



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
El Niño
Sale AT-341-2020-W00591-01

District: Astoria

Date: March 04, 2019

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$2,335,426.91	\$353,248.31	\$2,688,675.22
		Project Work:	(\$203,896.00)
		Advertised Value:	\$2,484,779.22



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Timber Description

Location: Portions of Sections 28, 33, and 34 of T6N, R7W, W.M., Clatsop County, Oregon.

Stand Stocking: 80%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	25	0	98
Western Hemlock / Fir	20	0	95
Sitka Spruce	15	0	95
Alder (Red)	17	0	98
Maple	17	0	93

Volume by Grade	2S	3S & 4S 6"-11"	8" - 9"	10" - 11"	12"+	6" - 7"	Camprun	Total
Douglas - Fir	3,494	478	0	0	0	0	0	3,972
Western Hemlock / Fir	1,759	570	0	0	0	0	0	2,329
Sitka Spruce	0	25	0	0	0	0	0	25
Alder (Red)	0	0	126	232	294	261	0	913
Maple	0	0	0	0	0	0	5	5
Total	5,253	1,073	126	232	294	261	5	7,244

Comments:

1. SOURCE OF POND VALUES

Pond Values Used: Local Pond Values, February 2019.

2. PRICING

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:
\$612.29/MBF = \$900/MBF - \$287.71/MBF

3. PULP PRICE

Pulp (Conifer and Hardwood) Price = \$3/ton

4. PROFIT & RISK COSTS

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

TOTAL Other Costs (with Profit & Risk to be added) = \$2,000

5. NON-PROFIT & RISK COSTS

Construct Waterbars on unsurfaced road 1A to 1B (8 x \$39.34/waterbar) = \$314.72

6. SLASH DISPOSAL

Slash and Landing Piling (See attached appraisal)= \$12,117

7. ROAD MAINTENANCE COST

\$2.92/mbf (See attached appraisal)



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Logging Costs

Operating Seasons: 2.00	Profit Risk: 12%
Project Costs: \$203,896.00	Other Costs (P/R): \$2,000.00
Slash Disposal: \$12,117.00	Other Costs: \$314.72

Miles of Road

Road Maintenance: \$2.92

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	3.0	4.0
Sitka Spruce	\$0.00	2.0	4.0
Alder (Red)	\$0.00	2.0	3.8
Maple	\$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									
\$127.98	\$2.98	\$1.21	\$121.12	\$0.28	\$30.43	\$1.67	\$2.00	\$0.04	\$287.71
Western Hemlock / Fir									
\$127.98	\$3.07	\$1.21	\$83.13	\$0.28	\$25.88	\$1.67	\$2.00	\$0.04	\$245.26
Sitka Spruce									
\$127.98	\$3.07	\$1.21	\$124.69	\$0.28	\$30.87	\$1.67	\$2.00	\$0.04	\$291.81
Alder (Red)									
\$127.98	\$2.98	\$1.21	\$127.50	\$0.28	\$31.19	\$1.67	\$2.00	\$0.04	\$294.85
Maple									
\$127.98	\$3.12	\$1.21	\$145.21	\$0.28	\$33.34	\$1.67	\$2.00	\$0.04	\$314.85

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$687.92	\$400.21	\$0.00
Western Hemlock / Fir	\$0.00	\$563.02	\$317.76	\$0.00
Sitka Spruce	\$0.00	\$521.00	\$229.19	\$0.00
Alder (Red)	\$0.00	\$680.97	\$386.12	\$0.00
Maple	\$0.00	\$459.00	\$144.15	\$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
Sitka Spruce	0	\$0.00	\$0.00
Alder (Red)	0	\$0.00	\$0.00
Maple	0	\$0.00	\$0.00

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	3,972	\$400.21	\$1,589,634.12
Western Hemlock / Fir	2,329	\$317.76	\$740,063.04
Sitka Spruce	25	\$229.19	\$5,729.75
Alder (Red)	913	\$386.12	\$352,527.56
Maple	5	\$144.15	\$720.75

Gross Timber Sale Value

Recovery: \$2,688,675.22

Prepared By: Justin Bush

Phone: 503-325-5451

Site Prep Appraisal

Sale Number: 341-2019-W00591-01
Sale Name: El Nino
Date: 03/07/2019

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	F	21	11	\$145.00	\$1,522.50	
2	MC	F	7	4	\$145.00	\$507.50	
						In-unit Piling	Sub Total = \$2,030.00
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	3	42	\$2,436.00	13.5	\$5.00	\$67.50	
2	2	98	\$5,684.00	5.5	\$5.00	\$27.50	
*Cost includes separating firewood						Materials	Sub Total = \$95.00
Additonal Move-in allowance						Landing Piling	Sub Total = \$8,120.00
Move-In Allowance	Number of Move-In's	Total Move-In Allowance					
\$0.00	0	\$0.00					
						Move-In	Sub Total = \$0.00
Slash Endhaul Dump Truck hrs	Cost/Hour	Total	Loader hrs	Cost/Hour	Total		
8	\$89.00	\$712.00	8	\$145.00	\$1,160.00		
						Sub Total = \$1,872.00	
						Grand Total = \$12,117.00	

Road Maintenance Cost Summary

Sale: El Niño
 Date: 20-Mar-19
 By: J. Bush

MBF: 7,244
 \$\$/MBF: \$2.92

Type	Equipment/Rationale	Move In	Times	Hours	Rate	Cost
Progressive Operations 1st Entry	Grader 14G	\$875	1	8	\$113	\$1,779
	Dump Truck 12CY	\$184	1	8	\$89	\$896
	FE Loader C966	\$875	1	8	\$94	\$1,627
	Vibratory Roller	\$875	1	4	\$87	\$1,223
Progressive Operations 2nd Entry	Grader 14G	\$875	1	8	\$113	\$1,779
	Dump Truck 12CY	\$184	1	8	\$89	\$896
	FE Loader C966	\$875	1	8	\$94	\$1,627
	Vibratory Roller	\$875	1	4	\$87	\$1,223
Final Haul Maintenance Haul Route	Grader 14G	\$875	1	16	\$113	\$2,683
	Dump Truck 12CY	\$184	2	8	\$89	\$1,792
	Vibratory Roller	\$875	1	8	\$87	\$1,571
	FE Loader C966	\$875	1	8	\$94	\$1,627
	Rubber Tire Backhoe	\$361	1	8	\$87	\$1,057
	Laborer	\$0	1	8	\$45	\$360
	Water Truck 2,500 gallon	\$214	1	8	\$101	\$1,022
Total						\$21,162

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	1.5	1.0
Vibratory Roller	1.5	1.5	1.0

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	1.5	1.0
Vibratory Roller	1.5	1.5	1.0

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	2.7	1.8
Vibratory Roller	1.5	2.7	1.8

SUMMARY OF ALL PROJECT COSTS

SALE NAME: El Niño

Project No. 1: ROAD CONSTRUCTION:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Rocked	1A-1B (0+00 -1+00)	19.40	\$30,491.30
	1C-1D, 1E-1F, 1G		
Dirt	1A-1B (1+00-13+30)	12.30	\$9,228.88
	Road Maint.		\$2,833.91
	Move-In		\$4,597.85
TOTALS		31.70	\$47,152

Project No. 2: ROAD IMPROVEMENT:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
	11 to 12, 13 to 14	120.9	\$36,975.56
	Road Maint.		\$2,638.09
	Move-In		\$4,280.15
TOTALS			\$43,894

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

<u>Description</u>	<u>Cost</u>
Proj. 3 Rock Crushing	\$106,850.00
Proj. 4 Stream Enhancement	\$6,000.00
TOTAL	\$112,850

GRAND TOTAL **\$203,896**

Compiled By: Justin Bush, Kraig Kirkpatrick *FL* Date: 04/11/2019

Move In and Maintenance Calculator for Construction and Improvement

SALE NAME: El Nifio

Project No. 1: ROAD CONSTRUCTION:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Rocked	1A-1B (0+00 -1+00)	19.40	\$39,720
	1C-1D, 1E-1F, 1G		
	2A-2B, 2C-2D		
Dirt	1A-1B (1+00-13+30)	12.30	
	TOTALS	31.70	\$39,720

Project No. 2: ROAD IMPROVEMENT:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
	l1 to l2, l3 to l4	120.90	\$36,976
	TOTALS	120.90	\$36,976

MOVE IN (Construction & Improvement Only)

	<u>Equipment</u>	<u>Cost</u>
	Dozer (D8)	\$1,581.00
	Excavator (C330)	\$1,581.00
	Excavator (C315)	\$905.00
	Skidder (C518)	\$806.00
	Front End Loader (C966)	\$875.00
	Dump Trucks (12cy x4)	\$736.00
	Dump Trucks (20cy x2)	\$430.00
	Grader (14G)	\$875.00
	Water Truck (2,500 gal)	\$214.00
	Vibratory Roller	\$875.00
	TOTAL	\$8,878.00

ROAD MAINTENANCE (Construction & Improvement Only)

	Project road maintenance	\$5,472.00
	TOTAL	\$5,472.00

SURFACING

Subgrade prep:

