



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Thors Summit
Sale TL-341-2019-036-

District: Tillamook

Date: August 28, 2018

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$4,113,735.77	\$60,709.87	\$4,174,445.64
		Project Work:	(\$1,008,960.00)
		Advertised Value:	\$3,165,485.64



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Timber Description

Location: Portions of Sections 29, 31, and 32, T2S, R7W, Sections 5 and 6, T3S, R7W, and Section 1, T3S, R8W, W.M., Tillamook County, Oregon

Stand Stocking: 60%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	17	0	95
Western Hemlock / Fir	18	0	95
Alder (Red)	17	0	90

Volume by Grade	2S	3S & 4S 6"-11"	8" - 9"	10" - 11"	12"+	6" - 7"	Total
Douglas - Fir	4,489	5,610	0	0	0	0	10,099
Western Hemlock / Fir	132	67	0	0	0	0	199
Alder (Red)	0	0	15	83	20	51	169
Total	4,621	5,677	15	83	20	51	10,467

Comments: Local Pond Values Used: August, 2018

Western Red Cedar and Other Cedars Stumpage Price = Pond Value – Logging Cost
\$1,300/MBF - \$350/MBF = \$950/MBF

Pulp (Conifer and Hardwood) Price = \$ 25/ MBF

BRAND AND PAINT ALLOWANCE = \$2.00/ MBF

FUEL COST ALLOWANCE = \$3.00/ Gallon

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

Other Costs with Profit and Risk to be added:

Snag creation: (Area 1: 130 snags, Area 2: 206 snags, Area 3: 112 snags, Area 4: 0 snags, Area 5: 116 snags) 564 snags x \$15/ snag = \$8,460

TOTAL Other Costs with profit and Risk to be added = \$8,460

Other Costs with No Profit and Risk Added:

Machine Cleaning: \$1000/machine x 2 machines = \$2,000

Slash piling and sorting (Cable Ground): \$5/ac x 304 ac = \$1,520

Heliport Construction: 8 hours machine loader time for slash moving @ \$140/ hour = \$ 1,120

Non-project Spur 1: \$150/station x 3+70 stations = \$555

Non-project Spur 2: \$350/station x 8+05 stations = \$2,818

Non-project Spur 3: \$250/station x 10+60 stations = \$2,650

Non-project Spur 2: pull back sidecast 3+00 stations x \$200/ station = \$600

Approach Rock (pit run) non-project roads: 100 cy/road x \$7.50/cy x 3 roads = \$2250

Road blocking 5 roads: \$50/ block x 5 roads = \$250

Area 4, Stimson Road Use Agreement: 2,013 MBF x \$1.40 = \$2,818

Ditch Cleaning and Bank Sluff Removal:

Mobilization: Twice – dump truck w/ tilt bed & small excavator: \$890 x 2 = \$1,780

Excavator (Cat 312 or equivalent): 40 hours @ \$135/ hour = \$5,400

Dump truck: 40 hours @ \$70/ hour = \$2,800

TOTAL Other Costs no Profit and Risk added = \$26,561

ROAD MAINTENANCE:

Portions of South Fork Trask, Boundary, Bales, Many Bucks, and in-unit roads.

Spot rocking: South Fork Trask Road 20cy/MMBF/mile x 10.5 MMBF x \$7.50/cy x 8.6 miles/ 10,467 MBF = \$1.29/MBF

Spot rocking: Boundary, Bales, Many Bucks and in-unit roads 30 cy/MMBF/mile x 10.5 MMBF x 0.5 not all volume is going over all the roads x \$7.50/cy x 10.8 miles/ 10, 467 MBF = \$ 1.22/MBF

Interm Grading, 5 times: \$400/ mile x 19.4 miles x 5 times/ 10,467 MBF = \$3.71/ MBF

Final Maintenance Grading: \$800 x 19.4 miles/ 10,467 MBF = \$1.48/ MBF

Final Maintenance Compaction: \$700/mile x 8.6 miles/ 10,467 MBF = \$ 0.58/ MBF

Total Road Maintenance: \$8.28/ MBF



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Logging Conditions

Combination#: 1 Douglas - Fir 70.03%

Logging System: Cable: Medium Tower >40 - <70 **Process:** Harvester Head Delimiting

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

tree size: Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF

loads / day: 6.00158 **bd. ft / load:** 3800

cost / mbf: \$341.15

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

Combination#: 2 Western Hemlock / Fir 70.23%

Logging System: Cable: Medium Tower >40 - <70 **Process:** Harvester Head Delimiting

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

tree size: Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF

loads / day: 7.8 **bd. ft / load:** 3800

cost / mbf: \$262.50

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

Combination#: 3 Alder (Red) 73.79%

Logging System: Cable: Medium Tower >40 - <70 **Process:** Harvester Head Delimiting

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

tree size: Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF

loads / day: 6.8 **bd. ft / load:** 3800

cost / mbf: \$301.10

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

Combination#: 4 Douglas - Fir 29.97%
Western Hemlock / Fir 29.77%
Alder (Red) 26.21%

Logging System: Shovel **Process:** Harvester Head Delimiting

yarding distance: Short (400 ft) **downhill yarding:** No

tree size: Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF

loads / day: 20 **bd. ft / load:** 3800

cost / mbf: \$70.32

machines: Forwarder
Harvester



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Logging Costs

Operating Seasons: 3.00	Profit Risk: 12%
Project Costs: \$1,008,960.00	Other Costs (P/R): \$8,460.00
Slash Disposal: \$0.00	Other Costs: \$26,561.00

Miles of Road

Road Maintenance: \$8.28

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

Hauling Costs

Species	\$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	\$0.00	3.0	4.6
Western Hemlock / Fir	\$0.00	3.0	4.2
Alder (Red)	\$0.00	3.0	3.2



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Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling / Brand & Paint	Other	Total
Douglas - Fir									
\$259.99	\$8.69	\$1.26	\$59.35	\$0.81	\$39.61	\$0.00	\$2.00	\$2.54	\$374.25
Western Hemlock / Fir									
\$205.28	\$8.69	\$1.26	\$65.00	\$0.81	\$33.72	\$0.00	\$2.00	\$2.54	\$319.30
Alder (Red)									
\$240.61	\$9.11	\$1.26	\$89.38	\$0.81	\$40.94	\$0.00	\$2.00	\$2.54	\$386.65

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$775.00	\$400.75	\$0.00
Western Hemlock / Fir	\$0.00	\$653.78	\$334.48	\$0.00
Alder (Red)	\$0.00	\$745.88	\$359.23	\$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
Alder (Red)	0	\$0.00	\$0.00

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	10,099	\$400.75	\$4,047,174.25
Western Hemlock / Fir	199	\$334.48	\$66,561.52
Alder (Red)	169	\$359.23	\$60,709.87

Gross Timber Sale Value

Recovery: \$4,174,445.64

Prepared By: David Wells

Phone: 503-842-2545

Move-In Calculations for Project Work not Involving Rocking/Pit Work

Sale: **Thor's Summit**

LOWBOY HAUL (Round Trip)		
DIST. (mi)	ROADWAY	AVE SPEED (mph)
26.0	Pavement	30
14.0	Main Lines	7
0.0	Steep Grades	2

No.	EQUIPMENT DESCRIPTION	Move in Cost	Pilot Cars	Within Area Move (\$/mile)	Begin Mileage	End Mileage	Total Miles	Within Area Cost	Total Cost
1	Brush Cutter	\$461.53		\$4.00	0.00	0.00	0	\$0.00	\$461.53
1	Graders	\$516.00		\$3.65	0.00	0.00	0	\$0.00	\$516.00
1	Rollers (smooth/grid) & Compactors	\$501.78		\$5.00	0.00	0.00	0	\$0.00	\$501.78
1	Excavators (Large)	\$696.13	1	\$44.80	0.00	18.00	18	\$806.40	\$1,502.53
1	Tractors (D6)	\$536.82	0	\$7.10	0.00	18.00	18	\$127.80	\$664.62
2	Dump Truck (Off Hiway)	\$2,111.02	1	\$4.75	0.00	18.00	18	\$171.00	\$2,282.02
TOTAL MOVE-IN COSTS:								\$5,928.48	

ROCK PIT DEVELOPMENT AND CRUSHING COST SUMMARY

General Information

Pit:	Property Line	Location:	Sec. 1, T3S, R7W, W.M.
Sale:	Thor's Summit	Road:	20645 c.y.
Swell:	1.40	Stockpile:	4000 c.y.
Shrinkage:	1.16	Total Truck Loads:	24645 c.y.
Drill Pct.:	100%	In Place Total:	17604 c.y.

Manufacturing

Drill & Shoot:	\$2.50 /cu.yd.
Rip Rock:	\$1.90 /cu.yd.
Push Rock:	\$0.70 /cu.yd.
Load Crusher:	\$0.70 /cu.yd.
Crush Rock(1 1/2"):	\$4.15 /cu.yd.
Crush Rock(2 1/2"):	\$3.60 /cu.yd.
Crush Rock(4"):	\$2.35 /cu.yd.
Load Dump Truck:	\$0.70 /cu.yd.
Override Reduction:	\$0.45 /cu.yd.
Sorting:	\$0.25 /cu.yd.

Move In / Set Up

Move In/Set-up Jaw	1	@	\$3,000.00	=	\$3,000.00
Move In/Set-up Crusher	1	@	\$3,000.00	=	\$3,000.00
Move In and set up Drill and Compressor	1	@	\$300.00	=	\$300.00
Move in Roller and Compactor	1	@	\$300.00	=	\$300.00
Move in Grader	1	@	\$100.00	=	\$100.00
Move in D-8	1	@	\$500.00	=	\$500.00
Move in Loader	1	@	\$500.00	=	\$500.00
Move in Excavator	1	@	\$500.00	=	\$500.00
Move in Trucks	4	@	\$90.00	=	\$360.00
Move in Water Truck	1	@	\$90.00	=	\$90.00

Subtotal \$8,650.00
Per Cubic Yard: \$0.42

Base Cost 1 1/2"=	\$9.62	Per Cu.Yd.	@	cuyds
Base Cost 2 1/2"=	\$9.07	Per Cu.Yd.	@	cuyds
Base Cost 4"=	\$7.82	Per Cu.Yd.	@	cuyds
Base Cost 6"=	\$3.72	Per Cu.Yd.	@	cuyds
Base Cost 12"-6"=	\$4.57	Per Cu.Yd.	@	cuyds
Base Cost 24"-12"=	\$4.57	Per Cu.Yd.	@	cuyds
Base Cost 48"-24"=	\$4.57	Per Cu.Yd.	@	cuyds

Road Segment	Haul Cost \$/cu.yd.	Proc Cost \$/cu.yd.	Base Cost \$/cu.yd.	Cost \$/cu.yd.	Number Cu. Yds	ROCK COST
A to B 32700 47410 (Crushed)	6.27	2.50	9.07	17.84	4620	\$82,420.80
A to B Turnouts(327+00 to 474+10) (Crushed)	6.27	2.50	9.07	17.84	140	\$2,497.60
A to B Spot Patch (Crushed)	3.96	2.50	9.07	15.53	2000	\$31,060.00
A to B Spot Patch (Jawrun)	3.96	1.25	7.82	13.03	1000	\$13,030.00
A to B Lift(474+10 to 518+85)w TO (Jawrun)	5.20	1.25	7.82	14.27	1535	\$21,904.45
A to B Stockpile (Crushed)	3.99	0.75	9.07	13.81	1000	\$13,810.00
A to B Culvert Backfill/bedding (Crushed)	4.10	2.50	9.07	15.67	1400	\$21,938.00
A to B Road Repair/widening (Crushed)	6.66	2.50	9.07	18.23	40	\$729.20
A to B Road Repair/widening (Jawrun)	6.66	2.50	7.82	16.98	135	\$2,292.30
A to B Culvert Removal (Crushed)	6.66	2.50	9.07	18.23	20	\$364.60
A to B Spot Patch (Jawrun)	6.57	1.25	7.82	15.64	10	\$156.40
A to B Lift(375+85 to 382+15) (Jawrun)	6.51	2.50	7.82	16.83	225	\$3,786.75
A to B Road Widening(488+25 to 489+95) (Jawrun)	5.28	2.50	7.82	15.60	20	\$312.00
A to B Road Widening(492+20 to 493+25) (Jawrun)	5.24	2.50	7.82	15.56	10	\$155.60
A to B Road Widening(496+40 to 497+65) (Jawrun)	5.19	2.50	7.82	15.51	15	\$232.65
A to B Energy Dissipator (Rip Rap)	4.45	1.00	4.57	10.02	10	\$100.20
A to B Culvert Installation (Pitrun)	4.13	1.00	3.72	8.85	1100	\$9,735.00
A to B Culvert Installation (Pitrun)	4.09	1.00	3.72	8.81	650	\$5,726.50
A to B Road Widening(698+25 to 698+75) (Jawrun)	2.95	2.50	7.82	13.27	10	\$132.70
A to B Road Widening(765+80 to 766+30) (Jawrun)	2.19	2.50	7.82	12.51	10	\$125.10
A to B Road Widening(794+60 to 795+35) (Jawrun)	1.87	2.50	7.82	12.19	15	\$182.85
A to B Road Widening(849+55 to 850+70) (Jawrun)	1.26	2.50	7.82	11.58	20	\$231.60
A to B Road Widening(854+55 to 855+80) (Jawrun)	1.20	2.50	7.82	11.52	5	\$57.60
C to D 0 1930 (Jawrun)	5.32	2.50	7.82	15.64	780	\$12,199.20
C to D 0 9890 (Crushed)	4.88	2.50	9.07	16.45	3390	\$55,765.50
C to D 1930 3975 (Jawrun)	5.10	2.50	7.82	15.42	820	\$12,644.40
C to D 1930 3975 (Crushed)	5.10	2.50	9.62	17.22	360	\$6,199.20
C to D 6" Lift (Crushed)	5.43	2.50	9.07	17.00	40	\$680.00
C to D Spot Patch (Jawrun)	5.43	1.25	7.82	14.50	30	\$435.00
C to D Spot Patching (Jawrun)	4.88	1.25	7.82	13.95	490	\$6,835.50
C to D Cross Drain Backfill/bedding (Crushed)	5.00	1.00	9.07	15.07	210	\$3,164.70
C to D Stream Culvert Backfill/bedding (Crushed)	5.28	1.00	9.07	15.35	20	\$307.00
C to D Intersection Widening (Crushed)	4.99	2.50	9.07	16.56	40	\$662.40
C to D Junction Rock (Crushed)	4.33	2.50	9.07	15.90	30	\$477.00
E to F 0 1600 (Crushed)	7.26	2.50	9.07	18.83	310	\$5,837.30
E to F Intersection Rock (Crushed)	7.17	2.50	9.07	18.74	30	\$562.20
E to F Culvert Backfill (Crushed)	7.26	1.00	9.07	17.33	30	\$519.90
G to H 0 375 (Crushed)	7.37	2.50	9.07	18.94	70	\$1,325.80
G to H Intersection Rock (Crushed)	7.35	2.50	9.07	18.92	70	\$1,324.40
G to H Turnaround (Crushed)	7.39	2.50	9.07	18.96	80	\$1,516.80
K to L Spot Rock (Crushed)	5.04	1.25	9.07	15.36	200	\$3,072.00
K to L Culvert Backfill (Crushed)	5.09	1.00	9.07	15.16	50	\$758.00
K to L Energy Dissipator (Riprap)	5.09	1.40	4.57	11.06	15	\$165.90
K to L Corner Widening (Jawrun)	5.08	1.25	7.82	14.15	70	\$990.50
M to N Spot Rock (Crushed)	5.22	1.25	9.07	15.54	30	\$466.20
O to P Spot Rock (Crushed)	5.30	1.25	9.07	15.62	50	\$781.00
Q to R Spot Rock (Crushed)	5.29	1.25	9.07	15.61	30	\$468.30
S to T Spot Rock (Crushed)	5.44	1.25	9.07	15.76	50	\$788.00
U to V Spot Rock (Crushed)	5.33	1.25	9.07	15.65	30	\$469.50
W to X Spot Rock (Crushed)	5.40	1.25	9.07	15.72	30	\$471.60
Y to Z 0 8480 (Crushed)	9.20	2.50	9.07	20.77	2910	\$60,440.70
Y to Z Turnaround (Crushed)	9.96	2.50	9.07	21.53	30	\$645.90
Y to Z Intersection Rock (Crushed)	8.45	2.50	9.07	20.02	30	\$600.60
EE to FF Spot Patch (Crushed)	9.22	2.50	9.07	20.79	200	\$4,158.00
EE to FF Culvert Backfill (Crushed)	9.84	1.00	9.07	19.91	20	\$398.20
Point MM Culvert Bedding/Backfill(Crushed)	6.06	1.00	9.07	16.13	60	\$806.50
Point MM Surfacing	6.06	2.50	9.07	17.63	50	\$883.50
Total C.Y.					24645	Sub Total \$397,976.90

