hemlock / Fir	80.00%
Red Cedar	80.00%
Alder (Red)	80.00%

Logging System: Shovel **Process:** Manual Falling/Delimbing
yarding distance: Medium (800 ft) **downhill yarding:** No
tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 10 **bd. ft / load:** 4600
cost / mbf: \$85.60
machines: Shovel Logger



"STEWARDSHIP IN FORESTRY"

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Logging Costs

Operating Seasons: 3.00	Profit Risk: 11%
Project Costs: \$486,383.00	Other Costs (P/R): \$33,885.00
Slash Disposal: \$0.00	Other Costs: \$0.00

Miles of Road

Road Maintenance: \$4.03

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	4.0
Western Hemlock / Fir	\$0.00	2.0	4.5
Red Cedar	\$0.00	1.0	4.0
Alder (Red)	\$0.00	2.0	3.5



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Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Brand & Paint	Other	Total
Douglas - Fir									
\$100.36	\$4.11	\$1.57	\$121.12	\$4.05	\$25.43	\$0.00	\$2.00	\$0.00	\$258.64
Western Hemlock / Fir									
\$100.36	\$4.15	\$1.57	\$108.73	\$4.05	\$24.07	\$0.00	\$2.00	\$0.00	\$244.93
Red Cedar									
\$100.36	\$4.11	\$1.57	\$242.25	\$4.05	\$38.76	\$0.00	\$2.00	\$0.00	\$393.10
Alder (Red)									
\$100.36	\$4.19	\$1.57	\$141.14	\$4.05	\$27.64	\$0.00	\$2.00	\$0.00	\$280.95

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$670.53	\$411.89	\$0.00
Western Hemlock / Fir	\$0.00	\$542.41	\$297.48	\$0.00
Red Cedar	\$0.00	\$1,197.02	\$803.92	\$0.00
Alder (Red)	\$0.00	\$452.00	\$171.05	\$0.00



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Summary

Amortized

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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	7,957	\$411.89	\$3,277,408.73
Western Hemlock / Fir	166	\$297.48	\$49,381.68
Red Cedar	221	\$803.92	\$177,666.32
Alder (Red)	29	\$171.05	\$4,960.45

Gross Timber Sale Value

Recovery: \$3,509,417.18

Prepared By: John Choate

Phone: 503-325-5451

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Buck Shot

Project No. 1: ROAD CONSTRUCTION:

<u>Road segment</u>	<u>Length (Sta)</u>	<u>Length (Mile)</u>	<u>Cost</u>
1A to 1B, 1C to 1D, 3A to 3B, and 3C to 3D	14.45	0.27	\$11,384.45
Road Maint.			\$964.31
Move-In			\$388.31
TOTALS	14.45	0.27	\$12,737

Project No. 2: ROAD IMPROVEMENT:

<u>Road segment</u>	<u>Length (Sta)</u>	<u>Length (Mile)</u>	<u>Cost</u>
I1 to I2, I3 to I4, I5 to I6, I7 to I8, I9 to I10, I11 to I12, I13 to I14, I15 to I16, I17 to I18, I19 to I20, I21 to I22, I23 to I24, and I25 to I26	426.7	8.08	\$192,666.38
Road Maint.			\$16,319.69
Move-In			\$6,571.69
TOTALS		8.08	\$215,558

SPECIAL PROJECTS (Move-In and Road Maint. are included separately as needed, for each Special Project):

<u>Description</u>	<u>Length/Vol.</u>	<u>Cost</u>
Proj. 3 Rock Crushing	14,237	\$246,095.00
Proj. 4 Roadside Brushing	10.85	\$11,993.00
TOTAL		\$258,088

GRAND TOTAL **\$486,383**

Compiled By: Cole Hatcher

Date: 03/26/2020

Move In and Maintenance Calculator for Construction and Improvement

SALE NAME Buck Shot

Project No. 1: ROAD CONSTRUCTION:

<u>Road segment</u>	<u>Length/Sta</u>	<u>Length/Mile</u>	<u>Cost</u>
1A to 1B, 1C to 1D, 3A to 3B, and 3C to 3D	14.45	0.27	\$11,384
TOTALS	14.45	0.27	\$11,384

Project No. 2: ROAD IMPROVEMENT:

<u>Road segment</u>	<u>Length/Sta</u>	<u>Length/Mile</u>	<u>Cost</u>
I1 to I2, I3 to I4, I5 to I6, I7 to I8, I9 to I10, I11 to I12, I13 to I14, I15 to I16, I17 to I18, I19 to I20, I21 to I22, I23 to I24, and I25 to I26	426.70	8.08	\$192,666
TOTALS	426.70	8.08	\$192,666

MOVE IN (Construction & Improvement Only)

<u>Equipment</u>	<u>Length/Mile</u>	<u>Cost</u>
Excavator (C315)		\$905.00
Excavator (C330)		\$1,581.00
Dump Truck w/ Pup (20cy) x2		\$215.00
Dump Truck (12cy) x3		\$184.00
Grader (14G)		\$875.00
Vibratory Roller		\$875.00
Water Truck 2,500 gallon		\$214.00
Front End Loader (C966)		\$875.00
Brush Cutter (Med. Tractor w/ head)		\$361.00
Dozer (D6)		\$875.00
TOTAL		\$6,960.00

ROAD MAINTENANCE (Construction & Improvement Only)

	<u>Length/Mile</u>	<u>Cost</u>
Wage Road-Buster Creek Road	8.37	\$17,284.00
TOTAL		\$17,284.00

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Buck Shot	NEW CONSTRUCTION: 14.45 STATIONS	0.27 MILES
ROAD: 1A to 1B (9.85 Sta.), 1C to 1D (1.6 Sta.),	IMPROVEMENT:	0.00 MILES
3A to 3B (1.5 Sta.), and 3C to 3D (1.5 Sta.)		

CLEARING & GRUBBING		Acres/amount	x	Rate	=	Cost
1A to 1B	Method					
	Scatter outside of right of wa'	0.9	x	\$1,503.00	=	\$1,359.46
1C to 1D	Scatter outside of right of wa'	0.2	x	\$1,503.00	=	\$300.60
	Scatter outside of right of wa'	0.2	x	\$1,503.00	=	\$300.60
3C to 3D	Scatter outside of right of wa'	0.2	x	\$1,503.00	=	\$300.60
	Scatter outside of right of wa'	0.2	x	\$1,503.00	=	\$300.60
SUB TOTAL FOR CLEARING & GRUBBING						\$2,261

EXCAVATION		Cyl/amount	x	Rate	=	Cost
1A to 1B	Material					
	Balanced construction	6.50	x	\$138.00	=	\$1,391.00
1C to 1D	Drift earth up to 200'	3.35	x	\$214.00	=	\$716.90
	Landing construction	1	x	\$438.00	=	\$438.00
3A to 3B	Balanced construction	1.5	x	\$138.00	=	\$207.00
	Balanced construction	1.5	x	\$138.00	=	\$207.00
SUB TOTAL FOR EXCAVATION						\$3,740

CULVERT MATERIALS AND INSTALLATION						Cost
Location	Dia/type	Lineal ft.	Rate	Dia/type	Lineal ft.	Cost
1A to 1B						
7+90	18" CPP	30	\$21.95			
Other/miscellaneous:						
Culvert stakes & markers:						
				Quantity	Rate	Cost
				1	\$23.00	\$23.00
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION						\$682
<i>Subtotal of Clearing, Exc., Culv.</i>						\$6,663

SURFACING									
Subgrade prep:		Description				Rate/		Cost	
1A to 1B, 1C to 1D		Grade, Shape and Ditch 16'				sta/amt		Cost	
3A to 3B, and 3C to 3D		Subgrade Compaction				x		\$403.30	
						14.45		\$27.91	
						14.45		\$327.87	

ROAD SEGMENT									
Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
				Volume (CY) per station	Junctions				
Base Rock	5"-0" crushed	0+00 to 1+00	10"	63	stations	1	63	\$10.09	\$636
Junction Rock	5"-0" crushed	0+00	N/A	11	Junctions	1	11	\$10.09	\$111
Total Rock for Road Segment:				1A to 1B			74		\$746.55

ROAD SEGMENT									
Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
				Volume (CY) per station	Junctions				
Base Rock	6"-0" pit-run	0+00 to 1+50	10"	63	stations	1.50	95	\$12.54	\$1,191
Junction Rock	5"-0" crushed	0+00	N/A	11	Junctions	1.00	11	\$10.09	\$111
Total Rock for Road Segment:				3A to 3B			106		\$1,302.46

ROAD SEGMENT									
Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
				Volume (CY) per station	Junctions				
Base Rock	6"-0" pit-run	0+00 to 1+50	10"	63	stations	1.50	95	\$12.54	\$1,191
Junction Rock	5"-0" crushed	0+00	N/A	11	Junctions	1.00	11	\$10.09	\$111
Total Rock for Road Segment:				3C to 3D			106		\$1,302.46