Description

Grade, Shape and Ditch 16' Crowned (1A to 1B (0+00 to 1+00), 1C to 1D, 1E to 1F, 2A to 2B, 2C to 2D)
 Grade and Shape 14' Outslope (1A to 1B (1+00 to 13+30))
 Subgrade Compaction (1C to 1D, 1E to 1F, 2A to 2B, 2C to 2D)
 Subgrade Compaction (1A to 1B)

Stations/ amount	Rate/ sta/amt	Cost
18.60	x \$27.91	\$519.13
12.30	x \$20.63	\$253.75
17.60	x \$22.69	\$399.34
13.30	x \$22.69	\$301.78

ROAD SEGMENT 1A to 1B		POINT TO POINT 1A to 1B		Sta. to Sta. 0+00 to 13+30		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume per	Number of			
Base Rock	4" - 0" Crushed	0+00 to 1+00	10	Station	1.00	63	\$5.03	\$317
Junction Rock	1 1/2" - 0" Crushed	0+00	N/A	Junction	1	22	\$5.03	\$111
Total Rock for Road Segment: 1A to 1B						85		\$428

ROAD SEGMENT 1C to 1D		POINT TO POINT 1C to 1D		Sta. to Sta. 0+00 to 1+00		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume per	Number of			
Base Rock	6" - 0" Pit Run	0+00 to 1+00	12	Station	1.00	75	\$5.80	\$435
	6" - 0" Pit Run	1+00	N/A	Landing	1	44	\$5.80	\$255
Total Rock for Road Segment: 1C to 1D						119		\$690

ROAD SEGMENT 1E to 1F		POINT TO POINT 1E to 1F		Sta. to Sta. 0+00 to 1+00		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume per	Number of			
Base Rock	6" - 0" Pit Run	0+00 to 1+00	12	Station	1.00	75	\$5.80	\$435
Junction Rock	1 1/2" - 0" Crushed	0+00	N/A	Junction	1	33	\$5.03	\$166
Landings	6" - 0" Pit Run	1+00	N/A	Landing	1	77	\$5.80	\$447
Total Rock for Road Segment: 1E to 1F						185		\$1,048

ROAD SEGMENT 1G		POINT TO POINT 1G		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume per	Number of			
Junction Rock	1 1/2" - 0" Crushed	0+00	N/A	Junction	1	22	\$5.03	\$111
Landings	6" - 0" Pit Run	0+80	N/A	Landing	1	88	\$5.80	\$510
Total Rock for Road Segment: 1G						110		\$621

ROAD SEGMENT		2A to 2B		POINT TO POINT		Sta. to Sta.		TOTAL		Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	0+00 to 13+60	Rate/ Sta./ amt.	VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	4" - 0" Crushed	0+00 to 8+00	10	Station	8.00	504	\$5.03	504	\$5.03	\$2,535	
Junction Rock	4" - 0" Crushed	0+00	N/A	Junction	1	22	\$5.03	22	\$5.03	\$111	
Culvert Bedding/Backfill	3/4" - 0" Crushed	2+60	N/A	Culvert	1	33	\$5.03	33	\$5.03	\$166	
Turnout Right	4" - 0" Crushed	3+50	10	TO	1	22	\$5.03	22	\$5.03	\$111	
Traction Rock	3/4" - 0" Crushed	1+00 to 7+00	2	Station	13	78	\$5.03	78	\$5.03	\$392	
Base Rock	6" - 0" Pit Run	8+00 to 13+60	12	Station	86	482	\$5.80	482	\$5.80	\$2,793	
Turnaround Right	6" - 0" Pit Run	10+50	12	TA	1	22	\$5.80	22	\$5.80	\$128	
Landings	6" - 0" Pit Run	13+60	N/A	Landing	110	110	\$5.80	110	\$5.80	\$638	
Total Rock for Road Segment:								1,273		\$6,874	
ROAD SEGMENT		2C to 2D		POINT TO POINT		Sta. to Sta.		TOTAL		Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	0+00 to 2+00	Rate/ Sta./ amt.	VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	6" - 0" Pit Run	0+00 to 2+00	12	Station	75	150	\$5.80	150	\$5.80	\$870	
Junction Rock	4" - 0" Crushed	0+00	N/A	Junction	22	22	\$5.03	22	\$5.03	\$111	
Landings	6" - 0" Pit Run	2+00	N/A	Landing	77	77	\$5.80	77	\$5.80	\$447	
Total Rock for Road Segment:								249		\$1,427	

Processing:

Water, Process & Compact (2 lifts, 4"-0" CR) (1A to 1B (0+00 to 1+00), 2A to 2B (0+00 to 8+00));
 Water, Process & Compact (Traction Rock) (2A to 2B);
 Process & Compact 6" - 0" Pit Run w/D8 (1C to 1D, 1E to 1F, 1G, 2A to 2B, 2C to 2D);

SUB TOTAL FOR SURFACING

Description	No.sta	Rate/sta	Cost
Water, Process & Compact (2 lifts, 4"-0" CR) (1A to 1B (0+00 to 1+00), 2A to 2B (0+00 to 8+00));	9.00	\$126.96	\$1,142.64
Water, Process & Compact (Traction Rock) (2A to 2B);	6.00	\$63.48	\$380.88
Process & Compact 6" - 0" Pit Run w/D8 (1C to 1D, 1E to 1F, 1G, 2A to 2B, 2C to 2D);	10.40	\$35.45	\$368.68
Total	2,021	2,021	\$14,454

SPECIAL PROJECTS

Description	Cost
Develop pit-run (Cost included in the Crushing Cost)	

SUB TOTAL FOR SPECIAL PROJECTS

\$0
 Subtotal of Surfacing & Spec. Proj. \$14,454
 Subtotal of Clearing, Exc., Culv. \$25,267

GRAND TOTAL

\$39,720

Compiled By: Justin Bush

Date: 04/11/2019

SURFACING		Description		Stations/ amount	Rate/ sta./amt	Cost
Subgrade prep:	Grade, Shape and Ditch 16'				X	\$27.91
All 1" segments	Subgrade Compaction			120.90	X	\$3,374.32
I3 to I4	Sod removal w/14G grader (\$/hr)			120.90	X	\$2,743.22
I3 to I4	Scatter sod w/315 (\$/hr)			2.00	X	\$123.00
				2.00	X	\$114.00
						\$228.00

ROAD SEGMENT	Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta. 0+00 to 105+60	Rate/ Sta./ amt	Cost
					11 to 12	Volume (CY) per			
	Surface Leveling Rock	3/4"-0" crushed	0+00 - 105+60	N/A	11	load	10	\$5.03	\$553
	Culvert Bedding/Backfill	3/4"-0" crushed	38+35	N/A	11	load	4	\$5.03	\$221
	Surfacing	3/4"-0" crushed	0+00 - 58+20	4	25	station	58.2	\$5.03	\$7,319
	Surfacing	1 1/2"-0" crushed	58+20 - 105+60	4	25	station	47.4	\$5.03	\$5,961
	Turnouts	3/4"-0" crushed	2+25.5+15.7+40, 9+65, 19+20, 24+6 0, 34+00, 46+70, 5 65, 72+30, 78+20, 87+70, 94+90, 99+ 75, 102+60	4	22	turnout	10	\$5.03	\$1,107
	Turnouts	1 1/2"-0" crushed	0+00, 0+70, 25+15	4	22	turnout	9	\$5.03	\$996
	Junctions	3/4"-0" crushed	38+20, 41+00, 57 +20, 58+20	4	22	junction	7	\$5.03	\$775
	Junctions	1 1/2"-0" crushed	75+70, 87+70, 105 +20	4	22	junction	3	\$5.03	\$332
	Curve Widening Surface	3/4"-0" crushed		4	11	load	4	\$5.03	\$221
	Curve Widening Surface	1 1/2"-0" crushed		4	11	load	4	\$5.03	\$221
	Total Rock for Road Segment: \$17,706								
ROAD SEGMENT	Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta. 0+00 to 15+30	Rate/ Sta./ amt	Cost
					I3 to I4	Volume (CY) per			
	Subgrade Leveling Rock	4"-0" crushed		N/A	11	load	4	\$5.03	\$221
	Culvert Bedding/Backfill	3/4"-0" crushed	7+75	N/A	11	load	3	\$5.03	\$166
	Surfacing	4"-0" crushed	0+00 - 15+30	4	25	station	15.3	\$5.03	\$1,924
	Turnouts	4"-0" crushed	7+00	4	22	turnout	1	\$5.03	\$211
	Turnaround	4"-0" crushed	7+00, 15+00	4	22	turnaround	2	\$5.03	\$221
	Junctions	4"-0" crushed	0+00	4	22	junction	1	\$5.03	\$111
	Junctions	1 1/2"-0" crushed	0+00	4	22	junction	1	\$5.03	\$111
	Rock Ditch Fillers	6"-4" pit run	9+30, 14+05	N/A	11	3 filter series	2	\$5.80	\$128
	Total Rock for Road Segment: \$2,992								

