



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
High Tide
Sale 341-13-24

District: Astoria

Date: April 05, 2013

cost summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$3,865,319.04	\$47,156.97	\$3,912,476.01
		Project Work:	\$(360,162.00)
		Advertised Value:	\$3,552,314.01



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timber description

Location: Portions of Sections 16, 17, 20, 21, and 28, T6N, R7W, W.M., Clatsop County, Oregon.

Stand Stocking: 20%

SpecieName	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	18	0	97
Western Hemlock / Fir	18	0	97
Sitka Spruce	24	0	97
Alder (Red)	17	0	95

Volume by Grade	2S	3S	4S	Camprur	Total
Douglas - Fir	6,405	2,154	392	0	8,951
Western Hemlock / Fir	1,502	734	66	0	2,302
Sitka Spruce	0	8	0	0	8
Alder (Red)	0	0	0	123	123
Total	7,907	2,896	458	123	11,384



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comments: Pond Values Used: 4th Quarter Calendar Year 2012.

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

Western redcedar and Other Cedars Stumpage Price = Pond Value
minus Logging Cost
 $\$801.49/\text{MBF} = \$985/\text{MBF} - \$183.51/\text{MBF}$

SCALING COST ALLOWANCE = \$5.00/MBF

FUEL COST ALLOWANCE = \$4.00/Gallon

HAULING COST ALLOWANCE

Hauling costs equivalent to \$780 daily truck cost.

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

100% Branding and Painting: $\$1/\text{MBF} \times 11,903 \text{ MBF} = \$11,903$

Log Loader Slash & Landing Piling (includes Move-In and Pile
Materials) = \$10,181

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

TOTAL Other Costs (with Profit & Risk to be added) = \$24,084

Other Costs (No Profit & Risk added):

None.



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logging conditions

combination#: 1 Douglas - Fir 17.05%
 Western Hemlock / Fir 13.08%

yarding distance: Medium (800 ft) downhill yarding: No
logging system: Cable: Medium Tower >40 - <70 Process: Manual Falling/Delimbing
tree size: Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF
loads / day: 5.0 bd. ft / load: 3,300
cost / mbf: \$209.70
machines: Log Loader (A)
 Tower Yarder (Medium)

combination#: 2 Douglas - Fir 4.81%
 Western Hemlock / Fir 3.69%

yarding distance: Medium (800 ft) downhill yarding: No
logging system: Shovel Process: Manual Falling/Delimbing
tree size: Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF
loads / day: 7.0 bd. ft / load: 3,300
cost / mbf: \$108.43
machines: Shovel Logger

combination#: 3 Douglas - Fir 22.66%
 Western Hemlock / Fir 24.14%
 Sitka Spruce 29.00%
 Alder (Red) 29.00%

yarding distance: Medium (800 ft) downhill yarding: No
logging system: Cable: Medium Tower >40 - <70 Process: Manual Falling/Delimbing
tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 9.0 bd. ft / load: 4,500
cost / mbf: \$85.43
machines: Log Loader (A)
 Tower Yarder (Medium)

combination#: 4 Douglas - Fir 55.48%
 Western Hemlock / Fir 59.09%
 Sitka Spruce 71.00%
 Alder (Red) 71.00%



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yarding distance:	Medium (800 ft)	downhill yarding:	No
logging system:	Shovel	Process:	Stroke Delimber
tree size:	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF		
loads / day:	11.0	bd. ft / load:	4,500
cost / mbf:	\$29.06		
machines:	Stroke Delimber (B)		



"STEWARDSHIP IN FORESTRY"

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logging costs

Operating Seasons:	2.00	Profit Risk:	12.00%
Project Costs:	\$360,162.00	Other Costs (P/R):	\$24,084.00
Slash Disposal:	\$0.00	Other Costs:	\$0.00

Miles of Road

Road Maintenance: \$2.67

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

Hauling Costs

Species	\$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	\$0.00	2.0	4.5
Western Hemlock / Fir	\$0.00	2.0	4.0
Sitka Spruce	\$0.00	2.0	4.5
Alder (Red)	\$0.00	2.0	3.5

Local Pond Values

Date	Specie	Grade	Value
4/5/13	Douglas - Fir	2S	\$562.46
4/5/13	Douglas - Fir	3S	\$528.00
4/5/13	Douglas - Fir	4S	\$513.00
4/5/13	Western Hemlock / Fir	2S	\$449.15
4/5/13	Western Hemlock / Fir	3S	\$438.00
4/5/13	Western Hemlock / Fir	4S	\$433.00
4/5/13	Sitka Spruce	3S	\$427.63
4/5/13	Alder (Red)	Camprun	\$562.62



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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									
\$76.46	\$2.75	\$0.77	\$79.70	\$2.12	\$19.42	\$0.00	\$5.00	\$0.00	\$186.22
Western Hemlock / Fir									
\$69.22	\$2.75	\$0.77	\$89.66	\$2.12	\$19.74	\$0.00	\$5.00	\$0.00	\$189.26
Sitka Spruce									
\$45.41	\$2.75	\$0.77	\$79.70	\$2.12	\$15.69	\$0.00	\$5.00	\$0.00	\$151.44
Alder (Red)									
\$45.41	\$2.80	\$0.77	\$104.46	\$2.12	\$18.67	\$0.00	\$5.00	\$0.00	\$179.23

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$552.00	\$365.78	\$0.00
Western Hemlock / Fir	\$0.00	\$445.13	\$255.87	\$0.00
Sitka Spruce	\$0.00	\$427.63	\$276.19	\$0.00
Alder (Red)	\$0.00	\$562.62	\$383.39	\$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	8,951	\$365.78	\$3,274,096.78
Western Hemlock / Fir	2,302	\$255.87	\$589,012.74
Sitka Spruce	8	\$276.19	\$2,209.52
Alder (Red)	123	\$383.39	\$47,156.97

Gross Timber Sale Value

Recovery: \$3,912,476.01

Prepared by: Dave Rygell

Phone: 503-325-5451

Road Maintenance Cost Summary

Sale: High Tide
 Date: 29-Nov-12
 By: D. Rygell

MBF: 11,384
 \$\$/MBF: \$2.79

Road segments to maintain: I1 to I2, I3 to I4, I2 to I5, I5 to I6, I6 to I7, I7 to I8, I8 to I9, I9 to I10, I9 to I13, and I13 to I11.

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	Production Rates			
Progressive Operations 1st Entry	Grader 14G Dump Truck 12CY x 2 FE Loader C966	\$778	1	12	\$100	\$1,978	Production Rates	Miles/day	Distance(miles)	Days
		\$163	2	8	\$79	\$1,590	Grader	2.5	3.0	1.2
		\$778	1	8	\$83	\$1,442				
Progressive Operations 2nd Entry	Grader 14G ¹ Dump Truck 12CY x 2 FE Loader C966	\$778	1	16	\$100	\$2,378	Production Rates	Miles/day	Distance(miles)	Days
		\$163	2	8	\$79	\$1,590	Grader	2.5	4.0	1.6
		\$778	1	8	\$83	\$1,442				
Final Road Maintenance	Grader 14G Dump Truck 12CY x 2 FE Loader C966 Vibratory Roller* Water Truck 2,500 gallon Labor	\$778	1	50	\$100	\$5,778	Production Rates	Miles/day	Distance(miles)	Days
		\$163	2	20	\$79	\$3,486	Grader	1.5	7.5	5.0
		\$778	1	20	\$83	\$2,438	Vibratory Roller ²	1.5	7.5	5.0
		\$778	1	50	\$77	\$4,628				
		\$190	1	50	\$89	\$4,640				
				10	\$40	\$400				
Total										\$31,790

- 1) 1 mile of Grading added for use of Hamilton Creek Rd.
- 2) Final Road Maintenance Only

SUMMARY OF ALL PROJECT COSTS

SALE NAME: High Tide

PROJECT No. 1 Sale Access and Landing Construction

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
1C-1D,1E-1F,1G-1H,1I-1J,1K-1L,1M-1N,1O-1P, 1Y-1Z,3A-3B,3D-3E,3F-3G,3H-3I	<u>85.35</u>	<u>\$91,047.00</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
TOTALS	85.35	\$91,047

PROJECT No. 2 Sale Access Road Improvement

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
11-12,13-14,15-16,17-18,19-110,111-112,111-113	<u>321+80</u>	<u>\$40,983.00</u>
<u> </u>	<u> </u>	<u> </u>
TOTALS		\$40,983.00

SPECIAL PROJECTS:

<u>Description</u>	<u>Cost</u>
PROJECT NO. 3 West Tidewater Pit Development	<u>\$20,136.00</u>
PROJECT NO. 4 Tidewater Loop No. 2 Crush/Stockpile	<u>\$184,211.00</u>
PROJECT NO. 5 Vacating	<u>\$8,958.00</u>
Project Road Maintenance	<u>\$9,063.00</u>
<u> </u>	<u> </u>
TOTAL	\$222,368.00

MOVE IN:

<u>Equipment</u>	<u>Cost</u>
C330	<u>\$1,406.00</u>
Rock Trucks 3 ea.	<u>\$489.00</u>
Grader	<u>\$778.00</u>
Water Truck	<u>\$190.00</u>
Vibratory Roller	<u>\$778.00</u>
Dozer	<u>\$1,406.00</u>
Skidder	<u>\$717.00</u>
<u> </u>	<u> </u>
TOTAL	\$5,764.00

GRAND TOTAL **\$360,162.00**

Compiled By: d.mellison

Date: 12/14/12

CB

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: High Tide
ROAD: 1A, 1B, 1C-1D, 1E-1F, 1G-1H, 1I-1J, 1K-1L, 1M-1N, 1O-1P, 1Y-1X, 2A, 2B, 3A-3B, 3C, 3D-3E, 3F-3G, 3H-3I,

NEW CONSTRUCTION: 85.35 STATIONS 1.62 MILES
IMPROVEMENT: STATIONS MILES

POINTS: 1C-1D(11+75), 1E-1F(13+70), 1G-1H(1+70), 1I-1J(1+00), 1K-1L(15+20), 1M-1N(19+00), 1O-1P(12+50), 1Y-1Z(1+50), 3A-3B(4+50), 3D-3E(2+50), 3F-3G(1+00), 3H-3I(1+00)

CLEARING & GRUBBING

Method		Acres/amount	x	Rate	=	Cost
Scatter Outside R/W			x		=	
1A, 1B, 1C-1D, 1E-1F, 1G-1H, 1I-1J, 1K-1L, 1M-1N, 1O-1P, 1Y-1X, 2A, 2B, 3A-3B, 3C, 3D-3E, 3F-3G, 3H-3I,		7.70	x	\$1,337.00	=	\$10,294.90

SUB TOTAL FOR CLEARING & GRUBBING

\$10,295

EXCAVATION

Material	Cyl/amount	x	Rate	=	Cost
Common Drift \$\$/cuyd	1E-1F, 1K-1L, 1M-1N	7,923	\$1.80	=	\$14,261.40
Balanced Construction \$\$/Sta-1D, 1G-1H, 1I-1J, 1K-1L, 1M-1N, 1O-1P, 1X-1Y, 3A-3B		35.95	\$122.00	=	\$4,385.90
Cutslope Rounding 1M-1N (Sta 8+00 to 9+00)		1.00	\$43.00	=	\$43.00
Embankment Compaction		7,923	\$0.70	=	\$5,546.10
Borrow excavation		500	\$4.81	=	\$2,405.00
Landings 1A, 1B, 1D, 1F, 1H, 1J, 1K-1L (12+00), 1L, 1M-1N(5+00), 1N, 1O-1P (7+50), 2A, 2B,3C, 3E, 3G, 3I, 1Z	19	x	\$389.00	=	\$7,391.00

SUB TOTAL FOR EXCAVATION

\$34,032

CULVERT MATERIALS AND INSTALLATION

[illegible]

	Description	Quantity	Rate	Cost
Other/miscellaneous:				
Culvert stakes & markers:	Install 6' Fiberglass Markers @ \$20.00 each	7	\$20.00	\$140.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$4,241

Subtotal of Clearing, Exc., Culv.