Processing:		Description		No.sta	Rate/sta	Cost
		Water, Process & Compact Base Rock (5'-0"):		1	\$63.48	\$63.48

SUB TOTAL FOR SURFACING		5"-0" crushed	1 1/2"-0" crushed	Total
		190	96	286

\$4,146

SPECIAL PROJECTS					
Description	Cy/Amount	Rate	Cost		
pit-run development	190	\$2.92	\$555.26		
				SUB TOTAL FOR SPECIAL PROJECTS	\$555
				<i>Subtotal of Surfacing & Spec. Proj.</i>	<i>\$4,701</i>
				<i>Subtotal of Clearing, Exc., Culv.</i>	<i>\$6,683</i>
GRAND TOTAL				\$11,384	

Compiled By: Cole Hatcher

Date: 03/26/2020

EXCAVATION

EXCAVATION							\$2,027
	Material	Cy/amount	x	Rate	=	Cost	
I1 to I2	0+00 Clean culvert inlet and outlet	1.0	x	\$114.00	=	\$114.00	
	18+20, 38+85, 62+45, 153+25 Install rock ditch filters	8.0		\$114.00	=	\$912.00	
	155+50 Install culvert energy dissipator	1.0		\$203.00	=	\$203.00	
I3 to I4	63+00 Build turnaround	1.0	x	\$114.00	=	\$114.00	
I5 to I6	3+80 Build turnaround	1.0	x	\$114.00	=	\$114.00	
	42+85, 43+50 Install rock ditch filters	2.0		\$114.00	=	\$228.00	
I9 to I10	12+90 Install rock ditch filters	1.0	x	\$114.00	=	\$114.00	
I17 to I18	10+85 Clean culvert inlet and outlet	1.00	x	\$114.00	=	\$114.00	
I20 to I21	0+30 Clean culvert inlet and outlet	1.00	x	\$114.00	=	\$114.00	
SUB TOTAL FOR EXCAVATION							\$2,027

CULVERT MATERIALS AND INSTALLATION

[illegible]

SURFACING										
Subgrade prep:		Description		Stations/ amount	x	Rate/ sta/amt	Cost			
All "1" segments		Grade, Shape and Ditch 16'						x	\$27.91	\$11,909.20
All "1" segments		Subgrade Compaction		426.70	x	\$22.69	\$9,681.82			
I5 to I6 , I7 to I8, I9 to I10, I13 to I14, I15 to I16, I17 to I18, I19 to I20, I21 to I22, I23 to I24, & I25 to I26										
Sod Removal and scatter debris w/ backhoe				155.20	x	\$36.28	\$5,630.66			
ROAD SEGMENT		I1 to I2		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I1 to I2	Volume (CY) per	Number of	0+00 to 172+60			
Surfacing	5'-0" crushed	0+00 to 98+10, 151+25 to 158+40	4"	station	25	stations	105.25	2,632	\$10.09	\$26,553
Junctions	5'-0" crushed	0+00, 1+00, 62+45, 63+40, 151+25	N/A	junction	11	junctions	5	55	\$10.09	\$555
Rock Ditch Filters	6'-4" pit-run	0+00, 15+60, 17+75, 18+20 38+85, 62+45, 153+25	N/A	3 filter series	11	3 filter series (see instructions)	10	110	\$12.54	\$1,380
Junctions	1 1/2"-0" crushed	0+00, 149+00, 172+00	N/A	junction	22	junctions	3	66	\$10.45	\$690
Turnouts	5'-0" crushed	9+65, 16+80, 31+30, 36+45, 41+05, 47+25, 52+70, 54+50, 58+50, 68+40, 77+65, 85+90, 91+35, 98+10, 158+40	N/A	turnout	11	turnouts	15	165	\$10.09	\$1,665
Surfacing	1 1/2"-0" crushed	98+10 to 151+25, 158+40 to 172+60	4"	station	25	stations	67.35	1,684	\$10.45	\$17,598
Leveling Rock	1 1/2"-0" crushed	103+95, 116+80, 121+70, 147+50, 148+90, 158+40, 166+00	N/A	load	11	loads	7	77	\$10.45	\$805
Turnouts	1 1/2"-0" crushed	116+80, 130+35, 138+80, 147+50, 161+60, 164+40, 170+70	N/A	turnout	11	turnouts	7	77	\$10.45	\$805
Culvert Bedding/Backfill	1 1/2"-0" crushed	155+50	N/A	load	11	loads	3	33	\$10.45	\$345
Additional Culvert Energy Dissipator	24"-6" riprap	155+50	N/A	dissipator	11	dissipators	1	11	\$12.54	\$138
Total Rock for Road Segment:		I1 to I2		4,910						\$50,532

ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I3 to I4		0+00 to 94+50				
				Volume (CY) per	Number of					
Surfacing	1 1/2"-0" crushed	0+00 to 55+00	4"	station	25	stations	55	1,375	\$10.45	\$14,369
Junctions	1 1/2"-0" crushed	0+00, 6+50, 31+00, 31+30	N/A	junction	11	junctions	1	11	\$10.45	\$115
Turnouts	1 1/2"-0" crushed	5+75, 8+40, 12+45, 13+95, 25+60, 33+60, 37+20, 48+40, 52+50	N/A	turnout	11	turnouts	9	99	\$10.45	\$1,035
Leveling Rock	1 1/2"-0" crushed	37+10	N/A	load	11	loads	5	55	\$10.45	\$575
Surfacing	5"-0" crushed	56+00 to 94+50	4"	station	25	stations	39.5	988	\$10.09	\$9,967
Turnouts	5"-0" crushed	61+25, 67+65	N/A	turnout	11	turnouts	2	22	\$10.09	\$222
Subgrade Reinforcement	5"-0" crushed	87+65, 93+60	N/A	load	11	loads	2	22	\$10.09	\$222
Turnaround	5"-0" crushed	63+00, 69+10, 76+65, 94+50	N/A	load	11	loads (see instructions)	5	55	\$10.09	\$555
Total Rock for Road Segment:				I3 to I4		Sta. to Sta.		2,627		\$27,059
ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I5 to I6		0+00 to 44+50				
				Volume (CY) per	Number of					
Surfacing	5"-0" crushed	0+00 to 44+50	4"	station	25	stations	44.5	1,113	\$10.09	\$11,229
Junctions	1 1/2"-0" crushed	0+00	N/A	junction	11	junctions	1	11	\$10.45	\$115
Turnaround	5"-0" crushed	3+80, 36+10 6+15, 11+95, 19+35, 26+95, 32+10	N/A	turnaround	22	turnaround	1	22	\$10.09	\$222
Turnouts	5"-0" crushed		N/A	turnout	11	turnouts	5	55	\$10.09	\$555
Leveling Rock	5"-0" crushed	12+95, 14+85, 20+40, 25+30, 30+90, 32+10, 34+30, 36+10, 43+35	N/A	load	11	loads	9	99	\$10.09	\$999
Curve Widening Surface	5"-0" crushed	12+95, 14+85	N/A	load	11	loads	2	22	\$10.09	\$222
Landings	6"-0" pit-run	14+85, 44+50	N/A	Landing	55	Landings	2	110	\$12.54	\$1,380
Traction Rock	1 1/2"-0" crushed	22+30 to 34+60	2"	station	13	stations	12.3	160	\$10.45	\$1,672
Junctions	5"-0" crushed	28+90, 34+00	N/A	junction	11	junctions	2	22	\$10.09	\$222
Rock Ditch Fillers	6"-4" pit-run	42+85, 43+50	N/A	3 filter series	11	3 filter series	2	22	\$12.54	\$276
Total Rock for Road Segment:				I5 to I6		Sta. to Sta.		1,636		\$16,890
ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I7 to I8		0+00 to 1+00				
				Volume (CY) per	Number of					
Surfacing	5"-0" crushed	0+00 to 1+00	4"	station	25	stations	1	25	\$10.09	\$252
Junctions	5"-0" crushed	0+00	N/A	junction	11	junctions	1	11	\$10.09	\$111
Landings	6"-0" pit-run	1+00	N/A	Landing	55	Landings	1	55	\$12.54	\$690
Total Rock for Road Segment:				I7 to I8		Sta. to Sta.		91		\$1,053

ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	19 to 110		0+00 to 19+10				
				Volume (CY)	per	Number of				
Surfacing	5'-0" crushed	0+00 to 19+10	4"	station	25	station	19.1	478	\$10.09	\$4,822
Junctions	5'-0" crushed	0+00	N/A	junction	22	junctions	1	22	\$10.09	\$222
Leveling Rock	5'-0" crushed	1+15, 6+05	N/A	load	11	loads	2	22	\$10.09	\$222
Curve Widening Surface	5'-0" crushed	1+95	N/A	load	11	loads	1	11	\$10.09	\$111
Turnouts	5'-0" crushed	4+45, 6+05, 7+20, 9+10	N/A	turnout 3 filter	11	turnouts	4	44	\$10.09	\$444
Rock Ditch Filters	6"-4" pit-run	12+90	N/A	series	11	3 filter series	1	11	\$12.54	\$138
Turnaround	5'-0" crushed	17+60	N/A	turnaround	11	turnaround	1	11	\$10.09	\$111
Landings	6'-0" pit-run	19+10	N/A	Landing	77	Landings	1	77	\$12.54	\$966
Total Rock for Road Segment:				19 to 110				676		\$7,036
ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	115 to 116		0+00 to 5+90				
				Volume (CY)	per	Number of				
Surfacing	5'-0" crushed	0+00 to 5+90	4"	station	25	stations	5.9	148	\$10.09	\$1,493
Junctions	1 1/2"-0" crushed	0+00	N/A	junction	11	junctions	1	11	\$10.45	\$115
Landings	6'-0" pit-run	4+80, 14+80	N/A	Landing	77	Landings	1	77	\$12.54	\$966
Total Rock for Road Segment:				115 to 116				236		\$2,574
ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	117 to 118		0+00 to 46+65				
				Volume (CY)	per	Number of				
Surfacing	5'-0" crushed	0+00 to 27+70	4"	station	25	stations	27.7	693	\$10.09	\$6,991
Junctions	5'-0" crushed	0+00	N/A	junction	11	junctions	1	11	\$10.09	\$111
Leveling Rock	5'-0" crushed	1+15, 15+80	N/A	load	11	loads	2	22	\$10.09	\$222
Landings	6'-0" pit-run	4+80, 14+80	N/A	Landing	55	Landings	2	110	\$12.54	\$1,380
Traction Rock	1 1/2"-0" crushed	9+65 to 22+40	2"	station	13	stations	14.2	185	\$10.45	\$1,933
Turnaround	5'-0" crushed	27+70	N/A	turnaround	11	turnaround	1	11	\$10.09	\$111
Total Rock for Road Segment:				117 to 118				1,032		\$10,748
ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	119 to 120		0+00 to 9+55				
				Volume (CY)	per	Number of				
Surfacing	5'-0" crushed	0+00 to 9+55	4"	station	25	stations	9.55	239	\$10.09	\$2,411
Junctions	5'-0" crushed	0+00, 3+60	N/A	junction	11	junctions	2	22	\$10.09	\$222
Turnouts	5'-0" crushed	2+35, 7+55	N/A	turnout	11	turnouts	14	154	\$10.09	\$1,554
Turnaround	5'-0" crushed	5+50	N/A	turnaround	11	turnaround	1	11	\$10.09	\$111
Landings	6'-0" pit-run	9+55	N/A	Landing	77	Landings	1	77	\$12.54	\$966
Total Rock for Road Segment:				119 to 120				503		\$5,263
ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	123 to 124		0+00 to 1+10				
				Volume (CY)	per	Number of				
Surfacing	5'-0" crushed	0+00 to 1+10	4"	station	25	stations	1.1	28	\$10.09	\$282
Junctions	5'-0" crushed	0+00	N/A	junction	11	junctions	1	11	\$10.09	\$111
Landings	6'-0" pit-run	1+10	N/A	Landing	55	Landings	1	55	\$12.54	\$690
Total Rock for Road Segment:				123 to 124				94		\$1,083

ROAD SEGMENT		125 to 126		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	125 to 126		0+00 to 17+10				
				Volume (CY) per	Number of					
Surfacing	5'-0" crushed	0+00 to 17+10	4"	station	25	stations	17.1	428	\$10.09	\$4,318
Junctions	5'-0" crushed	0+00	N/A	junction	11	junctions	1	11	\$10.09	\$111
Traction Rock	1 1/2"-0" crushed	0+00 to 3+90, 9+70 to 14+10	2"	station	13	stations	8.3	108	\$10.45	\$1,129
Turnouts	5'-0" crushed	4+65	N/A	turnout	11	turnouts	1	11	\$10.09	\$111
Turnaround	5'-0" crushed	15+10	N/A	turnaround	11	turnaround	1	11	\$10.09	\$111
Landings	6'-0" pit-run	17+10	N/A	Landing	77	Landings	1	77	\$12.54	\$966
Total Rock for Road Segment:								646		\$6,745

Processing:				
Description				
Water, Process & Compact:				
Traction Rock Water, Process & Compact				
	No.sta	Rate/sta	Cost	
	393.05	\$63.48	\$24,951	
	34.80	\$63.48	\$2,209	

SUB TOTAL FOR SURFACING	24"-12" IT	24"-6" IT	12"-6" IT	6"-4" pr	6"-0" pr	5'-0" crushed	1 1/2"-0" crushed	2"-1" drainrock	3/4"-0" crushed	Total	
	0	11	0	143	638	7.707	3.952	0	0	12.451	\$183,366

SPECIAL PROJECTS			
Description:			
pit-run development			
rip rap development			
SUB TOTAL FOR SPECIAL PROJECTS			
\$2,336			
Subtotal of Surfacing & Spec. Proj.			
\$185,701			
Subtotal of Cleaning, Exc., Culv.			
\$6,965			
GRAND TOTAL			
\$192,666			

Compiled By: Cole Hatcher

Date: 03/26/2020

03/24/2020

[illegible]

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO.	3	Contract Name:	Buck Shot
Quarry:	Hamilton Creek	Swell:	
Location:	NW 1/4, NW 1/4, Section 28, T6N, R7W, W.M.	Shrink:	16%
County:	Clatsop		
By:	C.Bangs	Loading Hopper:	Yes
Date:	03/25/20		

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"	20%	CR		5,452	5,452
5"-0"		CR			
6"-0"		PR			
24"-6"		PR			
TOTAL CUBIC YARDS OF ROCK:				5,452	5,452

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Loading Hopper	1	\$622	\$622	Powder	1	\$395	\$395
Screening Plants	2	\$622	\$1,244	D8 Cat	1	\$1,581	\$1,581
3 Stage Crusher	1	\$3,250	\$3,250				
Drill & Compressor	1	\$1,581	\$1,581				
Off Highway Dump Truck	1	\$622	\$622				
Excavator	1	\$1,581	\$1,581				
Front End Loader	1	\$1,581	\$1,581				
D6 Cat	1	\$875	\$875				
SUB TOTAL FOR MOBILIZATION				\$13,332			

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	\$3,866	\$3,866
Screening Plants	2	\$330	\$660
Loading Hopper	1	\$330	\$330
Original Calibration	1	\$612	\$612
SUB TOTAL FOR SET UP COSTS			\$5,468

TOTAL MOBILIZATION & SET UP COSTS	\$18,800
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2) CLEARING & GRUBBING

DESCRIPTION		QUANTITY	UNIT	RATE	COST
Clear, Load, Haul to Waste Area	Excavator	8.0	hr	\$175	\$1,400
Slash and Stumps (1 OR truck, 1 Exc.)	OR Truck	2.0	hr	\$143	\$286

TOTAL CLEARING & GRUBBING COSTS	\$1,686
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3) EXCAVATION

MATERIAL DESCRIPTION		QUANTITY	UNIT	RATE	COST
Overburden Removal (excavate, load haul, spread)	Excavator	40	hr	\$175.00	\$7,000
	OR Truck	24	hr	\$143.00	\$3,432
	D8 Cat	32	hr	\$178.00	\$5,696

TOTAL EXCAVATION COSTS \$16,128

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping	10%	545	\$3.40	\$1,854
crushed	5,452	100%	Drill & shoot	80%	5,234	\$3.50	\$18,319
pit run	0	0	Oversize red	10%	545	\$5.80	\$3,162
rip rap	0	0	Other				
Total	5,452						
reject	1,090	20.0%					

TOTAL ROCK DEVELOPMENT COSTS \$23,335

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate			\$172
Calibrate			
Test	3	\$57.30	
Test			

TOTAL CALIBRATION & TESTING COSTS \$172

6) FEEDING & LOADING

DESCRIPTION		CU. YD. QUANTITY		COST CU. YD.		TOTAL COST
Dig & Feed Rock	Excavator	6,542		\$0.91		\$5,943
Shot Rock Handling		45		\$175.00		\$7,875

TOTAL FEEDING & LOADING COSTS \$13,818

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed	5,452	3 stage w/s	110	\$3.24	\$17,674
1-1/2"-0"	crushed		3 stage w/s	120		
5"-0"	crushed		2 stage w/s	140		

TOTAL ROCK CRUSHING COSTS \$17,674

8) STOCKPILING

STOCKPILE SITE PREPARATION

Equipment	Hours	Rate	Total
Dozer	2	\$120.00	\$240.00
Compactor			
Grader			
Excavator			

Rock for Floor (CY)	\$/CY Haul	Total

\$240.00

SUB TOTAL \$240

HAUL & STOCKPILE

STOCKPILE LOCATION	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1. Hamilton Creek		3	1,500	\$3.60	\$5,402
2.					
3.					
4.					
5.					
6.					

