



"STAND FOR THE FOREST"

Timber Sale Appraisal Treasure Island

Sale AT-341-2016-22-

District: Astoria

Date: June 02, 2015

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$3,047,155.97	\$84,226.94	\$3,131,382.91
		Project Work:	(\$276,250.00)
		Advertised Value:	\$2,855,132.91



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Timber Description

Location: Portions of Sections 21, 27, 28, and 29, T7N, R6W, W.M., Clatsop County, Oregon.

Stand Stocking: 60%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	18	0	97
Western Hemlock / Fir	15	0	97
Red Cedar	20	0	97
Alder (Red)	14	0	90

Volume by Grade	2S	3S	4S	CR 8" - 14"	Total
Douglas - Fir	5,194	2,680	309	0	8,183
Western Hemlock / Fir	202	254	23	0	479
Red Cedar	2	1	0	0	3
Alder (Red)	0	0	0	281	281
Total	5,398	2,935	332	281	8,946

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

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

SCALING COST ALLOWANCE = \$5.00/MBF

FUEL COST ALLOWANCE = \$3.00/Gallon

HAULING COST ALLOWANCE

Hauling costs equivalent to \$780 daily truck cost.

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

100% Branding and Painting: $\$1/\text{MBF} \times 8,946 \text{ MBF} = \$8,946$

Log Loader Slash & Landing Piling (includes Move-In and Pile Materials): = \$7,227 (see attached appraisal)

Endhaul slash to designated Waste (Area 1 only)= \$4,495 (see attached appraisal)

Machine washing for noxious weed compliance = \$2,000

Additional felling cost for Area 4 R/W = $\$40/\text{mbf} \times 628 = \$25,120$

TOTAL Other Costs (with Profit & Risk to be added) = \$47,788

Other Costs (No Profit & Risk added):

None.



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Logging Conditions

Combination#: 1	Douglas - Fir	28.00%
	Western Hemlock / Fir	28.00%
	Red Cedar	28.00%
	Alder (Red)	28.00%
Logging System:	Shovel	Process: Stroke Delimber
yarding distance:	Medium (800 ft)	downhill yarding: No
tree size:	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF	
loads / day:	14	bd. ft / load: 4000
cost / mbf:	\$56.64	
machines:	Stroke Delimber (B)	
Combination#: 2	Douglas - Fir	54.00%
	Western Hemlock / Fir	54.00%
	Red Cedar	54.00%
	Alder (Red)	54.00%
Logging System:	Cable: Medium Tower >40 - <70	Process: Stroke Delimber
yarding distance:	Medium (800 ft)	downhill yarding: No
tree size:	Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF	
loads / day:	12	bd. ft / load: 4000
cost / mbf:	\$125.00	
machines:	Log Loader (A) Stroke Delimber (A) Tower Yarder (Medium)	
Combination#: 3	Douglas - Fir	18.00%
	Western Hemlock / Fir	18.00%
	Red Cedar	18.00%
	Alder (Red)	18.00%
Logging System:	Cable: Large Tower >=70	Process: Stroke Delimber
yarding distance:	Long (1,500 ft)	downhill yarding: No
tree size:	Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF	
loads / day:	8	bd. ft / load: 4000
cost / mbf:	\$193.75	
machines:	Log Loader (A) Stroke Delimber (A) Tower Yarder (Large)	



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Logging Costs

Operating Seasons: 3.00	Profit Risk: 14%
Project Costs: \$276,250.00	Other Costs (P/R): \$47,788.00
Slash Disposal: \$0.00	Other Costs: \$0.00

Miles of Road

Road Maintenance: \$3.60

Dirt	Rock (Contractor)	Rock (State)	Paved
0.0	0.0	0.0	0.0

Hauling Costs

Species	\$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	\$0.00	3.0	4.5
Western Hemlock / Fir	\$0.00	3.0	3.8
Red Cedar	\$0.00	2.0	3.8
Alder (Red)	\$0.00	2.0	3.3



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Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling	Other	Total
Douglas - Fir									
\$118.23	\$3.71	\$1.47	\$59.51	\$5.34	\$26.36	\$0.00	\$5.00	\$0.00	\$219.62
Western Hemlock / Fir									
\$118.23	\$3.71	\$1.47	\$70.47	\$5.34	\$27.89	\$0.00	\$5.00	\$0.00	\$232.11
Red Cedar									
\$118.23	\$3.71	\$1.47	\$105.71	\$5.34	\$32.82	\$0.00	\$5.00	\$0.00	\$272.28
Alder (Red)									
\$118.23	\$3.96	\$1.47	\$130.00	\$5.34	\$36.26	\$0.00	\$5.00	\$0.00	\$300.26

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$577.62	\$358.00	\$0.00
Western Hemlock / Fir	\$0.00	\$471.69	\$239.58	\$0.00
Red Cedar	\$0.00	\$1,233.33	\$961.05	\$0.00
Alder (Red)	\$0.00	\$600.00	\$299.74	\$0.00



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Summary

Amortized

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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	8,183	\$358.00	\$2,929,514.00
Western Hemlock / Fir	479	\$239.58	\$114,758.82
Red Cedar	3	\$961.05	\$2,883.15
Alder (Red)	281	\$299.74	\$84,226.94

Gross Timber Sale Value

Recovery: \$3,131,382.91

Prepared By: Kevin Berry

Phone: 503-325-5451

Site Prep Appraisal

Sale Number: XXXXX
Sale Name: Treasure Island
Date: 04/08/2015

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

Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area
1	MC	A	12	6	\$110.00	\$660.00
2	MC	A	11	5.5	\$110.00	\$605.00
3	MC	A	18	9	\$110.00	\$990.00
Sub Total =						\$2,255.00
Sale Area	Number of Landings to be Piled	Cost/Landing Pile*	Total Cost/Area	Number of In-Unit Piles	Material Cost/Pile	Total Cost/Area
1	2	\$220.00	\$440.00	24	\$5.00	\$120.00
2	6	\$220.00	\$1,320.00	22	\$5.00	\$110.00
3	8	\$220.00	\$1,760.00	36	\$5.00	\$180.00
*Cost includes separating firewood						\$4,027.00
Move-In Allowance	Number of Move-In's	Total Move-In Allowance				
\$945.00	1	\$945.00	Sub Total = \$945.00			
Grand Total =						\$7,227.00

Treasure Island (341-16-022)

Area 1 55 Acres of Modified Clearcut Additional Slash Disposal Costs

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

Slash Estimate
93 loads
37 days of logging (~1 ac/day)
2-3 loads of slash/day

Slash Hauling Estimate
0.75 hours/round trip
0.25 hours/load time
2.0 hours/round trip for shovel
to walk to waste area and pile
slash

	Estimate	Total
Work	2 loads/day x 30 days	60 loads
Haul	.25 hrs x \$85/hr x 60 loads	\$ 1,275
Load	0.25 hrs x \$140/hr x 60 loads	\$ 2,100
Pile	2.0 hrs/trip x \$140/hr x 4 trips	\$ 1,120
Grand Total		\$ 4,495

Road Maintenance Cost Summary

Sale: Treasure Island
 Date: 08-Apr-15
 By: Kevin Berry

MBF: 8,946
 \$\$/MBF: \$3.60

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	Production Rates			
Progressive Operations	Grader 14G	\$675	1	16	\$90	\$2,115	Production Rates	Miles/day	Distance(miles)	Days
	Dump Truck 10CY x 1	\$282	1	8	\$73	\$866	Grader	2.5	7.3	2.9
	Vibratory Roller	\$675	1	8	\$72	\$1,251				
	FE Loader C966	\$675	1	8	\$74	\$1,267				
Progressive Operations 2nd Entry	Grader 14G	\$675	1	24	\$90	\$2,835	Production Rates	Miles/day	Distance(miles)	Days
	Dump Truck 10CY x 1	\$282	1	16	\$73	\$1,450	Grader	2.5	7.3	2.9
	FE Loader C966	\$675	1	16	\$74	\$1,859				
	Vibratory Roller	\$675	1	16	\$72	\$1,827				
Final Road Maintenance	Grader 14G	\$675	1	50	\$90	\$5,175	Production Rates	Miles/day	Distance(miles)	Days
	Dump Truck 10CY x 2	\$282	2	16	\$73	\$2,618	Grader	1.5	7.3	4.9
	FE Loader C966	\$675	1	16	\$74	\$1,859	Vibratory Roller*	1.5	7.3	4.9
	Vibratory Roller	\$675	1	50	\$72	\$4,275				
Total	Water Truck 2,500 gallon	\$165	1	40	\$78	\$3,285				
	C580 Backhoe	\$321	1	16	\$77	\$1,553				
							\$32,235			

*Final Road Maintenance Only

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Treasure Island

ROAD CONSTRUCTION:

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
A to B, 1A to 1B, 1C to 1D,	133.45	\$211,549
2A to 2B, 2C, 2D to 2E,		
2F, 2G to 2H, 0+80 2G to 2H,		
3A to 3B, 3C, 3D to 3E,		
3F to 3G, 3H, 3I to 3J, 3K,		
3L to 3M, 3N to 3O		
TOTALS		\$211,549

ROAD IMPROVEMENT:

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
I1-I2, I2-I3, I4-I5	370.5	\$48,863
TOTALS		\$48,863

SPECIAL PROJECTS:

<u>Description</u>	<u>Cost</u>
Project Road Maintenance	\$6,525
TOTAL	\$6,525

MOVE IN:

<u>Equipment</u>	<u>Cost</u>
Dozer (D8)	\$1,406.00
Excavator (C330)	\$1,406.00
Excavator (C315)	\$805.00
Dump Trucks (12cy x 5)	\$978.00
Dump Trucks (20cy x 2)	\$382.00
Front End Loader	\$778.00
Grader (14G)	\$778.00
Vibratory Roller	\$778.00
Rubber Tire Skidder (C518)	\$717.00
Water Truck (2,500 gallon)	\$190.00
Backhoe (C 580)	\$321.00
24cy Off Highway Dump	\$774.00
TOTAL	\$9,313.00

GRAND TOTAL **\$276,250**

Compiled By: C.Bangs *RL* Date: 03/30/2015

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Treasure Island NEW CONSTRUCTION: 133.45 STATIONS 2.53 MILES
ROAD: Road Construction IMPROVEMENT: STATIONS MILES
POINTS: A to B (90.0), 1A to 1B (11.0), 1C to 1D (3.25), 2A to 2B (5.0), 2D to 2E (1.5), 2G to 2H (1.5), 3A to 3B (7.7), 3D to 3E (1.2), 3F to 3G (1.65), 3I to 3J (8.0), 3L to 3M (1.65), 3N to 3O (1.0)

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
Designed A to B					
Scatter Outside of RW	8.2	x	\$ 1,337.00	=	\$10,963.40
Endhaul Clearing Debris	2.3	x	\$ 2,500.00	=	\$5,750.00
Large Snag/Stump Removal (C330 excavator hrs.)	20.00	x	\$ 155.00	=	\$3,100.00
Designed 1A to 1B					
Scatter Outside of RW	1.50	x	\$ 1,337.00	=	\$2,005.50
Designed 3A to 3B					
Scatter Outside of RW	0.80	x	\$ 1,337.00	=	\$1,069.60
Designed 3I to 3J					
Scatter Outside of RW	1.00	x	\$ 1,337.00	=	\$1,337.00
Field Design 1C to 1D, 2A to 2B, 2D to 2E, 2G to 2H, 3D to 3E, 3F to 3G, 3L to 3M, 3N to 3O,					
Scatter Outside of RW	1.50	x	\$1,337.00	=	\$2,005.50
SUB TOTAL FOR CLEARING & GRUBBING					\$26,231