\$48,569

SURFACING				Stations/ amount	x	Rate/ sta/amt	Cost
Subgrade prep: Description				85.35	x	\$24.83	\$2,119.24
Grade, Shape and Ditch 16'				85.35	x	\$20.19	\$1,723.22
Subgrade Compaction							

ROAD SEGMENT 1A				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	1A		n/a				
				Volume (CY) per		Number of				
Base Rock	6"-0" Pit-run	1A	n/a	Landings	50	Landings	1.00	50	\$5.88	\$294
Total Rock for Road Segment:				1A				50		

\$294

ROAD SEGMENT 1B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	1B		n/a				
				Volume (CY) per	Number of					
Base Rock	6"-0" Pit-run	1B	n/a	Landings	50	Landings	1.00	50	\$5.88	\$294
Total Rock for Road Segment:				1B				50		

\$294

ROAD SEGMENT 1C-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-1D		0+00 to 11+75				
				Volume (CY) per	Number of					
Base Rock	6"-0" Pit-run	0+00 to 11+75	10	Station	63	Stations	11.75	740	\$5.88	\$4,353
Junctions	11/2"-0" Crushed	1C	10	Junction	22	Junctions	1.00	22	\$2.99	\$66
Traction rock	11/2"-0" Crushed	7+00-12+00	3	Station	19	Stations	5.00	95	\$2.99	\$284
Turnouts	11/2"-0" Crushed	8+80	3	Turnout	8	Turnouts	1.00	8	\$2.99	\$24
Turnouts	6"-0" Pit-run	2+70, 8+80	10	Turnout	22	Turnouts	2.00	44	\$5.88	\$259
Turnarounds	6"-0" Pit-run	10+70	10	Landing	22	Turnarounds	1.00	22	\$5.88	\$129
Landings	6"-0" Pit-run	1D	N/A	Landing	50	Landings	1.00	50	\$5.88	\$294
Total Rock for Road Segment:				1C-1D				981		

\$5,409

Total Rock for Road Segment:				1C-1D				981			
ROAD SEGMENT 1E-1F				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (Inches)	1E-1F		0+00 to 13+70					
				Volume (CY) per	Number of						
Base Rock	6"-0" Pit-run	0+00 to 13+70	10	Station	63	Stations	13.70	863	\$5.88	\$5,075	
Junctions	1 1/2"-0" Crushed	1E	10	Junction	22	Junctions	1.00	22	\$2.99	\$66	
Traction rock	1 1/2"-0" Crushed	8+00-1300	3	Station	19	Stations	5.00	95	\$2.99	\$284	
Turnouts	1 1/2"-0" Crushed	8+25	3	Turnout	8	Turnouts	1.00	8	\$2.99	\$24	
Turnouts	6"-0" Pit-run	2+40, 8+25	10	Turnout	22	Turnouts	2.00	44	\$5.88	\$259	
Turnarounds	6"-0" Pit-run	12+10	10	Landing	22	Turnarounds	1.00	22	\$5.88	\$129	
Landings	6"-0" Pit-run	1F	N/A	Landing	50	Landings	1.00	50	\$5.88	\$294	
Total Rock for Road Segment:				1E-1F				1,104			

\$6,131

Total Rock for Road Segment:				1G-1H		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
ROAD SEGMENT				1G-1H		1G-1H		0+00 to 1+70				
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of						
Base Rock	6"-0" Pit-run	0+00 to 1+70	10	Station	63	Stations	1.70	107		\$5.88	\$630	
Landings	6"-0" Pit-run	1Z	N/A	Landing	50	Landings	1.00	50		\$5.88	\$294	
Total Rock for Road Segment:				1G-1H				157				

\$924

ROAD SEGMENT 1I-1J				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	1I-1J		0+00 to 1+00				
				Volume (CY) per	Number of					
Base Rock	6"-0" Pit-run	0+00 to 1+00	10	Station	63	Stations	1.00	63	\$5.88	\$370
Junctions	1 1/2"-0" Crushed	1I	10	junction	22	junctions	1.00	22	\$2.99	\$66
Landings	6"-0" Pit-run	1J	N/A	Landing	50	Landings	1.00	50	\$5.88	\$294
Total Rock for Road Segment:				1I-1J				135		

\$730

ROAD SEGMENT				1K-1L		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	1K-1L		0+00 to 15+20						
				Volume (CY) per	Number of	Volume (CY) per	Number of					
Base Rock	6"-0" Pit-run	0+00 to 15+20	10	Station	63	Stations	15.20	958	\$5.88	\$5,631		
Junctions	11/2"-0" Crushed	1K	10	Junction	22	Junctions	1.00	22	\$2.99	\$66		
Traction rock	11/2"-0" Crushed	5+00 to 8+00, 12+00-15+00	3	Station	19	Stations	6.00	114	\$2.99	\$341		
Turnouts	6"-0" Pit-run	4+50, 9+00	10	Turnout	22	Turnouts	2.00	44	\$5.88	\$259		
Landings	6"-0" Pit-run	12+00, 1L	N/A	Landing	50	Landings	2.00	100	\$5.88	\$588		
Total Rock for Road Segment:				1K-1L				1,238				

\$6,884

ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
1M-1N			Depth of Rock (Inches)	1M to 1N		0+00 to 19+00				
Application	Rock Size and Type	Location			Volume (CY) per	Number of				
Base Rock	6"-0" Pit-run	0+00 to 9+00	10	Station	63	Stations	19.00	1,197	\$5.88	\$7,038
Junctions	1 1/2"-0" Crushed	1M	10	Junction	22	Junctions	1.00	22	\$2.99	\$66
Landings	6"-0" Pit-run	5+00, 1N	N/A	Landing	50	Landings	2.00	100	\$5.88	\$588
Total Rock for Road Segment:			1M to 1N				1,319			

\$7,692

ROAD SEGMENT 1O-1P				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1O to 1P		0+00 to 12+50				
				Volume (CY) per		Number of				
Base Rock	6"-0" Pit-run	0+00 to 112+50	10	Station	63	Stations	12.50	788	\$5.88	\$4,631
Junctions	11/2"-0" Crushed	1O	10	junction	22	junctions	1.00	22	\$2.99	\$66
Turnouts	6"-0" Pit-run	4+00	10	Turnout	22	Turnouts	1.00	22	\$5.88	\$129
Landings	6"-0" Pit-run	7+50, 1P	N/A	Landing	50	Landings	2.00	100	\$5.88	\$588
Total Rock for Road Segment:				1O to 1P				932		

\$5,414

ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
1Y-1Z				1Y-1Z		0+00 to 1+50				
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per		Number of				
Base Rock	6"-0" Pit-run	0+00 to 1+50	10	Station	63	Stations	1.50	95	\$5.88	\$556
Landings	6"-0" Pit-run	1Z	N/A	Landing	50	Landings	1.00	50	\$5.88	\$294
Total Rock for Road Segment:				1Y-1Z				145		

\$850

ROAD SEGMENT 2A				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	2A		n/a				
				Volume (CY) per	Number of					
Landings	6"-0" Pit-run	2A	n/a	Landings	50	Landings	1.00	50	\$5.88	\$294
Total Rock for Road Segment:				2A				50		

\$294

ROAD SEGMENT 2B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per	Number of					
Base Rock	6"-0" Pit-run	2A	n/a	Landings	50	Landings	1.00	50	\$5.88	\$294
Total Rock for Road Segment:				2B				50		

\$294

ROAD SEGMENT 3A-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 4+50				
				Volume (CY) per		Number of				
Base Rock	6"-0" Pit-run	0+00 to 4+50	10	Station	63	Stations	4.50	284	\$5.88	\$1,667
Base Rock	11/2"-0" Crushed	0+00 to 4+50	3	Station	19	Stations	4.50	86	\$2.99	\$256
Junctions	11/2"-0" Crushed	3A, 3B	3	Junction	22	Junctions	2.00	44	\$2.99	\$132
Total Rock for Road Segment:				3A to 3B				413		\$387
ROAD SEGMENT 3C				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	3C		N/A				
				Volume (CY) per		Number of				
Landings	6"-0" Pit-run	3C	n/a	Landing	50	Landings	1.00	50	\$5.88	\$294
Total Rock for Road Segment:				3C				50		\$294
ROAD SEGMENT 3D-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 2+50				
				Volume (CY) per		Number of				
Base Rock	6"-0" Pit-run	0+00 to 2+50	10	Stations	63	Stations	2.50	158	\$5.88	\$926
Junctions	11/2"-0" Crushed	3D	10	Junction	22	Junctions	1.00	22	\$2.99	\$66
Landings	6"-0" Pit-run	3E	n/a	Landings	50	Landings	1.00	50	\$5.88	\$294
Total Rock for Road Segment:				3D to 3E				230		\$1,286
ROAD SEGMENT 3F-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+00				
				Volume (CY) per		Number of				
Base Rock	6"-0" Pit-run	0+00 to 1+00	10	Station	63	Stations	1.00	63	\$5.88	\$370
Junctions	11/2"-0" Crushed	3F	10	junction	22	junctions	1.00	22	\$2.99	\$66
Landings	6"-0" Pit-run	3G	N/A	Landing	50	Landings	1.00	50	\$5.88	\$294
Total Rock for Road Segment:				3F to 3G				135		\$730
ROAD SEGMENT 3H-3I				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	3H to 3I		0+00 to 1+00				
				Volume (CY) per		Number of				
Base Rock	6"-0" Pit-run	0+00 to 1+00	10	Station	63	Stations	1.00	63	\$5.88	\$370
Junctions	11/2"-0" Crushed	3H	10	junction	22	Junctions	1.00	22	\$2.99	\$66
Landings	6"-0" Pit-run	3I	N/A	Landing	50	Landings	1.00	50	\$5.88	\$294
Total Rock for Road Segment:				3H to 3I				135		\$730
Processing:										
Description								No.sta	Rate/sta	Cost
Water, Process & Compact:								83.65	\$59.20	\$4,952
Water, Process & Compact:Traction Rock								16.00	\$56.48	\$904

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: High Tide	NEW CONSTRUCTION:	STATIONS	MILES
ROAD: I1-I2, I3-I4, I5-I6, I7-I8, I9-I10, I11-I12, I11-I13	IMPROVEMENT: 321.80	STATIONS	MILES
POINTS: I1-I2 (152+12), I3-I4 (35+50), I5-I6 (21+75), I7-I8 (32+64), I9-I10 (17+36), I11-I12 (27+45), I11-I13 (34+98)		6.09	

CLEARING & GRUBBING					
Method	Acres/amount	x	Rate	=	Cost
		x		=	
		x		=	
		x		=	
		x		=	
		x		=	

SUB TOTAL FOR CLEARING & GRUBBING

EXCAVATION					
Material	Qty/amount	x	Rate	=	Cost
		x		=	
		x		=	
(I3-I4) (Sta. 11+11) Develop Waste Area (C330)(Hrs)	0.25	x	\$155	=	\$38.75
(I3-I4) Place Dissipator Rock (C330)(Hrs)	0.75	x	\$155	=	\$116.25
(I9-I10) Place Dissipator Rock (C330)(Hrs)	0.15	x	\$155	=	\$23.25
(I11-I12) Construct ditchouts (3 each) (Cal 14G)(Hrs)	0.75	x	\$100	=	\$75.00
		x		=	
		x		=	
		x		=	

SUB TOTAL FOR EXCAVATION

\$253

CULVERT MATERIALS AND INSTALLATION									
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
I3-I4 (sta 7+85)	18" CPP	40	\$19.53	\$781.20					
I3-I4 (sta 18+50)	18" CPP	50	\$19.53	\$976.50					
I3-I4 (sta 19+76)	18" CPP	50	\$19.53	\$976.50					
I5-I6 (sta 9+50)	18" CPP	40	\$19.53	\$781.20					
I5-I6 (sta 17+00)	18" CPP	40	\$19.53	\$781.20					
I9-I10 (sta 6+50)	18" CPP	50	\$19.53	\$976.50					
I11-I12 (sta 22+57)	18" CPP	40	\$19.53	\$781.20					

Description	Quantity	Rate	Cost
Other/miscellaneous:			
Culvert stakes & markers: Replacement Culvert Markers	7	\$20.00	\$140.00
Existing Culverts I11 to I13 (Sta. 12+56, 21+26) that are missing markers	2	\$20.00	\$40.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$6,234

Subtotal of Clearing, Exc., Culv.