ROCK PIT DEVELOPMENT AND CRUSHING COST SUMMARY

General Information

Pit:	Power Bales Pit	Location:	Sec. 29,32, T2S, R7W, W.M.
Sale:	Thor's Summit	Road:	6460 c.y.
Swell:	1.40	Stockpile:	c.y.
Shrinkage	1.16	Total Truck Loads:	6460 c.y.
Drill Pct.:	50%	In Place Total:	4614 c.y.

Pit Development

Pit Development & Cleanup including Clearing and grubbing of Waste Area at adjacent to pit, place overburden in Waste Area, spread and compact.	Total Estimated:	\$9,000.00
	Per Cubic Yard:	\$1.39

Manufacturing

Drill & Shoot:	\$2.50 /cu.yd.
Rip Rock:	\$1.90 /cu.yd.
Push Rock:	\$0.70 /cu.yd.
Load Crusher:	\$0.70 /cu.yd.
Crush Rock(1 1/2"):	\$3.25 /cu.yd.
Crush Rock(2"):	\$2.80 /cu.yd.
Crush Rock(2 1/2"):	\$2.70 /cu.yd.
Crush Rock(3"):	\$2.60 /cu.yd.
Crush Rock(4"):	\$2.35 /cu.yd.
Load Dump Truck:	\$0.70 /cu.yd.
Oversize Reduction:	\$0.45 /cu.yd.
Sorting:	\$0.25 /cu.yd.
Screening	\$3.40 /cu.yd.

Move In / Set Up

Move In/Set-up Jaw	1	@	\$3,000.00	=	\$3,000.00
Move In and set up Drill and Compressor	1	@	\$247.52	=	\$247.52
Move in Roller and Compactor	1	@	\$247.52	=	\$247.52
Move in D-8	1	@	\$453.96	=	\$453.96
Move in Loader	1	@	\$331.90	=	\$331.90
Move in Excavator	1	@	\$498.77	=	\$498.77
Move in Trucks	3	@	\$71.95	=	\$215.85
Move in Water Truck	1	@	\$84.58	=	\$84.58

Subtotal \$2,080.10
Per Cubic Yard: \$0.32

Base Cost 4"=	\$9.11	Per Cu.Yd.	@	cuys
Base Cost 6"=	\$4.31	Per Cu.Yd.	@	cuys
Base Cost 12"-6"=	\$5.86	Per Cu.Yd.	@	cuys
Base Cost 24"-12"=	\$5.86	Per Cu.Yd.	@	cuys
Base Cost 48"-24"=	\$5.86	Per Cu.Yd.	@	cuys

Road Segment	Haul Cost \$/cu.yd.	Proc Cost \$/cu.yd.	Base Cost. \$/cu.yd.	Cost \$/cu.yd.	Number Cu. Yds	ROCK COST
A to B Energy Dissipator (Rip Rap)	6.38	0.75	5.86	12.99	305	\$3,961.95
A to B Road Repair (Pitrun)	10.32	1.00	4.31	15.63	1100	\$17,193.00
C to D Cross Drain Energy Dissipator (Riprap)	1.95	0.75	5.86	8.56	70	\$599.20
C to D Stream Culvert Energy Dissipator (Riprap)	1.49	0.75	5.86	8.10	5	\$40.50
C to D Landing Rock (Jawrun)	1.35	1.25	9.11	11.71	50	\$585.50
C to D Landing Rock (Jawrun)	1.41	1.25	9.11	11.77	100	\$1,177.00
C to D Landing Rock (Jawrun)	1.57	1.25	9.11	11.93	50	\$596.50
E to F 1600 1740 (Jawrun)	3.38	1.25	9.11	13.74	80	\$1,099.20
E to F Landing Rock (Jawrun)	3.13	1.25	9.11	13.49	50	\$674.50
E to F Landing Rock (Jawrun)	3.16	1.25	9.11	13.52	50	\$676.00
E to F Energy Dissipator (Riprap)	3.23	1.00	5.86	10.09	10	\$100.90
G to H 375 475 (Jawrun)	3.44	1.25	9.11	13.80	40	\$552.00
I to J 0 120 (Jawrun)	3.41	1.25	9.11	13.77	70	\$963.90
I to J Intersection Rock (Jawrun)	3.36	1.25	9.11	13.72	50	\$686.00
EE to FF Landing Rock (Pitrun)	3.32	1.25	4.31	8.88	100	\$888.00
EE to FF Energy Dissipator (Riprap)	3.12	0.75	5.86	9.73	5	\$48.65
GG to HH 1555 3395 (Jawrun)	2.76	1.25	9.11	13.12	1090	\$14,300.80
GG to HH 3395 6090 (Jawrun)	3.17	1.25	9.11	13.53	2120	\$28,683.60
GG to HH Approach/Widening 1555 (Jawrun)	2.60	1.25	9.11	12.96	50	\$648.00
GG to HH Landing Rock 100yds each (Jawrun)	3.19	1.25	9.11	13.55	400	\$5,420.00
GG to HH Energy Dissipator 25+15&26+55 (Riprap)	2.79	1.00	5.86	9.65	10	\$96.50
GG to HH Culvert Backfill 25+15&26+55 (Jawrun)	2.79	0.75	9.11	12.65	40	\$506.00
GG to HH Culvert Backfill 2930 (Jawrun)	2.84	0.75	9.11	12.70	50	\$635.00
GG to HH Energy Dissipator 2930 (Riprap)	2.84	1.00	5.86	9.70	20	\$194.00
GG to HH Landing Rock 3325 (Jawrun)	2.91	1.25	9.11	13.27	120	\$1,592.40
GG to HH Widening 2875 (Jawrun)	2.83	1.25	9.11	13.19	85	\$1,121.15
GG to HH Widening 2430 (Jawrun)	2.75	1.25	9.11	13.11	70	\$917.70
GG to HH Spot Patch As Marked (Jawrun)	2.77	1.25	9.11	13.13	60	\$787.80
II to JJ 0 220 (Jawrun)	1.71	1.25	9.11	12.07	120	\$1,448.40
II to JJ Approach 40 (Jawrun)	1.74	1.25	9.11	12.10	40	\$484.00
II to JJ Landing Rock 50 (Pitrun)	1.67	1.25	4.31	7.23	50	\$361.50
Total C.Y.					6460	Sub Total \$87,039.65

TOTAL ROCKING COSTS \$87,039.65

ROCK PIT DEVELOPMENT AND CRUSHING COST SUMMARY

General Information

Pit:	Coast Moon Pit	Location:	Sec. 2, T3S, R8W, W.M.
Sale:	Thor's Summit	Road:	1850 c.y.
Swell:	1.40	Stockpile:	c.y.
Shrinkage:	1.16	Total Truck Loads:	1850 c.y.
Drill Pct.:	0%	In Place Total:	1321 c.y.

Pit Development

Pit Development & Cleanup including Clearing and grubbing of Waste Area at adjacent to pit, place overburden in Waste Area, spread and compact.	Total Estimated:	\$7,840.00
	Per Cubic Yard:	\$4.24

Manufacturing

Rip Rock:	\$2.25	/cu.yd.
Load Crusher:	\$2.10	/cu.yd.
Crush Rock(4"):	\$2.35	/cu.yd.
Load Dump Truck:	\$0.70	/cu.yd.
Oversize Reduction:	\$0.45	/cu.yd.
Sorting:	\$0.25	/cu.yd.

Move In / Set Up

Move In/Set-up Jaw	1	@	\$3,000.00	=	\$3,000.00
Move in Roller and Compactor	1	@	\$247.52	=	\$247.52
Move in Grader	1	@	\$91.00	=	\$91.00
Move in Loader	1	@	\$331.90	=	\$331.90
Move in Excavator	1	@	\$498.77	=	\$498.77
Move in Trucks	3	@	\$71.95	=	\$215.85
					Subtotal
					\$4,385.04
					Per Cubic Yard:
					\$2.37
Base Cost 4"=	\$14.01	Per Cu.Yd.	@	cuyds	
Base Cost 6"=	\$9.81	Per Cu.Yd.	@	cuyds	
Base Cost 12"-6"=	\$9.81	Per Cu.Yd.	@	cuyds	

Road Segment	Haul Cost \$/cu.yd.	Proc Cost \$/cu.yd.	Base Cost. \$/cu.yd.	Cost \$/cu.yd.	Number Cu. Yds	ROCK COST
Y to Z 8480 10655 (Jawrun)	4.52	1.25	14.01	19.78	770	\$15,230.60
Y to Z Landing Rock (Pitrun)	3.11	1.25	9.81	14.17	50	\$708.50
Y to Z Landing Rock (Pitrun)	4.62	1.25	9.81	15.68	80	\$1,254.40
Y to Z Landing Rock (Pitrun)	4.71	1.25	9.81	15.77	50	\$788.50
Y to Z Landing Rock (Pitrun)	3.71	1.25	9.81	14.77	50	\$738.50
AA to BB Landing Rock (Pitrun)	3.73	1.25	9.81	14.79	50	\$739.50
CC to DD 0 225 (Jawrun)	3.53	1.25	14.01	18.79	100	\$1,879.00
CC to DD Intersection Rock (Jawrun)	3.51	1.25	14.01	18.77	50	\$938.50
CC to DD Landing Rock (Pitrun)	3.55	1.25	9.81	14.61	50	\$730.50
Point MM Fill Material (Pitrun)	2.34	1.00	9.81	13.15	600	\$7,890.00

Total C.Y. 1850 Sub Total \$30,898.00

TOTAL ROCKING COSTS	\$30,898.00
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ROCK PIT DEVELOPMENT AND CRUSHING COST SUMMARY

General Information

Pit:	BLM Pit	Location:	Sec. 1, T3S, R8W, W.M.
Sale:	Thor's Summit	Road:	300 c.y.
Swell:	1.40	Stockpile:	c.y.
Shrinkage:	1.16	Total Truck Loads:	300 c.y.
Drill Pct.:	0%	In Place Total:	214 c.y.

Pit Development

Pit Development & Cleanup including Clearing and grubbing of Waste Area at adjacent to pit, place overburden in Waste Area, spread and compact.	Total Estimated:	\$1,048.00
	Per Cubic Yard:	\$3.49

Manufacturing

Load Dump Truck:	\$0.70 /cu.yd.
Sorting:	\$0.25 /cu.yd.

Move In / Set Up

Move in Excavator	1	@	\$498.77	=	\$498.77
				Subtotal	\$498.77
				Per Cubic Yard:	\$1.66
Base Cost 6"=	\$6.10	Per Cu.Yd.	@	cuyds	
Base Cost 36"-12"=	\$5.10	Per Cu.Yd.	@	cuyds	

Road Segment	Haul Cost \$/cu.yd.	Proc Cost \$/cu.yd.	Base Cost. \$/cu.yd.	Cost \$/cu.yd.	Number Cu. Yds	ROCK COST
A to B Road Repair (Rip Rap)	2.68	1.00	6.10	9.78	285	\$2,787.30
Point MM 36X80 Headwall Armoring(rip raj)	1.41	0.75	6.10	8.26	5	\$41.30
Point MM 2 18X30 Energy Dissipator(rip ra)	1.41	0.75	6.10	8.26	10	\$82.60
				Total C.Y.	300	Sub Total \$2,911.20

TOTAL ROCKING COSTS	\$2,911.20
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ROCK PIT DEVELOPMENT AND CRUSHING COST SUMMARY

General Information

Pit:	Commercial Source	Location:	
Sale:	<u>Thor's Summit</u>		Road: 4570 c.y.
			Total Truck Loads: 4570 c.y.

