



"SUSTAINABLE FORESTRY"

Timber Sale Appraisal Bull Nose

Sale AT-341-2016-19-

District: Astoria

Date: May 28, 2015

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$3,381,104.34	\$59,106.08	\$3,440,210.42
		Project Work:	(\$389,037.00)
		Advertised Value:	\$3,051,173.42



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District: Astoria

Date: May 28, 2015

Timber Description

Location: Portions of Sections 14, 15, 22, and 23, T6N, R7W, W.M., Clatsop County, Oregon.

Stand Stocking: 60%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	27	0	97
Western Hemlock / Fir	20	0	97
Sitka Spruce	18	0	80
Alder (Red)	15	0	96

Volume by Grade	2S	3S	4S	Other	Camprun	Total
Douglas - Fir	5,610	613	90	0	0	6,313
Western Hemlock / Fir	3,316	1,216	265	0	0	4,797
Sitka Spruce	29	19	0	206	0	254
Alder (Red)	0	0	0	0	176	176
Total	8,955	1,848	355	206	176	11,540

Comments: Pond Values Used: 1st Quarter Calendar Year 2015.

Expected Log Markets: Mist, OR; Clatskanie, OR; Tillamook, OR; Forest Grove, OR.

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:
 $\$901.78/\text{MBF} = \$1,160/\text{MBF} - \$258.22$

SCALING COST ALLOWANCE = \$5.00/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):

100% Branding and Painting: $\$1/\text{MBF} \times 11,540 \text{ MBF} = \$11,540$

Log Loader Slash & Landing Piling (includes Move-In and Pile Materials): = \$24,392 (see attached appraisal)

Endhaul Slash to Designated Waste (Area 1 only)= \$2,360 (see attached appraisal)

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

Additional Felling Cost for Area 4 R/W = $\$40/\text{MBF} \times 319 = \$12,760$

TOTAL Other Costs (with Profit & Risk to be added) = \$53,052

Other Costs (No Profit & Risk added):

Waterbar and Block Dirt Road Segments after Harvest:

$\$15.96/\text{station} \times 25.0 \text{ stations} = \399

TOTAL Other Costs (No Profit & Risk added) = \$399



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Sale AT-341-2016-19-

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Logging Conditions

Combination#: 1

Douglas - Fir	48.00%
Western Hemlock / Fir	48.00%
Sitka Spruce	48.00%
Alder (Red)	48.00%

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

yarding distance: Medium (800 ft) **downhill yarding:** No

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

loads / day: 10 **bd. ft / load:** 4000

cost / mbf: \$150.00

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

Combination#: 2

Douglas - Fir	52.00%
Western Hemlock / Fir	52.00%
Sitka Spruce	52.00%
Alder (Red)	52.00%

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

yarding distance: Medium (800 ft) **downhill yarding:** No

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

loads / day: 13 **bd. ft / load:** 4000

cost / mbf: \$61.00

machines: Stroke Delimber (B)



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Sale AT-341-2016-19-

District: Astoria

Date: May 28, 2015

Logging Costs

Operating Seasons: 3.00	Profit Risk: 10%
Project Costs: \$389,037.00	Other Costs (P/R): \$53,052.00
Slash Disposal: \$0.00	Other Costs: \$399.00

Miles of Road

Road Maintenance: \$3.09

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	4.0
Sitka Spruce	\$0.00	2.0	4.0
Alder (Red)	\$0.00	2.0	3.3

Local Pond Values

Date	Specie	Grade	Value
05/28/2015	Sitka Spruce	Other	\$293.00



Timber Sale Appraisal Bull Nose

Sale AT-341-2016-19-

District: Astoria

Date: May 28, 2015

Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling	Other	Total
Douglas - Fir									
\$103.72	\$3.18	\$1.14	\$100.42	\$4.60	\$21.31	\$0.00	\$5.00	\$0.03	\$239.40
Western Hemlock / Fir									
\$103.72	\$3.18	\$1.14	\$100.42	\$4.60	\$21.31	\$0.00	\$5.00	\$0.03	\$239.40
Sitka Spruce									
\$103.72	\$3.71	\$1.14	\$117.00	\$4.60	\$23.02	\$0.00	\$5.00	\$0.03	\$258.22
Alder (Red)									
\$103.72	\$3.21	\$1.14	\$122.91	\$4.60	\$23.56	\$0.00	\$5.00	\$0.03	\$264.17

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$589.63	\$350.23	\$0.00
Western Hemlock / Fir	\$0.00	\$479.63	\$240.23	\$0.00
Sitka Spruce	\$0.00	\$327.98	\$69.76	\$0.00
Alder (Red)	\$0.00	\$600.00	\$335.83	\$0.00



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District: Astoria

Date: May 28, 2015

Summary

Amortized

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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	6,313	\$350.23	\$2,211,001.99
Western Hemlock / Fir	4,797	\$240.23	\$1,152,383.31
Sitka Spruce	254	\$69.76	\$17,719.04
Alder (Red)	176	\$335.83	\$59,106.08

Gross Timber Sale Value

Recovery: \$3,440,210.42

Prepared By: Derek Bangs

Phone: 503-325-5451

Site Prep Appraisal																														
Sale Number: 341-16-19 Sale Name: Bull Nose Date: 04/25/2015			<table> <tr> <th>Vegetation Type/Zone</th><th>Vegetation Type/Zone Code</th><th>Production Rate (hr/ac)</th><th>Estimated Piles/Acre</th></tr> <tr> <td>Doug-fir</td><td>A</td><td>0.5</td><td>2.0</td></tr> <tr> <td>Hemlock/Fir</td><td>B</td><td>1.5</td><td>4.5</td></tr> <tr> <td>Hemlock/Spruce</td><td>C</td><td>2.0</td><td>6.0</td></tr> <tr> <td>Hemlock</td><td>D</td><td>2.0</td><td>6.0</td></tr> <tr> <td>Conifer/Hardwood</td><td>E</td><td>1.5</td><td>4.5</td></tr> </table>				Vegetation Type/Zone	Vegetation Type/Zone Code	Production Rate (hr/ac)	Estimated Piles/Acre	Doug-fir	A	0.5	2.0	Hemlock/Fir	B	1.5	4.5	Hemlock/Spruce	C	2.0	6.0	Hemlock	D	2.0	6.0	Conifer/Hardwood	E	1.5	4.5
Vegetation Type/Zone	Vegetation Type/Zone Code	Production Rate (hr/ac)	Estimated Piles/Acre																											
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Conifer/Hardwood	E	1.5	4.5																											
Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area																								
1	MC	B	7	10.5	\$110.00	\$1,155.00																								
2	MC	B	36	54	\$110.00	\$5,940.00																								
3	MC	B	63	94.5	\$110.00	\$10,395.00																								
Sub Total =						\$17,490.00																								
Sale Area	Number of Landings to be Piled	Cost/Landing Pile*	Total Cost/Area	Number of In-Unit Piles	Material Cost/Pile	Total Cost/Area																								
1	6	\$220.00	\$1,320.00	31.5	\$5.00	\$157.50																								
2	7	\$220.00	\$1,540.00	162	\$5.00	\$810.00																								
3	1	\$220.00	\$220.00	283.5	\$5.00	\$1,417.50																								
*Cost includes separating firewood																														
Sub Total =						\$5,957.00																								
Move-In Allowance	Number of Move-In's	Total Move-In Allowance																												
\$945.00	1	\$945.00	Sub Total =				\$945.00																							
Grand Total =						\$24,392.00																								

Vegetation Type/Zone	Vegetation Type/Zone Code	Production Rate (hr/ac)	Estimated Piles/Acre
Doug-fir	A	0.5	2.0
Hemlock/Fir	B	1.5	4.5
Hemlock/Spruce	C	2.0	6.0
Hemlock	D	2.0	6.0
Conifer/Hardwood	E	1.5	4.5

Sale Number: 341-16-19
Sale Name: Bull Nose
Date: 04/25/2015

Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area
1	MC	B	7	10.5	\$110.00	\$1,155.00
2	MC	B	36	54	\$110.00	\$5,940.00
3	MC	B	63	94.5	\$110.00	\$10,395.00
Sub Total =						\$17,490.00
Sale Area	Number of Landings to be Piled	Cost/Landing Pile*	Total Cost/Area	Number of In- Unit Piles	Material Cost/Pile	Total Cost/Area
1	6	\$220.00	\$1,320.00	31.5	\$5.00	\$157.50
2	7	\$220.00	\$1,540.00	162	\$5.00	\$810.00
3	1	\$220.00	\$220.00	283.5	\$5.00	\$1,417.50
*Cost includes separating firewood						\$5,957.00
Move-In Allowance	Number of Move-In's	Total Move-In Allowance				
\$945.00	1	\$945.00	Sub Total = \$945.00			
Grand Total =						\$24,392.00

Bull Nose (341-16-19)**Area 1 16 Acres of Modified Clearcut Additional Slash Disposal Costs**

Equipment	Hourly Rate
Dump Truck (12cy)	\$ 85.00
Log Loader (315)	\$ 140.00

Slash Estimate

32 loads
16 days of logging (~1 ac/day)
2-3 loads of slash/day

Slash Hauling Estimate

0.50 hours/round trip
0.25 hours/load time
2.0 hours/round trip for shovel
to walk to waste area and pile
slash

	Estimate	Total
Work	2 loads/day x 16 days	32 loads
Haul	.25 hrs x \$85/hr x 32 loads	\$ 680
Load	0.25 hrs x \$140/hr x 32 loads	\$ 1,120
Pile	2.0 hrs/trip x \$140/hr x 2 trips	\$ 560
Grand Total		\$ 2,360

Road Maintenance Cost Summary

Sale: Bull Nose
 Date: 27-Apr-15
 By: D. Bangs *RL*

MBF: 11,540
 \$\$/MBF: \$3.09

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	Production Rates			
							Production Rates	Miles/day	Distance(miles)	Days
Progressive Operations	Grader 14G Dump Truck 10CY x 1 FE Loader C966	\$778 \$163 \$778	1	16	\$90	\$2,218	Grader	2.5	5.0	2.0
			1	8	\$73	\$747				
			1	8	\$74	\$1,370				
Progressive Operations 2nd Entry	Grader 14G Dump Truck 10CY x 1 FE Loader C966 Vibratory Roller	\$778 \$163 \$778 \$778	1	24	\$90	\$2,938	Grader	2.5	7.5	3.0
			1	16	\$73	\$1,331				
			1	16	\$74	\$1,962				
			1	8	\$72	\$1,354				
Final Road Maintenance	Grader 14G Dump Truck 10CY x 3 FE Loader C966 Vibratory Roller Water Truck 2,500 gallon C580 Backhoe Labor	\$778 \$163 \$778 \$778 \$190 \$321	1	70	\$90	\$7,078	Grader	1.5	9.7	6.5
			3	16	\$73	\$3,667				
			1	16	\$74	\$1,962				
			1	70	\$72	\$5,818				
			1	40	\$78	\$3,310	Vibratory Roller*	1.5	9.7	6.5
			1	16	\$77	\$1,553				
			1	10	\$40	\$400				
Total						\$35,708				

*Final Road Maintenance Only

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Bull Nose

ROAD CONSTRUCTION:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 1	1A to 1B, 1C to 1D,	59.20	\$60,439.00
	1E to 1F, 2A to 2B,		
	2C to 3D, 2E, 2F,		
	and 3A		
	TOTALS	59.20	\$60,439

ROAD IMPROVEMENT:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 2	11 to 12, 13 to 14		
	15 to 16, 17 to 18		
	19 to 110, 111 to 112	351.50	\$131,799
	113 to 114		
	TOTALS	351.50	\$131,799

SPECIAL PROJECTS:

	<u>Description</u>	<u>Cost</u>
Project No. 3	Tidewater Quarry No. 2 Crushing	\$159,436
Project No. 4	Test Drilling	\$21,529
Project No. 5	Road Vacating	\$4,984
Project Road Maintenance		\$2,693
	TOTAL	\$188,642

MOVE IN:

<u>Equipment</u>	<u>Cost</u>
Grader (14G)	\$778
Backhoe (C580)	\$321
D.Truck (12cy x6)	\$978
Vibratory Roller	\$778
Water Truck (2,500 gallon)	\$190
Excavator (C330)	\$1,406
Excavator (C315)	\$805
Rubber Tire Skidder (C518)	\$717
Front End Loader (C966)	\$778
Dozer (D8)	\$1,406
TOTAL	\$8,157

GRAND TOTAL **\$389,037**

Compiled By: FL D.Bangs/W. Lawrence Date: 05/15/2015

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Bull Nose

ROAD: Road Construction

NEW CONSTRUCTION: 62.70 STATIONS

1.19 MILES

IMPROVEMENT:

MILES

POINTS: 1A-1B (30.7), 1C-1D (7.0), 1E-1F (6.0), 2A-2B (15.5), and 2C to 2D (3.5)

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
Designed 1A to 1B					
Scatter Outside of RW	3.0	x	\$ 1,337.00	=	\$4,011.00
Designed 1C to 1D					
Scatter Outside of RW	0.6	x	\$ 1,337.00	=	\$802.20
Designed 1E to 1F					
Scatter Outside of RW	0.5	x	\$ 1,337.00	=	\$668.50
Field Design 2A to 2B					
Scatter Outside of RW	1.5	x	\$ 1,337.00	=	\$2,005.50
Field Design 2C to 2D					
Scatter Outside of RW	0.3	x	\$ 1,337.00	=	\$401.10
Field Design 2E, 2F, and 3A					
Scatter Outside of RW	0.5	x	\$ 1,337.00	=	\$668.50
SUB TOTAL FOR CLEARING & GRUBBING					\$8,557

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
Designed 1A to 1B					
Common Drift excavation \$/cy	5,364	x	\$1.80	=	\$9,655.20
Embankment compaction \$/cy	4,529	x	\$0.70	=	\$3,170.30
End-haul \$/cy	1,100	x	\$4.00	=	\$4,400.00
Cutslope rounding \$/sta. (1+80 to 2+80 both sides)	4.55	x	\$43.00	=	\$195.65
(2+80 to 3+75 & 13+20 to 14+80)					
Landing Construction (20+00, 24+50 and 1B)	3	x	\$389.00	=	\$1,167.00
Designed 1C to 1D					
Common Drift excavation \$/cy	685	x	\$1.80	=	\$1,233.00
Embankment compaction	685	x	\$0.70	=	\$479.50
Cutslope rounding \$/sta. (5+70 to 7+00)	1.30	x	\$43.00	=	\$55.90
Landing Construction (5+30 and 1D)	2	x	\$389.00	=	\$778.00
Designed 1E to 1F					
Common Drift excavation \$/cy	675	x	\$1.80	=	\$1,215.00
Embankment compaction	675	x	\$0.70	=	\$472.50
Landing Construction (1F)	1	x	\$389.00	=	\$389.00
Field Design 2A to 2B					
Balanced construction (\$/sta.)	15.50	x	\$122.00	=	\$1,891.00
Drift earth up to 200' (\$/sta.)	15.50	x	\$190.00	=	\$2,945.00
Landing Construction (2B and 13+30)	2.00	x	\$389.00	=	\$778.00
Field Design 2C to 2D					
Drift earth up to 200' (\$/sta.)	3.50	x	\$190.00	=	\$665.00
Landing Construction (2D and 1+50)	2.00	x	\$389.00	=	\$778.00
Field Design 2E, 2F, and 3A					
Landing Construction (2E, 2F, and 3A)	3.00	x	\$389.00	=	\$1,167.00
					\$31,435.05

SPECIAL PROJECTS	
Description	Cost
SUB TOTAL FOR SPECIAL PROJECTS	\$0

Subtotal of Surfacing & Spec. Proj.	\$17,633
Subtotal of Clearing, Exc., Culv.	\$42,806

GRAND TOTAL

Compiled By: W.Lawrence/D.Bangs

Date: 11/21/2014

\$60,439

SUMMARY OF IMPROVEMENT COSTS

SALE NAME: Bull Nose NEW CONSTRUCTION: STATIONS MILES
 ROAD: I1-12(52.1Sta.), I3-14(122.3Sta.), I5-16(63.0Sta.) IMPROVEMENT: 351.50 STATIONS 6.66 MILES
 POINTS: I7-18(34.5Sta.), I9-110(36.0Sta.), I11-112(7.0Sta.), I13-114(36.6Sta.)

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
I5 to I6					
1+40 Outside curve widening / improvement					
(C315)(hrs.)	0.50	x	\$155.00	=	\$77.50
(D.Truck)(hrs.)	0.50	x	\$79.00	=	\$39.50

SUB TOTAL FOR CLEARING & GRUBBING

\$117

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
I1 to I2					
13+50 Install rock ditch filter (C315)(hrs.)	2.00	x	\$101.00	=	\$202.00
25+30 Install rock ditch filter (C315)(hrs.)	2.00	x	\$101.00	=	\$202.00
25+80 Fill/Culvert replacement	*See cost sheet	x	--	=	\$10,994.00
26+10 Install rock ditch filter (C315)(hrs.)	2.00	x	\$101.00	=	\$202.00
30+00 Install rock ditch filter 2x (C315)(hrs.)	4.00	x	\$101.00	=	\$404.00
32+30 Install rock ditch filter 2x (C315)(hrs.)	4.00	x	\$101.00	=	\$404.00
48+70 Culvert outlet dissipator (C315)(hrs.)	1.00	x	\$101.00	=	\$101.00

\$12,509.00

I3 to I4					
26+70-28+70 Reestablish ditch line (Backhoe)(hrs.)	2.00	x	\$77.00	=	\$154.00
(D.Truck)(hrs.)	4.00	x	\$79.00	=	\$316.00
92+70 Culvert outlet dissipator (C315)(hrs.)	1.00	x	\$101.00	=	\$101.00
96+90 Fill slope reconstruction (C330)(hrs.)	8.00	x	\$155.00	=	\$1,240.00
(D.Truck)(hrs.)	4.00	x	\$79.00	=	\$316.00
96+90 Install dissipator (C330)(hrs.)	2.00	x	\$155.00	=	\$310.00
101+85 Fill/Culvert replacement	*See cost sheet	x	--	=	\$6,679.00
112+20 Install rock ditch filter (C315)(hrs.)	2.00	x	\$101.00	=	\$202.00
113+60 Install rock ditch filter (C315)(hrs.)	2.00	x	\$101.00	=	\$202.00

\$9,520.00

I5 to I6					
1+40 Outside curve widening		x		=	
balanced construction (\$/Sta.)	0.50	x	\$122.00	=	\$61.00
61+00 Improve truck turnaround (C315)(hrs.)	1.00	x	\$101.00	=	\$101.00
63+00 Improve landing (C315)(hrs.)	2.00	x	\$101.00	=	\$202.00

\$364.00

I7 to I8					
4+20 Fill/Culvert replacement	*See cost sheet	x	--	=	\$6,333.00
7+90 Improve ditchout (C315)(hrs.)	1.00	x	\$101.00	=	\$101.00
12+80 Install rock ditch filter (C315)(hrs.)	2.00	x	\$101.00	=	\$202.00
13+20 Fill/Culvert replacement	*See cost sheet	x	--	=	\$14,923.00
13+60 Install rock ditch filter (C315)(hrs.)	2.00	x	\$101.00	=	\$202.00
24+20 Construct ditchout (C315)(hrs.)	1.00	x	\$101.00	=	\$101.00

\$21,862.00

I9 to I10					
29+10 Improve truck turnaround (C315)(hrs.)	1.00	x	\$101.00	=	\$101.00

\$101.00

I11 to I12					
4+80 Construct truck turnaround (C315)(hrs.)	1.00	x	\$101.00	=	\$101.00
7+00 Improve landing (C315)(hrs.)	2.00	x	\$101.00	=	\$202.00

\$303.00

I13 to I14					
17+40 Improve existing ditchout (C315)(hrs.)	1.00	x	\$101.00	=	\$101.00
30+60 Improve culvert outlet (Labor)(hrs.)	1.00	x	\$40.00	=	\$40.00
34+20 Improve truck turnaround (C315)(hrs.)	1.00	x	\$101.00	=	\$101.00
36+60 Improve landing (C315)(hrs.)	2.00	x	\$101.00	=	\$202.00

\$444.00

SUB TOTAL FOR EXCAVATION

\$45,103

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
I1 to I2									
25+80	36" CMP	60	\$39.69	*See cost sheet					
39+70	18" CPP	30	\$19.53	\$585.90					
I3 to I4									
101+85	24" CMP	50	\$26.17	*See cost sheet					
104+00	18" CPP	40	\$19.53	\$781.20					
114+20	18" CPP	30	\$19.53	\$585.90					
I5 to I6									
26+80	18" CPP	30	\$19.53	\$585.90					
30+10	18" CPP	30	\$19.53	\$585.90					
30+60	18" CPP	30	\$19.53	\$585.90					
48+80	18" CPP	30	\$19.53	\$585.90					
58+50	18" CPP	30	\$19.53	\$585.90					
I7 to I8									
4+20	24" CMP	50	\$26.17	*See cost sheet					
7+90	18" CPP	40	\$19.53	\$781.20					
13+20	24" CMP	70	\$26.17	*See cost sheet					
22+30	18" CPP	30	\$19.53	\$585.90					
24+20	18" CPP	40	\$19.53	\$781.20					
I9 to I10									
18+70	18" CPP	40	\$19.53	\$781.20					

Other/miscellaneous:

Description

Quantity

Rate

Cost

Culvert stakes & markers:

Culvert Markers

19

\$20.00

\$380.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$8,192

Subtotal of Clearing, Exc., Culv.