Processing:	Description	No. sta	Rate/sta	Cost
	Water, Process & Compact	120.90	\$63.48	\$7,675
	6"-4" pr	22		
	4"-0" crushed	515		
	1-1/2"-0" crushed	1,515		
	3/4"-0" crushed	2,060		
	Total		4,112	\$34,964

SUB TOTAL FOR SURFACING

Description	Cy/Amount	Rate	Cost
<i>(Cost Included in the Crushing Cost)</i>			\$0.00
pit-run development			\$0.00
riprap development	2	\$203.00	\$406.00
SUB TOTAL FOR SPECIAL PROJECTS			\$406

Subtotal of Surfacing & Spec. Proj. \$35,370
 Subtotal of Clearing, Exc., Culv. \$1,606
GRAND TOTAL \$36,976

Compiled By: Kraig Kirkpatrick Date: 02/06/2019

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 3 Timber Sale Name: El Nino
 Quarry: Tidewater Loop No. 2 Swell: _____
 Location: NE1/4,NE1/4, Section 21 T6N, R7W W.M. Shrink: 16%
 County: Clatsop
 By: Kraig Kirkpatrick Loading Hopper: Yes
 Date: 01/07/2019

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"	5%	CR	3,000	2,171	5,651
1-1/2"-0"	5%	CR		1,592	1,592
4"-0"	5%	CR		1,148	1,148
6"-0"		PR		1,222	1,222
24"-6"		RR			
36"		RR			
TOTAL CUBIC YARDS OF ROCK:			3,000	6,133	9,613

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
				Off Highway Dump Truck	1	\$622	\$622
Screening Plants	1	\$622	\$622				
				Loading Hopper	1	\$622	\$622
D6 Cat	1	\$875	\$875	Loader	1	\$905	\$905
Drill & Compressor	1	\$1,581	\$1,581				
Powder	1	\$395	\$395	3 Stage Crusher	1	\$3,250	\$3,250
Excavator	1	\$1,581	\$1,581				

SUB TOTAL FOR MOBILIZATION \$10,453

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	\$3,866	\$3,866
Screening Plants	3	\$330	\$990
Loading Hopper	3	\$330	\$990
Original Calibration	3	\$612	\$1,836

SUB TOTAL FOR SET UP COSTS \$7,682

TOTAL MOBILIZATION & SET UP COSTS \$18,135

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clear, Load, Haul to Waste Area				
Slash and Stumps (1 truck, 1 exc.)	10.0	hr	\$319	\$3,190
Pile & Burn Slash and Stumps(1 exc)	10.0	hr	\$175	\$1,750
Move-in Fire Truck for the burning of	1.0	ea	\$190	\$190

TOTAL CLEARING & GRUBBING COSTS \$5,130

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden Removal (excavate, load haul, spread)	1,000	bcy	\$2.60	\$2,600

TOTAL EXCAVATION COSTS \$2,600

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping	50%	4,807	\$2.20	\$10,574
crushed	8,391	87%	Drill & shoot	50%	5,016	\$2.30	\$11,537
pit run	1,222	13%	Oversize red	10%	961	\$5.80	\$5,576
rip rap	0	0	Other				
Total	9,613						
reject	420	4.4%					

TOTAL ROCK DEVELOPMENT COSTS \$27,687

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	3	\$507.00	\$1,521
Calibrate			
Test		\$57.30	
Test			

TOTAL CALIBRATION & TESTING COSTS \$1,521

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	8,811	\$0.94	\$8,279

TOTAL FEEDING & LOADING COSTS \$8,279

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed	5,651	3 stage w/s	110	\$3.54	\$19,984
1-1/2"-0"	crushed	1,592	3 stage w/s	120	\$3.24	\$5,161
4"-0"	crushed	1,148	2 stage w/s	140	\$2.48	\$2,845

TOTAL ROCK CRUSHING COSTS \$27,990

**EI Nino
Project No 4. Stream Enhancement**

Location	Site	Number of logs per site	Placement method	\$/log*	Cost per Site
SE1-SE2	1	16	Cable	\$125.00	\$2,000.00
SE1-SE2	2	16	Cable	\$125.00	\$2,000.00
SE1-SE2	3	16	Cable	\$125.00	\$2,000.00

*\$/log includes transportation cost of log up to 0.5 miles.

Project Total **\$6,000**

Projects Road Maintenance Cost Summary

Sale: El Niño
Date: 19-Mar-19
By: J. Bush *FL*

Type	Equipment/Rationale	Hours	Rate	Cost
Project Work	Grader 14G	16	\$113	\$1,808
Final Haul	Dump Truck 12CY	8	\$89	\$712
Road	FE Loader C966	8	\$94	\$752
Maintenance	Vibratory Roller	16	\$87	\$1,392
	Water Truck 2,500 gallon	8	\$101	\$808
Total				\$5,472

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	2.94	2.0
Vibratory Roller	1.5	2.94	2.0

NOTE:

	Ebsen Road	1.37	Miles
	Tidewater Loop Road	1.57	Miles
			Miles
			Miles
	TOTAL=	2.94	Miles

**El Niño
TIMBER CRUISE REPORT
FY 2019**

1. Sale Area Location: Areas 1, 2, and 3 are located in portions of Sections 28, 33, and 34 of 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	Stream Buffer	Existing Surface Roads	Net Acres	Survey Method
1	Modified Clearcut	71	9	2	60	GIS
2	Modified Clearcut	128	25	<1	103	GIS
3	R/W	5	0	0	5	GIS
TOTALS		204	34	2	168	

4. Cruisers and Cruise Dates:

Areas were cruised by Avery Petersen, Kevin Berry, Matt Dimick, Justin Bush, and Bryce Rodgers during February of 2019.

5. Cruise Method and Computation:

Area 1: This was a variable plot cruise using a 40 BAF (for conifer species) and a 33.61 BAF (for hardwood species) on a Spiegel Relaskop. A total of 56 plots were sampled on a 2.5 by 4 chain spacing. Lines were cruised on an azimuth of 315°/135°. The count to grade ratio was 2:1, with 37 count plots and 19 grade plots*. This area includes a minor component of over-sized remnant trees which have been designated as "Leave" and are not included in the statistics and volumes reported below.

Area 2: This was a variable plot cruise using a 40 BAF (for conifer species) and a 33.61 BAF (for hardwood species) on a Spiegel Relaskop. A total of 80 plots were sampled on a 2.5 by 5 chain spacing. Lines were cruised on an azimuth of 315°/135°. The count to grade ratio was 2:1, with 53 count plots and 27 grade plots*.

Area 3: (R/W) consists of one new spur road and four landings within Area 1 (total area is approximately three acres) and one new spur road and two landings within Area 2 (total area is approximately two acres). Area 3 was cruised as part of the Area 1 and 2 cruises. Cruise data for Area 3 was obtained from the Area 2 cruise and acreages have been adjusted accordingly.

(*The reported numbers of cruise and grade plots vary from the those indicated in the SuperACE report due to cruising additional minor species on count plots.)

Data was collected on Allegro 2 data collectors and downloaded to the Atterbury SuperACE 2008 program 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
1	ELNINO	A1_TAKE	00MC	60
2	ELNINO	A2	00MC	103
R/W	ELNINO	RW	00MC	5

6. Timber Description:

Area 1 is a modified clearcut in an 80 year-old non-thinned stand. The structure consists of Douglas-fir, western hemlock, red alder, and minor components of both maple and spruce. Average Douglas-fir is 22 inches DBH and 93 feet to a merchantable top. Average western hemlock is 22 inches DBH and 83 feet to a

merchantable top. Average red alder is 16 inches DBH and 50 feet to a merchantable top. Average net volume to be harvested per acre is 42 MBF. All trees were cruised to a merchantable top of six inches DIB, 40% of form point, or an otherwise anticipated break height.

Area 2 is a modified clearcut in a 76 year-old stand, of which approximately five acres had been previously thinned. The structure consists of Douglas-fir, western hemlock, red alder, and a minor component of spruce. Average Douglas-fir is 28 inches DBH and 93 feet to a merchantable top. Average western hemlock is 19 inches DBH and 67 feet to a merchantable top. Average red alder is 17 inches DBH and 50 feet to a merchantable top. Average net volume to be harvested per acre is 43 MBF. All trees were cruised to a merchantable top of six inches DIB, 40% of form point, or an otherwise anticipated break height.

Area 3 R/W in sale R/W is similar to the timber description above in Areas 1 and 2. Average net volume to be harvested per acre is 43 MBF.

7. Statistical Analysis and Stand Summary

Statistics for Stand B.F. volumes

Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1	55.0%	9.0%	49.7%	6.6%
2	65.0%	9.0%	50.3%	5.6%

8. Volumes by Species and Log Grade:

Volumes by Species and Grade for All Sale Areas: (MBF) Volumes do not include "in-growth."