Move In / Set Up

Move in Roller and Compactor	1	@	\$247.52	=	\$247.52
Move in Grader	1	@	\$91.00	=	\$91.00
Move in Loader	1	@	\$331.90	=	\$331.90
Move in Water Truck	1	@	\$84.58	=	\$84.58
					<u>Subtotal</u>
					\$755.00
					Per Cubic Yard: \$0.17
Base Cost 1 1/2"=	<u>\$28.00</u>	Per Cu.Yd.	@	cuyds	

Road Segment	Haul Cost \$/cu.yd.	Proc Cost \$/cu.yd.	Base Cost. \$/cu.yd.	Cost \$/cu.yd.	Number Cu. Yds	ROCK COST
A to B 0 1530 (Crushed)	0.00	2.50	28.00	30.50	490	\$14,945.00
A to B 1530 6120 (Crushed)	0.00	2.50	28.00	30.50	730	\$22,265.00
A to B Stockpile (Crushed)	0.00	1.00	28.00	29.00	3000	\$87,000.00
A to B Turnouts(0+00 to 245+00) (Crush	0.00	2.50	28.00	30.50	280	\$8,540.00
Point NN Culvert Backfill	0.00	1.00	30.00	31.00	20	\$620.00
Point OO Road Widening Crushed	0.00	2.50	28.00	30.50	10	\$305.00
Point OO Road Widening Jawrun	0.00	2.50	26.00	28.50	20	\$570.00
Point UU to VV Culvert Backfill	0.00	1.00	30.00	31.00	20	\$620.00

Total C.Y. 4570 Sub Total \$134,865.00

TOTAL ROCKING COSTS	\$134,865.00
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SUMMARY OF CONSTRUCTION COST

Sale:

Thor's Summit

Road:

A to B

<u>Construction -</u>	0+00 stations 0.00 miles	<u>Improvement -</u>	888+25 stations 16.82 miles	<u>Reconstruction -</u>	0+00 stations 0.00 miles
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IMPROVEMENT: EXCAVATION, ENDDHAUL, SPREAD & COMPACT -

Pullback	364+90	to	365+45	100	cy. @	\$4.31	per c.y.=	\$431
Widening	363+95	to	366+55	1575	cy. @	\$4.23	per c.y.=	\$6,662
Ditching	369+50	to	386+00	550	cy. @	\$4.40	per c.y.=	\$2,420
Culverts	369+50	to	386+00	40	cy. @	\$4.50	per c.y.=	\$180
Culverts	408+20	to	408+20	20	cy. @	\$4.38	per c.y.=	\$88
Culverts	474+10	to	605+05	340	cy. @	\$5.01	per c.y.=	\$1,703
Widening	488+25	to	497+65	395	cy. @	\$5.42	per c.y.=	\$2,141
Fills	592+45	to	596+05	1900	cy. @	\$4.66	per c.y.=	\$8,854
Culverts	760+20	to	769+90	20	cy. @	\$5.15	per c.y.=	\$103
Ditching	760+20	to	769+90	175	cy. @	\$5.03	per c.y.=	\$880
Widening	765+80	to	766+30	80	cy. @	\$5.03	per c.y.=	\$402
Culverts	778+10	to	819+95	120	cy. @	\$5.37	per c.y.=	\$644
Widening	794+60	to	795+35	90	cy. @	\$5.33	per c.y.=	\$480
Ditching	778+10	to	819+95	750	cy. @	\$5.20	per c.y.=	\$3,900
Culverts	822+15	to	845+45	40	cy. @	\$4.88	per c.y.=	\$195
Ditching	822+15	to	845+45	450	cy. @	\$4.87	per c.y.=	\$2,192
TOTAL ENDDHAUL								\$31,275

CULVERTS - MATERIALS & INSTALLATION

Culverts

1990	LF of 18"	\$49,750	0	LF of 24"	\$0
		\$49,750			\$0

Culvert Stakes & Markers

79 markers	\$632
	\$632

TOTAL CULVERTS \$50,382

ROCK

0+00	to	15+30	489	cy. of	Crushed	@	\$30.50	per c.y.=	\$14,915
15+30	to	61+20	729	cy. of	Crushed	@	\$30.50	per c.y.=	\$22,235
327+00	to	474+10	4,613	cy. of	Crushed	@	\$17.84	per c.y.=	\$82,296
Turnouts(0+00 to 245+00)		0ys per Ti	280	cy. of	Crushed	@	\$30.50	per c.y.=	\$8,540
Turnouts(327+00 to 474+10)		0ys per Ti	140	cy. of	Crushed	@	\$17.84	per c.y.=	\$2,498
Spot Patch	\s Directer		2,000	cy. of	Crushed	@	\$15.53	per c.y.=	\$31,060
Spot Patch	\s Directer		1,000	cy. of	Jawrun	@	\$13.03	per c.y.=	\$13,030
Lift(474+10 to 518+85)w TO	6" Depth		1,535	cy. of	Jawrun	@	\$14.27	per c.y.=	\$21,904
Energy Dissipator	per X-dra		305	cy. of	Rip Rap	@	\$12.99	per c.y.=	\$3,962
Culvert Backfill/bedding	\s Needec		1,400	cy. of	Crushed	@	\$15.67	per c.y.=	\$21,938
Road Repair	364+00		1,100	cy. of	Pitrun	@	\$15.63	per c.y.=	\$17,193
Road Repair	364+00		285	cy. of	Rip Rap	@	\$9.78	per c.y.=	\$2,787
Road Repair/widening	365+55		40	cy. of	Crushed	@	\$18.23	per c.y.=	\$729
Road Repair/widening	365+55		135	cy. of	Jawrun	@	\$16.98	per c.y.=	\$2,292
Culvert Removal	365+10		20	cy. of	Crushed	@	\$18.23	per c.y.=	\$365
Spot Patch	373+45		10	cy. of	Jawrun	@	\$15.64	per c.y.=	\$156
Lift(375+85 to 382+15)	6" Lift		225	cy. of	Jawrun	@	\$16.83	per c.y.=	\$3,787
Road Widening(488+25 to 489+95)\s Directer			20	cy. of	Jawrun	@	\$15.60	per c.y.=	\$312
Road Widening(492+20 to 493+25)\s Directer			10	cy. of	Jawrun	@	\$15.56	per c.y.=	\$156
Road Widening(496+40 to 497+65)\s Directer			15	cy. of	Jawrun	@	\$15.51	per c.y.=	\$233
Energy Dissipator	563+35		10	cy. of	Rip Rap	@	\$10.02	per c.y.=	\$100
Culvert Installation	592+45		1,100	cy. of	Pitrun	@	\$8.85	per c.y.=	\$9,735
Culvert Installation	596+05		650	cy. of	Pitrun	@	\$8.81	per c.y.=	\$5,727
Road Widening(698+25 to 698+75)\s Directer			10	cy. of	Jawrun	@	\$13.27	per c.y.=	\$133
Road Widening(765+80 to 766+30)\s Directer			10	cy. of	Jawrun	@	\$12.51	per c.y.=	\$125
Road Widening(794+60 to 795+35)\s Directer			15	cy. of	Jawrun	@	\$12.19	per c.y.=	\$183
Road Widening(849+55 to 850+70)\s Directer			20	cy. of	Jawrun	@	\$11.58	per c.y.=	\$232
Road Widening(854+55 to 855+80)\s Directer			5	cy. of	Jawrun	@	\$11.52	per c.y.=	\$58
TOTAL ROCK									\$266,681

SPECIAL PROJECTS

Install Conveyor Belt Berm-	0.60	stations@	\$165.00	per station	\$99
Construct Access Trail for Road Repair at station 363+65-	3.00	hours @	\$150.00	per hour	\$450
Construct waste areas -	54.00	hours @	\$150.00	per hour	\$8,100
Construct 2 Landings-	2.00	hours @	\$150.00	per hour	\$300
Remove culverts from state lands	6.00	@	\$387.50	each	\$2,325
Non Endhaul Ditching	63.15	stations@	\$100.00	per station	\$6,315
Construct Ditchouts	4.00	@	\$60.00	each	\$240
Grade and shape road -	888.25	stations @	\$15.50	per station	\$13,768
Roll Road following grading -	888.25	stations @	\$13.20	per station	\$11,725
Grass seed and fertilize -	4.25	acres @	\$220.00	per acre	\$935
Mulching -	0.200	acres @	\$600.00	per acre	\$120
TOTAL SPECIAL PROJECTS					\$44,377

GRAND TOTAL \$392,715

SUMMARY OF CONSTRUCTION COST

Sale: **Thor's Summit**

Road: **C to D**

<u>Construction -</u>	<u>0+00</u>	stations	<u>Improvement -</u>	<u>98+90</u>	stations	<u>Reconstruction -</u>	<u>0+00</u>	stations
	0.00	miles		1.87	miles		0.00	miles

CULVERTS - MATERIALS & INSTALLATION

<u>Culverts</u>	460	LF of 18"	\$11,500.00		30	LF of 24"	\$900.00
			\$11,500.00				\$900.00
<u>Culvert Stakes & Markers</u>							
0 stakes			\$0.00				
15 markers			\$120.00				
			\$120.00				
TOTAL CULVERTS							\$12,520.00

ROCK

0+00	to	19+30	776	cy. of	Jawrun	@	\$15.64 per c.y.=	\$12,136.64
0+00	to	98+90	3,387	cy. of	Crushed	@	\$16.45 per c.y.=	\$55,716.15
19+30	to	39+75	816	cy. of	Jawrun	@	\$15.42 per c.y.=	\$12,582.72
19+30	to	39+75	357	cy. of	Crushed	@	\$17.22 per c.y.=	\$6,147.54
6" Lift		As Marked	40	cy. of	Crushed	@	\$17.00 per c.y.=	\$680.00
Spot Patch		As Marked	30	cy. of	Jawrun	@	\$14.50 per c.y.=	\$435.00
Spot Patching		As Marked	490	cy. of	Jawrun	@	\$13.95 per c.y.=	\$6,835.50
Cross Drain Backfill/bedding		15yds/culvert	210	cy. of	Crushed	@	\$15.07 per c.y.=	\$3,164.70
Stream Culvert Backfill/bedding		13+35	20	cy. of	Crushed	@	\$15.35 per c.y.=	\$307.00
Cross Drain Energy Dissipat		5cy/Culvert	70	cy. of	Riprap	@	\$8.56 per c.y.=	\$599.20
Stream Culvert Energy Dissi		13+35	5	cy. of	Riprap	@	\$8.10 per c.y.=	\$40.50
Landing Rock		5+30	50	cy. of	Jawrun	@	\$11.71 per c.y.=	\$585.50
Landing Rock		8+55	100	cy. of	Jawrun	@	\$11.77 per c.y.=	\$1,177.00
Landing Rock		17+35	50	cy. of	Jawrun	@	\$11.93 per c.y.=	\$596.50
Intersection Widening		39+50	40	cy. of	Crushed	@	\$18.83 per c.y.=	\$753.20
Junction Rock		98+90	30	cy. of	Crushed	@	\$13.74 per c.y.=	\$412.20
TOTAL ROCK							\$102,169.35	

SPECIAL PROJECTS

Construct waste areas -	24.00	hours @	\$150.00	per hour	\$3,600.00
Fall Trees	1.00	hours @	\$150.00	per hour	\$150.00
Ditch and Endhaul	81.00	stations @	\$125.00	per station	\$10,125.00
Ditch with no endhaul	5.60	stations @	\$75.00	per station	\$420.00
Construct Landings	12.00	hours @	\$150.00	per hour	\$1,800.00
Grade and shape road -	98.90	stations @	\$15.50	per station	\$1,532.95
Roll subgrade w/ vibratory roller prior to rocking -	98.90	stations @	\$13.20	per station	\$1,305.48
Remove culverts from state lands	1.00	@	\$182.90	each	\$182.90
Grass seed and fertilize -	1.50	acres @	\$220.00	per acre	\$330.00
Mulching -	0.100	acres @	\$600.00	per acre	\$60.00
TOTAL SPECIAL PROJECTS					\$19,506.33

GRAND TOTAL **\$134,195.68**

SUMMARY OF CONSTRUCTION COST

Sale: **Thor's Summit**

Road: **E to F**

Construction -	12+15	stations	Improvement -	16+00	stations	Reconstruction -	1+40	stations
	0.23	miles		0.30	miles		0.03	miles

CONSTRUCTION: CLEARING, GRUBBING, SCATTERING, EXCAVATION, COMPACTION, LOADING, END-HAULING AND SPREADING/COMPACTING AT WASTE AREA -

Station	to	Station	Average Sideslope(%)	Average MBF/Acre	Grubbing Factor	Ground Type	Excavation Factor	Drill & Shoot CUYDS	Endhaul Waste(\$)	Segment Cost
17+40		29+55	25	30.0	2.44	1.00	2.25			\$3,794
TOTAL										\$3,794

CULVERTS - MATERIALS & INSTALLATION

<u>Culverts</u>	70	LF of 18"	\$1,750.00	0	LF of 24"	\$0.00	
			\$1,750.00			\$0.00	
<u>Culvert Stakes & Markers</u>							
2 markers			\$16.00				
			\$16.00				
TOTAL CULVERTS							\$1,766.00

ROCK

0+00 to 16+00	310	cy. of	Crushed	@	\$18.83 per c.y.=	\$5,837.30	
16+00 to 17+40	72	cy. of	Jawrun	@	\$13.74 per c.y.=	\$989.28	
Intersection Rock 0+00	30	cy. of	Crushed	@	\$18.74 per c.y.=	\$562.20	
Landing Rock 2+15	50	cy. of	Jawrun	@	\$13.49 per c.y.=	\$674.50	
Landing Rock 3+85	50	cy. of	Jawrun	@	\$13.52 per c.y.=	\$676.00	
Energy Dissipator 5cy/Culvert	10	cy. of	Riprap	@	\$10.09 per c.y.=	\$100.90	
Culvert Backfill 15cy/Culvert	30	cy. of	Crushed	@	\$17.33 per c.y.=	\$519.90	
TOTAL ROCK							\$9,360.08

SPECIAL PROJECTS

Ditching-Endhaul	4.35	stations @	\$100.00	per station	\$435.00	
Ditching-No Endhaul	4.60	stations @	\$80.00	per station	\$368.00	
Landing Construction	1.00	hours @	\$150.00	per hour	\$150.00	
Catchbasin Construction	2.00	@	\$20.00	each	\$40.00	
Grade and shape road -	29.55	stations @	\$15.50	per station	\$458.03	
Roll subgrade w/ vibratory roller prior to rocking -	29.55	stations @	\$13.20	per station	\$390.06	
Remove large stumps -	5.00	@	\$90.00	each	\$450.00	
Grass seed and fertilize -	0.62	acres @	\$220.00	per acre	\$136.40	
TOTAL SPECIAL PROJECTS						\$2,427.49

GRAND TOTAL **\$17,347.57**

SUMMARY OF CONSTRUCTION COST

Sale: **Thor's Summit**

Road: **G to H**

Construction -	3+00	stations	Improvement -	3+75	stations	Reconstruction -	0+00	stations
	0.06	miles		0.07	miles		0.00	miles

CONSTRUCTION: CLEARING, GRUBBING, SCATTERING, EXCAVATION, COMPACTION, LOADING, END-HAULING AND SPREADING/COMPACTING AT WASTE AREA -

Station	to	Station	Average Sideslope(%)	Average MBF/Acre	Grubbing Factor	Ground Type	Excavation Factor	Drill & Shoot CUYDS	Endhaul Waste(\$)	Segment Cost
3+75		6+75	25	30.0	2.44	1.00	2.25			\$937
TOTAL										\$937

ROCK

0+00	to	3+75	66	cy. of	Crushed	@	\$18.94	per c.y.=	\$1,250.04	
3+75	to	4+75	40	cy. of	Jawrun	@	\$13.80	per c.y.=	\$552.00	
Intersection Rock		0+00	70	cy. of	Crushed	@	\$18.92	per c.y.=	\$1,324.40	
Turnaround		3+75	80	cy. of	Crushed	@	\$18.96	per c.y.=	\$1,516.80	
TOTAL ROCK										\$4,643.24

SPECIAL PROJECTS

Grade and shape road -	6.75	stations @	\$15.50	per station	\$104.63
Roll subgrade w/ vibratory roller prior to rocking -	6.75	stations @	\$13.20	per station	\$89.10
Grass seed and fertilize -	0.14	acres @	\$220.00	per acre	\$30.80
TOTAL SPECIAL PROJECTS					\$224.53