\$53,412

SURFACING				Stations/ amount		x	Rate/ sta/amt	Cost
Subgrade prep: Description								
Grade, Shape and Ditch 16': (11-12, 13-14, 15-16, 17-18, 19-110, 111-112,)				351.50		x	\$24.83	\$8,728
Sod Removal/Ditch Reconstruction: (11 through 114)(extra Grader time \$/Sta.)				351.50		x	\$7.90	\$2,777
Sod Removal/Ditch Reconstruction: (11 through 114)(extra Backhoe time \$/Sta.)				351.50		x	\$5.90	\$2,074
Sod Removal/Ditch Reconstruction: (11 through 114)(extra D.Truck time \$/Sta.)				351.50		x	\$6.50	\$2,285
Subgrade Compaction: (13-14, 15-16(25+40-63+00), 17-18, 19-110, 111-112,)				274.00		x	\$20.19	\$5,532

ROAD SEGMENT 11 to 12				POINT TO POINT 11 to 12		Sta. to Sta. 0+00 to 52+10		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per		Number of				
Leveling Rock	1 1/2"-0" crushed	1+30, 8+50, 11+00, 12+70, 15+00, 26+70, 36+00, 41+30, 45+10, 49+50, 52+10	N/A	load	11	loads	11	121	\$4.07	\$492
Culvert Bedding/Backfill	1 1/2"-0" stockpile	25+80	N/A	culvert	99	loads	1	99	*See cost sheet	
Base Rock	4"-0" stockpile	25+80	N/A	load	11	loads	3	33	*See cost sheet	
Surfacing	1 1/2"-0" stockpile	25+80	N/A	load	11	loads	2	22	*See cost sheet	
Fill Armor	24"-6" riprap	25+80	N/A	load	11	loads	12	133	*See cost sheet	
Culvert Outlet Dissipator	24"-6" riprap	25+80	N/A	dissipator	44	dissipators	1	44	*See cost sheet	
Rock Ditch Filters	6"-4" pit-run	12+00, 13+50, 25+30, 26+10	N/A	filter	22	filters	4	88	\$4.41	\$388
Rock Ditch Filters	6"-4" pit-run	30+00, 32+30	N/A	filter	44	filters	2	88	\$4.41	\$388
Culvert Bedding/Backfill	1 1/2"-0" crushed	39+70	N/A	culvert	22	culverts	1	22	\$4.07	\$90
Additional Leveling Rock	1 1/2"-0" crushed	41+30,	N/A	load	11	loads	1	11	\$4.07	\$45
Culvert Outlet Dissipator	24"-6" riprap	48+70	N/A	dissipator	22	dissipators	1	22	\$4.41	\$97
Total Rock for Road Segment:				11 to 12				683		

ROAD SEGMENT 13 to 14				POINT TO POINT 13 to 14		Sta. to Sta. 0+00 to 122+30		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per		Number of				
Surfacing	4"-0" crushed	0+00-122+30	4	station	25	stations	122.0	3,050	\$4.07	\$12,414
Leveling Rock	4"-0" crushed	6+90, 99+50, 105+30, 112+90, 117+90	N/A	load	11	loads	5	55	\$4.07	\$224
Junction Rock	4"-0" crushed	3+50, 29+80, 37+50, 51+90, 76+00, 76+10, 79+20, 83+90	N/A	junction	11	junctions	8	88	\$4.07	\$358
Additional Junction Rock	4"-0" crushed	29+80, 37+50, 51+90, 76+00, 83+90	N/A	junction	11	junctions	5	55	\$4.07	\$224
Turnouts	4"-0" crushed	16+60, 27+70, 60+00, 67+80, 70+00, 87+50, 92+00, 99+40, 104+70, 109+40,	N/A	turnout	11	turnouts	12	132	\$4.07	\$537
Culvert Outlet Dissipator	24"-6" riprap	92+70, 96+90	N/A	load	11	loads	6	66	\$4.41	\$291
Fill Slope Reconstruction	24"-6" riprap	96+90	N/A	load	11	loads	7	77	\$4.41	\$340
Culvert Bedding/Backfill	1 1/2"-0" stockpile	101+85	N/A	load	11	loads	7	77	*See cost sheet	
Base Rock	4"-0" stockpile	101+85	N/A	load	11	loads	3	33	*See cost sheet	
Surfacing	4"-0" stockpile	101+85	N/A	load	11	loads	2	22	*See cost sheet	
Fill Armor	24"-6" riprap	101+85	N/A	load	11	loads	7	77	*See cost sheet	
Culvert Outlet Dissipator	24"-6" riprap	101+85	N/A	load	11	loads	4	44	*See cost sheet	
Rock Ditch Filters	6"-4" pit-run	112+20, 113+60	N/A	filter	22	filters	2	44	\$4.41	\$194
Culvert Bedding/Backfill	1 1/2"-0" stockpile	104+00, 114+20	N/A	culverts	22	loads	2	44	\$3.15	\$139
Total Rock for Road Segment:				13 to 14				3,864		

ROAD SEGMENT 15 to 16				POINT TO POINT 15 to 16		Sta. to Sta. 0+00 to 63+00		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per		Number of				
Surfacing	1 1/2"-0" crushed	25+40-63+00	4	station	25	stations	37.6	940	\$4.07	\$3,826
Curve Widening Base	4"-0" crushed	1+40	8	station	50	stations	0.5	25	\$4.07	\$102
Leveling Rock	4"-0" crushed	28+90	N/A	load	11	loads	1	11	\$4.07	\$45
Leveling Rock	1 1/2"-0" crushed	28+90, 32+00, 47+00, 48+60, 49+80	N/A	load	11	loads	5	55	\$4.07	\$224
Additional Leveling Rock	1 1/2"-0" crushed	32+00	N/A	load	11	loads	1	11	\$4.07	\$45
Turnouts	1 1/2"-0" crushed	28+30, 34+70, 53+20	N/A	turnout	11	turnouts	3	33	\$4.07	\$134
Additional Turnout Rock	1 1/2"-0" crushed	28+30	N/A	turnout	11	turnouts	1	11	\$4.07	\$45
Turnout Subgrade	4"-0" crushed	28+30	N/A	load	11	loads	3	33	\$4.07	\$134
Culvert Bedding/Backfill	1 1/2"-0" stockpile	26+80, 30+10, 30+60, 48+80, 58+50	N/A	culvert	22	culverts	5	110	\$3.15	\$347
Additional Culvert Bedding	1 1/2"-0" stockpile	30+10, 30+60, 30+10, 30+60,	N/A	culvert	11	culverts	2	22	\$3.15	\$69
Culvert Outlet Dissipator	24"-6" riprap	58+50	N/A	culvert	11	culverts	3	33	\$4.41	\$146
Additional Culvert Dissipato	24"-6" riprap	30+10	N/A	culvert	11	culverts	1	11	\$4.41	\$49
Truck Turnaround	6"-0" pit-run	61+00	N/A	urnaround	33	TA's	1	33	\$4.41	\$146
Landing Improvement	6"-0" pit-run	63+00	N/A	landing	55	landings	1	55	\$4.41	\$243
Total Rock for Road Segment:				15 to 16				1,383		

\$1,500

\$14,721

\$5,555

ROAD SEGMENT			I7 to I8		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 34+50					
				Volume (CY) per	Number of						
Surfacing	4"-0" crushed	0+00-34+50	4	station	25	stations	35.0	875	\$4.07	\$3,561	
Leveling Rock	4"-0" crushed	4+20, 5+70, 13+20, 18+20	N/A	load	11	loads	4	44	\$4.07	\$179	
Additional Leveling Rock	4"-0" crushed	13+20, 18+20	N/A	load	11	loads	2	22	\$4.07	\$90	
Turnouts	4"-0" crushed	6+70, 15+40, 20+70	N/A	turnout	11	turnouts	3	33	\$4.07	\$134	
Culvert Bedding/Backfill	1 1/2"-0" stockpile	4+20	N/A	load	11	loads	7	77	*See cost sheet		
Base Rock	4"-0" stockpile	4+20	N/A	load	11	loads	3	33	*See cost sheet		
Surfacing	4"-0" stockpile	4+20	N/A	load	11	loads	2	22	*See cost sheet		
Fill Armor	24"-6" riprap	4+20	N/A	load	11	loads	5	55	*See cost sheet		
Culvert Outlet Dissipator	24"-6" riprap	4+20	N/A	load	11	loads	3	33	*See cost sheet		
Culvert Bedding/Backfill	1 1/2"-0" stockpile	13+20	N/A	load	11	loads	8	88	*See cost sheet		
Base Rock	4"-0" stockpile	13+20	N/A	load	11	loads	3	33	*See cost sheet		
Surfacing	4"-0" stockpile	13+20	N/A	load	11	loads	2	22	*See cost sheet		
Fill Armor	24"-6" riprap	13+20	N/A	load	11	loads	17	187	*See cost sheet		
Culvert Outlet Dissipator	24"-6" riprap	13+20	N/A	load	11	loads	3	33	*See cost sheet		
Rock Ditch Filters	6"-4" pit-run	12+80, 13+60	N/A	filter	22	filters	2	44	\$4.41	\$194	
Culvert Bedding/Backfill	1 1/2"-0" stockpile	7+90, 22+30, 24+20	N/A	culvert	22	culverts	3	66	\$3.15	\$208	
Culvert Outlet Dissipator	24"-6" riprap	22+30, 24+20	N/A	dissipator	11	dissipators	2	22	\$4.41	\$97	
Total Rock for Road Segment:				I7 to I8				1,689			\$4,463
ROAD SEGMENT			I9 to I10		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I9 to I10		0+00 to 36+00					
				Volume (CY) per	Number of						
Surfacing	4"-0" crushed	0+00-36+00	4	station	25	stations	36.0	900	\$4.07	\$3,663	
Traction Rock	1 1/2"-0" crushed	0+00-2+50	2	station	13	stations	2.5	33	\$4.07	\$134	
Leveling Rock	4"-0" crushed	15+60, 28+70,	N/A	load	11	loads	2	22	\$4.07	\$90	
Junction Rock	1 1/2"-0" crushed	0+00	N/A	load	11	loads	2	22	\$4.07	\$90	
Junction Rock	4"-0" crushed	8+20, 14+30	N/A	load	11	loads	2	22	\$4.07	\$90	
Turnouts	4"-0" crushed	6+10, 11+00, 16+50, 20+60, 25+30, 32+00	N/A	turnout	11	turnouts	6	66	\$4.07	\$269	
Turnaround	6"-0" pit-run	29+10	N/A	turnaround	11	TA's	3	33	\$4.41	\$146	
Culvert Bedding/Backfill	1 1/2"-0" stockpile	18+70	N/A	culvert	22	culverts	1	22	\$3.15	\$69	
Total Rock for Road Segment:				I9 to I10				1,120			\$4,551
ROAD SEGMENT			I11 to I12		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I11 to I12		0+00 to 7+00					
				Volume (CY) per	Number of						
Surfacing	4"-0" crushed	0+00-7+00	4	station	25	stations	7.0	175	\$4.07	\$712	
Turnaround	6"-0" pit-run	4+80	N/A	turnaround	33	TA's	1	33	\$4.41	\$146	
Landing Improvement	6"-0" pit-run	7+00	N/A	landing	77	landings	1	77	\$4.41	\$340	
Total Rock for Road Segment:				I11 to I12				285			\$1,198
ROAD SEGMENT			I13 to I14		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I13 to I14		0+00 to 36+60					
				Volume (CY) per	Number of						
Surfacing	4"-0" crushed	0+00-36+60	4	station	25	stations	36.6	915	\$4.07	\$3,724	
Leveling Rock	4"-0" crushed	1+10, 3+60, 9+20, 12+90, 17+80, 20+40, 22+90, 27+80, 28+80, 33+30, 34+70	N/A	load	11	loads	11	121	\$4.07	\$492	
Additional Leveling Rock	4"-0" crushed	34+70	N/A	load	11	loads	1	11	\$4.07	\$45	
Turnouts	4"-0" crushed	2+90, 6+10, 15+50, 18+90, 26+30, 34+20	N/A	turnout	11	turnouts	6	66	\$4.07	\$269	
Junction Rock	4"-0" crushed	5+40, 12+30, 21+70	N/A	junction	11	junctions	3	33	\$4.07	\$134	
Truck Turnaround	6"-0" pit-run	34+20	N/A	turnaround	33	turnarounds	1	33	\$4.41	\$146	
Landing Improvement	6"-0" pit-run	36+60	N/A	landing	77	landings	1	77	\$4.41	\$340	
Total Rock for Road Segment:				I13 to I14				1,256			\$5,150
Processing:				Description				No.sta	Rate/sta	Cost	
				Water, Process & Compact: (I1-I2, I3-I4, I5-I6, I7-I8, I9-I10, I11-I12, I13-I14)				351.50	\$56.48	\$19,853	
				</							

Fill Reconstruction Cost Estimate

Will Lawrence
04/22/2015

Segment: 11 to 12
Fill: 1

Station: 25+80
Height: 15

Materials	Quantity		\$	Total
36"x60", 14ga, CMP	60		\$39.69	\$2,381.40
Pipe Beveling (inlet)	24		\$1.00	\$24.00
24"-6" Riprap Dissipator	44	cy	\$4.41	\$194.04
24"-6" Riprap Fill Armor	133	cy	\$4.41	\$586.53
1 1/2"-0" Stockpile Rock for Bedding/Backfill	99	cy	\$3.15	\$311.85
4"-0" Stockpile Rock for Road	33	cy	\$3.15	\$103.95
1 1/2"-0" Stockpile Rock for Road	22	cy	\$3.15	\$69.30
Erosion Control	0.03	ac	\$1,979.00	\$59.37
Mulch and seed				