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
Designed A to B					
Common Drift excavation \$/cy	9,533.00	x	\$1.80	=	\$17,159.40
Drift excavation \$/cy (extra distance)	500.00	x	\$2.50	=	\$1,250.00
End haul excavation (For construction or waste area)	8,702.00	x	\$3.00	=	\$26,106.00
Embankment compaction	10,566	x	\$0.70	=	\$7,396.20
Cutslope rounding \$/sta.	23.00	x	\$43.00	=	\$989.00
Landing Construction (2C 10+50, 2F 27+00, 3H 70+00)	3.00	x	\$389.00	=	\$1,167.00
Turnaround construction (68+75, 90+00, dozer hrs.)	4.00	x	\$155.00	=	\$620.00
Designed 1A to 1B					
Common Drift excavation \$/cy	1,800.00	x	\$1.80	=	\$3,240.00
Embankment compaction	1,800.00	x	\$0.70	=	\$1,260.00
Cutslope rounding \$/sta.	2.00	x	\$43.00	=	\$86.00
Landing Construction (1B)	1.00	x	\$389.00	=	\$389.00
Designed 3A to 3B					
Common Drift excavation \$/cy	590.00	x	\$1.80	=	\$1,062.00
Embankment compaction	590.00	x	\$0.70	=	\$413.00
Cutslope rounding \$/sta.	1.00	x	\$43.00	=	\$43.00
Landing Construction (3B, 3C)	2.00	x	\$389.00	=	\$778.00
Turnaround construction (extra dozer hrs.)	2.00	x	\$155.00	=	\$310.00
Designed 3I to 3J					
Common Drift excavation \$/cy	1,291.00	x	\$1.80	=	\$2,323.80
Embankment compaction (extra from A to B, 3K)	2,450.00	x	\$0.70	=	\$1,715.00
Cutslope rounding \$/sta.	2.00	x	\$43.00	=	\$86.00
Extra dozer hrs. for 3K construction	4.00	x	\$155.00	=	\$620.00
Landing Construction (3J, 3K)	2.00	x	\$389.00	=	\$778.00
Field Design 1C to 1D, 2A to 2B, 2D to 2E, 2G to 2H, 3D to 3E, 3F to 3G, 3L to 3M, 3N to 3O					
Balanced construction (\$/sta.)	8.30	x	\$122.00	=	\$1,012.60
Drift earth up to 200' (\$/sta.)	8.40	x	\$190.00	=	\$1,596.00
Landing Construction (1D, 2B, 2E, 2H, 0+80 2G to 2H, 3E, 3G, 3M, 3O)	9.00	x	\$389.00	=	\$3,501.00
SUB TOTAL FOR EXCAVATION					\$73,901

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
A to B									
5+00	18/CPP	40	\$19.53	\$781.20					
7+50	18/CPP	40	\$19.53	\$781.20					
12+00	18/CPP	40	\$19.53	\$781.20					
21+00	18/CPP	40	\$19.53	\$781.20					
32+40	18/CPP	30	\$19.53	\$585.90					
36+20	18/CPP	40	\$19.53	\$781.20					
39+35	18/CPP	40	\$19.53	\$781.20					
50+00	18/CPP	40	\$19.53	\$781.20					
64+50	18/CPP	40	\$19.53	\$781.20					
68+00	18/CPP	30	\$19.53	\$585.90					
70+60	18/CPP	40	\$19.53	\$781.20					
73+40	18/CPP	40	\$19.53	\$781.20					
75+35	18/CPP	40	\$19.53	\$781.20					
88+65	18/CPP	40	\$19.53	\$781.20					
1A to 1B									
0+00	18/CPP	40	\$19.53	\$781.20					
3A to 3B									
1+75	18/CPP	40	\$19.53	\$781.20					
3L to 3M									
0+00	18/CPP	40	\$19.53	\$781.20					

Description	Quantity	Rate	Cost
Other/miscellaneous:			
Dissipator construction (C315hrs.)	9.00	\$101.00	\$909.00
A to B (5+00, 7+50, 12+00, 21+00, 36+35, 70+60, 75+35, 73+40)			
1A to 1B (0+00)			
Extra Excavator time for culvert install at utility locations	4	\$101.00	\$404.00
Culvert stakes & markers:			
Install 6' fiberglass markers	17	\$20.00	\$340.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$14,543

Subtotal of Clearing, Exc., Culv.

\$114,675

SURFACING		Stations/amount		Rate/sta/amt	Cost
Subgrade prep:		Description			
A to B		Grade, Shape and Ditch 16'		x	
		Subgrade Compaction		x	
1A to 1B, 1C to 1D		Grade, Shape and Ditch 16'		x	
		Subgrade Compaction		x	
2A to 2B		Grade, Shape 14' outslope		x	
2D to 2E, 2G to 2H		Grade, Shape and Ditch 16'		x	
		Subgrade Compaction		x	
3A to 3B, 3D to 3E, 3F to 3G, 3I to 3J, 3L to 3M, 3N to 3O		Grade, Shape and Ditch 16'		x	
		Subgrade Compaction		x	

ROAD SEGMENT A to B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	A to B Volume (CY) per	0+00 to 90+00 Number of					
Base Rock	4"-0" stockpile	0+00 to 90+00	10	station	63	stations	90.00	5,670	\$4.55	\$25,799
Surface Rock	3/4"-0" stockpile	0+00 to 90+00	4	station	25	stations	90.00	2,250	\$4.55	\$10,238
Junctions	4"-0" stockpile	A	10	junction	88	junctions	1	88	\$4.55	\$400
Junctions	4"-0" stockpile	2A, 2D, 2G, 3A, 3D, 3F, 3I, 3L, 3N	10	junction	22	junctions	9	198	\$4.55	\$901
Junctions	3/4"-0" stockpile	A	4	junction	53	junctions	1	53	\$4.55	\$241
Junctions	3/4"-0" stockpile	2A, 2D, 2G, 3A, 3D, 3F, 3I, 3L, 3N	4	junction	22	junctions	9	198	\$4.55	\$901
Turnouts	4"-0" stockpile	6+00, 10+50, 15+00, 17+75, 23+75, 27+00, 33+45, 40+25, 44+00, 48+75, 54+60, 57+75, 63+75, 68+50, 75+70, 79+00, 83+00, 85+25	10	turnout	28	turnouts	18	504	\$4.55	\$2,293
Turnouts	3/4"-0" stockpile	6+00, 10+50, 15+00, 17+75, 23+75, 27+00, 33+45, 40+25, 44+00, 48+75, 54+60, 57+75, 63+75, 68+50, 75+70, 79+00, 83+00, 85+25	4	turnout	11	turnouts	18	198	\$4.55	\$901
Turnarounds	4"-0" stockpile	4+50, 32+40 68+75, 90+00	10	turnaround	22	turnarounds	4	88	\$4.55	\$400
Curve Widening	4"-0" stockpile	10+05 to 11+10, 14+30 to 15+55, 33+00 to 34+30, 43+60 to 44+65, 48+10 to 49+20, 68+30 to 70+60	10	N/A		N/A		341	\$4.55	\$1,552
Curve Widening	3/4"-0" stockpile	10+05 to 11+10, 14+30 to 15+55, 33+00 to 34+30, 43+60 to 44+65, 48+10 to 49+20, 68+30 to 70+60	4	N/A		N/A		132	\$4.55	\$601
Dissipator	24"-6" riprap	5+00, 7+50, 12+00, 21+00, 39+30, 70+60, 75+35, 73+00	N/A	dissipator	22	dissipators	8	176	\$4.72	\$831
Landings	6"-0" pit run	2C (10+50), 2F (27+00), 3H (70+00)	N/A	Landing	70	Landings	3	210	\$5.90	\$1,239

Total Rock for Road Segment: A to B 10,106 \$46,296

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		11+00						
				Volume (CY) per		Number of						
Base Rock	4"-0" stockpile	0+00 to 11+00	8	station	50	stations	11.00	550	\$4.55	\$2,503		
Surface Rock	3/4"-0" stockpile	0+00 to 10+00	3	station	19	stations	10	190	\$4.55	\$865		
Junctions	4"-0" stockpile	1A	8	junction	110	junctions	1.00	110	\$4.55	\$501		
Junctions	3/4"-0" stockpile	1A	3	junction	44	junctions	1.00	44	\$4.55	\$200		
Turnouts	4"-0" stockpile	4+00	8	turnout	22	turnouts	1.00	22	\$4.55	\$100		
Turnouts	3/4"-0" stockpile	4+00	3	turnout	11	turnouts	1.00	11	\$4.55	\$50		
Turnarounds	4"-0" stockpile	9+00	8	turnaround	22	turnarounds	1	22	\$4.55	\$100		
Dissipator	24"-6" riprap	0+00	N/A	dissipator	22	dissipators	1	22	\$4.72	\$104		
Landings	6"-0" pit run	1B	N/A	Landing	70	Landings	1	70	\$5.90	\$413		

Total Rock for Road Segment: 1A to 1B 1,041 \$4,835

ROAD SEGMENT 1C to 1D				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1C to 1D		0+00 to 3+25				
				Volume (CY) per		Number of				
Base Rock	4"-0" stockpile	0+00 to 3+25	8	station	50	stations	3.25	163	\$4.55	\$739
Junctions	4"-0" stockpile	1C	8	junction	22	junctions	1.00	22	\$4.55	\$100
Turnaounds	4"-0" stockpile	2+50	8	turnaround	22	turnarounds	1	22	\$4.55	\$100
Landings	6"-0" pit run	1D	N/A	Landing	70	Landings	1.00	70	\$5.90	\$413

Total Rock for Road Segment: 1C to 1D 277 \$1,353

ROAD SEGMENT				2A to 2B		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A to 2B		0+00 to 5+00						
				Volume (CY) per		Number of						
Base Rock	4"-0" stockpile	0+00 to 1+00	8	station	50	stations	1.00	50	\$4.55	\$228		
Road Block	24"-6" riprap	2A	N/A	N/A	N/A	N/A	N/A	11	\$4.72	\$52		

Total Rock for Road Segment: 2A to 2B 61 \$279

ROAD SEGMENT				2D to 2E		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2D to 2E		0+00 to 1+50						
				Volume (CY) per		Number of						
Base Rock	4"-0" stockpile	0+00 to 1+50	8	station	50	stations	1.50	75	\$4.55		\$341	
Landings	6"-0" pit run	2E	N/A	Landing	70	Landings	1	70	\$5.90		\$413	

Total Rock for Road Segment: 2D to 2E 145 \$754

ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
2G to 2H				2G to 2H		0+00 to 1+50				
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of					