GRAND TOTAL **\$5,804.77**

SUMMARY OF CONSTRUCTION COST

Sale: **Thor's Summit**

Road: **I to J**

Construction -	5+85 0.11	stations miles	Improvement -	0+00 0.00	stations miles	Reconstruction -	0+00 0.00	stations miles
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CONSTRUCTION: CLEARING, GRUBBING, SCATTERING, EXCAVATION, COMPACTION, LOADING, END-HAULING AND SPREADING/COMPACTING AT WASTE AREA -

Station	to	Station	Average Sideslope(%)	Average MBF/Acre	Grubbing Factor	Ground Type	Excavation Factor	Drill & Shoot CUYDS	Endhaul Waste(\$)	Segment Cost
0+00		5+85	15	30.0	2.44	1.00	1.75			\$1,564
TOTAL										\$1,564

CULVERTS - MATERIALS & INSTALLATION

<u>Culverts</u>	30	LF of 18"	\$750.00		0	LF of 24"	\$0.00
			\$750.00				\$0.00
<u>Culvert Stakes & Markers</u>							
	1	markers	\$8.00				
			\$8.00				
TOTAL CULVERTS							\$758.00

ROCK

0+00	to	1+20	70	cy. of	Jawrun	@	\$13.77 per c.y.=	\$963.90
Intersection		Rock	50	cy. of	Jawrun	@	\$13.72 per c.y.=	\$686.00
TOTAL ROCK								\$1,649.90

SPECIAL PROJECTS

Grade and shape road -	5.85	stations @	\$15.50	per station	\$90.68
Roll subgrade w/ vibratory roller prior to rocking -	5.85	stations @	\$13.20	per station	\$77.22
Grass seed and fertilize -	0.27	acres @	\$220.00	per acre	\$59.40
TOTAL SPECIAL PROJECTS					\$227.30

GRAND TOTAL **\$4,199.20**

SUMMARY OF CONSTRUCTION COST

Sale: **Thor's Summit**

Road: **K to L**

Construction -	0+00	stations	Improvement -	19+35	stations	Reconstruction -	38+50	stations
	0.00	miles		0.37	miles		0.73	miles

IMPROVEMENT: EXCAVATION -

Widening	440	cy. @	\$1.75	per c.y.=	\$770.00	
TOTAL EXCAVATION						\$770.00

RECONSTRUCTION: CLEARING AND GRUBBING -

Scattering	1.060	acres @	\$980.00	per acre =	\$1,038.80	
TOTAL CLEARING AND GRUBBING						\$1,038.80

CULVERTS - MATERIALS & INSTALLATION

<u>Culverts</u>	100	LF of 18"	\$2,500.00		0	LF of 24"	\$0.00
			\$2,500.00				\$0.00
<u>Culvert Stakes & Markers</u>							
3 markers			\$24.00				
			\$24.00				
TOTAL CULVERTS							\$2,524.00

ROCK

Spot Rock	0+00	200	cy. of	Crushed	@	\$15.36	per c.y.=	\$3,072.00
Culvert Backfill	47+70 to 56+65	50	cy. of	Crushed	@	\$15.16	per c.y.=	\$758.00
Energy Dissipator	5yds/Culvert	15	cy. of	Riprap	@	\$11.06	per c.y.=	\$165.90
Corner Widening	As Directed	70	cy. of	Jawrun	@	\$14.15	per c.y.=	\$990.50
TOTAL ROCK								\$4,986.40

SPECIAL PROJECTS

Ditch No Endhaul	7.45	stations @	\$75.00	per station	\$558.75		
Ditch Endhaul	3.40	stations @	\$125.00	per station	\$425.00		
Construct waste areas -	1.00	hours @	\$150.00	per hour	\$150.00		
Construct ditchouts -	2.00	@	\$60.00	each	\$120.00		
Grade and shape road -	57.85	stations @	\$15.50	per station	\$896.68		
Roll subgrade w/ vibratory roller prior to rocking -	57.85	stations @	\$13.20	per station	\$763.62		
Grass seed and fertilize -	4.21	acres @	\$220.00	per acre	\$926.20		
TOTAL SPECIAL PROJECTS							\$3,840.25

GRAND TOTAL **\$13,159.45**

SUMMARY OF CONSTRUCTION COST

Sale: **Thor's Summit**

Road: **M to N**

<u>Construction -</u>	<u>0+00</u>	stations	<u>Improvement -</u>	<u>0+00</u>	stations	<u>Reconstruction -</u>	<u>6+65</u>	stations
	0.00	miles		0.00	miles		0.13	miles

ROCK

0+00	to	0+00	0	cy. of	Jawrun	@	\$0.00	per c.y.=	\$0.00
0+00	to	0+00	0	cy. of		@	\$0.00	per c.y.=	\$0.00
0+00	to	0+00	0	cy. of		@	\$0.00	per c.y.=	\$0.00
Spot Rock		As Directed	30	cy. of	Crushed	@	\$15.54	per c.y.=	\$466.20
TOTAL ROCK									\$466.20

SPECIAL PROJECTS

Grade and shape road -	6.65	stations @	\$15.50	per station	\$103.08
Existing road clearing/cleaning	6.65	stations @	\$95.00	per station	\$631.75
Roll subgrade w/ vibratory roller prior to rocking -	6.65	stations @	\$13.20	per station	\$87.78
Grass seed and fertilize -	0.30	acres @	\$220.00	per acre	\$66.00
TOTAL SPECIAL PROJECTS					\$888.61

GRAND TOTAL **\$1,354.81**

SUMMARY OF CONSTRUCTION COST

Sale:

Thor's Summit

Road:

O to P

<u>Construction -</u>	0+00	stations	<u>Improvement -</u>	0+00	stations	<u>Reconstruction -</u>	16+00	stations
	0.00	miles		0.00	miles		0.30	miles

ROCK								
0+00	to	0+00	0	cy. of	Jawrun	@	\$0.00 per c.y.=	\$0.00
0+00	to	0+00	0	cy. of	Pitrun	@	\$0.00 per c.y.=	\$0.00
0+00	to	0+00	0	cy. of	0.00	@	\$0.00 per c.y.=	\$0.00
Spot Rock		As Directed	50	cy. of	Crushed	@	\$15.62 per c.y.=	\$781.00
TOTAL ROCK								\$781.00

SPECIAL PROJECTS								
Grade and shape road -			16.00	stations @			\$15.50 per station	\$248.00
Existing road clearing/cleaning			16.00	stations @			\$95.00 per station	\$1,520.00
Roll subgrade w/ vibratory roller prior to rocking -			16.00	stations @			\$13.20 per station	\$211.20
Grass seed and fertilize -			0.73	acres @			\$220.00 per acre	\$160.60
TOTAL SPECIAL PROJECTS								\$2,139.80

GRAND TOTAL	\$2,920.80
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SUMMARY OF CONSTRUCTION COST

Sale: **Thor's Summit**

Road: **Q to R**

<u>Construction -</u>	<u>0+00</u>	stations	<u>Improvement -</u>	<u>0+00</u>	stations	<u>Reconstruction -</u>	<u>2+05</u>	stations
	0.00	miles		0.00	miles		0.04	miles

ROCK									
Spot Rock	As Directed	30	cy. of	Crushed	@	\$15.61 per c.y.=	\$468.30		
								TOTAL ROCK	\$468.30

SPECIAL PROJECTS									
Grade and shape road -		2.05	stations @			\$15.50 per station	\$31.78		
Existing road clearing/cleaning		2.05	stations @			\$95.00 per station	\$194.75		
Roll subgrade w/ vibratory roller prior to rocking -		2.05	stations @			\$13.20 per station	\$27.06		
Grass seed and fertilize -		0.09	acres @			\$220.00 per acre	\$19.80		
								TOTAL SPECIAL PROJECTS	\$273.39

GRAND TOTAL	\$939.74
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SUMMARY OF CONSTRUCTION COST

Sale: **Thor's Summit**

Road: **S to T**

<u>Construction -</u>	<u>0+00</u>	stations	<u>Improvement -</u>	<u>0+00</u>	stations	<u>Reconstruction -</u>	<u>9+00</u>	stations
	0.00	miles		0.00	miles		0.17	miles

ROCK							
Spot Rock	As Directed	50	cy. of	Crushed	@	\$15.76 per c.y.=	\$788.00
							TOTAL ROCK
							\$788.00

SPECIAL PROJECTS							
Grade and shape road -		9.00	stations @	\$15.50	per station	\$139.50	
Existing road clearing/cleaning		3.20	stations @	\$95.00	per station	\$304.00	
Roll subgrade w/ vibratory roller prior to rocking -		9.00	stations @	\$13.20	per station	\$118.80	
Grass seed and fertilize -		0.07	acres @	\$220.00	per acre	\$15.40	
							TOTAL SPECIAL PROJECTS
							\$577.70

GRAND TOTAL	\$1,365.70
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SUMMARY OF CONSTRUCTION COST

Sale: **Thor's Summit**

Road: **U to V**

<u>Construction -</u>	<u>0+00</u>	stations	<u>Improvement -</u>	<u>0+00</u>	stations	<u>Reconstruction -</u>	<u>3+50</u>	stations
	0.00	miles		0.00	miles		0.07	miles

ROCK

Spot Rock	As Directed	30	cy. of	Crushed	@	\$15.65 per c.y.=	\$469.50	TOTAL ROCK	\$469.50
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SPECIAL PROJECTS

Grade and shape road -	3.50	stations @	\$15.50	per station	\$54.25
Existing road clearing/cleaning	3.50	stations @	\$95.00	per station	\$332.50
Roll subgrade w/ vibratory roller prior to rocking -	3.50	stations @	\$13.20	per station	\$46.20
Grass seed and fertilize -	0.16	acres @	\$220.00	per acre	\$35.20
				TOTAL SPECIAL PROJECTS	\$468.15

GRAND TOTAL **\$937.65**

SUMMARY OF CONSTRUCTION COST

Sale: **Thor's Summit**

Road: **W to X**

Construction -	0+00	stations	Improvement -	0+00	stations	Reconstruction -	1+80	stations
	0.00	miles		0.00	miles		0.03	miles

ROCK

Spot Rock	As Directed	30	cy. of	Crushed	@	\$15.72 per c.y.=	\$471.60		
								TOTAL ROCK	\$471.60

SPECIAL PROJECTS

Grade and shape road -	1.80	stations @	\$15.50	per station	\$27.90	
Existing road clearing/cleaning	1.80	stations @	\$95.00	per station	\$171.00	
Roll subgrade w/ vibratory roller prior to rocking -	1.80	stations @	\$13.20	per station	\$23.76	
Grass seed and fertilize -	0.09	acres @	\$220.00	per acre	\$19.80	
					TOTAL SPECIAL PROJECTS	\$242.46

GRAND TOTAL	\$714.06
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SUMMARY OF CONSTRUCTION COST

Sale: **Thor's Summit**

Road: **Y to Z**

<u>Construction -</u>	<u>0+00</u>	stations	<u>Improvement -</u>	<u>94+60</u>	stations	<u>Reconstruction -</u>	<u>11+95</u>	stations
	0.00	miles		1.79	miles		0.23	miles

ROCK

0+00	to	84+80	2,904	cy. of	Crushed	@	\$20.77	per c.y.=	\$60,316.08
84+80	to	106+55	763	cy. of	Jawrun	@	\$19.78	per c.y.=	\$15,092.14
Landing Rock		16+60	50	cy. of	Pitrun	@	\$14.17	per c.y.=	\$708.50
Turnaround		84+80	30	cy. of	Crushed	@	\$21.53	per c.y.=	\$645.90
Intersection Rock		0+00	30	cy. of	Crushed	@	\$20.02	per c.y.=	\$600.60
Landing Rock		101+80	80	cy. of	Pitrun	@	\$15.68	per c.y.=	\$1,254.40
Landing Rock		106+55	50	cy. of	Pitrun	@	\$15.77	per c.y.=	\$788.50
Landing Rock		51+60	50	cy. of	Pitrun	@	\$14.77	per c.y.=	\$738.50
TOTAL ROCK									\$80,144.62

SPECIAL PROJECTS

Fill in tank trap and waterbars/unblock road	2.00	hours @	\$150.00	per hour	\$300.00
Grade and shape road -	106.55	stations @	\$15.50	per station	\$1,651.53
Existing road clearing/cleaning	11.95	stations @	\$95.00	per station	\$1,135.25
Brush Road	1.79	miles @	\$800.00	per mile	\$1,432.00
Roll subgrade w/ vibratory roller prior to rocking -	106.55	stations @	\$13.20	per station	\$1,406.46
Grass seed and fertilize -	2.26	acres @	\$220.00	per acre	\$497.20
TOTAL SPECIAL PROJECTS					\$6,422.44

GRAND TOTAL **\$86,567.06**

SUMMARY OF CONSTRUCTION COST

Sale: **Thor's Summit**

Road: **AA to BB**

<u>Construction -</u>	<u>0+00</u>	stations	<u>Improvement -</u>	<u>8+90</u>	stations	<u>Reconstruction -</u>	<u>0+00</u>	stations
	0.00	miles		0.17	miles		0.00	miles

ROCK							
Landing Rock	0+00	50	cy. of	Pitrun	@	\$14.79 per c.y. =	\$739.50
							TOTAL ROCK
							\$739.50
						GRAND TOTAL	\$739.50

SUMMARY OF CONSTRUCTION COST

Sale: **Thor's Summit**

Road: **CC to DD**

<u>Construction -</u>	<u>0+00</u>	stations	<u>Improvement -</u>	<u>2+25</u>	stations	<u>Reconstruction -</u>	<u>0+00</u>	stations
	0.00	miles		0.04	miles		0.00	miles

ROCK

0+00 to	2+25	98	cy. of	Jawrun	@	\$18.79 per c.y.=	\$1,841.42
Intersection Rock	0+00	50	cy. of	Jawrun	@	\$18.77 per c.y.=	\$938.50
Landing Rock	2+25	50	cy. of	Pitrun	@	\$14.61 per c.y.=	\$730.50
TOTAL ROCK							\$3,510.42

SPECIAL PROJECTS

Grade and shape road -	2.25	stations @	\$15.50	per station	\$34.88
Brush Road	0.04	miles @	\$800.00	per mile	\$32.00
Roll subgrade w/ vibratory roller prior to rocking -	2.25	stations @	\$13.20	per station	\$29.70
TOTAL SPECIAL PROJECTS					\$96.58

GRAND TOTAL **\$3,607.00**

SUMMARY OF CONSTRUCTION COST

Sale: **Thor's Summit**

Road: **EE to FF**

<u>Construction -</u>	<u>0+00</u>	stations	<u>Improvement -</u>	<u>86+25</u>	stations	<u>Reconstruction -</u>	<u>0+00</u>	stations
	0.00	miles		1.63	miles		0.00	miles