\$3,730.44

Excavation	Rate	CY/amount	Total
End-Haul excavation \$/cy			
Excavate Fill	\$4.00	480	\$1,920.00
Backfill from barrow site	\$4.00	596	\$2,384.00
Compaction			
Backfill (barrow & crushed rock)	\$0.70	596	\$417.20
Waste material compaction	\$0.40	480	\$192.00
Fill armor placement w/330, \$/hr	\$155.00	10	\$1,550.00
Laborer \$/hr	\$40.00	20	\$800.00

\$7,263.20

Project Total \$10,994

Fill Reconstruction Cost Estimate

Will Lawrence
04/24/2015

Segment: 13 to 14
Fill: 2

Station: 101+85
Height: 10

Materials	Quantity		\$	Total
24"x50', 14ga, CMP	50		\$26.17	\$1,308.50
Pipe Beveling (inlet)	24		\$1.00	\$24.00
24"-6" Riprap Dissipator	44	cy	\$4.41	\$194.04
24"-6" Riprap Fill Armor	77	cy	\$4.41	\$339.57
1 1/2"-0" Stockpile Rock for Bedding/Backfill	77	cy	\$3.15	\$242.55
4"-0" Stockpile Rock for Road	33	cy	\$3.15	\$103.95
4"-0" Stockpile Rock for Road	22	cy	\$3.15	\$69.30
Erosion Control	0.02	ac	\$1,979.00	\$39.58
Mulch and seed				

\$2,321.49

Excavation	Rate		CY/amount	Total
End-Haul excavation \$/cy				
Excavate Fill	\$4.00		200	\$800.00
Backfill from barrow site	\$4.00		240	\$960.00
Compaction				
Backfill (barrow & crushed rock)	\$0.70		240	\$168.00
Waste material compaction	\$0.40		200	\$80.00
Fill armor placement w/330, \$/hr	\$155.00		10	\$1,550.00
Laborer \$/hr	\$40.00		20	\$800.00

\$4,358.00

Project Total	\$6,679
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Fill Reconstruction Cost Estimate

Will Lawrence
04/24/2015

Segment: 17 to 18
Fill: 3

Station: 4+20
Height: 10

Materials	Quantity		\$	Total
24"x50', 14ga, CMP	50		\$26.17	\$1,308.50
Pipe Beveling (inlet)	24		\$1.00	\$24.00
24"-6" Riprap Dissipator	33	cy	\$4.41	\$145.53
24"-6" Riprap Fill Armor	55	cy	\$4.41	\$242.55
1 1/2"-0" Stockpile Rock for Bedding/Backfill	77	cy	\$3.15	\$242.55
4"-0" Stockpile Rock for Road	33	cy	\$3.15	\$103.95
4"-0" Stockpile Rock for Road	22	cy	\$3.15	\$69.30
Erosion Control	0.02	ac	\$1,979.00	\$39.58
Mulch and seed				

\$2,175.96

Excavation	Rate	CY/amount	Total
End-Haul excavation \$/cy			
Excavate Fill	\$4.00	180	\$720.00
Backfill from barrow site	\$4.00	216	\$864.00
Compaction			
Backfill (barrow & crushed rock)	\$0.70	216	\$151.20
Waste material compaction	\$0.40	180	\$72.00
Fill armor placement w/330, \$/hr	\$155.00	10	\$1,550.00
Laborer \$/hr	\$40.00	20	\$800.00

\$4,157.20

Project Total	\$6,333
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Fill Reconstruction Cost Estimate

Will Lawrence
04/24/2015

Segment: 17 to 18
Fill: 4

Station: 13+20
Height: 19

Materials	Quantity		\$	Total
24"x70', 14ga, CMP	70		\$26.17	\$1,831.90
Pipe Beveling (inlet)	24		\$1.00	\$24.00
24"-6" Riprap Dissipator	33	cy	\$4.41	\$145.53
24"-6" Riprap Fill Armor	187	cy	\$4.41	\$824.67
1 1/2"-0" Stockpile Rock for Bedding/Backfill	88	cy	\$3.15	\$277.20
4"-0" Stockpile Rock for Road	33	cy	\$3.15	\$103.95
4"-0" Stockpile Rock for Road	22	cy	\$3.15	\$69.30
Erosion Control	0.03	ac	\$1,979.00	\$59.37
Mulch and seed				

\$3,335.92

Excavation	Rate	CY/amount	Total
End-Haul excavation \$/cy			
Excavate Fill	\$4.00	920	\$3,680.00
Backfill from barrow site	\$4.00	1104	\$4,416.00
Compaction			
Backfill (barrow & crushed rock)	\$0.70	1104	\$772.80
Waste material compaction	\$0.40	920	\$368.00
Fill armor placement w/330, \$/hr	\$155.00	10	\$1,550.00
Laborer \$/hr	\$40.00	20	\$800.00

\$11,586.80

Project Total \$14,923

CRUSHED ROCK COST

SALE NAME:	Bull Nose
PROJECT:	No. 1 and 2
QUARRY:	Tidewater Loop Quarry

MATERIAL: Crushed

DATE: 05/04/2015
BY: D.Bangs

[illegible]

ROCK HAUL:

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

Ave haul:	\$2.75	/cy
Load:	\$0.48	/cy
Spread:	\$0.84	/cy

Truck type: D12 No. trucks: 4
 Delay min.: 6 Efficiency: 85%

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

Production: cy/day = 920

CRUSHED ROCK HAUL COSTS 10,157 cy @ \$4.07 /cy

PIT RUN ROCK COST

SALE NAME:	Bull Nose
PROJECT:	No. .1 and 2
QUARRY:	Tidewater Loop Quarry

MATERIAL: Pit Run/Rip Rap

DATE: 05/04/2015
BY: D.Bangs

[illegible]

ROCK HAUL:

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

Ave haul:	\$2.90	/cy
Load:	\$0.54	/cy
Spread:	\$0.96	/cy

Truck type:	<u>D12</u>	No. trucks:	<u>4</u>
Delay min.:	<u>6</u>	Efficiency:	<u>85%</u>

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

Production: cy/day = 870

PIT RUN ROCK HAUL COSTS	2,316 cy @	\$4.41 /cy
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RIP RAP ROCK COST

SALE NAME: Bull Nose
PROJECT: Project Nos 1 and 2
QUARRY: _____

MATERIAL: $\frac{1 \frac{1}{2}''-0''}{4''-0''}$

DATE: 05/04/2015
BY: D.Bangs

[illegible]

ROCK HAUL:

Truck type:	<u>D12</u>	No. trucks:	<u>4</u>
Delay min.:	<u>6</u>	Efficiency:	<u>85%</u>
Truck type:	<u>D10</u>	No. trucks:	<u>4</u>
Delay min.:	<u>5</u>	Efficiency:	<u>85%</u>

Ave haul:	\$2.55	/cy
Load:	\$0.60	/cy
Develop:		/cy

Production: cy/day = 991

RIP RAP ROCK HAUL COSTS

836 cy @ \$3.15 /cy

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 3 Timber Sale Name: Bull Nose
 Quarry: Tidewater Loop No. 2 Swell:
 Location: NE1/4, NE1/4, Section 21 T6N, R7W W.M. Shrink: 16%
 County: Clatsop
 By: W. Lawrence Loading Hopper: Yes
 Date: 03/13/2015

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"	5%	CR		1,335	1,335
4"-0"	5%	CR	3,000	8,822	12,302
6"-0"		PR		1,457	1,457
24"-6"		RR		859	859
36"		RR			
TOTAL CUBIC YARDS OF ROCK:			3,000	12,473	15,953

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Drill & Compressor	2	\$1,406	\$2,812				
Powder	2	\$351	\$703				
D8 Cat	1	\$1,406	\$1,406				
Excavator	1	\$1,406	\$1,406				
Loader	1	\$805	\$805				
3 Stage Crusher	1	\$2,891	\$2,891				
Loading Hopper	1	\$553	\$553				
Fire Truck	1	\$190	\$190				

SUB TOTAL FOR MOBILIZATION

\$10,765

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	\$3,439	\$3,439
Loading Hopper	2	\$293	\$586
Original Calibration	1	\$544	\$544

SUB TOTAL FOR SET UP COSTS

\$4,569

TOTAL MOBILIZATION & SET UP COSTS**\$15,334****2) CLEARING & GRUBBING**

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Stabilize top of Quarry (C330)	30	hours	\$155	\$4,650
Pile and burn debris (C330)	10	hours	\$156	\$1,560
Walk to and from top of quarry (C330)	3	hours	\$155	\$465
Reopen existing benches (C330)	10	hours	\$155	\$1,550
Drill prep. (C330)	20	hours	\$156	\$3,120

TOTAL CLEARING & GRUBBING COSTS**\$11,345**

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden removal between A2 and A3				
(C330)	40	hours	\$155	\$6,200
(D8)	40	hours	\$158	\$6,320
Overburden compaction	3,000	C.Y	\$0.40	\$1,200

TOTAL EXCAVATION COSTS

\$13,720

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping			\$2.20	
crushed	13,637	85%	Drill & shoot	100%	16,635	\$2.30	\$38,260
pit run	1,457	9%	Oversize red	10%	1,509	\$5.80	\$8,755
rip rap	859	5%	Other				
Total	15,953						
reject	682	4.3%					

TOTAL ROCK DEVELOPMENT COSTS

\$47,015

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	1	\$507.00	\$507
Calibrate			
Test	6	\$57.30	\$344
Test			

TOTAL CALIBRATION & TESTING COSTS

\$851

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	14,319	\$0.80	\$11,387
Shot rock handling(C330)	hrs. 94	\$155.00	\$14,570

TOTAL FEEDING & LOADING COSTS

\$25,957

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			
1-1/2"-0"	crushed	1,335	3 stage	110	\$2.99	\$3,993
4"-0"	crushed	12,302	2 stage	140	\$2.05	\$25,219

TOTAL ROCK CRUSHING COSTS

\$29,212

8) STOCKPILING**STOCKPILE SITE PREPARATION**

Equipment	Hours	Rate	Total
Dozer	1	\$120.00	\$120.00
Compactor		\$72.00	
Grader	1	\$100.00	\$100.00
Excavator		\$155.00	

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

\$220.00

SUB TOTAL

\$220

HAUL & STOCKPILE**STOCKPILE LOCATION**

	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1. _____					
2. _____					
3. Tidewater Loop	4"-0"	4	3,480	\$3.51	\$12,216
4. _____					

SUB TOTAL

\$12,216

TOTAL STOCKPILING COSTS

\$12,436

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area.	\$1,493
\$2.19 \C.Y. 682 C.Y.	
Waste Area Compaction	
\$0.40 \C.Y. 682 C.Y.	\$273
Seeding & Mulching Waste Areas, Equipment Access	
0.4 acrea \$628 \ acre	\$251
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access	
(C330) 10 hours \$155	\$1,550

TOTAL MISCELLANEOUS COSTS

\$3,567

11) GRAND TOTAL:

\$159,436

\$/Cubic Yard

\$11.69

HAUL and STOCKPILE COST

SALE NAME: Bull Nose

QUARRY: Tidewater Loop No. 2

ROCK TYPE: Crushed

Location 1. 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
							0.10
Truck type: <u>D12</u>	No. trucks: <u>2</u>						
Delay min.: <u>15</u>	Efficiency: <u>75%</u>	Ave haul: \$2.00 /cy					
		Load: \$0.00 /cy					
Truck type: <u>D12</u>	No. trucks: <u></u>	Stockpile: \$1.35 /cy					
Delay min.: <u>12</u>	Efficiency: <u>75%</u>						
Truck type: <u></u>	No. trucks: <u></u>	Production: cy/day = 632					
Delay min.: <u>10</u>	Efficiency: <u>75%</u>						
Location 1. 0	Haul and Stockpile Cost						\$3.34 /cy