\$6,488

SURFACING				Stations/amount	x	Rate/sta/amt	Cost
Subgrade prep				Grade, Shape and Ditch 16'	x	\$24.83	\$7,990.29
Subgrade Compaction (I11 to I12)				27.45	x	\$20.19	\$554.22

ROAD SEGMENT I1 to I2				POINT TO POINT I1 to I2		Sta. to Sta. 0+00 to 152+12		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per	Number of					
Leveling Rock	11/2"-0" crushed	0+00 - 105+50	n/a	load 11	loads 19			209	\$2.99	\$625
Leveling Rock	11/2"-0" crushed	105+50-126+34	n/a	load 11	loads 4			44	\$2.99	\$132
Leveling Rock	11/2"-0" crushed	126+34-152+12	n/a	load 11	loads 5			55	\$2.99	\$164
Total Rock for Road Segment:				I1 to I2				308		

\$921

ROAD SEGMENT I3 to I4				POINT TO POINT I3 to I4		Sta. to Sta. 0+00 to 35+50		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per	Number of					
Surfacing Rock	11/2"-0" crushed	7+85,18+50,19+76	3	culvert 11	culverts 3			33	\$2.99	\$99
Bedding/Backfill	11/2"-0" crushed	7+85,18+50,19+76	n/a	culvert 44	culverts 3			132	\$2.99	\$395
Dissipator Rock	24"-6" riprap	7+85,18+50,19+76	n/a	culvert 11	culverts 3			33	\$5.42	\$179
Total Rock for Road Segment:				I3 to I4				198		

\$672

ROAD SEGMENT I5 to I6				POINT TO POINT I5 to I6		Sta. to Sta. 0+00 to 21+75		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per	Number of					
Traction Rock	11/2"-0" crushed	0+00 - 4+00	2	station 13	stations 4			52	\$2.99	\$155
Leveling Rock	11/2"-0" crushed		n/a	load 11	loads 12			132	\$2.99	\$395
Surfacing Rock	11/2"-0" crushed	9+50, 17+00	3	culvert 11	culverts 2			22	\$2.99	\$66
Bedding/Backfill	11/2"-0" crushed	9+50, 17+00	n/a	culvert 33	culverts 2			66	\$2.99	\$197
Dissipator Rock	24"-6" riprap	17+00	n/a	culvert 11	culverts 1			11	\$5.42	\$60
Total Rock for Road Segment:				I5 to I6				283		

\$873

ROAD SEGMENT I7 to I8				POINT TO POINT I7 to I8		Sta. to Sta. 0+00 to 32+64		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per	Number of					
Leveling Rock	11/2"-0" crushed	n/a	n/a	load 11	loads 8			88	\$2.99	\$263
Total Rock for Road Segment:				I7 to I8				88		

\$263

ROAD SEGMENT I9 to I10				POINT TO POINT I9 to I10		Sta. to Sta. 0+00 to 17+36		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per	Number of					
Surfacing Rock	11/2"-0" crushed	6+50	3	culvert 11	culverts 1			11	\$2.99	\$33
Bedding/Backfill	11/2"-0" crushed	6+50	n/a	culvert 44	culverts 1			44	\$2.99	\$132
Leveling Rock	11/2"-0" crushed		n/a	load 11	loads 6			66	\$2.99	\$197
Dissipator Rock	24"-6" riprap	6+50	n/a	culvert 11	culverts 1			11	\$5.42	\$60
Total Rock for Road Segment:				I9 to I10				132		

\$421

ROAD SEGMENT I11 to I12				POINT TO POINT I11 to I12		Sta. to Sta. 0+00 to 27+45		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per	Number of					
Surfacing Rock	11/2"-0" crushed		4	station 25	stations 27.45			686	\$2.99	\$2,052
Turnouts	11/2"-0" crushed		4	turnout 11	turnouts 4			44	\$2.99	\$132
"Y" Junction	11/2"-0" crushed	2+04	4	station 25	stations 1			25	\$2.99	\$75
Junctions	11/2"-0" crushed	Tidewater Loop	4	junction 11	junctions 2			22	\$2.99	\$66
Curve widening	11/2"-0" crushed	6+24-8+66,11+84-13+22	4	curve n/a	curves 2			22	\$2.99	\$66
Bedding/Backfill	11/2"-0" crushed	22+57	N/A	culvert 33	culverts 1			33	\$2.99	\$99
Total Rock for Road Segment:				I11 to I12				832		

\$2,488

ROAD SEGMENT I11 to I13				POINT TO POINT I11 to I13		Sta. to Sta. 0+00 to 34+98		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per	Number of					
Surfacing Rock	11/2"-0" crushed		2	station 13	stations 34.98			455	\$2.99	\$1,360
Turnouts	11/2"-0" crushed	6+30,10+40,17+55	2	turnout 6	turnouts 3			18	\$2.99	\$54
Curve widening	11/2"-0" crushed		2	curve n/a	curves 9			33	\$2.99	\$99
Junctions	11/2"-0" crushed		2	junction 11	junctions 1			11	\$2.99	\$33
Leveling Rock	11/2"-0" crushed		n/a	load 11	loads 18			198	\$2.99	\$592
Total Rock for Road Segment:				I11 to I13				715		

\$2,137

SUB TOTAL FOR SURFACING				24"-6"	6"-0"pr	4"-0"	1 1/2"-0"	Total		
				55			2,501	2,556		

\$16,321

SPECIAL PROJECTS			
Description	No. Sta.	Rate/Sta.	Cost
Water, Process & Compact	321.8	\$56.48	\$18,175
SUB TOTAL FOR SPECIAL PROJECTS			
			\$18,175
Subtotal of Surfacing & Spec. Proj.			\$34,496
Subtotal of Clearing, Exc., Culv.			\$6,488
GRAND TOTAL			\$40,983

Compiled By: d.mellison

Date: 12/14/2012

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 3 Timber Sale Name: High Tide
 Quarry: West Tidewater Swell:
 Location: NE 1/4, NW 1/4, Section 18, T6N, R7W W.M. Shrink: 16%
 County: Clatsop
 By: dmellison Loading Hopper:
 Date: 10/17/12

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"	12%	CR			
1-1/2"-0"	2%	CR			
4"-0"		CR			
6"-0"		PR		6,527	6,527
Borrow		RR		500	500
TOTAL CUBIC YARDS OF ROCK:				7,027	7,027

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Dump Trucks		\$163		Off Highway Dump Truck		\$553	
Screening Plants		\$553		Screening Plant		\$553	
D8 Cat		\$1,406		Loading Hopper		\$553	
D6 Cat		\$778		Loader		\$805	
Drill & Compressor		\$1,406					
Powder		\$351		3 Stage Crusher		\$2,891	
Dump Trucks	1	\$163	\$163				
Excavator	1	\$1,406	\$1,406	Excavator		\$1,406	
SUB TOTAL FOR MOBILIZATION							\$1,569
TOTAL MOBILIZATION & SET UP COSTS							\$1,569

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clear, Load, Haul to Waste Area	8	hr	\$155	\$1,240
Slash and Stumps (1 truck, 1 exc.)	8	hr	\$79	\$632
TOTAL CLEARING & GRUBBING COSTS				\$1,872

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden Removal (excavate, load haul, spread)	500	bcy		
C330 Exc	7	hours	\$155.00	\$1,085
D12 D. Truck	6	hours	\$79.00	\$474
TOTAL EXCAVATION COSTS				\$1,559

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping **	100%	7,027	\$2.07	\$14,546
crushed		#REF!	Drill & shoot				
pit run	6,527	93%	Oversize red				
borrow	500	#REF!	Other				
Total	7,027						
reject							
TOTAL ROCK DEVELOPMENT COSTS							\$14,546

** Will dig and load rock with a large excavator. (\$155/hr *8 hrs / 600 c.y./day = \$2.07/c.y.

9) MISCELLANEOUS COSTS

DESCRIPTION				COST
Quarry Winterization: Waterbar/ slope to drain/ Block access roads				
C330 Excavator	\$155.00	2	hours	\$310
Develop Waste Area				
C330 Excavator	\$155.00	1		\$155
Seeding & Mulching Waste Areas				
0.2 Acres	\$628			\$126
TOTAL MISCELLANEOUS COSTS				\$591

10) GRAND TOTAL:

\$20,136

\$/Cubic Yard

\$2.87

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO.	4	Timber Sale Name:	High Tide
Quarry:	Tidewater Loop No. 2	Swell:	
Location:	NE1/4, NE1/4, Section 21 T6N, R7W W.M.	Shrink:	16%
County:	Clatsop		
By:	d.mellison	Loading Hopper:	Yes
Date:	10/18/2012		

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"	5%	CR	5,000	3,133	8,933
4"-0"	5%	CR	5,000		5,800
6"-0"		PR		1,500	1,500
24"-6"		RR		55	55
36"		RR			
TOTAL CUBIC YARDS OF ROCK:			10,000	4,688	16,288

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Dump Trucks	4	\$163	\$652	Off Highway Dump Truck	1	\$553	\$553
Screening Plants		\$553		Screening Plant		\$553	
D8 Cat	1	\$1,406	\$1,406	Loading Hopper	1	\$553	\$553
D6 Cat	1	\$778	\$778	Loader	1	\$805	\$805
Drill & Compressor	1	\$1,406	\$1,406				
Powder	1	\$351	\$351	3 Stage Crusher	1	\$2,891	\$2,891
Dump Trucks		\$163					
Excavator	1	\$1,406	\$1,406	Excavator		\$1,406	

SUB TOTAL FOR MOBILIZATION

\$10,800

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

SUB TOTAL FOR SET UP COSTS

\$4,276

TOTAL MOBILIZATION & SET UP COSTS

\$15,076

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Windrow top of Quarry (C330)	3	hours	\$155	\$465
Clear sides/Face of Quarry (C330)	4	hours	\$155	\$620
Haul to burn (DJB)	4	hours	\$127	\$508
Pile & burn crusher site	0.912	acres	\$2,702	\$2,464
Open Access Roads (C330)	4	hours	\$155	\$620
Move-in Fire Truck for the burning of piled clearing debris	1	ea	\$190	\$190

TOTAL CLEARING & GRUBBING COSTS

\$4,867

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Windrow top of Quarry Overburden				
(Common drift)	1,000	cyds.	\$2.10	\$2,100
Haul sides of quarry overburden to waste	1,000	cyds.	\$2.19	\$2,190

TOTAL EXCAVATION COSTS \$4,290

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping			\$2.20	
crushed	14,733	90%	Drill & shoot	100%	17,025	\$2.70	\$45,967
pit run	1,500	9%	Oversize red	5%	812	\$5.80	\$4,708
rip rap	55	0%	Other				
Total	16,288						
reject	737	4.5%					

TOTAL ROCK DEVELOPMENT COSTS \$50,674

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	2	\$507.00	\$1,014
Calibrate			
Test	6	\$57.30	\$344
Test			

TOTAL CALIBRATION & TESTING COSTS \$1,358

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	15,470	\$0.89	\$13,843

TOTAL FEEDING & LOADING COSTS \$13,843

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed		3 stage w/s			
1-1/2"-0"	crushed	8,933	3 stage w/s	110	\$3.54	\$31,590
4"-0"	crushed	5,800	2 stage w/s	140	\$2.48	\$14,376

TOTAL ROCK CRUSHING COSTS \$45,966

8) STOCKPILING

STOCKPILE SITE PREPARATION

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

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

\$100.00

SUB TOTAL

\$100

HAUL & STOCKPILE STOCKPILE LOCATION

	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1.					
2. Tidewater Loop	1-1/2"-0"	4	5,800	\$3.51	\$20,359
3. Tidewater Loop	4"-0"	4	5,800	\$3.51	\$20,359
4.					

SUB TOTAL

\$40,719

TOTAL STOCKPILING COSTS

\$40,819

9) CRUSHER SITE CONSTRUCTION

DESCRIPTION	Qty	Unit	Rate	COST
Level Crusher Site (Tractor)	4	hrs.	\$158	\$632
Subgrade compaction (Tractor)	3	hrs.	\$158	\$474
Load, haul & place pit-run	1,500	c.y.	\$1.64	\$2,460
Compaction (Tractor)	1,500	c.y.	\$0.63 *	\$945

* \$31.54/sta./50 cy = \$0.6308

SUB TOTAL

\$4,511

TOTAL CRUSHER SITE

\$4,511

10) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area.	\$1,613
\$2.19 \C.Y. 737 C.Y.	
Waste Area Compaction	
\$0.40 \C.Y. 1,737 C.Y.	\$695
Seeding & Mulching Waste Areas, Equipment Access	
0.3 acrea \$628 \ acre	\$188
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access	
(C330) 2 hours \$155	\$310

TOTAL MISCELLANEOUS COSTS

\$2,806

11) GRAND TOTAL:

\$184,211

\$/Cubic Yard

\$12.50

[illegible]