Conifer

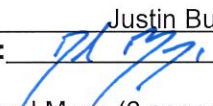
Species	DBH	Net Vol.	2 Saw	3 Saw	4 Saw	% D & B	% Sale
Douglas-fir	25"	3,972	3,494	421	57	4.0%	55%
Western hemlock	20"	2,329	1,759	503	67	7.5%	32%
Sitka spruce	15"	25	0	21	4	27.1%	<1%
TOTALS		6,326	5,253	945	128		

Hardwood

Species	DBH	Net Vol.	12"+	10"-11"	8"-9"	6"-7"	% D & B	% Sale
Red alder	17"	913	294	232	126	261	3.4%	13%
Bigleaf maple	17"	5	1	0	0	4	25.1%	<1%
TOTALS		918	295	232	126	265		

TOTAL VOLUME	7,244 MBF
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9. Approvals:

Prepared by: Justin Bush Date: 3-20-2019
 Unit Forester Approval:  Date: 4/19/19

10. Attachments: Cruise Designs and Maps (6 pages), Volume Reports (4 pages), Statistics Reports (6 pages), Stand Table Summary (2 pages), Log Stock Table (4 pages)

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: El Niño Area(s) 1

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 63 Estimated CV% 55 SE% Objective 9

Planned Sale Volume: 2.84 MMBF Estimated Sale Area Value/Acre: \$17,100

A. Cruise Goals: (a) Grade minimum 100 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 (Con)
BAF 33.61 Full point (HW)
Cruise Line Direction(s) NW-SE
Cruise Line Spacing 4 chains
Cruise Plot Spacing 2.5 chains
Grade/Count Ratio 1:2

Grade all hardwood in 8' and 10' multiples. Record all cedar as leave. Record all snags as SN and record diameter & total height. If plot lands in buffer then offset at least 1/2 chain outside the buffer.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods. Record dbh to nearest 1" for trees 8"-24", and to nearest 2" for trees > 24".
- 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'. Use 7" (G) TDF for trees less than 18" DBH. Use 40% of DOB @ 16' FP for trees 18" or greater DBH.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; Hardwood form factors are a Standard 87.
- 5. Tree Segments:** Record conifer log segments in "standard" 32" and 40' log lengths whenever possible. Record hardwoods in 8' and 10' multiples. Do not record odd segments to maximize grade. The maximum segment length is 40'. The minimum log segment length for conifer is 12' and 8' for hardwoods. The minimum diameter for conifer is 8" DBH and 10" DBH for hardwood. One foot of trim is assumed for each merchantable segment.

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);
- 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; 0 = Cull
- D. Hardwoods: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" = 4 Sawmill; 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 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 intervisible points. On "measure/grade" plots paint the tree diameter on each tree starting with the first tree right of the cruise line direction and continuing clockwise.

9. Cruising Equipment: Relaskop, Rangefinder, Biltmore Stick, Compass, Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging.

10. Attachments: Cruise maps for Area 1 (showing cruise unit boundaries, cruise lines and plot locations, BAF or plot size, measure/count plot ratio, north arrow, and map scale).

Cruise Design by: Justin Bush

Approved by: _____

Date: _____

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: El Niño **Area(s)** 2

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 105 **Estimated CV%** 65 **SE% Objective** 9

Planned Sale Volume: 2.84 MMBF **Estimated Sale Area Value/Acre:** \$10,260

A. Cruise Goals: (a) Grade minimum 100 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 (Conifer)
BAF 33.61 Full point (Alder)
Cruise Line Direction(s) NW-SE
Cruise Line Spacing 5 chains
Cruise Plot Spacing 2.5 chains
Grade/Count Ratio 1:2

Grade all hardwood in 8' and 10' multiples. Record all cedar as leave. Record all snags as SN and record diameter & total height. If plot lands in buffer then offset at least 1/2 chain outside the buffer.

C. Tree Measurements:

1. Diameter: Minimum DBH to cruise is 8" for conifers and 10" for hardwoods.
Record dbh to nearest 1" for trees 8"-24", and to nearest 2" for trees > 24".

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'. Use 7" (G) TDF for trees less than 18" DBH. Use 40% of DOB @ 16' FP for trees 18" or greater DBH.

4. Form Factors: (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; Hardwood form factors are a Standard 87.

5. Tree Segments: Record conifer log segments in "standard" 32" and 40' log lengths whenever possible. Record hardwoods in 8' and 10' multiples. Do not record odd segments to maximize grade. The maximum segment length is 40'. The minimum log segment length for conifer is 12' and 8' for hardwoods. The minimum diameter for conifer is 8" DBH and 10" DBH for hardwood. One foot of trim is assumed for each merchantable segment.

6. Species, Sort, and Grade Codes:

- A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); CL (Western red cedar-Leave); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple);
- 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; 0 = Cull
- D. Hardwoods: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" = 4 Sawmill; 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 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 intervisible points. On "measure/grade" plots paint the tree diameter on each tree starting with the first tree right of the cruise line direction and continuing clockwise.

9. Cruising Equipment: Relaskop, Rangefinder, Biltmore Stick, Compass, Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.

10. Attachments: Cruise maps for Area 2 (showing cruise unit boundaries, cruise lines and plot locations, BAF, measure/count plot ratio, north arrow, and map scale).

Cruise Design by: Justin Bush
Approved by: _____
Date: _____

El Niño

T6N, R7W, S33

Area 1 (MC) = 63 ac

Plots Total = 56

Ratio = 2:1

Grade = 19

Count = 37

AZ = 315/135

BAF = 40 (Con)

BAF = 33.61 (HW)

Plot Spacing = 2.5 ch (165 ft)

Line Spacing = 4 ch (264 ft)

Legend

○ Count

● Grade

— Cruise Lines

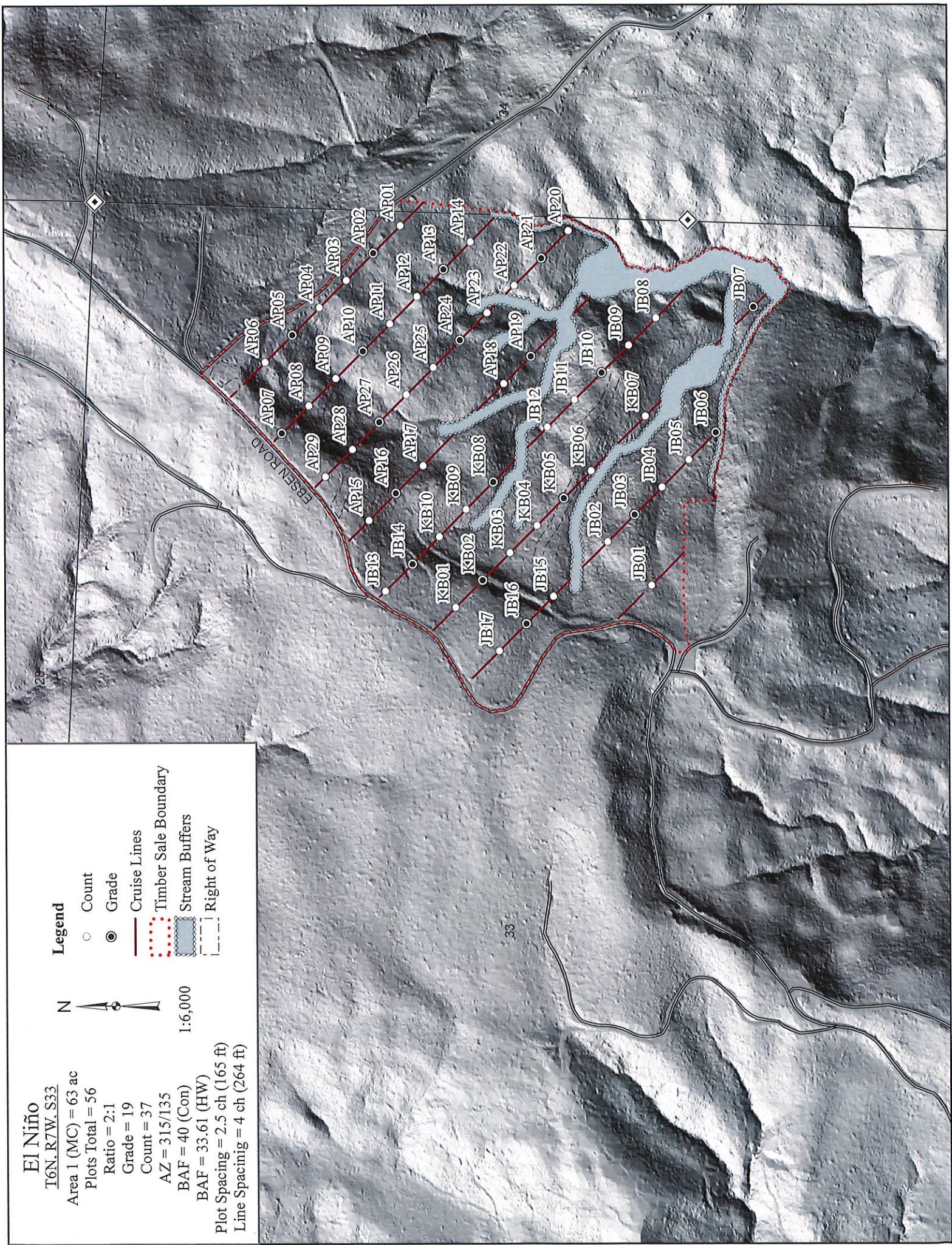
⋯ Timber Sale Boundary

▨ Stream Buffers

- - - Right of Way



1:6,000



El Niño

T6N_R7W_S28

Area 2 (MC) = 105 ac

Plots Total = 80

Ratio = 2:1

Grade = 27

Count = 53

AZ = 315/135

BAF = 40 (Con)