Location 2. 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				0.20	0.43	0.15	0.15
Truck type: <u>D20</u>	No. trucks: <u></u>						
Delay min.: <u>15</u>	Efficiency: <u>75%</u>	Ave haul: \$2.61 /cy					
		Load: \$0.00 /cy					
Truck type: <u>D12</u>	No. trucks: <u>4</u>	Stockpile: \$0.90 /cy					
Delay min.: <u>12</u>	Efficiency: <u>85%</u>						
Truck type: <u>D10</u>	No. trucks: <u></u>	Production: cy/day = 967					
Delay min.: <u>10</u>	Efficiency: <u>75%</u>						
Location 2. 0	Haul and Stockpile Cost						\$3.51 /cy

Location 3. Tidewater Loop 4"-0"	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				0.20	0.43	0.15	0.15
Truck type: <u>D20</u>	No. trucks: <u></u>						
Delay min.: <u>15</u>	Efficiency: <u>75%</u>	Ave haul: \$2.61 /cy					
		Load: \$0.00 /cy					
Truck type: <u>D12</u>	No. trucks: <u>4</u>	Stockpile: \$0.90 /cy					
Delay min.: <u>12</u>	Efficiency: <u>85%</u>						
Truck type: <u>D10</u>	No. trucks: <u></u>	Production: cy/day = 967					
Delay min.: <u>10</u>	Efficiency: <u>75%</u>						
Location 3. Tidewater Loop	Haul and Stockpile Cost						\$3.51 /cy

HAUL and STOCKPILE COST

Location 4. 0		ONE WAY HAUL IN MILES						
#REF!		50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
					1.00	1.00		
Truck type:	D20	No. trucks:						
Delay min.:	15	Efficiency:	75%					
						Ave haul:	#DIV/0!	/cy
						Load:	\$0.00	/cy
Truck type:	D12	No. trucks:				Stockpile:	#N/A	/cy
Delay min.:	12	Efficiency:	75%					
Truck type:	D10	No. trucks:				Production: cy/day =	0	
Delay min.:	10	Efficiency:	75%					
Location 4.	0	Haul & Stockpile Cost					#DIV/0! /cy	

Location 5. 0		ONE WAY HAUL IN MILES						
#REF!		50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
								0.10
Truck type:	D20	No. trucks:	2					
Delay min.:	15	Efficiency:	75%					
						Ave haul:	\$1.52	/cy
						Load:	\$0.00	/cy
Truck type:	D12	No. trucks:				Stockpile:	\$0.83	/cy
Delay min.:	12	Efficiency:	75%					
Truck type:	D10	No. trucks:				Production: cy/day =	1,054	
Delay min.:	10	Efficiency:	75%					
Location 5.	0	Haul & Stockpile Cost					\$2.35 /cy	

Location 6. #REF!		ONE WAY HAUL IN MILES						
#REF!		50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
					1.00	1.00		
Truck type:	D20	No. trucks:						
Delay min.:	15	Efficiency:	75%					
						Ave haul:	#DIV/0!	/cy
						Load:	\$0.00	/cy
Truck type:	D12	No. trucks:				Stockpile:	#N/A	/cy
Delay min.:	12	Efficiency:	75%					
Truck type:	D10	No. trucks:				Production: cy/day =	0	
Delay min.:	10	Efficiency:	75%					
Location 6.	0	Haul & Stockpile Cost					#DIV/0! /cy	

Test Drilling Costs

Test Drill Sites	Activity	# of Holes	Footage	Drill Hours	Rate	Feet of Trail	Equip Hours	Rate	Dollars
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Tidewater Loop & Tidewater Loop No.2 (Drill Site #1)

Hydraulic Drill	Drilling	20	1,000	10	\$307				\$3,070
Mobilization									
Hydraulic Drill	Lowboy								\$1,406
Sub-Total									\$4,476

Sarajarvie (Drill Site #2)

C330 Excavator							10	\$155	\$1,550
Hydraulic Drill	Drilling	20	1,000	20	\$307				\$6,140
Mobilization									
Hydraulic Drill	Move from Tidewater quarry to Sarajarvie								\$703
C330 Excavator									\$1,406
Sub-Total									\$9,799

Trailover Quarry (Drill Site #3)

C330 Excavator							10	\$155	\$1,550
Hydraulic Drill	Drilling	20	1,000	10	\$307				\$3,070
Mobilization									
Hydraulic Drill	Move from Sarajarvie to Trailover								\$703
Sub-Total									\$5,323

Wild Goose Test Site (Drill Site #4)

C330 Excavator									\$0
Hydraulic Drill	Drilling	6	300	4	\$307				\$1,228
Mobilization									
Hydraulic Drill	Move from Trailover to Wild Goose								\$703
Sub-Total									\$1,931

Total Drilling Cost

\$21,529

By: W.Lawrence

Date: 05/14/15

Bull Nose Timber Sale

Vacating Costs

Work Description	Station	C.Y.s	C330	D24 trk	D10/12 trk	D-8	Labor	Straw	Seed-lbs
V1:									
Walk equipment to back end of project			2.00			0.50			
(V1) Construct waterbar/roadblock	0+00		0.50						
Construct waterbar	2+40		0.25						
Construct waterbar	4+60		0.25						
Remove existing culvert	6+45		1.00				0.5	2	5
Construct waterbar	7+95		0.25						
Remove existing fill, develop 3 foot wide stream channel	8+15		1.50				1	4	10
Construct waterbar	8+35		0.25						
Construct waterbar	11+15		0.25						
Remove existing fill, develop 3 foot wide stream channel	11+30		1.75				1	4	10
Remove existing culvert	17+75		1.00				0.5	2	5
Remove existing large fill, develop 10 foot wide stream channel	19+40	450	15.00			10.00	2	10	25
Remove existing fill, develop 3 foot wide stream channel	20+50		2.00				1	4	10
(V2) Construct waterbar	21+45		0.25						
Haul off old culverts			0.50						
Total Quantity (Hours)			26.75	0	0	10.5	6	26	65
Total Cubic yards		450							
Rates			\$101.00	\$127.00	\$99.00	\$158.00	\$40.00	\$10.73	\$1.60
Total Dollars			\$2,702	\$0	\$0	\$1,659	\$240	\$279	\$104

Total Segment Cost

\$4,984

Projects Road Maintenance Cost Summary

Sale: Bull Nose
Date: 08-May-15
By: D.Bangs *FL*

Type	Equipment/Rationale	Hours	Rate	Cost
Projects Road Maintenance	Grader 14G	10	\$100	\$1,000
	Dump Truck 12CY	5	\$79	\$395
	FE Loader C966	1	\$83	\$83
	Vibratory Roller	10	\$77	\$770
	Water Truck 2,500 gallon	5	\$89	\$445
Total				\$2,693

Production Rates		
Miles/day	Distance(miles)	Days
1.5	0.5	0.3
1.5	0.5	0.3

**Bull Nose
TIMBER CRUISE REPORT
FY 2015**

1. Sale Area Location: Areas 1, 2, 3, and 4 are located in portions of Sections 14, 15, 22, and 23, T6N, R7W, W.M., Clatsop County, OR.
2. Fund Distribution: BOF 100%
Tax Code 8-01 (100%)

3. Sale Acreage by Area:

Area	Treatment	Gross Acres	Existing R/W	New R/W	Rehab Area	Stream Buffer	Net Acres	Survey Method
1	Modified Clearcut	68	1	5	0	7	55	GIS
2	Modified Clearcut	96	5	1	0	10	80	GIS
3	Modified Clearcut	92	7	0	3	6	76	GIS
4	Right-of-Way	6	0	0	0	0	6	Length X Width
TOTALS		262	13	6	3	23	217	

4. Cruisers and Cruise Dates:

All areas were cruised by Nick Haile, Derek Bangs, Jon Long, Dave Rygell and Kevin Berry on 03/04/15.

5. Cruise Method and Computation:

Areas 1, 2, and 3 were variable plot cruised using a 40 BAF. These plots are located on a 4 chain by 9 chain grid, with every third plot measured and graded. A total of 60 plots were sampled, with 22 measured and graded plots, and 38 count plots.

Area 4 (Right-of-Way) was not cruised but the cruise for Areas 1-3 was applied to the right-of-way acres to generate the volume for this area.

Data was collected on Corvallis MicroTechnology (CMT) data collectors, and downloaded to the Atterbury Super A.C.E. program in 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.

AREA	CRUISE	TRACT	TYPE	ACRES
Areas 1, 2, & 3	BULLNO	AREAS123	TAKE	211
Area 4	BULLNO	AREAS123	ROW	6

6. Timber Description:

Areas 1, 2, and 3 are modified clearcut units, approximately 70 years-old, consisting of Douglas-fir and western hemlock with minor amounts of red alder and spruce. The average Douglas-fir tree size to be harvested is 27 inches DBH, with an average height of 101 feet to a merchantable top (7 inch d.o.b.) The average western hemlock tree size is 20 inches DBH and 74 feet to a merchantable top (7 inch d.o.b.) The average red alder tree size 15 inches DBH and 61 feet to a merchantable top (7 inch d.o.b.) The net volume per acre to be harvested is 53.1 MBF. Due to the limited market for oversized spruce the volume of spruce that exceeded 20 inches was broken out separately. A lower stumpage price will be assessed for these logs and the amortized price for spruce will be averaged between the two stumpage prices.

Area 4 (Right-of-Way) totals six acre of in-sale right-of-way. The timber type is similar to Areas 1, 2, and 3, therefore the average cruise volume (net) from this area was applied to these acres. The average volume per acre to be harvested is 53.1 MBF.

7. Statistical Analysis and Stand Summary

Statistics for Stand B.F. volumes

Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1, 2, & 3 (MC)	50.0%	8.0%	43.8%	5.7%

8. Volumes by Species and Log Grade: (See "Species, Sort, Grade" - Project Report, attached).
 Volumes by Species and Grade for All Sale Areas: (MBF) Volumes do not include "in-growth."

