



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Pancho
Sale AT-341-2018-49-

District: Astoria

Date: March 20, 2018

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$3,284,305.46	\$46,305.34	\$3,330,610.80
		Project Work:	(\$250,994.00)
		Advertised Value:	\$3,079,616.80



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District: Astoria

Date: March 20, 2018

Timber Description

Location: Portions of Sections 4 and 5, T4N, R6W, WM, Clatsop County, Oregon and Portions of Sections 33, 34, and 35, T5N, R6W, WM, Clatsop County, Oregon.

Stand Stocking: 60%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	24	0	97
Western Hemlock / Fir	21	0	97
Sitka Spruce	19	0	96
Alder (Red)	15	0	96

Volume by Grade	2S	3S & 4S 6"-11"	8" - 9"	10" - 11"	6" - 7"	Total
Douglas - Fir	4,336	1,428	0	0	0	5,764
Western Hemlock / Fir	349	229	0	0	0	578
Sitka Spruce	9	3	0	0	0	12
Alder (Red)	0	0	3	66	25	94
Total	4,694	1,660	3	66	25	6,448

Comments: Pond Values Used: Local Pond Values, February 2018.

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

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:
 $\$1,090.15/\text{MBF} = \$1,400.00/\text{MBF} - \$309.85/\text{MBF}$

SCALING COST ALLOWANCE = $\$5.00/\text{MBF}$

BRANDING AND PAINTING COST ALLOWANCE = $\$2.00/\text{MBF}$

FUEL COST ALLOWANCE = $\$3.00/\text{GALLON}$

HAULING COST ALLOWANCE
Hauling costs equivalent to $\$780$ daily truck cost.

Other Costs (with Profit & Risk to be added):
Slash and Landing Piling (Includes move-in and pile materials) = $\$28,263$

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

Ditch Filters:
20 bales of straw @ $\$10.00/\text{bale} = \200
8 hours of labor @ $\$40/\text{hr} = \320

Additional partial move-in cost for Area 4
Log Loader - $\$500$
Processor - $\$500$
Yarder - $\$750$

TOTAL Other Costs (with Profit & Risk to be added): $\$32,533$

Other Costs (No Profit & Risk added):
None.

ROAD MAINTENANCE
(See attached Road Maintenance Cost Summary Sheet)
TOTAL Road Maintenance: $\$4.30/\text{MBF} \times 6,448\text{MBF} = \$27,715$



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Logging Conditions

Combination#: 1

Douglas - Fir	45.00%
Western Hemlock / Fir	45.00%
Sitka Spruce	45.00%
Alder (Red)	45.00%

Logging System: Cable: Medium Tower >40 - <70 **Process:** Manual Falling/Delimbing

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

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

loads / day: 10 **bd. ft / load:** 4600

cost / mbf: \$143.48

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

Combination#: 2

Douglas - Fir	55.00%
Western Hemlock / Fir	55.00%
Sitka Spruce	55.00%
Alder (Red)	55.00%

Logging System: Shovel **Process:** Manual Falling/Delimbing

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

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

loads / day: 10 **bd. ft / load:** 4500

cost / mbf: \$87.50

machines: Shovel Logger



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Logging Costs

Operating Seasons: 2.00	Profit Risk: 10%
Project Costs: \$250,994.00	Other Costs (P/R): \$32,533.00
Slash Disposal: \$0.00	Other Costs: \$0.00

Miles of Road

Road Maintenance: \$4.30

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	1.0	5.0
Western Hemlock / Fir	\$0.00	2.0	3.8
Sitka Spruce	\$0.00	1.0	4.5
Alder (Red)	\$0.00	2.0	3.0



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Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling / Brand & Paint	Other	Total
Douglas - Fir									
\$112.69	\$4.43	\$1.36	\$160.68	\$5.05	\$28.42	\$0.00	\$7.00	\$0.00	\$319.63
Western Hemlock / Fir									
\$112.69	\$4.43	\$1.36	\$105.71	\$5.05	\$22.92	\$0.00	\$7.00	\$0.00	\$259.16
Sitka Spruce									
\$112.69	\$4.47	\$1.36	\$180.26	\$5.05	\$30.38	\$0.00	\$7.00	\$0.00	\$341.21
Alder (Red)									
\$112.69	\$4.47	\$1.36	\$135.20	\$5.05	\$25.88	\$0.00	\$7.00	\$0.00	\$291.65

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$842.98	\$523.35	\$0.00
Western Hemlock / Fir	\$0.00	\$718.77	\$459.61	\$0.00
Sitka Spruce	\$0.00	\$513.00	\$171.79	\$0.00
Alder (Red)	\$0.00	\$784.26	\$492.61	\$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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	5,764	\$523.35	\$3,016,589.40
Western Hemlock / Fir	578	\$459.61	\$265,654.58
Sitka Spruce	12	\$171.79	\$2,061.48
Alder (Red)	94	\$492.61	\$46,305.34

Gross Timber Sale Value

Recovery: \$3,330,610.80

Prepared By: Cody Valencia

Phone: 503-325-5451

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Pancho

ROAD CONSTRUCTION:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 1			
Unsurfaced	3A-3B	9.00	\$3,134.00
Surfaced	1A-1B, Pt. 2A, 4A-4B	52.60	\$34,266
	4C-4D, 4E-4F		
	TOTALS	61.60	\$37,400

1.17 Miles

ROAD IMPROVEMENT:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 2	I1-I2, I2-I3, I4-I5, I6-I7, I8-I9, I10-I11	322.45	\$26,425
	TOTALS	322.45	\$26,425

6.11 Miles

SPECIAL PROJECTS:

	<u>Description</u>	<u>Cost</u>
Project No. 3	Green Mountain No. 1 & 2 Crushing	\$168,080
Project No. 4	Road Vacating	\$9,240
	Project Road Maintenance	\$2,013
	TOTAL	\$179,333

MOVE IN:

<u>Equipment</u>	<u>Cost</u>
Dozer (D8)	\$1,406
Excavator (C330)	\$1,406
Excavator (C315)	\$805
Skidder (C518)	\$717
Dump Trucks (12cy x 6) (\$163.00 x 6)	\$978
Front End Loader (C966)	\$778
Grader (14G)	\$778
Vibratory Roller	\$778
Water Truck (2,500 gallon)	\$190
TOTAL	\$7,836

GRAND TOTAL **\$250,994**

Compiled By: W. Lawrence

Date: 03/20/2018

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Pancho

NEW CONSTRUCTION: 61.60 STATIONS

1.17 MILES

ROAD: 1A to 1B(1.0), Pt. 2A(0.0), 4A to 4B(31.6) 4C to 4D(11.5) 4E to 4F(8.5)

IMPROVEMENT: STATIONS

0.00 MILES

POINTS: 3A to 3B (9.0) Dirt

CLEARING & GRUBBING						
	Method	Acres/amount	x	Rate	=	Cost
4A to 4B	Scatter Outside R/W	3.50	x	\$ 1,337.00	=	\$4,679.50
	Clear Existing Subgrade \$/hr.	8.00	x	\$ 101.00	=	\$808.00
SUB TOTAL FOR CLEARING & GRUBBING						\$5,488

EXCAVATION						
	Material	Cy/amount	x	Rate	=	Cost
1A to 1B	Landing Construction \$/Landing	1.00	x	\$389.00	=	\$389.00
	Balanced Construction \$/sta	1.00	x	\$122.00	=	\$122.00
Pt. 2A	Landing Construction \$/Landing	1.00	x	\$389.00	=	\$389.00
	Balanced Construction \$/sta	9.00	x	\$122.00	=	\$1,098.00
3A to 3B	Landing Construction \$/Landing	1.00	x	\$389.00	=	\$389.00
	Balanced Construction \$/sta	7.95	x	\$122.00	=	\$969.90
4A to 4B	Balanced Construction \$/sta	11.50	x	\$122.00	=	\$1,403.00
	Landing Construction \$/Landing	1.00	x	\$389.00	=	\$389.00
4C to 4D	Balanced Construction \$/sta	8.50	x	\$122.00	=	\$1,037.00
	Fill removal and reconstruction \$/hr	4.00	x	\$101.00	=	\$404.00
	Landing Construction \$/Landing	1.00	x	\$389.00	=	\$389.00
SUB TOTAL FOR EXCAVATION						\$6,979

CULVERT MATERIALS AND INSTALLATION									
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
4A to 4B				\$0.00					
3+50	18"CPP	30	\$19.53	\$585.90					
8+00	18"CPP	30	\$19.53	\$585.90					
14+90	18"CPP	30	\$19.53	\$585.90					
19+40	18"CPP	40	\$19.53	\$781.20					
20+25	18"CPP	30	\$19.53	\$585.90					
25+00	18"CPP	30	\$19.53	\$585.90					
4C to 4D									
6+00	18"CPP	30	\$19.53	\$585.90					
8+00	18"CPP	30	\$19.53	\$585.90					
Other/miscellaneous:				Description	Quantity	Rate	Cost		
Culvert stakes & markers:				Installation of 6' X 2 1/2" fiberglass posts	8	\$20.00	\$160.00		
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION								\$5,043	

Subtotal of Clearing, Exc., Culv.

\$17,509

SURFACING					Stations/ amount	x	Rate/ sta/amt	Cost		
Subgrade prep:					Description					
					Grade, Shape and Ditch 16'		44.10	x	\$24.83	\$1,095.00
					Grade, Shape and outslope 14' (3A to 3B, 4E to 4F)		17.50	x	\$18.35	\$321.13
					Subgrade Compaction		52.60	x	\$20.19	\$1,061.99

ROAD SEGMENT 1A to 1B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1A to 1B		0+00 to 1+00				
				Volume (CY) per	Number of	Volume (CY) per	Number of			
Base Rock	5"-0" crushed	0+00 to 1+00	8	station	50	stations	1	50	\$4.26	\$213
Junction Rock	1 1/2"-0" crushed	0+00	3	junction	11	junctions	1	11	\$5.51	\$61
Landings	6"-0" pit-run	1B	N/A	landing	110	landings	1	110	\$4.88	\$537
Total Rock for Road Segment:				1A to 1B				171		

\$810

ROAD SEGMENT Pt. 2A				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Pt. 2A		0+00				
				Volume (CY) per	Number of	Volume (CY) per	Number of			
Junction Rock	1 1/2"-0" crushed	0+00	3	junction	11	junctions	1	11	\$5.51	\$61
Landings	6"-0" pit-run	0+00	N/A	landing	88	landings	1	88	\$4.88	\$429
Total Rock for Road Segment:				Pt. 2A				99		

\$490

ROAD SEGMENT 3A to 3B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	3A to 3B		0+00 to 9+00				
				Volume (CY) per	Number of	Volume (CY) per	Number of			
Junction Rock	1 1/2"-0" crushed	0+00	3	junction	11	junctions	1	11	\$5.51	\$61
Junction Rock	5"-0" crushed	3A	8	junctions	22	junctions	1	22	\$4.26	\$94
Total Rock for Road Segment:				3A to 3B				33		

