"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Tower of Power

Sale WO-341-2015-72-

District: West Oregon

Date: January 13, 2015

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	$406,776.32	$120,200.60	$526,976.92
		Project Work:	($38,680.00)
		Advertised Value:	$488,296.92

Timber Sale Appraisal
Tower of Power

Sale WO-341-2015-72-

District: West Oregon **Date: January 13, 2015**

Timber Description

Location: Portions of Sections 14, 22, and 23, T11S, R8W, W.M., Lincoln County, Oregon.

Stand Stocking: 60%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	22	0	95
Alder (Red)	17	0	95

Volume by Grade	SM	2S	3S	3S 12"+	4S	Camprun	Total
Douglas - Fir	0	864	170	158	24	0	1,216
Alder (Red)	0	0	0	0	0	415	415
Total	0	864	170	158	24	415	1,631

Comments: Pond Values Used: 4th Quarter Calendar Year 2014.

Western Hemlock and Other Conifers Stumpage Price = Pond Value minus Logging Cost:
$218.76/MBF = $535.00/MBF - $316.24/MBF

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:
$858.76/MBF = $1,175.00/MBF - $316.24/MBF

SCALING COST ALLOWANCE = $5.00/MBF

FUEL COST ALLOWANCE = $4.00/Gallon

Log Haul:
Conifer costed to Eugene.
Hardwood costed to Eugene.

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

Other Costs (with Profit & Risk to be added):
Log Branding & Painting: 1,631 MBF @ $1/MBF = $1,631
YUM Yarding Gullies Below HLHL: 2 hrs @ $375/hr = $750
TOTAL Other Costs (with Profit & Risk to be added) = $2,381

Other Costs (No Profit & Risk added):
Invasive Species Equipment Cleaning: $2,000
Vehicle Assist: 10 hrs @ $130.00/hr = $1,300
Logger's Choice Landing: $500
Firewood Sorting: 3 landings @ $100/landing = $300
TOTAL Other Costs (No Profit & Risk added) = $4,100

SLASH DISPOSAL
Move-in = $750
Project Work: 10 hrs @ $150/hr = $1,500
TOTAL Slash Disposal = $2,250

Timber Sale Appraisal
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District: West Oregon **Date: January 13, 2015**

Logging Conditions

Combination#: 1

Douglas - Fir	12.00%
Alder (Red)	12.00%

Logging System: Cable: Large Tower >=70 **Process:** Manual Falling/Delimbing
yarding distance: Long (1,500 ft) **downhill yarding:** No
tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 6 **bd. ft / load:** 4500
cost / mbf: $192.59
machines: Log Loader (A)
Tower Yarder (Large)

Combination#: 2

Douglas - Fir	75.00%
Alder (Red)	75.00%

Logging System: Cable: Large Tower >=70 **Process:** Manual Falling/Delimbing
yarding distance: Medium (800 ft) **downhill yarding:** No
tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 6 **bd. ft / load:** 4500
cost / mbf: $192.59
machines: Log Loader (A)
Tower Yarder (Large)

Combination#: 3

Douglas - Fir	13.00%
Alder (Red)	13.00%

Logging System: Shovel **Process:** Manual Falling/Delimbing
yarding distance: Short (400 ft) **downhill yarding:** No
tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 8 **bd. ft / load:** 4500
cost / mbf: $55.15
machines: Shovel Logger

Timber Sale Appraisal
Tower of Power

Sale WO-341-2015-72-

District: West Oregon

Date: January 13, 2015

Logging Costs

Operating Seasons:	2.00	**Profit Risk:**	12%
Project Costs:	$38,680.00	**Other Costs (P/R):**	$2,381.00
Slash Disposal:	$2,250.00	**Other Costs:**	$4,100.00

Miles of Road

Road Maintenance: $1.77

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

Hauling Costs

Species	$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	$0.00	2.0	4.5
Alder (Red)	$0.00	2.0	3.5

