



"STEWARDSHIP IN FORESTRY"

# Timber Sale Appraisal Cost Summary Shingle Mill Road Sale 341-05-86

District: Astoria

Date: 5/10/05

	Conifer	Hardwood	Total
<b>Gross Timber Sale Value</b>	\$2,051,007.92	\$54,648.00	\$2,105,655.92
		<b>Project Work</b>	(\$85,616.00)
		<b>Advertised Value</b>	\$2,020,039.92



# Timber Sale Appraisal Timber Description Shingle Mill Road Sale 341-05-86

"STEWARDSHIP IN FORESTRY"

**District:** Astoria

**Location:** Portions of Sections 25 and 36, T8N, R7W; Section 6, T7N, R6W; and Section 31, T8N, R6W, W.M., Clatsop County, Oregon.

**Date:** 5/10/05

**Stand Stocking:** 60%

Species	Avg. DBH	Amortized%	Recovery%
Douglas - Fir	22	0	98
Western Hemlock / Fir	15	0	96
Sitka Spruce	12	0	94
Red Cedar	14	0	96
Alder (Red)	18	0	95

Volume by Grade	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Red Cedar	Alder (Red)	Total
SM	156	0	0	0	0	156
2S	2,828	853	0	0	73	3,754
3S	674	787	17	2	49	1,529
4S	119	174	2	1	22	318
Total	3,777	1,814	19	3	144	5,757

Comments: Pond Values Used: 1st Quarter 2005.

Log markets: Longview; St. Helens; Clatskanie; Mist

Other Costs (+ P&R):

Additional logging costs:

Line pulling in Area 2 - 20 hours of work x \$24/hr = \$480

100% branding and painting - \$1/MBF x 5,757 MBF = \$5,757

Thinning tree selection (Area 2) - \$3/MBF x 2,115 MBF = \$6,345

Skid road and cable corridor layout - \$5/MBF x 2,115 = \$10,575

Topping "Wildlife" trees - 15 trees x \$45/tree = \$675

Rig tail lift trees - 15 trees x \$50/tree = \$750

Slash Piling at Cable Landings - \$195/landing x 4 landings = \$780

Total Other Costs (+ P&R) = \$25,362

Other Costs (No P&R):

Slash piling in Area 1 - 44 hrs x \$120/hr = \$5,280

Slash piling excavator move in cost = \$945

Total Other Costs (No P&R) = \$6,225.00



# Timber Sale Appraisal

## Logging Conditions

### Shingle Mill Road

#### Sale 341-05-86

"STEWARDSHIP IN FORESTRY"

<b>Combination#:</b> 1	Douglas - Fir	24.64%		
	Western Hemlock / Fir	8.45%		
	Sitka Spruce	1.58%		
	Red Cedar	30.00%		
	Alder (Red)	5.00%		
<b>Yarding Distance:</b>	Short (400 ft)		<b>Downhill Yarding:</b> Yes	
<b>Logging System:</b>	Shovel		<b>Process:</b> Manual Delimiting	
<b>Tree Size:</b>	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF			
<b>Loads/Day:</b>	11		<b>Bd. Ft./Load:</b> 3,500	
<b>Cost/MBF:</b>	\$60.30			
<b>Machines:</b>	Shovel Logger			
<b>Combination#:</b> 2	Douglas - Fir	57.49%		
	Western Hemlock / Fir	19.72%		
	Sitka Spruce	3.68%		
	Red Cedar	70.00%		
	Alder (Red)	11.67%		
<b>Yarding Distance:</b>	Medium (800 ft)		<b>Downhill Yarding:</b> No	
<b>Logging System:</b>	Cable: Medium Tower >40 - <70		<b>Process:</b> Stroke Delimber	
<b>Tree Size:</b>	Mature Private Forest / Regen Cut (250 Bft/trees), 6-11 logs/MBF			
<b>Loads/Day:</b>	9		<b>Bd. Ft./Load:</b> 4,000	
<b>Cost/MBF:</b>	\$91.18			
<b>Machines:</b>	Log Loader (A)			
	Stroke Delimber (A)			
	Tower Yarder (Medium)			
<b>Combination#:</b> 3	Douglas - Fir	10.90%		
	Western Hemlock / Fir	43.82%		
	Sitka Spruce	57.79%		
	Alder (Red)	50.83%		
<b>Yarding Distance:</b>	Medium (800 ft)		<b>Downhill Yarding:</b> Yes	
<b>Logging System:</b>	Track Skidder		<b>Process:</b> Feller Buncher	
<b>Tree Size:</b>	Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF			
<b>Loads/Day:</b>	7		<b>Bd. Ft./Load:</b> 3,500	
<b>Cost/MBF:</b>	\$143.63			
<b>Machines:</b>	Feller Buncher w/ Delimber			
	Log Loader (B)			
	Stroke Delimber (B)			
	Track Skidder			

<b>Combination#:</b> 4	Douglas - Fir	6.97%
	Western Hemlock / Fir	28.01%
	Sitka Spruce	36.95%
	Alder (Red)	32.50%
<b>Yarding Distance:</b>	Medium (800 ft)	<b>Downhill Yarding:</b> No
<b>Logging System:</b>	Cable: Medium Tower >40 - <70	<b>Process:</b> Stroke Delimber
<b>Tree Size:</b>	Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF	
<b>Loads/Day:</b>	5	<b>Bd. Ft./Load:</b> 3,500
<b>Cost/MBF:</b>	\$187.58	
<b>Machines:</b>		
	Log Loader (A)	
	Stroke Delimber (A)	
	Tower Yarder (Medium)	



# Timber Sale Appraisal

## Logging Costs

### Shingle Mill Road

### Sale 341-05-86

"STEWARDSHIP IN FORESTRY"

Date: 5/10/05

Operating Seasons: 1.5

Profit & Risk: 15%

Project Costs: \$85,616

Other Costs (P/R): \$25,362

Slash Disposal: \$0

Other Costs: \$6,225

Miles of Road			
Dirt	Rock (Contractor)	Rock (State)	Paved
0.0	0.0	0.0	0.0

Road Maintenance: \$3.21

#### Hauling Costs

Species	\$/MBF	Trips/Day	MBF/Load
Douglas - Fir	\$0.00	2.0	4.0
Western Hemlock / Fir	\$0.00	2.0	3.5
Sitka Spruce	\$0.00	2.0	3.0
Red Cedar	\$0.00	3.0	3.0
Alder (Red)	\$0.00	2.0	3.0



# Timber Sale Appraisal Logging Costs Breakdown Shingle Mill Road Sale 341-05-86

"STEWARDSHIP IN FORESTRY"

Costs	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Red Cedar	Alder (Red)
<b>Logging</b>	96.01	138.56	156.62	81.92	147.63
<b>Road Maintenance</b>	3.28	3.34	3.41	3.34	3.38
<b>Fire Protection</b>	0.71	0.71	0.71	0.71	0.71
<b>Hauling</b>	58.67	68.44	81.70	53.23	80.84
<b>Other (P/R appl.)</b>	4.41	4.41	4.41	4.41	4.41
<b>Profit &amp; Risk</b>	24.46	32.32	37.03	21.54	35.55
<b>Slash Disposal</b>	0.00	0.00	0.00	0.00	0.00
<b>Scaling</b>	2.00	2.00	2.00	2.00	2.00
<b>Other</b>	1.08	1.08	1.08	1.08	1.08
<b>Total</b>	190.62	250.86	286.96	168.23	275.60

<b>Amortization</b>	0.00	0.00	0.00	0.00	0.00
<b>Pond Value</b>	642.18	438.99	397.89	865.00	655.10
<b>Stumpage</b>	451.56	188.13	110.93	696.77	379.50
<b>Amortized</b>	0.00	0.00	0.00	0.00	0.00



"STEWARDSHIP IN FORESTRY"

# Timber Sale Appraisal Summary

## Shingle Mill Road Sale 341-05-86

**Amortized**

	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Red Cedar	Alder (Red)
<b>MBF</b>	0.00	0.00	0.00	0.00	0.00
<b>Value</b>	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	0.00	0.00	0.00	0.00	0.00

**Unamortized**

	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Red Cedar	Alder (Red)
<b>MBF</b>	3,777.00	1,814.00	19.00	3.00	144.00
<b>Value</b>	451.56	188.13	110.93	696.77	379.50
<b>Total</b>	1,705,542.12	341,267.82	2,107.67	2,090.31	54,648.00

**Gross Timber Sale Value**

**Recovery \$2,105,655.92**

Prepared by: Eric Perkins

Date: 5/10/05

District: Astoria

Phone: (503) 325-5451



**Road Maintenance Cost Summary**

Sale: Shingle Mill Road  
 Date: 8-Mar-05  
 By: Eric Perkins

MBF: 5,757  
 \$\$/MBF: \$3.21

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Progressive Operations Entries (1)	Grader 14G	\$570	1	10	\$84	\$1,410
	Dump Truck 10CY	\$119	1	8	\$59	\$591
	FE Loader C966	\$570	1	8	\$79	\$1,202
Final Haul Road Maintenance Haul Route	Grader 14G	\$570	1	50	\$84	\$4,770
	Dump Truck 10CY	\$119	1	20	\$59	\$1,299
	FE Loader C966	\$570	1	20	\$79	\$2,150
	Vibratory Roller	\$570	1	50	\$79	\$4,520
	Water Truck 2,500 gallon Labor	\$139	1	30	\$70	\$2,239
	Erosion control (straw bales)	N/A	N/A	10(bales)	\$4.25	\$43
<b>Total</b>						<b>\$18,474</b>

Miles/day	Distance(miles)	Days
1.5	6.3	4.2
1.5	6.3	4.2

Production Rates  
 Grader  
 Vibratory Roller\*

\*Final Road Maintenance Only

**SUMMARY OF ALL PROJECT COSTS**

**SALE NAME:** Shingle Mill Road

**NEW CONSTRUCTION:**

Project No. 1	Road segment	Length/Sta	Cost
	1A-1B, 1C-1D, 2A-2B	43.55	\$33,419
<b>TOTALS</b>	<b>0.82 miles</b>	<b>43.55 Stations</b>	<b>\$33,419</b>

**ROAD IMPROVEMENT:**

Project No. 2	Road segment	Length/Sta	Cost
	11-12, 13-14, 15-16	132.80	\$31,491
<b>TOTALS</b>	<b>2.52 miles</b>	<b>132.80 Stations</b>	<b>\$31,491</b>