\$154

ROAD SEGMENT 4A to 4B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	4A to 4B		0+00 to 31+60				
				Volume (CY) per	Number of	Volume (CY) per	Number of			
Base Rock	5"-0" crushed	0+00 to 31+60	8	station	50	stations	31.6	1,580	\$4.26	\$6,731
Junction Rock	5"-0" crushed	0+00	8	junction	22	junctions	1	22	\$4.26	\$94
Junction Rock	1 1/2"-0" crushed	0+00	3	junction	11	junctions	1	11	\$5.51	\$61
Turnouts	5"-0" crushed	2+80, 8+50, 16+50, 22+00	8	turnout	22	turnouts	4	88	\$4.26	\$375
Turnarounds	5"-0" crushed	29+30	8	turnaround	22	turnarounds	1	22	\$4.26	\$94
Culvert Bedding/Backfill	1 1/2"-0" crushed	14+90, 19+40, 20+25, 25+00	N/A	culvert	33	culverts	4	132	\$5.51	\$727
Total Rock for Road Segment:				4A to 4B				1,855		

\$8,081

ROAD SEGMENT 4C to 4D				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	4C to 4D		0+00 to 11+50				
				Volume (CY) per	Number of	Volume (CY) per	Number of			
Base Rock	6"-0" pit-run	9+50 to 11+50	10	station	62	stations	2	124	\$4.88	\$605
Base Rock	5"-0" crushed	0+00 to 11+50	8	station	50	stations	11.5	575	\$4.26	\$2,450
Junction Rock	1 1/2"-0" crushed	0+00	3	junction	11	junctions	1	11	\$5.51	\$61
Junction Rock	5"-0" crushed	0+00	8	junction	22	junctions	1	22	\$4.26	\$94
Traction Rock	1 1/2"-0" crushed	8+50 to 11+50	2	station	13	stations	4	52	\$5.51	\$287
Turnouts	5"-0" crushed	8+50	8	turnout	22	turnouts	1	22	\$4.26	\$94
Turnarounds	5"-0" crushed	8+50	8	turnaround	22	turnarounds	1	22	\$4.26	\$94
Landings	6"-0" pit-run	4D	N/A	Landing	88	Landings	1	88	\$4.88	\$429
Total Rock for Road Segment:				4C to 4D				916		

\$4,112

ROAD SEGMENT 4E to 4F				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	4E to 4F		0+00 to 8+50				
				Volume (CY) per	Number of	Volume (CY) per	Number of			
Base Rock	5"-0" crushed	0+00 to 8+50	8	station	50	stations	8.5	425	\$4.26	\$1,811
Junction Rock	1 1/2"-0" crushed	0+00	3	junction	11	junctions	1	11	\$5.51	\$61
Turnouts	5"-0" crushed	5+00	8	turnout	22	turnouts	1	22	\$4.26	\$94
Turnarounds	5"-0" crushed	5+00	8	turnaround	22	turnarounds	1	22	\$4.26	\$94
Landings	6"-0" pit-run	4F	N/A	Landing	88	Landings	1	88	\$4.88	\$429
Total Rock for Road Segment:				4E to 4F				568		

\$2,488

Processing:		Description	No.sta	Rate/sta	Cost
		Process & Compact Base Rock (5"-0"):	52.60	\$24.28	\$1,277.13

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Pancho

NEW CONSTRUCTION:

STATIONS

0.00 MILES

ROAD: I1-I2(199.0 sta.), I2-I3(43.9 sta.), I4-I5(3

IMPROVEMENT:

322.45

STATIONS

6.11 MILES

I6-I7(3.3 sta.), I8-I9(2.4 sta.), I10-I11(43.65 sta.).

CLEARING & GRUBBING

	Method	Acres/amount	x	Rate	=	Cost
All						
	Spot ditch line vegetation clearing					
	(14G Hrs.)	10	x	\$100.00	=	\$1,000.00
	(C315 Hrs.)	20	x	\$101.00	=	\$2,020.00
SUB TOTAL FOR CLEARING & GRUBBING						\$3,020

EXCAVATION

	Material	Cy/amount	x	Rate	=	Cost
			x		=	\$0.00
			x		=	\$0.00
			x		=	\$0.00
			x		=	\$0.00
			x		=	\$0.00
			x		=	\$0.00
			x		=	\$0.00
			x		=	\$0.00
			x		=	\$0.00
			x		=	\$0.00
			x		=	\$0.00
			x		=	\$0.00
SUB TOTAL FOR EXCAVATION						\$0

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
I1 to I2									\$0.00
100+80	18	30	\$19.53	\$585.90					\$0.00
				\$0.00					\$0.00
				\$0.00					\$0.00

Other/miscellaneous:

Culvert stakes & markers:

Description	Quantity	Rate	Cost
Culvert markers	6	\$20.00	\$120.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$706

Subtotal of Clearing, Exc., Culv. \$3,726

SURFACING										Stations/ amount		Rate/ sta/amt		Cost						
Subgrade prep:										Description		x								
										Spot grading: 11-12, 110-111 (14G Hrs.)		30.00		x \$100.00 \$3,000.00						
										Spot compaction: 11-12, 110-111 (V. Roller Hrs.)		15.00		x \$77.00 \$1,155.00						
										(Water Truck Hrs.)		15.00		x \$89.00 \$1,335.00						
										Grade, Shape and Ditch 16': 12-13, 14-15, 16-17, 18-19		79.80		x \$24.83 \$1,981.43						
										Subgrade Compaction: 12-13, 14-15, 16-17, 18-19		79.80		x \$20.19 \$1,611.16						
ROAD SEGMENT 11 to 12										POINT TO POINT 11 to 12		Sta. to Sta. 0+00 to 199+00		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost				
Application		Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of													
Surface Leveling Rock		1 1/2"-0" crushed	0+00 to 199+00	N/A	load	11	loads	7	77	\$5.51	\$424									
Culvert Bedding and Backfill		1 1/2"-0" crushed	100+80	N/A	load	11	loads	3	33	\$5.51	\$182									
Total Rock for Road Segment:					11 to 12				110			\$606								
ROAD SEGMENT 12 to 13										POINT TO POINT 12 to 13		Sta. to Sta. 0+00 to 43+90		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost				
Application		Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of													
Subgrade Leveling Rock		1 1/2"-0" crushed	0+00 to 43+90	N/A	load	11	loads	4	44	\$5.51	\$242									
Surfacing		1 1/2"-0" crushed	8+50 to 43+90	2	station	13	stations	35.4	460	\$5.51	\$2,536									
Turnouts		1 1/2"-0" crushed	11+90, 17+60, 20+90, 25+40, 30+80, 39+55	N/A	turnout	11	turnouts	6	66	\$5.51	\$364									
Junctions		1 1/2"-0" crushed	14+70, 23+22	N/A	junction	11	junctions	2	22	\$5.51	\$121									
Total Rock for Road Segment:					12 to 13				592			\$3,263								
ROAD SEGMENT 14 to 15										POINT TO POINT 14 to 15		Sta. to Sta. 0+00 to 30+20		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost				
Application		Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of													
Subgrade Leveling Rock		1 1/2"-0" crushed	0+00 to 17+50	N/A	load	11	loads	1	11	\$5.51	\$61									
Surfacing		1 1/2"-0" crushed	0+00 to 17+50	2	station	13	stations	17.5	228	\$5.51	\$1,254									
Turnouts		1 1/2"-0" crushed	4+40, 10+75, 14+60,	N/A	turnout	11	turnouts	6	66	\$5.51	\$364									
Junctions		1 1/2"-0" crushed	15+60	N/A	junction	11	junctions	1	11	\$5.51	\$61									
Subgrade Leveling Rock		5"-0" crushed	17+50 to 27+60	N/A	load	11	loads	2	22	\$4.26	\$94									
Surfacing		5"-0" crushed	17+50 to 27+60	4	station	25	stations	10.1	253	\$4.26	\$1,076									
Turnouts		5"-0" crushed	23+30,	N/A	turnout	11	turnouts	6	66	\$4.26	\$281									
Truck Turnarounds		5"-0" crushed	27+60	N/A	turnaround	11	turnarounds	1	11	\$4.26	\$47									
Junctions		5"-0" crushed	24+80	N/A	junction	11	junctions	1	11	\$4.26	\$47									
Surfacing		6"-0" pit-run	27+60 to 30+20	4	station	25	stations	2.6	65	\$4.88	\$317									
Landing Improvement		6"-0" pit-run	15	N/A	load	11	loads	4	44	\$4.88	\$215									
Total Rock for Road Segment:					14 to 15				787			\$3,815								
ROAD SEGMENT 16 to 17										POINT TO POINT 16 to 17		Sta. to Sta. 0+00 to 3+30		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost				
Application		Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of													
Subgrade Leveling Rock		5"-0" crushed	0+00 to 2+30	N/A	load	11	loads	1	11	\$4.26	\$47									
Surfacing		5"-0" crushed	0+00 to 2+30	4	station	25	stations	2.3	58	\$4.26	\$245									
Truck Turnarounds		5"-0" crushed	2+30	N/A	turnaround	11	turnarounds	1	11	\$4.26	\$47									
Surfacing		6"-0" pit-run	2+30 to 3+30	4	station	25	stations	1	25	\$4.88	\$122									
Landing Improvement		6"-0" pit-run	17	N/A	load	11	loads	4	44	\$4.88	\$215									
Total Rock for Road Segment:					16 to 17				149			\$675								
ROAD SEGMENT 18 to 19										POINT TO POINT 18 to 19		Sta. to Sta. 0+00 to 2+40		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost				
Application		Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of													
Surfacing		6"-0" pit-run	0+00 to 2+40	4	station	25	stations	2.4	60	\$4.88	\$293									
Landing Improvement		6"-0" pit-run	19	N/A	load	11	loads	4	44	\$4.88	\$215									
Total Rock for Road Segment:					18 to 19				104			\$508								
ROAD SEGMENT 110 to 111										POINT TO POINT 110 to 111		Sta. to Sta. 0+00 to 43+65		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost				
Application		Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of													
Surface Leveling Rock		1 1/2"-0" crushed	0+00 to 43+65	N/A	load	11	loads	4	44	\$5.51	\$242									
Total Rock for Road Segment:					110 to 111				44			\$242								
Processing:										Description		No.sta	Rate/sta	Cost						
										Water, Process & Compact: 12-13, 14-15, 16-17, 18-19		79.80	\$56.48	\$4,507						
SUB TOTAL FOR SURFACING										24"-12" rr	24"-12" rr	24"-6" rr	12"-6" rr	6"-4" pr	6"-0"pr	5"-0" crushed	1 1/2"-0" crushed	3/4"-0" crushed	Total	\$22,699
															282	442	1,062	1,786		
SPECIAL PROJECTS										Description		Cy/Amount	Rate	Cost						
										pit-run development (see project No. 3)				\$0.00						
														\$0.00						
SUB TOTAL FOR SPECIAL PROJECTS																\$0				
GRAND TOTAL																\$26,425				
Compiled By: W. Lawrence										Date: 3/20/18										
										Subtotal of Surfacing & Spec. Proj.						\$22,699				
										Subtotal of Clearing, Exc., Culv.						\$3,726				

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 3 Timber Sale Name: Pancho
 Quarry: Green Mountain No. 1 Swell:
 Location: NE 1/4, Sec. 34, T05N, R06W, W.M. Shrink: 16%
 County: Clatsop
 By: W. Lawrence Loading Hopper: Yes
 Date: 03/22/2018

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"	40%	CR	3,700	1,312	5,604
5"-0"	40%	CR			
6"-0"	40%	PR			
24"-6"		RR			
36"		RR			
TOTAL CUBIC YARDS OF ROCK:			3,700	1,312	5,604