Timber Sale Appraisal
Tower of Power

Sale WO-341-2015-72-

District: West Oregon **Date: January 13, 2015**

Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling	Other	Total
Douglas - Fir									
$174.72	$1.86	$5.38	$91.00	$1.46	$32.93	$1.38	$5.00	$2.51	$316.24
Alder (Red)									
$174.72	$1.86	$5.38	$117.00	$1.46	$36.05	$1.38	$5.00	$2.51	$345.36

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	$0.00	$650.76	$334.52	$0.00
Alder (Red)	$0.00	$635.00	$289.64	$0.00

Timber Sale Appraisal
Tower of Power

Sale WO-341-2015-72-

District: West Oregon **Date: January 13, 2015**

Summary

Amortized

Specie	MBF	Value	Total
Douglas - Fir	0	$0.00	$0.00
Alder (Red)	0	$0.00	$0.00

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	1,216	$334.52	$406,776.32
Alder (Red)	415	$289.64	$120,200.60

Gross Timber Sale Value

Recovery: $526,976.92

Prepared By: Joe Goldsby **Phone:** 541-929-9168

SUMMARY OF ALL PROJECT COSTS

Sale Name: Tower of Power Date: November 2014
Time: 9:48

Project #1 - New Construction

Road Segment	Length	Cost	
A5 to A6	2.2 sta	$954	
A7 to A8	5.5 sta	$2,216	
TOTALS	7.7 sta		$3,170

Project #2 - Improvements

Road Segment	Length	Cost	
A to A1	95.8 sta	$9,973	
A2 to A3	11.5 sta	$741	
A3 to A4	13.9 sta	$252	
TOTALS	121.2 sta		$10,966

Project #3 - Rock Stockpile $21,000

Project #4 - Post Harvest Activities

Landing patch rock and turnaround rock $661

Move in	Cost	On-site move	
Excavator	$753		
Crawler tractor, D-7 or equiv.	$547		
Grader, Cat 14-G or equiv.	$340		
Water Truck	$223		
Backhoe	$340		
Vibratory roller	$340		
Front end Loader	$340		
TOTAL			$2,883

GRAND TOTAL **$38,680**

Compiled by J. Goldsby Date 11/26/2014

SUMMARY OF CONSTRUCTION COST

SALE	Tower of Power	Project # 2	LENGTH	improve	95.8 sta
ROAD	A to A1	surfaced, ditch			

CLEARING AND GRUBBING

0.10	acres	@	$1,010.24	/acre	=	$101	landing
0.10	acres	@	$1,010.24	/acre	=	$101	realignment

TOTAL CLEARING AND GRUBBING = $202

IMPROVEMENT

Shape surface (with road grader)	95.8 sta.	@	$13.75	/sta	=	$1,317

TOTAL IMPROVEMENT = $1,317

EXCAVATION With excavator and dozer or equivalent

Realign road (76+70 to 79+00)	220 cy.	@	$1.27	/cy	=	$279
Endhaul to Pt. A8	220 cy.	@	$1.72	/cy	=	$378
Fill compaction	220 cy.	@	$0.36	/cy	=	$79
Construct landing (Sta. 74+80)	2 hr.	@	$135.80	/hr	=	$272
Shape subgrade (with road grader)	2.3 sta.	@	$18.17	/sta	=	$42
Compact subgrade (with vibratory roller)	2.3 sta.	@	$8.31	/sta	=	$19

TOTAL EXCAVATION = $1,069

SURFACING

			Size	Cost/yd		
Base rock (6"lift)	81	cy of	3-0"	$21.41	=	$1,734
Surface rock (2"lift)	27	cy of	1½-0"	$23.10	=	$624
Curve widening rock	9	cy of	1½-0"	$21.41	=	$193
Landing rock	36	cy of	jaw-run	$18.90	=	$680
Spot rock (100 CY/mi)	171	cy of	1½-0"	$21.60	=	$3,694