Base Rock	4"-0" stockpile	0+00 to 1+50	8	station	50	stations	1.50	75	\$4.55	\$341
Landings	6"-0" pit run	0+80, 2H	N/A	Landing	70	Landings	2	140	\$5.90	\$826
Total Rock for Road Segment:			2G to 2H				215			
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 7+70				
				Volume (CY) per		Number of				
Base Rock	4"-0" stockpile	0+00 to 7+70	8	station	50	stations	7.70	385	\$4.55	\$1,752
Turnouts	4"-0" stockpile	3+50	8	turnout	22	turnouts	1	22	\$4.55	\$100
Turnarounds	4"-0" stockpile	6+00	8	turnaround	22	turnarounds	1	22	\$4.55	\$100
Landings	6"-0" pit run	3B, 3C	N/A	Landing	70	Landings	2	140	\$5.90	\$826
Total Rock for Road Segment:			3A to 3B				569			
ROAD SEGMENT 3D to 3E			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	3D to 3E		0+00 to 1+20				
				Volume (CY) per		Number of				
Base Rock	4"-0" stockpile	0+00 to 1+20	8	station	50	stations	1.20	60	\$4.55	\$273
Landings	6"-0" pit run	3E	N/A	Landing	70	Landings	1	70	\$5.90	\$413
Total Rock for Road Segment:			3D to 3E				130			
ROAD SEGMENT 3F to 3G			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	3F to 3G		0+00 to 1+65				
				Volume (CY) per		Number of				
Base Rock	4"-0" stockpile	0+00 to 1+65	8	station	50	stations	1.65	83	\$4.55	\$375
Landings	6"-0" pit run	3G	N/A	Landing	70	Landings	1	70	\$5.90	\$413
Total Rock for Road Segment:			3F to 3G				153			
ROAD SEGMENT 3I to 3J			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	3I to 3J		0+00 to 8+00				
				Volume (CY) per		Number of				
Base Rock	4"-0" stockpile	0+00 to 8+00	8	station	50	stations	8.00	400	\$4.55	\$1,820
Surface Rock	3/4"-0" stockpile	0+00 to 5+00	3	station	19	stations	5	95	\$4.55	\$432
Junctions	4"-0" stockpile	3L	8	junction	22	junctions	1	22	\$4.55	\$100
Turnouts	4"-0" stockpile	2+60	8	turnout	22	turnouts	1	22	\$4.55	\$100
Turnouts	3/4"-0" stockpile	2+60	3	turnout	11	turnouts	1	11	\$4.55	\$50
Curve Widening	4"-0" stockpile	2+20 to 3+40	8	N/A		N/A		33	\$4.55	\$150
Curve Widening	3/4"-0" stockpile	2+20 to 3+40	3	N/A		N/A		22	\$4.55	\$100
Landings	6"-0" pit run	3J, 3K		Landing	70	Landings	2	140	\$5.90	\$826
Total Rock for Road Segment:			3I to 3J				745			
ROAD SEGMENT 3L to 3M			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	3L to 3M		0+00 to 1+65				
				Volume (CY) per		Number of				
Base Rock	4"-0" stockpile	0+00 to 1+65	8	station	50	stations	1.65	83	\$4.55	\$375
Landings	6"-0" pit run	3M	N/A	Landing	70	Landings	1	70	\$5.90	\$413
Total Rock for Road Segment:			3L to 3M				153			
ROAD SEGMENT 3N to 3O			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	3N to 3O		0+00 to 1+00				
				Volume (CY) per		Number of				
Base Rock	4"-0" stockpile	0+00 to 1+00	8	station	50	stations	1.00	50	\$4.55	\$228
Landings	6"-0" pit run	3O	N/A	Landing	70	Landings	1	70	\$5.90	\$413
Total Rock for Road Segment:			3N to 3O				120			
Processing:			Description				No.sta	Rate/sta	Cost	
A to B			Water, Process & Compact: Base Rock Lift 1				90.00	\$56.48	\$5,083	
A to B			Water, Process & Compact: Base Rock Lift 2				90.00	\$56.48	\$5,083	
A to B			Water, Process & Compact: Surface Rock				90.00	\$56.48	\$5,083	
Other Roads			Water, Process & Compact: Base Rock Lift 1				38.45	\$56.48	\$2,172	
Other Roads			Water, Process & Compact: Surface Rock				15.00	\$56.48	\$847	
SUB TOTAL FOR SURFACING										
			24"-6"rr	6"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total		
			209	1,120	9,181		3,204	13,714	10,287	\$88,100
SPECIAL PROJECTS										
			Description				Cost			
A to B			Develop waste areas (C330 8hrs.)				\$ 1,240.00			
A to B			Waste area compaction (7,011cy @ \$.40/cy)				\$ 2,804.00			
A to B			Seeding and mulching (waste areas)				\$ 2,000.00			
A to B			Pit-run development (1050cy @ \$.260/cy)				\$ 2,730.00			
SUB TOTAL FOR SPECIAL PROJECTS							\$8,774			
							\$96,874			
							\$114,675			
GRAND TOTAL							\$211,549			

Compiled By: C.Bangs

Date: 03/30/2015

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Treasure Island
 ROAD: Road Improvement
 POINTS: I1 to I2 (287.0), I2 to I3 (80.0), I4 to I5 (3.5)

NEW CONSTRUCTION: STATIONS
 IMPROVEMENT: 370.50 STATIONS 7.02 MILES

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost

SUB TOTAL FOR CLEARING & GRUBBING

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
I1 to I2 Ditchline re-establishment and cutslope improvement					
(C315 hrs.)	12.00	x	\$101.00	=	\$1,212.00
(dump truck hrs.)	12.00	x	\$79.00	=	\$948.00
I2 to I3 Ditchline re-establishment and cutslope improvement					
(C315 hrs.)	4.00	x	\$101.00	=	\$404.00
(dump truck hrs.)	4.00	x	\$79.00	=	\$316.00

SUB TOTAL FOR EXCAVATION

\$2,880

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
I1 to I2 284+90	18/CPP	40	19.53	\$ 781.20					

Other/miscellaneous:

Culvert stakes & markers:

Description	Quantity	Rate	Cost
Install 6' fiberglass markers	5	\$20.00	\$100.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$881

Subtotal of Clearing, Exc., Culv.

\$3,761

ROAD SEGMENT			I1 to I2		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I1 to I2		0+00 to 287+00					
				Volume (CY) per		Number of					
Leveling Rock	1 1/2"-0" Stockpile	0+00 to 223+30	N/A	load	11	loads	20	220	\$3.65	\$803	
Base Rock	4"-0" Stockpile	164+40, 173+00 to 175+70	N/A	load	11	loads	4	44	\$4.55	\$200	
Surface Rock	1 1/2"-0" Stockpile	164+40, 173+00 to 175+70	N/A	load	11	loads	5	55	\$3.65	\$201	
Leveling Rock	1 1/2"-0" Stockpile	223+30 to 287+00	N/A	load	11	loads	20	220	\$3.65	\$803	
Surface Rock	1 1/2"-0" Stockpile	223+30 to 287+00	4	station	29	stations	64	1,847	\$3.65	\$6,743	
Bedding/Backfill	1 1/2"-0" Stockpile	284+90	N/A	culvert	22	culvert	1	22	\$3.65	\$80	
		225+45, 229+50, 238+40, 246+55, 253+90, 257+50, 273+45, 279+20, 282+90									
Turnouts	1 1/2"-0" Stockpile		4	turnout	11	turnouts	9	99	\$3.65	\$361	
Junctions	1 1/2"-0" Stockpile	262+00 (2), 265+40, 266+55, 285+00, I2	4	junction	11	junctions	6	66	\$3.65	\$241	

\$9,432

Total Rock for Road Segment:				I1 to I2				2,573				
ROAD SEGMENT				I2 to I3		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	I2 to I3		0+00 to 80+00						
				Volume (CY) per	Number of	Number of	Number of					
Leveling Rock	3/4"-0" Stockpile	N/A	N/A	load	11	loads	31	341	\$4.55	\$1,552		
Surface Rock	3/4"-0" Stockpile	72+70 to 80+00	3	station	22	stations	7.3	161	\$4.55	\$731		
Fill Armor	24"-6" Riprap	11+50 to 12+30	N/A	N/A	N/A	N/A	N/A	40	\$4.72	\$189		

Total Rock for Road Segment:		I2 to I3	542			\$2,471			
Processing:	Description		No. sta	Rate/sta	Cost				
	Water, Processing, Compaction (All improvement roads)		370.50	\$56.48	\$20,926				
					\$0				
					\$0				
					\$0				
					\$0				
		24"-6"rr	6"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total		
SUB TOTAL FOR SURFACING		40		44	2,507	502	3,093	3,115	\$43,670

SPECIAL PROJECTS	
Description	Cost
Seeding and mulching (waste areas)	\$ 1,000.00
Fill armor placement (Excavator)	\$ 432.00
SUB TOTAL FOR SPECIAL PROJECTS	\$1,432.00

	\$1,452
Subtotal of Surfacing & Spec. Proj.	\$45,102
Subtotal of Clearing, Exc., Culv.	\$3,761

\$48,863

Compiled By: C.Bangs

Date: 03/30/2015

CRUSHED ROCK COST

SALE NAME: Treasure Island
 PROJECT: Road Construction
 QUARRY: Viewpoint Stockpiles

MATERIAL: Crushed

DATE: 03/09/2015
 BY: C.Bangs

		Cubic Yards								
Segment	Stations	Base	Running	Turnout	Turnaround	Junction		Misc	Total	
A to B	90.00	5,670	2,250	702	88	537		473	9,720	
1A to 1B	11.00	550	190	33	22	154			949	
1C to 1D	3.25	185				22			207	
2A to 2B	5.00	50							50	
2D to 2E	1.50	75							75	
2G to 2H	1.50	75							75	
3A to 3B	7.70	385		22	22				429	
3D to 3E	1.20	60							60	
3F to 3G	1.65	83							83	
3I to 3J	8.00	400	95	33		22		55	605	
3L to 3M	1.65	83							83	
3N to 3O	1.00	50							50	
I1 to I2	287.00	44							44	
I2 to I3	80.00	502							502	
Grand Total	500.45	8,212	2,535	790	132	735		528	12,932	

		ONE WAY HAUL IN MILES								Total Haul
Road Segment	Stations	Cubic Yards	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
A to B	90.00	9,720		2	1	0.50	0.25	0.20	0.10	4.05
1A to 1B	11.00	949		2	1	0.50	0.14	0.20	0.10	3.94
1C to 1D	3.25	207		2	1	0.50	0.20	0.10	0.10	3.90
2A to 2B	5.00	50		2	1			0.10	0.10	3.20
2D to 2E	1.50	75		2	1	0.15	0.20	0.10	0.10	3.55
2G to 2H	1.50	75		2	1		0.50	0.20	0.10	3.80
3A to 3B	7.70	429		2	1	1.00	0.20	0.10	0.10	4.40
3D to 3E	1.20	60		2	1	1.00	0.20	0.10	0.10	4.40
3F to 3G	1.65	83		2	1	1.00	0.20	0.20	0.10	4.50
3I to 3J	8.00	605		2	1	1.00	0.20	0.30	0.10	4.60
3L to 3M	1.65	83		2	1	1.00	0.20	0.30	0.20	4.70
3N to 3O	1.00	50		2	1	1.00	0.20	0.30	0.20	4.70
I1 to I2	287.00	44		2	1	1.00	2.50	0.20	0.10	6.80
I2 to I3	80.00	502		2	1	1.00	0.50	0.20	0.10	4.80
TOTAL	500.45	12,932								
STA./NO.		CU. YD.								
CUBIC YARD WEIGHTED HAUL			2.00	1.00	0.53	0.23	0.19	0.10		AVERAGE HAUL 4.05
Average Round Trip Distance (miles)										8.10

ROCK HAUL:

Truck type: D20 No. trucks: 2
 Delay min.: 8 Efficiency: 85%

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

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

Ave haul: \$3.29 /cy
 Load: \$0.48 /cy
 Spread: \$0.78 /cy

Production: cy/day = 1,445

CRUSHED ROCK HAUL COSTS 12,932 cy @ \$4.55 /cy

RIP RAP ROCK COST

SALE NAME: Treasure Island
 PROJECT: Road Construction
 QUARRY: Viewpoint Quarry

MATERIAL: Rip Rap

DATE: 03/09/2015
 BY: C.Bangs/K.Berry

		Cubic Yards									
Segment	Stations	Dissapator	Armor						Misc	Total	
A to B	90.00	176								176	
1A to 1B	11.00	22								22	
2A to 2B	5.00								11	11	
I2 to I3	80.00		40							40	
Grand Total	186.00	198	40						11	249	

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
A to B	90.00	176		2	1	0.50	0.25	0.20	0.10	4.05
1A to 1B	11.00	22		2	1	0.50	0.14	0.20	0.10	3.94
2A to 2B	5.00	11		2	1			0.10	0.10	3.20
I2 to I3	80.00	40		2	1	1.00	0.50	0.20	0.10	4.80
TOTAL	186.00	249								
STA./NO.	CU. YD.									
CUBIC YARD WEIGHTED HAUL			2.00	1.00	0.56	0.27	0.20	0.10		AVERAGE HAUL 4.12
Average Round Trip Distance (miles)										8.25

ROCK HAUL:

Truck type: D12 No. trucks: 3
 Delay min.: 6 Efficiency: 85%

Ave haul: \$3.63 /cy
 Load: \$1.08 /cy
 Develop: * /cy

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

* Riprap available at Viewpoint

Production: cy/day = 521

RIP RAP ROCK HAUL COSTS 249 cy @ \$4.72 /cy

PIT RUN ROCK COST

SALE NAME: Treasure Island
 PROJECT: Road Construction
 QUARRY: Viewpoint Quarry

MATERIAL: Pit Run

DATE: 03/09/2015
 BY: C.Bangs/K.Berry

Segment	Stations	Cubic Yards						Misc	Total
		Base	Landing	Turnout	Turnaround	Junction			
A to B	90.00		210						210
1A to 1B	11.00		70						70
1C to 1D	3.25		70						70
2D to 2E	1.50		70						70
2G to 2H	1.50		140						140
3A to 3B	7.70		70						70
3C			70						70
3D to 3E	1.20		70						70
3F to 3G	1.65		70						70
3I to 3J	8.00		70						70
3K			70						70
3L to 3M	1.65		70						70
3N to 3O	1.00		70						70
Grand Total	128.45		1,120						1,120

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
A to B	90.00	210		2	1	0.50	0.25	0.20	0.10	4.05
1A to 1B	11.00	70		2	1	0.50	0.14	0.20	0.10	3.94
1C to 1D	3.25	70		2	1	0.50	0.20	0.10	0.10	3.90
2D to 2E	1.50	70		2	1	0.15	0.20	0.10	0.10	3.55
2G to 2H	1.50	140		2	1		0.50	0.20	0.10	3.80
3A to 3B	7.70	70		2	1	1.00	0.20	0.10	0.10	4.40
3C		70		2	1	1.00	0.20	0.10	0.10	4.40
3D to 3E	1.20	70		2	1	1.00	0.20	0.10	0.10	4.40
3F to 3G	1.65	70		2	1	1.00	0.20	0.20	0.10	4.50
3I to 3J	8.00	70		2	1	1.00	0.20	0.30	0.10	4.60
3K		70		2	1	1.00	0.20	0.30	0.10	4.60
3L to 3M	1.65	70		2	1	1.00	0.20	0.30	0.20	4.70
3N to 3O	1.00	70		2	1	1.00	0.20	0.30	0.20	4.70
TOTAL	128.45									AVERAGE HAUL
		1,120								
STA./NO.		CU. YD.	1.88	0.94	0.60	0.23	0.18	0.10		
CUBIC YARD WEIGHTED HAUL										

Average Round Trip Distance (miles) 7.84

ROCK HAUL:

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

Ave haul: \$3.49 /cy
 Load: \$0.84 /cy
 Spread: \$1.56 /cy

Truck type: D12 No. trucks: 3
 Delay min.: 6 Efficiency: 85%

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

Production: cy/day = 542

PIT RUN ROCK HAUL COSTS 1,120 cy @ \$5.90 /cy

PIT RUN ROCK COST

SALE NAME: Treasure Island
 PROJECT: New Construction
 QUARRY: _____

MATERIAL: Waste Material

DATE: 03/23/15
 BY: _____

		Cubic Yards							
Segment	Stations	Base	Landing	Turnout	Turnaround	Junction	Waste	Misc	Total
A to B	10.00						4,766		4,766
A to B	20.00						470		470
A to B	10.00						1,913		1,913
Grand Total	40.00								

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES						Total Haul	
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
A to B	10.00	4,766							0.19	0.19
A to B	20.00	470							0.37	0.37
A to B	10.00	1,913							0.19	0.19
								</		

ROCK HAUL:

Truck type: D20 No. trucks: 1
 Delay min.: 8 Efficiency: 85%

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

Ave haul: 1.14157 /cy
 Load: \$1.41 /cy
 Compaction _____ /cy

Production: cy/day = 700

PIT RUN ROCK HAUL COSTS 7,149 cy @ **\$2.55 /cy**

CRUSHED ROCK COST

SALE NAME:	Treasure Island
PROJECT:	Road Construction
QUARRY:	Kerry Stockpile

MATERIAL: 1 1/2"-0" Crushed

DATE: 03/09/2015
BY: C.Bangs

		Cubic Yards							
Segment	Stations	Base	Running	Turnout	Turnaround	Junction		Misc	Total
I1 to I2	287.00		1,902	88		66		460	2,516
Grand Total	287.00		1,902	88		66		460	2,516

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I1 to I2	287.00	2,496		1	1	0.80	0.60	0.20	0.10	2.70
	</									

ROCK HAUL:

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

Ave haul:	\$2.86	/cy
Load:	\$0.30	/cy
Spread:	\$0.48	/cy

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

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

Production: cy/day = 1,661

CRUSHED ROCK HAUL COSTS 2,516 cy @ \$3.65 /cy

Projects Road Maintenance Cost Summary

Sale: Treasure Island
Date: 23-Mar-15
By: C.Bangs *FL*

Type	Equipment/Rationale		Hours	Rate	Cost
Projects Road Maintenance	Grader 14G		20	\$100	\$2,000
	Dump Truck 12CY		10	\$79	\$790
	FE Loader C966		5	\$83	\$415
	Vibratory Roller		20	\$77	\$1,540
	Water Truck 2,500 gallon		20	\$89	\$1,780
Total					\$6,525

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	3.2	2.1
Vibratory Roller	1.5	3.2	2.1

Nicolai Mainline

**Treasure Island
TIMBER CRUISE REPORT
FY 2015**

1. Sale Area Location: Areas 1 through 4 are located in portions of Sections 21, 27, 28, & 29, T7N, R6W, W.M., Clatsop County, OR.

2. **Fund Distribution:** BOF 100%
Tax Code 30-05 (100%)

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Stream Buffer	Net Acres	Survey Method
1	Modified Clearcut	55	5	50	GIS
2	Modified Clearcut	61	4	57	GIS
3	Modified Clearcut	70	4	66	GIS
4 R/W	*Right-of-way	13	n/a	13	Road Eng./ LxW
TOTALS		199	13	186	

*Area 4 R/W consist of 11 acres of in-sale right of way and two acres of out-of-sale right of way

4. **Cruisers and Cruise Dates:**

All areas were cruised by Nick Haile, Derek Bangs, Kevin Berry, Ty Williams and Dave Rygell during March of 2015.

5. **Cruise Method and Computation:**

Areas 1 2 and 3 are modified clearcut units and were variable plot cruised using a 40 BAF. These plots are located on a 4 chain by 8 chain grid, with every third plot measured and graded. A total of 62 plots were sampled, with 21 measured and graded plots, and 41 count plots.

Data was collected on Corvallis MicroTechnology (CMT) data collectors, and downloaded to the Atterbury Super A.C.E. 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, 2, and 3	TREASISL	A123	00CC	173
1, 2, and 3	TREASISL	A123	LEAV	173
1, 2, and 3	TREASISL	A123	TAKE	173
4 R/W	TREASISL	A123	R/W	13

6. **Timber Description:**

Areas 1, 2, and 3 are modified clearcut units, approximately 70 to 80 years-old, consisting of Douglas-fir, with minor amounts of western hemlock, red alder, and western red cedar. The average Douglas-fir tree size to be harvested is 18.7 inches DBH, with an average height of 84 feet to a merchantable top (7 inch d.o.b.) The average western hemlock/true-fir tree size is 15.3 inches DBH and 52 feet to a merchantable top (7 inch d.o.b.) The average red alder tree size 14.8 inches DBH and 55 feet to a merchantable top (7 inch d.o.b.) The net volume per acre to be harvested is 48.1 MBF/acre.

Area 4 R/W is similar to the timber description mentioned above in Areas 1, 2, and 3. The average volume per acre to be harvested 48.3 MBF/acre.

7. Statistical Analysis and Stand Summary

Statistics for Stand B.F. volumes

Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1, 2, and 3	50%	8%	38.3%	4.9%

8. Volumes by Species and Log Grade:

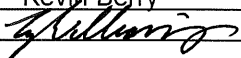
Volumes by Species and Grade for All Sale Areas: (MBF) Volumes do not include "in-growth."

Species	DBH	Net Vol.	2 Saw	3 Saw	4 Saw	Camp Run	% D & B	% Sale
Douglas-fir	18.7"	8,183	5,194	2,680	309	0	3	91
Hemlock/True-fir	15.3"	479	202	254	23	0	12	6
Red Alder/other Hardwoods	14.8"	281	0	0	0	281	5	3
Western Red Cedar	20.0"	3	2	1	0	0	<1	<1
TOTALS		8,946	5,398	2,935	332	281		

9. Approvals:

Prepared by: Kevin Berry

Date: 4-8-2015

Unit Forester Approval: 

Date: 4/10/15

10. Attachments:

Cruise Designs and Maps - 4 pages
Volume Reports - 3 pages
Statistics Reports - 3 pages
Stand Table Summary - 1 page
Log Stock Tables - 3 pages

X:\Jewell_Unit\Timber Sales\2015\Treasure Island\Sale Prep\Treasure_Island_CruiseReport.docx

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Treasure Island **Area(s)** 1, 2, 3

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 189 **Estimated CV%** 50 Net BF or
BA/Acre **SE% Objective** 8

Planned Sale Volume: 9.543 MMBF **Estimated Sale Area Value/Acre:** \$ 18,497

A. Cruise Goals: (a) Grade minimum 96 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
Cruise Line Direction(s) N-S
Cruise Line Spacing 8 chains
Cruise Plot Spacing 4 chains
Grade/Count Ratio 1:2

Record all hardwood as camp run. Record all cedar as leave. Record all snags as SN
and record diameter & total height. 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'
form point. Generally, use 7" outside bark for trees less than 18" dbh and 40% of dob
@ FP for trees greater than 18" 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 log segments in "standard" 32" and 40' log lengths
whenever possible. Do not record odd segments just to maximize grade. The
maximum segment length is 40'. The minimum segment length is 12' for conifer and 8'
for hardwoods. Minimum merchantable diameter for conifer is 8" dbh and 10" dbh for
hardwoods. 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);