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Loading Hopper	0.15	\$553	\$83	Off Highway Dump Truck	0.15	\$553	\$83
Screening Plant	0.15	\$553	\$83	Excavator	0.15	\$1,406	\$211
3 Stage Crusher	0.15	\$2,891	\$434	Front End Loader	0.15	\$1,406	\$211
Drill & Compressor	0.15	\$1,406	\$211	D6 Cat	0.15	\$778	\$117
Powder	0.15	\$351	\$53				

SUB TOTAL FOR MOBILIZATION

\$1,484

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

SUB TOTAL FOR SET UP COSTS

\$4,569

TOTAL MOBILIZATION & SET UP COSTS

\$6,053

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST

TOTAL CLEARING & GRUBBING COSTS

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST

TOTAL EXCAVATION COSTS

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST	
Type	Cu. yd.	Vol.	Weight	Ripping	20%	1,121	\$2.20	\$2,466
crushed	5,604	100%		Drill & shoot	80%	6,276	\$2.30	\$14,436
pit run	0	0		Oversize red	5%	280	\$5.80	\$1,625
rip rap	0	0		Other				
Total	5,604							
reject	2,242	40.0%						

TOTAL ROCK DEVELOPMENT COSTS

\$18,527

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate			
Calibrate			
Test	2	\$57.30	\$115
Test			

TOTAL CALIBRATION & TESTING COSTS

\$115

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	7,846	\$0.91	\$7,126

TOTAL FEEDING & LOADING COSTS

\$7,126

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
1-1/2"-0"	crushed	5,604	3 stage w/s	120	\$3.24	\$18,166
5"-0"	crushed		2 stage w/s	140		

TOTAL ROCK CRUSHING COSTS

\$18,166

8) STOCKPILING

STOCKPILE SITE PREPARATION

Equipment	Hours	Rate	Total
D6 Cat	2.5	\$113.00	\$282.50

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

\$282.50

SUB TOTAL

\$283

HAUL & STOCKPILE

STOCKPILE LOCATION	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1.					
2. Military Stockpile Site	1-1/2"-0"	6	4,292	\$3.00	\$12,876
3.					
4.					
5.					
6.					

SUB TOTAL

\$12,876

TOTAL STOCKPILING COSTS

\$13,158

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area.	\$8,473
\$3.78 /CY 2,242 CY	
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access	
C330 \$155 /Hr 2 Hrs	\$310

TOTAL MISCELLANEOUS COSTS

\$8,783

10) GRAND TOTAL:

\$71,929

\$/Cubic Yard

\$12.84

Footnotes:

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 3	Timber Sale Name: Pancho
Quarry: Green Mountain No. 2	Swell:
Location: NE 1/4, Sec. 34, T05N, R06W, W.M.	Shrink: 16%
County: Clatsop	
By: W. Lawrence	Loading Hopper: Yes
Date: 03/22/2018	

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"		CR			
5"-0"	40%	CR	3,000	3,336	6,816
6"-0"	40%	PR		780	780
24"-6"		RR			
36"		RR			
TOTAL CUBIC YARDS OF ROCK:			3,000	4,116	7,596

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Loading Hopper	1	\$553	\$553	Off Highway Dump Truck	1	\$553	\$553
Screening Plant	1	\$553	\$553	Excavator	1	\$1,406	\$1,406
2 Stage Crusher	1	\$2,175	\$2,175	Front End Loader	1	\$1,406	\$1,406
Drill & Compressor	1	\$1,406	\$1,406	D6 Cat	1	\$778	\$778
Powder	1	\$351	\$351	D8 Cat	1	\$1,406	\$1,406

SUB TOTAL FOR MOBILIZATION

\$10,586

EQUIPMENT SET UP	TIMES	RATE	COST
2 Stage Crusher	1	\$2,175	\$2,175
Screening Plants	1	\$293	\$293
Loading Hopper	1	\$293	\$293
Original Calibration	1	\$544	\$544

SUB TOTAL FOR SET UP COSTS

\$3,305

TOTAL MOBILIZATION & SET UP COSTS

\$13,891

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clear and Grub Quarry Prep				
C330	4.0	Hours	\$155	\$620
Off Highway	4.0	Hours	\$127	\$508

TOTAL CLEARING & GRUBBING COSTS

\$1,128

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST

TOTAL EXCAVATION COSTS

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping	20%	1,519	\$2.20	\$3,342
crushed	6,816	90%	Drill & shoot	80%	8,508	\$2.30	\$19,567
pit run	780	10%	Oversize red	5%	380	\$5.80	\$2,203
rip rap	0	0	Other				
Total	7,596						
reject	3,038	40.0%					

TOTAL ROCK DEVELOPMENT COSTS

\$25,112

5) CALIBRATION & TESTING

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

TOTAL CALIBRATION & TESTING COSTS

\$172

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	9,854	\$0.78	\$7,672

TOTAL FEEDING & LOADING COSTS

\$7,672

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
1-1/2"-0"	crushed		3 stage w/s	120		
5"-0"	crushed	6,816	2 stage w/s	140	\$2.48	\$16,894

TOTAL ROCK CRUSHING COSTS

\$16,894

8) STOCKPILING

STOCKPILE SITE PREPARATION

Equipment	Hours	Rate	Total
D6 Cat	0.5	\$778.00	\$389.00

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

\$389.00

SUB TOTAL

\$389

HAUL & STOCKPILE

STOCKPILE LOCATION

	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1.					
2.					
3. Green Mt. Stockpile Site	5"-0"	4	3,480	\$3.00	\$10,435
4.					
5.					
6.					

SUB TOTAL

\$10,435

TOTAL STOCKPILING COSTS

\$10,824

9) MISCELLANEOUS COSTS

DESCRIPTION

COST

Load, Haul, and Spread the reject material at the waste area.

\$11,485

\$3.78 /CY

3,038 CY

Final Quarry Dev., Access Road Const., Waterbarring, Drainage,
Block Quarry Access

C330

\$155 /Hr

4 Hrs

\$620

D6

\$113 /Hr

4 Hrs

\$452

Quarry Rehab

D8

\$158 /Hr

50 Hrs

\$7,900

TOTAL MISCELLANEOUS COSTS

\$20,457

10) GRAND TOTAL:

\$96,151

\$/Cubic Yard

\$14.11

Footnotes:

Timber Sale
Vacating Costs V1 to V2

Work Description	Station	Pump	C330	C315	D10/12 trk	Labor	Straw- bales	Seed-lbs
V1 to V2								
Walk equipment to back end of project			5.0					
V1: Road block / waterbar	0+00		1.0			2.0	4	2.5
Remove fill, large waterbar	2+75		5.0			5.0	8	6
Waterbar	3+75		0.5					
Waterbar	6+20		0.5					
Remove fill / salvage rip-rap	10+20	10.0	15.0	10.0	10.0	10.0	12	10
Long waterbar, remove culvert	11+70		1.0		2.0			
Waterbar	14+30		0.5					
Waterbar	17+70		0.5					
Waterbar	20+65		0.5					
Remove fill	23+50	5.0	5.0			5.0	8	6
V2: Road block / waterbar	26+50		1.0			2.0	4	2.5
Total Quantity (Hours)		15.0	35.5	10.0	12.0	24.0	36.0	27.0
Rates		\$10.00	\$155.00	\$101.00	\$99.00	\$40.00	\$10.73	\$1.60
Total Dollars		\$150	\$5,503	\$1,010	\$1,188	\$960	\$386	\$43

Total Cost

\$9,240

CRUSHED ROCK COST

SALE NAME:	Pancho
PROJECT:	Road Const. and Improvement
Stockpile:	Military

MATERIAL: 1 1/2"-0"

DATE: 03/20/2018
BY: W.L/J.C.

[illegible]

ROCK HAUL:

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

Ave haul:	\$4.18	/cy
Load:	\$0.48	/cy
Spread:	\$0.84	/cy

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

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

Production: cy/day = 906

CRUSHED ROCK HAUL COSTS 1,312 cy @ \$5.51 /cy

CRUSHED ROCK COST

SALE NAME:	Pancho
PROJECT:	Road Const. and Improvement
Stockpile:	Gereen Mt. No. 2 Quarry

MATERIAL: 5"-0"

DATE: 03/20/2018
BY: W.L./J.C.

[illegible]

ROCK HAUL:

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

Ave haul: \$2.99 /cy

Load: \$0.48 /cy

Spread: \$0.78 /cy

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

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

Production: cy/day = 1,266

CRUSHED ROCK HAUL COSTS 3,337 cy @ \$4.26 /cy

PIT RUN ROCK COST

SALE NAME:	Pancho
PROJECT:	Road Const. and Improvement
QUARRY:	Green Mt. No. 2 Quarry

MATERIAL: Pit Run

DATE: 03/20/2018
BY: W.L./J.C.

[illegible]

ROCK HAUL:

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

Ave haul:	\$3.62	/cy
Load:	\$0.48	/cy
Spread:	\$0.78	/cy

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

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

Production: cy/day = 1,047

PIT RUN ROCK HAUL COSTS

780 cy @ \$4.88 /cy

Projects Road Maintenance Cost Summary

Sale: Pancho
Date: 20-Mar-18
By: W. Lawrence

Type	Equipment/Rationale			Hours	Rate	Cost
Project Work	Grader 14G			8	\$100	\$800
Final Haul	Dump Truck 12CY			2	\$79	\$158
Road	FE Loader C966			1	\$83	\$83
Maintenance	Vibratory Roller			8	\$77	\$616
	Water Truck 2,500 gallon			4	\$89	\$356
Total						\$2,013

Production Rates

Grader

Vibratory Roller

Miles/day	Distance(miles)	Days
1.5	0.90	0.6
1.5	0.90	0.6

NOTE:

	0.90	Miles
		Miles
		Miles
		Miles
TOTAL=	0.90	Miles

**Pancho
FY 2018
TIMBER CRUISE REPORT**

1. **Sale Area Location:** Areas 1, 2, 3 and 4 are located in portions of Sections 4 and 5 T4N, R6W, W.M., Clatsop County, Oregon and portions of Sections 33, 34, and 35, T5N, R6W, W.M., Clatsop County, Oregon.
2. **Fund Distribution: Fund:** BOF 100% CSL 0%
Tax Code: 8-01 100%
3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Stream Buffer Acres	New R/W Acres	Existing RW Acres	Non-Harvest Area	Net Acreage	Survey Method
1	Modified Clearcut	56	11	0	1	0	44	GIS
2	Modified Clearcut	49	7	0	3	0	39	GIS
3	Modified Clearcut	29	4	1	1	0	23	GIS
4	Modified Clearcut	60	4	2	1	1	52	GIS
5	R/W (In-unit)	3	N/A	N/A	N/A	N/A	3	Length x Width
TOTALS		197	26	3	6	1	161	

4. **Cruisers and Cruise Dates:** Areas 1, 2, 3, and 4 were cruised by Bryce Rodgers, John Choate, Cody Valencia, Kevin Berry, Matt Dimick, and Ella Salkeld from March 15th through March 16th, 2018.
5. **Cruise Method and Computation:** Areas 1, 2, and 3 are modified clearcut units. A variable plot cruise with a 40 BAF was used for these Areas. The plots were located on a 3 chain by 6 chain grid, with a count/grade plot ratio of 2:1. A total of 64 plots were sampled.

Area 4 is a modified clearcut unit. A variable plot cruise with a 54.45 BAF was used for this Area. The plots were located on a 3 chain by 4 chain grid, with a count/grade plot ratio of 2:1. A total of 39 plots were sampled.