Species	DBH	Net Vol.	2 Saw	3 Saw	4 Saw	Camp Run	% D & B	% Sale
Douglas-fir	27"	6,313	5,612	611	90	0	4.9	55
Western Hemlock	20"	4,797	3,316	1,217	264	0	7.8	42
Sitka spruce <20 other conifers	*	48	29	19	0	0	21.0	<1
Sitka Spruce 20"+	*	206	206	0	0	0	21.0	2
Red Alder/other Hardwoods	15"	176	0	0	0	176	11.5	1
TOTALS		11,540						

* Average diameter for all sitka spruce and other conifers is 18"

9. Approvals:

Prepared by: Derek Bangs Date: 04/27/2015

Unit Forester Approval:  Date: 5/14/15

10. Attachments:

Cruise Design and Map - 3 pages
 Volume Reports - 3 pages
 Statistics Reports - 3 pages
 Log Stock Tables - 4 pages
 Stand Table Summary - 2 pages

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Bull Nose **Area(s)** 1, 2, and 3

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 221 **Estimated CV%** 50 Net BF or
BA/Acre **SE% Objective** 8

Planned Sale Volume: 10,400 **Estimated Sale Area Value/Acre:** \$20,000

A. Cruise Goals: (a) Grade minimum 75 conifer trees:
Determine log grades for sale value; Determine snag and leave tree species and sizes;
Determine "diameter limit" harvest parameters;

B. Cruise Design:

- 1. Plot Cruises:** BAF 40 (Full point; Half point) (circle one)
Cruise Line Direction(s) (East/West) 90' Az
Cruise Line Spacing 9 chains
Cruise Plot Spacing 4 chains
Grade/Count Ratio 1:2

Record all hardwood as camp run. Record all cedar as leave. Record all snags as SN and record diameter & total height on grade plots only. If plot lands in buffer then offset at least 1/2 chain outside the buffer. Cruisers should be aware of existing snowbreak in some areas around the 30-40 foot mark.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8 " for conifers and 10" for hardwoods. Record dbh to nearest 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 " or 40% of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for 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.
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); DL(Douglas-fir over 30"dbh); HL(Western hemlock over 30" dbh); SL(Sitka spruce over 30" dbh); CL (Western red cedar over 30" dbh); NFL (Noble fir over 30" dbh); SFL (Silver fir over 30" dbh)
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
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 stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at intervisible 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
10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

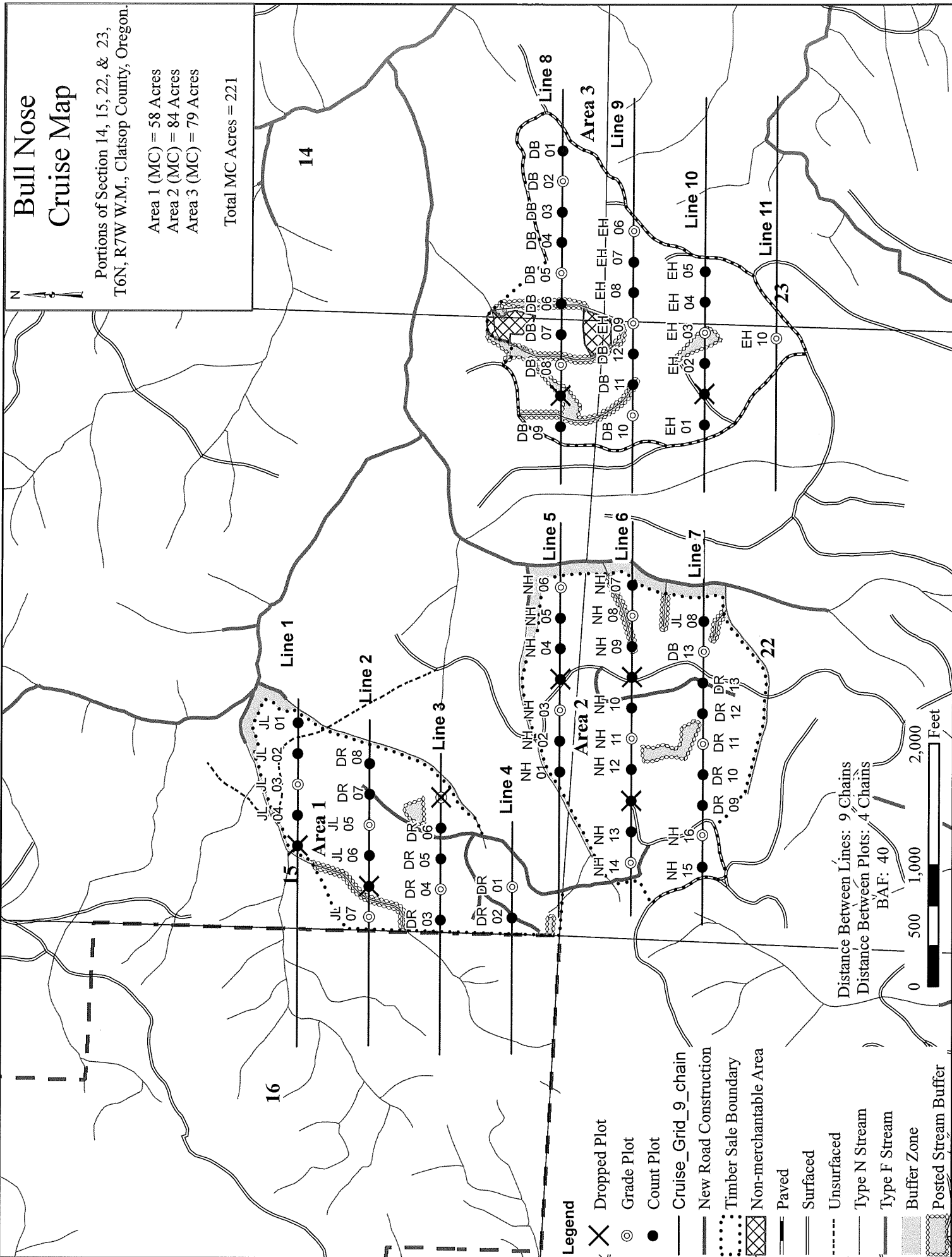
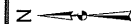
Cruise Design by: Derek Bangs
Approved by: [Signature]
Date: 3-03-2015

Bull Nose Cruise Map

Portions of Section 14, 15, 22, & 23,
T6N, R7W W.M., Clatsop County, Oregon.

Area 1 (MC) = 58 Acres
Area 2 (MC) = 84 Acres
Area 3 (MC) = 79 Acres

Total MC Acres = 221



Legend

- X Dropped Plot
- Grade Plot
- Count Plot
- Cruise_Grid_9_chain
- New Road Construction
- ... Timber Sale Boundary
- Non-merchantable Area
- Paved
- Surfaced
- Unsurfaced
- Type N Stream
- Type F Stream
- Buffer Zone
- Posted Stream Buffer

Distance Between Lines: 9 Chains
Distance Between Plots: 4 Chains
BAF: 40



Species, Sort Grade - Board Foot Volumes (Project)

T06N R07W S22 TyROW 6.00
T06N R07W S22 TyTAKE 211.00

Project: BULLNO

Acres 217.00

Page 1
Date 5/14/2015
Time 9:39:35AM

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	Bd Ft	CF/ Lf	
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99				
D		DOCU			100.0	1,184											7		0.00	10.9
D		DO2S		88	1.2	26,178	25,860	5,612		3	28	69	3	3	15	79	37	415	2.46	62.3
D		DO3S		10		2,818	2,818	611		91	5	4	10	16	31	43	31	93	0.88	30.4
D		DO4S		2		416	416	90		100			23	48	16	12	23	39	0.57	10.7
D Totals				55	4.9	30,596	29,093	6,313		13	26	61	4	5	16	75	31	254	1.87	114.3
H		DOCU			100.0	1,502											13		0.00	17.1
H		DO2S		69	1.9	15,573	15,282	3,316		3	39	58	2	2	23	73	36	384	2.34	39.8
H		DO3S		25	1.1	5,669	5,608	1,217		78	18	4	7	9	18	67	35	117	0.93	47.8
H		DO4S		6	.5	1,223	1,216	264		100			31	27	25	17	24	36	0.50	33.5
H Totals				42	7.8	23,967	22,106	4,797		27	31	41	5	5	22	68	30	160	1.29	138.1
S		DOCU			100.0	240											17		0.00	3.3
S		DO2S		92	6.3	1,159	1,086	236				100			26	74	36	944	5.26	1.2
S		DO3S		8		82	82	18		51	49				100		33	159	1.55	.5
S Totals				2	21.1	1,480	1,168	254		4	3	93			31	69	24	236	2.12	5.0
A		DOCU			100.0	41											4		0.00	1.4
A		DOCR		100	7.4	877	812	176		58	42		14	58	28		26	88	0.89	9.3
A Totals				2	11.6	918	812	176		58	42		14	58	28		23	76	0.87	10.6
Totals					6.6	56,961	53,179	11,540		20	28	53	4	6	19	71	30	198	1.54	268.0

T		Species, Sort Grade - Board Foot Volumes (Type)										Page 1							
TSPCSTGR		Project: BULLNO										Date 5/14/2015							
												Time 9:39:36AM							
T06N R07W S22 TTAKE										T06N R07W S22 TTAKE									
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt										
06N	07W	22	AREAS123	TAKE	211.00	60	149	1	W										
S So Gr T rt ad Spp			%	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
								Log Scale Dia.				Log Length				Ln	Bd	CF/	
			Net BdFt					4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft	Lf	
D	DO	CU		100.0	1,184											7		0.00	10.9
D	DO	2S	88	1.2	26,178	25,860	5,456	3	28	69		3	3	15	79	37	415	2.46	62.3
D	DO	3S	10		2,818	2,818	595	91	5	4		10	16	31	43	31	93	0.88	30.4
D	DO	4S	2		416	416	88	100				23	48	16	12	23	39	0.57	10.7
D Totals			55	4.9	30,596	29,093	6,139	13	26	61		4	5	16	75	31	254	1.87	114.3
H	DO	CU		100.0	1,502											13		0.00	17.1
H	DO	2S	69	1.9	15,573	15,282	3,225	3	39	58		2	2	23	73	36	384	2.34	39.8
H	DO	3S	25	1.1	5,669	5,608	1,183	78	18	4		7	9	18	67	35	117	0.93	47.8
H	DO	4S	6	.5	1,223	1,216	257	100				31	27	25	17	24	36	0.50	33.5
H Totals			42	7.8	23,967	22,106	4,664	27	31	41		5	5	22	68	30	160	1.29	138.1
S	DO	CU		100.0	240											17		0.00	3.3
S	DO	2S	92	6.3	1,159	1,086	229			100				26	74	36	944	5.26	1.2
S	DO	3S	8		82	82	17	51	49					100		33	159	1.55	.5
S Totals			2	21.1	1,480	1,168	246	4	3	93				31	69	24	236	2.12	5.0
A	DO	CU		100.0	41											4		0.00	1.4
A	DO	CR	100	7.4	877	812	171	58	42			14	58	28		26	88	0.89	9.3
A Totals			2	11.6	918	812	171	58	42			14	58	28		23	76	0.87	10.6
Type Totals				6.6	56,961	53,179	11,221	20	28	53		4	6	19	71	30	198	1.54	268.0

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page		1		
				Project: BULLNO												Date		5/14/2015		
																Time		9:39:36AM		
T06N R07W S22 TROW																T06N R07W S22 TROW				
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt		
06N		07W		22		AREAS123		ROW		6.00		60		149		1		W		
S So Gr T rt ad Spp			%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
								Log Scale Dia.				Log Length				Ln	Bd	CF/		
			Net	Def%	Gross	Net	Net MBF	4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft	Lf		
D DO CU				00.0	1,184												7	0.00		10.9
D DO 2S			88	1.2	26,178 25,860		155		3	28	69	3	3	15	79	37	415	2.46	62.3	
D DO 3S			10		2,818 2,818		17		91	5	4	10	16	31	43	31	93	0.88	30.4	
D DO 4S			2		416 416		2		100			23	48	16	12	23	.39	0.57	10.7	
D Totals			55	4.9	30,596 29,093		175		13	26	61	4	5	16	75	31	254	1.87	114.3	
H DO CU				00.0	1,502											13	0.00		17.1	
H DO 2S			69	1.9	15,573 15,282		92		3	39	58	2	2	23	73	36	384	2.34	39.8	
H DO 3S			25	1.1	5,669 5,608		34		78	18	4	7	9	18	67	35	117	0.93	47.8	
H DO 4S			6	.5	1,223 1,216		7		100			31	27	25	17	24	36	0.50	33.5	
H Totals			42	7.8	23,967 22,106		133		27	31	41	5	5	22	68	30	160	1.29	138.1	
S DO CU				00.0	240											17	0.00		3.3	
S DO 2S			92	6.3	1,159 1,086		7				100			26	74	36	944	5.26	1.2	
S DO 3S			8		82 82		0		51	49				100		33	159	1.55	.5	
S Totals			2	21.1	1,480 1,168		7		4	3	93			31	69	24	236	2.12	5.0	
A DO CU				00.0	41											4	0.00		1.4	
A DO CR			100	7.4	877 812		5		58	42		14	58	28		26	88	0.89	9.3	
A Totals			2	11.6	918 812		5		58	42		14	58	28		23	76	0.87	10.6	
Type Totals				6.6	56,961 53,179		319		20	28	53	4	6	19	71	30	198	1.54	268.0	