HIGHTIDE							
Vacating Costs (Segment V3 to V4)							
Work Description	Station	±C.Y.s	C330	D10 trk	Labor	Bales	Culvert
Begin vacating	0+00						
Unblock Road			1	2			
Block Road			0.5				
Partial Grub stump			0.5				
Old culvert disposal			0.25	4			
Install Temporary Culvert	0+95						
Purchase (18" Dia)							40
Install			2		1		
Remove Temporary Culvert/Fill		100	2	2			
Develop Stream Channel			2				
Seed and Mulch stream bank/waste					1	5	
Close and Open existing waterbar	2+68		0.5				
Remove Culvert and Fill	5+82		1				
Fill material disposal		60	1				
Develop Stream Channel			0.5				
Seed and Mulch stream bank/waste					0.5	2	
Old culvert disposal			0.25				
Close and Open existing waterbar	6+32		0.5				
Remove Culvert and Fill	7+82		3.5				
Fill material disposal		375		5			
Develop Stream Channel			2				
Seed and Mulch stream bank/waste					2	8	
Old culvert disposal			0.25				
Remove Culvert and Fill	8+44	40	1				
Fill material disposal			0.5				
Develop Stream Channel			0.5				
Seed and Mulch stream bank/waste					0.5	2	
Old culvert disposal			0.25				
Close and Open existing waterbar	8+82		0.5				
Remove Culvert and Fill	9+42	40	1.5				
Fill material disposal			0.5				
Develop Stream Channel			0.5				
Seed and Mulch stream bank/waste					0.5	2	
Old culvert disposal			0.25				
Close and Open existing waterbar	10+82		0.5				
Remove Culvert and Fill	11+32	60	1				
Fill material disposal			0.5	1			
Develop Stream Channel			0.5				
Seed and Mulch stream bank/waste					0.5	1	
Old culvert disposal			0.25				
Sidecast Pull Back	12+33		1		1.5	5	
Close and Open existing waterbar	13+12		0.5				
Remove slump	13+72	300	3				
Place slump material			2				
Seed and much slump/waste	15+50				1.5	5	
End Vacating							
Construct Waterbar			0.25				
Total Quantity Hours			32.75	14	9		
Total Quantity (Misc)		975				18	40
Hourly Rates			\$155	\$79	\$40		
Quantity Rate						\$10	\$10.73
Sub Total Dollars			\$5,076	\$1,106	\$360	\$180	\$429
Total Dollars							\$7,151

Vacating Costs (Point V5)							
Work Description	Station	±C.Y.s	C330	D10 trk	Labor	Bales	Culvert
Begin vacating							
Block Road			1				
Remove culvert and fill		40	1.5				
Old culvert disposal			0.25	3			
Seed and mulch					1	3	
Total Quantity Miscellaneous		40					
Total Quantity (Hours)			2.75	3.0	1	3	
Hourly Rates			\$155	\$79	\$40	\$10	
Sub Total Dollars			\$426	\$237	\$40	\$30	
Total Dollars							\$733

HAUL and STOCKPILE COST

SALE NAME: High Tide
 QUARRY: Tidewater Loop No. 2

ROCK TYPE: Crushed

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

Location 2. Tidewater Loop 1-1/2"-0"	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				0.20	0.43	0.15	0.15
Truck type: <u>D20</u> No. trucks: <u> </u> Delay min.: <u>15</u> Efficiency: <u>75%</u>							
Ave haul: \$2.61 /cy Load: \$0.00 /cy Stockpile: \$0.90 /cy							
Truck type: <u>D12</u> No. trucks: <u>4</u> Delay min.: <u>12</u> Efficiency: <u>85%</u>							
Production: cy/day = 967							
Truck type: <u>D10</u> No. trucks: <u> </u> Delay min.: <u>10</u> Efficiency: <u>75%</u>							
Location 2. Tidewater Loop Haul and Stockpile Cost \$3.51 /cy							

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

SALE NAME: High Tide
 PROJECT: No. 2
 QUARRY: Tidewater Loop No. 2

CRUSHED ROCK COST
 MATERIAL: Crushed

DATE: 11/14/12
 BY: d.mellison

		Cubic Yards								Total
Segment	Stations	Traction	Running	Turnout	Leveling	Junction	Bedding	Curves		
I1 to I2	152+12				209				209	
I1 to I2	20+84				44				44	
I1 to I2	25+77				55				55	
I3 to I4	35+50		33				132		165	
I5 to I6	21+75	52	22		132		66		272	
I7 to I8	32+64				88				88	
I9 to I10	17+36		11		66		44		121	
I11 to I12	27+45		686	44		47	33	22	832	
I11 to I13	34+98		455	18	198	11		33	715	
1C to 1D	11+75	95		8		22			125	
1E to 1F	13+70	95		8		22			125	
1G to 1H										
1I to 1J	1+00					22			22	
1K to 1L	15+20	114				22			136	
1M to 1N	19+00					22			22	
1O to 1P	12+50					22			22	
3A to 3B	4+50		86			44			130	
3D to 3E	2+50					22			22	
3F to 3G	1+00					22			22	
3H to 3I	11+00					22			22	
Grand Total		356	1,293	78	792	300	275	55	3,149	

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	152+12	209			2	3.00	0.40	0.20	0.20	6.01
I1 to I2	20+84	44			2.01	2.00	0.40	0.20	0.20	4.81
I1 to I2	25+77	55			1.57	2.00	0.40	0.20	0.20	4.37
I3 to I4	35+50	165			1.81	2.00	0.40	0.20	0.20	4.61
I5 to I6	21+75	272			1.36	1.50	0.40	0.20	0.20	3.66
I7 to I8	32+64	88			0.96	1.00	0.40	0.20	0.20	2.76
I9 to I10	17+36	121			0.32	0.40	0.50	0.10	0.10	1.42
I11 to I12	27+45	832				0.06	0.10	0.05	0.05	0.26
I11 to I13	34+98	715			0.15	0.30	0.20	0.10	0.10	0.85
1C to 1D	11+75	125			1.55	2.00	0.40	0.20	0.20	4.35
1E to 1F	13+70	125			1.48	2.00	0.40	0.20	0.20	4.28
1G to 1H										
1I to 1J	1+00	22			1.44	2.00	0.40	0.20	0.20	4.24
1K to 1L	15+20	136			1.23	2.00	0.40	0.20	0.20	4.03
1M to 1N	19+00	22			1.12	1.00	0.40	0.20	0.20	2.92
1O to 1P	12+50	22			1.01	1.00	0.40	0.20	0.20	2.81
3A to 3B	4+50	130			0.32	0.40	0.50	0.10	0.10	1.42
3D to 3E	2+50	22			0.32	0.40	0.50	0.10	0.10	1.42
3F to 3G	1+00	22			0.18	0.30	0.50	0.10	0.10	1.18
3H to 3I	11+00	22			0.08	0.30	0.50	0.10	0.10	1.08
TOTAL		3,149								AVERAGE
STA./NO.		CU. YD.								HAUL
CUBIC YARD WEIGHTED HAUL					0.70	0.92	0.29	0.13	0.13	2.16

Average Round Trip Distance (miles) 4.33

ROCK HAUL:

Truck type: D20 No. trucks: 3
 Delay min.: 8 Efficiency: 85%

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

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

Ave haul: \$2.21 /cy
 *Load: /cy
 Spread: \$0.78 /cy

Production: cy/day = 1,084

CRUSHED ROCK HAUL COSTS 3,149 cy @ \$2.99 /cy

* Load - Crusher set up will use a hopper, hence no loading cost.

PIT RUN ROCK COST

SALE NAME:	High Tide
PROJECT:	4
QUARRY:	Tidewater Loop No. 2

MATERIAL: Waste

DATE: 10/18/12
BY: d.mellison

[illegible]

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	
Overburden		500							0.05	0.05
Reject		680							0.05	0.05
TOTAL		1,180								AVERAGE HAUL 0.05
STA./NO.		CU. YD.								
CUBIC YARD WEIGHTED HAUL									0.05	
Average Round Trip Distance (miles)									0.10	

ROCK HAUL:

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

Ave haul:	0.784314	/cy
Load:	\$1.41	/cy
Compaction		/cy

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

Production: cy/day = 1,020

PIT RUN ROCK HAUL COSTS

cy @ \$2.19 /cy

RIP RAP ROCK COST

SALE NAME:	High Tide
PROJECT:	No. 2
QUARRY:	Tidewater Loop No. 2

MATERIAL: Rip Rap

DATE: 11/15/12
BY: d.mellison

		Cubic Yards							
Segment	Stations	Dissapator	Armor					Misc	Total
I3 to I4	35+50	33							33
I5 to I6	21+75	11							11
I9 to I10	17+36	11							11
Grand Total		55							55

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	
I3 to I4	35+50	33			1.81	2.00	0.40	0.20	0.20	4.61
I5 to I6	21+75	11			1.36	1.50	0.40	0.20	0.20	3.66
I9 to I10	17+36	11			0.32	0.40	0.50	0.10	0.10	1.42
TOTAL		55								AVERAGE HAUL 3.78
STA./NO. CUB. YD. CUBIC YARD WEIGHTED HAUL					1.42	1.58	0.42	0.18	0.18	
Average Round Trip Distance (miles)										7.56

ROCK HAUL:

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

Ave haul: \$4.03 /cy

Load: \$1.38 /cy

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

*Develop: _____/cy

Production: cy/day = 470

* Development is in the crushing.

RIP RAP ROCK HAUL COSTS

55 cy @ \$5.42 /cy

PIT RUN ROCK COST

SALE NAME:	High Tide
PROJECT:	4
QUARRY:	Tidewater Loop No. 2

MATERIAL: Shot Rock

DATE: 10/18/12
BY: d.mellison

		Cubic Yards							
Segment	Stations	Base	Landing	Turnout	Turnaround	Junction	C. Site	Misc	Total
Crusher Site							1,500		1,500
Grand Total							1,500		1,500

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	
Crusher Site		1,500						0.05	0.05	0.10
TOTAL		1,500								AVERAGE HAUL 0.10
STA./NO. CUB. YD.								0.05	0.05	
CUBIC YARD WEIGHTED HAUL								0.05	0.05	
Average Round Trip Distance (miles)									0.20	

ROCK HAUL:

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

Ave haul:	\$0.86	/cy
Load:	\$0.30	/cy
Spread:	\$0.48	/cy

Truck type:	<u>D12</u>	No. trucks:	<u>1</u>
Delay min.:	<u>6</u>	Efficiency:	<u>85%</u>

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

Production: cy/day = 1,658

PIT RUN ROCK HAUL COSTS	1,500 cy @	\$1.64 /cy
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CRUSHED ROCK COST

SALE NAME:	High Tide
PROJECT:	No. 1
QUARRY:	West Tidewater

MATERIAL: 6"-0" Pit-run

DATE: 11/19/2012
BY: Kevin Berry

[illegible]

ROCK HAUL:

Truck type:	<u>D20</u>	No. trucks:	<u>1</u>
Delay min.:	<u>8</u>	Efficiency:	<u>85%</u>

Ave haul:	\$4.03	/cy
Load:	\$0.67	/cy
Spread:	\$1.18	/cy

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

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

Production: cy/day = 621

ROCK HAUL COSTS

6,527 cy @ \$5.88 /cy

Road Maintenance after completion of Projects

Sale: High Tide
 Date: 11/19/12
 By: d.mellison

Road Segments to Maintain: I9 to I8, I7 to I5, I5 to I2, and West Tidewater Quarry to (Cambell) Tidewater Jct.

Type	Equipment/Rationale	Move in Rate	Hours	Rate	Cost
Post- Project Road Maintenance	Grader 14G (onsite)		28	\$100	\$2,800
	Dump Truck 12CY (2 trucks, onsite)		15	\$79	\$1,185
	FE Loader C966 (onsite) *		10	\$43	\$430
	Vibratory Roller (onsite)		28	\$77	\$2,156
	Water Truck 2500 gallon (onsite)		28	\$89	\$2,492
Total					\$9,063

Production Rates			
Grader	Miles/day	Distance(miles)	Days
	1.0	2.8	2.8

* Rate is without operator, truck drivers will load themselves.

High Tide TIMBER CRUISE REPORT FY 2013

1. Sale Area Location: Areas 1 through 4 are located in portions of Sections 16, 17, 20, 21, and 28, T6N, R7W, W.M. Clatsop County, OR.

2. **Fund Distribution:** BOF 100%
Tax Code 8-01 (100%)

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Existing R/W	GTRA	New R/W	Stream Buffer	Net Acres	Survey Method
1	Partial Cut	266	2	0	6	45	213	GIS
2	Modified Clearcut	83	5	0	0	14	64	GIS
3	Modified Clearcut	137	4	3	1	26	103	GIS
4 R/W	Right-of-way	7					7	LxW
TOTALS		493	11	3	7	85	387	

4. **Cruisers and Cruise Dates:**

All areas were cruised by Ty Williams, Derek Bangs, Kevin Berry, and Dave Rygell on 10/2/2012 and 10/03/2012.

5. **Cruise Method and Computation:**

Area 1 is a Partial Cut and was variable plot cruised using a 33.61 BAF. These plots are located on a 5 chain by 15 chain grid, with every third plot measured and graded. A total of 32 plots were sampled, with 11 measured and graded plots, and 21 count plots. Data was collected on Corvallis MicroTechnology (CMT) data collectors, and were downloaded to the Atterbury Super A.C.E. program in District for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria district office.

Areas 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 9 chain grid, with every third plot measured and graded. A total of 42 plots were sampled, with 16 measured and graded plots, and 26 count plots.* Data was collected on Corvallis MicroTechnology (CMT) data collectors, and were downloaded to the Atterbury Super A.C.E. program in District for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria district office.