CULVERTS - MATERIALS & INSTALLATION

<u>Culverts</u>	30	LF of 18"	<u>\$750.00</u>		0	LF of 24"	\$0.00
			\$750.00				\$0.00
<u>Culvert Stakes & Markers</u>							
	1	markers	<u>\$8.00</u>				
			\$8.00				
TOTAL CULVERTS							<u>\$758.00</u>

ROCK

Spot Patch	As Needed	200	cy. of	Crushed	@	\$20.79 per c.y.=	\$4,158.00
Landing Rock	85+10	100	cy. of	Pitrun	@	\$8.88 per c.y.=	\$888.00
Energy Dissipator	78+35	5	cy. of	Riprap	@	\$9.73 per c.y.=	\$48.65
Culvert Backfill	78+35	20	cy. of	Crushed	@	\$19.91 per c.y.=	\$398.20
TOTAL ROCK							<u>\$5,492.85</u>

SPECIAL PROJECTS

Grade and shape road -	86.25	stations @	\$15.50	per station	\$1,336.88
Construct Ditchline 78+35 to 84+35	6.00	stations @	\$100.00	per station	\$600.00
Roll subgrade w/ vibratory roller prior to rocking -	86.25	stations @	\$13.20	per station	\$1,138.50
TOTAL SPECIAL PROJECTS					<u>\$3,075.38</u>

GRAND TOTAL **\$9,326.23**

SUMMARY OF CONSTRUCTION COST

Sale:

Thor's Summit

Road:

GG to HH

<u>Construction -</u>	26+95 stations	<u>Improvement -</u>	15+55 stations	<u>Reconstruction</u>	18+40 stations
	0.51 miles		0.29 miles		0.35 miles

CONSTRUCTION: CLEARING, GRUBBING, SCATTERING, EXCAVATION, COMPACTION, LOADING, END-HAULING AND SPREADING/COMPACTING AT

	Station	to	Station	Average Slope(%)	Average MBF/Acre	Grubbing Factor	Ground Type	Excavation Factor	Drill & Shoot CUYDS	Endhaul Waste(\$)	Segment Cost
	33+95		49+20	20	20.0	2.00	1.00	2.00		\$9,200	\$13,318
	49+20		50+95	10	25.0	2.22	1.00	1.50			\$411
	50+95		55+80	60	20.0	5.67	1.00	9.00		\$8,500	\$13,666
	55+80		60+90	15	30.0	2.44	1.00	1.75			\$1,363
TOTAL											\$28,758

RECONSTRUCTION: CLEARING AND GRUBBING -
Scattering

0.845 acres @	\$980.00 per acre =	\$828.10	TOTAL CLEARING AND GRUBBING	\$828.10
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RECONSTRUCTION: EXCAVATION -

Pullback	190 cy. @	\$1.50 per c.y.=	\$285	
Widening	2650 cy. @	\$1.50 per c.y.=	\$3,975	
TOTAL EXCAVATION				\$4,260

RECONSTRUCTION: ENDHAUL -

Pullback	24+65	to	25+15	10	cy. @	\$3.00	per c.y.=	\$30	
Pullback	29+40	to	29+80	180	cy. @	\$3.22	per c.y.=	\$580	
Widening	15+55	to	16+60	110	cy. @	\$3.09	per c.y.=	\$340	
Widening	24+30	to	25+70	2000	cy. @	\$4.25	per c.y.=	\$8,500	
Widening	28+75	to	30+45	650	cy. @	\$10.46	per c.y.=	\$6,800	
Spread & compact				2950	cy. @	\$0.75	per c.y.=	\$2,213	
TOTAL ENDHAUL									\$18,463

CULVERTS - MATERIALS & INSTALLATION

<u>Culverts</u>				
30	LF of 18"	\$750		
50	LF of 30"	\$2,000		
<u>\$2,750</u>				
30	LF of 24"	\$900		
0	LF of 36"	\$0		
<u>\$900</u>				
<u>Culvert Stakes & Markers</u>				
3	markers	\$24		
<u>\$24</u>				
TOTAL CULVERTS				\$3,674

ROCK

15+55	to	33+95	1,090	cy. of	Jawrun	@	\$13.12	per c.y.=	\$14,301
33+95	to	60+90	2,112	cy. of	Jawrun	@	\$13.53	per c.y.=	\$28,575
Approach/Widening		15+55	50	cy. of	Jawrun	@	\$12.96	per c.y.=	\$648
Landing Rock		100yds ea	400	cy. of	Jawrun	@	\$13.55	per c.y.=	\$5,420
Energy Dissipator		25+15&26	10	cy. of	Riprap	@	\$9.65	per c.y.=	\$97
Culvert Backfill		25+15&26	40	cy. of	Jawrun	@	\$12.65	per c.y.=	\$506
Culvert Backfill		29+30	50	cy. of	Jawrun	@	\$12.70	per c.y.=	\$635
Energy Dissipator		29+30	20	cy. of	Riprap	@	\$9.70	per c.y.=	\$194
Landing Rock		33+25	120	cy. of	Jawrun	@	\$13.27	per c.y.=	\$1,592
Widening		28+75	85	cy. of	Jawrun	@	\$13.19	per c.y.=	\$1,121
Widening		24+30	70	cy. of	Jawrun	@	\$13.11	per c.y.=	\$918
Spot Patch		As Marked	60	cy. of	Jawrun	@	\$13.13	per c.y.=	\$788
TOTAL ROCK									\$54,795

SPECIAL PROJECTS

Construct waste areas and landings-	9.00	hours @	\$200.00	per hour	\$1,800
Remove culverts from state lands	6.00	@	\$387.50	each	\$2,325
Grade and shape road -	60.90	stations @	\$15.50	per station	\$944
Roll Road following grading -	60.90	stations @	\$13.20	per station	\$804
Grass seed and fertilize -	1.40	acres @	\$220.00	per acre	\$308
Mulching -	0.150	acres @	\$600.00	per acre	\$90
TOTAL SPECIAL PROJECTS					\$6,271

GRAND TOTAL **\$117,049**

SUMMARY OF CONSTRUCTION COST

Sale:

Thor's Summit

Road:

II to JJ

Construction -	2+20	stations	Improvement -	0+00	stations	Reconstruction	0+00	stations
	0.04	miles		0.00	miles		0.00	miles

CONSTRUCTION: CLEARING, GRUBBING, SCATTERING, EXCAVATION, COMPACTION, LOADING, END-HAULING AND SPREADING/COMPACTING

Station	to	Station	Average Slope(%)	Average MBF/Acre	Grubbing Factor	Ground Type	Excavation Factor	Drill & Shoot CUYDS	Endhaul Waste(\$)	Segment Cost
0+00		2+20	10	30.0	2.44	1.00	1.50			\$539
TOTAL										\$539

CULVERTS - MATERIALS & INSTALLATION

<u>Culverts</u>										
	50	LF of 18"		\$1,250				0	LF of 24"	\$0
				\$1,250						\$0
<u>Culvert Stakes & Markers</u>										
	1	markers			\$8					
					\$8					
TOTAL CULVERTS										\$1,258

ROCK

0+00	to	2+20	120	cy. of	Jawrun	@	\$13.12 per c.y.=	\$1,574
Approach		0+10	40	cy. of	Jawrun	@	\$12.96 per c.y.=	\$518
Landing Rock		2+20	50	cy. of	Pitrun	@	\$13.55 per c.y.=	\$678
TOTAL ROCK								\$2,770

SPECIAL PROJECTS

Grade and shape road -	2.20	stations @	\$15.50 per station	\$34
Roll Road following grading -	2.20	stations @	\$13.20 per station	\$29
Grass seed and fertilize -	0.11	acres @	\$220.00 per acre	\$24
TOTAL SPECIAL PROJECTS				\$87

GRAND TOTAL **\$4,654**



PROJECT SUMMARY SHEET

Sale: Thor's Summit

CONSTRUCTION

Point	E to F	12+15	stations =	\$9,366.79
Point	G to H	3+00	stations =	\$2,163.45
Point	I to J	5+85	stations =	\$4,199.20
Point	GG to HH	26+95	stations =	\$57,407.31
Point	II to JJ	2+20	stations =	\$4,654.00
SUBTOTAL CONSTRUCTION				\$77,790.75

IMPROVEMENT

Point	A to B	888+25	stations =	\$392,715.00
Point	C to D	98+90	stations =	\$134,195.68
Point	E to F	16+00	stations =	\$7,338.65
Point	G to H	3+75	stations =	\$2,704.32
Point	K to L	19+35	stations =	\$4,566.63
Point	Y to Z	94+60	stations =	\$76,858.23
Point	AA to BB	8+90	stations =	\$739.50
Point	CC to DD	2+25	stations =	\$3,607.00
Point	EE to FF	86+25	stations =	\$9,326.23
Point	GG to HH	15+55	stations =	\$16,530.49
SUBTOTAL IMPROVEMENT				\$648,581.73

RECONSTRUCTION

Point	E to F	1+40	stations =	\$642.13
Point	K to L	38+50	stations =	\$8,592.82
Point	M to N	6+65	stations =	\$1,354.81
Point	O to P	16+00	stations =	\$2,920.80
Point	Q to R	2+05	stations =	\$939.74
Point	S to T	9+00	stations =	\$1,365.70
Point	U to V	3+50	stations =	\$937.65
Point	W to X	1+80	stations =	\$714.06
Point	Y to Z	11+95	stations =	\$9,708.83
Point	GG to HH	18+40	stations =	\$43,111.30
SUBTOTAL RECONSTRUCTION				\$71,224.84

SPECIAL PROJECTS

3,000yd Stockpile A to B station 81+25	\$87,000.00
1000yd Stockpile A to B station 604+80	\$13,810.00
6 hours Joyce Creek Pit Test Drilling Including Move In	\$1,800.00
Grade and Remove waterbars Point KK to Point LL Including Move In	\$1,632.00
Property Line Pit Work 60 hours Excavator, 30 hours D8, 30 hours off highway dump (No Move In)	\$20,700.00
Property Line Pit Slash Piling & Burning (No Move In)	\$5,506.00
Point MM Fill Repair, 205ft Ditch, 2 18"X30' X-drains Including Move In	\$17,068.20
Point NN 18"X40' Culvert Installation with ditchout Including Move In	\$2,120.00
Point OO Road Widening Including Move In	\$5,375.00
Point UU to Point VV Sidecast Pullback Including Move In	\$41,753.00
10 hours Property Line Pit Test Drilling (No Move In)	\$2,500.00
Road Brushing 5.52 Miles Including Move In	\$6,170.00
SUBTOTAL SPECIAL PROJECTS	\$205,434.20

MOVE IN

\$5,928.48

GRAND TOTAL

\$1,008,960.00

WRITTEN PLAN

THOR'S SUMMIT

WORK ON PROJECT SEGMENT UU TO VV

Resource Concern: High landslide hazard location.

Locations: SE ¼ & NE ¼ NE ¼ Section 18, T2N, R9W, W.M. Tillamook County.

Activities: Road re-construction including road side cast pullback in an area deemed "Intermediate Risk" by the area Geotechnical Specialist (see attached map). A reduction of hazard from possible landslides should be accomplished by removing side cast material from high hazard landslide areas. Road improvements including any ditch line cleanout should also reduce the risk of future road failures.

Protection Measures: Work will be performed only during dry weather periods within the period and all work shall be completed in same dry weather period it is started including required tree felling. Disturbance of existing vegetation will be kept to a minimum, only within side cast pullback area. Road side cast pullback will be kept to a minimum (No greater than 3' in width) to allow safe travel. Road shall be pulled back at locations marked in field only. Waste material from road side cast pullback shall be end-hauled to stable locations. Road drainage maintenance shall be performed so that water drains away from side cast pullback sections. All disturbed areas will be grass seeded, mulched to minimize erosion.

Prepared By: Aaron Inman
Road Specialist

Date: September 27, 2017



OREGON DEPARTMENT OF FORESTRY CRUISE REPORT

Thor's Summit

1. Type of Sale

Regeneration harvest, Recovery

2. Legal Description

Sections 29, 31, and 32, T2S, R7W, Sections 5 and 6, T3S, R7W, and Section 1, T3S, R8W, W.M. Tillamook County, Oregon

3. Sale Acreage

Sale acreage was determined by GPS and orthophotographs along with GIS.

	ACRES	
	<u>Gross</u>	<u>Net</u>
Area 1 (Modified clearcut)	96	65
Area 2 (Modified clearcut)	125	103
Area 3 (Modified clearcut)	79	56
Area 4 (Modified clearcut)	123	106
Area 5 (Modified clearcut)	135	116

Gross Acres

Area within the Timber Sale Boundary signs

Net acres

Used for calculating the advertised volume.

Gross acres, less green tree retention, roads, Non-required thinning areas, and riparian areas classified as Special Stewardship in LMCS inside the sale boundary.

4. Cruising Procedures

A. Cruise Method

All of the sale areas were cruised on a rectangular grid with 175' between plots and 700' between lines. On even numbered plots tree species and number were recorded and on odd numbered plots species, diameter, height, form factor, and sawmill grade were recorded.

The timber sale areas were cruised using variable plot sampling. All confers 8" DBH and greater containing 20 board feet and all hardwoods 10" DBH and greater containing 30 board feet were recorded on all plots. Heights were recorded to 6" and 7" outside bark for conifers and hardwoods respectively.

B. Plot size

A BAF of 27.78 was used on Areas 1 and 4, a BAF of 33.61 was used on Areas 2 and 3, and a BAF of 40 was used on Area 5. Point of tree observation was 4.5'.

C. Grading System

All species were graded using the Columbia River Log Scaling and Grading Bureau rules, favoring a 40' log.

5. Computation Procedure

Plot data was entered into SuperAce for computation of basal area, ingrowth, and volume. Log stock tables and stand tables were produced. Sale Areas 1 and 3 were cruised in 2016, Areas 2 and 4 in 2017, and Area 5 in 2018. The stands were grown forward to September 2018. The net grow forward volume was used for the timber sale volume calculation.

Statistics – Net Board Feet/ Acre			
	# of Plots	SE%	CV%
Area 1	22	8.7	40.0
Area 2	42	6.7	43.7
Area 3	25	10.4	51.0
Area 4	31	4.7	26.3
Area 5	38	5.1	31.7
Combined	158	3.3	41.9

6. Hidden Defect and Breakage

A 1% reduction was applied to conifers and a 2% reduction to hardwood volumes for hidden defect and breakage.

7. Timber Description

The northeast one-third of Area 3 was burned in the 1933 Tillamook burn. Subsequently all of the five areas were burned in the 1939 Saddle Mtn. and 1951 North Fork Fires. Following the fires Areas 1, 2, 3, and the West ½ of Area 4 were planted between 1964 and 1967. Area 5 regenerated naturally. Between 5 and 15% of Areas 1, 2, 3, and 4 were sprayed to control alder in the 1970's. In 2000 about 80% of Area 5 was thinned with the Many Bucks sale. Area 1 was thinned with the Tahoe sale in 2004 and Area 4 thinned with the Summit Creek sale in 2003.