Area 5 R/W Right-of-way volume was calculated by multiplying the R/W acreage and the average volume per acre from the plots in Areas 1, 2, and 3.

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

<u>AREA</u>	<u>PROJECT</u>	<u>TRACT</u>	<u>CRUISE TYPE</u>
1, 2, and 3	Pancho	A123	00MC, TK
4	Pancho	A4	00MC, TK
5	Pancho	R/W	TK

Timber Description: Areas 1, 2, and 3 are approximately 65 year old stands of Douglas-fir, with some western hemlock, and red alder. The average take Douglas-fir tree size is approximately 24 inches DBH, with an average merchantable tree height of 76 feet. The average hemlock take tree size is approximately 18 inches in DBH, with an average merchantable tree height of 63 feet. The average red alder take tree size for harvest is approximately 15 inches DBH, with an average merchantable tree height of 52 feet. The average volume per acre to be harvested (net) is approximately 39 MBF. All trees

were cruised to a merchantable top of 6 inch DIB or 40% fp. Areas 1 and 2 were previously thinned with the Nettle Meyer Combination timber sale in 2002.

Area 4 is an approximately 70 year old stand of Douglas-fir, western hemlock and red alder. The average take Douglas-fir tree size is approximately 24 inches DBH, with an average merchantable tree height of 85 feet. The average take hemlock tree size is approximately 13 inches DBH, with an average merchantable tree height of 34 feet. The average take red alder tree size for harvest is approximately 12 inches DBH, with an average merchantable tree height of 41 feet. The average volume per acre to be harvested (net) is approximately 42 MBF. All trees were cruised to a merchantable top of 6 inch DIB or 40% fp.

Area 5 R/W is similar to the timber description mentioned above in the timber sale areas 1, 2, and 3. The average volume is 39 MBF/Acre (net).

Cedar is a reserved species.

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

Area	Target CV	Target SE%	Actual CV	Actual SE%
1, 2, and 3	50	8	36.6	4.6
4	50	10	53.5	8.6

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

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

Conifer

Species	DBH	Net Vol. MBF	2 Saw	3Saw	4 Saw	% D & B	% Sale
Douglas-fir	24	5,764	4,336	1,297	131	1.4	89
Western Hemlock	14	395	183	125	87	-	6
Noble fir/other fir	35	183	166	14	3	-	3
Sitka Spruce	19	12	9	1	2	6.7	<1

Hardwoods

Species	DBH	Net Vol. MBF	12"+	10-12"	8-10"	6-8"	% D & B	% Sale
Red Alder	15	94	0	66	3	25	-	2

TOTAL NET VOLUME	6,448 MBF
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8. Prepared by: Cody Valencia

Date: 03/19/2018

10. Approved by: 

Date: 3/26/2018

11. Attachments:
 Cruise Plans & Maps (6 pages)
 Species, Sort, Grade Report (4 pages)
 Statistics Reports (9 pages)
 Log Stock Table Report MBF (2 pages)
 Stand Table (2 pages)

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Pancho

Area 1, 2, and 3

Harvest Type: (MC) Modified Clearcut

Approx. Cruise Acres: 105 **Estimated CV%** 50 Net BF/Acre **SE% Objective** 8 Net BF/Acre

Planned Sale Volume : 5.36 MMBF **Estimated Sale Area Value/Acre:** \$15,170/Acre
(37 MBF/Ac. @ \$410/Acre)

A. Cruise Goals: (a) Grade minimum 80 conifer and 40 hardwood trees
(b) Sample 66 cruise plots (25 grade/41 count); (c) Other goals (Determine "automark"
thinning standards; X Determine log grades for sale value; X Determine snag and leave
tree species and sizes.

B. Cruise Design:

1. Plot Cruises: BAF 40 (Full point)
Cruise Line Directions: 0°/180°
Cruise Line Directions: 148°/328°
Cruise Line Directions: 120°/300°
Cruise Line Spacing 3 (chains) 198 (Feet)
Cruise Plot Spacing 6 (chains) 396 (Feet)
Grade/Count Ratio 1:2

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

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

DO NOT RECORD 22' LENGTHS.

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

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 8" for hardwoods.
Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for conifer trees > 18" dbh.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree. Hardwoods shall be recorded in 8' and 10' multiples.

6. **Species, Sort, and Grade Codes:**

A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)

B. Sort: Use code "1" (Domestic).

C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
Hardwoods: Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill, or R = Camp Run; 0 = Cull.
All Maple Camp Run = R

7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.

10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: John Choate

Approved by: [Signature]

Date: 3/14/18

Pancho Cruise

Area 1, 2, and 3 (MC)

Plots Total: 64

Grade Plots: 25

Count Plots: 39

AZ (Area 1): 0/180

AZ (Area 2): 148/328

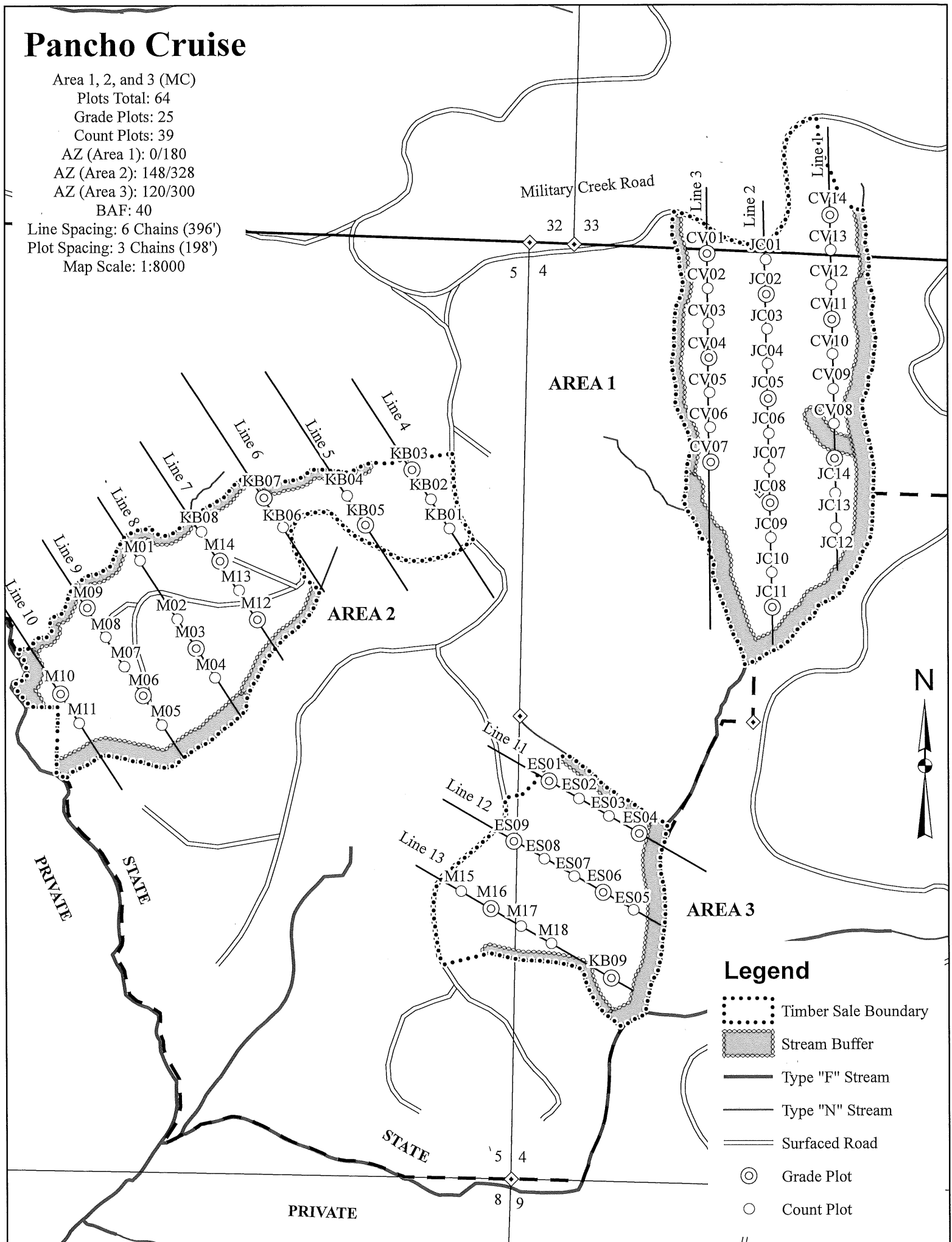
AZ (Area 3): 120/300

BAF: 40

Line Spacing: 6 Chains (396')

Plot Spacing: 3 Chains (198')

Map Scale: 1:8000



**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Pancho

Area 4

Harvest Type: (MC) Modified Clearcut

Approx. Cruise Acres: 55 **Estimated CV%** 50 Net BF/Acre **SE% Objective** 10 Net BF/Acre

Planned Sale Volume : 5.36 MMBF **Estimated Sale Area Value/Acre:** \$11,340/Acre
(27 MBF/Ac. @ \$420/Acre)

A. Cruise Goals: (a) Grade minimum 40 conifer and 20 hardwood trees
(b) Sample 40 cruise plots (15 grade/25 count); (c) Other goals (Determine "automark" thinning standards; X Determine log grades for sale value; X Determine snag and leave tree species and sizes.

B. Cruise Design:

1. Plot Cruises: BAF 54.45 (Full point)
Cruise Line Directions: 90°/270°
Cruise Line Spacing 4 (chains) 264 (Feet)
Cruise Plot Spacing 3 (chains) 198 (Feet)
Grade/Count Ratio 1:2

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

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

DO NOT RECORD 22' LENGTHS.

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

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 8" for hardwoods.
Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for conifer trees > 18" dbh.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

5. Tree Segments: Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree. Hardwoods shall be recorded in 8' and 10' multiples.