* Statistic reports "cruise" and "count" plot totals vary due to one count plots with a measured and graded snag, one count plot with a measured and graded Sitka spruce, one count plot with 2 measured and graded Red alder, and one count plot with a measured and graded Cedar leave tree.

AREA	CRUISE	TRACT	TYPE	ACRES
1	Htide	AREA1	Take	213
2 and 3	Htide	AREA23	Take	167
4 R/W	Htide	AREA1	R/W	7

6. **Timber Description:**

Area 1 is an "auto-mark" thinning (SDI 32) of second growth Douglas-fir approximately 40 years of age with remnant Western hemlock and Fir inclusions. The "biggest and best" trees were recorded as "leave" trees to meet a target residual basal area of 130 ft²/acre. The average Douglas-fir tree size to be harvested is 13.6 inches DBH, with an average height of 48 feet to a merchantable top (6 inch d.i.b.). The average Hemlock tree size is 21.7 inches DBH and 62 feet to a merchantable top (6 inch d.i.b.). The net volume per acre to be harvested is 10.2 MBF.

Areas 2 and 3 are modified clearcut units, approximately 70 to 80 year-old, consisting of Douglas-fir, and Western hemlock with minor amounts of Red alder, Sitka spruce, and Western red cedar. The average Douglas-fir tree size to be harvested is 24.9 inches DBH, with an average height of 92 feet to a merchantable top (6 inch d.i.b.) The average Western hemlock/true-fir tree size is 17.8 inches DBH and 63 feet to a merchantable top (6 inch d.i.b.) The average Red alder tree size 17.5 inches DBH and 60 feet to a merchantable top (6 inch d.i.b.) The average Sitka spruce is 24.0 inches DBH and 46 inches to a merchantable top (6 inch d.i.b.) The net volume per acre to be harvested is 54.1 MBF.

Area 4 R/W is similar to the timber description mentioned above for Area 1. The average volume (net) is approximately 25.8 MBF/acre.

7. Statistical Analysis and Stand Summary

Statistics for Stand B.F. volumes

Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1 (PC)	40%	13%	47.6%	8.4%
2 and 3 (MC)	45%	8%	34.1%	5.3%


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"	8,951	6,405	2,154	392			
Hemlock/True-fir	18"	2,302	1,502	734	66			
Red Alder	17"	123				123		
Spruce	24"	8		8				
TOTALS		11,384	7,907	2,896	458	123		

9. Approvals:

Prepared by: Dave Rygell/D.Bangs Date: 2/06/13

Unit Forester Approval:  Date: 2/7/13

10. Attachments:

Cruise Designs and Maps - 6 pages
Volume Reports - 4 pages
Statistics Reports - 5 pages
Log Stock Tables - 3 pages
Stand Table Summary – 2 pages

CRUISE DESIGN
ASTORIA DISTRICT

Sale Name: High Tide Area(s) 1

Harvest Type: Partial cut

Approx. Cruise Acres: 223 Estimated CV% 40 Net BF SE% Objective 13 Net BF

Planned Sale Volume: 1.5 MMBF Estimated Sale Area Value/Acre: \$2,100

A. Cruise Goals: Grade minimum 50 trees; Sample 30 cruise plots (10 grade, 20 count); Determine "Automark" thinning standards; Determine log grades for sale value; Determine snag and leave tree species and sizes.

B. Cruise Design:

1. Plot Cruises: BAF 33.61

Cruise Line Direction(s) NW-SE

Cruise Line Spacing 15 chains

Cruise Plot Spacing 5 chains

Grade/Count Ratio 1:2

The BA target is 120 sq. ft. Select 4 leave trees per plot. Mark Leave trees with an "L" using yellow paint on graded plots. Cruise all take and leave trees. If a plot lands in a buffer or an existing road offset by 1 chain and continue. All cedars and hardwoods are leave trees and count towards the leave tree basal area. Grade alder as camprun-sawlogs (30 net BF minimum). Record all snags as SN and estimate diameter and total height.

C. Tree Measurements:

1. Diameter: Minimum DBH to cruise is 8 " for conifers and 10" for hardwoods. Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
2. Bole Length: Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
3. Top Cruise Diameter (TCD): Minimum top outside bark for conifer is 7" or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh.
4. Form Factors: (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

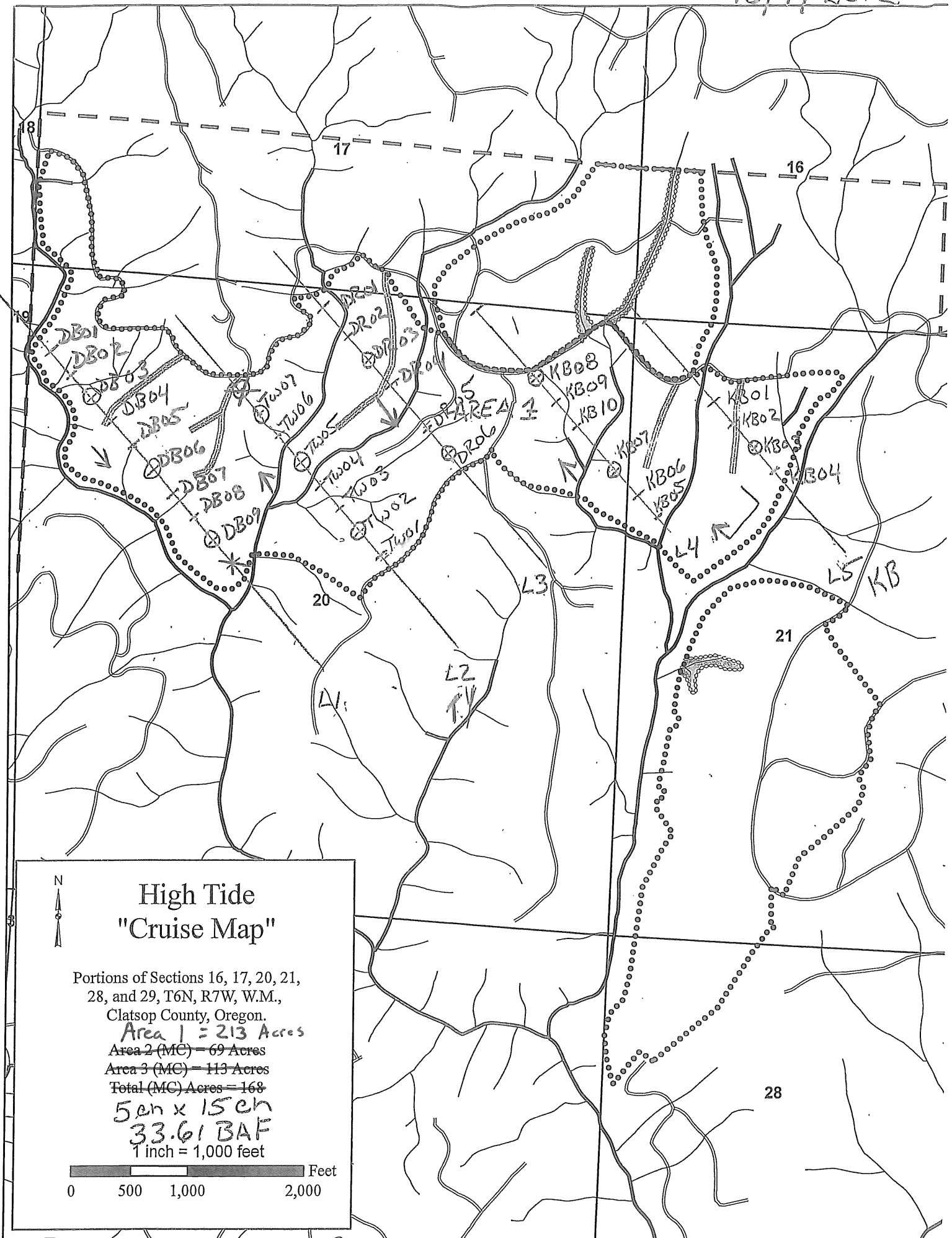
5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.
6. **Species, Sort, and Grade Codes:** A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Big leaf maple). Marked "wildlife trees and Conifer over 40" DBH," 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 ; 9 = Utility Hardwoods: #2 Sawmill = 12" + scaling diameter; #3 Sawmill = 10 and 11"; # 4 Sawmill = 8 and 9".
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 number 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 write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint.
9. **Cruising Equipment:** Relaskop Rangefinder, Diameter Tape, Biltmore Stick, Compass, 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: Kevin Berry

Approved by: 

Date: 10/4/2112

10/9/2012



Revised August, 2002

CRUISE DESIGN
ASTORIA DISTRICT

Sale Name: High Tide Area(s) 2 & 3

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 168 Estimated CV% 45 Net BF SE% Objective 8 Net BF

Planned MC Sale Volume: 7.20 MMBF Estimated Sale Area Value/Acre: \$15,750

- A. Cruise Goals: Grade minimum 100 trees; Sample 47 cruise plots (16 grade, 31 count); 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

Cruise Line Direction(s) Area 2 Nw-SE, Area 3 E-W

Cruise Line Spacing 9 chains

Cruise Plot Spacing 4 chains

Grade/Count Ratio 1:2

Cruise all hardwood as camprun. Record all cedar as leave. Record all trees over 48" DBH as leave. Record all snags as SN and record diameter and total height.

C. Tree Measurements:

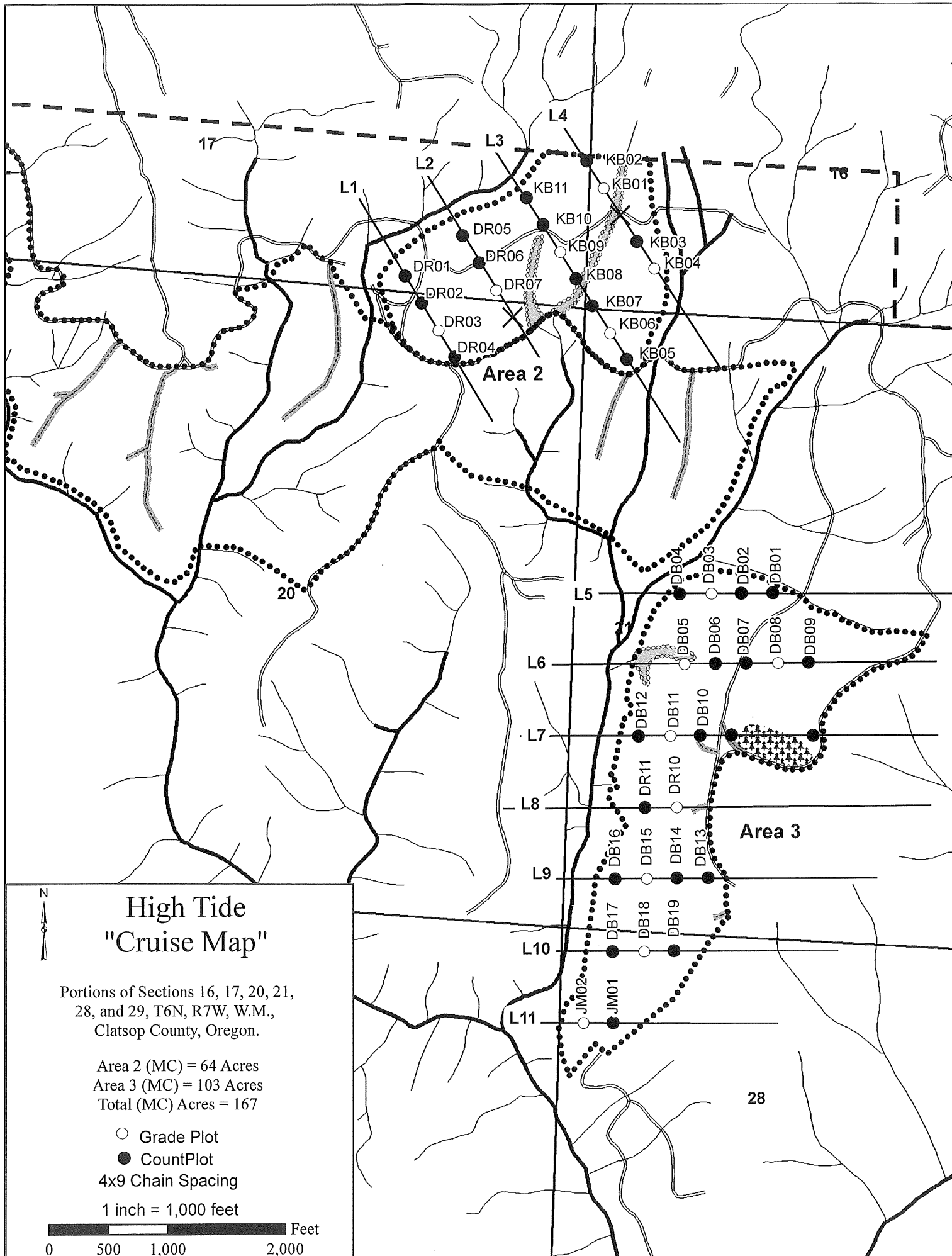
1. Diameter: Minimum DBH to cruise is 8" for conifers and 10" for hardwoods. Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
2. Bole Length: Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
3. Top Cruise Diameter (TCD): Minimum top outside bark for conifer is 7" or 40% of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh.
4. Form Factors: (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.
6. **Species, Sort, and Grade Codes:** A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Big leaf maple). Marked "wildlife trees and Conifer over 40" DBH," 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 ; 9 = Utility Hardwoods: #2 Sawmill = 12" + scaling diameter; #3 Sawmill = 10 and 11"; # 4 Sawmill = 8 and 9".
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 number 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 write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint.
9. **Cruising Equipment:** Relaskop Rangefinder, Diameter Tape, Biltmore Stick, Compass, 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: Keyin Berry/Dave Rygell