**SPECIAL PROJECTS:**

Project No. 3	Description	Cost
	Roadside Brushing: 142.80 stations	\$3,651
	Project Road Maintenance	\$11,960
<b>TOTALS</b>		<b>\$15,611</b>

**MOVE IN:**

Equipment	Cost
D-8 Dozer	\$1,030
10cy Dump Trucks (4 @ \$119 each)	\$476
20cy Dump w/trailer (4 @ \$140 each)	\$560
Brush Cutter - Medium	\$235
Front End Loader - Medium (966)	\$570
Grader (14G)	\$570
Vibratory Roller	\$570
Water Truck (2,500 gal.)	\$139
Excavator - Medium (C325)	\$945
<b>TOTAL</b>	<b>\$5,095</b>

**GRAND TOTAL** **\$85,616**

Compiled By: Eric Perkins PK

Date: 3/29/2005

**SUMMARY OF CONSTRUCTION COSTS**

SALE NAME: Shingle Mill Road  
 ROAD: 1A to 1B(9.0), 1C to 1D(3.8), and 2A to 2B(30.75)

NEW CONSTRUCTION: 43.55 STATIONS 0.82 MILES  
 IMPROVEMENT:                     STATIONS                     MILES

CLEARING & GRUBBING						
Method	Acres/amount	x	Rate/Acre	=	Cost	
Scatter Outside of RAW	3.50	x	\$960.00	=	\$3,430.00	
		x		=		
		x		=		
<b>SUB TOTAL FOR CLEARING &amp; GRUBBING</b>						<b>\$3,430</b>

EXCAVATION						
Material	Cy/amount	x	Rate	=	Cost	
Common (low Standard Design) \$5/sta. (1A to 1B, 1C to 1D, 2A to 2B)	43.55	x	\$139.00	=	\$6,053.45	
Rock Ripping 1A to 1B & 2A to 2B \$\$/hr	20.0	x	\$126.00	=	\$2,520.00	
Undesigned Landing Construction \$\$/landing	5	x	\$287.00	=	\$1,435.00	
		x		=		
<b>SUB TOTAL FOR EXCAVATION</b>						<b>\$10,008</b>

CULVERT MATERIALS AND INSTALLATION								
Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost	
1A-1B 0+00	18"CPP	40	\$11.00	\$440.00				
1A-1B 7+00	18"CPP	30	\$11.00	\$330.00				
1C-1D 2+00	18"CPP	30	\$11.00	\$330.00				
2A-2B 0+00	18"CPP	40	\$11.00	\$440.00				
2A-2B 2+00	18" CPP	30	\$11.00	\$330.00				
2A-2B 8+50	18"CPP	35	\$11.00	\$385.00				
2A-2B 10+00	18"CPP	30	\$11.00	\$330.00				
2A-2B 10+50	18"CPP	30	\$11.00	\$330.00				
2A-2B 24+60	18"CPP	30	\$11.00	\$330.00				
2A-2B 29+20	18"CPP	30	\$11.00	\$330.00				
Other/miscellaneous:			Description	Quantity/Hrs.	Rate	Cost		
Culvert stakes & markers:			8' x 2 1/2" White Fiberglass (Carsonite)	10	\$14.10	\$141.00		
<b>SUB TOTAL FOR CULVERT MATERIALS &amp; INSTALLATION</b>						<b>\$3,716</b>		

**Subtotal \$17,154**

Compiled by: Eric Perkins Date: 2/23/2005

**SUMMARY OF CONSTRUCTION COSTS**

SALE NAME: Shingle Mill Road

SURFACING:		Description	Stations/ amount	x	Rate/ sta/amt	Cost
Subgrade prep:		Grade, Shape and Ditch 16" (1A-1B, 1C-1D, 2A-2B)	43.55	x	\$16.20	\$792.61
		Subgrade Compaction (1A-1B, 1C-1D, 2A-2B)	43.55	x	\$14.80	\$644.54
				x		

\$1,437.15

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)	Volume (CY)	Number of	
Base Rock	4"-0" Crushed	0+00 to 9+00	7	station 44	stations 9.00	\$4.83 \$1,913
Junctions	4"-0" Crushed	0+00	7	junction 20	junctions 1	\$4.83 \$97
Turnaround	4"-0" Crushed	7+20	N/A	TA 20	TAs 1	\$4.83 \$97
Landings	6"-0" Pit-run	3+45, 9+00	N/A	landing 80	landings 2	\$6.15 \$984

\$3,090

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)	Volume (CY)	Number of	
Base Rock	4"-0" Crushed		7	station 44	stations 3.80	\$4.83 \$808
Junction	4"-0" Crushed	0+00	N/A	junction 20	junction 1	\$4.83 \$97
Landings	6"-0" Pit-run	3+80	N/A	landing 80	landings 1	\$6.15 \$492

\$1,396

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)	Volume (CY)	Number of	
Traction Rock	3/4"-0" Crushed	0+00 to 1+00	N/A	station 20	stations 1	\$4.83 \$96.60
Base Rock	4"-0" Crushed		7	station 44	stations 20.75	\$4.83 \$6,535
Turnouts	4"-0" Crushed	6+70, 20+20, 27+75	7	turnout 20	turnouts 3	\$4.83 \$290
Junction	4"-0" Crushed	0+00	N/A	junction 20	junction 1	\$4.83 \$97
Turnaround	4"-0" Crushed	27+75	N/A	turnaround 20	TAs 1	\$4.83 \$97
Dissipator	24"-6" Riprap	8+50, 24+00	N/A	dissipator 10	stations 2	\$13.34 \$267
Landings	6"-0" Pit-run	5+00, 30+75	N/A	landing 40	landings 2	\$6.15 \$482

\$7,873

Processing:	Description	No. sta.	Rate/sta	Cost
	Water, Process & Compact Crushed Rock (2A to 2B stations 0+00 to 1+00):	1.00	\$41.40	\$41
	7" roads in 1 lift (1A to 1B [9.0] + 1C to 1D [3.8] + 2A to 2B [30.75] = 43.55 static)	43.55	\$41.40	\$1,803

\$1,844

SUB TOTAL FOR SURFACING	24"-0"	18"-0" pit	4"-0"	3/4"-0"	Total
	20	320	2,076	20	2,436

\$15,641

SPECIAL PROJECTS:	No. sta./ft./cy.	Rate per sta./ft./cy.	Cost
Develop Pit Run rock 6"-0" (320cy)	320	\$1.95	\$624
<b>SUB TOTAL FOR SPECIAL PROJECTS</b>			<b>\$624</b>

\$624

**GRAND TOTAL**

**\$33,419**

Compiled By: Eric Perkins

Date: 2/23/2005

**SUMMARY OF CONSTRUCTION COSTS**

SALE NAME: Shingle Mill Road  
 ROAD: 11 to 12 (73.0), 13 to 14 (31.8), 15 to 16 (26.0)

NEW CONSTRUCTION: \_\_\_\_\_ STATIONS \_\_\_\_\_ MILES \_\_\_\_\_  
 IMPROVEMENT: 132.80 STATIONS \_\_\_\_\_ 2.52 MILES \_\_\_\_\_

**CLEARING & GRUBBING**

Method	Acres/amount	x	Rate/Acre	=	Cost
		x		=	
		x		=	
		x		=	

**SUB TOTAL FOR CLEARING & GRUBBING**

**EXCAVATION**

Material	Cy/amount	x	Rate	=	Cost
		x		=	
		x		=	
		x		=	

**SUB TOTAL FOR EXCAVATION**

**CULVERT MATERIALS AND INSTALLATION**

Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
11-12	58+55	18"CPP	30	\$11.00	\$330.00		
13-14	23+30	18"CPP	30	\$11.00	\$330.00		
Other/miscellaneous:	Description		Quantity/Hrs.	Rate	Cost		
Culvert stakes & markers:	6' x 2 1/2" White Fiberglass (Carsonite)		8	\$14.10	\$112.80		

**SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION**

**Subtotal** \$773

Compiled by: Eric Perkins

Date: 2/23/2005

**SUMMARY OF CONSTRUCTION COSTS**

SALE NAME Shingle Mill Road

SURFACING:		Subgrade prep:	Description	Stations/ amount	x	Rate/ sta/amt	Cost
			Grade, Shape and Ditch 16' Private	83.60	x	\$18.20	\$1,521.62
			Grade, Shape and Ditch 16' ODF	49.20	x	\$18.20	\$896.44
			Compaction	132.80	x	\$14.80	\$1,966.44

\$4,382.40

ROAD SEGMENT	11 to 12	Private	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	1 1/2"-0" Crushed	0+00 to 20+00	4	station	25	stations	20
Turnouts	1 1/2"-0" Crushed		N/A	turnout	20	turnouts	2
Leveling Rock	1 1/2"-0" Crushed		N/A				100
Total Rock for Road Segment				11 to 12			640

\$3,091

ROAD SEGMENT	11 to 12	Private	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	4"-0" Crushed	20+00 to 52+00	6	station	38	stations	32.00
Turnouts	4"-0" Crushed		N/A	turnout	20	turnouts	2
Traction Rock	3/4"-0" Crushed	20+00 to 25+00		station	10	stations	5
Leveling Rock	4"-0" Crushed		N/A				160
Junctions	4"-0" Crushed	25+00	N/A	junction	30	junctions	1
Total Rock for Road Segment				11 to 12			1496

\$7,226

ROAD SEGMENT	11 to 12	ODF	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	4"-0" Crushed	52+00 to 73+00	6	station	38	stations	21.00
Turnouts	4"-0" Crushed		N/A	turnout	20	turnouts	2
Culvert Bedding Rock	3/4"-0" Crushed	55+55		culvert	20	culvert	1
Total Rock for Road Segment				11 to 12			868

\$4,144

ROAD SEGMENT	13 to 14	Private	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		
Leveling rock	1 1/2"-0" Crushed	0+00 to 19+30	N/A				200
Turnouts	1 1/2"-0" Crushed		N/A	turnout	10	turnouts	2
Junctions	1 1/2"-0" Crushed	13		junction	30	junctions	1
Total Rock for Road Segment				13 to 14			250

\$1,208

ROAD SEGMENT	13 to 14	ODF	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		
Leveling rock	1 1/2"-0" Crushed	19+30 to 31+80					100
Turnouts	1 1/2"-0" Crushed		N/A	turnout	20	turnouts	2
Turnaround	1 1/2"-0" Crushed	30+50	N/A	turnaround	10	turnaround	1
Culvert Bedding Rock	3/4"-0" Crushed	29+30	N/A	culvert	20	culvert	1
Total Rock for Road Segment				13 to 14			170