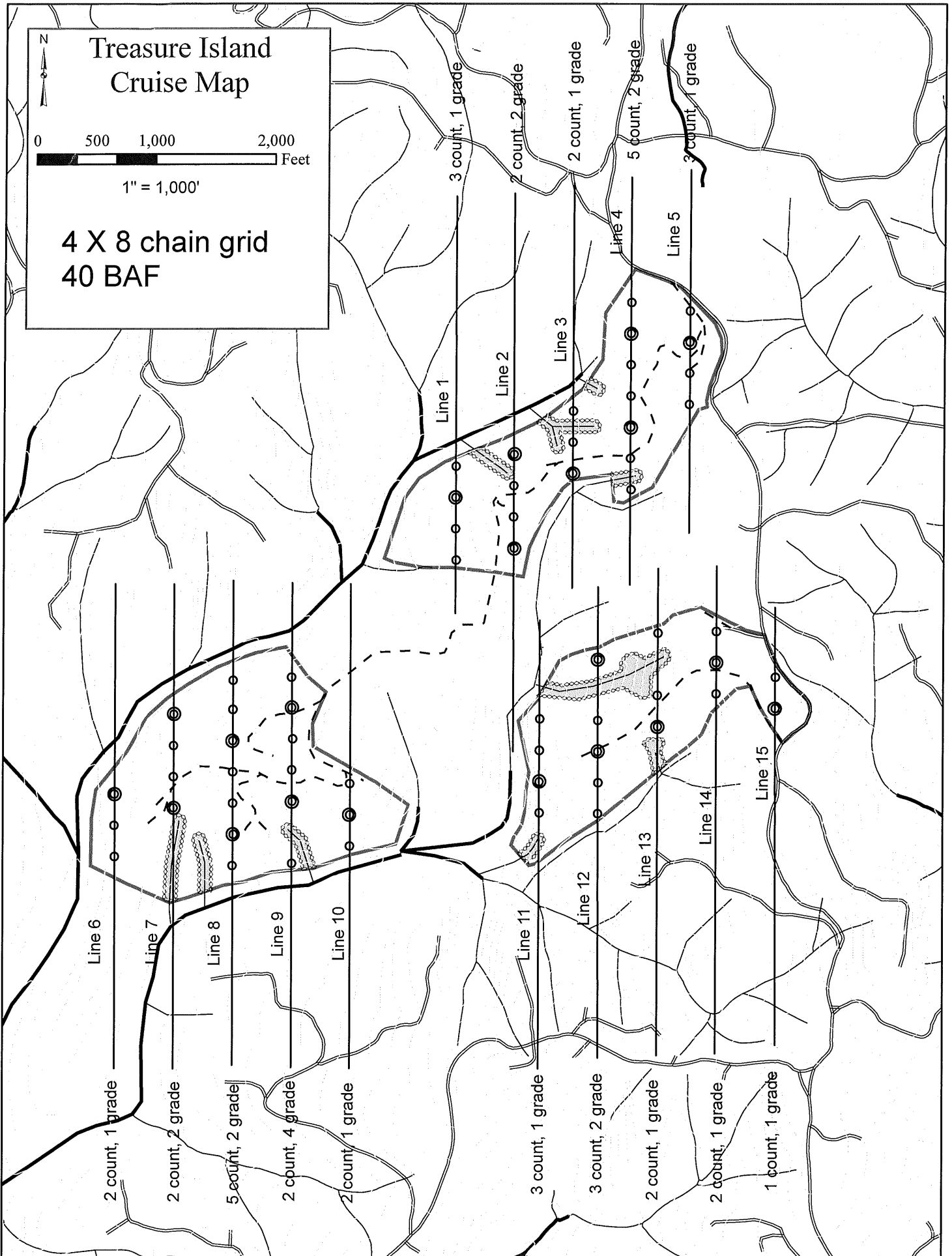
SF (Silver fir); A (Red alder); M (Bigleaf maple); DL(Douglas-fir over 30"dbh); HL(Western hemlock over 30" dbh); SL(Sitka spruce over 30" dbh); CL (Western red cedar over 30" dbh); NFL (Noble fir over 30" dbh); SFL (Silver fir over 30" dbh)

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

C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull

7. **Deductions**: Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable.
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**: A. Cruise Map (showing cruise unit boundaries, cruise lines and plot locations, BAF or plot size, measure/count plot ratio, north arrow, and scale bar.

Cruise Design by: Kevin Berry
Approved by: [Signature]
Date: 3/24/15



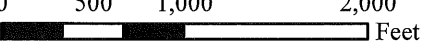
4-8-15

N



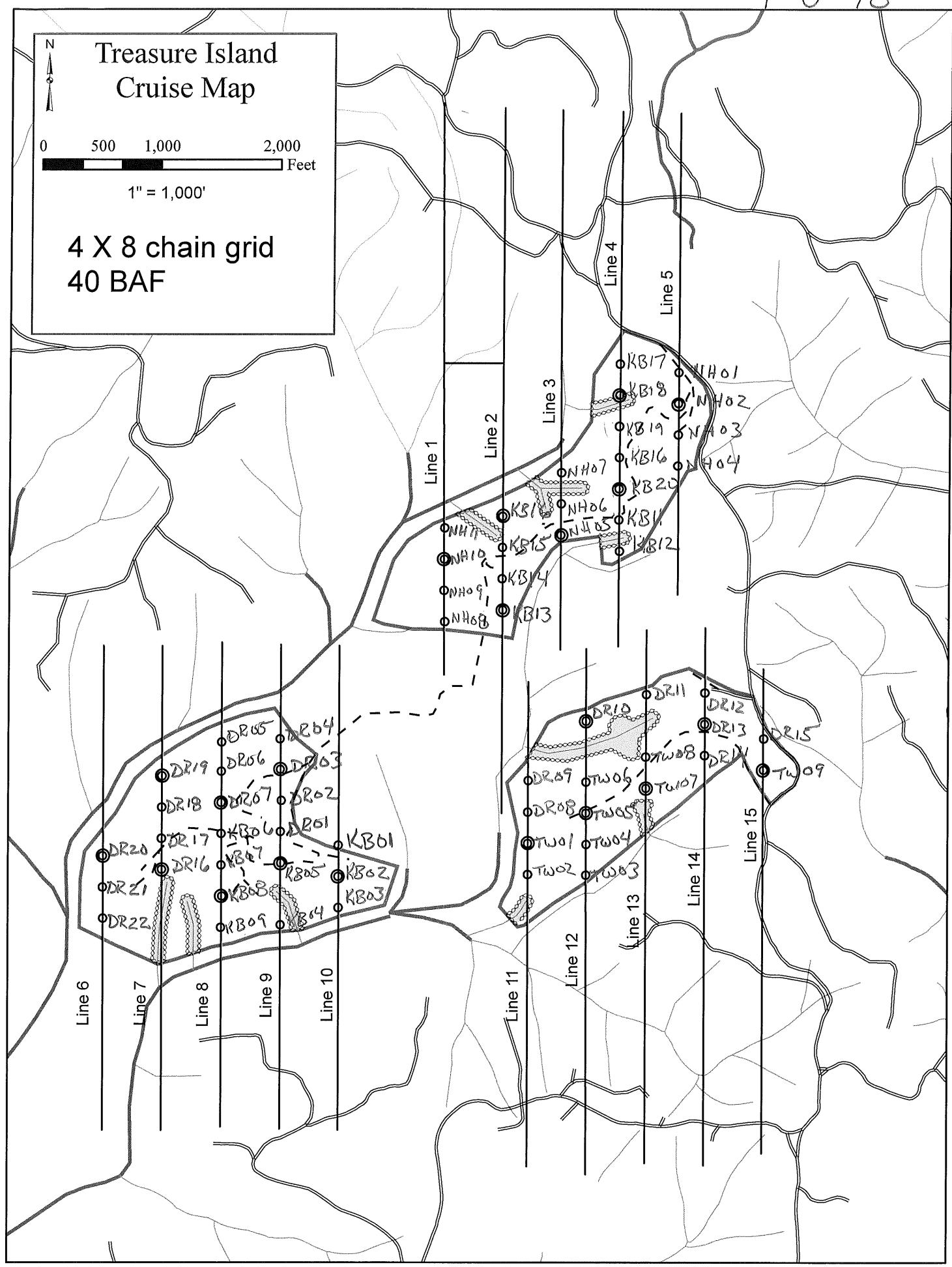
Treasure Island Cruise Map

0 500 1,000 2,000 Feet



1" = 1,000'

4 X 8 chain grid
40 BAF



Species, Sort Grade - Board Foot Volumes (Project)

T07N R06W S28 TyR/W 13.00
T07N R06W S28 TyTAKE 173.00

Project: **TREASISL**
Acres **186.00**

Page **1**
Date **4/23/2015**
Time **7:24:49AM**

Spp	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	Bd Ft	CF/ Lf		
							4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
H	DOCU		100.0	71												6		0.00	2.4
H	DO2S	42	12.5	1,242	1,086	202			61	39			100			32	255	1.88	4.3
H	DO3S	53	6.3	1,458	1,367	254		75	25			15	11	40	33	28	74	0.78	18.4
H	DO4S	5	14.5	146	125	23		100				49	51			20	24	0.49	5.2
H Totals		5	11.6	2,917	2,577	479		45	39	16		10	8	64	18	25	85	0.92	30.2
D	DOCU		100.0	591												12		0.00	10.7
D	DO2S	63	2.5	28,654	27,925	5,194		8	49	43		1	1	10	88	38	303	1.89	92.1
D	DO3S	33	.4	14,465	14,406	2,680		96	4			1	5	32	62	35	92	0.70	157.1
D	DO4S	4	.5	1,669	1,661	309		100				28	57	3	12	22	31	0.42	53.1
D Totals		91	3.1	45,379	43,992	8,183		40	32	27		2	4	17	76	33	141	1.06	313.1
A	DOCU		100.0	82												40		0.00	1.4
A	DOCR	100		1,513	1,513	281		87	13			7	11	76	5	28	80	0.78	19.0
A Totals		3	5.2	1,595	1,513	281		87	13			7	11	76	5	29	74	0.71	20.4
C	DO2S	68		12	12	2			100					100		40	200	1.70	.1
C	DO3S	25		4	4	1		100						100		32	70	0.66	.1
C	DO4S	7		1	1	0		100				100				15	20	0.33	.1
C Totals		0		18	18	3		31	69			7		24	69	29	97	1.08	.2
Totals			3.6	49,908	48,100	8,946		42	32	26		3	5	21	71	32	132	1.03	363.8