Approved by: 

Date: 9/28/12



TC		PSPCSTGR Species, Sort Grade - Board Foot Volumes (Project)																	
<div><div>T06N R07W S20 Ty00PC7.00</div><div>T06N R07W S20 Ty00PC213.00</div><div>T06N R07W S21 Ty00CC167.00</div></div>		Project:		HTIDE												Page		1	
		Acres		387.00												Date		2/6/2013	
																Time		2:28:05PM	
Spp	So Gr T rt ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log			Logs Per /Acre	
		Def%	Gross	Net	Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf				
					4-5		6-11	12-16	17+	12-20	21-30	31-35				36-99			
D	DOCU		100.0	1,063										4		0.00	17.1		
D	DO2S	71	2.5	16,977	16,551	6,405		2	31	67		1	9	16	74	37	436	2.47	38.0
D	DO3S	24	.7	5,603	5,565	2,154		95	5			3	10	14	73	36	88	0.74	63.2
D	DO4S	5	.1	1,013	1,012	392		93	3	3		17	83	0		24	32	0.45	31.9
D Totals		79	6.2	24,655	23,128	8,951		28	24	48		2	12	15	71	30	154	1.22	150.2
H	DOCU		100.0	334												18		0.00	5.6
H	DO2S	65	5.0	4,087	3,882	1,502		0		47	52	2	6	11	81	36	316	1.98	12.3
H	DO3S	32	2.7	1,949	1,896	734		0	88	12		5	9	19	67	34	88	0.86	21.7
H	DO4S	3	4.3	178	170	66			100			24	52		24	20	25	0.47	6.9
H Totals		20	9.1	6,547	5,949	2,302		0	31	35	34	3	8	13	75	30	128	1.12	46.5
S		DO3S	100		20	20	8		100						100	40	150	1.95	.1
S Totals		0		20	20	8			100						100	40	150	1.95	.1
A	DOCU		100.0	14												6		0.00	.7
A	DOCR	100		319	319	123			39	61		3	30	11	56	32	110	1.03	2.9
A Totals		1	4.1	333	319	123			39	61		3	30	11	56	27	89	0.99	3.6
Totals			6.8	31,555	29,415	11,384		0	29	26	45	3	11	15	71	30	147	1.19	200.4

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page		1				
				Project: HTIDE												Date		11/27/2012				
																Time		2:01:30PM				
T06N R07W S20 T00PC														T06N R07W S20 T00PC								
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt				
06N		07W		20		AREA1 TAKE		00PC		213.00		32		24		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. 4-5 6-11 12-16 17+				Log Length 12-20 21-30 31-35 36-99				Ln Ft				Bd Ft	CF/ Lf
D DO CU																		2		0.00	16.4	
D DO 2S				23	1.7	1,980	1,946	415		100				20	80	37	212	1.46			9.2	
D DO 3S				61		5,176	5,176	1,102	100			1	6	12	81	37	80	0.64			64.4	
D DO 4S				16		1,316	1,316	280	100			14	86			24	30	0.43			44.3	
D Totals				83	.4	8,472	8,438	1,797	77	23		3	17	12	68	29	63	0.65			134.2	
H DO 2S				83	2.0	1,453	1,424	303		32	68				100	38	500	2.47			2.8	
H DO 3S				17		286	286	61	100			35			65	33	70	1.02			4.1	
H Totals				17	1.6	1,739	1,711	364	17	27	57	6			94	35	246	1.67			6.9	
Type Totals					.6	10,211	10,149	2,162	67	24	10	3	14	10	72	29	72	0.71			141.1	

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page 1					
Project: HTIDE												Date	2/6/2013						
												Time	2:48:45PM						
T06N R07W S21 T00CC												T06N R07W S21 T00CC							
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt										
06N	07W	21	AREA23 TAKE	00CC	167.00	42	112	1	W										
S So Gr Spp T rt ad			% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
			Def%	Gross	Net	Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf			
D	DO	CU		00.0	2,170									7		0.00	17.9		
D	DO	2S	84	2.6	36,389	35,452	5,920	2	26	72	1	9	16	73	37	473	2.64	74.9	
D	DO	3S	14	1.4	5,947	5,866	980	89	11		4	14	16	65	34	99	0.90	59.5	
D	DO	4S	2		564	564	94	72	14	14	27	73			22	40	0.55	14.0	
D	Totals		77	7.1	45,070	41,881	6,994	15	24	61	2	11	16	71	31	252	1.78	166.3	
H	DO	CU		00.0	770										18		0.00	13.0	
H	DO	2S	61	5.8	7,514	7,078	1,182	0		52	48	2	7	14	77	36	287	1.90	24.7
H	DO	3S	35	2.9	4,123	4,002	668	0	86	13		2	10	21	67	34	90	0.84	44.7
H	DO	4S	4	4.3	411	393	66	100				24	52		24	20	25	0.47	15.9
H	Totals		21	10.5	12,818	11,473	1,916	0	34	37	30	3	10	16	72	30	117	1.06	98.3
A	DO	CU		00.0	32										6		0.00	1.6	
A	DO	CR	100		739	739	123	39	61			3	30	11	56	32	110	1.03	6.7
A	Totals		1	4.1	771	739	123	39	61			3	30	11	56	27	89	0.99	8.3
S	DO	3S	100		45	45	8	100							100	40	150	1.95	.3
S	Totals		0		45	45	8	100							100	40	150	1.95	.3
Type Totals				7.8	58,705	54,139	9,041	0	19	27	53	2	11	16	71	31	198	1.51	273.2

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page		1						
				Project: HTIDE										Date		2/6/2013						
														Time		3:16:28PM						
T06N R07W S20 T00PC												T06N R07W S20 T00PC										
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt				
06N		07W		20		AREA1 ROW		00PC		7.00		32		66		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	Bd	CF/ Lf			
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft				
D		DO		CU			00.0	403									3		0.00	18.0		
D		DO		2S		44	1.7	10,227	10,058	70		8	46	45		7	16	76	36	306	2.00	32.8
D		DO		3S		45	1.6	10,385	10,220	72		97	3		1	5	20	74	37	87	0.73	116.9
D		DO		4S		11	1.5	2,471	2,433	17		100			16	82	2		24	29	0.45	83.9
D		Totals				88	3.3	23,486	22,710	159		58	22	20	2	14	16	67	30	90	0.85	251.8
H		DO		CU			00.0	88									3		0.00	1.8		
H		DO		2S		78	.5	2,451	2,438	17			10	90		13	2	85	38	594	3.17	4.1
H		DO		3S		21	3.3	665	643	5		100			12	12	76	35	91	0.95	7.1	
H		DO		4S		1		30	30	0		100			100			17	20	0.47	1.5	
H		Totals				12	3.8	3,233	3,111	22		22	8	70	3	13	1	82	30	215	1.71	14.5
Type Totals							3.4	26,719	25,821	181		53	20	26	2	14	15	69	30	97	0.89	266.2

TC PSTATS					PROJECT STATISTICS				PAGE	1		
					PROJECT	HTIDE	DATE 2/6/2013					
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt			
06N	07	20	AREA1 ROW	00PC	387.00	106	608	1	W			
06N	07W	20	AREA1 TAKE	00PC								
06N	07W	21	AREA23 TAKE	00CC								
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL			106	608	5.7							
CRUISE			36	202	5.6	38,791	.5					
DBH COUNT												
REFOREST												
COUNT			64	396	6.2							
BLANKS			6									
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			155	75.5	18.2	63		137.0	24,655	23,128	5,695	5,520
WHEMLOCK			43	22.9	18.2	63		41.5	6,547	5,949	1,657	1,574
R ALDER			3	1.7	17.5	60		2.9	333	319	100	96
S SPRUCE			1	.1	24.0	46		.4	20	20	10	10
TOTAL			202	100.2	18.2	63		181.7	31,555	29,415	7,462	7,201
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			98.9	7.9	556	604	652					
WHEMLOCK			97.1	14.8	374	439	504					
R ALDER			18.8	13.0	162	187	211					
S SPRUCE												
TOTAL			100.7	7.1	521	560	600	405	101	45		
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			117.6	11.4	67	75	84					
WHEMLOCK			189.4	18.4	19	23	27					
R ALDER			664.5	64.5	1	2	3					
S SPRUCE			1029.6	99.9	0	0	0					
TOTAL			93.8	9.1	91	100	109	351	88	39		
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			96.6	9.4	124	137	150					
WHEMLOCK			182.6	17.7	34	41	49					
R ALDER			669.7	65.0	1	3	5					
S SPRUCE			1029.6	99.9	0	0	1					
TOTAL			85.8	8.3	167	182	197	294	73	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			111.7	10.8	20,622	23,128	25,635					
WHEMLOCK			186.7	18.1	4,871	5,949	7,027					
R ALDER			664.0	64.4	113	319	525					
S SPRUCE			1029.6	99.9	0	20	39					
TOTAL			99.7	9.7	26,571	29,415	32,260	397	99	44		

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT		HTIDE		DATE	11/27/2012	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
06N	07W	20	AREA1	00PC	213.00	32	217	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				

TC TSTATS				STATISTICS			PAGE	2	
				PROJECT	HTIDE		DATE	11/27/2012	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
06N	07W	20	AREA1	00PC	213.00	32	217	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
DOUGLEAV		32.4	5.7	13,257	14,063	14,869			
DOUG FIR		81.0	14.3	7,232	8,438	9,645			
WHEMLOCK		358.3	63.3	628	1,711	2,794			
HEMLEAV		204.9	36.2	885	1,387	1,889			
SNAG									
TOTAL		47.6	8.4	23,449	25,599	27,750	90	23	10
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUGLEAV		26.7	4.7	3,696	3,879	4,062			
DOUG FIR		80.6	14.2	2,149	2,506	2,863			
WHEMLOCK		358.3	63.3	149	406	662			
HEMLEAV		200.1	35.3	215	332	449			
SNAG									
TOTAL		42.1	7.4	6,592	7,122	7,652	71	18	8

TC TSTATS					STATISTICS			PAGE 1		
					PROJECT HTIDE		DATE 2/6/2013			
TWP	RGE	SECT	TRACT		TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
06N	07W	21	AREA23 TAKE		00CC	167.00	42	303	1	W
					TREES	ESTIMATED	PERCENT			
					PER PLOT	TOTAL	SAMPLE			
						TREES	TREES			
PLOTS		TREES								
TOTAL		42	303		7.2					
CRUISE		16	112		7.0	18,501		.6		
DBH COUNT										
REFOREST										
COUNT		26	181		7.0					
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		75	58.9	24.9	92	199.0	45,070	41,881	9,671	9,326
WHEMLOCK		33	47.6	17.8	63	81.9	12,818	11,473	3,291	3,100
R ALDER		3	4.0	17.5	60	6.7	771	739	231	223
S SPRUCE		1	.3	24.0	46	1.0	45	45	24	24
TOTAL		112	110.8	21.9	78	288.6	58,705	54,139	13,216	12,672
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		57.6	6.6	929	995	1,061				
WHEMLOCK		73.0	12.7	305	350	394				
R ALDER		18.8	13.0	162	187	211				
S SPRUCE										
TOTAL		74.9	7.1	721	776	831	224	56	25	
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		57.1	8.8	54	59	64				
WHEMLOCK		103.0	15.9	40	48	55				
R ALDER		413.9	63.8	1	4	7				
S SPRUCE		648.1	99.9	0	0	1				
TOTAL		40.9	6.3	104	111	118	67	17	7	
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		56.2	8.7	182	199	216				
WHEMLOCK		94.6	14.6	70	82	94				
R ALDER		417.3	64.3	2	7	11				
S SPRUCE		648.1	99.9	0	1	2				
TOTAL		29.4	4.5	275	289	302	35	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		56.2	8.7	38,255	41,881	45,508				
WHEMLOCK		96.5	14.9	9,766	11,473	13,179				
R ALDER		413.6	63.8	268	739	1,211				
S SPRUCE		648.1	99.9	0	45	91				
TOTAL		34.1	5.3	51,292	54,139	56,986	46	12	5	