\$821

ROAD SEGMENT	15 to 16	Private	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	1 1/2"-0" Crushed	0+00 to 12+30	4	station	25	stations	12.30
Turnouts	1 1/2"-0" Crushed		N/A	turnout	10	turnouts	1
Junctions	1 1/2"-0" Crushed	15		junction	30	junctions	1
Total Rock for Road Segment				15 to 16			348

\$1,678

ROAD SEGMENT	15 to 16	ODF	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	1 1/2"-0" Crushed	12+30 to 19+80	4	station	25	stations	7.50
Turnouts	1 1/2"-0" Crushed		N/A	turnout	10	turnouts	2
Base Rock	4"-0" Crushed	19+80 to 28+00	6	station	32	stations	8.20
Turnouts	4"-0" Crushed		N/A	turnout	20	turnouts	2
Total Rock for Road Segment				15 to 16			610

\$2,463

4271

Processing:	Description	No. sta	Rate/sta	Cost
	Water, Process & Compact Crushed Rock Private (base rock)	83.60	\$41.40	\$3,461
	Water, Process & Compact Crushed Rock Private (traction rock)	9.00	\$41.40	\$207
	Water, Process & Compact Crushed Rock ODF	49.20	\$41.40	\$2,037

\$5,705

SUB TOTAL FOR SURFACING	4"-0"	1 1/2"-0"	3/4"-0"	Total
	2,586	1,095	90.00	4,271

\$30,718

SPECIAL PROJECTS:	No. sta./ft./cy.	Rate per sta./ft./cy.	Cost
SUB TOTAL FOR SPECIAL PROJECTS			\$0

**GRAND TOTAL** \$31,491

Compiled By: Eric Perkins Date: 2/23/2005



**PIT RUN ROCK COST**

SALE NAME: Shingle Mill Road  
 PROJECT: Landing Rock  
 QUARRY: Hunt Creek

ROCK TYPE: Pit Run

DATE: 2/22/2005  
 BY: E. Perkins

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			40 MPH	35 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
1A to 1B	9.00	160	0.60		4.90	0.80	0.20	0.30	0.08	6.88
1C to 1D	3.80	80	0.60		4.90	0.80	0.40	0.30	0.07	7.07
2A to 2B	30.75	80	0.60		4.90	0.50	0.40	0.20	0.30	6.90
TOTAL		320								
	STA./NO.	CU. YD.								AVERAGE HAUL
CUBIC YARD WEIGHTED HAUL			0.60		4.90	0.73	0.30	0.28	0.13	6.93
Average Round Trip Distance (miles)										13.87

ROCK HAUL:

Truck type:	<u>D20</u>	No. trucks:	<u>          </u>	Ave haul:	\$4.95	/cy
Delay min.:	<u>8</u>	Efficiency:	<u>85%</u>	Load:	\$1.20	/cy
				Spread:		/cy
Truck type:	<u>D12</u>	No. trucks:	<u>          </u>			
Delay min.:	<u>6</u>	Efficiency:	<u>85%</u>			
Truck type:	<u>D10</u>	No. trucks:	<u>4</u>	Production: cy/day =	<u>381</u>	
Delay min.:	<u>5</u>	Efficiency:	<u>85%</u>			
PIT RUN ROCK HAUL COSTS					320 cy @	\$6.15 /cy



RIP RAP ROCK COST

SALE NAME: Shingle Mill Road  
 PROJECT: Dissipator rock  
 QUARRY: Hunt Creek

ROCK TYPE: Dissipator

DATE: 3/3/2005  
 BY: E. Perkins

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			40 MPH	35 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
2A to 2B	2.00	20	0.60		4.90	0.50	0.40	0.20	0.30	6.90
<b>TOTAL</b>		<u>20</u>								
	<b>STA./NO.</b>	<b>CU. YD.</b>	<b>0.60</b>		<b>4.90</b>	<b>0.50</b>	<b>0.40</b>	<b>0.20</b>	<b>0.30</b>	<b>AVERAGE HAUL 6.90</b>
<b>CUBIC YARD WEIGHTED HAUL</b>			<b>0.60</b>		<b>4.90</b>	<b>0.50</b>	<b>0.40</b>	<b>0.20</b>	<b>0.30</b>	<b>6.90</b>
Average Round Trip Distance (miles)										<b>13.80</b>

ROCK HAUL:

Truck type:	<u>D12</u>	No. trucks:	<u>        </u>
Delay min.:	<u>12</u>	Efficiency:	<u>85%</u>

Truck type:	<u>D10</u>	No. trucks:	<u>2</u>
Delay min.:	<u>10</u>	Efficiency:	<u>85%</u>

Ave haul:	<u>\$5.74</u>	/cy
Load:	<u>\$4.50</u>	/cy
Develop:	<u>\$3.10</u>	/cy

Production: cy/day =          164

RIP RAP ROCK HAUL COSTS          20 cy @ \$13.34 /cy

## SUMMARY OF BRUSHING COSTS

### PROJECT NO. 3: ROADSIDE BRUSHING

SALE NAME: Shingle Mill Road

Road Segment	Length		Brushing Rate	Cost per Mile	Segment Cost	Comments
	Stations	Miles				
11-12	73.00	1.38	M	\$1,350.00	\$1,866.48	
13-14	31.80	0.60	M	\$1,350.00	\$813.07	
15-16	28.00	0.53	M	\$1,350.00	\$715.91	
Side Spurs	10.00	0.19	M	\$1,350.00	\$255.68	
	142.80	2.70				
<b>Total Brushing Cost</b>					<b>\$3,651.14</b>	

FL

Compiled By: E. Perkins

Date: 2/24/2005

X:\Sunset Unit\2005 FY Sales\Shingle Mill Road\Sale Prep\Projects\Road Brushing Shingle Mill Road

## Project Work Road Maintenance Cost Summary

**Sale:** Shingle Mill Road  
**Date:** February 24, 2005  
**By:** E. Perkins

Type	Equipment/Rationale	Hours	Rate	Cost
Post-Projects Road	Grader 14G	50	\$84	\$4,200
	Dump Truck 10-12CY (2 trucks)	20	\$59	\$1,180
	FE Loader C966	10	\$79	\$790
	Vibratory Roller	60	\$79	\$4,740
	Water Truck 2500 gallon	15	\$70	\$1,050
<b>Total</b>				<b>\$11,960</b>

Production Rates  
 Grader - Processing  
 Vibratory Roller

Miles/day	Distance(miles)	Days	Hours
1.05	5.2	5.0	49.5
1.00	5.2	5.2	52.0

**TIMBER CRUISE REPORT**  
**SHINGLE MILL ROAD**  
**FY 2005**

**1. Sale Area Location:**

Area 1 is located in portions of Sections 25 and 36, T8N, R7W; Area 2 is located in portions of Section 6, T7N, R6W, Section 31, T8N, R6W; and Section 36, T8N, R7W, W. M., Clatsop County, Oregon.

**2. Fund Distribution:**

BOF = 100%  
 Tax Code = 1-02            1.6 %  
 Tax Code = 4-01            30.7 %  
 Tax Code = 4-03            67.7 %

**3. Sale Acreage and Treatments by Area:**

Area	Harvest Type	Gross Acres	New R/W Acreage	Existing R/W	Stream Buffers	Net Acres	Survey Method
1	MC	51.4	0	0.8	1.3	49.3	GIS
2	PC	95.2	2.9	0.3	2.0	90.0	GIS
3 R/W	R/W					2.9	GIS
<b>TOTAL</b>		<b>146.6</b>		<b>1.1</b>	<b>3.3</b>	<b>142.2</b>	

**4. Cruisers and Cruise Dates:**

Area 1 was cruised by Eric Perkins and Dave Horning in January, 2005. Areas 2 was also cruised in January, 2005, by Ed Holloran, Kraig Kirkpatrick, John Tillotson, Eric Perkins and Dave Horning.

**5. Cruise Method and Computations:**

Area 1 (modified clearcut) was designed for a variable plot cruise using a 46.94 BAF. Thirty nine plots were sampled on a 3.5 x 3.5 chain grid, with a count to cruise plot ratio of 2:1.

Area 2 (partial cut) was designed for a variable plot cruise using a 33.61 BAF. Forty seven plots were sampled on a 4.5 x 4.5 chain grid, with a count to cruise plot ratio of 2:1. All "take" and "leave" trees were measured and graded on cruise plots.

Cruises used Corvallis Micro Technology (CMT) data collectors and were downloaded to the Atterbury SUPER A.C.E. program in the Astoria District for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria District office.

**6. Timber Description:**

Area 1 (MC)— This stand is a modified clearcut unit, about 78 years old, consisting of moderate sized, high quality Douglas-fir and hemlock stands. Approximately 1/3 of the area was commercially thinned in the late 1970's. There are approximately 8.2 snags per acre, 15 inches or larger. The harvest will remove approximately 133 trees per acre with an average DBH of 21 inches, 90 feet to a merchantable top, and approximately 70.7 MBF per acre.

Area 2 (PC)— This stand is an "auto-mark" thinning unit, about 67 to 78 years old, consisting of a mixed conifer stand with some stringers and patches of alders. Approximately 40% of this sale area was also thinned in the late 1970's. The stand will be harvested to an SDI of 30% with a target residual basal area of 160 square feet, while removing approximately 119 trees and 23.5 MBF per acre. The average "take" tree size is about 15 inches DBH and 59 feet to a merchantable top. The average "Leave" tree or residual tree size is 20 inches DBH and 73 feet to a merchantable top.

7. **Statistical Analysis and Stand Summary:** (See also "Statistical Summary-Type Reports", attached.) Evaluated on Net BF/Acre.