Sale Area - Species	DBH	Merchantable Bole Height	Merchantable Top
Area 1: Douglas-fir	16.1	67	5"
Area 1: Alder	18.0	38	6"
Area 1: Hemlock	19.0	74	5"
Area 2: Douglas-fir	17.0	69	5"
Area 2: Alder	19.0	45	6"
Area 3: Douglas-fir	18.3	72	5"
Area 3: Alder	16.7	57	6"
Area 3: Hemlock	22.5	55	5"
Area 4: Douglas-fir	15.8	64	5"
Area 4: Hemlock	21.7	77	5"
Area 5: Douglas-fir	19.7	89	5"
Area 5: Hemlock	16.2	53	5"

8. Cruiser /Dates

The timber sale was cruised in 2016, 2017, and 2018 by contract and District personnel.

9. Revenue Distribution

FDF: 100%

Tax Code: 800 - 50%; 801 – 50%

Deed Numbers: 169, 295

10. Attachments

Stand Tables

Volume Summary

Log Stock Tables

Logging Plan Map

11. Stand and Log Stock Tables Species Key

DF – Douglas-fir

RA – Red alder

WH – Western hemlock

GF – Grand fir

SS – Sitka spruce

OC – Snags, Class 1 or 2

Log Stock Table - MBF
Project: THORSUM2

T02S R07W S31 TSALE

T02S R07W S31 TSALE

Twp Rge Sec Tract Type Acres Plots Sample Trees Page
02S 07W 31 749_AREA1 SALE 65.00 22 81 Date 6/20/2018
Time 7:17:22AM

Spp	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
DF	CO	2	16	10		10		10	.7					10					
DF	CO	2	20	10		10		10	.7					10					
DF	CO	2	32	31		31		31	2.1					16	16				
DF	CO	2	40	450	.4	448		448	30.0					263	129	39	18		
DF	CO	3	32	101	3.2	98		98	6.5		15	70	13						
DF	CO	3	40	685	.1	684		684	45.8		91	260	333						
DF	CO	4	16	5		5		5	.4		5								
DF	CO	4	19	19		19		19	1.3		19								
DF	CO	4	20	2		2		2	.1		2								
DF	CO	4	21	8		8		8	.6		8								
DF	CO	4	22	6		6		6	.4		6								
DF	CO	4	23	9		9		9	.6		9								
DF	CO	4	25	13		13		13	.9		13								
DF	CO	4	26	12		12		12	.8		12								
DF	CO	4	27	14		14		14	.9		14								
DF	CO	4	28	6		6		6	.4		6								
DF	CO	4	29	3		3		3	.2		3								
DF	CO	4	30	11		11		11	.7		11								
DF	CO	4	31	3		3		3	.2		3								
DF	CO	4	32	9		9		9	.6		9								
DF	CO	4	33	4		4		4	.2		4								
DF	CO	4	34	18		18		18	1.2		18								
DF	CO	4	35	23		23		23	1.5		23								
DF	CO	4	36	11		11		11	.7		11								
DF	CO	4	37	4		4		4	.2		4								
DF	CO	4	38	7		7		7	.4		7								
DF	CO	4	39	12		12		12	.8		12								
DF	CO	4	40	14		14		14	.9		14								
DF	Totals				1,499		1,494		98.6		212	106	330	346	289	155	39	18	
RA	H	4	37	12		12		12	100.0		12								
RA	Totals				12		12		.8		12								
WH	CO	3	40	8		8		8	85.7				8						
WH	CO	4	32	1		1		1	14.3		1								
WH	Totals				10		10		.6		1		8						
Total All Species					1,521		1,516		100.0		213	118	330	354	289	155	39	18	

FI		TSTNDSUM		Stand Table Summary												
Project										THORSUM2						
T02S R07W S31 TSALE										T02S R07W S31 TSALE						
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees			Page:	1					
02S	07W	31	749_AREA1	SALE	65.00	22	81			Date:	06/20/2018					
										Time:	7:15:28AM					
Spc	S T	Sample		Av		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
		DBH	Trees	FF 16'	Ht Tot				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
DF		8		75	79	6.518	2.39	6.73	8.9	42.6	1.70	60	287	111	39	19
DF		10		83	83	8.343	4.79	8.62	13.6	53.2	3.35	117	459	218	76	30
DF		11		84	80	6.895	4.79	7.12	8.8	42.6	1.79	63	303	116	41	20
DF		12		86	84	5.794	4.79	11.97	11.0	47.9	3.77	132	573	245	86	37
DF		13		85	79	9.874	9.57	17.85	14.4	52.1	7.32	257	930	476	167	60
DF		14		85	94	8.513	9.57	17.59	17.1	64.3	8.57	301	1,132	557	195	74
DF		15		85	93	12.978	16.75	26.82	19.9	76.0	15.25	535	2,038	991	348	132
DF		16		85	95	14.666	21.54	30.30	23.2	88.1	20.00	702	2,669	1,300	456	173
DF		17		85	93	12.991	21.54	25.35	26.2	101.4	18.92	664	2,570	1,230	431	167
DF		18		85	97	12.875	23.93	27.93	29.5	109.8	23.49	824	3,067	1,527	536	199
DF		19		86	103	6.933	14.36	15.52	33.6	125.2	14.84	521	1,943	965	339	126
DF		21		85	98	9.386	21.54	19.39	38.3	132.4	21.18	743	2,568	1,377	483	167
DF		22		85	104	2.838	7.18	5.86	44.6	157.8	7.45	261	925	484	170	60
DF		23		86	110	1.724	4.79	4.45	40.6	159.6	5.15	181	711	334	117	46
DF		24		85	106	3.943	11.97	8.15	56.0	211.3	13.00	456	1,721	845	296	112
DF		26		85	108	.667	2.39	1.38	68.5	260.6	2.69	94	359	175	61	23
DF		27		84	113	.617	2.39	1.28	76.1	300.3	2.77	97	383	180	63	25
DF		35		78	113	.361	2.39	.75	122.4	468.1	2.60	91	349	169	59	23
DF		Totals		84	92	125.918	186.66	237.08	25.7	97.0	173.81	6,099	22,986	11,298	3,964	1,494
RA		19		72	50	2.740	5.20	2.78	46.8	65.4	3.58	130	182	233	85	12
RA		Totals		72	50	2.740	5.20	2.78	46.8	65.4	3.58	130	182	233	85	12
WH		20		82	93	.613	1.31	1.27	35.5	117.9	1.44	45	149	93	29	10
WH		Totals		82	93	.613	1.31	1.27	35.5	117.9	1.44	45	149	93	29	10
Totals				84	91	129.270	193.18	241.13	26.0	96.7	178.83	6274	23,317	11,624	4,078	1,516

Log Stock Table - MBF
Project: THORSUM2

T02S R07W S31 TSALE

T02S R07W S31 TSALE

Twp Rge Sec Tract Type Acres Plots Sample Trees Page
02S 07W 31 750_AREA2 SALE 103.00 42 130 Date 1
Time 6/20/2018 7:25:41AM

Spp	T	S	So	Gr	Log	Gross	% Def	Net	% 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
DF		CO	2		32	12		12	.5					12						
DF		CO	2		40	831	.4	827	34.3					545	112	146	24			
DF		CO	3		32	146	1.6	144	6.0			25	104	15						
DF		CO	3		36	2		2	.1			2								
DF		CO	3		40	1,110	.4	1,106	45.9			111	307	687						
DF		CO	4		16	14		14	.6		14									
DF		CO	4		17	1		1	.1		1									
DF		CO	4		18	12		12	.5		12									
DF		CO	4		19	3		3	.1		2	1								
DF		CO	4		20	25		25	1.0		24	1								
DF		CO	4		21	7		7	.3		5	1								
DF		CO	4		22	5		5	.2		5									
DF		CO	4		23	13		13	.5		13									
DF		CO	4		24	11		11	.4		11									
DF		CO	4		25	9		9	.4		9									
DF		CO	4		26	20		20	.8		20									
DF		CO	4		27	6		6	.2		6									
DF		CO	4		28	11		11	.5		11									
DF		CO	4		29	7		7	.3		7									
DF		CO	4		30	15		15	.6		15									
DF		CO	4		31	15		15	.6		15									
DF		CO	4		32	12		12	.5		12									
DF		CO	4		33	9		9	.4		9									
DF		CO	4		34	10		10	.4		10									
DF		CO	4		35	18		18	.7		18									
DF		CO	4		36	32		32	1.3		32									
DF		CO	4		37	6		6	.2		6									
DF		CO	4		38	7		7	.3		7									
DF		CO	4		39	11		11	.5		11									
DF		CO	4		40	41		41	1.7		41									
DF		Totals				2,421		2,411	98.4		316	142	411	702	557	112	146	24		
RA		H	3		40	13	5.6	13	54.5				13							
RA		H	4		19	1		1	6.4		1									
RA		H	4		29	3	25.0	3	10.8		3									
RA		H	4		37	4	16.7	4	16.0		4									
RA		H	4		40	3	11.1	3	12.3			3								
RA		Totals				26	10.3	23	.9		8	3	13							
GF		CO	2		40	15		15	100.0				3						13	
GF		Totals				15		15	.6				3							13
Total All Species						2,462		2,450	100.0		316	150	414	715	560	112	146	24	13	

Stand Table Summary																
FI		TSTNDSUM														
Project THORSUM2																
T02S R07W S31 TSALE										T02S R07W S31 TSALE						
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page:	1							
02S	07W	31	750_AREA2	SALE	103.00	42	130	Date:	06/20/2018							
								Time:	7:24:17AM							
S Spc	T	Sample		Av		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
		DBH	Trees	FF 16'	Ht Tot				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
DF		10		86	81	2.630	1.50	2.70	13.3	64.3	1.03	36	174	106	37	18
DF		11		88	64	2.173	1.50	2.23	14.2	42.9	.91	32	96	93	33	10
DF		12		84	79	7.305	6.01	13.13	11.7	47.4	4.39	154	623	453	159	64
DF		13		86	83	6.224	6.01	12.78	13.3	54.9	4.83	169	702	497	175	72
DF		14		85	82	9.392	10.52	17.91	16.4	60.2	8.38	294	1,078	863	303	111
DF		15		84	87	11.688	15.03	22.81	20.3	77.3	13.21	464	1,762	1,361	477	181
DF		16		86	85	21.572	31.57	39.04	23.2	89.5	25.76	904	3,493	2,654	931	360
DF		17		86	94	10.009	16.54	19.63	28.2	108.7	15.79	554	2,133	1,626	571	220
DF		18		86	95	13.798	25.56	28.34	30.3	113.4	24.49	859	3,215	2,522	885	331
DF		19		86	100	8.742	18.04	17.96	35.9	128.6	18.36	644	2,308	1,891	664	238
DF		20		85	102	9.862	22.55	22.28	37.0	135.4	23.50	824	3,017	2,420	849	311
DF		21		85	100	4.771	12.03	11.02	39.3	142.3	12.35	433	1,568	1,272	446	162
DF		23		85	100	2.173	6.01	5.02	43.9	167.8	6.29	221	843	648	227	87
DF		24		84	92	.994	3.01	2.04	52.3	176.8	3.04	107	361	313	110	37
DF		25		87	117	.457	1.50	1.41	44.2	200.0	1.77	62	281	183	64	29
DF		27		82	103	.389	1.50	.80	70.4	251.8	1.60	56	201	165	58	21
DF		28		84	100	.721	3.01	1.48	74.7	275.9	3.16	111	409	325	114	42
DF		29		84	118	.671	3.01	2.07	59.9	257.1	3.53	124	531	364	128	55
DF		30		83	114	.313	1.50	.64	90.5	364.3	1.66	58	234	171	60	24
DF		35		83	155	.227	1.50	.70	109.1	542.8	2.18	76	380	224	79	39
DF		Totals		85	90	114.111	187.91	223.99	27.6	104.5	176.21	6,183	23,408	18,150	6,368	2,411
RA		18		60	52	.708	1.23	.72	25.2	33.9	.50	18	24	51	19	3
RA		19		78	64	1.262	2.45	1.92	36.7	90.4	1.93	70	173	199	72	18
RA		27		78	61	.302	1.23	.31	65.3	90.4	.55	20	28	57	21	3
RA		Totals		72	60	2.272	4.91	2.94	36.9	76.6	2.98	108	225	307	112	23
GF		37		84	110	.108	.83	.22	156.7	676.6	.77	35	150	79	36	15
GF		Totals		84	110	.108	.83	.22	156.7	676.6	0.77	35	150	79	36	15
Totals				85	90	116.492	193.64	227.16	27.8	104.7	179.96	6326	23,784	18,536	6,516	2,450

Log Stock Table - MBF
Project: THORSUM2

T02S R07W S32 TSALE

T02S R07W S32 TSALE

Twp Rge **Sec** **Tract** **Type** **Acres** **Plots** **Sample Trees** **Page** **1**
02S **07W** **32** **752_AREA3** **SALE** **56.00** **25** **73** **Date** **6/20/2018**
Time **7:32:54AM**

Spp	T	S	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+
DF		CO	2		32		21		21	1.7				21								
DF		CO	2		36		23		23	2.0									23			
DF		CO	2		40		561	.1	560	47.7				311	143	85		21				
DF		CO	3		30		11		11	1.0												
DF		CO	3		32		43		43	3.7												
DF		CO	3		36		3		3	.3			3									
DF		CO	3		40		372	.3	371	31.6			54	81	236							
DF		CO	4		16		7		7	.6		4	1	1								
DF		CO	4		17		3		3	.2		1	1									
DF		CO	4		19		1		1	.1			1									
DF		CO	4		20		10		10	.9		10										
DF		CO	4		21		3		3	.2		3										
DF		CO	4		22		3		3	.3		3										
DF		CO	4		23		4		4	.4		4										
DF		CO	4		24		2		2	.2		2										
DF		CO	4		25		9		9	.8		9										
DF		CO	4		26		2		2	.2		2										
DF		CO	4		27		4		4	.4		4										
DF		CO	4		28		7		7	.6		7										
DF		CO	4		29		5		5	.4		5										
DF		CO	4		30		9		9	.8		9										
DF		CO	4		31		5		5	.4		5										
DF		CO	4		32		3		3	.3		3										
DF		CO	4		33		6		6	.5		6										
DF		CO	4		35		11		11	.9		11										
DF		CO	4		36		6		6	.5		6										
DF		CO	4		37		11		11	.9		11										
DF		CO	4		38		3		3	.3		3										
DF		CO	4		39		19		19	1.6		19										
DF		CO	4		40		6		6	.5		6										
DF		Totals					1,176		1,174	89.0		136	61	137	236	332	143	85	44			
RA		H	2		24		19		19	14.1					9	10						
RA		H	3		32		18	10.8	16	12.0				16								
RA		H	3		40		56	1.8	55	40.2				55								
RA		H	4		21		4	16.7	3	2.5		3										
RA		H	4		22		2		2	1.2		2										
RA		H	4		23		5		5	3.3		5										
RA		H	4		24		2		2	1.4		2										
RA		H	4		36		2	16.7	2	1.5		2										
RA		H	4		38		6		6	4.5		6										
RA		H	4		40		29	9.2	26	19.3		13	14									
RA		Totals					143	4.7	137	10.3		32	14	71		9	10					
WH		CO	2		40		6		6	62.8				6								
WH		CO	3		40		3		3	30.9			3									
WH		CO	4		18		1		1	6.3		1										
WH		Totals					9		9	.7		1	3	6								
Total All Species							1,329		1,320	100.0		136	93	154	308	338	153	95	44			