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT		HTIDE		DATE 11/27/2012		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
06N	07W	20	AREA1 LEAVE	00PC	213.00	32	125	1	W	
				TREES	ESTIMATED TOTAL	PERCENT SAMPLE				
				PER PLOT	TREES	TREES				
TOTAL		32	125	3.9						
CRUISE		11	43	3.9	17,585	.2				
DBH COUNT										
REFOREST										
COUNT		21	82	3.9						
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
DOUGLEAV		36	76.3	16.7	52	116.6	14,380	14,063	3,879	3,879
HEMLEAV		6	3.3	21.7	62	8.4	1,400	1,387	332	332
SNAG		1	2.9	14.0	50	3.2				
TOTAL		43	82.6	16.9	53	128.1	15,780	15,450	4,211	4,211
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		
DOUGLEAV		120.2	20.0	289	361	434				
HEMLEAV		95.3	42.4	487	845	1,203				
SNAG										
TOTAL		123.0	18.7	342	420	499	604	151	67	
CL: 68.1 %	COEFF	SAMPLE TREES - CF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUGLEAV		100.3	16.7	75	91	106				
HEMLEAV		81.7	36.4	118	186	253				
SNAG										
TOTAL		103.0	15.7	86	102	118	423	106	47	
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUGLEAV		45.1	8.0	70	76	82				
HEMLEAV		239.6	42.3	2	3	5				
SNAG		315.9	55.8	1	3	5				
TOTAL		40.0	7.1	77	83	88	64	16	7	
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUGLEAV		25.3	4.5	111	117	122				
HEMLEAV		203.2	35.9	5	8	11				
SNAG		315.9	55.8	1	3	5				
TOTAL		19.4	3.4	124	128	133	15	4	2	
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUGLEAV		32.4	5.7	13,257	14,063	14,869				
HEMLEAV		204.9	36.2	885	1,387	1,889				
SNAG										
TOTAL		35.9	6.3	14,471	15,450	16,429	51	13	6	
CL: 68.1 %	COEFF	NET CUFT FT/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUGLEAV		26.7	4.7	3,696	3,879	4,062				
HEMLEAV		200.1	35.3	215	332	449				
SNAG										

TC PLOGSTVB		Log Stock Table - MBF																			
T06N R07W S20 Ty00PC				7.00		Project:		HTIDE										Page		1	
T06N R07W S20 Ty00PC				213.00		Acres		387.00										Date		2/6/2013	
T06N R07W S21 Ty00CC				167.00														Time		2:28:04PM	
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 CU	2	9	100.0																	
D	DO CU	3	5	100.0																	
D	DO CU	4	1	100.0																	
D	DO CU	6	236	100.0																	
D	DO CU	8	48	100.0																	
D	DO CU	9	17	100.0																	
D	DO CU	10	24	100.0																	
D	DO CU	12	71	100.0																	
D	DO 2S	20	85	2.6	82	.9										82					
D	DO 2S	24	95	4.7	90	1.0									43	47					
D	DO 2S	28	142		142	1.6						39	2	48	52						
D	DO 2S	30	318	1.4	314	3.5					2	1		25	91	64	130				
D	DO 2S	31	9		9	.1					9										
D	DO 2S	32	1,010	4.1	969	10.8					2	137	62	266	213	223	65				
D	DO 2S	34	70	2.8	68	.8										68					
D	DO 2S	36	342		340	3.8						54	27	86	174						
D	DO 2S	40	4,499	2.4	4,391	49.1					117	487	447	1632	1004	705					
D	DO 3S	16	5		5	.1			5		0										
D	DO 3S	17	4		4	.1					4										
D	DO 3S	20	48		48	.5			20	8	7	13									
D	DO 3S	21	7		7	.1						7									
D	DO 3S	22	32		32	.4			7	10	15										
D	DO 3S	23	16		16	.2					16										
D	DO 3S	24	14		14	.2			6		8										
D	DO 3S	25	13		13	.1				13											
D	DO 3S	26	1		1	.0					1										
D	DO 3S	27	14		14	.2			6		8										
D	DO 3S	28	74		74	.8			8		65										
D	DO 3S	29	15		15	.2				6	9										
D	DO 3S	30	23		23	.3			1	14	8										
D	DO 3S	31	7		7	.1				7											
D	DO 3S	32	256		255	2.9			138	54	29	35									
D	DO 3S	33	12		12	.1					12										
D	DO 3S	34	2		2	.0			2												
D	DO 3S	35	31		31	.4				10	22										
D	DO 3S	36	114		114	1.3			104	10											
D	DO 3S	37	23		23	.3			1	23											

TC PLOGSTVB		Log Stock Table - MBF																	
T06N R07W S20 Ty00PC7.00					Project: HTIDE Acres 387.00										Page 2				
T06N R07W S20 Ty00PC213.00															Date 2/6/2013				
T06N R07W S21 Ty00CC167.00															Time 2:28:04PM				
S T Spp	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
D	DO	3S	38	12		12	.1			12									
D	DO	3S	40	1,426		1,412	15.8			475	457	429	15	36					
D	DO	3S	41	19		19	.2					19							
D	DO	4S	13	17		17	.2			17									
D	DO	4S	14	7		7	.1			7									
D	DO	4S	16	0		0	.0				0								
D	DO	4S	18	1		1	.0			1									
D	DO	4S	20	43		43	.5			24	5			14					
D	DO	4S	21	7	3.8	7	.1			1			6						
D	DO	4S	22	16		16	.2			16									
D	DO	4S	23	63		63	.7			63									
D	DO	4S	24	23		23	.3			23									
D	DO	4S	25	15		15	.2			8			7						
D	DO	4S	26	78		78	.9			78									
D	DO	4S	27	8		8	.1			8									
D	DO	4S	28	40		40	.4			40									
D	DO	4S	30	73		73	.8			73									
D	DO	4S	31	0		0	.0			0									
D	Totals			9,542	6.2	8,951	78.6			1125	628	783	787	557	2151	1664	1060	196	
H	DO	CU	3	0	100.0														
H	DO	CU	4	0	100.0														
H	DO	CU	6	38	100.0														
H	DO	CU	8	12	100.0														
H	DO	CU	9	2	100.0														
H	DO	CU	10	33	100.0														
H	DO	CU	25	21	100.0														
H	DO	CU	34	22	100.0														
H	DO	2S	18	27		27	1.2						27						
H	DO	2S	24	45	4.3	43	1.9								43				
H	DO	2S	30	45	3.2	44	1.9							42		2			
H	DO	2S	32	171	3.1	166	7.2		2				89	74					
H	DO	2S	36	99		99	4.3							99					
H	DO	2S	40	1,195	5.9	1,125	48.9						274	52	513	287			
H	DO	3S	14	8		8	.3			8									
H	DO	3S	17	4		4	.2				4								
H	DO	3S	20	22		22	.9					22							

TC PLOGSTVB				Log Stock Table - MBF																
T06N R07W S20 Ty00PC				7.00		Project: HTIDE										Page 3				
T06N R07W S20 Ty00PC				213.00		Acres 387.00										Date 2/6/2013				
T06N R07W S21 Ty00CC				167.00												Time 2:28:04PM				
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+
H		DO	3S	22	9		9	.4			9									
H		DO	3S	23	6		6	.2				5	0							
H		DO	3S	26	40		40	1.7			8	7			25					
H		DO	3S	28	7	13.7	6	.3				6								
H		DO	3S	30	7		7	.3			7									
H		DO	3S	31	8	25.0	6	.2			6									
H		DO	3S	32	135	8.4	124	5.4		3	30	10	41		40					
H		DO	3S	34	9		9	.4			9									
H		DO	3S	37	13		13	.5			13									
H		DO	3S	38	10		10	.4				10								
H		DO	3S	40	478	1.3	471	20.5			90	140	219	23						
H		DO	4S	12	3		3	.1			3									
H		DO	4S	14	7		7	.3			7									
H		DO	4S	17	0		0	.0			0									
H		DO	4S	20	6		6	.2				6								
H		DO	4S	22	17	17.7	14	.6			14									
H		DO	4S	24	10		10	.4			10									
H		DO	4S	26	10		10	.4			10									
H		DO	4S	40	16		16	.7			16									
H		Totals			2,534	9.1	2,302	20.2		5	240	187	282	413	289	555	329	2		
S		DO	3S	40	8		8	100.0					8							
S		Totals			8		8	.1					8							
A		DO	CU	6	5	100.0														
A		DO	CR	18	4		4	3.1			4									
A		DO	CR	28	37		37	30.1						37						
A		DO	CR	35	13		13	10.8			13									
A		DO	CR	40	69		69	56.0					32	38						
A		Totals			129	4.1	123	1.1			17		32	75						
Total		All Species			12,212	6.8	11,384	100.0		5	1382	815	1103	1275	847	2705	1993	1063	196	

TC		PSTNDSUM		Stand Table Summary										Page		1	
														Date:		2/6/2013	
		T06N R07W S20 Ty00PC		7.00				Project		HTIDE				Time:		2:28:05PM	
		T06N R07W S20 Ty00PC		213.00				Acres		387.00				Grown Year:			
		T06N R07W S21 Ty00CC		167.00													
S Sp	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	5	91	67	8.261	4.50	8.26	12.5	44.8		103	370		398	143	
D		11	5	86	73	6.826	4.50	6.83	15.4	49.7		105	339		408	131	
D		12	8	85	80	11.546	8.87	14.62	16.3	53.7		238	785		922	304	
D		13	11	86	65	7.651	7.04	10.20	17.4	56.3		178	575		688	222	
D		14	4	85	83	2.354	2.34	4.65	16.8	56.0		78	260		301	101	
D		15	8	89	91	5.588	6.85	11.12	21.9	79.1		244	880		945	341	
D		16	3	84	54	1.634	2.28	1.68	29.5	60.5		49	102		191	39	
D		17	18	88	87	9.462	14.91	17.52	28.0	98.2		490	1,720		1,896	666	
D		18	4	89	85	1.327	2.34	2.58	31.1	104.7		80	270		311	105	
D		19	6	89	90	2.317	4.56	4.63	35.9	117.6		167	545		645	211	
D		20	6	88	105	1.166	2.54	2.83	37.9	139.6		107	395		414	153	
D		21	2	89	131	.502	1.21	1.48	41.7	181.8		62	269		239	104	
D		22	3	89	109	.892	2.35	2.22	46.5	189.1		103	419		399	162	
D		23	6	88	133	2.356	6.80	7.07	47.8	203.3		338	1,437		1,307	556	
D		24	3	88	120	.749	2.35	1.86	56.1	228.5		105	426		405	165	
D		25	4	87	123	1.026	3.50	2.39	65.8	274.5		157	656		609	254	
D		26	6	87	133	1.864	6.87	5.28	62.5	259.4		330	1,370		1,277	530	
D		27	7	88	133	1.744	6.93	4.94	67.1	307.9		332	1,522		1,284	589	
D		28	3	89	137	.803	3.44	2.14	83.0	395.0		178	846		688	328	
D		29	7	88	121	1.276	5.85	3.08	80.6	363.6		248	1,120		960	433	
D		30	10	88	130	2.113	10.37	5.87	85.6	394.4		503	2,315		1,945	896	
D		31	1	88	129	.218	1.15	.66	79.7	396.7		52	260		202	101	
D		32	4	89	133	.626	3.50	1.87	88.4	439.5		165	821		639	318	
D		33	4	88	150	.771	4.58	2.31	104.7	515.8		242	1,194		938	462	
D		34	2	87	132	.363	2.29	.91	125.0	566.0		114	514		439	199	
D		35	5	89	153	.533	3.56	1.60	126.7	665.2		203	1,064		784	412	
D		36	5	86	141	.810	5.73	2.27	124.0	554.3		281	1,257		1,089	487	
D		37	2	86	136	.307	2.29	1.07	104.4	517.1		112	555		434	215	
D		38	1	94	112	.145	1.15	.44	112.0	640.0		49	279		189	108	
D		42	2	89	134	.238	2.29	.71	149.7	786.7		107	562		414	217	
D		Totals	155	87	90	75.471	136.96	133.10	41.5	173.8		5,520	23,128		21,361	8,951	
H		10	1	91	53	1.964	1.07	1.96	12.0	40.0		24	79		91	30	
H		12	1	87	34	1.364	1.07										
H		13	1	88	46	1.162	1.07										
H		14	2	86	78	1.042	1.11	2.04	19.7	70.2		40	143		156	56	
H		15	3	87	81	2.679	3.21	5.36	21.5	78.1		115	419		445	162	
H		16	4	88	82	3.068	4.28	6.14	25.1	85.0		154	522		597	202	
H		17	3	87	87	1.386	2.18	2.77	30.9	99.7		86	276		331	107	
H		18	1	88	108	.606	1.07	1.21	42.5	150.0		52	182		199	70	
H		19	5	91	69	3.122	6.15	4.21	40.1	116.5		169	490		653	190	
H		20	2	88	88	.982	2.14	1.96	39.5	132.5		78	260		300	101	
H		21	1	88	92	.445	1.07	.89	47.5	175.0		42	156		164	60	
H		23	5	89	103	1.856	5.36	5.20	45.3	155.7		235	809		911	313	
H		24	2	88	118	.682	2.14	2.05	54.0	228.3		110	467		427	181	
H		25	2	89	110	.628	2.14	1.57	64.4	256.0		101	402		392	156	
H		26	5	91	119	1.388	5.12	4.15	66.1	320.7		274	1,332		1,062	515	
H		27	1	89	122	.269	1.07	1.08	53.7	240.0		58	259		224	100	
H		28	1	85	74	.250	1.07	.50	61.0	250.0		31	125		118	48	
H		30	1	86	74	.009	.04	.02	82.0	300.0		1	5		6	2	
H		32	1	86	130	.008	.04	.02	100.7	493.3		2	11		9	4	
H		39	1	86	131	.005	.04	.02	141.0	713.3		2	11		8	4	
H		Totals	43	89	80	22.916	41.47	41.15	38.3	144.6		1,574	5,949		6,093	2,302	