SUB TOTAL \$5,402

TOTAL STOCKPILING COSTS \$5,642

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area.	\$4,122
\$3.78 /CY 1,090 CY	
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access	\$2,565
Seeding and mulching	\$500

TOTAL MISCELLANEOUS COSTS \$7,187

10) GRAND TOTAL: \$104,440

\$/Cubic Yard \$19.16

Footnotes:

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO.	3	Contract Name:	Buck Shot
Quarry:	Buster Creek	Swell:	
Location:	NW 1/4, Section 25, T5N, R7W, W.M.	Shrink:	16%
County:	Clatsop		
By:	C.Bangs	Loading Hopper:	Yes
Date:	03/25/20		

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"		CR			
5"-0"	40%	CR		7,803	7,803
6"-0"		PR		971	971
24"-6"		PR		11	11
TOTAL CUBIC YARDS OF ROCK:				8,785	8,785

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Loading Hopper	1	\$622	\$622	Powder	1	\$395	\$395
Screening Plants	1	\$622	\$622				
2 Stage Crusher	1	\$2,445	\$2,445				
Drill & Compressor	1	\$1,581	\$1,581				
Off Highway Dump Truck	2	\$622	\$1,244				
Excavator	1	\$1,581	\$1,581				
Front End Loader	1	\$1,581	\$1,581				
D6 Cat	1	\$875	\$875				

SUB TOTAL FOR MOBILIZATION \$10,946

EQUIPMENT SET UP	TIMES	RATE	COST
2 Stage Crusher	1	\$2,445	\$2,445
Screening Plants	1	\$330	\$330
Loading Hopper	1	\$330	\$330
Original Calibration	1	\$612	\$612

SUB TOTAL FOR SET UP COSTS \$3,717

TOTAL MOBILIZATION & SET UP COSTS \$14,663

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST

TOTAL CLEARING & GRUBBING COSTS

3) EXCAVATION

MATERIAL DESCRIPTION		QUANTITY	UNIT	RATE	COST
Overburden Removal (excavate, load haul, spread), Bench Construction	Excavator	20	hrs	\$175.00	\$3,500
	OR Truck	20	hrs	\$143.00	\$2,860

TOTAL EXCAVATION COSTS \$6,360

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping	10%	877	\$3.40	\$2,983
crushed	7,803	89%	Drill & shoot	80%	9,516	\$3.50	\$33,307
pit run	971	11%	Oversize red	10%	877	\$5.80	\$5,089
rip rap	0	0	Other				
Total	8,774						
reject	3,121	35.6%					

TOTAL ROCK DEVELOPMENT COSTS \$41,379

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate			
Calibrate			
Test	4	\$57.30	\$229
Test			

TOTAL CALIBRATION & TESTING COSTS \$229

6) FEEDING & LOADING

DESCRIPTION		CU. YD. QUANTITY		COST CU. YD.		TOTAL COST
Dig & Feed Rock		10,924		\$0.78		\$8,505
Shot Rock Handling	Excavator	80		\$175.00		\$14,000
	ORx2	160		\$143.00		\$22,880

TOTAL FEEDING & LOADING COSTS \$45,385

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed		3 stage w/s	110		
1-1/2"-0"	crushed		3 stage w/s	120		
5"-0"	crushed	7,803	2 stage w/s	140	\$2.48	\$19,340

TOTAL ROCK CRUSHING COSTS \$19,340

8) STOCKPILING

STOCKPILE SITE PREPARATION

Equipment	Hours	Rate	Total
Dozer			
Compactor			
Grader			
Excavator			

SUB TOTAL

Rock for Floor (CY)	\$/CY Haul	Total

HAUL & STOCKPILE		# of				
STOCKPILE LOCATION	SIZE	TRUCKS	CU. YDS.	RATE	COST	
1.						
2.						
3.						
4.						
5.						
6.						

SUB TOTAL

TOTAL STOCKPILING COSTS

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area.	\$11,798
\$3.78 /CY 3,121 CY	
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access	\$2,000
Seeding and mulching	\$500

TOTAL MISCELLANEOUS COSTS \$14,298

10) GRAND TOTAL: \$141,655

\$/Cubic Yard \$18.15

Footnotes:

CRUSHED ROCK COST

SALE NAME:	Buck Shot
PROJECT:	No. 2
QUARRY:	Hamilton Creek Quarry

MATERIAL: 1 1/2" - 0"

DATE: 03/26/2020
BY: C Hatcher

[illegible]

ROCK HAUL:

Truck type:	<u>D20</u>	No. trucks:	<u>2</u>
Delay min.	<u>8</u>	Efficiency:	<u>85%</u>

Ave haul:	\$8.53	/cy
Load:	\$0.00	/cy
Spread:	\$1.92	/cy

Truck type:	<u>D12</u>	No. trucks:	<u>3</u>
Delay min.	<u>6</u>	Efficiency:	<u>85%</u>

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

Production: cy/day = 409

CRUSHED ROCK HAUL COSTS 3,952 cy @ \$10.45 /cy

3,952 cy @ \$10.45 /cy

CRUSHED ROCK COST

SALE NAME:	Buck Shot
PROJECT:	No. 1 & 2
QUARRY:	Buster Creek Quarry

MATERIAL: 5"-0"

DATE: 03/26/2020
BY: C. Hatcher

[illegible]

ROCK HAUL:

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

Ave haul:	\$8.17	/cy
Load:	\$0.00	/cy
Spread:	\$1.92	/cy

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

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

Production: cy/day = 387

CRUSHED ROCK HAUL COSTS 7,803 cy @ \$10.09 /cy

PIT RUN ROCK COST

SALE NAME: Buck Shot
PROJECT: No. 2
QUARRY: Buster Creek Quarry

MATERIAL: Pit-Run, Riprap

DATE: 03/26/2020
BY: C. Hatcher

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I1 to I2	172.60	121			0.50	2.07	1.50	0.75	0.25	5.07
I5 to I6	44.50	132			1.00	2.25	2.00	2.00	0.25	7.50
I7 to I8	1.00	55			1.00	2.00	1.85	1.95	0.30	7.10
I9 to I10	19.10	88			1.00	2.00	2.20	2.25	0.30	7.75
I15 to I16	5.90	77			1.00	2.50	2.25	1.68	0.25	7.68
I17 to I18	27.70	110			1.00	2.00	2.20	2.40	0.40	8.00
I19 to I20	9.55	77			1.00	2.00	2.20	2.43	0.40	8.03
I23 to I24	1.10	55			1.00	2.00	2.26	2.50	0.40	8.16
I25 to I26	17.10	77			1.00	2.50	2.50	2.13	0.35	8.48
3A to 3B	1.50	95			1.00	2.37	2.35	2.00	0.35	8.07
3C to 3D	1.50	95			1.00	2.40	2.45	2.00	0.36	8.21
TOTAL	301.55	982								AVERAGE
	STA./NO.	CU. YD.								HAUL
CUBIC YARD WEIGHTED HAUL					0.9	2.2	2.1	2.0	0.3	7.55
										Average Round Trip Distance (miles)
										15.10

ROCK HAUL:

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

Ave haul:	\$9.18	/cy
Load:	\$1.44	/cy
Spread:	\$1.92	/cy

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

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

Production: cy/day = 344

PIT RUN & RIPRAP ROCK HAUL COSTS

982 cy @ \$12.54 /cy

Projects Road Maintenance Cost Summary

Sale: Buck Shot
Date: 26-Mar-20
By: Cole Hatcher

Type	Equipment/Rationale			Hours	Rate	Cost
Project Work	Grader 14G			45	\$113	\$5,085
Final Haul	Dump Truck 12CY			23	\$89	\$2,047
Road	FE Loader C966			18	\$94	\$1,692
Maintenance	Vibratory Roller			45	\$87	\$3,915
	Water Truck 2,500 gallon			45	\$101	\$4,545
Total						\$17,284

Production Rates

Grader

Vibratory Roller

Miles/day	Distance(miles)	Days
1.5	8.37	5.6
1.5	8.37	5.6

NOTE: Wage Road	2.81	Miles
Hamilton Creek Road	2.12	Miles
Buster Creek Road	3.45	Miles
	TOTAL=	8.37 Miles

Site Prep/Machine Piling Appraisal

Sale Number: AT-341-2020-W00818-01

Sale Name: Buck Shot

Date: 04/08/2020

Vegetation Type/Zone	Vegetation Type/Zone Code	Production Rate (hr/ac)	Estimated Piles/Acre	Landing Production Rate (hrs/30 acres)
Doug-fir	A	0.5	0.5	6
Hemlock/Fir	B	1.3	4.5	8
Hemlock/Spruce	C	1.8	6.0	10
Hemlock	D	1.8	6.0	8
Conifer/Hardwood	E	1.0	2.0	8
Whole Tree Yarding	F	0.5	0.5	12

Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area	
1	MC	A	37	19	\$145	\$2,683	
2	MC	A	37	19	\$145	\$2,683	
3	MC	B	66	86	\$145	\$12,441	
					In-unit Piling	Sub Total =	\$17,806
Sale Area	Number of Landings to be Piled	# cable acres per area	Total Cost/Area	Number of In-Unit Piles	Material Cost/Pile	Total Cost/Area	
1	6	6	\$174	24.5	\$5	\$123	
2	8	30	\$870	26.5	\$5	\$133	
3	9	0	\$0	306	\$5	\$1,530	
*Cost includes separating firewood					Materials	Sub Total =	\$255
Additonal Move-in allowance					Landing Piling	Sub Total =	\$1,044
Move-In Allowance	Number of Move-In's	Total Move-In Allowance					
\$1,290.00	1	\$1,290					
					Move-In	Sub Total =	\$1,290
Slash Endhaul							
Dump Truck hrs	Cost/Hour	Total	Loader hrs	Cost/Hour	Total		
	\$89.00	\$0		\$145	\$0	Sub Total =	\$0
						Grand Total =	\$20,395.00

Road Maintenance Cost Summary (Interim and Post Harvest)

Sale: Buck Shot
Date: 03/30/2020
By: John Choate

MBF: 8,373
\$\$/MBF: \$4.03

Type	Equipment/Rationale	Move In	Times	Hours	Rate	Cost
Interim Operations	Grader 14G	\$875	1	16	\$113	\$2,683
	Dump Truck 12CY	\$184	1	4	\$89	\$540
	FE Loader C966	\$875	1	2	\$94	\$1,063
	Vibratory Roller	\$875	1	8	\$87	\$1,571
Interim Operations	Grader 14G	\$875	1	16	\$113	\$2,683
	Dump Truck 12CY	\$184	1	4	\$89	\$540
	FE Loader C966	\$875	1	2	\$94	\$1,063
Final Haul Route Maintenance	Grader 14G	\$875	1	60	\$113	\$7,655
	Dump Truck 12CY	\$184	2	16	\$89	\$3,216
	Vibratory Roller	\$875	1	60	\$87	\$6,095
	Water Truck 2,500 gallon	\$214	1	30	\$101	\$3,244
	FE Loader C966	\$875	1	8	\$94	\$1,627
	Rubber Tire Backhoe	\$361	1	12	\$87	\$1,405
	Laborer	\$0	1	8	\$45	\$360
Total						\$0
						\$33,745

Interim Operations Road Maintenance

Production Rates	Miles/day	Distance(miles)	Days	Hours
Grader	2.5	4.0	1.6	16.0
Vibratory Roller	2.5	1.0	0.4	4.0

Final Road Maintenance

Production Rates	Miles/day	Distance(miles)	Days	Hours
Grader	1.5	8.3	5.5	55.3
Vibratory Roller	1.5	8.3	5.5	55.3

Process and compact: All crushed rock roads

Wage Road - 3.0 Miles

Buster Creek Road - 2.8 Miles

Unnamed Spurs - 2.5 miles

New Construction - None

Grade & Process Total = 8.3 Miles

**Buck Shot Timber Sale
FY 2020
TIMBER CRUISE REPORT**

1. **Sale Unit Location:** Units 1, 2, and 3 are located in portions of Sections 24 and 25, T5N, R6W, W.M., Clatsop County, Oregon.

2. **Fund Distribution: Fund:** BOF 100% CSL 0%
Tax Code: 8-01 100%

3. **Sale Acreage by Unit:**

Unit	Harvest Type	Gross Acres	Stream Buffer Acres	New R/W Acres	Existing R/W Acres	Net Acreage	Survey Method
1	MC	53	6	1	3	43	GIS
2	MC	75	4	0	4	67	GIS
3	MC	73	3	<1	4	66	GIS
4	R/W	1	N/A	N/A	N/A	1	Length x Width
TOTALS		202	13	1	11	177	

4. **Cruisers and Cruise Dates:** Units 1, 2, and 3 were cruised on 3/28/2020 and 3/29/2020, by John Choate and Michele Huffman.

5. **Cruise Method and Computation:** Units 1, 2, and 3 are modified clearcut units. A variable plot cruise with a 40.0 BAF was used in these Units. These plots were located on a 3 chain by 8 chain grid, with a count/cruise plot ratio of 2:1. A total of 78 plots were sampled, with 26 measured plots and 52 count plots. Minor species were encountered on two plots, resulting in additional measure plots found on the Statistics Report.

Unit 4 R/W Right-of-way volume was calculated by multiplying the R/W acreage and the average volume per acre from the cruise.

Cruisers used Allegro 2 data collectors, and were downloaded to the Atterbury Super A.C.E. program at the Astoria District for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria District office.

<u>UNIT</u>	<u>PROJECT</u>	<u>TRACT</u>	<u>CRUISE TYPE</u>
1, 2, 3	BUCKSHOT	U123	OOMC and TAKE
4/RW	BUCKSHOT	RW	TAKE

6. **Timber Description:** Units 1, 2, and 3 are approximately 82 year old stands of Douglas-fir, with some western hemlock, red alder and Western red cedar. The average take Douglas-fir tree size for harvest is approximately 28 inches DBH, with an average merchantable tree height of 103 feet. The average take hemlock tree size is approximately 17 inches DBH, with an average merchantable tree height of 53 feet. The average take red alder tree size is approximately 9 inches DBH, with an average merchantable tree height of 22 feet. The average take Western redcedar tree size for harvest is approximately 21 inches DBH, with an average merchantable tree height of 40 feet. The average volume per acre to be harvested (net) is approximately 47 MBF. All trees were cruised to a merchantable top of 6 inch DIB or 40% fp.

Unit 4 R/W is similar to the timber description mentioned in Units 1, 2, and 3.

7. **Statistical Analysis:** (See also "Statistics Reports," attached.)

Units	Target CV	Target SE%	Actual CV	Actual SE%
1, 2, 3	50	8	30.3	3.4

The statistics are for all Units and Take and Leave trees combined based on Net BF/Acre.

8. **Take Volumes by Species and Log Grades for All Sale Units by MBF:** (See "Species, Sort Grade-Board Feet Volumes (Project)", "Statistics (Project)", and the "Stand Table Summary" attached). Volumes do not include "in-growth." The majority of defect and breakage was taken out during the cruise.

Conifer

Species	DBH	Net Vol. MBF	2 Saw	3Saw	4 Saw	% D&B	% Sale
Douglas-fir	28	7,957	7,412	453	92	1	95
Western red cedar	21	221	163	22	36	0	3
W. Hemlock	17	166	134	11	21	1	2

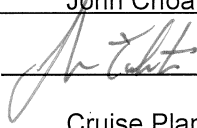
Hardwoods

Species	DBH	Net Vol. MBF	12"+	10-12"	8-10"	6-8"	% D&B	% Sale
Red Alder	9	29	--	--	--	29	1	<1

TOTAL NET VOLUME	8,373
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9. **Prepared by:** John Choate

Date: 3/31/2020

10. **Approved by:** 

Date: 4/24/2020

11. **Attachments:** Cruise Plans & Maps (3)
Species, Sort, Grade Report (3)
Statistics Reports (3)
Stand Table Report (1)
Log Stock Table Report MBF (2)

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Buckshot **Area** 1, 2, 3

Harvest Type: (MC) Modified Clearcut

Approx. Cruise Acres: 176 **Estimated CV%** 50 Net BF/Acre **SE% Objective** 8 Net BF/Acre

Planned Sale Volume : 6,018 MBF **Estimated Sale Area Value/Acre:** \$14,450/Acre

A. Cruise Goals: (a) Grade minimum 120 conifer and 10 hardwood trees
(b) Sample 81 cruise plots (29 grade/ 52 count); (c) Other goals (Determine "automark"
thinning standards; X Determine log grades for sale value; X Determine snag and leave
tree species and sizes.

B. Cruise Design:

1. Plot Cruises: BAF 40 (Full point)
Cruise Line Directions:
A1:1°/179°
A2:90°/270°
A3:90°/270°
Cruise Plot Spacing 3 (chains) 198 (Feet)
Cruise Line Spacing 8 (chains) 528 (Feet)
Grade/Count Ratio 1:2

Take plots as marked on cruise map. All cedar will be reserved. Record all snags as SN.

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

DO NOT RECORD 22' LENGTHS (For Conifer).

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

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 8" for hardwoods.
Record dbh to nearest $\frac{1}{2}$ " for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for conifer trees > 18" dbh.