BAF = 33.61 (HW)

Plot Spacing = 2.5 ch (165 ft)

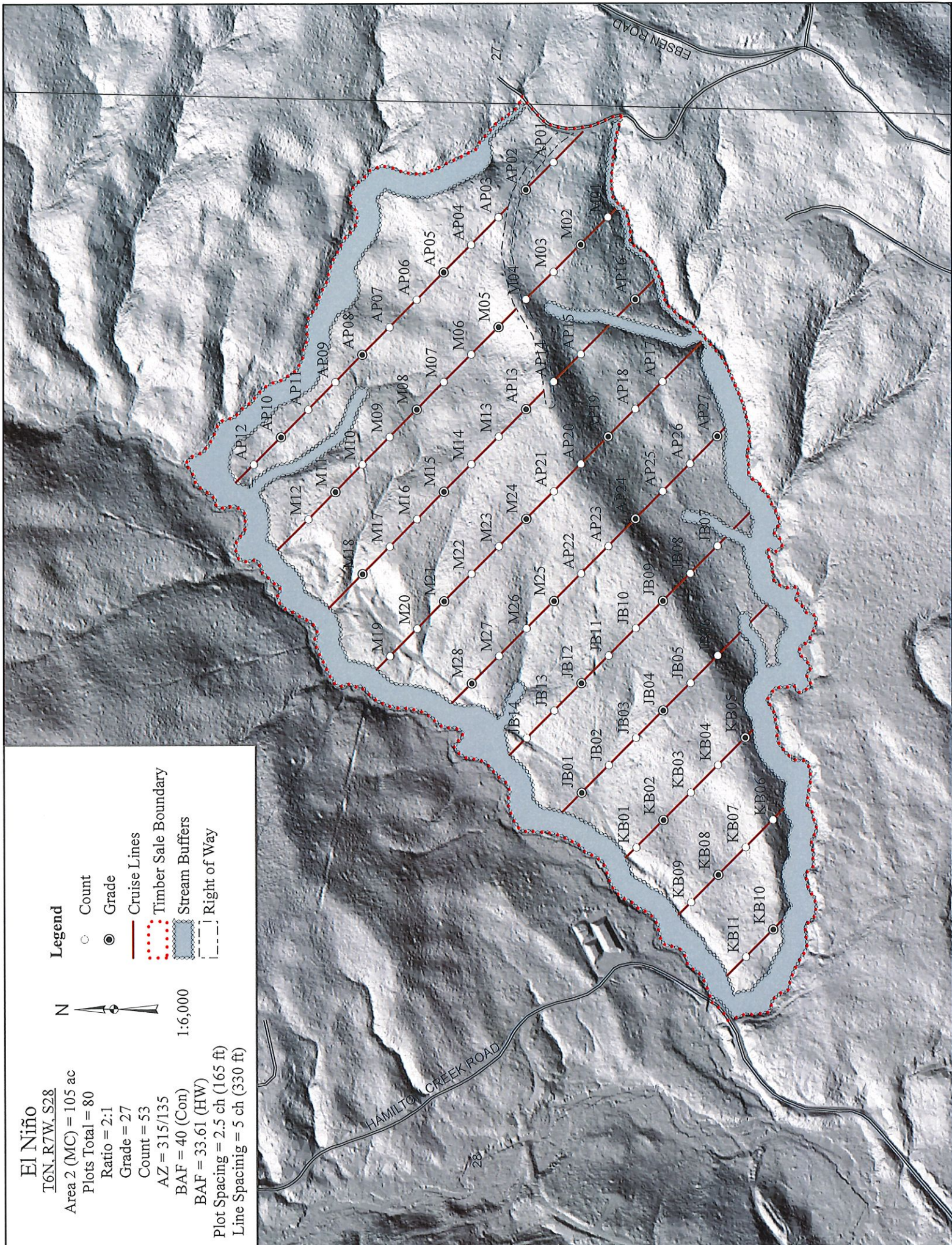
Line Spacing = 5 ch (330 ft)

Legend

- Count
- Grade
- Cruise Lines
- ⋯ Timber Sale Boundary
- ▨ Stream Buffers
- - - Right of Way



1:6,000



Species, Sort Grade - Board Foot Volumes (Project)

T06N R07W S28 Ty00MC 103.00 T06N R07W S28 Ty00MC 5.00 T06N R07W S33 Ty00MC 60.00	Project: ELNINO Acres 168.00	Page 1 Date 3/19/2019 Time 7:57:37AM
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Spp	S So Gr T rt ad	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre
							Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf	
							4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
D	DOCU		100.0	491											9	17		0.00	4.0
D	DO2S	87	2.2	21,272	20,799	3,494		0	29	71	1	1	7	92	38	17	469	2.63	44.3
D	DO3S	11	1.3	2,535	2,503	420		99	1		8	16	36	40	33	9	91	0.85	27.6
D	DO4S	2		342	342	57		100			53	47			21	7	32	0.50	10.6
D	Totals	55	4.0	24,641	23,644	3,972		12	26	62	2	3	10	85	33	13	273	1.87	86.6
H	DOCU		100.0	822											12	14		0.00	7.8
H	DO2S	75	2.5	10,742	10,472	1,759			50	50	2	2	10	85	37	15	345	2.12	30.3
H	DO3S	22	.4	3,005	2,993	503		98	2		2	5	38	55	35	8	85	0.78	35.2
H	DO4S	3	5.6	421	398	67		100			53	41		6	22	7	33	0.57	12.1
H	Totals	32	7.5	14,990	13,863	2,329		24	38	38	3	4	16	76	32	11	162	1.29	85.5
A	DOCU		100.0	158											8	16		0.00	2.2
A	DO1S	32	1.5	1,774	1,748	294			89	11	8	14	20	59	33	14	228	1.84	7.7
A	DO2S	25		1,382	1,382	232		97	3		1	3		96	39	10	155	1.14	8.9
A	DO3S	14		749	749	126		100			6	6	3	85	36	9	103	0.89	7.3
A	DO4S	29	.4	1,560	1,554	261		100			18	7	34	41	29	6	45	0.64	34.5
A	Totals	13	3.4	5,622	5,433	913		67	29	4	9	8	17	67	31	9	90	0.92	60.6
S	DOCU		100.0	50											40	12		0.00	.2
S	DO3S	83		126	126	21		100					100		34	6	50	0.50	2.5
S	DO4S	17	20.0	30	24	4		100					100		32	6	40	0.69	.6
S	Totals	0	27.1	205	150	25		100					100		34	6	45	0.49	3.4
M	DOCU		100.0	11											4	16		0.00	.2
M	DO1S	27		9	9	1			100				100		16	13	100	1.62	.1
M	DO4S	73		23	23	4		100					60	40	34	6	54	0.79	.4
M	Totals	0	25.1	43	32	5		72	28		28		43	29	24	9	46	0.83	.7
Totals			5.2	45,501	43,121	7,244		23	30	47	3	4	13	80	32	11	182	1.40	236.7

T06N R07W S33 T00MC T06N R07W S33 T00MC
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt
 06N 07W 33 A1_TAKE 00MC 60.00 56 137 1 W

Spp	So	Gr	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre	
								Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/Lf		
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99						
D	DO	CU		00.0	649												7	16		0.00	9.7
D	DO	2S	83	1.8	21,056	20,669	1,240		0	38	62		1	1	9	89	38	16	380	2.19	54.5
D	DO	3S	13	2.2	3,488	3,411	205		100				3	9	36	53	35	9	92	0.80	37.1
D	DO	4S	4		764	764	46		100				45	55			22	7	32	0.47	23.6
D	Totals		58	4.3	25,956	24,844	1,491		17	31	52		3	3	12	81	31	12	199	1.46	124.8
H	DO	CU		00.0	1,218												12	16		0.00	8.2
H	DO	2S	79	1.8	10,979	10,782	647			39	61			5	15	80	37	16	390	2.25	27.6
H	DO	3S	18	1.4	2,473	2,439	146		94	6			3	10	40	47	33	9	99	0.88	24.7
H	DO	4S	3		316	316	19		100				61	39			21	7	30	0.57	10.5
H	Totals		32	9.7	14,986	13,536	812		19	32	49		2	7	19	72	31	12	191	1.46	71.1
A	DO	CU		00.0	272												7	15		0.00	4.8
A	DO	1S	38	.7	1,417	1,406	84			85	15		6	6	46	43	33	13	217	1.68	6.5
A	DO	2S	23		850	850	51		87	13				12		88	38	11	163	1.16	5.2
A	DO	3S	7		265	265	16		100				14		24	62	33	8	73	0.79	3.7
A	DO	4S	32		1,140	1,140	68		100				15	19	39	27	29	7	47	0.62	24.2
A	Totals		9	7.2	3,944	3,662	220		59	36	6		8	11	31	50	29	9	83	0.88	44.3
S	DO	CU		00.0	139												40	12		0.00	.7
S	DO	3S	100		352	352	21		100						100		34	6	50	0.50	7.0
S	Totals		1	28.3	491	352	21		100						100		35	7	46	0.45	7.7
M	DO	CU		00.0	30												4	16		0.00	.5
M	DO	1S	27		25	25	1			100			100				16	13	100	1.62	.2
M	DO	4S	73		64	64	4		100						60	40	34	6	54	0.79	1.2
M	Totals		0	25.1	119	89	5		72	28			28		43	29	24	9	46	0.83	1.9
Type Totals				6.6	45,496	42,483	2,549		22	32	46		3	5	17	75	31	11	170	1.33	249.8