TC		PSTNDSUM		Stand Table Summary							Page		2		
											Date:		2/6/2013		
		T06N R07W S20 Ty00PC		7.00		Project		HTIDE		Time:		2:28:05PM			
		T06N R07W S20 Ty00PC		213.00		Acres		387.00		Grown Year:					
		T06N R07W S21 Ty00CC		167.00											
S Sp	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
A		16	1	87	93	.687	.96	1.37	25.5	95.0		35	130	136	50
A		18	1	86	64	.543	.96	.54	50.0	150.0		27	81	105	32
A		19	1	87	73	.487	.96	.97	35.0	110.0		34	107	132	41
A		Totals		3	87	78	1.716	2.88	2.89	33.3	110.4	96	319	372	123
S		24	1	82	54	.131	.41	.13	78.0	150.0		10	20	39	8
S		Totals		1	82	54	.131	.41	.13	78.0	150.0	10	20	39	8
Totals				202	88	88	100.234	181.72	177.27	40.6	165.9	7,201	29,415	27,866	11,384

LOGGING PLAN

OF TIMBER SALE CONTRACT NO 341-13-24
HIGH TIDE
PORTIONS OF SECTIONS 16, 17, 20, 21,
AND 28, T6N, R7W, W.M.,
CLATSOP COUNTY, OREGON.

Approximate Net Acreage:

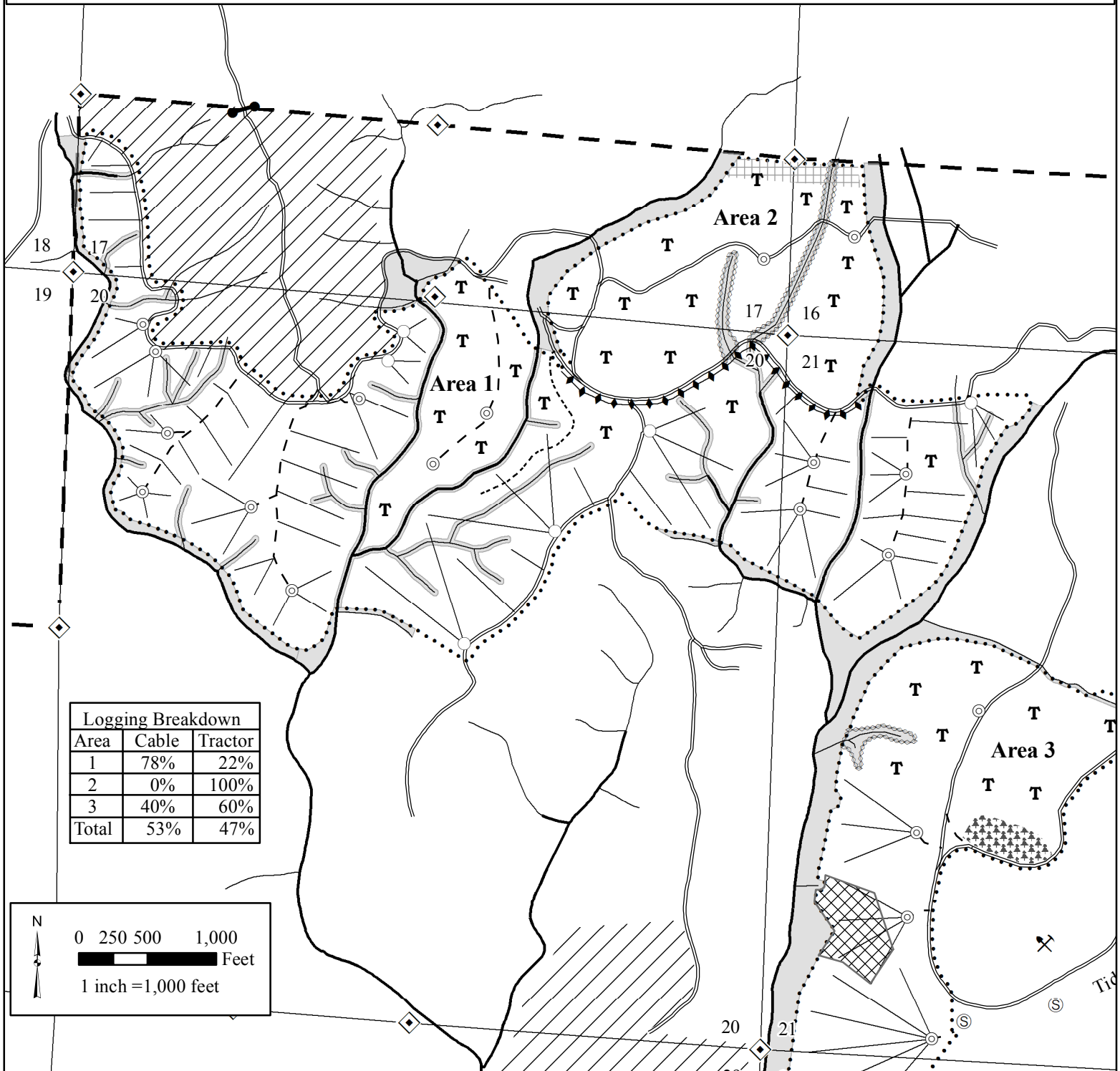
	PC Acres	MC Acres
Area 1 (PC)	213	0
Area 2 (MC)	0	64
Area 3 (MC)	0	103
Area 4 (R/W)	0	7
Total by prescription	213	174
Total Sale Acreage		387

Legend

- Ownership Boundary
- Timber Sale Boundary
- Area Boundary
- Paved Road
- Existing Surfaced Road
- Dirt/Vacated Road
- New Road Construction
- Type F Stream
- Type N Stream
- Posted Buffer
- Buffer Zone

- Intermediate Support Area
- Green Tree Retention Area
- Controlled Felling
- Reforestation Area
- Quarry
- Stockpile
- Known Land Survey Corner
- New Construction Landing
- Existing Landing
- Yarding Area - Ground
- Yarding Area - Cable
- Gate

Page 1 of 2



Logging Breakdown

Area	Cable	Tractor
1	78%	22%
2	0%	100%
3	40%	60%
Total	53%	47%

N
0 250 500 1,000
Feet
1 inch = 1,000 feet

LOGGING PLAN

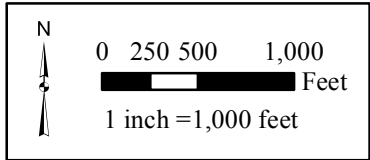
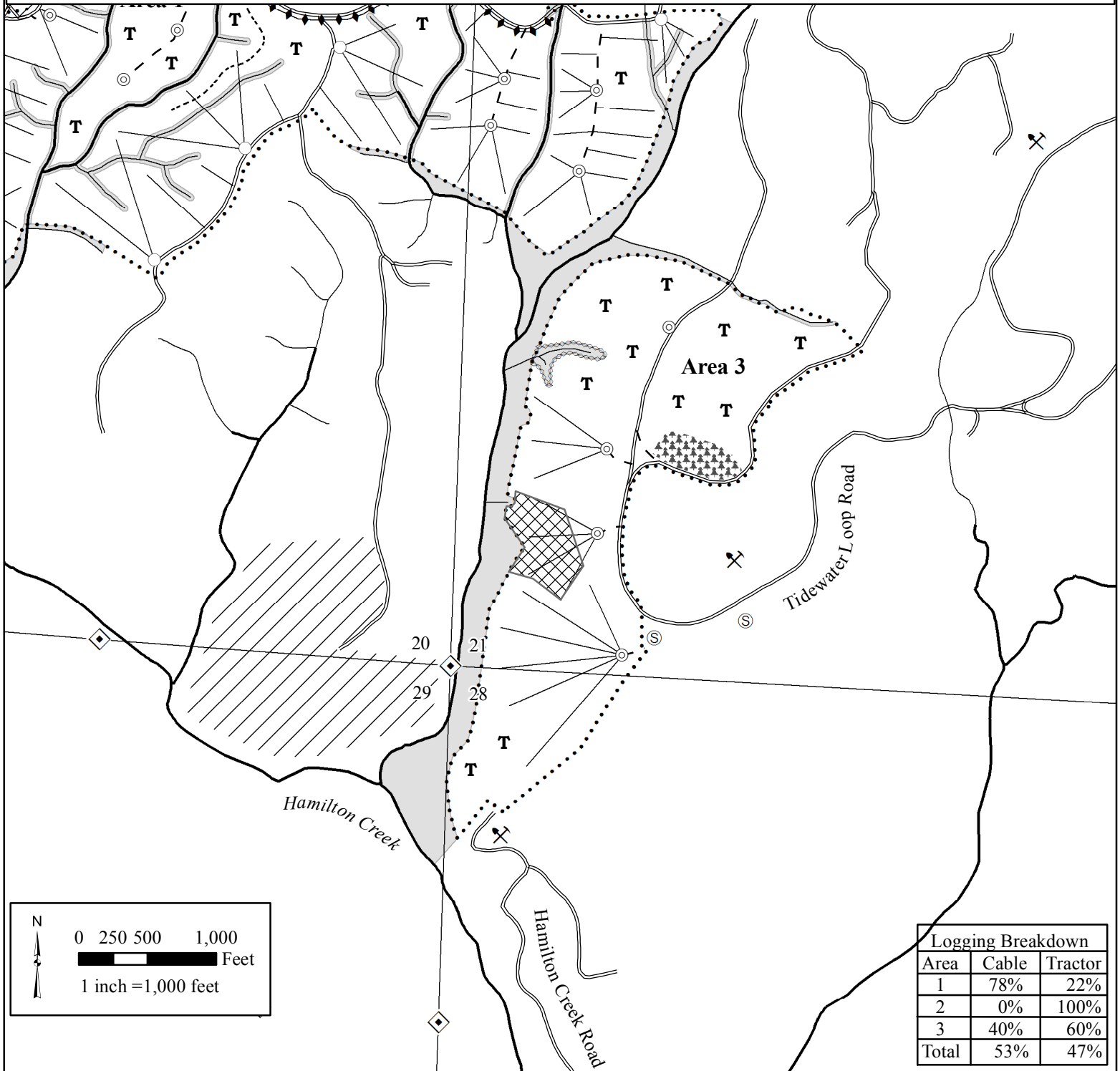
OF TIMBER SALE CONTRACT NO 341-13-24
HIGH TIDE
PORTIONS OF SECTIONS 16, 17, 20, 21,
AND 28, T6N, R7W, W.M.,
CLATSOP COUNTY, OREGON.

Approximate Net Acreage:

	PC Acres	MC Acres
Area 1 (PC)	213	0
Area 2 (MC)	0	64
Area 3 (MC)	0	103
Area 4 (R/W)	0	7
Total by prescription	213	174
Total Sale Acreage		387

Legend

- Ownership Boundary
- Timber Sale Boundary
- Area Boundary
- Paved Road
- Existing Surfaced Road
- Dirt/Vacated Road
- New Road Construction
- Type F Stream
- Type N Stream
- Posted Buffer
- Buffer Zone
- Intermediate Support Area
- Green Tree Retention Area
- Controlled Felling
- Reforestation Area
- Quarry
- Stockpile
- Known Land Survey Corner
- Yarding Area - Cable
- Yarding Area - Ground
- New Construction Landing
- Existing Landing



Logging Breakdown		
Area	Cable	Tractor
1	78%	22%
2	0%	100%
3	40%	60%
Total	53%	47%