4. **Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.
5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree. Hardwoods shall be recorded in 8' and 10' multiples.
6. **Species, Sort, and Grade Codes:**
 - A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)
 - B. Sort: Use code "1" (Domestic).
 - C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
Hardwoods: Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill, or R = Camp Run; 0 = Cull.
All Maple Camp Run = R
7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.
8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.
9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.
10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: John Choate
 Approved by: 3/27/2020
 Date: 4/24/2020

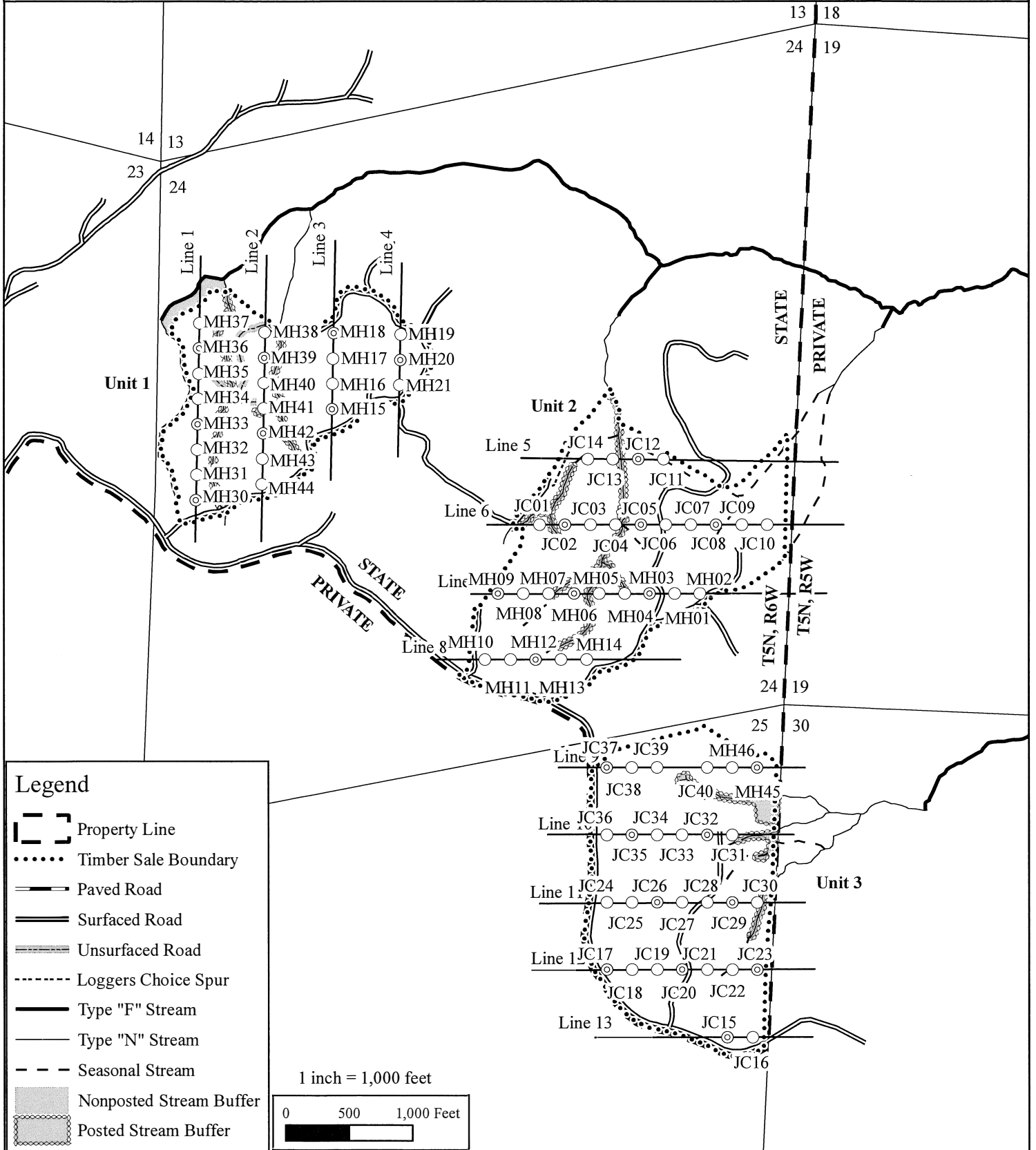
CRUISE MAP

OF TIMBER SALE CONTRACT NO.
AT-341-2021-W00818-01 BUCK SHOT
PORTIONS OF SECTIONS 24 and 25 of
T5N, R6W, W.M.,
CLATSOP COUNTY, OREGON

Approximate Net Acreage	MC Acres
Unit 1 (MC) =	43 Acres
Unit 2 (MC) =	67 Acres
Unit 3 (MC) =	66 Acres
Total =	176 Acres

Cruise Information (Unit 1, 2, & 3)

Plots Total: 78 BAF: 40
Grade Plots: 26 Map Scale: 1:12000
Count Plots: 52
Cruise Line Directions: U1 - 1/179
U2 - 90/270
U3 - 90/270
Plot Spacing: 3 Chains (198 Feet)
Line Spacing 8 Chains (528 Feet)



TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																									
TT5N RR6W S24 TyTAK1.00 TT5N RR6W S24 TyTAK176.00						Project: BUCKSHOT						Page 1						Date 4/1/2020						Time 3:53:50PM					
						Acres 177.00																							
Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre								
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf									
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99													
D		DO2S		93	.5	42,082	41,874	7,412		2	18	80		1	1	98	39	18	578	2.85	72.5								
D		DO3S		5		2,559	2,559	453		95	5		6	23	30	42	32	9	98	1.04	26.0								
D		DO4S		2	4.0	540	519	92	12	88			45	36		18	23	6	31	0.50	16.5								
D Totals				95	.5	45,181	44,952	7,957 7,956	0	8	17	74	1	3	2	94	35	14	391	2.27	115.0								
C		DO2S		73		924	924	163			40	60		32	27	41	31	16	357	3.08	2.6								
C		DO3S		10		126	126	22		100				100			26	8	57	0.90	2.2								
C		DO4S		17		206	206	36		100				42	58		29	6	45	0.95	4.5								
C Totals				3		1,256	1,256	221 222		26	29	44		41	29	30	29	9	134	1.57	9.4								
H		DO2S		80	.7	764	758	134			51	49		13		87	38	14	316	1.92	2.4								
H		DO3S		7		59	59	11		100					43	57	35	6	55	0.61	1.1								
H		DO4S		13		120	120	21		100			7	23		70	31	6	46	0.56	2.6								
H Totals				2	.6	944	938	166		19	41	40	1	13	3	83	34	9	154	1.16	6.1								
A		DO4S		100		163	163	29		100			100				20	6	20	0.35	8.1								
A Totals				0		163	163	29		100			100				20	6	20	0.35	8.1								
Totals					0.5	47,543	47,308	8,373 8,374	0	9	18	73	1	4	3	92	34	13	341	2.11	138.6								

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page 1					
		Project: BUCKSHOT												Date	4/1/2020				
														Time	3:54:17PM				
TT5N RR6W S24 TTAKE										TT5N RR6W S24 TTAKE									
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt										
T5N	R6W	24	U123	TAKE	176.00	78	114	1	W										
S So Gr T rt ad Spp			% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log		Logs Per /Acre	
			Def%	Gross	Net	Log Scale Dia.				Log Length				Ln Dia	Bd	CF/ Lf			
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft In	Ft		
D	DO	2S	93	.5	42,082	41,874	7,370		2	18	80		1	1	98	39	18	578 2.85	
D	DO	3S	5		2,559	2,559	450		95	5		6	23	30	42	32	9	98 1.04	
D	DO	4S	2	4.0	540	519	91	12	88			45	36		18	23	6	31 0.50	
D Totals			95	.5	45,181	44,952	7,912	0	8	17	74	1	3	2	94	35	14	391 2.27	
C			DO	2S		924	924	163			40	60		32	27	41	31	16	357 3.08
C			DO	3S		126	126	22	100				100			26	8	57 0.90	
C			DO	4S		206	206	36	100				42	58		29	6	45 0.95	
C Totals			3		1,256	1,256	221		26	29	44		41	29	30	29	9	134 1.57	
H			DO	2S	80	.7	764	758	133		51	49		13		87	38	14	316 1.92
H			DO	3S	7		59	59	10	100					43	57	35	6	55 0.61
H			DO	4S	13		120	120	21	100			7	23		70	31	6	46 0.56
H Totals			2	.6	944	938	165		19	41	40		1	13	3	83	34	9	154 1.16
A			DO	4S	100		163	163	29	100			100			20	6	20 0.35	
A Totals			0		163	163	29		100			100				20	6	20 0.35	
Type Totals				.5	47,543	47,308	8,326	0	9	18	73		1	4	3	92	34	13	341 2.11