Area	Target CV %	Target SE %	Actual CV %	Actual SE %
1	42	9	29	4.7
2	42	7	30	4.3

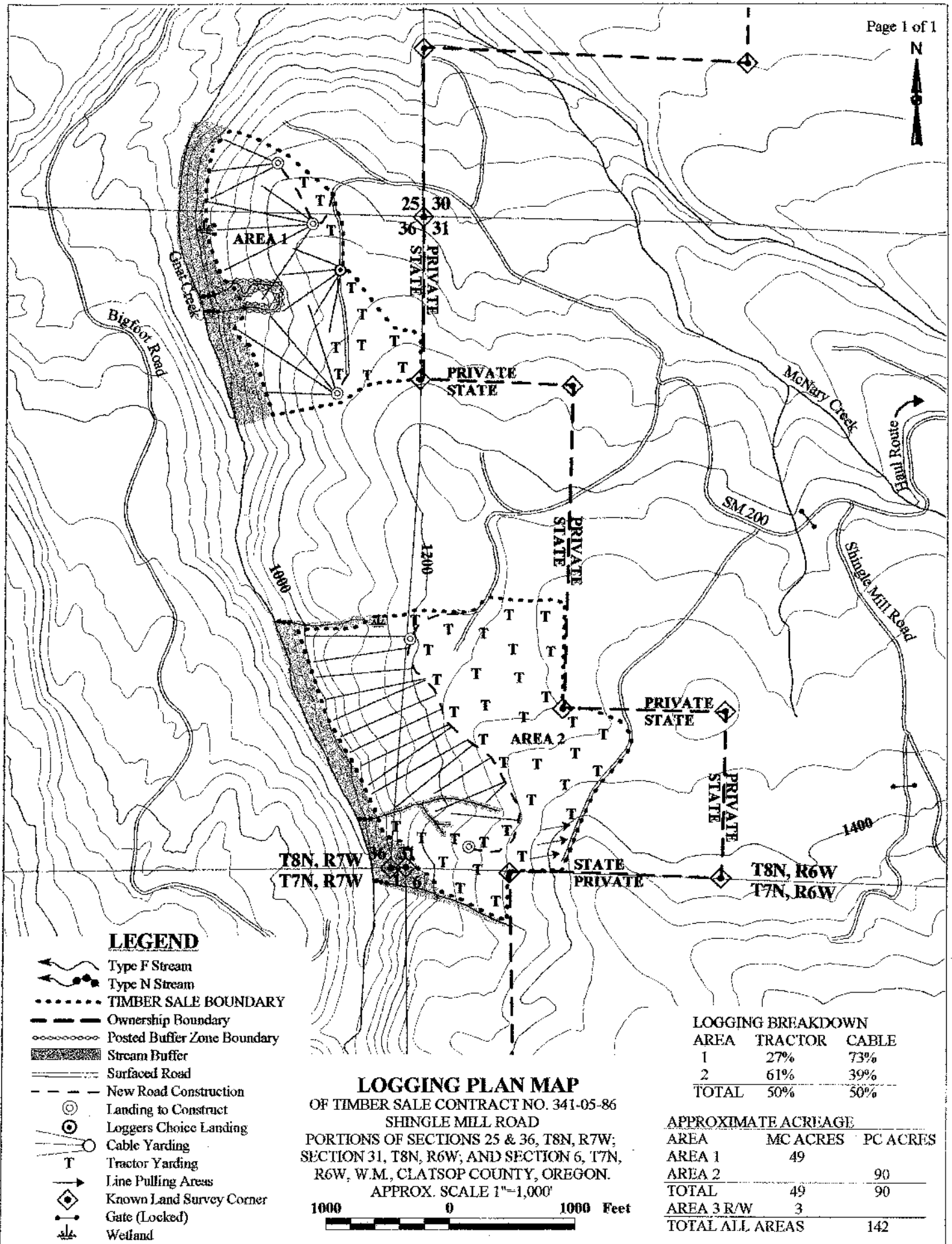
The statistics for Area 1 are for "Take" trees only.  
The statistics for Area 2 are for the entire stand.

8. **Volumes by Species and Sale Areas:** (See the Species, Sort, Grade, and the Log Stock Table attached.) Volumes do not include "in-growth". The majority of defect and breakage was culled during the cruise. The total net MBF volumes by species and grade are as follows:

Species	DBH	Net. Vol.	Spec. Mill	2 Saw	3 Saw	4 Saw	D&B	Sale %
Douglas-fir	21.5	3,777	156	2,828	674	119	39.8	66
W. Hemlock	14.5	1,814	0	853	787	174	59.9	31
Sitka Spruce	12.4	19	0	0	17	2	1.8	<1
W. Red Cedar	13.6	3	0	0	2	1	0	<1
Red Alder	18.2	144	0	73	49	22	5.7	2.5
<b>Totals</b>		5,757						100

9. **Approvals:**  
 Prepared by: Eric Perkins Date: February 16, 2005  
 Approved by: Dave Gandy Date: 3/21/05

10. **Attachments:**  
 Species, Sort & Grade (Volume) Reports: 4 pages  
 Statistical Reports: 7 pages  
 Stand Tables: 2 pages  
 Log Stock Table - MBF(take): 5 pages  
 Cruise Designs and Map: 5 pages



**LEGEND**

- Type F Stream
- Type N Stream
- TIMBER SALE BOUNDARY
- Ownership Boundary
- Posted Buffer Zone Boundary
- Stream Buffer
- Surfaced Road
- New Road Construction
- Landing to Construct
- Loggers Choice Landing
- Cable Yarding
- Tractor Yarding
- Line Pulling Areas
- Known Land Survey Corner
- Gate (Locked)
- Wetland

**LOGGING PLAN MAP**  
 OF TIMBER SALE CONTRACT NO. 341-05-86  
 SHINGLE MILL ROAD  
 PORTIONS OF SECTIONS 25 & 36, T8N, R7W;  
 SECTION 31, T8N, R6W; AND SECTION 6, T7N,  
 R6W, W.M., CLATSOP COUNTY, OREGON.

APPROX. SCALE 1"=1,000'  
 1000                      0                      1000 Feet

LOGGING BREAKDOWN		
AREA	TRACTOR	CABLE
1	27%	73%
2	61%	39%
<b>TOTAL</b>	<b>50%</b>	<b>50%</b>

APPROXIMATE ACREAGE		
AREA	MC ACRES	PC ACRES
AREA 1	49	
AREA 2		90
<b>TOTAL</b>	<b>49</b>	<b>90</b>
AREA 3 R/W	3	
<b>TOTAL ALL AREAS</b>		<b>142</b>

Species, Sort Grade - Board Foot Volumes (Project)

T08N R06W 831 TyTK02 90.00  
 T08N R06W 831 Ty0003 2.90  
 T08N R07W 836 TyTK01 49.30

Project: SHINGADJ  
 Acres 142.20

Page 1  
 Date 2/22/2005  
 Time 4:15:55PM

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log			Logs Per /Acre		
					Del%	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						
H	70	?			100.0	147											12		0.00	4.1		
H	70	2S		15	1.3	6,076	5,995	853		3	71	26		3	3	16	79	36	271	1.70	22.1	
H	70	3S		14	1.7	5,626	5,532	787		89	11			1	2	36	61	36	96	0.73	57.4	
H	70	4S		3	7.5	1,322	1,223	174	3	97				48	46	4	2	20	25	0.42	48.6	
<b>H Totals</b>				31	3.2	13,171	12,750	1,813	0	49	38	12		7	6	23	64	29	96	0.84	132.2	
A	70	?			100.0	36												8		0.00	.2	
A	70	2S		1	.0	512	512	73			84	16			22		78	37	244	1.79	2.1	
A	70	3S		1	.0	350	349	50		52	47	1		3		4	93	37	164	1.31	2.1	
A	70	4S		0	.0	154	154	22		100				35	54	11		24	38	0.63	4.1	
<b>A Totals</b>				3	3.4	1,052	1,016	145		33	59	8		6	19	3	71	30	119	1.19	8.6	
D	70	?			100.0	60												2		0.00	2.0	
D	70	2S		49	.8	20,050	19,886	2,828		1	47	51		0	1	4	95	39	382	2.09	52.0	
D	70	3S		12	.9	4,776	4,734	673		93	7			0	7	25	68	36	110	0.85	43.1	
D	70	4S		2	1.0	847	839	119	10	90				50	37	5	8	20	27	0.47	31.0	
D	70	SM		3	.7	1,104	1,097	156				100		0	41	20	38	30	446	2.88	2.5	
<b>D Totals</b>				66	1.0	26,836	26,556	3,776	0	20	37	43		2	5	9	85	33	204	1.42	130.5	
SN	?	?			100.0	4												45		0.00	.1	
<b>SN Totals</b>					100.0	4													45		0.00	.1
S	70	2S		0	9.9	2	2	0				100					100	40	910	7.12	.0	
S	?	3S		0	9.6	133	121	17		99		1			0	99	1	32	72	0.69	1.7	
S	?	4S		0		12	12	2		100				100				18	30	0.56	.4	
<b>S Totals</b>				0	8.8	148	135	19		98		2		9	0	89	2	29	65	0.69	2.1	
C	70	2S		0		2	2	0			20	80				20	80	36	475	4.58	.0	
C	70	3S		0		13	13	2		89	11					28	72	37	95	1.00	.1	
C	70	4S		0	1.2	10	10	1	10	90				53	47			21	25	0.54	.4	
<b>C Totals</b>				0	.5	25	25	4	4	81	8	7		20	18	16	45	25	48	0.77	.5	
<b>Totals</b>					1.8	41,236	40,482	5,757	0	30	37	32		3	6	13	78	31	148	1.14	273.9	

Species, Sort Grade - Board Foot Volumes (Type)

Project: SHINGADJ

T08N R07W S36 TTK01

T08N R07W S36 TTK01

Twp Rge Sec Tract Type Acre Plots Sample Trees CuFt BdFt  
08N 07W 36 AREAITAKE TK01 49.30 39 130 1 W

Spp	S T	So rt	Gr 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		
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
D		70	2S	74	.7	46,121	45,814	2,259		1	44	55		0	3	97	40	399	2.11	114.8	
D		70	3S	17	1.1	10,883	10,763	531		94	6			0	6	26	68	36	112	0.85	96.5
D		70	4S	3	1.3	1,815	1,792	88	13	87				53	33	3	10	21	28	0.46	64.4
D		70	SM	5	.7	3,172	3,151	155				100			41	20	38	30	446	2.87	7.1
<b>D</b>	<b>Totals</b>			87	.8	61,991	61,520	3,033	0	20	34	46		2	4	8	86	34	218	1.44	282.8
H		70	2S	67	2.1	6,077	5,949	293			53	47			4	4	92	38	367	2.07	16.2
H		70	3S	27		2,354	2,354	116		83	17				9	44	47	34	102	0.83	23.2
H		70	4S	6	15.5	606	511	25	23	77				29	44	15	12	23	24	0.46	21.0
<b>H</b>	<b>Totals</b>			12	2.5	9,037	8,814	435	1	27	40	32		2	8	15	75	31	146	1.13	60.4
A		70	2S	82		333	333	16			100					100		30	167	1.46	2.0
A		70	4S	18		73	73	4		100				100				18	37	0.70	2.0
<b>A</b>	<b>Totals</b>			1		406	406	20		18	82			18	82			24	102	1.17	4.0
<b>Type Totals</b>					1.0	71,433	70,740	3,487	1	21	35	44		2	5	9	84	33	204	1.39	347.2