Stand Table Summary																
FI		TSTNDSUM														
Project THORSUM2																
T02S R07W S32 TSALE										T02S R07W S32 TSALE						
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page:	1							
02S	07W	32	752_AREA3	SALE	56.00	25	73	Date:	06/20/2018							
								Time:	7:31:02AM							
S Spec	T	Sample		Av		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
		DBH	Trees	FF 16'	Ht Tot				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
DF		12		85	86	10.759	8.86	22.10	11.2	48.2	7.07	248	1,065	396	139	60
DF		14		83	80	7.905	8.86	13.53	18.6	64.3	7.16	251	870	401	141	49
DF		15		84	87	9.181	11.81	16.50	18.8	62.8	8.86	311	1,035	496	174	58
DF		16		84	93	2.017	2.95	4.14	23.4	80.4	2.76	97	333	155	54	19
DF		17		86	94	12.509	20.66	25.69	26.4	101.8	19.34	679	2,615	1,083	380	146
DF		18		86	99	9.564	17.71	19.64	31.5	117.0	17.64	619	2,298	988	347	129
DF		19		86	98	8.583	17.71	17.63	35.2	127.7	17.69	621	2,251	991	348	126
DF		20		85	93	2.582	5.90	5.30	36.9	125.9	5.58	196	668	313	110	37
DF		21		85	100	10.540	26.57	22.85	41.5	151.1	27.02	948	3,453	1,513	531	193
DF		23		83	97	9.603	26.57	19.73	44.7	151.2	25.12	882	2,982	1,407	494	167
DF		25		78	98	.897	2.95	1.84	58.6	187.5	3.08	108	345	172	60	19
DF		26		85	110	.826	2.95	1.70	68.4	262.5	3.31	116	446	185	65	25
DF		27		86	118	.764	2.95	2.35	51.3	232.1	3.44	121	546	193	68	31
DF		29		84	113	1.317	5.90	4.06	59.3	257.1	6.86	241	1,044	384	135	58
DF		35		84	123	.447	2.95	1.38	87.6	421.4	3.44	121	580	192	68	32
DF		39		82	105	.358	2.95	.73	149.3	600.0	3.13	110	441	175	61	25
DF		Totals		85	94	87.852	168.27	179.19	31.6	117.0	161.49	5,666	20,972	9,044	3,173	1,174
RA		14		75	77	1.839	1.86	1.86	29.2	67.8	1.50	54	126	84	30	7
RA		15		82	76	1.586	1.86	1.61	17.8	67.8	.79	29	109	44	16	6
RA		16		85	76	2.763	3.73	4.20	24.9	82.9	2.88	105	348	161	59	19
RA		17		84	58	1.214	1.86	1.23	36.4	79.1	1.23	45	97	69	25	5
RA		18		88	82	2.151	3.73	4.36	29.4	115.8	3.52	128	505	197	72	28
RA		19		85	85	2.878	5.59	4.86	32.9	119.8	4.40	160	582	246	90	33
RA		20		85	82	1.722	3.73	2.62	27.7	120.6	1.99	73	315	112	41	18
RA		21		84	75	.777	1.86	.79	62.1	180.8	1.34	49	142	75	27	8
RA		23		86	85	.642	1.86	1.30	40.5	163.9	1.45	53	213	81	29	12
RA		Totals		84	78	15.571	26.10	22.82	30.4	106.9	19.09	694	2,439	1,069	389	137
WH		23		78	54	.487	1.39	.50	69.7	100.7	1.12	35	50	62	20	3
WH		24		82	76	.446	1.39	.92	38.9	123.0	1.14	36	113	64	20	6
WH		Totals		80	65	.933	2.78	1.42	49.8	115.1	2.25	70	163	126	39	9
Totals				85	91	104.356	197.15	203.42	31.6	115.9	182.84	6431	23,573	10,239	3,601	1,320

Log Stock Table - MBF
Project: THORSUM2

T03S R08W S01 TSALE

T03S R08W S01 TSALE

Twp Rge **Sec** **Tract** **Type** **Acres** **Plots** **Sample Trees** **Page** **1**
03S **08W** **01** **746_AREA4** **SALE** **106.00** **31** **83** **Date** **6/20/2018**
Time **7:39:37AM**

Spp	T	S	So	Gr	Log	Gross	%	Net	%	Net Volume by Scaling Diameter in Inches										
										MBF	Def	MBF	Spc	2-3	4-5	6-7	8-9	10-11	12-13	14-15
DF		CO	2		18	20		20	1.0								20			
DF		CO	2		20	19		19	.9						19					
DF		CO	2		32	9		9	.5					9						
DF		CO	2		36	25		25	1.3							25				
DF		CO	2		40	661	2.0	648	32.8					369	91	158	29			
DF		CO	3		16	7		7	.3					7						
DF		CO	3		32	131	6.8	122	6.2			16	41	65						
DF		CO	3		36	7		7	.4			7								
DF		CO	3		40	846	2.5	825	41.8			83	322	420						
DF		CO	4		14	1		1	.1			1								
DF		CO	4		16	10		10	.5			10								
DF		CO	4		18	17		17	.9			14	3							
DF		CO	4		19	3		3	.1			3								
DF		CO	4		20	10		10	.5			10								
DF		CO	4		22	18	9.2	16	.8			11	5							
DF		CO	4		24	14		14	.7			9		5						
DF		CO	4		26	22	8.5	20	1.0			20								
DF		CO	4		28	8		8	.4			8								
DF		CO	4		30	37		37	1.9			37								
DF		CO	4		32	25		25	1.3			25								
DF		CO	4		34	8	25.0	6	.3			6								
DF		CO	4		35	22		22	1.1			22								
DF		CO	4		36	26		26	1.3			26								
DF		CO	4		38	28		28	1.4			28								
DF		CO	4		39	5		5	.3			5								
DF		CO	4		40	42		42	2.1			42								
DF		Totals				2,020	2.4	1,972	95.0		279	114	368	492	379	110	183	49		
WH		CO	2		40	55		55	89.6					24		31				
WH		CO	3		36	4	16.7	3	5.6			3								
WH		CO	4		30	3		3	4.8			3								
WH		Totals				62	1.1	61	2.9		3	3		24		31				
OC	*	*			32	44		44	100.0			44								
OC		Totals				44		44	2.1			44								
Total All Species						2,126	2.3	2,077	100.0		282	161	368	492	402	110	215	49		

FI		TSTNDSUM											Stand Table Summary			
Project													THORSUM2			
T03S R08W S01 TSALE											T03S R08W S01 TSALE					
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page:	1							
03S	08W	01	746_AREA4	SALE	106.00	31	83	Date:	06/20/2018							
								Time:	7:38:06AM							
S Spc	T	Sample		Av		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
		DBH	Trees	FF 16'	Ht Tot				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
DF		9		89	80	7.827	3.64	8.09	9.5	43.2	2.19	77	350	232	82	37
DF		10		90	57	6.340	3.64	3.28	11.5	43.2	1.07	38	142	114	40	15
DF		11		88	74	5.240	3.64	8.12	10.4	39.6	2.41	85	322	255	90	34
DF		12		90	79	6.604	5.46	11.37	12.7	51.9	4.12	145	590	437	153	63
DF		13		90	90	7.503	7.27	13.57	15.8	67.9	6.12	215	922	649	228	98
DF		14		89	96	8.087	9.09	16.71	18.1	69.2	8.62	302	1,156	913	321	123
DF		15		89	90	15.498	20.00	29.11	20.7	84.3	17.16	602	2,455	1,819	638	260
DF		16		89	86	7.430	10.91	15.35	22.2	89.2	9.70	340	1,369	1,028	361	145
DF		17		89	99	9.872	16.37	20.40	27.9	114.1	16.23	569	2,328	1,720	604	247
DF		18		89	96	8.806	16.37	18.20	31.5	120.7	16.31	572	2,196	1,729	607	233
DF		19		89	103	4.391	9.09	9.07	34.0	138.4	8.78	308	1,255	931	327	133
DF		21		91	91	3.170	7.27	6.55	36.4	144.6	6.80	239	947	721	253	100
DF		22		89	97	2.156	5.46	4.46	42.5	151.3	5.40	189	674	572	201	71
DF		23		84	103	1.965	5.46	4.74	42.1	154.4	5.68	199	732	602	211	78
DF		24		89	96	1.199	3.64	2.48	52.7	202.7	3.72	131	502	394	138	53
DF		25		91	114	.550	1.82	1.71	46.3	209.0	2.25	79	357	238	84	38
DF		26		90	100	1.014	3.64	2.10	60.4	251.3	3.61	127	527	382	134	56
DF		28		89	102	.870	3.64	1.80	62.2	273.0	3.18	112	491	338	118	52
DF		29		90	110	.809	3.64	2.09	70.5	328.6	4.20	147	686	445	156	73
DF		30		88	110	.377	1.82	.78	90.5	362.1	2.01	70	282	213	75	30
DF		31		89	105	.352	1.82	.73	98.2	443.2	2.04	71	323	216	76	34
DF		Totals		89	89	100.060	143.66	180.67	25.6	103.0	131.60	4,617	18,604	13,949	4,894	1,972
WH		21		90	93	.785	1.87	1.62	37.9	154.0	1.96	61	250	208	65	26
WH		25		94	94	.545	1.87	1.13	65.8	290.9	2.37	74	327	251	79	35
WH		Totals		92	93	1.330	3.73	2.75	49.3	210.1	4.33	135	577	459	144	61
OC		16		87	90	1.390	1.86	1.39	54.0	197.6	1.88	75	275	199	80	29
OC		17		91	104	.611	.93	.61	61.4	224.8	.94	38	137	99	40	15
OC		Totals		88	94	2.000	2.79	2.00	56.3	205.9	2.81	113	412	298	119	44
Totals				89	89	103.390	150.19	185.42	26.2	105.7	138.74	4865	19,593	14,707	5,157	2,077

Log Stock Table - MBF
Project: THORSUM2

T03S R07W S06 TSALE

T03S R07W S06 TSALE

Twp Rge Sec Tract Type Acres Plots Sample Trees Page
03S 07W 06 334_AREAS5 SALE 116.00 38 86 Date 6/20/2018
Time 11:39:56AM

Spp	T	S	So	Gr	Log	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+
DF		CO	2		38	60		60	1.9					27		34					
DF		CO	2		40	1,816	1.0	1,798	57.1					755	521	444	78				
DF		CO	3		22	9		9	.3					9							
DF		CO	3		28	9		9	.3												
DF		CO	3		32	113		113	3.6					75	39						
DF		CO	3		33	9		9	.3					9							
DF		CO	3		36	62		62	2.0						62						
DF		CO	3		38	43		43	1.4						13	30					
DF		CO	3		40	787	.6	782	24.8					129	219	405	28				
DF		CO	4		13	3		3	.1			1									
DF		CO	4		14	6		6	.2			6									
DF		CO	4		15	10		10	.3			9	2								
DF		CO	4		16	15		15	.5			5	3	7							
DF		CO	4		17	15		15	.5			12	4								
DF		CO	4		18	17		17	.5			15	2								
DF		CO	4		19	8		8	.2			8									
DF		CO	4		20	25		25	.8			6	4	15							
DF		CO	4		21	6		6	.2			6									
DF		CO	4		23	2		2	.1			2									
DF		CO	4		24	12		12	.4			3	9								
DF		CO	4		25	2		2	.1				2								
DF		CO	4		26	3		3	.1			3									
DF		CO	4		27	3		3	.1				3								
DF		CO	4		29	8		8	.2			8									
DF		CO	4		30	13		13	.4			8	6								
DF		CO	4		31	3		3	.1			3									
DF		CO	4		32	11		11	.3				11								
DF		CO	4		33	6		6	.2				6								
DF		CO	4		36	6		6	.2				6								
DF		CO	4		39	6		6	.2				6								
DF		CO	4		40	84		84	2.7			12	11	28		33					
DF		Totals				3,173		3,151	95.9			123	195	338	574	810	521	511	78		
WH		CO	2		40	75	1.6	74	61.1						31	43					
WH		CO	3		32	6		6	5.0					6							
WH		CO	3		40	21	3.5	21	17.1				4	17							
WH		CO	4		14	1		1	.4			1									
WH		CO	4		16	1		1	.6				1								
WH		CO	4		18	1		1	1.2			1									
WH		CO	4		26	7		7	5.5			7									
WH		CO	4		34	2		2	1.7			2									
WH		CO	4		40	9		9	7.3			9									
WH		Totals				123	1.6	121	3.7			20	4	23	31	43					
OC		*	*		32	11		11	100.0			11									
OC		Totals				11		11	.3			11									
SS		CO	4		31	2		2	100.0			2									
SS		Totals				2		2	.1			2									
Total All Species						3,309		3,285	100.0			145	210	338	597	810	553	554	78		