TOTAL ROCK COST = $6,925

SPECIAL PROJECTS

Move x-drain (78+25 to 76+65)	2.5 hr.	@	$127.68	/hr	=	$319
Vibratory hand compactor	1 day	@	$90.00	/day	=	$90
Clean out culverts (inlets and outlets)	2 culverts	@	$25.67	/ea	=	$51

TOTAL SPECIAL PROJECTS COST = $460

Compiled by: J. Goldsby
Date: Nov 26, 2014

GRAND TOTAL =====> $9,973

SUMMARY OF CONSTRUCTION COST

SALE	Tower of Power		Project #	2	LENGTH	improve		11.5 sta
ROAD	A2 to A3		surfaced, ditch					

IMPROVEMENT

Shape surface (with road grader)	11.5	sta.	@	$13.75	/sta	=	$158	

TOTAL IMPROVEMENT = $158

SURFACING

			Size	Cost/yd			
Spot rock (100 CY/mi)	27	cy of	1½-0"	$21.60	=	$583	

TOTAL ROCK COST = $583

Compiled by: J. Goldsby
Date: Nov 26, 2014

GRAND TOTAL =====> $741

SUMMARY OF CONSTRUCTION COST

SALE	Tower of Power	Project # 2	LENGTH	improve	13.9 sta
ROAD	A3 to A4	unsurfaced, no ditch			

IMPROVEMENT

Re-open road (with road grader)	13.9 sta.	@	$11.55	/sta	=	$161
Re-open landing (with road grader)	1 hr	@	$ 90.75	/hr	=	$91

TOTAL IMPROVEMENT = $252

Compiled by: J. Goldsby
Date: Nov 26, 2014

GRAND TOTAL =====> $252

SUMMARY OF CONSTRUCTION COST

SALE	Tower of Power	Project # 1	LENGTH const		2.2 sta
ROAD	A5 to A6	unsurfaced, no ditch			

CLEARING AND GRUBBING

0.12	acres	@	$1,010.24	/acre	=	$121	road
0.10	acres	@	$1,010.24	/acre	=	$101	landing

TOTAL CLEARING AND GRUBBING = $222

EXCAVATION With D7 dozer or equivalent

Construct road	2.2 sta	@	$74.28	/sta	=	$163
Additional dozer time for approach	2 hr	@	$135.80	/hr	=	$272
Construct landing	2 hr	@	$135.80	/hr	=	$272
Shape surface (with road grader)	2.2 sta	@	$11.55	/sta	=	$25

TOTAL EXCAVATION = $732

Compiled by: J. Goldsby
Date: Nov 26, 2014

GRAND TOTAL =====> $954

SUMMARY OF CONSTRUCTION COST

SALE	Tower of Power	Project # 1	LENGTH const		5.5 sta
ROAD	A7 to A8	unsurfaced, no ditch			

CLEARING AND GRUBBING

0.42	acres	@	$1,010.24	/acre	=	$424	road
0.10	acres	@	$1,010.24	/acre	=	$101	landing

TOTAL CLEARING AND GRUBBING = $525

EXCAVATION With excavator and D7 dozer or equivalent

Construct road (with excavator)	6 hrs	@	$127.68	/sta	=	$766
Fill compaction	500 cy	@	$0.36	/cy	=	$180
Construct road (with dozer)	5.5 sta	@	$74.28	/sta	=	$409
Construct landing	2 hrs	@	$135.80	/hr	=	$272
Shape subgrade (with road grader)	5.5 sta	@	$11.55	/sta	=	$64

TOTAL EXCAVATION = $1,691

Compiled by: J. Goldsby
Date: Nov 26, 2014

GRAND TOTAL =====> $2,216

SUMMARY OF CONSTRUCTION COST

SALE ROAD Tower of Power Project # 3 - Rock Stockpile

STOCKPILE			Size	Cost/yd			
Base rock	1000	cy of	3-0"	$16.60	=	$16,600	
Wear replacement rock	27	cy of	1½-0"	$21.60	=	$583	
				TOTAL ROCK COST =			$17,183
EQUIPEMENT							
Front-end loader	16.67	hr.	@	$90.00	/hr.	=	$1,500
IMPROVEMENT							
Shape surface (with road grader)	168.5	sta.	@	$13.75	/sta.	=	$2,317