Species, Sort Grade - Board Foot Volumes (Type)

Project: SHINGADI

T08N R06W S31 TTK02

T08N R06W S31 TTK02

Twp Rgc Sec Tract Type Acre Plots Sample Trees CuFt BdFt  
08N 06W 31 AREA2-TAKE TK02 90.00 47 123 1 W

Spp	Sp	So	Gr	%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log			Logs Per /Acre					
									Net BdFt	Def%	Gross	Net	Net MBF	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		?	?		00.0	224												12	0.00	6.3					
H		?	2S	40	.9	5,803	5,751	518		5	82	14		4	2	22	71	35	236	1.55	24.3				
H		?	3S	49	2.0	7,274	7,130	642		91	9			2	0	35	63	36	96	0.71	74.6				
H		?	4S	11	6.0	1,685	1,584	143		100				51	46	2		19	25	0.41	62.6				
<b>H Totals</b>				62	3.5	14,986	14,465	1,302		57	37	5		8	6	26	60	29	86	0.77	167.8				
D		?	?		00.0	90												2	0.00	3.0					
D		?	2S	76	1.5	5,760	5,677	511		3	61	36			3	10	87	38	321	1.97	17.7				
D		?	3S	20		1,495	1,495	135		89	11				12	20	68	35	105	0.84	14.3				
D		?	4S	4		326	326	29		100				42	49	9		18	25	0.46	13.0				
<b>D Totals</b>				32	2.3	7,671	7,498	675		24	49	27		2	6	12	79	30	156	1.31	48.0				
A		?	?		00.0	55												8	0.00	.4					
A		?	2S	46		607	607	55			80	20				100		40	283	1.91	2.1				
A		?	3S	40		526	526	47		52	48			3		4	93	37	164	1.31	3.2				
A		?	4S	15		197	197	18		100				23	64	13		25	38	0.62	5.2				
<b>A Totals</b>				6	3.9	1,385	1,331	120		35	55	9		4	9	4	83	31	122	1.19	10.9				
S		DO	3S	91	9.7	203	183	16		100						100		32	71	0.69	2.6				
S		DO	4S	9		18	18	2		100				100				18	30	0.56	.6				
<b>S Totals</b>				1	8.9	221	202	18		100				9		91		29	63	0.67	3.2				
<b>Type Totals</b>					3.2	24,264	23,495	2,115		46	42	13		6	6	21	67	29	102	0.91	229.9				

T08N R06W S31 T0003

T08N R06W S31 T0003

Twp	Rge	Sec	Tract	Type	Acre	Plots	Sample Trees	CuFt	BdFt										
08N	06W	31	AREA3-ROW	0003	2.90	47	238	I	W										
Spp	So	Gr	%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln	Bd	CF/	
			Net				Net MBF	4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft	Lf	
H	70	7		100.0	257											10	0.00		8.4
H	70	2S	54	.9	14,502	14,368	42	3	74	24		2	4	14	79	37	272	1.69	52.8
H	70	3S	38	1.7	10,132	9,957	29	90	10			2	1	31	66	36	97	0.73	102.9
H	70	4S	8	5.2	2,236	2,120	6	100				53	45	2		19	26	0.42	82.9
<b>H Totals</b>			50	2.5	27,127	26,446	77	44	44	13		6	6	20	68	30	107	0.90	247.0
D	70	?		100.0	137											3	0.00		3.7
D	70	2S	85	1.0	20,298	20,099	58	1	41	58		0	1	7	91	38	405	2.32	49.7
D	70	3S	12	.3	2,760	2,751	8	92	8			1	17	30	53	33	102	0.90	27.1
D	70	4S	2		560	560	2	100				54	41	5		18	27	0.50	20.6
D	?	SM	1		228	228	1			100		44	56			21	356	3.42	.6
<b>D Totals</b>			44	1.4	23,982	23,638	69	14	36	50		2	5	10	84	32	232	1.70	101.7
C	70	2S	9		113	113	0		20	80				20	80	36	475	4.58	.2
C	70	3S	52		638	638	2	89	11					28	72	37	95	1.00	6.7
C	70	4S	39	1.2	477	471	1	10	90			53	47			21	25	0.54	18.6
<b>C Totals</b>			2	.5	1,228	1,222	4	4	81	8	7	20	18	16	45	25	48	0.77	23.5
A	70	?		100.0	57											8	0.00		.4
A	70	2S	39		632	632	2		80	20				100		40	283	1.91	2.2
A	70	3S	49	.9	808	801	2	48	33	19		2		3	95	38	179	1.44	4.5
A	70	4S	13		205	205	1	100				23	64	13		25	38	0.62	5.4
<b>A Totals</b>			3	3.8	1,703	1,639	5	36	47	17		4	8	3	85	31	131	1.26	12.5
SN	?	?		100.0	202											45	0.00		2.9
<b>SN Totals</b>				100.0	202											45	0.00		2.9
S	70	2S	30	9.9	116	105	0			100				100		40	910	7.12	.1
S	?	3S	65	7.2	244	226	1	77	23				5	72	23	32	90	0.81	2.5
S	?	4S	5		16	16	0	100				100				18	30	0.56	.5
<b>S Totals</b>			1	7.7	376	347	1	35	45			5	3	47	45	30	109	1.09	3.2
<b>Type Totals</b>				2.4	54,618	53,291	155	0	31	39	29	4	6	15	75	30	136	1.12	392.8

TC TSTATS		STATISTICS						PAGE 1		
		PROJECT SHINGADI						DATE 2/14/2005		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
08N	07W	36	AREATAKE	TK01	49.30	39	262	1	W	
				TREES	ESTIMATED		PERCENT			
				PER PLOT	TOTAL		SAMPLE			
					TREES		TREES			
TOTAL	39	262	6.7							
CRUISE	19	130	6.8		6,539		2.0			
DBH COUNT										
REFOREST										
COUNT	20	132	6.6							
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	106	98.5	22.1	100		262.4	61,991	61,520	13,798	13,798
WHEMLOCK	21	32.1	16.8	61		49.3	9,037	8,814	2,148	2,148
R ALDER	3	2.0	18.2	50		3.6	406	406	113	113
<b>TOTAL</b>	<b>130</b>	<b>132.6</b>	<b>20.9</b>	<b>90</b>		<b>315.3</b>	<b>71,433</b>	<b>70,740</b>	<b>16,059</b>	<b>16,059</b>
	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	VAR.	S.E.%	LOW	AVG	HIGH					
DOUG FIR	43.3	6.9	92	99	105	5	10			15
WHEMLOCK	118.3	19.0	26	32	38					
R ALDER	624.5	100.0		2	4					
<b>TOTAL</b>	<b>43.9</b>	<b>7.0</b>	<b>123</b>	<b>133</b>	<b>142</b>	<b>77</b>	<b>19</b>			<b>9</b>
	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	VAR.	S.E.%	LOW	AVG	HIGH					
DOUG FIR	36.4	5.8	247	262	278	5	10			15
WHEMLOCK	109.0	17.5	41	49	58					
R ALDER	624.5	100.0	0	4	7					
<b>TOTAL</b>	<b>39.7</b>	<b>4.9</b>	<b>300</b>	<b>315</b>	<b>331</b>	<b>38</b>	<b>9</b>			<b>4</b>
	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	VAR.	S.E.%	LOW	AVG	HIGH					
DOUG FIR	36.6	5.9	57,913	61,520	65,128	5	10			15
WHEMLOCK	114.2	18.3	7,201	8,814	10,426					
R ALDER	624.5	100.0		406	811					
<b>TOTAL</b>	<b>29.4</b>	<b>4.7</b>	<b>67,411</b>	<b>70,740</b>	<b>74,068</b>	<b>35</b>	<b>9</b>			<b>4</b>

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT SHINGADI				DATE	2/14/2005	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
08N	07W	36	AREA1LEAVE	LV01	49.30	39	17	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		39	17	.4						
CRUISE		6	8	1.3	505	1.6				
DBH COUNT										
REFOREST										
COUNT		5	9	1.8						
BLANKS		28								
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
SNAG	5	8.2	16.5	55		12.0	333	333	92	92
DOUGLEAV	1	1.2	30.0	110		6.0	1,496	1,496	313	313
CEDLEAV	2	.9	22.7	49		2.4	135	135	64	64
<b>TOTAL</b>	<b>8</b>	<b>10.2</b>	<b>19.1</b>	<b>61</b>		<b>20.5</b>	<b>1,964</b>	<b>1,964</b>	<b>469</b>	<b>469</b>
	COEFF VAR.	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
SNAG	251.9	40.3	5	8	11					
DOUGLEAV	407.3	65.2	0	1	2					
CEDLEAV	624.5	100.0		1	2					
<b>TOTAL</b>	<b>208.3</b>	<b>33.3</b>	<b>7</b>	<b>10</b>	<b>14</b>	<b>1,735</b>	<b>434</b>	<b>193</b>		
	COEFF VAR.	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
SNAG	213.9	34.3	8	12	16					
DOUGLEAV	407.3	65.2	2	6	10					
CEDLEAV	624.5	100.0		2	5					
<b>TOTAL</b>	<b>180.8</b>	<b>28.9</b>	<b>15</b>	<b>20</b>	<b>26</b>	<b>1,307</b>	<b>327</b>	<b>145</b>		
	COEFF VAR.	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
SNAG	343.3	55.0	150	333	516					
DOUGLEAV	407.3	65.2	520	1,496	2,471					
CEDLEAV	624.5	100.0		135	271					
<b>TOTAL</b>	<b>315.5</b>	<b>50.5</b>	<b>972</b>	<b>1,964</b>	<b>2,956</b>	<b>3,981</b>	<b>995</b>	<b>442</b>		