T06N R07W S28 T00MC T06N R07W S28 T00MC
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt
 06N 07W 28 A2 00MC 103.00 80 174 1 W

S Spp	So T	Gr rt ad	% 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 Ft	Dia In	Bd Ft	CF/ Lf			
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99							
D	DO	CU		00.0	403													22	23		0.00	.9
D	DO	2S	90	2.4	21,393	20,872	2,150			25	75	0	1	6	93			38	18	539	2.97	38.7
D	DO	3S	9	.4	2,006	1,998	206		99	1		12	23	37	28			31	9	89	0.91	22.4
D	DO	4S	1		108	108	11		100			85	15					18	8	32	0.66	3.4
D	Totals		53	3.9	23,910	22,978	2,367		9	22	69	2	3	8	87			34	14	352	2.25	65.3
H	DO	CU		00.0	602													11	13		0.00	7.6
H	DO	2S	73	2.9	10,610	10,300	1,061			56	44	3	1	8	88			37	15	324	2.06	31.8
H	DO	3S	23		3,301	3,301	340		100			1	2	38	59			36	8	80	0.75	41.1
H	DO	4S	4	7.7	480	443	46		100			49	42		8			23	7	34	0.57	13.0
H	Totals		32	6.3	14,993	14,044	1,447		27	41	32	4	2	15	79			32	10	150	1.22	93.5
A	DO	CU		00.0	94													10	17		0.00	.8
A	DO	1S	30	1.8	1,972	1,937	200			90	10	8	17	9	65			33	14	233	1.90	8.3
A	DO	2S	26		1,678	1,678	173		100			2			98			39	10	153	1.13	11.0
A	DO	3S	16		1,018	1,018	105		100			5	7		89			37	9	110	0.91	9.3
A	DO	4S	28	.5	1,792	1,784	184		100			19	3	33	45			29	6	44	0.65	40.3
A	Totals		15	2.1	6,554	6,417	661		70	27	3	9	7	12	72			32	8	92	0.94	69.6
S	DO	4S	100	20.0	47	37	4		100					100				32	6	40	0.69	.9
S	Totals		0	20.0	47	37	4		100					100				32	6	40	0.69	.9
Type Totals				4.5	45,504	43,476	4,478		24	29	47	4	3	11	82			33	11	190	1.44	229.4

T06N R07W S28 T00MC	T06N R07W S28 T00MC
Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt	BdFt
06N 07W 28 RW 00MC 5.00 80 174 1	W

Spp	So	Gr	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
								Log Scale Dia.				Log Length				Ln	Dia	Bd		CF/Lf
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft		Lf
D	DO	CU		00.0	403											22	23		0.00	.9
D	DO	2S	90	2.4	21,393	20,872	104			25	75	0	1	6	93	38	18	539	2.97	38.7
D	DO	3S	9	.4	2,006	1,998	10		99	1		12	23	37	28	31	9	89	0.91	22.4
D	DO	4S	1		108	108	1		100			85	15			18	8	32	0.66	3.4
D	Totals		53	3.9	23,910	22,978	115		9	22	69	2	3	8	87	34	14	352	2.25	65.3
H	DO	CU		00.0	602											11	13		0.00	7.6
H	DO	2S	73	2.9	10,610	10,300	52			56	44	3	1	8	88	37	15	324	2.06	31.8
H	DO	3S	23		3,301	3,301	17		100			1	2	38	59	36	8	80	0.75	41.1
H	DO	4S	4	7.7	480	443	2		100			49	42		8	23	7	34	0.57	13.0
H	Totals		32	6.3	14,993	14,044	70		27	41	32	4	2	15	79	32	10	150	1.22	93.5
A	DO	CU		00.0	94											10	17		0.00	.8
A	DO	1S	30	1.8	1,972	1,937	10			90	10	8	17	9	65	33	14	233	1.90	8.3
A	DO	2S	26		1,678	1,678	8		100			2			98	39	10	153	1.13	11.0
A	DO	3S	16		1,018	1,018	5		100			5	7		89	37	9	110	0.91	9.3
A	DO	4S	28	.5	1,792	1,784	9		100			19	3	33	45	29	6	44	0.65	40.3
A	Totals		15	2.1	6,554	6,417	32		70	27	3	9	7	12	72	32	8	92	0.94	69.6
S	DO	4S	100	20.0	47	37	0		100					100		32	6	40	0.69	.9
S	Totals		0	20.0	47	37	0		100					100		32	6	40	0.69	.9
Type Totals				4.5	45,504	43,476	217		24	29	47	4	3	11	82	33	11	190	1.44	229.4

TC PSTATS		PROJECT STATISTICS							PAGE	1
		PROJECT ELNINO							DATE	3/19/2019
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
06N	07	28	A2	00MC	168.00	216	1,505	1	W	
06N	07W	28	RW	00MC						
06N	07W	33	A1 TAKE	00MC						
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		216	1505	7.0						
CRUISE		79	483	6.1	19,587	2.5				
DBH COUNT										
REFOREST										
COUNT		137	983	7.2						
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	193	31.8	25.2	93	21.9	109.7	24,641	23,644	5,418	5,312
WHEMLOCK	154	40.0	19.7	71	19.1	84.9	14,990	13,863	3,660	3,502
R ALDER	118	39.1	16.7	50	14.6	59.7	5,622	5,433	1,760	1,730
SNAG	10	1.9	22.4	56	1.1	5.1				
S SPRUCE	4	3.4	14.7	35	1.0	4.0	205	150	92	56
BL MAPLE	4	.5	17.4	34	0.2	.9	43	32	15	14
TOTAL	483	116.6	20.4	69	58.5	264.2	45,501	43,121	10,947	10,614
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		54.9	3.9	1,030	1,073	1,115				
WHEMLOCK		78.7	6.3	472	504	536				
R ALDER		69.6	6.4	153	163	174				
SNAG										
S SPRUCE		68.2	39.0	20	33	45				
BL MAPLE		36.6	20.9	51	65	79				
TOTAL		92.8	4.2	603	630	657	344	86	38	
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		140.1	9.5	29	32	35				
WHEMLOCK		167.7	11.4	35	40	45				
R ALDER		180.9	12.3	34	39	44				
SNAG		431.4	29.3	1	2	2				
S SPRUCE		463.8	31.5	2	3	4				
BL MAPLE		1469.7	99.9	0	1	1				
TOTAL		89.8	6.1	109	117	124	322	81	36	
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		132.9	9.0	100	110	120				
WHEMLOCK		155.8	10.6	76	85	94				
R ALDER		179.9	12.2	52	60	67				
SNAG		384.7	26.2	4	5	6				
S SPRUCE		453.0	30.8	3	4	5				
BL MAPLE		1469.7	99.9	0	1	2				
TOTAL		86.7	5.9	249	264	280	300	75	33	
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		131.9	9.0	21,524	23,644	25,765				
WHEMLOCK		155.0	10.5	12,402	13,863	15,323				
R ALDER		180.4	12.3	4,766	5,433	6,099				