6. Species, Sort, and Grade Codes:

A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)

B. Sort: Use code "1" (Domestic).

C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
Hardwoods: Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill, or R = Camp Run; 0 = Cull.
All Maple Camp Run = R

7. Deductions: Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

8. Standard Field Procedures: Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

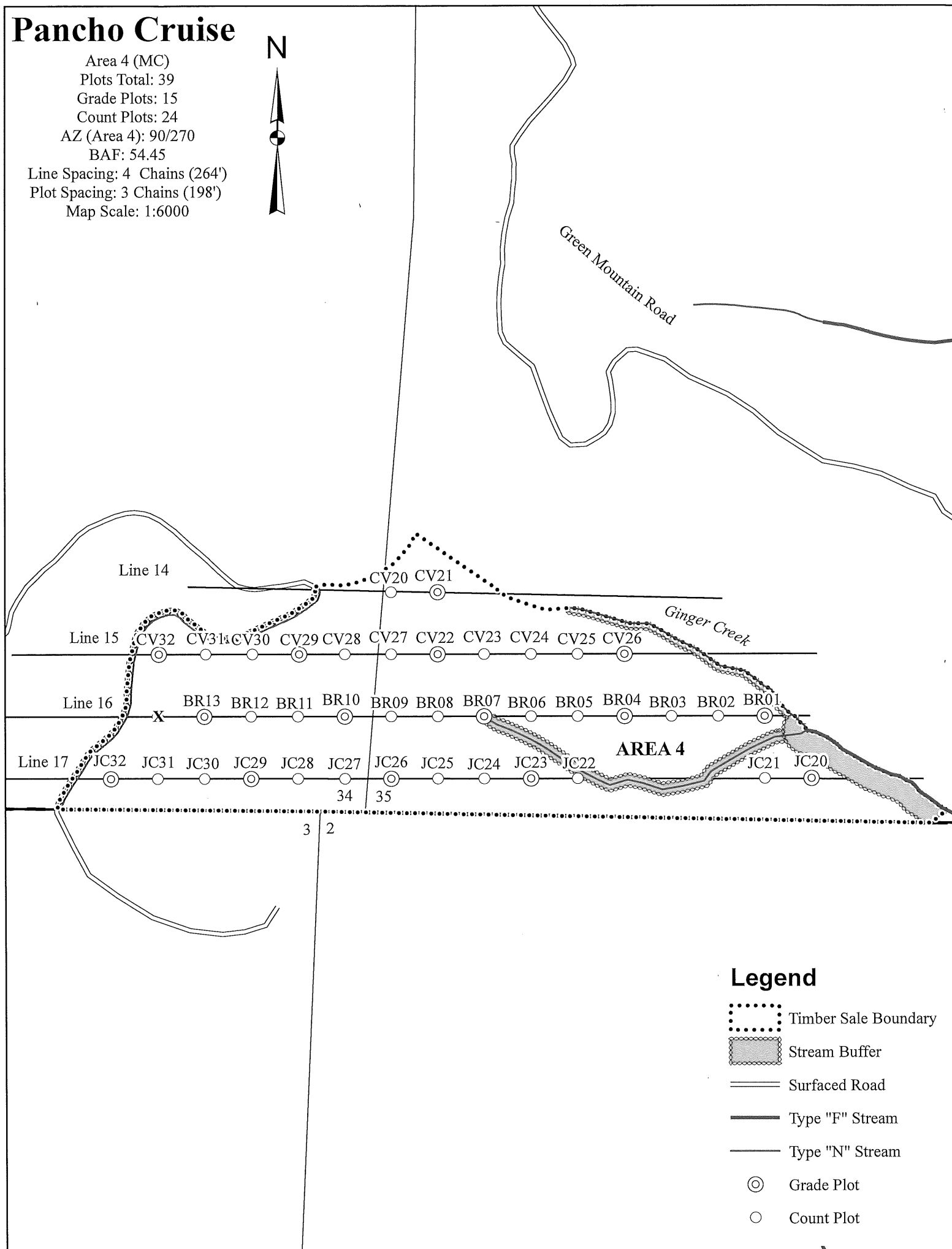
9. Cruising Equipment: Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.

10. Attachments: A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: JOHN CHOATE
Approved by: 3/14/18
Date: John Choate

Pancho Cruise

Area 4 (MC)
 Plots Total: 39
 Grade Plots: 15
 Count Plots: 24
 AZ (Area 4): 90/270
 BAF: 54.45
 Line Spacing: 4 Chains (264')
 Plot Spacing: 3 Chains (198')
 Map Scale: 1:6000



Legend

- Timber Sale Boundary
- Stream Buffer
- Surfaced Road
- Type "F" Stream
- Type "N" Stream
- Grade Plot
- Count Plot

TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																		
T05N R06W S04 TyTK106.00 T05N R06W S04 TyTK3.00 T05N R06W S07 TyTK52.00				Project: PANCHO				Acres 161.00				Page 1 Date 3/19/2018 Time 3:30:31PM										
S Spp	So T	Gr rt	ad	%	Bd. Ft. per Acre			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		
					Def%	Gross	Net		4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99						
D		DOCU															11	20		0.00	3.7	
D		DO2S		75	1.6	27,368	26,933	4,336			35	65	2	1	4	93	38	17	455	2.59	59.2	
D		DO3S		22	.3	8,077	8,053	1,297			62	7	3	6	28	63	34	10	142	1.14	56.7	
D		DO4S		3	6.8	876	816	131			100		72	8	6	13	20	7	28	0.51	29.2	
D Totals				89	1.4	36,322	35,803	5,764			16	28	56	4	2	10	85	32	12	241	1.74	148.8
A		DO2S		70		410	410	66			100					100	40	11	165	1.19	2.5	
A		DO3S		3		18	18	3			100			100			30	6	40	0.43	.5	
A		DO4S		27		155	155	25			100		26	19		55	27	6	37	0.50	4.2	
A Totals				1		583	583	94			100		7	8		85	32	8	82	0.80	7.1	
H		DOCU															13	24		0.00	.6	
H		DO2S		46		1,134	1,134	183			72	28				100	40	15	372	2.16	3.0	
H		DO3S		31		774	774	125			100			4	49	47	34	8	88	0.81	8.8	
H		DO4S		23		543	543	87			98	2	25	64		11	23	6	32	0.42	17.2	
H Totals				6		2,451	2,451	395			53	34	13	6	15	15	64	28	8	83	0.82	29.6
NF		DO2S		90		1,031	1,031	166			10	90			7	93	39	21	809	4.07	1.3	
NF		DO3S		8		84	84	14			29	71	10		90		27	13	213	1.80	.4	
NF		DO4S		2		21	21	3			100		16	84			26	9	77	1.05	.3	
NF Totals				3		1,136	1,136	183			4	9	87	1	2	13	85	34	18	585	3.39	1.9
S		DO2S		75		56	56	9			100					100	40	15	360	2.33	.2	
S		DO3S		10		8	8	1			100			100			30	7	50	0.80	.2	
S		DO4S		15	33.3	16	11	2			100		100				16	10	40	1.19	.3	
S Totals				0	6.7	80	75	12			25	75	14	10		75	26	11	129	1.54	.6	
Totals					1.3	40,573	40,048	6,448			19	28	53	4	3	10	83	32	11	213	1.59	188.1

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page		1			
				Project: PANCHO												Date		3/20/2018			
																Time		7:08:53AM			
T05N R06W S04 TTK																T05N R06W S04 TTK					
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt			
05N		06W		04		A123		TK		106.00		64		129		1		W			
S So Gr T rt ad				% 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/ Ft In Ft Lf		
									4-5 6-11 12-16 17+				12-20 21-30 31-35 36-99								
D DO CU																	11 20 0.00				4.7
D DO 2S				74	1.8 27,528 27,023			2,864	34 66				3 1 5 91				38 17 466 2.70				58.1
D DO 3S				23	.3 8,477 8,456			896	56 10 34				3 7 27 62				34 10 147 1.16				57.4
D DO 4S				3	8.1 988 909			96	100				66 8 8 18				21 7 30 0.51				30.4
D Totals				93	1.6 36,993 36,387			3,857	16 28 57				4 3 10 83				32 12 242 1.77				150.4
H DO CU																	10 22 0.00				.7
H DO 2S				54	564 564			60	100				100				40 14 298 1.92				1.9
H DO 3S				33	333 333			35	100				14 86				32 9 86 0.77				3.8
H DO 4S				13	131 131			14	100				100				24 6 30 0.44				4.4
H Totals				3	1,028 1,028			109	45 55				17 28 55				29 9 95 0.92				10.8
A DO 2S				74	606 606			64	100				100				40 11 165 1.19				3.7
A DO 3S				4	27 27			3	100				100				30 6 40 0.43				.7
A DO 4S				22	178 178			19	100				34 24 43				25 6 33 0.48				5.3
A Totals				2	811 811			86	100				7 9 84				31 8 84 0.83				9.7
NF DO 2S				85	922 922			98	11 89				11 89				38 21 732 3.75				1.3
NF DO 3S				12	125 125			13	29 71				10 90				27 13 213 1.80				.6
NF DO 4S				3	31 31			3	100				16 84				26 9 77 1.05				.4
NF Totals				3	1,078 1,078			114	6 9 84				2 2 20 76				33 17 480 2.95				2.2
S DO 4S				100	33.3 24 16			2	100				100				16 10 40 1.19				.4
S Totals				0	33.3 24 16			2	100				100				16 10 40 1.19				.4
Type Totals					1.5 39,934 39,319			4,168	18 27 55				4 3 11 82				32 12 227 1.68				173.6

T		Species, Sort Grade - Board Foot Volumes (Type)										Page		1				
TSPCSTGR		Project: PANCHO										Date		3/20/2018				
												Time		7:09:33AM				
T05N R06W S07 TTK										T05N R06W S07 TTK								
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt									
05N	06W	07	A4	TK	52.00	39	62	1	W									
S So Gr T rt ad Spp		% 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		
D	DO	CU												9	24		0.00	
D	DO	2S	77	1.1	27,033	26,746	1,391		38	62		0	3	97	39	16	435	2.38
D	DO	3S	21	.4	7,240	7,209	375	76	24	1	3	32	64	35	9	131	1.09	
D	DO	4S	2	2.9	641	623	32	100		91	9			17	7	23	0.52	
D	Totals		83	1.0	34,914	34,579	1,798	18	29	53	2	1	9	88	33	12	238	1.68
H	DO	CU												20	28		0.00	
H	DO	2S	42		2,331	2,331	121		57	43			100	40	16	427	2.33	
H	DO	3S	32		1,699	1,699	88	100				34	66	35	8	89	0.82	
H	DO	4S	26		1,405	1,405	73	98	2	30	56		14	23	6	32	0.42	
H	Totals		13		5,435	5,435	283	56	25	18	8	15	11	67	28	8	79	0.78
NF	DO	2S	100		1,258	1,258	65		8	92			100	40	22	963	4.68	
NF	Totals		3		1,258	1,258	65		8	92			100	40	22	963	4.68	
A	DO	4S	100		107	107	6	100					100	40	6	60	0.55	
A	Totals		0		107	107	6	100					100	40	6	60	0.55	
S	DO	2S	87		174	174	9		100				100	40	15	360	2.33	
S	DO	3S	13		24	24	1	100				100		30	7	50	0.80	
S	Totals		0		198	198	10	12	88		12		88	35	11	205	1.67	
Type Totals				.8	41,912	41,576	2,162	22	28	49	3	3	9	86	32	11	190	1.44

Species, Sort Grade - Board Foot Volumes (Type)										Page 1												
Project: PANCHO										Date	3/20/2018											
										Time	7:09:14AM											
T05N R06W S04 TTK										T05N R06W S04 TTK												
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt													
05N	06W	04	R/W	TK	3.00	64	129	1	W													
S So Gr Spp T rt ad		% 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																11	20		0.00	4.7
D	DO	2S	74	1.8	27,528	27,023	81					34	66	3	1	5	91	38	17	466	2.70	58.1
D	DO	3S	23	.3	8,477	8,456	25			56	10	34		3	7	27	62	34	10	147	1.16	57.4
D	DO	4S	3	8.1	988	909	3			100				66	8	8	18	21	7	30	0.51	30.4
D Totals			93	1.6	36,993	36,387	109			16	28	57		4	3	10	83	32	12	242	1.77	150.4
H	DO	CU																10	22		0.00	.7
H	DO	2S	54		564	564	2			100							100	40	14	298	1.92	1.9
H	DO	3S	33		333	333	1			100					14	86		32	9	86	0.77	3.8
H	DO	4S	13		131	131	0			100					100			24	6	30	0.44	4.4
H Totals			3		1,028	1,028	3			45	55				17	28	55	29	9	95	0.92	10.8
A	DO	2S	74		606	606	2			100							100	40	11	165	1.19	3.7
A	DO	3S	4		27	27	0			100					100			30	6	40	0.43	.7
A	DO	4S	22		178	178	1			100				34	24		43	25	6	33	0.48	5.3
A Totals			2		811	811	2			100				7	9		84	31	8	84	0.83	9.7
NF	DO	2S	85		922	922	3				11	89				11	89	38	21	732	3.75	1.3
NF	DO	3S	12		125	125	0			29		71		10		90		27	13	213	1.80	.6
NF	DO	4S	3		31	31	0			100				16	84			26	9	77	1.05	.4
NF Totals			3		1,078	1,078	3			6	9	84		2	2	20	76	33	17	480	2.95	2.2
S	DO	4S	100	33.3	24	16	0			100				100				16	10	40	1.19	.4
S Totals			0	33.3	24	16	0			100				100				16	10	40	1.19	.4
Type Totals				1.5	39,934	39,319	118			18	27	55		4	3	11	82	32	12	227	1.68	173.6