TC TSTATS			STATISTICS				PAGE 1			
			PROJECT SHINGADI				DATE 2/22/2005			
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
08N	06W	31	AREA2-TAKE	TK02	90.00	47	212	1	W	
			TREES	ESTIMATED	PERCENT					
			PER PLOT	TOTAL	SAMPLE					
				TREES	TREES					
TOTAL	47	212	4.5							
CRUISE	25	123	4.9	10,698		1.1				
DBH COUNT										
REFOREST										
COUNT	20	84	4.2							
BLANKS	2									
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
WHEMLOCK	79	91.5	14.0	56		97.3	14,986	14,465	3,787	3,734
DOUG FIR	32	18.9	19.8	77		40.3	7,671	7,498	1,876	1,859
R ALDER	10	5.9	18.9	59		11.4	1,385	1,331	408	398
S SPRUCE	2	2.6	12.4	37		2.1	221	202	63	63
<b>TOTAL</b>	<b>123</b>	<b>118.9</b>	<b>15.3</b>	<b>59</b>		<b>151.2</b>	<b>24,264</b>	<b>23,495</b>	<b>6,133</b>	<b>6,054</b>
	COEFF			TREES/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1	VAR.	S.E.%	LOW	AVG	HIGH		5	10	15	
WHEMLOCK	88.7	12.9	80	91	103					
DOUG FIR	130.6	19.0	15	19	23					
R ALDER	277.1	40.4	4	6	8					
S SPRUCE	423.8	61.8	1	3	4					
<b>TOTAL</b>	<b>64.6</b>	<b>9.4</b>	<b>108</b>	<b>119</b>	<b>130</b>		<b>167</b>	<b>42</b>	<b>19</b>	
	COEFF			BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1	VAR.	S.E.%	LOW	AVG	HIGH		5	10	15	
WHEMLOCK	72.1	10.5	87	97	107					
DOUG FIR	128.5	18.7	33	40	48					
R ALDER	301.8	44.0	6	11	16					
S SPRUCE	387.1	56.5	1	2	3					
<b>TOTAL</b>	<b>47.8</b>	<b>7.0</b>	<b>141</b>	<b>151</b>	<b>162</b>		<b>91</b>	<b>23</b>	<b>10</b>	
	COEFF			NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1	VAR.	S.E.%	LOW	AVG	HIGH		5	10	15	
WHEMLOCK	75.7	11.0	12,868	14,465	16,061					
DOUG FIR	133.7	19.5	6,036	7,498	8,961					
R ALDER	308.9	45.1	731	1,331	1,930					
S SPRUCE	387.2	56.5	88	202	315					
<b>TOTAL</b>	<b>55.0</b>	<b>8.0</b>	<b>21,609</b>	<b>23,495</b>	<b>25,381</b>		<b>121</b>	<b>30</b>	<b>13</b>	

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
08N	06W	31	AREA2-LEAVE	LV02	90.00	47	230	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	47	230	4.9		
CRUISE	24	115	4.8	6,629	1.7
DBH COUNT					
REFOREST					
COUNT	23	115	5.0		
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
DOUGLEAV	54	17.5	27.4	106		71.5	16,341	16,171	3,612	3,604
HEMLEAV	33	26.7	20.4	91		60.8	12,988	12,879	3,057	3,057
CEDLEAV	22	22.6	13.6	29		22.9	1,228	1,222	493	493
SNAG	3	5.8	13.4	59		5.7	202		55	
ALDRLEAV	2	.9	23.9	59		2.9	312	303	96	96
SPRUCELV	1	.1	39.0	105		.7	134	126	36	36
<b>TOTAL</b>	<b>115</b>	<b>73.7</b>	<b>20.2</b>	<b>73</b>		<b>164.5</b>	<b>31,205</b>	<b>30,701</b>	<b>7,350</b>	<b>7,286</b>

SD:	1	COEFF VAR.	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.
				LOW	AVG	HIGH	5	10	15
DOUGLEAV		66.7	9.7	16	17	19			
HEMLEAV		72.0	10.5	24	27	30			
CEDLEAV		167.0	24.4	17	23	28			
SNAG		260.3	38.0	4	6	8			
ALDRLEAV		332.0	48.4	0	1	1			
SPRUCELV		685.6	100.0	0	0	0			
<b>TOTAL</b>		<b>43.5</b>	<b>6.3</b>	<b>69</b>	<b>74</b>	<b>78</b>	<b>76</b>	<b>19</b>	<b>8</b>

SD:	1	COEFF VAR.	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.
				LOW	AVG	HIGH	5	10	15
DOUGLEAV		58.5	8.5	65	72	78			
HEMLEAV		68.8	10.0	55	61	67			
CEDLEAV		165.2	24.1	17	23	28			
SNAG		254.6	37.1	4	6	8			
ALDRLEAV		331.4	48.3	1	3	4			
SPRUCELV		685.6	100.0	0	1	1			
<b>TOTAL</b>		<b>14.9</b>	<b>2.2</b>	<b>161</b>	<b>164</b>	<b>168</b>	<b>9</b>	<b>2</b>	<b>1</b>

SD:	1	COEFF VAR.	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
				LOW	AVG	HIGH	5	10	15
DOUGLEAV		58.0	8.5	14,802	16,171	17,540			
HEMLEAV		69.7	10.2	11,570	12,879	14,188			
CEDLEAV		183.9	26.8	894	1,222	1,550			
SNAG									
ALDRLEAV		346.4	50.5	150	303	456			
SPRUCELV		685.6	100.0		126	252			
<b>TOTAL</b>		<b>23.1</b>	<b>3.4</b>	<b>29,667</b>	<b>30,701</b>	<b>31,736</b>	<b>21</b>	<b>5</b>	<b>2</b>

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT SHINGADI				DATE 2/22/2005		
TWP RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
08N	06W	31 AREA2	0002	90.00	47	442	1	W		
	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL	47	442	9.4							
CRUISE	25	238	9.5	17,327	1.4					
DBH COUNT										
REFOREST										
COUNT	22	194	8.8							
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
WHEMLOCK	79	91.5	14.0	56		97.3	14,986	14,465	3,787	3,734
DOUGLEAV	54	17.5	27.4	106		71.5	16,341	16,171	3,612	3,604
HEMLEAV	33	26.7	20.4	91		60.8	12,988	12,879	3,057	3,057
DOUG FIR	32	18.9	19.8	77		40.3	7,671	7,498	1,876	1,859
CEDLEAV	22	22.6	13.6	29		22.9	1,228	1,222	493	493
R ALDER	10	5.9	18.9	59		11.4	1,385	1,331	408	398
SNAG	3	5.8	13.4	59		5.7	202		55	
ALDRLEAV	2	.9	23.9	59		2.9	312	303	96	96
S SPRUCE	2	2.6	12.4	37		2.1	221	202	63	63
SPRUCELV	1	.1	39.0	105		.7	134	126	36	36
<b>TOTAL</b>	<b>238</b>	<b>192.5</b>	<b>17.3</b>	<b>64</b>		<b>315.6</b>	<b>55,469</b>	<b>54,196</b>	<b>13,482</b>	<b>13,340</b>
SD:	1	COEFF VAR.	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
WHEMLOCK		88.7	12.9	80	91	103				
DOUGLEAV		66.7	9.7	16	17	19				
HEMLEAV		72.0	10.5	24	27	30				
DOUG FIR		130.6	19.0	15	19	23				
CEDLEAV		167.0	24.4	17	23	28				
R ALDER		277.1	40.4	4	6	8				
SNAG		260.3	38.0	4	6	8				
ALDRLEAV		332.0	48.4	0	1	1				
S SPRUCE		423.8	61.8	1	3	4				
SPRUCELV		685.6	100.0		0	0				
<b>TOTAL</b>		<b>41.3</b>	<b>6.0</b>	<b>181</b>	<b>193</b>	<b>204</b>	<b>68</b>	<b>17</b>	<b>8</b>	
SD:	1	COEFF VAR.	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
WHEMLOCK		72.1	10.5	87	97	107				
DOUGLEAV		58.5	8.5	65	72	78				
HEMLEAV		68.8	10.0	55	61	67				
DOUG FIR		128.5	18.7	33	40	48				
CEDLEAV		165.2	24.1	17	23	28				
R ALDER		301.8	44.0	6	11	16				
SNAG		254.6	37.1	4	6	8				
ALDRLEAV		331.4	48.3	1	3	4				
S SPRUCE		387.1	56.5	1	2	3				
SPRUCELV		685.6	100.0	0	1	1				
<b>TOTAL</b>		<b>23.2</b>	<b>3.4</b>	<b>305</b>	<b>316</b>	<b>326</b>	<b>21</b>	<b>5</b>	<b>2</b>	
SD:	1	COEFF VAR.	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
WHEMLOCK		75.7	11.0	12,868	14,465	16,061				
DOUGLEAV		58.0	8.5	14,802	16,171	17,540				
HEMLEAV		69.7	10.2	11,570	12,879	14,188				
DOUG FIR		133.7	19.5	6,036	7,498	8,961				

TC TSTATS		STATISTICS					PAGE 2		
		PROJECT SHINGADI					DATE 2/22/2005		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
08N	06W	31	AREA2	0002	90.00	47	442	1	W
SD: 1		COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
		VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
CEDLEAV		183.9	26.8	894	1,222	1,550			
R ALDER		308.9	45.1	731	1,331	1,930			
SNAG									
ALDRLEAV		346.4	50.5	150	303	456			
S SPRUCE		387.2	56.5	88	202	315			
SPRUCELV		685.6	100.0		126	252			
TOTAL		29.7	4.3	51,847	54,196	56,545	35	9	4



TC TSTATS				STATISTICS				PAGE 1		
				PROJECT SHINGADI				DATE 2/14/2005		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
08N	06W	31	AREA3-ROW	0003	2.90	47	442	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL	47	442	9.4							
CRUISE	25	238	9.5		579	41.1				
DBH COUNT										
REFOREST										
COUNT	22	194	8.8							
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
WHEMLOCK	112	125.3	15.2	61		158.0	27,127	26,446	6,682	6,622
DOUG FIR	86	36.5	23.7	91		111.8	23,982	23,638	5,485	5,459
WR CEDAR	22	22.6	13.6	29		22.9	1,228	1,222	493	493
R ALDER	12	6.9	19.5	59		14.3	1,703	1,639	505	495
SNAG	3	5.8	13.4	59		5.7	202		55	
S SPRUCE	3	2.4	14.8	41		2.9	376	347	103	103
<b>TOTAL</b>	<b>238</b>	<b>199.7</b>	<b>17.0</b>	<b>63</b>		<b>315.6</b>	<b>54,618</b>	<b>53,291</b>	<b>13,323</b>	<b>13,173</b>
	COEFF VAR.	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
WHEMLOCK	68.8	10.0	113	125	138					
DOUG FIR	74.2	10.8	33	37	41					
WR CEDAR	167.0	24.4	17	23	28					
R ALDER	258.9	37.8	4	7	10					
SNAG	260.3	38.0	4	6	8					
S SPRUCE	420.8	61.4	1	2	4					
<b>TOTAL</b>	<b>38.1</b>	<b>5.6</b>	<b>189</b>	<b>200</b>	<b>211</b>	<b>58</b>	<b>15</b>	<b>6</b>		
	COEFF VAR.	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
WHEMLOCK	55.7	8.1	145	158	171					
DOUG FIR	70.3	10.2	100	112	123					
WR CEDAR	165.2	24.1	17	23	28					
R ALDER	280.4	40.9	8	14	20					
SNAG	254.6	37.1	4	6	8					
S SPRUCE	331.4	48.3	1	3	4					
<b>TOTAL</b>	<b>23.2</b>	<b>3.4</b>	<b>305</b>	<b>316</b>	<b>326</b>	<b>21</b>	<b>5</b>	<b>2</b>		
	COEFF VAR.	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
WHEMLOCK	58.0	8.5	24,208	26,446	28,683					
DOUG FIR	70.8	10.3	21,196	23,638	26,079					
WR CEDAR	183.9	26.8	894	1,222	1,550					
R ALDER	280.8	41.0	967	1,639	2,310					
SNAG										
S SPRUCE	345.0	50.3	172	347	522					
<b>TOTAL</b>	<b>31.8</b>	<b>4.6</b>	<b>50,816</b>	<b>53,291</b>	<b>55,766</b>	<b>41</b>	<b>10</b>	<b>5</b>		