Compiled by: J. Goldsby
Date: Nov 26, 2014

GRAND TOTAL =====> $21,000

SUMMARY OF CONSTRUCTION COST

SALE Tower of Power - Project #4 Post Harvest

SURFACING			Size	Cost/CY			
Landing patch rock							
	A to A1 (Sta.74+80)	18 cy of	1½-0"	$21.60	=	$	389
Turnaround rock							
	Point A1	9 cy of	1½-0"	$21.60	=	$	194

TOTAL SURFACING COST = $583

MISCELLANEOUS PROJECTS

Tank traps						
	Point A3	0.5 hr	@	$77.00 /hr	=	$39
	Point A7	0.5 hr	@	$77.00 /hr	=	$39

TOTAL MISCELLANEOUS PROJECTS = $78

Compiled by: J. Goldsby
Date: Nov 26, 2014

GRAND TOTAL =====> $661

SUMMARY OF MAINTENANCE COST

SALE Tower of Power - Final Maintenance Cost Estimate

(Costed in appraisal, not in project costs)

Grading Move-in $ 340

Road Segment	Length	Cost/Sta	Cost	Mileage
A to A1	95.8	$13.75	$1,317.25	1.81
A2 to A3	11.5	$13.75	$158.13	0.22
Totals	107.3		$1,475.38	2.03

Maintenance Rock:

	Volume	Cost/CY	Cost
1½-0"	54	$21.60	$1,166.40
3-0"	0	$19.91	$0.00

Grand Total $ 2,981.78

TS Volume 1,689 MBF

Cost / MBF = $1.77

NOTES:

Rock Haul Cost Computation

SALE NAME: Tower of Power DATE: Nov 26, 2014
ROAD NAME: Tower of Power CLASS: Medium
ROCK SOURCE: Rickard 9 CY truck
Route: Garret Ln, Hwy 20, Cline Hill Lp, Hwy 20 Cutoff, Tower of Power Rd

TIME Computation:
Road speed time factors:

1.	55 MPH	28.2	MRT	30.8	minutes
2.	50 MPH		MRT	0.0	minutes
3.	45 MPH		MRT	0.0	minutes
4.	40 MPH		MRT	0.0	minutes
5.	35 MPH		MRT	0.0	minutes
6.	30 MPH		MRT	0.0	minutes
7.	25 MPH	3.0	MRT	7.2	minutes
8.	20 MPH		MRT	0.0	minutes
9.	15 MPH	4.7	MRT	18.8	minutes
10.	10 MPH		MRT	0.0	minutes
11.	05 MPH		MRT	0.0	minutes

Dump or spread time per RT		0.50	minutes
Total hauling cycle time for this setting (100% efficiency)		57.30	minutes
Operator efficiency correction	0.85	67.41	minutes
Job efficiency correction	0.90	74.90	minutes
Truck capacity (CY)	9.00	8.32	min/CY
Loading time, delay time per CY		0.25	min/CY
TIME (minutes) per cubic yard		8.57	min/CY

COST per CY computation

Cost of truck and operator per hour	$75.50	/hr.
Cost of truck and operator per minute	$1.26	/min
Cost per CY	$10.80	/CY
Spread and compact — Water truck, Grader & Roller	$1.50	/CY

Size	Cost/Yd (Pit)	Cost Delivered w/o processing	Cost Delivered with processing
1½ - 0"	$ 10.80	$21.60	$23.10
3 - 0"	$ 9.11	$19.91	$21.41
Jaw Run	$ 8.10	$18.90	$20.40
Pit-Run	7.43	$18.23	$19.73

Rock Haul Cost Computation

SALE NAME: Tower of Power DATE: Nov 26, 2014
ROAD NAME: Burnt Woods Ridge Rd CLASS: Medium
ROCK SOURCE: Rickard 18 CY truck
Route: Garret Ln, Hwy 20, Harlan-Burnt Woods Rd