TC TSTATS				STATISTICS				PAGE	1
				PROJECT	BULLNO	DATE			
								5/14/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
06N	07W	22	AREAS123	TAKE	211.00	60	421	1	W
				TREES	ESTIMATED	PERCENT			
				PER PLOT	TOTAL	SAMPLE			
					TREES	TREES			
TOTAL	60	421	7.0						
CRUISE	22	149	6.8		21,877		.7		
DBH COUNT									
REFOREST									
COUNT	38	263	6.9						
BLANKS									
100 %									
STAND SUMMARY									
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC
DOUG FIR	75	36.1	26.5	101		138.7	30,596	29,094	6,807
WHEMLOCK	68	59.2	20.0	74		129.3	23,967	22,106	5,644
S SPRUCE	4	3.7	18.2	33		6.7	1,480	1,168	297
R ALDER	2	4.6	15.4	61		6.0	918	812	223
TOTAL	149	103.7	22.3	81		280.7	56,961	53,179	12,970
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	48.1	5.6	944	1,000	1,055				
WHEMLOCK	92.6	11.2	540	608	676				
S SPRUCE	70.0	40.0	873	1,455	2,037				
R ALDER	70.7	66.2	74	220	366				
TOTAL	70.1	5.7	775	823	870	196	49	22	
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	81.4	10.5	32	36	40				
WHEMLOCK	93.0	12.0	52	59	66				
S SPRUCE	393.3	50.7	2	4	6				
R ALDER	320.7	41.4	3	5	7				
TOTAL	50.5	6.5	97	104	110	102	25	11	
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	79.6	10.3	124	139	153				
WHEMLOCK	84.7	10.9	115	129	143				
S SPRUCE	352.2	45.4	4	7	10				
R ALDER	320.7	41.4	4	6	8				
TOTAL	40.9	5.3	266	281	295	67	17	7	
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	79.1	10.2	26,125	29,094	32,062				
WHEMLOCK	86.9	11.2	19,627	22,106	24,585				
S SPRUCE	354.6	45.7	634	1,168	1,702				
R ALDER	320.7	41.4	476	812	1,148				
TOTAL	43.8	5.7	50,172	53,179	56,187	77	19	9	

TC PSTATS		PROJECT STATISTICS							PAGE	1		
		PROJECT		BULLNO			DATE		5/14/2015			
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt		
06N	07	22	AREAS123	ROW		217.00	120	842	1	W		
06N	07W	22	AREAS123	TAKE								
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL			120	842	7.0							
CRUISE			44	298	6.8	22,500	1.3					
DBH COUNT												
REFOREST												
COUNT			76	526	6.9							
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			150	36.1	26.5	101		138.7	30,596	29,094	6,807	6,611
WHEMLOCK			136	59.2	20.0	74		129.3	23,967	22,106	5,644	5,320
S SPRUCE			8	3.7	18.2	33		6.7	1,480	1,168	297	247
R ALDER			4	4.6	15.4	61		6.0	918	812	223	214
TOTAL			298	103.7	22.3	81		280.7	56,961	53,179	12,970	12,392
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			48.0	3.9	961	1,000	1,039					
WHEMLOCK			92.2	7.9	560	608	656					
S SPRUCE			64.8	24.4	1,100	1,455	1,810					
R ALDER			57.7	33.0	147	220	293					
TOTAL			70.0	4.1	789	823	856	196	49	22		
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			146.4	13.3	31	36	41					
WHEMLOCK			158.8	14.5	51	59	68					
S SPRUCE			547.0	49.9	2	4	6					
R ALDER			449.4	41.0	3	5	7					
TOTAL			117.4	10.7	93	104	115	551	138	61		
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			144.5	13.2	120	139	157					
WHEMLOCK			149.9	13.7	112	129	147					
S SPRUCE			491.8	44.9	4	7	10					
R ALDER			449.4	41.0	4	6	8					
TOTAL			110.2	10.1	252	281	309	485	121	54		
CL	68.1	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15		
DOUG FIR			144.0	13.1	25,272	29,094	32,915					
WHEMLOCK			152.3	13.9	19,036	22,106	25,176					
S SPRUCE			494.9	45.1	641	1,168	1,695					
R ALDER			449.4	41.0	479	812	1,145					
TOTAL			112.3	10.2	47,733	53,179	58,626	503	126	56		

TC TSTATS				STATISTICS				PAGE 1			
				PROJECT	BULLNO	DATE 5/14/2015					
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
06N	07W	22	AREAS123	ROW	6.00	60	421	1	W		
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		60	421	7.0							
CRUISE		22	149	6.8	622	24.0					
DBH COUNT											
REFOREST											
COUNT		38	263	6.9							
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		75	36.1	26.5	101		138.7	30,596	29,094	6,807	6,611
WHEMLOCK		68	59.2	20.0	74		129.3	23,967	22,106	5,644	5,320
S SPRUCE		4	3.7	18.2	33		6.7	1,480	1,168	297	247
R ALDER		2	4.6	15.4	61		6.0	918	812	223	214
TOTAL		149	103.7	22.3	81		280.7	56,961	53,179	12,970	12,392
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		48.1	5.6	944	1,000	1,055					
WHEMLOCK		92.6	11.2	540	608	676					
S SPRUCE		70.0	40.0	873	1,455	2,037					
R ALDER		70.7	66.2	74	220	366					
TOTAL		70.1	5.7	775	823	870		196	49	22	
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		81.4	10.5	32	36	40					
WHEMLOCK		93.0	12.0	52	59	66					
S SPRUCE		393.3	50.7	2	4	6					
R ALDER		320.7	41.4	3	5	7					
TOTAL		50.5	6.5	97	104	110		102	25	11	
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		79.6	10.3	124	139	153					
WHEMLOCK		84.7	10.9	115	129	143					
S SPRUCE		352.2	45.4	4	7	10					
R ALDER		320.7	41.4	4	6	8					
TOTAL		40.9	5.3	266	281	295		67	17	7	
CL: 68.1 %	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15			
DOUG FIR		79.1	10.2	26,125	29,094	32,062					
WHEMLOCK		86.9	11.2	19,627	22,106	24,585					
S SPRUCE		354.6	45.7	634	1,168	1,702					
R ALDER		320.7	41.4	476	812	1,148					
TOTAL		43.8	5.7	50,172	53,179	56,187		77	19	9	

TC PLOGSTBF		Log Stock Table - Percent Board Feet																	
		Project:		BULLNO		Acres		217.00											
T06N R07W S22 TyROW		6.00																Page 1	
T06N R07W S22 TyTAKE		211.00																Date 5/14/2015	
																		Time 9:39:37AM	
Spp	S T	So rt	Grd	Log Len	Gross MBF	Def %	Net MBF	% Spc	Percent 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
D		DO	CU	2	6	100.0													
D		DO	CU	3	4	100.0													
D		DO	CU	4	5	100.0													
D		DO	CU	6	104	100.0													
D		DO	CU	8	42	100.0													
D		DO	CU	9	28	100.0													
D		DO	CU	10	9	100.0													
D		DO	CU	14	16	100.0													
D		DO	CU	21	43	100.0													
D		DO	2S	16	56	6.7	53	.8					16.2				83.8		
D		DO	2S	20	107	3.3	103	1.6							61.7			38.3	
D		DO	2S	22	10		10	.2			43.5		56.5						
D		DO	2S	26	77	3.0	75	1.2							35.7			64.3	
D		DO	2S	28	42	4.8	40	.6							100.0				
D		DO	2S	30	52		52	.8										100.0	
D		DO	2S	32	682		679	10.8				8.7	18.8	31.2	17.3		7.7	16.3	
D		DO	2S	34	158	1.4	156	2.5							61.9		38.1		
D		DO	2S	36	166	4.5	159	2.5									100.0		
D		DO	2S	40	4,328	1.0	4,284	67.9				.6	2.0	10.6	10.4	37.8	26.9	11.8	
D		DO	3S	10	22		22	.4										100.0	
D		DO	3S	16	34		34	.5					87.9	12.1					
D		DO	3S	18	3		3	.1				100.0							
D		DO	3S	20	4		4	.1			100.0								
D		DO	3S	21	10		10	.2				100.0							
D		DO	3S	22	12		12	.2				100.0							
D		DO	3S	23	11		11	.2				100.0							
D		DO	3S	24	5		5	.1				100.0							
D		DO	3S	25	6		6	.1				100.0							
D		DO	3S	27	24		24	.4				72.3	27.7						
D		DO	3S	28	8		8	.1				100.0							
D		DO	3S	29	16		16	.3				100.0							
D		DO	3S	30	6		6	.1				100.0							
D		DO	3S	31	21		21	.3				100.0							
D		DO	3S	32	138		138	2.2			24.6	40.1	35.3						
D		DO	3S	33	9		9	.1				100.0							
D		DO	3S	34	10		10	.2				100.0							
D		DO	3S	35	9		9	.1				100.0							

TC		PLOGSTBF		Log Stock Table - Percent Board Feet																	
				Project:		BULLNO		Acres		217.00											
T06N R07W S22 TyROW6.00 T06N R07W S22 TyTAKE211.00						CuFt: 1		BdFt: W		Page 2											
										Date 5/14/2015											
										Time 9:39:37AM											
Spp	S T	So rt	Grd	Log Len	Gross MBF	Def %	Net MBF	% Spc	Percent 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	3S	37	9		9	.1				100.0									
D		DO	3S	40	255		255	4.0				24.2	64.5	4.4	6.8						
D		DO	4S	16	9		9	.1					100.0								
D		DO	4S	19	4		4	.1			100.0										
D		DO	4S	20	8		8	.1			48.7	51.3									
D		DO	4S	22	28		28	.4			100.0										
D		DO	4S	23	5		5	.1				100.0									
D		DO	4S	27	11		11	.2			100.0										
D		DO	4S	31	7		7	.1					100.0								
D		DO	4S	32	7		7	.1			100.0										
D		DO	4S	39	11		11	.2					100.0								
D		Totals			6,639	4.9	6,313	54.7				1.5	4.3	7.1	9.7	10.7	31.1	23.2	11.7		.6
H		DO	CU	2	3	100.0															
H		DO	CU	4	4	100.0															
H		DO	CU	6	63	100.0															
H		DO	CU	8	56	100.0															
H		DO	CU	10	18	100.0															
H		DO	CU	14	27	100.0															
H		DO	CU	15	12	100.0															
H		DO	CU	18	27	100.0															
H		DO	CU	20	42	100.0															
H		DO	CU	28	55	100.0															
H		DO	CU	40	18	100.0															
H		DO	2S	18	29		29	.6									100.0				
H		DO	2S	19	6		6	.1							100.0						
H		DO	2S	20	29		29	.6							100.0						
H		DO	2S	24	21		21	.4						100.0							
H		DO	2S	25	7		7	.1			100.0										
H		DO	2S	30	44		44	.9						100.0							
H		DO	2S	32	784	3.4	757	15.8					5.1	2.9	30.2	41.1	14.6	6.2			
H		DO	2S	38	10		10	.2						100.0							
H		DO	2S	40	2,450	1.5	2,414	50.3					2.5	7.8	19.3	25.4	32.3	6.9	5.8		
H		DO	3S	15	4		4	.1					100.0								
H		DO	3S	16	20	7.1	19	.4							100.0						
H		DO	3S	20	61	2.1	60	1.3							67.8	32.2					
H		DO	3S	21	35	6.9	33	.7					18.1			81.9					