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page		1		
				Project: TREASISL												Date		4/23/2015		
																Time		7:29:23AM		
T07N R06W S28 TR/W																T07N R06W S28 TR/W				
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt		
07N		06W		28		A123		R/W		13.00		62		134		1		W		
S So Gr T rt ad Spp			%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
								Log Scale Dia.				Log Length				Ln	Bd	CF/		
			Net	Def%	Gross	Net	Net MBF	4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft	Lf		
D DO CU				00.0	591												12	0.00		10.7
D DO 2S			63	2.5	28,654 27,925		363		8	49	43	1	1	10	88		38	303	1.89	92.1
D DO 3S			33	.4	14,465 14,406		187		96	4		1	5	32	62		35	92	0.70	157.1
D DO 4S			4	.5	1,669 1,661		22		100			28	57	3	12		22	31	0.42	53.1
D Totals			91	3.1	45,379 43,992		572		40	32	27	2	4	17	76		33	141	1.06	313.1
H DO CU				00.0	71												6	0.00		2.4
H DO 2S			42	12.5	1,242 1,086		14			61	39			100			32	255	1.88	4.3
H DO 3S			53	6.3	1,458 1,367		18		75	25		15	11	40	33		28	74	0.78	18.4
H DO 4S			5	14.5	146 125		2		100			49	51				20	24	0.49	5.2
H Totals			5	11.6	2,917 2,577		34		45	39	16	10	8	64	18		25	85	0.92	30.2
A DO CU				00.0	82												40	0.00		1.4
A DO CR			100		1,513 1,513		20		87	13		7	11	76	5		28	80	0.78	19.0
A Totals			3	5.2	1,595 1,513		20		87	13		7	11	76	5		29	74	0.71	20.4
C DO 2S			68		177 177		2		100					100			40	200	1.70	.9
C DO 3S			25		62 62		1		100					100			32	70	0.66	.9
C DO 4S			7		18 18		0		100			100					15	20	0.33	.9
C Totals			1		257 257		3		31	69		7		24	69		29	97	1.08	2.7
Type Totals					3.6	50,147 48,339		628		42	32	26	3	5	21	71	32	132	1.04	366.3

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page		1			
				Project: TREASISL										Date		4/23/2015			
														Time		7:29:23AM			
T07N R06W S28 TTAKE													T07N R06W S28 TTAKE						
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt										
07N	06W	28	A123	TAKE	173.00	62	133	1	W										
S So Gr T rt ad Spp			%	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
			Net BdFt					Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf	
	DO	CU		00.0	591									12		0.00	10.7		
D	DO	2S	63	2.5	28,654	27,925	4,831	8	49	43	1	1	10	88	38	303	1.89	92.1	
D	DO	3S	33	.4	14,465	14,406	2,492	96	4		1	5	32	62	35	92	0.70	157.1	
D	DO	4S	4	.5	1,669	1,661	287	100			28	57	3	12	22	31	0.42	53.1	
D Totals			91	3.1	45,379	43,992	7,611	40	32	27	2	4	17	76	33	141	1.06	313.1	
H	DO	CU		00.0	71									6		0.00	2.4		
H	DO	2S	42	12.5	1,242	1,086	188		61	39			100	32	255	1.88	4.3		
H	DO	3S	53	6.3	1,458	1,367	236	75	25		15	11	40	33	28	74	0.78	18.4	
H	DO	4S	5	14.5	146	125	22	100			49	51		20	24	0.49	5.2		
H Totals			5	11.6	2,917	2,577	446	45	39	16	10	8	64	18	25	85	0.92	30.2	
A	DO	CU		00.0	82									40		0.00	1.4		
A	DO	CR	100		1,513	1,513	262	87	13		7	11	76	5	28	80	0.78	19.0	
A Totals			3	5.2	1,595	1,513	262	87	13		7	11	76	5	29	74	0.71	20.4	
Type Totals				3.6	49,890	48,082	8,318	42	32	26	3	5	21	71	32	132	1.03	363.6	

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)														Page		1	
				Project: TREASISL														Date		4/23/2015	
																		Time		7:35:17AM	
T07N R06W S28 TTAKE										T07N R06W S28 TTAKE											
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt			
07N		06W		28		A123		TAKE		173.00		62		133		1		W			
S So Gr T rt ad Spp			%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log			Logs Per /Acre		
								Log Scale Dia.				Log Length				Ln	Bd	CF/			
			Net	Def%	Gross	Net	Net MBF	4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft	Lf			
D DO CU				100.0	591												12		0.00	10.7	
D DO 2S			63	2.5	28,654	27,925	4,831		8	49	43	1	1	10	88		38	303	1.89	92.1	
D DO 3S			33	.4	14,465	14,406	2,492		96	4		1	5	32	62		35	92	0.70	157.1	
D DO 4S			4	.5	1,669	1,661	287		100			28	57	3	12		22	31	0.42	53.1	
D Totals			91	3.1	45,379	43,992	7,611		40	32	27	2	4	17	76		33	141	1.06	313.1	
H DO CU				100.0	71												6		0.00	2.4	
H DO 2S			42	12.5	1,242	1,086	188			61	39			100			32	255	1.88	4.3	
H DO 3S			53	6.3	1,458	1,367	236		75	25		15	11	40	33		28	74	0.78	18.4	
H DO 4S			5	14.5	146	125	22		100			49	51				20	24	0.49	5.2	
H Totals			5	11.6	2,917	2,577	446		45	39	16	10	8	64	18		25	85	0.92	30.2	
A DO CU				100.0	82												40		0.00	1.4	
A DO CR			100		1,513	1,513	262		87	13		7	11	76	5		28	80	0.78	19.0	
A Totals			3	5.2	1,595	1,513	262		87	13		7	11	76	5		29	74	0.71	20.4	
Type Totals				3.6	49,890	48,082	8,318		42	32	26	3	5	21	71		32	132	1.03	363.6	

TC		Stand Table Summary														
Project											TREASISL					
T07N R06W S28 TR/W											T07N R06W S28 TR/W					
Twp	Rge	Sec	Tract	Type			Acres		Plots	Sample Trees		Page:	1			
07N	06W	28	A123	R/W			13.00		62	134		Date:	04/23/20			
											Time:	7:42:58AM				
S Spc	T	Sample		FF	Av	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net	Net	Totals		
		DBH	Trees	16'	Tot				Net	Net		Cu.Ft.	Bd.Ft.	Tons	Cunits	MBF
D		10	1	89	82	3.773	2.06	3.77	15.0	60.0		57	226		7	3
D		11	1	83	140	3.118	2.06	6.24	14.5	50.0		90	312		12	4
D		12	2	84	115	5.240	4.12	7.86	20.0	73.3		157	576		20	7
D		13	8	87	91	18.042	16.46	29.39	18.7	66.4		550	1,953		72	25
D		14	2	87	98	3.850	4.12	7.70	20.3	80.0		156	616		20	8
D		15	11	86	122	18.446	22.64	45.28	21.4	83.7		968	3,790		126	49
D		16	8	86	121	11.791	16.46	29.48	25.0	96.5		735	2,844		96	37
D		17	5	84	134	6.528	10.29	18.28	27.6	103.6		505	1,893		66	25
D		18	6	85	122	6.987	12.35	17.47	30.7	112.0		537	1,956		70	25
D		19	9	86	120	9.406	18.52	26.13	32.6	121.6		852	3,177		111	41
D		20	10	87	117	9.432	20.58	23.58	38.4	150.0		906	3,537		118	46
D		21	5	87	123	4.278	10.29	11.98	40.3	159.3		483	1,908		63	25
D		22	8	87	129	6.236	16.46	17.93	45.9	190.9		823	3,422		107	44
D		23	2	82	126	1.426	4.12	4.28	45.3	173.3		194	742		25	10
D		24	4	87	140	2.620	8.23	7.86	54.6	230.0		429	1,808		56	24
D		25	1	88	120	.604	2.06	1.81	52.0	220.0		94	398		12	5
D		26	8	87	133	4.465	16.46	11.72	68.4	287.6		801	3,371		104	44
D		27	3	87	137	1.553	6.17	4.66	67.7	294.4		315	1,372		41	18
D		28	10	86	131	4.812	20.58	13.96	72.4	293.8		1,011	4,100		131	53
D		29	1	89	140	.449	2.06	1.35	82.3	396.7		111	534		14	7
D		30	3	87	135	1.258	6.17	3.77	85.3	385.6		322	1,455		42	19
D		31	1	88	153	.393	2.06	1.18	98.7	470.0		116	554		15	7
D		32	2	87	133	.737	4.12	2.21	93.8	420.0		207	929		27	12
D		33	1	85	126	.346	2.06	1.04	79.3	383.3		82	398		11	5
D		34	1	85	146	.326	2.06	.98	115.7	560.0		113	548		15	7
D		35	1	86	146	.308	2.06	.92	80.7	423.3		75	391		10	5
D		38	2	87	146	.523	4.12	1.57	144.0	753.3		226	1,181		29	15
D		Totals	116	86	118	126.947	238.71	302.37	36.1	145.5		10,916	43,992		1,419	572
H		10	1	88	30	6.861	3.74	6.86	9.0	30.0		62	206		8	3
H		15	1	89	123	3.049	3.74	9.15	22.0	80.0		201	732		26	10
H		17	1	92	87	2.374	3.74	4.75	29.0	110.0		138	522		18	7
H		18	1	83	80	2.118	3.74	4.24	30.5	95.0		129	402		17	5
H		27	1	85	110	.941	3.74	2.82	62.7	253.3		177	715		23	9
H		Totals	5	88	69	15.342	18.71	27.81	25.4	92.7		707	2,577		92	34
A		12	2	86	87	2.738	2.15	2.74	18.5	75.0		51	205		7	3
A		13	1	87	80	1.167	1.08	2.33	16.5	60.0		38	140		5	2
A		14	2	86	76	2.012	2.15	4.02	19.0	75.0		76	302		10	4
A		15	1	87	73	.876	1.08	1.75	20.5	75.0		36	131		5	2
A		16	2	86	75	1.540	2.15	3.08	24.3	85.0		75	262		10	3
A		17	3	86	64	2.047	3.23	4.09	23.7	81.7		97	334		13	4
A		20	1	87	78	.493	1.08	.99	39.5	140.0		39	138		5	2
A		Totals	12	86	77	10.872	12.90	19.01	21.7	79.6		412	1,513		54	20
C		20	1	80	122	.887	1.94	2.66	31.3	96.7		83	257		11	3
C		Totals	1	80	122	.887	1.94	2.66	31.3	96.7		83	257		11	3
Totals		134	86	110		154.049	272.26	351.86	34.4	137.4		12118	48,339		1,575	628