TC PSTATS			PROJECT STATISTICS					PAGE 1				
			PROJECT		PANCHO		DATE 3/19/2018					
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06	04	A123	TK		161.00	167	874	1	W		
05N	06W	04	R/W	TK								
05N	06W	07	A4	TK								
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL			167	874	5.2							
CRUISE			74	320	4.3	14,628	2.2					
DBH COUNT												
REFOREST												
COUNT			93	512	5.5							
BLANKS												
100 %												
STAND SUMMARY												
			SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR			269	63.2	23.6	79	39.6	192.3	36,322	35,803	8,379	8,379
WHEMLOCK			20	22.0	14.0	39	6.3	23.5	2,451	2,451	673	673
R ALDER			19	4.6	14.8	51	1.4	5.5	583	583	180	180
NOB FIR			9	.6	34.9	106	0.7	4.3	1,136	1,136	227	227
S SPRUCE			3	.4	19.4	37	0.2	.9	80	75	23	23
TOTAL			320	90.9	21.4	68	49.0	226.6	40,573	40,048	9,483	9,483
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			64.2	3.9	870	905	940					
WHEMLOCK			102.0	23.4	193	252	310					
R ALDER			41.3	9.7	138	153	167					
NOB FIR			33.9	12.0	1,415	1,608	1,800					
S SPRUCE			130.8	90.5	16	163	311					
TOTAL			73.1	4.1	798	832	866	213	53	24		
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			99.5	7.7	58	63	68					
WHEMLOCK			343.1	26.5	16	22	28					
R ALDER			557.3	43.1	3	5	7					
NOB FIR			397.0	30.7	0	1	1					
S SPRUCE			923.4	71.4	0	0	1					
TOTAL			109.4	8.5	83	91	99	478	119	53		
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			95.0	7.3	178	192	206					
WHEMLOCK			260.4	20.1	19	24	28					
R ALDER			580.0	44.8	3	6	8					
NOB FIR			389.9	30.1	3	4	6					
S SPRUCE			899.9	69.6	0	1	1					
TOTAL			86.1	6.7	211	227	242	296	74	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			100.7	7.8	33,016	35,803	38,589					
WHEMLOCK			245.0	18.9	1,987	2,451	2,915					
R ALDER			575.2	44.5	324	583	843					
NOB FIR			396.7	30.7	788	1,136	1,485					
S SPRUCE			1120.3	86.6	10	75	140					
TOTAL			92.5	7.2	37,183	40,048	42,913	342	85	38		

TC PSTATS				PROJECT STATISTICS				PAGE	2
				PROJECT PANCHO				DATE	3/19/2018
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	06	04	A123	TK	161.00	167	874	1	W
05N	06W	04	R/W	TK					
05N	06W	07	A4	TK					

TC TSTATS				STATISTICS				PAGE 1					
				PROJECT PANCHO				DATE 3/19/2018					
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt				
05N	06W	04	A123	00MC	106.00	64	361	1	W				
				TREES	ESTIMATED TOTAL	PERCENT SAMPLE							
				PLOTS	TREES	PER PLOT	TREES	TREES					
TOTAL				64	361	5.6							
CRUISE				28	133	4.8	8,658	1.5					
DBH COUNT													
REFOREST													
COUNT				36	212	5.9							
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				112	65.3	23.6	76	40.7	197.5	36,993	36,387	8,506	8,506
WHEMLOCK				3	5.1	17.8	63	2.1	8.8	1,028	1,028	285	285
R ALDER				9	6.0	15.1	52	1.9	7.5	811	811	248	248
SNAG				4	4.2	17.3	45	1.7	6.9				
NOB FIR				4	.7	32.7	102	0.8	4.4	1,078	1,078	219	219
S SPRUCE				1	.4	17.0	17	0.2	.6	24	16	8	8
TOTAL				133	81.7	22.5	72	47.6	225.6	39,934	39,319	9,266	9,266
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				64.4	6.1	873	929	986					
WHEMLOCK				61.3	42.4	165	287	408					
R ALDER				39.6	14.0	136	158	180					
SNAG													
NOB FIR				20.5	11.7	1,278	1,448	1,617					
S SPRUCE													
TOTAL				73.8	6.4	790	844	897	217	54	24		
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				45.4	5.7	62	65	69					
WHEMLOCK				231.4	28.9	4	5	7					
R ALDER				383.3	47.9	3	6	9					
SNAG				331.8	41.4	2	4	6					
NOB FIR				289.9	36.2	0	1	1					
S SPRUCE				800.0	99.9	0	0	1					
TOTAL				46.9	5.9	77	82	86	88	22	10		
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				38.5	4.8	188	198	207					
WHEMLOCK				222.6	27.8	6	9	11					
R ALDER				390.4	48.8	4	8	11					
SNAG				303.2	37.9	4	7	9					
NOB FIR				287.6	35.9	3	4	6					
S SPRUCE				800.0	99.9	0	1	1					
TOTAL				31.8	4.0	217	226	235	40	10	4		
CL: 68.1 %				COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0				VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR				44.3	5.5	34,373	36,387	38,401					
WHEMLOCK				222.7	27.8	742	1,028	1,314					
R ALDER				380.3	47.5	426	811	1,196					
SNAG													

TC TSTATS				STATISTICS				PAGE	2
				PROJECT PANCHO				DATE	3/19/2018
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	06W	04	A123	00MC	106.00	64	361	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
NOB FIR		291.1	36.4	686	1,078	1,470			
S SPRUCE		800.0	99.9	0	16	32			
TOTAL		<i>36.6</i>	<i>4.6</i>	<i>37,522</i>	<i>39,319</i>	<i>41,117</i>	<i>54</i>	<i>13</i>	<i>6</i>

TC TSTATS				STATISTICS				PAGE 1			
				PROJECT PANCHO		DATE 3/19/2018					
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06W	04	A123	TK	106.00	64	350	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
PLOTS		TREES									
TOTAL		64	350	5.5							
CRUISE		28	129	4.6		8,213	1.6				
DBH COUNT											
REFOREST											
COUNT		36	206	5.7							
BLANKS											
100 %											
STAND SUMMARY											
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
DOUG FIR		112	65.3	23.6	76	40.7	197.5	36,993	36,387	8,506	8,506
WHEMLOCK		3	5.1	17.8	63	2.1	8.8	1,028	1,028	285	285
R ALDER		9	6.0	15.1	52	1.9	7.5	811	811	248	248
NOB FIR		4	.7	32.7	102	0.8	4.4	1,078	1,078	219	219
S SPRUCE		1	.4	17.0	17	0.2	.6	24	16	8	8
TOTAL		129	77.5	22.8	74	45.9	218.8	39,934	39,319	9,266	9,266
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		64.4	6.1	873	929	986					
WHEMLOCK		61.3	42.4	165	287	408					
R ALDER		39.6	14.0	136	158	180					
NOB FIR		20.5	11.7	1,278	1,448	1,617					
S SPRUCE											
TOTAL		70.5	6.2	816	870	924		199	50	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		45.4	5.7	62	65	69					
WHEMLOCK		231.4	28.9	4	5	7					
R ALDER		383.3	47.9	3	6	9					
NOB FIR		289.9	36.2	0	1	1					
S SPRUCE		800.0	99.9	0	0	1					
TOTAL		41.8	5.2	73	77	82		70	17	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		38.5	4.8	188	198	207					
WHEMLOCK		222.6	27.8	6	9	11					
R ALDER		390.4	48.8	4	8	11					
NOB FIR		287.6	35.9	3	4	6					
S SPRUCE		800.0	99.9	0	1	1					
TOTAL		30.2	3.8	210	219	227		36	9	4	
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15			
DOUG FIR		44.3	5.5	34,373	36,387	38,401					
WHEMLOCK		222.7	27.8	742	1,028	1,314					
R ALDER		380.3	47.5	426	811	1,196					
NOB FIR		291.1	36.4	686	1,078	1,470					
S SPRUCE		800.0	99.9	0	16	32					
TOTAL		36.6	4.6	37,522	39,319	41,117		54	13	6	

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT		PANCHO		DATE 3/19/2018		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
05N	06W	07	A4	00MC	52.00	39	181	1	W	
				TREES	ESTIMATED					
				PER PLOT	TOTAL	PERCENT				
					TREES	SAMPLE				
						TREES				
TOTAL		39	181	4.6						
CRUISE		18	63	3.5	6,441	1.0				
DBH COUNT										
REFOREST										
COUNT		21	105	5.0						
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		45	58.8	23.8	85	37.2	181.5	34,914	34,579	8,114
WHEMLOCK		14	57.4	13.2	34	15.0	54.4	5,435	5,435	1,486
SNAG		1	5.0	19.0	25	2.2	9.8			
NOB FIR		1	.4	42.0	123	0.6	4.2	1,258	1,258	244
R ALDER		1	1.8	12.0	41	0.4	1.4	107	107	39
S SPRUCE		1	.5	23.0	72	0.3	1.4	198	198	57
TOTAL		63	123.9	19.3	59	57.5	252.7	41,912	41,576	9,939
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		60.9	9.1	712	784	855				
WHEMLOCK		123.9	34.3	155	236	318				
SNAG										
NOB FIR										
R ALDER										
S SPRUCE										
TOTAL		85.7	10.8	594	666	737	293	73	33	
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		61.8	9.9	53	59	65				
WHEMLOCK		176.6	28.3	41	57	74				
SNAG		309.7	49.6	3	5	7				
NOB FIR		350.9	56.1	0	0	1				
R ALDER		624.5	99.9	0	2	4				
S SPRUCE		624.5	99.9	0	0	1				
TOTAL		73.4	11.7	109	124	138	215	54	24	
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		58.1	9.3	165	182	198				
WHEMLOCK		137.6	22.0	42	54	66				
SNAG		309.7	49.6	5	10	15				
NOB FIR		350.9	56.1	2	4	7				
R ALDER		624.5	99.9	0	1	3				
S SPRUCE		624.5	99.9	0	1	3				
TOTAL		34.4	5.5	239	253	267	47	12	5	
CL:	68.1 %	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15
DOUG FIR		69.4	11.1	30,741	34,579	38,416				
WHEMLOCK		129.7	20.7	4,307	5,435	6,562				
SNAG										
NOB FIR		350.9	56.1	552	1,258	1,965				

TC TSTATS				STATISTICS				PAGE	2
				PROJECT				DATE	3/19/2018
				PANCHO					
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	06W	07	A4	00MC	52.00	39	181	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
R ALDER		624.5	99.9	0	107	213			
S SPRUCE		624.5	99.9	0	198	397			
TOTAL		53.5	8.6	38,016	41,576	45,137	114	29	13