TC PSTATS		PROJECT STATISTICS					PAGE	2		
		PROJECT		ELNINO			DATE	3/19/2019		
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
06N	07	28	A2	00MC		168.00	216	1,505	1	W
06N	07W	28	RW	00MC						
06N	07W	33	AI TAKE	00MC						
CL	68.1	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
SNAG										
S SPRUCE		472.8	32.1	102	150	198				
BL MAPLE		1469.7	99.9	0	32	64				
TOTAL		94.3	6.4	40,356	43,121	45,886	355	89	39	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	ELNINO		DATE	3/19/2019		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
06N	07W	33	A1 TAKE	00MC	60.00	56	359	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		56	359	6.4						
CRUISE		21	135	6.4	6,634	2.0				
DBH COUNT REFOREST COUNT		35	219	6.3						
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	57	43.7	22.4	93	25.3	120.0	25,956	24,844	5,875	5,745
WHEMLOCK	32	27.5	21.9	83	15.4	72.1	14,986	13,536	3,399	3,164
R ALDER	34	26.6	16.1	50	9.4	37.8	3,944	3,662	1,179	1,121
S SPRUCE	2	7.7	14.8	36	2.4	9.3	491	352	222	120
SNAG	6	3.6	19.2	33	1.6	7.1				
BL MAPLE	4	1.4	17.4	34	0.6	2.4	119	89	43	39
TOTAL	<i>135</i>	<i>110.6</i>	<i>20.3</i>	<i>74</i>	<i>55.2</i>	<i>248.8</i>	<i>45,496</i>	<i>42,483</i>	<i>10,717</i>	<i>10,188</i>
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	61.8	8.2	711	774	837					
WHEMLOCK	67.2	11.9	594	674	754					
R ALDER	68.4	11.7	152	173	193					
S SPRUCE	141.4	132.4		25	58					
SNAG										
BL MAPLE	36.6	20.9	51	65	79					
TOTAL	<i>90.5</i>	<i>7.8</i>	<i>491</i>	<i>532</i>	<i>574</i>	<i>327</i>	<i>82</i>	<i>36</i>		
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	86.1	11.5	39	44	49					
WHEMLOCK	128.0	17.1	23	28	32					
R ALDER	166.3	22.2	21	27	33					
S SPRUCE	255.4	34.1	5	8	10					
SNAG	282.7	37.7	2	4	5					
BL MAPLE	748.3	99.9	0	1	3					
TOTAL	<i>47.5</i>	<i>6.3</i>	<i>104</i>	<i>111</i>	<i>118</i>	<i>90</i>	<i>23</i>	<i>10</i>		
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	77.1	10.3	108	120	132					
WHEMLOCK	118.9	15.9	61	72	84					
R ALDER	160.0	21.4	30	38	46					
S SPRUCE	246.3	32.9	6	9	12					
SNAG	241.3	32.2	5	7	9					
BL MAPLE	748.3	99.9	0	2	5					
TOTAL	<i>40.6</i>	<i>5.4</i>	<i>235</i>	<i>249</i>	<i>262</i>	<i>66</i>	<i>16</i>	<i>7</i>		
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	76.2	10.2	22,317	24,844	27,371					
WHEMLOCK	114.8	15.3	11,461	13,536	15,612					
R ALDER	154.6	20.6	2,906	3,662	4,418					
S SPRUCE	259.6	34.7	230	352	474					

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT		ELNINO		DATE	3/19/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
06N	07W	33	A1 TAKE	00MC	60.00	56	359	1	W	
CL:	68.1%	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
SNAG										
BL MAPLE		748.3	99.9	0	89	178				
TOTAL		<i>49.7</i>	<i>6.6</i>	<i>39,663</i>	<i>42,483</i>	<i>45,302</i>	<i>99</i>	<i>25</i>	<i>11</i>	

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	ELNINO			DATE	3/19/2019		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
06N	07W	28	A2	00MC	103.00	80	573	1	W		
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		80	573	7.2							
CRUISE		29	174	6.0	12,353	1.4					
DBH COUNT											
REFOREST											
COUNT		51	382	7.5							
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	68	25.2	27.5	93	19.8	104.0	23,910	22,978	5,165	5,071	
WHEMLOCK	61	46.9	19.0	67	21.1	92.0	14,993	14,044	3,805	3,691	
R ALDER	42	46.0	16.9	50	17.5	71.8	6,554	6,417	2,084	2,068	
SNAG	2	.9	27.9	105	0.8	4.0					
S SPRUCE	1	.9	14.0	33	0.3	1.0	47	37	21	21	
TOTAL	174	119.9	20.4	66	60.4	272.8	45,504	43,476	11,074	10,850	
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		49.2	6.0	1,127	1,198	1,269					
WHEMLOCK		80.8	10.3	412	460	507					
R ALDER		70.9	10.9	142	159	177					
SNAG											
S SPRUCE											
TOTAL		92.5	7.0	621	668	715	341	85	38		
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		106.1	11.9	22	25	28					
WHEMLOCK		113.8	12.7	41	47	53					
R ALDER		119.8	13.4	40	46	52					
SNAG		376.7	42.1	1	1	1					
S SPRUCE		628.4	70.2	0	1	2					
TOTAL		41.9	4.7	114	120	126	70	18	8		
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		100.5	11.2	92	104	116					
WHEMLOCK		107.9	12.1	81	92	103					
R ALDER		118.8	13.3	62	72	81					
SNAG		376.5	42.1	2	4	6					
S SPRUCE		628.4	70.2	0	1	2					
TOTAL		38.2	4.3	261	273	284	58	15	6		
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		98.4	11.0	20,452	22,978	25,503					
WHEMLOCK		111.0	12.4	12,303	14,044	15,785					
R ALDER		121.6	13.6	5,545	6,417	7,289					
SNAG											
S SPRUCE		628.4	70.2	11	37	64					
TOTAL		50.3	5.6	41,033	43,476	45,918	101	25	11		

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	ELNINO			DATE	3/19/2019		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
06N	07W	28	RW	00MC	5.00	80	573	1	W		
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		80	573	7.2							
CRUISE		29	174	6.0	600	29.0					
DBH COUNT REFOREST COUNT		51	382	7.5							
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	68	25.2	27.5	93	19.8	104.0	23,910	22,978	5,165	5,071	
WHEMLOCK	61	46.9	19.0	67	21.1	92.0	14,993	14,044	3,805	3,691	
R ALDER	42	46.0	16.9	50	17.5	71.8	6,554	6,417	2,084	2,068	
SNAG	2	.9	27.9	105	0.8	4.0					
S SPRUCE	1	.9	14.0	33	0.3	1.0	47	37	21	21	
TOTAL	<i>174</i>	<i>119.9</i>	<i>20.4</i>	<i>66</i>	<i>60.4</i>	<i>272.8</i>	<i>45,504</i>	<i>43,476</i>	<i>11,074</i>	<i>10,850</i>	
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	49.2	6.0	1,127	1,198	1,269						
WHEMLOCK	80.8	10.3	412	460	507						
R ALDER	70.9	10.9	142	159	177						
SNAG											
S SPRUCE											
TOTAL	<i>92.5</i>	<i>7.0</i>	<i>621</i>	<i>668</i>	<i>715</i>	<i>341</i>		<i>85</i>		<i>38</i>	
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	106.1	11.9	22	25	28						
WHEMLOCK	113.8	12.7	41	47	53						
R ALDER	119.8	13.4	40	46	52						
SNAG	376.7	42.1	1	1	1						
S SPRUCE	628.4	70.2	0	1	2						
TOTAL	<i>41.9</i>	<i>4.7</i>	<i>114</i>	<i>120</i>	<i>126</i>	<i>70</i>		<i>18</i>		<i>8</i>	
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	100.5	11.2	92	104	116						
WHEMLOCK	107.9	12.1	81	92	103						
R ALDER	118.8	13.3	62	72	81						
SNAG	376.5	42.1	2	4	6						
S SPRUCE	628.4	70.2	0	1	2						
TOTAL	<i>38.2</i>	<i>4.3</i>	<i>261</i>	<i>273</i>	<i>284</i>	<i>58</i>		<i>15</i>		<i>6</i>	
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	98.4	11.0	20,452	22,978	25,503						
WHEMLOCK	111.0	12.4	12,303	14,044	15,785						
R ALDER	121.6	13.6	5,545	6,417	7,289						
SNAG											
S SPRUCE	628.4	70.2	11	37	64						
TOTAL	<i>50.3</i>	<i>5.6</i>	<i>41,033</i>	<i>43,476</i>	<i>45,918</i>	<i>101</i>		<i>25</i>		<i>11</i>	