FI		TSTNDSUM		Stand Table Summary												
Project														THORSUM2		
T03S R07W S06 TSALE										T03S R07W S06 TSALE						
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page:	1							
03S	07W	06	334_AREA5	SALE	116.00	38	86	Date:	06/20/2018							
								Time:	11:38:20AM							
S Spc	T	Sample		Av	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals			
		DBH	Trees	FF 16'				Ht Tot	Net Cu.Ft.				Net Bd.Ft.	Tons	Cunits	MBF
DF		11		86	79	3.478	2.34	3.53	15.1	61.8	1.51	53	218	176	62	25
DF		14		86	98	2.147	2.34	4.35	18.1	77.3	2.25	79	337	261	91	39
DF		15		86	100	1.870	2.34	5.69	13.7	65.3	2.23	78	371	258	91	43
DF		16		86	110	1.644	2.34	5.00	16.8	72.1	2.39	84	361	277	97	42
DF		17		87	112	8.827	14.03	22.42	23.2	98.7	14.80	519	2,211	1,717	602	257
DF		18		86	111	10.542	18.71	22.69	30.9	122.1	19.96	700	2,769	2,315	812	321
DF		19		86	109	12.887	25.73	29.67	32.2	122.1	27.25	956	3,623	3,161	1,109	420
DF		20		84	112	8.431	18.71	22.38	31.8	122.0	20.31	713	2,731	2,356	827	317
DF		21		85	119	8.636	21.05	26.26	32.9	133.1	24.62	864	3,496	2,856	1,002	406
DF		22		86	108	6.168	16.37	16.07	39.0	159.7	17.88	627	2,567	2,074	728	298
DF		23		87	117	3.978	11.69	11.29	42.7	186.3	13.75	482	2,103	1,594	559	244
DF		24		86	126	5.114	16.37	15.55	46.6	205.6	20.67	725	3,198	2,397	841	371
DF		25		87	128	1.347	4.68	4.10	51.5	228.5	6.01	211	936	698	245	109
DF		26		83	122	.623	2.34	1.89	52.3	216.4	2.82	99	410	327	115	48
DF		27		86	115	.599	2.34	1.82	51.6	216.4	2.68	94	394	311	109	46
DF		28		89	121	.537	2.34	1.63	61.9	285.1	2.88	101	465	334	117	54
DF		29		89	130	.500	2.34	1.52	71.4	333.2	3.10	109	507	359	126	59
DF		30		83	133	.468	2.34	1.42	74.7	326.4	3.03	106	464	351	123	54
DF		Totals		86	111	77.795	168.41	197.30	33.5	137.7	188.13	6,601	27,162	21,823	7,657	3,151
WH		11		83	52	3.592	2.44	3.65	12.7	36.8	1.49	46	134	172	54	16
WH		19		86	87	.602	1.22	1.22	21.4	84.1	.84	26	103	97	30	12
WH		21		86	100	.493	1.22	1.00	48.7	173.5	1.56	49	174	181	57	20
WH		23		89	96	.822	2.44	2.08	45.8	193.5	3.05	95	403	354	111	47
WH		27		86	117	.298	1.22	.91	58.4	255.9	1.70	53	232	197	61	27
WH		Totals		85	69	5.807	8.54	8.86	30.5	118.1	8.63	270	1,046	1,001	313	121
OC		22		89	99	.791	2.14	.79	56.3	122.7	1.11	45	97	129	52	11
OC		Totals		89	99	.791	2.14	.79	56.3	122.7	1.11	45	97	129	52	11
SS		19		80	38	.530	1.07	.54	33.5	31.5	.47	18	17	54	21	2
SS		Totals		80	38	.530	1.07	.54	33.5	31.5	0.47	18	17	54	21	2
Totals				86	108	84.923	180.17	207.49	33.4	136.5	198.35	6933	28,322	23,008	8,043	3,285



"STEWARDSHIP IN FORESTRY"

PART IV OTHER INFORMATION

WRITTEN PLAN

SALE NAME: Thor's Summit, 341-19 -36

PROTECTED WATERS: Names of streams,

1. Medium Type F Streams: Bales Creek, South Fork Bales Creek, Summit Creek, a un-named tributary to Bales Creek
2. Small Type F Streams: an un-named tributary to South Creek, two un-named tributaries to Summit Creek, a un-named tributary to Bales Creek, a un-named tributary to South Fork Bales Creek

Definitions: Stream buffer: at least 100 feet horizontal distance from the high water mark on each side of the stream.

LOCATION: Portions of Sections 29, 31, and 32, T2S, R7W, Section 36, T2S, R8W, Section 6, T3S, R7W, and Section 1, T3S, R8W, W.M., Tillamook County, Oregon.

Activity: Cable lines across stream

Protection measures:

- All trees in the RMA are reserved from cutting.
- Cable yarding lines will be pulled out of the RMA prior to rigging the next yarding road.
- If trees or logs fall or slide into a stream channel they will not be limbed, bucked, or removed without prior approval from ODF.
- Cable lines will be an average of at least 150 feet apart where they extend over or through the Type F stream and buffer.

Date: June 22, 2018

Prepared by: David Wells



"STEWARDSHIP IN FORESTRY"

Thor's Summit

Volume Summary

Area 1-Modified Clearcut				
65 acres				
SPECIES	Cruised Net	Cruised Net	Hidden	Net Sale
	MBF/ Acre	MBF	D&B	MBF
Douglas-fir	23.0	1494	1%	1479
Red alder	0.2	12	2%	12
Hemlock	0.2	10	1%	10
TOTAL	23.3	1516		1501

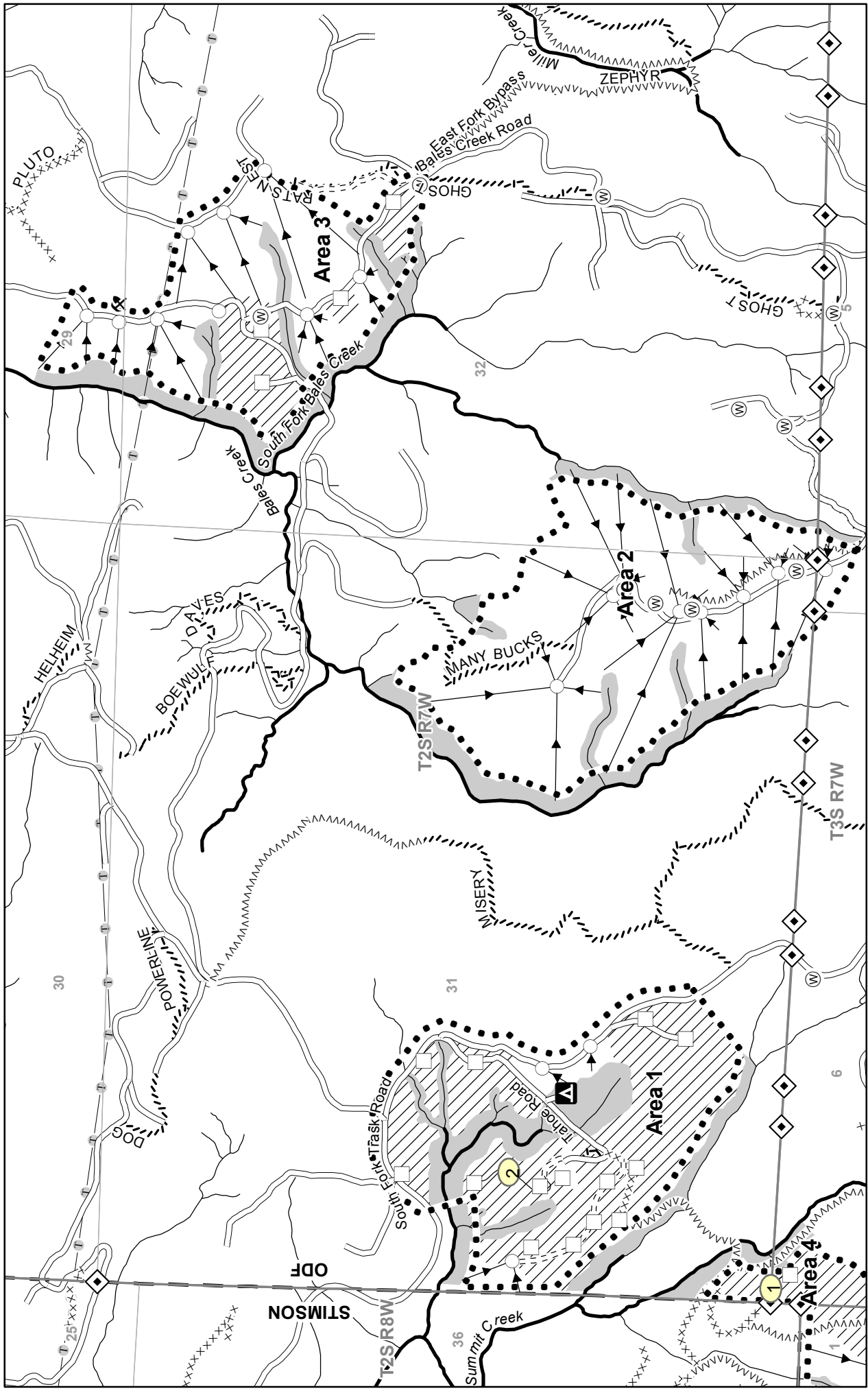
Area 2-Modified Clearcut				
103 acres				
SPECIES	Cruised Net	Cruised Net	Hidden	Net Sale
	MBF/ Acre	MBF	D&B	MBF
Douglas-fir	23.4	2411	1%	2387
Red alder	0.2	23	1%	23
TOTAL	23.6	2434		2410

Area 3-Modified Clearcut				
56 acres				
SPECIES	Cruised Net	Cruised Net	Hidden	Net Sale
	MBF/ Acre	MBF	D&B	MBF
Douglas-fir	21.0	1174	1%	1162
Red alder	2.4	137	2%	134
Hemlock	0.2	9	1%	9
TOTAL	23.6	1320		1305

Area 4-Modified Clearcut				
106 acres				
SPECIES	Cruised Net	Cruised Net	Hidden	Net Sale
	MBF/ Acre	MBF	D&B	MBF
Douglas-fir	18.6	1972	1%	1952
Hemlock	0.6	61	1%	60
TOTAL	19.2	2033		2013

Area 5-Modified Clearcut				
116 acres				
SPECIES	Cruised Net	Cruised Net	Hidden	Net Sale
	MBF/ Acre	MBF	D&B	MBF
Douglas-fir	29.7	3151	1%	3119
Hemlock	1.1	121	1%	120
TOTAL	30.9	3272		3239

TOTAL SALE VOLUME				
446 acres				
SPECIES	Cruised Net (MBF)		Net Sale (MBF)	
Douglas-fir	10202		10099	
Red alder	169		169	
Hemlock	201		199	
TOTAL	10572		10467	



LOGGING PLAN
 Timber Sale Contract No. 341-19-36
 THOR'S SUMMIT
 Portions of Sections 29, 31, 32, T2S, R7W,
 Portions of Sections 5, 6, T3S, R7W,
 Portions of Section 1, T3S, R8W, W.M.,
 Tillamook County, Oregon

Tillamook District GIS
 6/20/2018

This product is for informational use and may not have been prepared or suitable for legal, engineering, or surveying purposes.

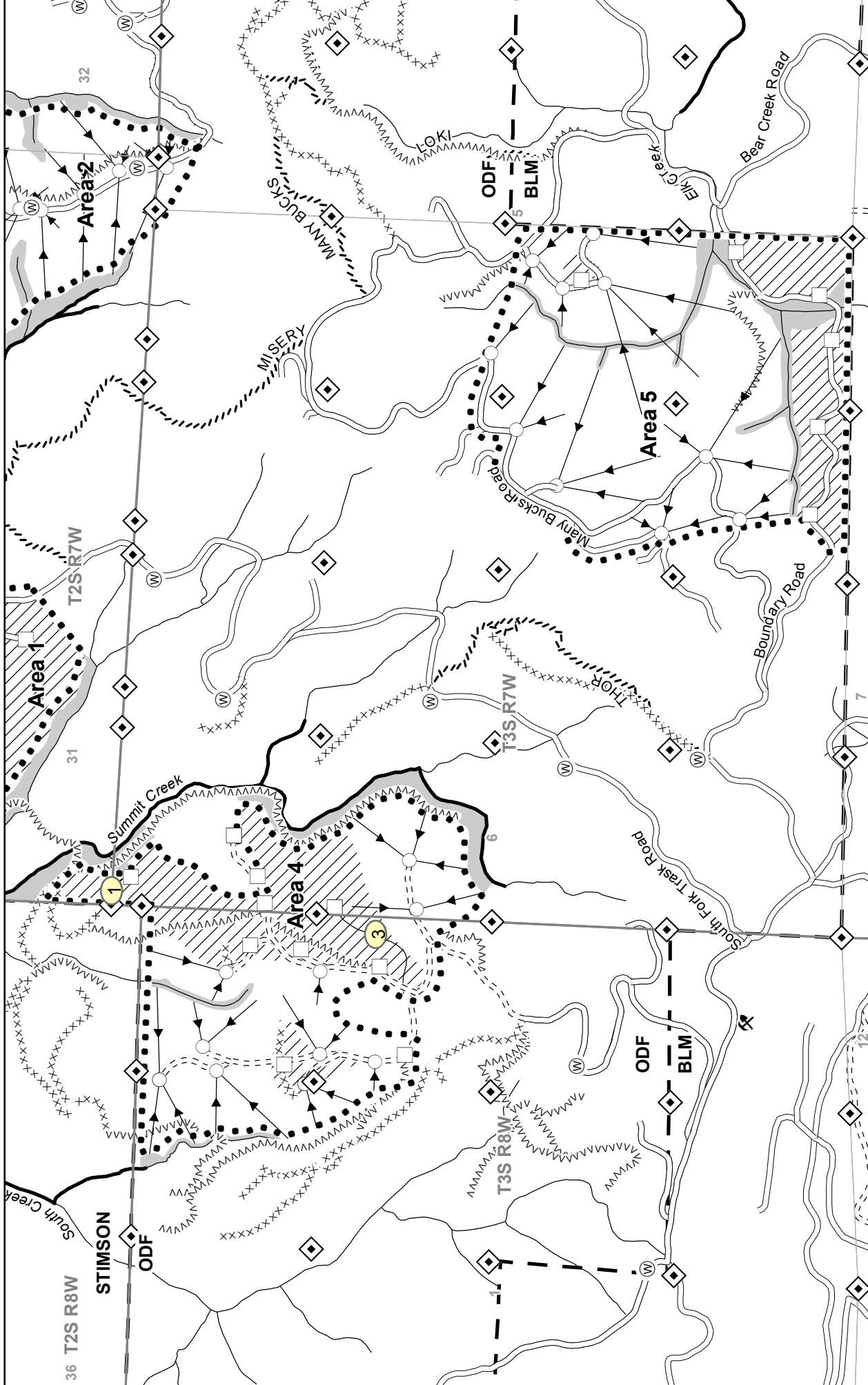
Area	Type of Operation	Gross Acres	Net Acres
1	Modified Clearcut	96	65
2	Modified Clearcut	125	103
3	Modified Clearcut	79	56
4	Modified Clearcut	123	106
5	Modified Clearcut	135	116
Total		558	446

Legend:

- Rock source
- Stock pile
- Waste area
- Bridge
- Gate
- Survey corner
- Domestic water supply intake
- Truck turn-around
- Helicopter landing zone
- Buffer
- Cable yarding
- Ground yarding
- Helicopter yarding
- Downhill yarding
- Green tree retention area
- Area boundary
- Sale boundary
- Ownership boundary
- Fish stream
- Non-fish stream
- Unsurfaced road
- Surfaced road
- Paved road
- Abandoned road
- Swing road
- Non-project road
- Non-motorized trail
- Transmission line
- Railroad
- Cable yarding
- Ground Landing
- Yarder Landing

Scale: 0 to 1,000 Feet

North Arrow: N



LOGGING PLAN
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Scale: 1,000 0 1,000 Feet

Legend:

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- Stock pile
- Waste area
- Bridge
- Gate
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- Cable yarding
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- Helicopter yarding
- Downhill yarding
- Green tree retention area
- Area boundary
- Sale boundary
- Ownership boundary
- Fish stream
- Non-fish stream
- Unsurfaced road
- Surfaced road
- Paved road
- Abandoned road
- Swing road
- Non-project road
- Blocked road
- OHV trail
- Non-motorized trail
- Transmission line
- Railroad
- Cable yarding
- Ground Landing
- Yarder Landing