Stand Table Summary																
TC TSTNDSUM					Project TREASISL											
T07N R06W S28 TTAKE										T07N R06W S28 TTAK						
Twp	Rge	Sec	Tract	Type			Acres	Plots	Sample Trees		Page:	1				
07N	06W	28	A123	TAKE			173.00	62	133		Date:	04/23/20				
											Time:	7:42:58AM				
S Spc	T	Sample		FF	Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net	Net	T o t a l s		
		DBH	Trees	16'	Tot				Net Cu.Ft.	Net Bd.Ft.		Cu.Ft.	Bd.Ft.			
D		10	1	89	82	3.773	2.06	3.77	15.0	60.0		57	226		98	39
D		11	1	83	140	3.118	2.06	6.24	14.5	50.0		90	312		156	54
D		12	2	84	115	5.240	4.12	7.86	20.0	73.3		157	576		272	100
D		13	8	87	91	18.042	16.46	29.39	18.7	66.4		550	1,953		952	338
D		14	2	87	98	3.850	4.12	7.70	20.3	80.0		156	616		270	107
D		15	11	86	122	18.446	22.64	45.28	21.4	83.7		968	3,790		1,674	656
D		16	8	86	121	11.791	16.46	29.48	25.0	96.5		735	2,844		1,272	492
D		17	5	84	134	6.528	10.29	18.28	27.6	103.6		505	1,893		874	327
D		18	6	85	122	6.987	12.35	17.47	30.7	112.0		537	1,956		929	338
D		19	9	86	120	9.406	18.52	26.13	32.6	121.6		852	3,177		1,474	550
D		20	10	87	117	9.432	20.58	23.58	38.4	150.0		906	3,537		1,567	612
D		21	5	87	123	4.278	10.29	11.98	40.3	159.3		483	1,908		835	330
D		22	8	87	129	6.236	16.46	17.93	45.9	190.9		823	3,422		1,424	592
D		23	2	82	126	1.426	4.12	4.28	45.3	173.3		194	742		336	128
D		24	4	87	140	2.620	8.23	7.86	54.6	230.0		429	1,808		742	313
D		25	1	88	120	.604	2.06	1.81	52.0	220.0		94	398		163	69
D		26	8	87	133	4.465	16.46	11.72	68.4	287.6		801	3,371		1,387	583
D		27	3	87	137	1.553	6.17	4.66	67.7	294.4		315	1,372		545	237
D		28	10	86	131	4.812	20.58	13.96	72.4	293.8		1,011	4,100		1,748	709
D		29	1	89	140	.449	2.06	1.35	82.3	396.7		111	534		192	92
D		30	3	87	135	1.258	6.17	3.77	85.3	385.6		322	1,455		557	252
D		31	1	88	153	.393	2.06	1.18	98.7	470.0		116	554		201	96
D		32	2	87	133	.737	4.12	2.21	93.8	420.0		207	929		359	161
D		33	1	85	126	.346	2.06	1.04	79.3	383.3		82	398		143	69
D		34	1	85	146	.326	2.06	.98	115.7	560.0		113	548		196	95
D		35	1	86	146	.308	2.06	.92	80.7	423.3		75	391		129	68
D		38	2	87	146	.523	4.12	1.57	144.0	753.3		226	1,181		391	204
D		Totals	116	86	118	126.947	238.71	302.37	36.1	145.5		10,916	43,992		18,884	7,611
H		10	1	88	30	6.861	3.74	6.86	9.0	30.0		62	206		107	36
H		15	1	89	123	3.049	3.74	9.15	22.0	80.0		201	732		348	127
H		17	1	92	87	2.374	3.74	4.75	29.0	110.0		138	522		238	90
H		18	1	83	80	2.118	3.74	4.24	30.5	95.0		129	402		223	70
H		27	1	85	110	.941	3.74	2.82	62.7	253.3		177	715		306	124
H		Totals	5	88	69	15.342	18.71	27.81	25.4	92.7		707	2,577		1,223	446
A		12	2	86	87	2.738	2.15	2.74	18.5	75.0		51	205		88	36
A		13	1	87	80	1.167	1.08	2.33	16.5	60.0		38	140		67	24
A		14	2	86	76	2.012	2.15	4.02	19.0	75.0		76	302		132	52
A		15	1	87	73	.876	1.08	1.75	20.5	75.0		36	131		62	23
A		16	2	86	75	1.540	2.15	3.08	24.3	85.0		75	262		129	45
A		17	3	86	64	2.047	3.23	4.09	23.7	81.7		97	334		168	58
A		20	1	87	78	.493	1.08	.99	39.5	140.0		39	138		67	24
A		Totals	12	86	77	10.872	12.90	19.01	21.7	79.6		412	1,513		713	262
Totals		133		86	110	153.162	270.32	349.20	34.5	137.7		12034	48,082		20,819	8,318

TC TSTATS				STATISTICS PROJECT TREASISL				PAGE 1 DATE 4/23/2015		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
07N	06W	28	A123	TAKE	173.00	62	419	1	W	
				TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
PLOTS		TREES								
TOTAL		62	419	6.8						
CRUISE		21	133	6.3		26,497		.5		
DBH COUNT										
REFOREST										
COUNT		41	286	7.0						
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		116	126.9	18.6	84	238.7	45,379	43,992	11,046	10,916
WHEMLOCK		5	15.3	15.0	52	18.7	2,917	2,577	721	707
R ALDER		12	10.9	14.8	55	12.9	1,595	1,513	442	412
TOTAL		133	153.2	18.0	79	270.3	49,890	48,082	12,209	12,034
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	78.8	7.3	489	527	566					
WHEMLOCK	96.0	47.7	151	288	425					
R ALDER	40.3	12.1	134	153	171					
TOTAL	84.1	7.3	449	485	520	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	54.7	6.9	118	127	136					
WHEMLOCK	210.1	26.7	11	15	19					
R ALDER	331.4	42.1	6	11	15					
TOTAL	49.1	6.2	144	153	163	96 24		11		
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUG FIR	42.7	5.4	226	239	252					
WHEMLOCK	207.5	26.3	14	19	24					
R ALDER	316.4	40.1	8	13	18					
TOTAL	38.2	4.9	257	270	283	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	42.5	5.4	41,620	43,992	46,364					
WHEMLOCK	206.5	26.2	1,902	2,577	3,253					
R ALDER	298.5	37.9	940	1,513	2,086					
TOTAL	38.3	4.9	45,748	48,082	50,416	58 15		6		

TC TSTATS				STATISTICS PROJECT TREASISL				PAGE 1 DATE 4/23/2015		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
07N	06W	28	A123	R/W	13.00	62	422	1	W	
				TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
PLOTS		TREES								
TOTAL		62	422	6.8						
CRUISE		22	134	6.1		2,003		6.7		
DBH COUNT										
REFOREST										
COUNT		40	283	7.1						
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		116	126.9	18.6	84	238.7	45,379	43,992	11,046	10,916
WHEMLOCK		5	15.3	15.0	52	18.7	2,917	2,577	721	707
R ALDER		12	10.9	14.8	55	12.9	1,595	1,513	442	412
WR CEDAR		1	.9	20.0	90	1.9	257	257	83	83
TOTAL		134	154.0	18.0	79	272.3	50,147	48,339	12,292	12,118
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		78.8	7.3	489	527	566				
WHEMLOCK		96.0	47.7	151	288	425				
R ALDER		40.3	12.1	134	153	171				
WR CEDAR										
TOTAL		84.1	7.3	448	483	518	283	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		54.7	6.9	118	127	136				
WHEMLOCK		210.1	26.7	11	15	19				
R ALDER		331.4	42.1	6	11	15				
WR CEDAR		583.0	74.0	0	1	2				
TOTAL		48.2	6.1	145	154	163	93	23	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		42.7	5.4	226	239	252				
WHEMLOCK		207.5	26.3	14	19	24				
R ALDER		316.4	40.1	8	13	18				
WR CEDAR		583.0	74.0	1	2	3				
TOTAL		36.8	4.7	260	272	285	54	14	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		42.5	5.4	41,620	43,992	46,364				
WHEMLOCK		206.5	26.2	1,902	2,577	3,253				
R ALDER		298.5	37.9	940	1,513	2,086				
WR CEDAR		583.0	74.0	67	257	448				
TOTAL		37.1	4.7	46,061	48,339	50,618	55	14	6	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	TREASISL	DATE 4/23/2015				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
07N	06W	28	A123	LEAV	173.00	62	39	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
PLOTS		TREES								
TOTAL		62	39	.6						
CRUISE		11	16	1.5		2,271	.7			
DBH COUNT										
REFOREST										
COUNT		13	23	1.8						
BLANKS		38								
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
SNAG		13	12.2	16.8	49	18.7	582	582	168	168
CEDLEAV		1	.9	20.0	90	1.9	257	257	83	83
DOUGLEAV		2	.1	52.3	128	1.3	410	205	81	46
TOTAL		16	13.1	17.5	53	21.9	1,249	1,044	333	297
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		
SNAG		179.7	51.8	14	29	44				
CEDLEAV										
DOUGLEAV		43.6	40.8	1,266	2,140	3,014				
TOTAL		245.1	63.2	114	309	505	2,559	640	284	
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
SNAG		199.0	25.3	9	12	15				
CEDLEAV		583.0	74.0	0	1	2				
DOUGLEAV		586.5	74.4	0	0	0				
TOTAL		185.0	23.5	10	13	16	1,367	342	152	
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
SNAG		167.5	21.3	15	19	23				
CEDLEAV		583.0	74.0	1	2	3				
DOUGLEAV		552.2	70.1	0	1	2				
TOTAL		153.7	19.5	18	22	26	944	236	105	
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		306.5	38.9	356	582	808				
CEDLEAV		583.0	74.0	67	257	448				
DOUGLEAV		645.6	81.9	37	205	373				
TOTAL		244.7	31.0	720	1,044	1,368	2,391	598	266	

TC		PSTNDSUM		Stand Table Summary										Page		1	
														Date:		4/8/2015	
T07N R06W S28 TyR/W13.00 T07N R06W S28 TyTAKE173.00				Project		TREASISL						Time:		9:57:19AM			
				Acres		186.00						Grown Year:					
S Spec	T	Sample		Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	T o t a l s			
		DBH	Trees	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF	
D		10	2	89	82	3.773	2.06	3.77	15.0	60.0		57	226		105	42	
D		11	2	83	140	3.118	2.06	6.24	14.5	50.0		90	312		168	58	
D		12	4	84	115	5.240	4.12	7.86	20.0	73.3		157	576		292	107	
D		13	16	87	91	18.042	16.46	29.39	18.7	66.4		550	1,953		1,024	363	
D		14	4	87	98	3.850	4.12	7.70	20.3	80.0		156	616		290	115	
D		15	22	86	122	18.446	22.64	45.28	21.4	83.7		968	3,790		1,800	705	
D		16	16	86	121	11.791	16.46	29.48	25.0	96.5		735	2,844		1,368	529	
D		17	10	84	134	6.528	10.29	18.28	27.6	103.6		505	1,893		940	352	
D		18	12	85	122	6.987	12.35	17.47	30.7	112.0		537	1,956		999	364	
D		19	18	86	120	9.406	18.52	26.13	32.6	121.6		852	3,177		1,584	591	
D		20	20	87	117	9.432	20.58	23.58	38.4	150.0		906	3,537		1,684	658	
D		21	10	87	123	4.278	10.29	11.98	40.3	159.3		483	1,908		898	355	
D		22	16	87	129	6.236	16.46	17.93	45.9	190.9		823	3,422		1,531	637	
D		23	4	82	126	1.426	4.12	4.28	45.3	173.3		194	742		361	138	
D		24	8	87	140	2.620	8.23	7.86	54.6	230.0		429	1,808		798	336	
D		25	2	88	120	.604	2.06	1.81	52.0	220.0		94	398		175	74	
D		26	16	87	133	4.465	16.46	11.72	68.4	287.6		801	3,371		1,491	627	
D		27	6	87	137	1.553	6.17	4.66	67.7	294.4		315	1,372		586	255	
D		28	20	86	131	4.812	20.58	13.96	72.4	293.8		1,011	4,100		1,880	763	
D		29	2	89	140	.449	2.06	1.35	82.3	396.7		111	534		206	99	
D		30	6	87	135	1.258	6.17	3.77	85.3	385.6		322	1,455		599	271	
D		31	2	88	153	.393	2.06	1.18	98.7	470.0		116	554		216	103	
D		32	4	87	133	.737	4.12	2.21	93.8	420.0		207	929		386	173	
D		33	2	85	126	.346	2.06	1.04	79.3	383.3		82	398		153	74	
D		34	2	85	146	.326	2.06	.98	115.7	560.0		113	548		211	102	
D		35	2	86	146	.308	2.06	.92	80.7	423.3		75	391		139	73	
D		38	4	87	146	.523	4.12	1.57	144.0	753.3		226	1,181		420	220	
D		Totals	232	86	118	126.947	238.71	302.37	36.1	145.5		10,916	43,992		20,303	8,183	
H		10	2	88	30	6.861	3.74	6.86	9.0	30.0		62	206		115	38	
H		15	2	89	123	3.049	3.74	9.15	22.0	80.0		201	732		374	136	
H		17	2	92	87	2.374	3.74	4.75	29.0	110.0		138	522		256	97	
H		18	2	83	80	2.118	3.74	4.24	30.5	95.0		129	402		240	75	
H		27	2	85	110	.941	3.74	2.82	62.7	253.3		177	715		329	133	
H		Totals	10	88	69	15.342	18.71	27.81	25.4	92.7		707	2,577		1,315	479	
A		12	4	86	87	2.738	2.15	2.74	18.5	75.0		51	205		94	38	
A		13	2	87	80	1.167	1.08	2.33	16.5	60.0		38	140		72	26	
A		14	4	86	76	2.012	2.15	4.02	19.0	75.0		76	302		142	56	
A		15	2	87	73	.876	1.08	1.75	20.5	75.0		36	131		67	24	
A		16	4	86	75	1.540	2.15	3.08	24.3	85.0		75	262		139	49	
A		17	6	86	64	2.047	3.23	4.09	23.7	81.7		97	334		180	62	
A		20	2	87	78	.493	1.08	.99	39.5	140.0		39	138		72	26	
A		Totals	24	86	77	10.872	12.90	19.01	21.7	79.6		412	1,513		766	281	
C		20	1	80	122	.062	.14	.19	31.3	96.7		6	18		11	3	
C		Totals	1	80	122	.062	.14	.19	31.3	96.7		6	18		11	3	
Totals			267	86	110	153.224	270.46	349.38	34.5	137.7		12,040	48,100		22,395	8,947	