TC		PSTNDSUM		Stand Table Summary							Page		1			
										Date:		3/19/2019				
T06N R07W S28 Ty00MC 103.00				Project ELNINO						Time:		7:58:07AM				
T06N R07W S28 Ty00MC 5.00				Acres 168.00						Grown Year:						
T06N R07W S33 Ty00MC 60.00																
S Spec T	DBH	Sample Trees	Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals			
			FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF	
D	12	2	82	52	1.252	.98	1.25	16.0	50.0		20	63			34	11
D	13	5	88	97	3.514	3.24	5.96	17.9	60.0		107	358			179	60
D	16	4	89	90	1.781	2.49	3.56	25.1	94.0		89	335			150	56
D	17	2	86	99	.954	1.50	1.43	28.7	96.7		41	138			69	23
D	18	3	88	82	.982	1.74	1.83	29.7	106.1		54	194			91	33
D	19	2	87	116	.764	1.50	1.53	39.5	140.0		60	214			101	36
D	20	3	87	120	1.034	2.26	2.76	38.5	141.2		106	389			178	65
D	21	2	85	110	.625	1.50	1.56	40.6	148.0		63	231			107	39
D	22	2	88	124	.372	.98	1.12	41.7	176.7		47	197			78	33
D	23	10	88	122	2.245	6.48	6.39	47.8	199.9		306	1,278			513	215
D	24	7	88	139	1.510	4.74	4.53	56.2	240.6		255	1,089			428	183
D	25	15	86	133	2.850	9.72	8.77	54.7	232.1		480	2,036			806	342
D	26	9	86	122	1.412	5.21	3.97	60.7	252.2		241	1,001			405	168
D	27	11	86	141	1.556	6.19	4.67	69.8	308.3		326	1,439			547	242
D	28	8	86	142	1.041	4.45	3.12	75.3	331.9		235	1,037			395	174
D	29	15	87	139	1.778	8.15	5.45	70.9	338.5		386	1,844			649	310
D	30	10	87	139	1.214	5.96	3.79	78.9	366.1		299	1,389			503	233
D	31	16	86	143	1.600	8.39	4.99	89.7	418.5		448	2,087			752	351
D	32	20	86	133	1.760	9.83	5.28	93.0	430.3		491	2,273			825	382
D	33	8	86	144	.750	4.45	2.25	105.2	500.9		237	1,127			398	189
D	34	9	87	133	.743	4.68	2.23	106.7	485.0		238	1,081			400	182
D	35	8	87	155	.667	4.45	2.15	117.4	598.5		252	1,285			423	216
D	36	2	88	146	.139	.98	.42	129.3	660.0		54	275			91	46
D	37	6	83	139	.395	2.95	1.19	125.2	554.4		148	657			249	110
D	38	10	85	138	.624	4.92	1.62	132.5	648.5		215	1,052			361	177
D	40	2	85	179	.113	.98	.45	138.0	710.0		62	320			104	54
D	44	2	85	140	.093	.98	.28	182.7	906.7		51	253			86	43
D	Totals	193	87	121	31.768	109.71	82.55	64.3	286.4		5,312	23,644			8,924	3,972
H	11	2	88	18	1.469	.97										
H	12	2	92	92	1.234	.97	2.47	15.5	60.0		38	148			64	25
H	13	4	88	103	2.104	1.94	4.21	20.0	77.5		84	326			141	55
H	14	10	86	56	4.535	4.85	5.44	21.0	60.0		114	327			192	55
H	15	12	88	74	5.263	6.46	7.50	25.9	81.7		194	613			326	103
H	16	2	87	92	1.153	1.61	2.31	24.3	90.0		56	208			94	35
H	17	12	87	80	4.097	6.46	6.96	29.5	100.1		205	697			345	117
H	18	1	91	149	.456	.81	1.37	38.7	156.7		53	214			89	36
H	19	16	88	94	4.265	8.40	9.02	39.4	141.2		356	1,274			597	214
H	20	7	90	98	1.702	3.71	3.85	42.3	161.9		163	623			273	105
H	21	4	88	122	1.073	2.58	2.88	47.8	195.1		138	563			232	95
H	22	18	87	104	3.548	9.37	8.14	51.1	202.0		416	1,644			699	276
H	23	5	88	134	.951	2.74	2.85	54.3	235.9		155	673			260	113
H	24	2	85	102	.309	.97	.62	67.0	245.0		41	151			69	25
H	25	16	86	111	2.463	8.40	6.87	54.0	225.6		371	1,550			623	260
H	26	11	88	108	1.707	6.29	3.85	74.5	300.9		287	1,159			482	195
H	27	5	88	119	.851	3.39	2.35	73.9	328.3		174	772			292	130
H	28	4	87	101	.603	2.58	1.39	77.7	335.6		108	468			182	79
H	29	6	84	106	.774	3.55	1.90	84.3	326.3		160	620			269	104
H	30	1	88	111	.164	.81	.49	81.3	393.3		40	194			67	33
H	31	1	88	122	.154	.81	.46	93.7	470.0		43	217			73	36
H	32	2	89	116	.174	.97	.52	94.0	393.3		49	205			82	34
H	33	2	87	136	.271	1.61	.68	104.0	526.0		70	357			118	60
H	34	2	78	118	.154	.97	.31	93.0	440.0		29	135			48	23
H	35	2	82	102	.145	.97	.29	141.5	500.0		41	145			69	24

TC		PSTNDSUM		Stand Table Summary							Page		2			
										Date:		3/19/2019				
T06N R07W S28 Ty00MC				103.00		Project				ELNINO		Time:		7:58:07AM		
T06N R07W S28 Ty00MC				5.00		Acres				168.00		Grown Year:				
T06N R07W S33 Ty00MC				60.00												
S Spc	T	Sample		Tot		Trees/ Acres	BA/ Acres	Logs Acres	Average Log		Tons/ Acres	Net Cu.Ft. Acres	Net Bd.Ft. Acres	Totals		
		DBH	Trees	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
H		37	2	82	125	.130	.97	.39	124.0	590.0		48	230		81	39
H		38	2	89	126	.123	.97	.37	110.7	613.3		41	227		69	38
H		41	1	83	110	.088	.81	.18	156.5	715.0		27	126		46	21
H		Totals	154	87	90	39.959	84.91	77.66	45.1	178.5		3,502	13,863		5,884	2,329
A		10	2	87	63	1.456	.79	1.46	14.5	50.0		21	73		35	12
A		12	1	86	63	.506	.40	.51	22.0	60.0		11	30		19	5
A		13	6	86	71	3.248	2.99	4.87	18.8	64.0		91	312		154	52
A		14	14	86	71	7.200	7.70	11.31	21.9	72.7		248	823		416	138
A		15	12	86	54	4.630	5.68	5.28	25.1	67.4		133	355		223	60
A		16	11	86	73	4.222	5.90	7.37	26.9	87.8		198	647		333	109
A		17	16	87	64	5.000	7.88	7.66	29.1	85.7		222	656		374	110
A		18	14	86	61	4.010	7.09	6.10	31.5	92.0		192	561		322	94
A		19	12	86	65	3.041	5.99	4.41	39.2	111.6		173	492		290	83
A		20	11	87	50	2.562	5.59	3.43	36.5	114.0		125	391		210	66
A		21	4	87	86	.787	1.89	1.74	39.9	148.0		69	257		117	43
A		23	5	87	55	.900	2.60	1.42	48.1	161.2		68	229		115	38
A		24	7	87	80	1.176	3.70	2.35	58.4	213.3		137	502		231	84
A		26	1	87	75	.108	.40	.22	63.5	245.0		14	53		23	9
A		28	2	87	52	.257	1.10	.26	101.0	200.0		26	51		44	9
A		Totals	118	86	65	39.104	59.69	58.38	29.6	93.1		1,730	5,433		2,906	913
S		11	1	86	57	2.513	1.66	2.51	17.0	50.0		43	126		72	21
S		14	2	80	44	.601	.64	.60	22.0	40.0		13	24		22	4
S		35	1	82	47	.248	1.66									
S		Totals	4	85	54	3.362	3.96	3.11	18.0	48.1		56	150		94	25
M		16	2	86	42	.307	.43	.31	25.5	55.0		8	17		13	3
M		18	1	87	41	.121	.21	.12	30.0	50.0		4	6		6	1
M		21	1	87	36	.089	.21	.09	26.0	100.0		2	9		4	1
M		Totals	4	86	41	.517	.86	.52	26.6	61.6		14	32		23	5
SN		13	1	88	20	.461	.43									
SN		14	1	89	45	.398	.43									
SN		18	1	88	20	.241	.43									
SN		27	2	87	147	.323	1.29									
SN		29	2	89	56	.280	1.29									
SN		30	1	88	100	.087	.43									
SN		36	1	88	17	.060	.43									
SN		55	1	88	20	.026	.43									
SN		Totals	10	88	56	1.876	5.12									
Totals			483	87	88	116.587	264.25	222.22	47.8	194.0		10,614	43,121		17,831	7,244

Log Stock Table - MBF

T06N R07W S28 Ty00MC 103.00
 T06N R07W S28 Ty00MC 5.00
 T06N R07W S33 Ty00MC 60.00

Project: ELNINO
 Acres 168.00

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 Date 3/19/2019
 Time 7:58:28AM

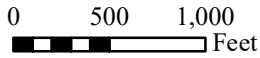
Spp	S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
									2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
A		Totals			945	3.4	913	12.6			256	129	228	153	68	79				
S		DO	CU	40	8	100.0														
S		DO	3S	34	21		21	83.9			21									
S		DO	4S	32	5	20.0	4	16.1			4									
S		Totals			34	27.1	25	.3			25									
M		DO	CU	8	2	100.0														
M		DO	1S	16	1		1	28.0					1							
M		DO	4S	32	1		1	24.1			1									
M		DO	4S	34	1		1	19.0			1									
M		DO	4S	36	2		2	28.9			2									
M		Totals			7	25.1	5	.1			4			1						
Total		All Species			7,644	5.2	7,244	100.0			633	433	617	876	774	2048	1308	527		28

LOGGING MAP

OF TIMBER SALE CONTRACT NO. 341-20-W00591-01
 EL NIÑO
 PORTIONS OF SECTIONS 28, 33, AND 34,
 T6N, R7W, W.M.,
 CLATSOP COUNTY, OREGON

Approximate Net Acres
 Area 1 (MC) = 60
 Area 2 (MC) = 103
 Area 3 (R/W) = 5
 Total Acres = 168

1 inch = 1,000 feet



Contour = 40 ft.

Legend

- Timber Sale Boundary
- Landing Construction
- Survey Monument
- Tractor Area
- Cable Area
- Type F Stream
- Type N Stream
- Buffer Zone
- Posted Buffer
- New Road Construction-
Unsurfaced
- New Road Construction-
Surfaced
- Surfaced Road
- Reforestation Area
- Controlled Felling Area

Logging Method

Area	Cable	Ground
1 (MC)	68%	32%
2 (MC)	94%	6%
3 (R/W)	0%	100%
Total	82%	18%