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT PANCHO				DATE	3/19/2018		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06W	07	A4	TK	52.00	39	174	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
TOTAL		39	174	4.5							
CRUISE		18	62	3.4	6,183		1.0				
DBH COUNT											
REFOREST											
COUNT		21	100	4.8							
BLANKS											
100 %											
STAND SUMMARY											
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
DOUG FIR		45	58.8	23.8	85	37.2	181.5	34,914	34,579	8,114	8,114
WHEMLOCK		14	57.4	13.2	34	15.0	54.4	5,435	5,435	1,486	1,486
NOB FIR		1	.4	42.0	123	0.6	4.2	1,258	1,258	244	244
R ALDER		1	1.8	12.0	41	0.4	1.4	107	107	39	39
S SPRUCE		1	.5	23.0	72	0.3	1.4	198	198	57	57
TOTAL		62	118.9	19.4	60	55.2	242.9	41,912	41,576	9,939	9,939
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		60.9	9.1	712	784	855					
WHEMLOCK		123.9	34.3	155	236	318					
NOB FIR											
R ALDER											
S SPRUCE											
TOTAL		84.1	10.7	604	676	748	282	71	31		
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		61.8	9.9	53	59	65					
WHEMLOCK		176.6	28.3	41	57	74					
NOB FIR		350.9	56.1	0	0	1					
R ALDER		624.5	99.9	0	2	4					
S SPRUCE		624.5	99.9	0	0	1					
TOTAL		78.6	12.6	104	119	134	247	62	27		
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		58.1	9.3	165	182	198					
WHEMLOCK		137.6	22.0	42	54	66					
NOB FIR		350.9	56.1	2	4	7					
R ALDER		624.5	99.9	0	1	3					
S SPRUCE		624.5	99.9	0	1	3					
TOTAL		38.4	6.1	228	243	258	59	15	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		69.4	11.1	30,741	34,579	38,416					
WHEMLOCK		129.7	20.7	4,307	5,435	6,562					
NOB FIR		350.9	56.1	552	1,258	1,965					
R ALDER		624.5	99.9	0	107	213					
S SPRUCE		624.5	99.9	0	198	397					
TOTAL		53.5	8.6	38,016	41,576	45,137	114	29	13		

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT PANCHO				DATE 3/19/2018		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
05N	06W	04	R/W	TK	3.00	64	350	1	W	
			TREES	ESTIMATED			PERCENT			
			PER PLOT	TOTAL			SAMPLE			
			TREES	TREES			TREES			
TOTAL		64	350	5.5						
CRUISE		28	129	4.6	232		55.5			
DBH COUNT										
REFOREST										
COUNT		36	206	5.7						
BLANKS										
100 %										
STAND SUMMARY										
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR		112	65.3	23.6	76	40.7	197.5	36,993	36,387	8,506
WHEMLOCK		3	5.1	17.8	63	2.1	8.8	1,028	1,028	285
R ALDER		9	6.0	15.1	52	1.9	7.5	811	811	248
NOB FIR		4	.7	32.7	102	0.8	4.4	1,078	1,078	219
S SPRUCE		1	.4	17.0	17	0.2	.6	24	16	8
TOTAL		129	77.5	22.8	74	45.9	218.8	39,934	39,319	9,266
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		64.4	6.1	873	929	986				
WHEMLOCK		61.3	42.4	165	287	408				
R ALDER		39.6	14.0	136	158	180				
NOB FIR		20.5	11.7	1,278	1,448	1,617				
S SPRUCE										
TOTAL		70.5	6.2	816	870	924		199	50	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		45.4	5.7	62	65	69				
WHEMLOCK		231.4	28.9	4	5	7				
R ALDER		383.3	47.9	3	6	9				
NOB FIR		289.9	36.2	0	1	1				
S SPRUCE		800.0	99.9	0	0	1				
TOTAL		41.8	5.2	73	77	82		70	17	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		38.5	4.8	188	198	207				
WHEMLOCK		222.6	27.8	6	9	11				
R ALDER		390.4	48.8	4	8	11				
NOB FIR		287.6	35.9	3	4	6				
S SPRUCE		800.0	99.9	0	1	1				
TOTAL		30.2	3.8	210	219	227		36	9	4
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUG FIR		44.3	5.5	34,373	36,387	38,401				
WHEMLOCK		222.7	27.8	742	1,028	1,314				
R ALDER		380.3	47.5	426	811	1,196				
NOB FIR		291.1	36.4	686	1,078	1,470				
S SPRUCE		800.0	99.9	0	16	32				
TOTAL		36.6	4.6	37,522	39,319	41,117		54	13	6

TC PLOGSTVB			Log Stock Table - MBF																
T05N R06W S04 TyTK			106.00		Project: PANCHO												Page 1		
T05N R06W S04 TyTK			3.00		Acres 161.00												Date 3/19/2018		
T05N R06W S07 TyTK			52.00														Time 3:27:03PM		
Spp	S T	So Gr rt de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
D		DO 2S	18	26		26	.5						9				17		
D		DO 2S	20	54	5.2	51	.9								51				
D		DO 2S	24	9		9	.2						9						
D		DO 2S	26	17		17	.3							17					
D		DO 2S	32	195		193	3.4						41	75	67	10			
D		DO 2S	38	29	1.3	28	.5							28					
D		DO 2S	40	4,077	1.6	4,011	69.6						306	570	1410	1256	470		
D		DO 3S	12	2		2	.0					2							
D		DO 3S	14	3		3	.1					2		2					
D		DO 3S	16	12		12	.2				1	8	2						
D		DO 3S	18	4		4	.1				2	3							
D		DO 3S	20	14		14	.2				5	5	2	3					
D		DO 3S	24	30		30	.5				6	24							
D		DO 3S	26	16		16	.3				3	13							
D		DO 3S	28	7		7	.1				3	4							
D		DO 3S	30	28		28	.5			4	4						20		
D		DO 3S	32	324		323	5.6			45	37	150	33	29	28				
D		DO 3S	34	38		38	.7			29		9							
D		DO 3S	35	4		4	.1			4									
D		DO 3S	36	10		10	.2			5	5								
D		DO 3S	38	33		33	.6			8	2	24							
D		DO 3S	40	776		772	13.4			56	108	232	11		12	54	299		
D		DO 4S	12	12		12	.2			8	3	1							
D		DO 4S	14	5		5	.1			2	3								
D		DO 4S	16	36		36	.6			15	17	4							
D		DO 4S	17	1		1	.0			1									
D		DO 4S	18	11		11	.2			2	8								
D		DO 4S	20	30		30	.5			25	2	2							
D		DO 4S	24	5		5	.1			5									
D		DO 4S	28	3		3	.1			3									
D		DO 4S	30	4	25.0	3	.1			3									
D		DO 4S	32	8		8	.1			8									
D		DO 4S	36	26	33.3	17	.3			17									
D		Totals		5,848	1.4	5,764	89.4			241	210	482	413	724	1569	1320	806		
A		DO 2S	38	9		9	9.3					9							
A		DO 2S	40	57		57	61.0					57							

Log Stock Table - MBF

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T05N R06W S04 TyTK	106.00
T05N R06W S04 TyTK	3.00
T05N R06W S07 TyTK	52.00

Project: **PANCHO**
Acres **161.00**

Page **2**
Date **3/19/2018**
Time **3:27:03PM**

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		DO	3S	30	3		3	3.2			3									
A		DO	4S	16	4		4	4.6			4									
A		DO	4S	18	1		1	1.1			1									
A		DO	4S	20	1		1	1.2			1									
A		DO	4S	30	5		5	4.9			5									
A		DO	4S	40	14		14	14.7			14									
A		Totals			94		94	1.5			28		66							
H		DO	2S	40	183		183	46.3					45		30	69	38			
H		DO	3S	30	5		5	1.3			5									
H		DO	3S	32	61		61	15.4			15	36	10							
H		DO	3S	36	13		13	3.3			13									
H		DO	3S	40	45		45	11.5			6		39							
H		DO	4S	12	2		2	.5					2							
H		DO	4S	16	18		18	4.6			16	2								
H		DO	4S	20	2		2	.5			2									
H		DO	4S	24	56		56	14.1			56									
H		DO	4S	40	10		10	2.5			10									
H		Totals			395		395	6.1			118	43	49	47	30	69	38			
NF		DO	2S	32	11		11	6.0						5	6					
NF		DO	2S	40	155		155	84.7					5		11		56	45	37	
NF		DO	3S	16	1		1	.7					1							
NF		DO	3S	32	12		12	6.7					3		10					
NF		DO	4S	20	1		1	.3			1									
NF		DO	4S	30	3		3	1.6					3							
NF		Totals			183		183	2.8			1		7	5	5	27	56	45	37	
S		DO	2S	40	9		9	75.2						9						
S		DO	3S	30	1		1	10.4			1									
S		DO	4S	16	3	33.3	2	14.4					2							
S		Totals			13	6.7	12	.2			1		2		9					
Total		All Species			6,532	1.3	6,448	100.0			389	253	606	465	768	1665	1414	851	37	