TC PLOGSTVB		Log Stock Table - MBF																	
T07N R06W S28 TyR/W 13.00 T07N R06W S28 TyTAKE 173.00				Project: TREASISL Acres 186.00										Page 1 Date 4/23/2015 Time 7:48:54AM					
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+
H		DO CU	6	13	100.0														
H		DO 2S	32	231	12.5	202	42.1				79	44		79					
H		DO 3S	20	38		38	8.0			38									
H		DO 3S	23	11		11	2.2			11									
H		DO 3S	30	18		18	3.7			18									
H		DO 3S	32	103		103	21.4			40		63							
H		DO 3S	40	102	16.7	85	17.7				85								
H		DO 4S	15	11		11	2.4			11									
H		DO 4S	26	16	25.0	12	2.5			12									
H		Totals		543	11.6	479	5.4			79	50	85	142	44		79			
D		DO CU	2	6	100.0														
D		DO CU	6	29	100.0														
D		DO CU	15	24	100.0														
D		DO CU	16	32	100.0														
D		DO CU	31	19	100.0														
D		DO 2S	14	28		28	.3									28			
D		DO 2S	16	44		44	.5				22	22							
D		DO 2S	26	40	4.3	39	.5					39							
D		DO 2S	32	529		524	6.4				103	252	169						
D		DO 2S	40	4,688	2.7	4,559	55.7				303	869	1024	1574	595	194			
D		DO 3S	12	3		3	.0				3								
D		DO 3S	15	3		3	.0			3									
D		DO 3S	16	4		4	.0				4								
D		DO 3S	17	7		7	.1			7									
D		DO 3S	20	16		16	.2			4	12								
D		DO 3S	22	18		18	.2			9	8								
D		DO 3S	23	12		12	.2				12								
D		DO 3S	24	22		22	.3			22									
D		DO 3S	25	6		6	.1				6								
D		DO 3S	27	34		34	.4			5	29								
D		DO 3S	28	31		31	.4					31							
D		DO 3S	29	8		8	.1			8									
D		DO 3S	30	7		7	.1			7									
D		DO 3S	31	23		23	.3					23							
D		DO 3S	32	823	1.0	814	10.0			131	356	291	16	21					

TC		PLOGSTVB																		Log Stock Table - MBF									
T07N R06W S28 TyR/W				13.00		Project:				TREASISL										Page		2							
T07N R06W S28 TyTAKE				173.00		Acres				186.00										Date		4/23/2015							
																				Time		7:48:54AM							
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+									
D		DO	3S	33	22		22	.3			22																		
D		DO	3S	36	5	16.7	4	.1			4																		
D		DO	3S	37	48		48	.6			18	30																	
D		DO	3S	38	10		10	.1			10																		
D		DO	3S	40	1,589		1,587	19.4			339	442	731	47	28														
D		DO	4S	12	6		6	.1			3	3																	
D		DO	4S	13	4		4	.0			4																		
D		DO	4S	15	34		34	.4			34																		
D		DO	4S	16	13		13	.2			13																		
D		DO	4S	17	22		22	.3			18	4																	
D		DO	4S	20	10		10	.1			5	4																	
D		DO	4S	21	23		23	.3			23																		
D		DO	4S	22	12		12	.1			12																		
D		DO	4S	24	22		22	.3			22																		
D		DO	4S	25	43		43	.5			43																		
D		DO	4S	27	9		9	.1			5	4																	
D		DO	4S	28	30		30	.4			30																		
D		DO	4S	29	6		6	.1				6																	
D		DO	4S	30	32	4.5	31	.4			31																		
D		DO	4S	31	9		9	.1			9																		
D		DO	4S	40	37		37	.5				37																	
D		Totals			8,440	3.1	8,183	91.5			808	953	1545	1205	1281	1574	595	223											
A		DO	CU	40	15	100.0																							
A		DO	CR	16	5		5	1.8			5																		
A		DO	CR	20	15		15	5.4				15																	
A		DO	CR	21	27		27	9.6			27																		
A		DO	CR	26	4		4	1.5			4																		
A		DO	CR	32	208		208	74.0			5	42	140	21															
A		DO	CR	33	6		6	2.3			6																		
A		DO	CR	36	15		15	5.4			15																		
A		Totals			297	5.2	281	3.1			63	42	140	15	21														
C		DO	2S	40	2		2	69.0				2																	
C		DO	3S	32	1		1	24.1			1																		
C		DO	4S	15	0		0	6.9			0																		
C		Totals			3		3	.0			0	1	2																

TC PLOGSTVB				Log Stock Table - MBF															
T07N R06W S28 TyR/W13.00 T07N R06W S28 TyTAKE173.00				Project: TREASISL												Page 3			
				Acres 186.00												Date 4/23/2015			
																Time 7:48:54AM			
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+	
Total	All Species		9,283	3.6	8,947	100.0			950	1046	1770	1365	1345	1574	674	223			

Legend

- Timber Sale Boundary
- Existing Surface Roads
- New Road Construction
- - - Surfaced
- Unsurfaced
- Loggers Choice Road
- ⊙ New Landing Construction
- Streams
- Type F Stream
- Type N Stream
- ▨ Posted Stream Buffer
- T** Harvest Area - Ground
- Harvest Area - Cable
- ◊ Known Survey Corner
- Ⓜ Waste Area
- ▭ ODF Ownership

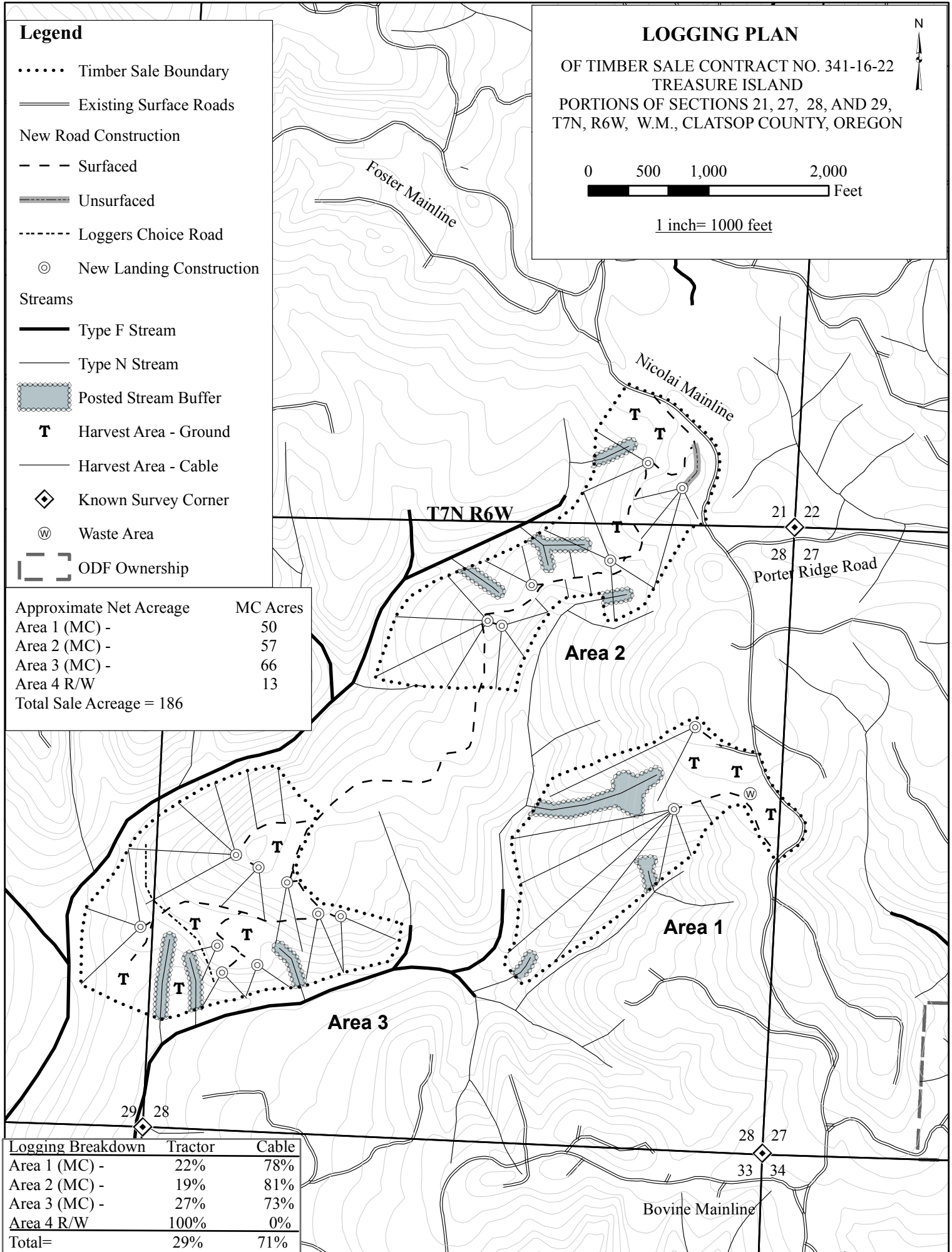
Approximate Net Acreage	MC Acres
Area 1 (MC) -	50
Area 2 (MC) -	57
Area 3 (MC) -	66
Area 4 R/W	13
Total Sale Acreage = 186	

LOGGING PLAN

OF TIMBER SALE CONTRACT NO. 341-16-22
TREASURE ISLAND
PORTIONS OF SECTIONS 21, 27, 28, AND 29,
T7N, R6W, W.M., CLATSOP COUNTY, OREGON

0 500 1,000 2,000
Feet

1 inch = 1000 feet



Logging Breakdown	Tractor	Cable
Area 1 (MC) -	22%	78%
Area 2 (MC) -	19%	81%
Area 3 (MC) -	27%	73%
Area 4 R/W	100%	0%
Total=	29%	71%