**Stand Table Summary**

**Project SHINGADJ**

**T08N R06W S31 TLV02**

**T08N R06W S31 TLV02**

**Twp Rge Sec Tract Type Acres Plots Sample Trees**  
**08N 06W 31 AREA2-LEAVE LV02 90.00 47 115**

**Page: 1**  
**Date: 2/22/2000**  
**Time: 4:20:40PM**

S Spec	T	DBH	Sample Trees	FF 16'	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
									Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
DL		19	1	86	120	.673	1.32	2.02	30.7	116.7		62	235		56	21
DL		21	1	80	115	.551	1.32	1.65	34.0	116.7		56	193		51	17
DL		22	2	90	124	1.003	2.65	3.01	43.2	186.7		130	562		117	51
DL		23	3	87	130	1.377	3.97	4.13	46.9	196.7		194	812		174	73
DL		24	4	86	122	1.686	5.30	5.06	49.1	199.2		248	1,007		223	91
DL		25	7	88	127	2.719	9.27	7.77	58.1	244.5		451	1,900		406	171
DL		26	2	84	143	.718	2.65	2.87	46.9	208.8		135	600		121	54
DL		27	5	88	136	1.665	6.62	5.00	68.0	294.0		340	1,469		306	132
DL		28	2	87	143	.619	2.65	2.17	64.6	302.9		140	657		126	59
DL		29	3	87	149	.866	3.97	2.60	80.0	404.4		208	1,051		187	95
DL		30	5	84	145	1.349	6.62	4.05	86.9	392.0		352	1,586		316	143
DL		31	4	84	140	1.011	5.30	3.03	90.0	395.8		273	1,200		246	108
DL		32	5	85	146	1.186	6.62	3.32	97.9	465.0		325	1,544		292	139
DL		33	3	86	142	.669	3.97	2.01	104.1	493.3		209	990		188	89
DL		34	4	85	150	.840	5.30	2.73	106.2	523.8		290	1,430		261	129
DL		36	2	87	125	.375	2.65	1.12	111.7	538.3		126	605		113	54
DL		39	1	86	132	.160	1.32	.48	138.7	690.0		66	330		60	30
DL		Totals	54	86	134	17.466	71.51	53.01	68.0	305.1		3,604	16,171		3,243	1,455
HL		14	1	89	75	1.723	1.84	3.45	18.0	70.0		62	241		56	22
HL		16	2	89	108	2.638	3.68	5.28	33.0	125.0		174	660		157	59
HL		17	1	88	101	1.169	1.84	2.34	36.0	125.0		84	292		76	26
HL		18	4	88	121	4.169	7.37	12.51	31.3	127.5		392	1,595		353	144
HL		19	2	89	110	1.871	3.68	4.68	38.6	152.0		181	711		162	64
HL		20	3	89	118	2.533	5.53	6.75	41.8	173.8		282	1,174		254	106
HL		21	5	89	106	3.829	9.21	8.42	48.9	198.2		412	1,669		371	150
HL		22	4	88	126	2.791	7.37	8.37	47.6	200.8		398	1,682		359	151
HL		23	3	92	119	1.915	5.53	5.75	50.2	224.4		289	1,290		260	116
HL		24	3	89	119	1.759	5.53	5.28	55.2	240.0		291	1,266		262	114
HL		25	1	88	126	.540	1.84	1.62	61.7	250.0		100	405		90	36
HL		26	1	88	134	.500	1.84	1.50	70.0	316.7		105	475		94	43
HL		27	1	92	111	.463	1.84	1.39	65.7	323.3		91	449		82	40
HL		28	1	89	135	.431	1.84	1.29	82.3	396.7		106	513		96	46
HL		30	1	92	108	.375	1.84	1.13	79.7	406.7		90	458		81	41
HL		Totals	33	89	113	26.706	60.78	69.75	43.8	184.7		3,057	12,879		2,752	1,159
CL		10	2	82	42	3.976	2.08	3.98	8.5	20.0		34	80		30	7
CL		11	3	76	40	4.728	3.12	4.73	11.0	30.0		52	142		47	13
CL		12	3	76	26	3.973	3.12	3.97	10.3	23.3		41	93		37	8
CL		14	4	78	57	3.892	4.16	4.87	18.6	44.0		90	214		81	19
CL		15	2	81	38	1.755	2.08	1.75	19.2	45.5		34	80		30	7
CL		16	1	68	43	.745	1.04	.74	25.0	30.0		19	22		17	2
CL		17	2	83	90	1.320	2.08	1.98	34.7	106.7		69	211		62	19
CL		18	2	77	82	1.177	2.08	1.77	35.0	80.0		62	141		56	13
CL		19	1	78	49	.528	1.04	.53	38.0	60.0		20	32		18	3
CL		21	1	77	88	.432	1.04	.86	37.5	105.0		32	91		29	8
CL		40	1	68	113	.119	1.04	.36	114.3	326.7		41	117		37	11
CL		Totals	22	78	47	22.646	22.88	25.54	19.3	47.9		493	1,222		444	110
AL		23	1	86	56	.496	1.43	.50	73.0	180.0		36	89		33	8
AL		25	1	87	93	.420	1.43	.84	71.5	255.0		60	214		54	19
AL		Totals	2	86	73	.915	2.86	1.33	72.1	227.1		96	303		87	27

TC TSTNDSUM

**Stand Table Summary**

**Project SHINGADJ**

**T08N R06W S31 TLV02**

**T08N R06W S31 TLV02**

**Twp Rge Sec Tract Type Acres Plots Sample Trees**  
**08N 06W 31 AREA2-LEAVE LV02 90.00 47 115**

**Page: 2**  
**Date: 2/22/2001**  
**Time: 4:20:40PM**

S Spc	T	Sample		Av	Trees/ BA/		Logs Acres	Average Log		Net Tons/ Acres	Net Cu.Ft. Acres	Net Bd.Ft. Acres	Totals			
		DBH	Trees	16'	Tot	Acres		Acres	Net Cu.Ft.				Net Bd.Ft.	Tons	Cunits	MBF
SL		39	1	72	129	.086	.72	.26	137.7	486.7	36	126			32	11
SL		Totals	1	72	129	.086	.72	.26	137.7	486.7	36	126			32	11
SN		11	1	92	76	2.890	1.91									
SN		14	1	89	60	1.734	1.91									
SN		17	1	89	90	1.210	1.91									
SN		Totals	3	90	74	5.833	5.72									
Totals			115	85	94	73.654	164.47	149.89	48.6	204.8	7286	30,701			6,557	2,763





Log Stock Table - MBF

T08N R06W S31 TyTK02 90.00  
 T08N R06W S31 Ty0003 2.90  
 T08N R07W S36 TyTK01 49.30

Project: SHINGADJ  
 Acres 142.20

Page 3  
 Date 2/22/2005  
 Time 4:22:11PM

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		70	2S	16	0	15.5	0	.0						0		0						
D		70	2S	24	19	23.6	15	.4						6		0		8				
D		70	2S	26	3		3	.1						3								
D		?	2S	28	0		0	.0						0								
D		70	2S	29	2		2	.1						2								
D		70	2S	31	2		2	.1						2								
D		70	2S	32	104		103	2.7					0	47	10	45	1					
D		70	2S	34	18		18	.5					3			16						
D		70	2S	40	2,702		2,684	71.1					36	415	601	905	583	124	21			
D		70	3S	15	1		1	.0						1								
D		70	3S	19	1		1	.0						1								
D		70	3S	20	0		0	.0						0								
D		70	3S	21	3		3	.1					2	2	0							
D		70	3S	22	6		6	.2					2			4						
D		70	3S	24	12		12	.3					5	7								
D		70	3S	25	5		5	.1					5	0								
D		?	3S	26	0		0	.0					0									
D		70	3S	27	7		7	.2					2	5								
D		70	3S	28	10		10	.3					2	3	0	4						
D		70	3S	30	5		5	.1					2	2								
D		70	3S	32	147	1.5	144	3.8					12	49	71	6	6					
D		70	3S	33	10		10	.3					4	6	0							
D		70	3S	34	8		8	.2						8								
D		70	3S	35	4		4	.1					4	0								
D		70	3S	36	6	10.1	6	.1					5	0								
D		70	3S	37	22		22	.6					5	9	7							
D		70	3S	38	3		3	.1						3								
D		70	3S	40	430		427	11.3					23	144	234	14	11					
D		70	4S	12	6		6	.2					4	1	1							
D		70	4S	13	2		2	.0						1	0							
D		70	4S	14	5		5	.1					3	1	1							
D		70	4S	15	3		3	.1					2	1								
D		70	4S	16	16	2.0	15	.4					11	4								
D		70	4S	17	10		10	.3					2	8								
D		70	4S	18	5		5	.1						4	1							
D		70	4S	19	12	2.8	12	.3						5	6							