T		Species, Sort Grade - Board Foot Volumes (Type)										Page		1						
TSPCSTGR		Project: BUCKSHOT										Date		4/1/2020						
												Time		3:54:35PM						
TT5N RR6W S24 TTAKE										TT5N RR6W S24 TTAKE										
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt											
T5N	R6W	24	RW	TAKE	1.00	78	114	1	W											
S So Gr			%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
Spp	T	rt ad	Net BdFt	Def%	Gross	Net	Net MBF	Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf	
D	DO	2S	93	.5	42,082	41,874	42	2	18	80	1	1	98	39	18	578	2.85	72.5		
D	DO	3S	5		2,559	2,559	3	95	5		6	23	30	42	32	9	98	1.04	26.0	
D	DO	4S	2	4.0	540	519	1	12	88		45	36		18	23	6	31	0.50	16.5	
D Totals			95	.5	45,181	44,952	45	0	8	17	74	1	3	2	94	35	14	391	2.27	115.0
C	DO	2S	73		924	924	1		40	60	32	27	41	31	16	357	3.08	2.6		
C	DO	3S	10		126	126	0	100			100			26	8	57	0.90	2.2		
C	DO	4S	17		206	206	0	100			42	58		29	6	45	0.95	4.5		
C Totals			3		1,256	1,256	1	26	29	44	41	29	30	29	9	134	1.57	9.4		
H	DO	2S	80	.7	764	758	1		51	49	13		87	38	14	316	1.92	2.4		
H	DO	3S	7		59	59	0	100				43	57	35	6	55	0.61	1.1		
H	DO	4S	13		120	120	0	100			7	23		70	31	6	46	0.56	2.6	
H Totals			2	.6	944	938	1	19	41	40	1	13	3	83	34	9	154	1.16	6.1	
A	DO	4S	100		163	163	0	100			100			20	6	20	0.35	8.1		
A Totals			0		163	163	0	100			100			20	6	20	0.35	8.1		
Type Totals				.5	47,543	47,308	47	0	9	18	73	1	4	3	92	34	13	341	2.11	138.6

TC PSTATS			PROJECT STATISTICS						PAGE	1		
			PROJECT		BUCKSHOT				DATE	4/1/2020		
TWP	RGE	SC	TRACT	TYPE		ACRES		PLOTS	TREES	CuFt	BdFt	
T5N	R6	24	U123	00MC		176.00		78	404	1	W	
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES		PERCENT SAMPLE TREES				
TOTAL			78	404	5.2							
CRUISE			28	121	4.3	10,966		1.1				
DBH COUNT												
REFOREST												
COUNT			50	274	5.5							
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			97	40.6	27.7	103	32.2	169.2	45,181	44,952	9,193	9,193
WR CEDAR			9	7.0	21.1	40	3.7	16.9	1,256	1,256	422	422
SNAG			8	2.6	27.5	69	2.1	10.8				
WHEMLOCK			6	4.1	17.4	53	1.6	6.7	944	938	243	243
R ALDER			1	8.1	9.0	22	1.2	3.6	163	163	57	57
TOTAL			121	62.3	24.7	81	41.7	207.2	47,543	47,308	9,915	9,915
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			44.0	4.5	1,363	1,426	1,490					
WR CEDAR			119.0	42.0	224	387	549					
SNAG												
WHEMLOCK			97.7	43.5	216	382	548					
R ALDER												
TOTAL			63.2	5.7	1,123	1,191	1,260	160	40	18		
CL	68.1		COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD:	1.0		VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR			39.4	4.5	39	41	42					
WR CEDAR			225.2	25.5	5	7	9					
SNAG			251.4	28.4	2	3	3					
WHEMLOCK			273.6	31.0	3	4	5					
R ALDER			409.0	46.3	4	8	12					
TOTAL			63.4	7.2	58	62	67	161	40	18		
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			31.4	3.6	163	169	175					
WR CEDAR			220.5	25.0	13	17	21					
SNAG			244.4	27.7	8	11	14					
WHEMLOCK			263.3	29.8	5	7	9					
R ALDER			409.0	46.3	2	4	5					
TOTAL			30.4	3.4	200	207	214	37	9	4		
CL	68.1		COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.	
SD:	1.0		VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR			32.7	3.7	43,290	44,952	46,614					
WR CEDAR			233.0	26.4	925	1,256	1,587					
SNAG												
WHEMLOCK			277.6	31.4	644	938	1,233					
R ALDER			409.0	46.3	87	163	238					
TOTAL			30.3	3.4	45,686	47,308	48,931	37	9	4		

TC PSTATS			PROJECT STATISTICS							PAGE	1	
			PROJECT BUCKSHOT							DATE	4/1/2020	
TWP	RGE	SC	TRACT	TYPE		ACRES		PLOTS	TREES	CuFt	BdFt	
T5N	R6	24	U123	TAKE		176.00		78	383	1	W	
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES		PERCENT SAMPLE TREES				
TOTAL			78	383	4.9							
CRUISE			27	113	4.2	10,508		1.1				
DBH COUNT REFOREST COUNT			51	264	5.2							
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			97	40.6	27.7	103	32.2	169.2	45,181	44,952	9,193	9,193
WR CEDAR			9	7.0	21.1	40	3.7	16.9	1,256	1,256	422	422
WHEMLOCK			6	4.1	17.4	53	1.6	6.7	944	938	243	243
R ALDER			1	8.1	9.0	22	1.2	3.6	163	163	57	57
TOTAL			113	59.7	24.6	82	39.6	196.4	47,543	47,308	9,915	9,915
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		44.0	4.5	1,363	1,426	1,490						
WR CEDAR		119.0	42.0	224	387	549						
WHEMLOCK		97.7	43.5	216	382	548						
R ALDER												
TOTAL		55.4	5.2	1,209	1,276	1,342			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		39.4	4.5	39	41	42						
WR CEDAR		225.2	25.5	5	7	9						
WHEMLOCK		273.6	31.0	3	4	5						
R ALDER		409.0	46.3	4	8	12						
TOTAL		67.6	7.7	55	60	64			183	46	20	
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		31.4	3.6	163	169	175						
WR CEDAR		220.5	25.0	13	17	21						
WHEMLOCK		263.3	29.8	5	7	9						
R ALDER		409.0	46.3	2	4	5						
TOTAL		31.9	3.6	189	196	203			41	10	5	
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		32.7	3.7	43,290	44,952	46,614						
WR CEDAR		233.0	26.4	925	1,256	1,587						
WHEMLOCK		277.6	31.4	644	938	1,233						
R ALDER		409.0	46.3	87	163	238						
TOTAL		30.3	3.4	45,686	47,308	48,931			37	9	4	

TC PSTATS			PROJECT STATISTICS							PAGE 1		
			PROJECT BUCKSHOT							DATE 4/1/2020		
TWP	RGE	SC	TRACT	TYPE		ACRES		PLOTS	TREES	CuFt	BdFt	
T5N	R6	24	RW	TAKE		1.00		78	383	1	W	
			PLOTS	TREES	TREES PER PLOT		ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL			78	383	4.9							
CRUISE			27	113	4.2		60	189.3				
DBH COUNT												
REFOREST												
COUNT			51	264	5.2							
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			97	40.6	27.7	103	32.2	169.2	45,181	44,952	9,193	9,193
WR CEDAR			9	7.0	21.1	40	3.7	16.9	1,256	1,256	422	422
WHEMLOCK			6	4.1	17.4	53	1.6	6.7	944	938	243	243
R ALDER			1	8.1	9.0	22	1.2	3.6	163	163	57	57
TOTAL			113	59.7	24.6	82	39.6	196.4	47,543	47,308	9,915	9,915
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		44.0	4.5	1,363	1,426	1,490						
WR CEDAR		119.0	42.0	224	387	549						
WHEMLOCK		97.7	43.5	216	382	548						
R ALDER												
TOTAL		55.4	5.2	1,209	1,276	1,342		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		39.4	4.5	39	41	42						
WR CEDAR		225.2	25.5	5	7	9						
WHEMLOCK		273.6	31.0	3	4	5						
R ALDER		409.0	46.3	4	8	12						
TOTAL		67.6	7.7	55	60	64		183	46	20		
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		31.4	3.6	163	169	175						
WR CEDAR		220.5	25.0	13	17	21						
WHEMLOCK		263.3	29.8	5	7	9						
R ALDER		409.0	46.3	2	4	5						
TOTAL		31.9	3.6	189	196	203		41	10	5		
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		32.7	3.7	43,290	44,952	46,614						
WR CEDAR		233.0	26.4	925	1,256	1,587						
WHEMLOCK		277.6	31.4	644	938	1,233						
R ALDER		409.0	46.3	87	163	238						
TOTAL		30.3	3.4	45,686	47,308	48,931		37	9	4		