TC PSTNDSUM		Stand Table Summary										Page	1		
												Date:	3/23/2018		
T05N R06W S04 Ty00MC 106.00				Project PANCHO						Time:		8:29:52AM			
T05N R06W S04 TyTK 3.00				Acres 161.00						Grown Year:					
T05N R06W S07 Ty00MC 52.00															
S Spec T	Sample		Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net	Net	T o t a l s		
	DBH	Trees	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.		Cu.Ft. Acre	Bd.Ft. Acre	Tons	Cunits	MBF
D	9	4	84	72	5.405	2.39	5.40	13.5	45.0		73	243		117	39
D	12	4	86	26	3.040	2.39	3.04	10.0	20.0		30	61		49	10
D	14	6	86	84	4.671	4.99	8.22	19.6	66.4		161	546		259	88
D	15	2	85	94	.973	1.19	1.95	21.5	75.0		42	146		67	23
D	16	4	86	90	1.710	2.39	3.42	23.2	87.5		80	299		128	48
D	17	3	85	79	1.584	2.50	3.17	24.9	84.8		79	269		127	43
D	18	10	87	93	4.177	7.38	9.03	29.4	103.6		266	935		427	151
D	19	7	87	100	2.481	4.88	4.96	39.5	139.0		196	690		316	111
D	20	7	88	111	2.886	6.30	6.92	39.1	148.9		271	1,030		436	166
D	21	8	86	111	2.572	6.19	6.72	39.1	147.2		263	990		423	159
D	22	13	88	112	3.742	9.88	8.88	47.4	186.3		421	1,655		678	266
D	23	13	87	106	2.934	8.47	7.56	46.0	187.8		348	1,420		560	229
D	24	11	87	116	2.764	8.68	7.50	52.2	212.2		391	1,591		630	256
D	25	14	87	113	3.280	11.18	8.72	54.5	218.9		475	1,910		765	307
D	26	13	88	127	2.679	9.88	7.71	57.6	256.0		445	1,975		716	318
D	27	20	87	119	3.358	13.35	9.12	66.8	285.8		609	2,606		981	420
D	28	8	88	111	1.447	6.19	3.76	67.7	288.0		255	1,082		410	174
D	29	7	88	141	1.373	6.30	4.12	82.9	404.0		341	1,664		550	268
D	30	16	88	135	2.521	12.37	7.56	84.2	393.9		637	2,979		1,026	480
D	32	23	86	129	2.837	15.85	8.51	89.3	400.6		760	3,409		1,224	549
D	33	8	85	132	.804	4.78	2.41	97.1	444.2		234	1,071		377	172
D	34	15	85	118	1.532	9.66	4.39	96.7	436.7		425	1,917		683	309
D	35	5	85	110	.552	3.69	1.28	118.9	486.8		153	625		246	101
D	36	8	85	130	.676	4.78	2.03	114.4	546.7		232	1,108		373	178
D	37	8	87	125	.829	6.19	2.14	136.6	651.9		292	1,393		470	224
D	38	10	85	123	.937	7.38	2.34	138.0	630.1		323	1,476		521	238
D	39	6	85	139	.432	3.58	1.30	142.7	703.3		185	911		297	147
D	40	4	86	119	.274	2.39	.82	132.0	616.7		108	506		174	81
D	41	6	84	121	.391	3.58	1.17	126.1	592.2		148	694		238	112
D	44	4	83	116	.226	2.39	.68	151.5	690.0		103	468		165	75
D	45	2	78	98	.108	1.19	.22	164.5	625.0		36	135		57	22
D	Totals	269	86	103	63.191	192.33	145.05	57.8	246.8		8,379	35,803		13,491	5,764
H	9	3	89	50	8.530	3.77	8.53	8.0	30.0		68	256		110	41
H	10	1	83	19	2.303	1.26	2.30	7.0	30.0		16	69		26	11
H	11	1	88	50	1.903	1.26	1.90	14.0	50.0		27	95		43	15
H	13	3	91	70	3.505	3.23	5.65	17.0	60.0		96	339		154	55
H	15	1	86	53	1.024	1.26	1.02	27.0	60.0		28	61		44	10
H	18	1	89	71	.711	1.26	1.42	28.5	100.0		41	142		65	23
H	19	2	84	62	1.276	2.51	1.91	36.0	86.7		69	166		111	27
H	21	3	86	91	1.343	3.23	3.21	41.4	152.1		133	488		214	79
H	24	1	89	89	.400	1.26	.80	63.5	235.0		51	188		82	30
H	26	1	92	121	.341	1.26	1.02	67.0	326.7		68	334		110	54
H	28	2	80	101	.462	1.97	.92	58.5	235.0		54	217		87	35
H	38	1	80	92	.159	1.26	.32	72.5	300.0		23	96		37	15
H	Totals	20	88	57	21.957	23.51	29.02	23.2	84.5		673	2,451		1,084	395
NF	29	2	91	129	.161	.74	.48	83.7	440.0		41	213		65	34
NF	34	4	87	126	.235	1.48	.70	107.5	536.7		76	378		122	61
NF	35	2	83	107	.111	.74	.33	95.7	416.7		32	139		51	22
NF	42	1	85	152	.141	1.35	.42	187.0	963.3		79	406		127	65
NF	Totals	9	87	129	.648	4.31	1.94	116.8	584.7		227	1,136		365	183
A	11	2	87	72	.855	.56	.85	19.0	60.0		16	51		26	8

TC PSTNDSUM		Stand Table Summary								Page 2					
										Date: 3/23/2018					
T05N R06W S04 Ty00MC 106.00 T05N R06W S04 TyTK 3.00 T05N R06W S07 Ty00MC 52.00					Project PANCHO					Time: 8:29:52AM					
					Acres 161.00					Grown Year:					
S Spc T	Sample		Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
	DBH	Trees	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
A	12	3	87	51	1.292	1.02	1.29	18.1	48.9		23	63		38	10
A	15	2	86	98	.460	.56	.92	26.0	95.0		24	87		38	14
A	17	6	86	75	1.074	1.69	2.15	27.5	90.0		59	193		95	31
A	18	6	86	71	.958	1.69	1.92	30.2	98.3		58	188		93	30
A	Totals	19	86	69	4.639	5.53	7.13	25.3	81.8		180	583		290	94
S	17	2	81	17	.268	.42	.27	19.0	40.0		5	11		8	2
S	23	1	83	87	.156	.45	.31	58.5	205.0		18	64		29	10
S	Totals	3	82	43	.425	.87	.58	40.3	128.8		23	75		38	12
SN	11	1	88	88	1.715	1.13									
SN	17	1	87	32	.718	1.13									
SN	19	1	89	25	1.603	3.16									
SN	31	1	88	78	.216	1.13									
SN	43	1	89	35	.112	1.13									
SN	Totals	5	88	54	4.364	7.68									
Totals		325	87	89	95.223	234.24	183.72	51.6	218.0		9,483	40,048		15,268	6,448

Legend

- Timber Sale Boundary
- Ownership Boundary
- Existing Surfaced Road
- New Road Construction - Unsurfaced
- New Road Construction - Surfaced
- Loggers Choice Spur
- New Landing Construction
- Type "F" Stream
- Type "N" Stream
- Nonposted Stream Buffer
- Posted Stream Buffer
- Reforestation Area
- Controlled Felling Area
- Survey Monument
- Tractor Yarding Area

1 inch = 1,000 feet

0

500

1,000

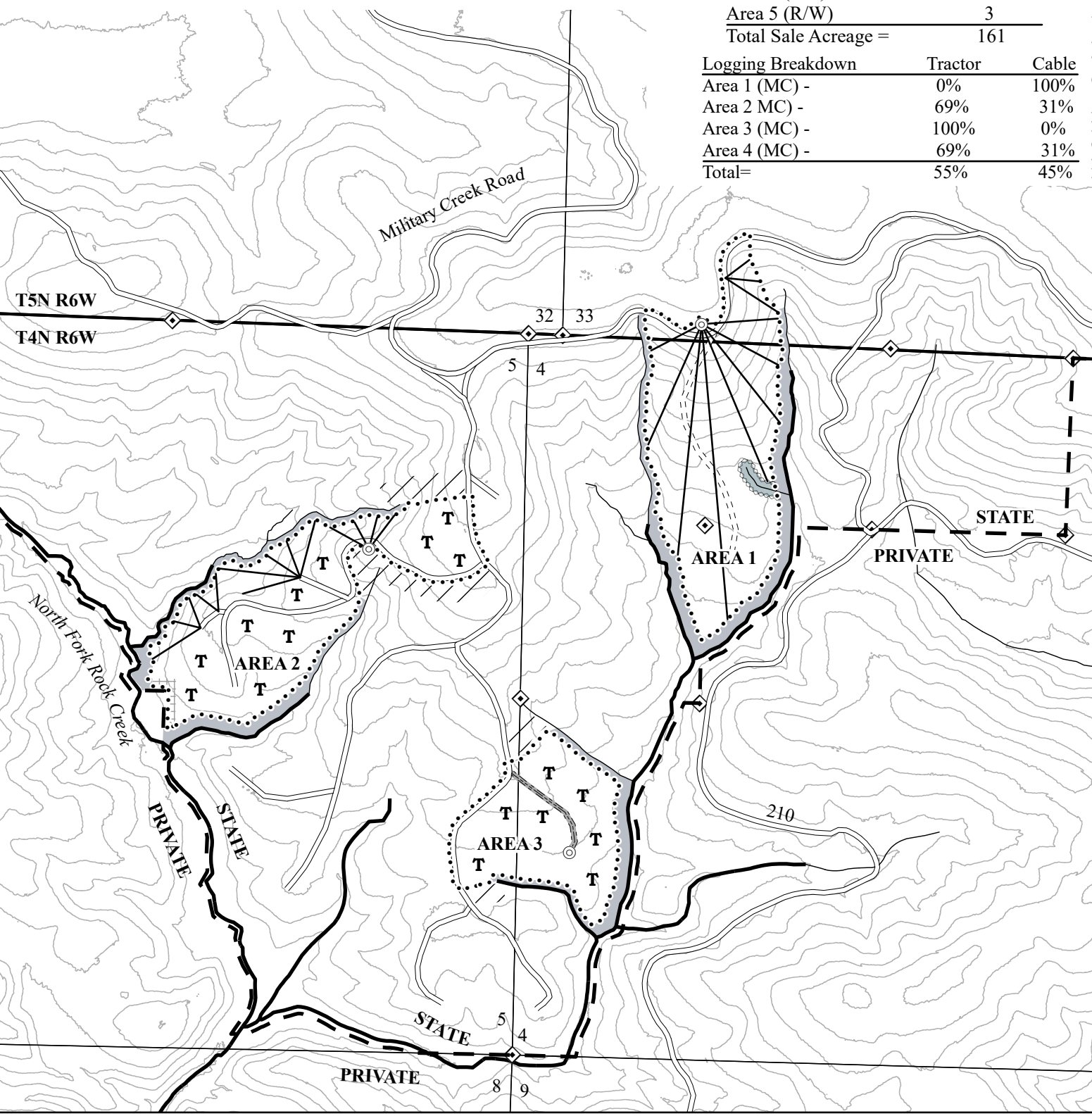
2,000

Feet

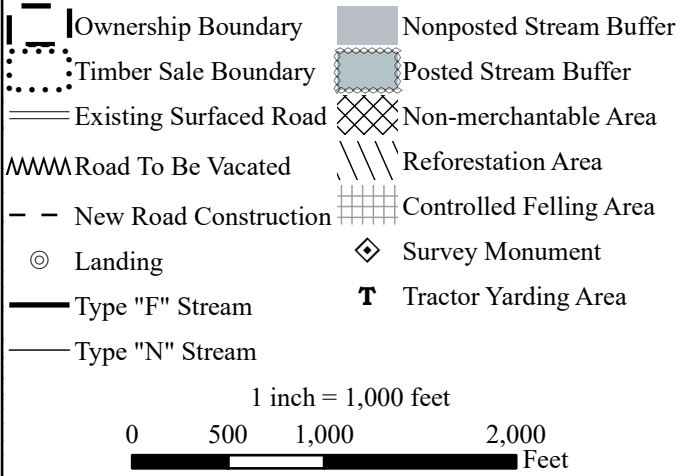
LOGGING PLAN Page 1 of 2
OF TIMBER SALE CONTRACT NO. 341-18-49
PANCHO
PORTIONS OF SECTIONS 4 AND 5,
OF T4N, R6W, W.M. AND
PORTIONS OF SECTIONS 33, 34, AND 35,
OF T5N, R6W, W.M.,
CLATSOP COUNTY, OREGON

Approximate Net Acreage	Acres
Area 1 (MC) -	44
Area 2 (MC) -	39
Area 3 (MC)	23
Area 4 (MC)	52
Area 5 (R/W)	3
Total Sale Acreage =	161

Logging Breakdown	Tractor	Cable
Area 1 (MC) -	0%	100%
Area 2 MC) -	69%	31%
Area 3 (MC) -	100%	0%
Area 4 (MC) -	69%	31%
Total=	55%	45%



Legend



LOGGING PLAN

Page 2 of 2

OF TIMBER SALE CONTRACT NO. 341-18-49
 PANCHO
 PORTIONS OF SECTIONS 4 AND 5,
 OF T4N, R6W, W.M. AND
 PORTIONS OF SECTIONS 33, 34, AND 35,
 OF T5N, R6W, W.M.,
 CLATSOP COUNTY, OREGON

Approximate Net Acreage	Acres
Area 1 (MC) -	44
Area 2 (MC) -	39
Area 3 (MC)	23
Area 4 (MC)	52
Area 5 (R/W)	3
Total Sale Acreage =	161

Logging Breakdown	Tractor	Cable
Area 1 (MC) -	0%	100%
Area 2 MC -	69%	31%
Area 3 (MC) -	100%	0%
Area 4 (MC) -	69%	31%
Total=	55%	45%