Log Stock Table - MBF

T08N R06W S31 TyTK02	90.00
T08N R06W S31 Ty0003	2.90
T08N R07W S36 TyTK01	49.30

Project: SHINGADJ  
Acres 142.20

Page 4  
Date 2/22/2005  
Time 4:22:11PM

S T	So Gr	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	70	4S	20	2		2	.0			0	2							
D	70	4S	21	5		5	.1			2	3							
D	70	4S	22	12		12	.3			12								
D	70	4S	23	5		5	.1			2	3							
D	70	4S	24	8		8	.2			5	3							
D	70	4S	26	2		2	.0			2								
D	70	4S	27	6		6	.2			6								
D	70	4S	28	2		2	.1			2								
D	70	4S	29	5		5	.1			5								
D	70	4S	30	2	25.0	2	.0			2								
D	70	4S	31	3		3	.1			3								
D	70	4S	32	3		3	.1			3								
D	70	4S	36	6		6	.2		6									
D	70	4S	40	3		3	.1		3									
D	70	SM	17	0		0	.0									0		
D	70	SM	24	65		65	1.7							39		26		
D	70	SM	32	32		32	.8							16		16		
D	70	SM	40	60	1.7	59	1.6							41		18		
D		Totals		3,816	1.0	3,776	65.6		12	140	266	368	501	621	1072	653	124	21
SN	?	?	45	1	100.0													
SN		Totals		1	100.0													
S	70	2S	40	0	9.9	0	1.6										0	
S	70	3S	22	0		0	.2				0							
S	?	3S	32	19	9.7	17	88.7			9		8						
S	70	3S	40	0		0	.8								0			
S	?	4S	18	2		2	8.8			2								
S		Totals		21	8.8	19	.3			11		8			0		0	
C	70	2S	32	0		0	1.9					0						
C	70	2S	40	0		0	7.4									0		
C	?	3S	32	1		1	14.6			0	0		0					
C	70	3S	36	1		1	14.6			0		0						
C	70	3S	40	1		1	23.0			0		1						
C	70	4S	15	0		0	2.2			0								
C	?	4S	16	0		0	5.9			0	0							

**Log Stock Table - MBF**

T08N R06W S31 TyFK02	90.00
T08N R06W S31 Ty0003	2.90
T08N R07W S36 TyTK01	49.30

**Project: SHINGADJ**  
**Acres 142.20**

**Page 5**  
**Date 2/22/2005**  
**Time 4:22:11PM**

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+	
C		?	4S	18	0		0	3.8		0											
C		?	4S	19	0		0	1.6			0										
C		?	4S	20	0		0	6.8			0										
C		?	4S	24	0		0	13.4			0										
C		?	4S	28	0		0	3.4			0										
C		?	4S	29	0	25.0	0	1.4			0										
C		Totals			4		4	.1		0	2	0	1	0			0				
Total		All Species			5,864	1.8	5,757	100.0		18	476	550	713	926	878	1338	692	145			21



**CRUISE DESIGN  
ASTORIA DISTRICT**

**Sale Name:** Shingle Mill Road **Area(s)** 1

**Harvest Type:** MC PC CT "Automark Thinning" (circle one)

**Approx. Cruise Acres:** 50 **Estimated CV%** 42 Net BF or **SE% Objective** 9 Net BF or  
BA/Acre BA/Acre

**Planned Sale Volume:** 3775 **MMBF** **Estimated Sale Area Value/Acre:** \$20,760

- A. Cruise Goals:** (a) Grade minimum 100 conifer and 10 hardwood trees:  
 (b) Sample 37 cruise plots (20 grade/17count); (c) Other goals X Determine log grades for sale value; X Determine snag and leave tree species and sizes;

**B. Cruise Design:**

- 1. Plot Cruises:** BAF 46 (Full point; Half point) (circle one)  
 Cruise Line Direction(s) East & West  
 Cruise Line Spacing 3.5 (chains)  
 Cruise Plot Spacing 3.5 (chains)  
 Grade/Count Ratio 1:2

Cruise all cedar and marked "Wildlife" trees as "Leave" trees (i.e. DL, CL, etc.). Cruise all snags over 15" DBH, record diameter and merchantable height. Snags are recorded SN in the species column. Watch for higher than normal grades especially in the thinned portion of the stand. Do not take plots in stream buffers shown on cruise map.

**C. Tree Measurements:**

- 1. Diameter:** Minimum DBH to cruise is 8 " for conifers and 10" for hardwoods. Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7 " or 40% of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.
- 5. Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to

maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.

- 6. Species, Sort, and Grade Codes:** A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)  
B. Sort: Use code "1" (Domestic).  
C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull

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

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

ITS and 100% Cruises: Mark cruise "strips" with various colored flagging (not pink). Mark trees measured and graded with yellow paint.

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

**10. Attachments:** A. Cruise Map (showing cruise unit boundaries, 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).

B. Data Recorder Instructions

C. Other

Cruise Design by: Eric W Parkin

Approved by: \_\_\_\_\_

Date: \_\_\_\_\_

**CRUISE DESIGN  
ASTORIA DISTRICT**

Sale Name: Shingle Mill Road Area(s) 2

Harvest Type: CC PC CT "Automark Thinning" (circle one)

Approx. Cruise Acres: 80 Estimated CV% 42 Net BF or SE% Objective 7 Net BF or  
BA/Acre BA/Acre

Planned Sale Volume: 4740 MMBF Estimated Sale Area Value/Acre: \$16,500

A. **Cruise Goals:** (a) Grade minimum 100 conifer and 20 hardwood trees:  
(b) Sample 42 cruise plots (22 grade/20 count); (c) Other goals ( X Determine  
"automark" thinning standards; X Determine log grades for sale value; X Determine  
snag and leave tree species and sizes; )

**B. Cruise Design:**

1. **Plot Cruises:** BAF 33.6 (Full point; Half point) (circle one)  
Cruise Line Direction(s) East & West  
Cruise Line Spacing 4.5 (chains)  
Cruise Plot Spacing 4.5 (chains)  
Grade/Count Ratio 1:2

Cruise all cedar as "Leave" trees (i.e. CL). Cruise all snags over 15" DBH, record diameter and merchantable height. Snags are recorded SN in the species column. Watch for higher than normal grades especially in the thinned portion of the stand. Cruise through the alder with the same parameters as the conifer. Cedar and alder do count toward the residual basal area. We are leaving 160 square feet of basal area of the "Biggest and Best". That means we need to leave 4 to 5 trees per plot with this BAF.

**C. Tree Measurements:**

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

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

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

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

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

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

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

ITS and 100% Cruises: Mark cruise "strips" with various colored flagging (not pink). Mark trees measured and graded with yellow paint.

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

10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, 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.

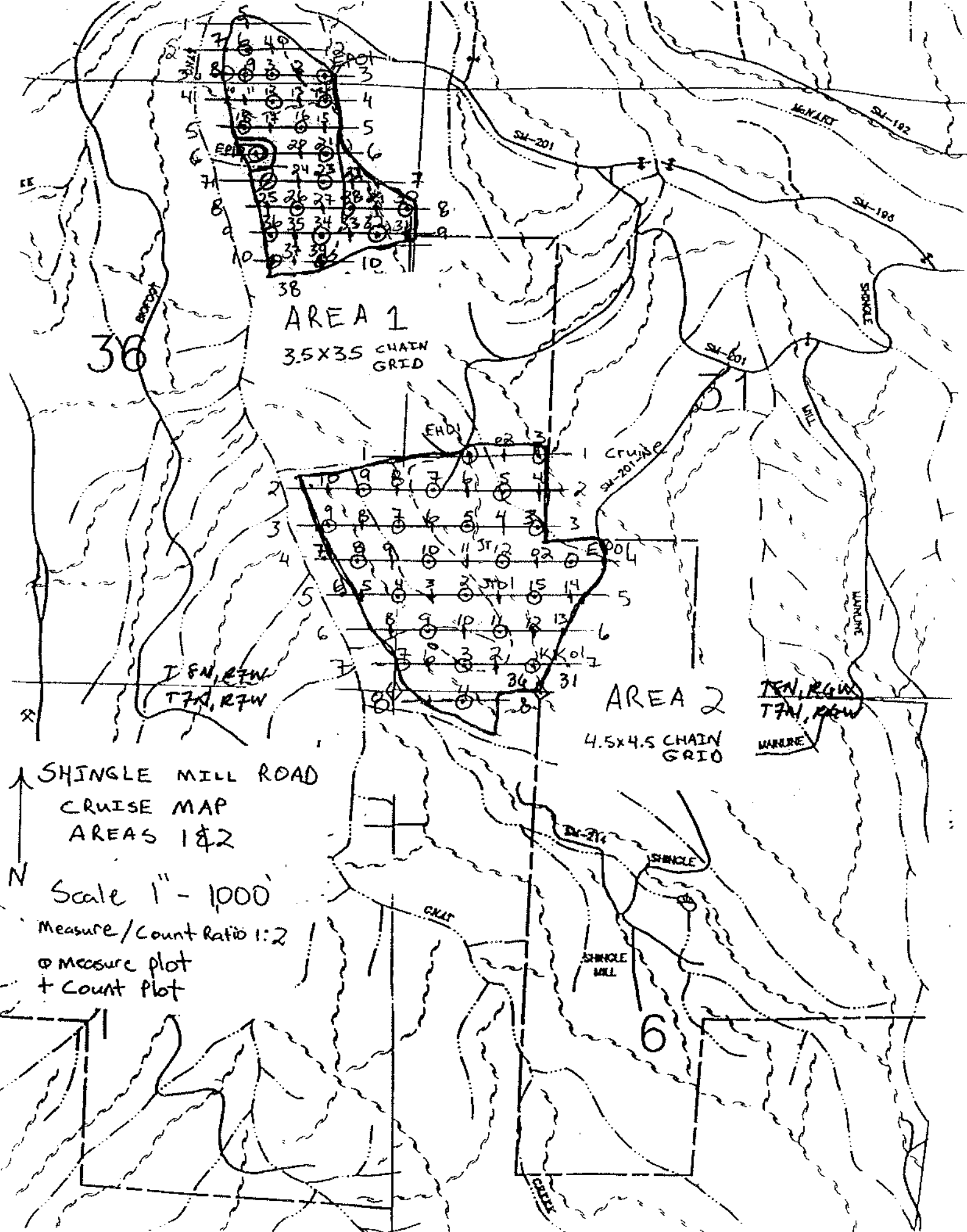
B. Data Recorder Instructions

C. Other

Cruise Design by: Eric W. Perkins

Approved by: \_\_\_\_\_

Date: \_\_\_\_\_



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**AREA 1**  
 3.5x3.5 CHAIN GRID

**AREA 2**  
 4.5x4.5 CHAIN GRID

SHINGLE MILL ROAD  
 CRUISE MAP  
 AREAS 1 & 2

N  
 Scale 1" - 1000'  
 Measure/Count Ratio 1:2  
 ⊙ Measure plot  
 + Count Plot