TC		PSTNDSUM		Stand Table Summary										Page		1	
														Date:		4/1/2020	
TT5N RR6W S24 TyTAK1.00 TT5N RR6W S24 TyTAK176.00				Project		BUCKSHOT						Time:		3:56:28PM			
				Acres		177.00						Grown Year:					
S Spec T	Sample		Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	T o t a l s				
	DBH	Trees	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF		
D	10	2	89	31	3.199	1.74	3.20	8.0	20.0		26	64	45	11			
D	13	2	86	53	1.893	1.74	1.89	20.0	50.0		38	95	67	17			
D	17	2	85	90	1.107	1.74	2.21	27.0	90.0		60	199	106	35			
D	20	2	86	125	.800	1.74	2.40	34.7	126.7		83	304	147	54			
D	22	2	88	125	.661	1.74	1.98	42.0	180.0		83	357	147	63			
D	23	16	88	134	4.837	13.96	15.12	47.4	202.0		717	3,054	1,268	540			
D	24	4	92	144	1.111	3.49	3.33	61.2	275.0		204	916	361	162			
D	25	4	88	137	1.024	3.49	3.07	59.5	261.7		183	804	323	142			
D	26	4	87	142	.946	3.49	2.84	67.0	276.7		190	785	337	139			
D	27	16	90	144	3.510	13.96	10.97	70.8	340.8		777	3,738	1,375	662			
D	28	10	89	132	2.040	8.72	6.12	72.1	328.0		441	2,007	781	355			
D	29	18	90	152	3.423	15.70	11.03	83.0	417.9		915	4,610	1,620	816			
D	30	12	89	139	2.133	10.47	6.75	83.5	410.0		564	2,769	998	490			
D	31	18	90	154	2.996	15.70	9.65	95.7	489.3		923	4,723	1,634	836			
D	32	22	89	147	3.436	19.19	10.62	101.0	499.1		1,073	5,301	1,899	938			
D	33	10	87	139	1.469	8.72	4.41	103.5	492.0		456	2,168	807	384			
D	34	12	89	156	1.660	10.47	5.53	113.2	599.5		627	3,318	1,109	587			
D	35	6	89	132	.783	5.23	2.35	113.7	558.9		267	1,313	473	232			
D	36	10	92	141	1.234	8.72	4.20	116.6	618.8		489	2,597	866	460			
D	37	2	91	163	.234	1.74	.93	116.7	675.0		109	631	193	112			
D	38	2	91	132	.222	1.74	.66	137.3	706.7		91	470	162	83			
D	39	10	92	142	1.052	8.72	3.36	145.6	791.9		490	2,665	867	472			
D	40	8	90	146	.800	6.98	2.40	161.8	860.8		388	2,065	687	366			
D	Totals	194	89	128	40.568	169.23	115.04	79.9	390.7		9,193	44,952	16,272	7,956			
C	15	2	82	47	1.532	1.88	1.53	24.0	50.0		37	77	65	14			
C	17	2	81	31	1.193	1.88	1.19	23.0	40.0		27	48	49	8			
C	18	2	86	65	1.064	1.88	2.13	22.5	75.0		48	160	85	28			
C	19	2	82	33	.955	1.88	.95	29.0	40.0		28	38	49	7			
C	20	2	82	44	.862	1.88	.86	39.0	50.0		34	43	59	8			
C	25	2	83	96	.552	1.88	1.10	64.5	210.0		71	232	126	41			
C	33	2	82	67	.317	1.88	.63	79.5	315.0		50	199	89	35			
C	34	2	78	96	.298	1.88	.60	111.5	355.0		67	212	118	37			
C	44	2	82	88	.178	1.88	.36	170.5	695.0		61	248	107	44			
C	Totals	18	82	53	6.951	16.92	9.36	45.1	134.2		422	1,256	747	222			
H	12	2	88	53	1.415	1.11	1.41	18.0	60.0		25	85	45	15			
H	15	2	85	35	.905	1.11	.91	19.0	30.0		17	27	30	5			
H	19	2	86	82	.564	1.11	1.13	35.0	115.0		40	130	70	23			
H	20	2	86	92	.509	1.11	1.02	44.0	145.0		45	148	79	26			
H	23	2	85	164	.385	1.11	.77	77.5	375.0		60	289	106	51			
H	27	2	91	113	.279	1.11	.84	66.7	310.0		56	260	99	46			
H	Totals	12	87	73	4.058	6.67	6.08	39.9	154.4		243	938	429	166			
A	9	2	86	42	8.126	3.59	8.13	7.0	20.0		57	163	101	29			
A	Totals	2	86	42	8.126	3.59	8.13	7.0	20.0		57	163	101	29			
Totals		226	88	104	59.702	196.41	138.60	71.5	341.3		9,915	47,308	17,549	8,374			

TC PLOGSTVB		Log Stock Table - MBF																	
TT5N RR6W S24 TyTAK1.00 TT5N RR6W S24 TyTAK176.00					Project: BUCKSHOT										Page 1				
					Acres 177.00										Date 4/1/2020				
															Time 3:56:44PM				
S T Spp	So rt	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+
D	DO	2S	26	21		21	.3					15	7						
D	DO	2S	28	13		13	.2							13					
D	DO	2S	30	32		32	.4					7	26						
D	DO	2S	32	45		45	.6					19	13	14					
D	DO	2S	34	9		9	.1				9								
D	DO	2S	36	74		74	.9							74					
D	DO	2S	40	7,253		7,217	90.7			17	133	182	469	2029	2653	1496		238	
D	DO	3S	16	22		22	.3				7	14							
D	DO	3S	18	4		4	.0				4								
D	DO	3S	24	29		29	.4			8	21								
D	DO	3S	26	24		24	.3			17	7								
D	DO	3S	28	30		30	.4			24	7								
D	DO	3S	30	19		19	.2			3	5	12							
D	DO	3S	32	122		122	1.5			6		116							
D	DO	3S	34	13		13	.2			5	8								
D	DO	3S	36	58		58	.7			24	7	28							
D	DO	3S	40	132		132	1.7			19		103	10						
D	DO	4S	16	30	1.5	30	.4			24	6								
D	DO	4S	18	4		4	.1			4									
D	DO	4S	20	8		8	.1				8								
D	DO	4S	24	4		4	.1			4									
D	DO	4S	26	29		29	.4		11	18									
D	DO	4S	36	20	16.7	17	.2			17									
D	Totals			7,997		7,956	95.0		11	123	100	445	246	514	2130	2653	1496		238
C	DO	2S	24	23		23	10.2					23							
C	DO	2S	26	30		30	13.6								30				
C	DO	2S	32	44		44	19.7						7			37			
C	DO	2S	40	67		67	30.1						35	32					
C	DO	3S	24	11		11	4.8			6		5							
C	DO	3S	30	12		12	5.2				6	6							
C	DO	4S	24	8		8	3.8			8									
C	DO	4S	26	7		7	3.0			7									
C	DO	4S	32	14		14	6.1			14									
C	DO	4S	34	8		8	3.4			8									
C	Totals			222		222	2.7			42	6	11	23	42	32	30	37		

TC PLOGSTVB				Log Stock Table - MBF															
TT5N RR6W S24 TyTAK 1.00 TT5N RR6W S24 TyTAK 176.00				Project: BUCKSHOT				Page 2											
				Acres 177.00				Date 4/1/2020											
				Time 3:56:44PM															
S T Spp	So rt	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+
H	DO	2S	30	18	5.6	17	10.2					17							
H	DO	2S	40	117		117	70.6					32	20	31	35				
H	DO	3S	34	5		5	2.7			5									
H	DO	3S	36	6		6	3.6			6									
H	DO	4S	16	1		1	.9			1									
H	DO	4S	28	5		5	2.9			5									
H	DO	4S	36	15		15	9.0			15									
H	Totals			167		166	2.0			32			49	20	31	35			
A	DO	4S	20	29		29	100.0			29									
A	Totals			29		29	.3			29									
Total	All Species			8,415		8,374	100.0		11	226	106	456	317	576	2193	2718	1532	238	

LOGGING PLAN

MAP OF TIMBER SALE CONTRACT

NO. 341-2021-W00818-01

BUCK SHOT

PORTIONS OF SECTIONS

24 AND 25 OF T5N, R6W, W.M.,

CLATSOP COUNTY, OREGON.

1 inch = 1,000 feet

0 250 500 1,000 Feet

Approximate Net Acres

Unit 1 (MC) = 43

Unit 2 (MC) = 67

Unit 3 (MC) = 66

Unit 4 (R/W) = 1

Total = 177

Logging Breakdown

	Cable	Ground
Unit 1	14%	86%
Unit 2	45%	55%
Unit 3	0%	100%
Unit 4(R/W)	0%	100%
Total	20%	80%

N

Legend

- Ownership Boundary
- Timber Sale Boundary
- Surfaced Road
- New Construction - Surfaced
- New Construction - Unsurfaced
- Logger's Choice Spur
- Designated Haul Route
- Existing Landing
- New Construction - Landing
- Type "F" Stream
- Type "N" Stream
- Nonposted Stream Buffer
- Posted Stream Buffer
- Controlled Felling Area
- Seasonally Restricted Area
- Reforestation Area
- Yarding Area - Cable Based
- Yarding Area - Ground Based
- Yarding Area - Line Pull
- Temporary Stream Crossing
- Survey Monument