TC		PLOGSTBF		Log Stock Table - Percent Board Feet																			
Project:		BULLNO		Acres		217.00																	
T06N R07W S22 TyROW		6.00		CuFt: 1		BdFt: W		Page 3															
T06N R07W S22 TyTAKE		211.00						Date 5/14/2015															
								Time 9:39:37AM															
Spp	S T	So rt	Log Grd	Len	Gross MBF	Def %	Net MBF	% Sp	Percent 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	3S	22	5		5	.1				100.0											
H		DO	3S	23	6		6	.1				100.0											
H		DO	3S	24	6		6	.1					100.0										
H		DO	3S	26	40		40	.8			14.1		85.9										
H		DO	3S	27	7		7	.1				100.0											
H		DO	3S	30	9		9	.2			100.0												
H		DO	3S	31	7		7	.2				100.0											
H		DO	3S	32	182	1.2	180	3.8					55.6	44.4									
H		DO	3S	33	28		28	.6			100.0												
H		DO	3S	36	25		25	.5					100.0										
H		DO	3S	38	22		22	.5			100.0												
H		DO	3S	40	772		766	16.0			14.1	34.1	41.1	6.5	4.2								
H		DO	4S	13	3		3	.1				100.0											
H		DO	4S	15	18		18	.4				100.0											
H		DO	4S	16	5		5	.1				100.0											
H		DO	4S	17	7		7	.1				100.0											
H		DO	4S	18	7		7	.2				100.0											
H		DO	4S	20	41		41	.9				100.0											
H		DO	4S	21	5		5	.1					100.0										
H		DO	4S	22	42		42	.9			42.6	40.2	17.2										
H		DO	4S	23	10		10	.2			100.0												
H		DO	4S	26	7		7	.1			100.0												
H		DO	4S	28	8		8	.2			100.0												
H		DO	4S	32	67	2.1	66	1.4			58.9	41.1											
H		DO	4S	38	27		27	.6			100.0												
H		DO	4S	39	18		18	.4			100.0												
H		Totals			5,201	7.8	4,797	41.6			7.7	7.4	12.4	8.6	17.1	20.2	19.1	4.5	2.9				
S		DO	CU	17	20	100.0																	
S		DO	CU	23	24	100.0																	
S		DO	CU	24	8	100.0																	
S		DO	2S	32	60		60	23.9						48.4		51.6							
S		DO	2S	40	191	8.3	175	69.1								66.2		33.8					
S		DO	3S	33	9		9	3.6				100.0											
S		DO	3S	34	9		9	3.4					100.0										
S		Totals			321	21.1	253	2.2				3.6	3.4		11.5		12.3	45.8	23.3				
A		DO	CU	4	9	100.0																	

TC		PLOGSTBF																		Log Stock Table - Percent Board Feet																					
		Project:																		BULLNO		Acres		217.00																	
T06N R07W S22 TyROW6.00 T06N R07W S22 TyTAKE211.00		CuFt: 1																		BdFt: W																		Page		4	
																																						Date		5/14/2015	
																																						Time		9:39:37AM	
Spp	S T	So rt	Grd	Log Len	Gross MBF	Def %	Net MBF	% Spc	Percent Net Volume by Scaling Diameter in Inches												20-23	24-29	30-39	40+																	
									2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19																									
A		DO	CR	20	24		24	13.6					100.0																												
A		DO	CR	22	28		28	16.0			100.0																														
A		DO	CR	28	75		75	42.3						100.0																											
A		DO	CR	32	64	22.2	49	28.1				100.0																													
A		Totals			199	11.6	176	1.5			16.0	28.1	13.6		42.3																										
Total		All Species			12,361	6.6	11,540	100.0			4.3	5.9	9.4	9.0	13.6	25.7	20.9	9.3	2.1																						

TC		PSTNDSUM		Stand Table Summary								Page		1	
												Date:		5/14/2015	
T06N R07W S22 TyROW6.00 T06N R07W S22 TyTAKE211.00				Project		BULLNO		Time:		9:39:37AM					
				Acres		217.00		Grown Year:							
S Spc	T	Tot			Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
		DBH	Sample Trees	FF 16'				Av Ht	Net Cu.Ft.				Net Bd.Ft.	Tons	Cunits
D		16	4	86	93	2.648	3.70	5.30	24.5	92.5		130	490	282	106
D		17	2	88	141	1.173	1.85	3.52	28.7	116.7		101	411	219	89
D		18	2	82	87	1.046	1.85	2.09	29.0	95.0		61	199	132	43
D		19	6	86	137	2.817	5.55	8.45	34.7	132.2		293	1,117	636	242
D		20	2	89	126	.847	1.85	2.54	34.3	153.3		87	390	189	85
D		21	4	84	143	1.537	3.70	4.61	41.3	160.0		191	738	414	160
D		22	2	82	133	.700	1.85	2.10	41.7	156.7		88	329	190	71
D		23	2	86	115	.641	1.85	1.92	38.3	163.3		74	314	160	68
D		24	8	86	116	2.354	7.40	6.47	49.5	203.6		320	1,318	695	286
D		25	14	85	132	3.797	12.94	10.85	57.3	229.5		622	2,490	1,349	540
D		26	10	86	143	2.507	9.24	7.52	64.2	268.0		483	2,016	1,048	437
D		27	10	87	136	2.325	9.24	6.98	63.2	282.0		441	1,967	957	427
D		28	12	84	136	2.594	11.09	7.78	69.7	297.8		542	2,318	1,177	503
D		29	8	87	134	1.612	7.40	4.84	76.9	349.2		372	1,689	807	366
D		30	4	87	140	.753	3.70	2.26	85.7	386.7		194	874	420	190
D		31	6	86	138	1.058	5.55	3.17	82.9	391.1		263	1,242	571	269
D		32	12	85	132	1.986	11.09	6.29	83.3	393.7		524	2,476	1,137	537
D		33	14	86	133	2.179	12.94	6.54	98.0	454.8		641	2,973	1,390	645
D		34	6	86	126	.880	5.55	2.64	101.2	490.0		267	1,293	580	281
D		35	8	86	145	1.107	7.40	3.04	108.4	530.9		330	1,616	716	351
D		36	2	82	115	.262	1.85	.52	124.5	560.0		65	293	141	64
D		37	2	86	133	.248	1.85	.74	123.0	586.7		91	436	198	95
D		38	2	85	115	.235	1.85	.70	113.0	533.3		80	376	173	82
D		39	4	85	139	.446	3.70	1.34	132.8	660.0		178	883	385	192
D		41	2	85	125	.202	1.85	.60	143.7	696.7		87	421	189	91
D		42	2	85	125	.192	1.85	.58	153.3	740.0		88	427	192	93
D		Totals	150	86	129	36.147	138.67	103.41	63.9	281.3		6,611	29,093	14,345	6,313
H		10	2	89	28	3.487	1.90	3.49	8.0	20.0		28	70	61	15
H		12	2	89	147	2.422	1.90	7.26	15.3	66.7		111	484	242	105
H		13	2	89	119	2.063	1.90	4.13	22.5	90.0		93	371	201	81
H		14	6	83	71	5.338	5.71	8.90	18.0	72.0		160	641	347	139
H		15	8	85	74	6.199	7.61	9.30	21.3	70.0		198	651	430	141
H		16	8	88	88	5.449	7.61	8.17	31.0	106.7		253	872	550	189
H		17	8	86	93	4.827	7.61	9.65	29.5	103.8		285	1,002	618	217
H		18	4	91	95	2.153	3.80	5.38	29.6	116.0		159	624	346	135
H		19	8	86	118	3.864	7.61	8.69	40.0	158.9		348	1,381	755	300
H		20	6	87	105	2.615	5.71	5.23	46.0	170.0		241	889	522	193
H		21	4	87	107	1.581	3.80	3.95	36.0	142.0		142	561	309	122
H		22	10	89	110	3.602	9.51	8.65	52.3	216.7		452	1,873	982	407
H		23	6	85	100	1.978	5.71	4.61	48.4	195.7		223	903	485	196
H		24	8	86	103	2.422	7.61	5.45	55.1	228.9		300	1,247	652	271
H		25	8	87	111	2.232	7.61	5.58	62.8	268.0		350	1,495	760	324
H		26	6	87	98	1.548	5.71	3.10	59.0	245.0		183	758	396	165
H		27	6	88	122	1.435	5.71	4.31	70.3	328.9		303	1,416	657	307
H		28	10	86	110	2.224	9.51	5.34	83.7	360.8		447	1,926	969	418
H		29	4	87	129	.829	3.80	2.49	83.0	385.0		206	958	448	208
H		30	8	85	105	1.550	7.61	3.87	78.2	362.0		303	1,403	658	304
H		32	2	89	101	.341	1.90	.68	126.0	560.0		86	381	186	83
H		36	2	85	120	.269	1.90	.81	118.0	576.7		95	465	207	101
H		41	2	86	148	.207	1.90	.62	182.0	896.7		113	558	246	121
H		42	4	86	138	.395	3.80	.99	178.8	924.0		177	913	384	198
H		43	2	86	73	.189	1.90	.38	165.0	695.0		62	262	135	57

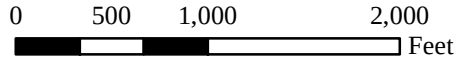
TC		PSTNDSUM		Stand Table Summary								Page		2		
												Date:		5/14/2015		
T06N R07W S22 TyROW6.00 T06N R07W S22 TyTAKE211.00				Project				BULLNO				Time:		9:39:37AM		
				Acres				217.00				Grown Year:				
S Spec	T	Sample		Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net		Net		Totals	
		DBH	Trees	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.	Tons/ Acre	Cu.Ft. Acre	Bd.Ft. Acre	Tons	Cunits	MBF
H		Totals	136	87	96	59.218	129.33	121.03	44.0	182.7	5,320	22,106	11,545	4,797		
S		10	2	88	20	3.056	1.67									
S		33	2	84	132	.281	1.67	.84	114.0	520.0	96	438	208	95		
S		36	2	84	134	.236	1.67	.71	135.3	646.7	96	457	208	99		
S		51	2	86	110	.117	1.67	.12	472.0	2320.0	55	273	120	59		
S		Totals	8	87	39	3.690	6.67	1.67	148.3	700.6	247	1,168	536	253		
A		13	2	87	95	3.255	3.00	6.51	17.5	55.0	114	358	247	78		
A		20	2	87	91	1.375	3.00	2.75	36.5	165.0	100	454	218	98		
A		Totals	4	87	94	4.630	6.00	9.26	23.1	87.7	214	812	465	176		
Totals		298	86	105		103.685	280.67	235.36	52.7	225.9	12,392	53,179	26,891	11,540		

LOGGING PLAN

OF TIMBER SALE CONTRACT NO. 341-16-19
BULL NOSE
PORTIONS OF SECTIONS 14, 15, 22, & 23,
T6N, R7W, W.M., CLATSOP COUNTY, OREGON

Approximate Net Acres	MC Acres
Area 1 (MC) -	55
Area 2 (MC) -	80
Area 3 (MC) -	76
Area 4 R/W (MC)	6
Total Sale Acreage =	217

Approximate Scale: 1" = 1,000'



Legend

- ODF Ownership
- Timber Sale Boundary
- Existing Surfaced Road
- Existing Unsurfaced Road
- New Road Construction - Surfaced
- New Road Construction - Unsurfaced
- Type N Stream
- Type F Stream
- south_clatsop
- north_clatsop
- Controlled Felling Area
- Right of Way Boundary
- Rehab Area
- Posted Stream/Pond Buffer
- Buffer Zone
- New Construction Landing
- Existing Landing
- Known Land Survey Marker
- Yarding Area - Cable
- Yarding Area - Ground