TIME Computation:
Road speed time factors:

1.	55 MPH		MRT	0.0	minutes
2.	50 MPH	28.2	MRT	33.8	minutes
3.	45 MPH		MRT	0.0	minutes
4.	40 MPH		MRT	0.0	minutes
5.	35 MPH	4.0	MRT	6.9	minutes
6.	30 MPH		MRT	0.0	minutes
7.	25 MPH		MRT	0.0	minutes
8.	20 MPH		MRT	0.0	minutes
9.	15 MPH	6.0	MRT	24.0	minutes
10.	10 MPH		MRT	0.0	minutes
11.	05 MPH		MRT	0.0	minutes

Dump or spread time per RT		0.50	minutes
Total hauling cycle time for this setting (100% efficiency)		65.20	minutes
Operator efficiency correction	0.85	76.71	minutes
Job efficiency correction	0.90	85.23	minutes
Truck capacity (CY)	18.00	4.74	min/CY
Loading time, delay time per CY		0.25	min/CY
TIME (minutes) per cubic yard		4.99	min/CY

COST per CY computation

Cost of truck and operator per hour	$90.22	/hr.
Cost of truck and operator per minute	$1.50	/min
Cost per CY	$7.49	/CY
Spread and compact Water truck, Grader & Roller	$1.50	/CY

Size	**Cost/Yd (Pit)**	**Cost Delivered w/o processing**	**Cost Delivered with processing**
1½ - 0"	$ 10.80	$18.29	$19.79
3 - 0"	$ 9.11	$16.60	$18.10
Jaw Run	$ 8.10	$15.59	$17.09
Pit-Run	7.43	$14.92	$16.42

TIMBER CRUISE REPORT

1. **Sale Area Location**: Portions of Sections 14, 22, & 23, T11S, R8W, W.M., Lincoln County, Oregon

2. **Fund Distribution:**
   a. **Fund** BOF 45.62%; CSL 54.38%
   b. **Tax Code**

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Acreage Adjustment	Net Sale Acres	Acreage Comp. Method
1	Modified Clearcut	59	Cruise	47	Ortho photo, GIS, GPS

4. **Cruisers and Cruise Dates:** The sale was cruised by Joe Goldsby and Pete Stone in September of 2014.

5. **Cruise Method and Computation:** The sale consists of one modified clearcut area that was cruised using variable radius plot sampling. The sale area was stratified into three areas, which were: 14 acres of well stocked Douglas-fir, 23 acres red alder with scattered Douglas-fir, and 10 acres of open grown Douglas-fir with red alder. The sale area was cruised using a 40 BAF with plots spaced 150 feet apart on plot lines spaced 300 feet apart. A total of 48 plots were taken with 31 count plots and 17 cruise plots. Cruise plots were measured for DBH, height, form factor, grade, and defect. Data was entered into the Atterbury SuperACE 2004 cruise program to calculate net board feet per acre. Individually marked green trees within the sale areas were tallied and removed from the final calculated volume.

   Stereo photos, digital ortho photos, LiDar data, and GPS data from a Garmin GPSmap 62s were used to map the boundaries for the sale, and ArcMap 10.2 was used to determine gross and net acreage.

6. **Measurement Standards:** Heights were measured to the nearest foot, to a top diameter of 6 inches inside bark or total height. Diameters were measured to the nearest inch, and a form point of 16 feet was used to calculate form factor. All trees were graded in 40 foot segments unless breakage, defect, or length to top of grade cruise diameter warranted otherwise.

7. **Timber Description:** Timber in the sale area includes 14 acres of 77 to 81 year-old Douglas-fir, 23 acres of 77 to 81 year-old red alder with scattered Douglas-fir, and 10 acres of 120 year-old Douglas-fir with 77 to 81 year-old red alder. Conifer trees other than Douglas-fir are reserved from cutting in all sale areas but were not observed during cruising or other field work.

8. **Statistical Analysis and Stand Summary:** (See attached "Statistics").

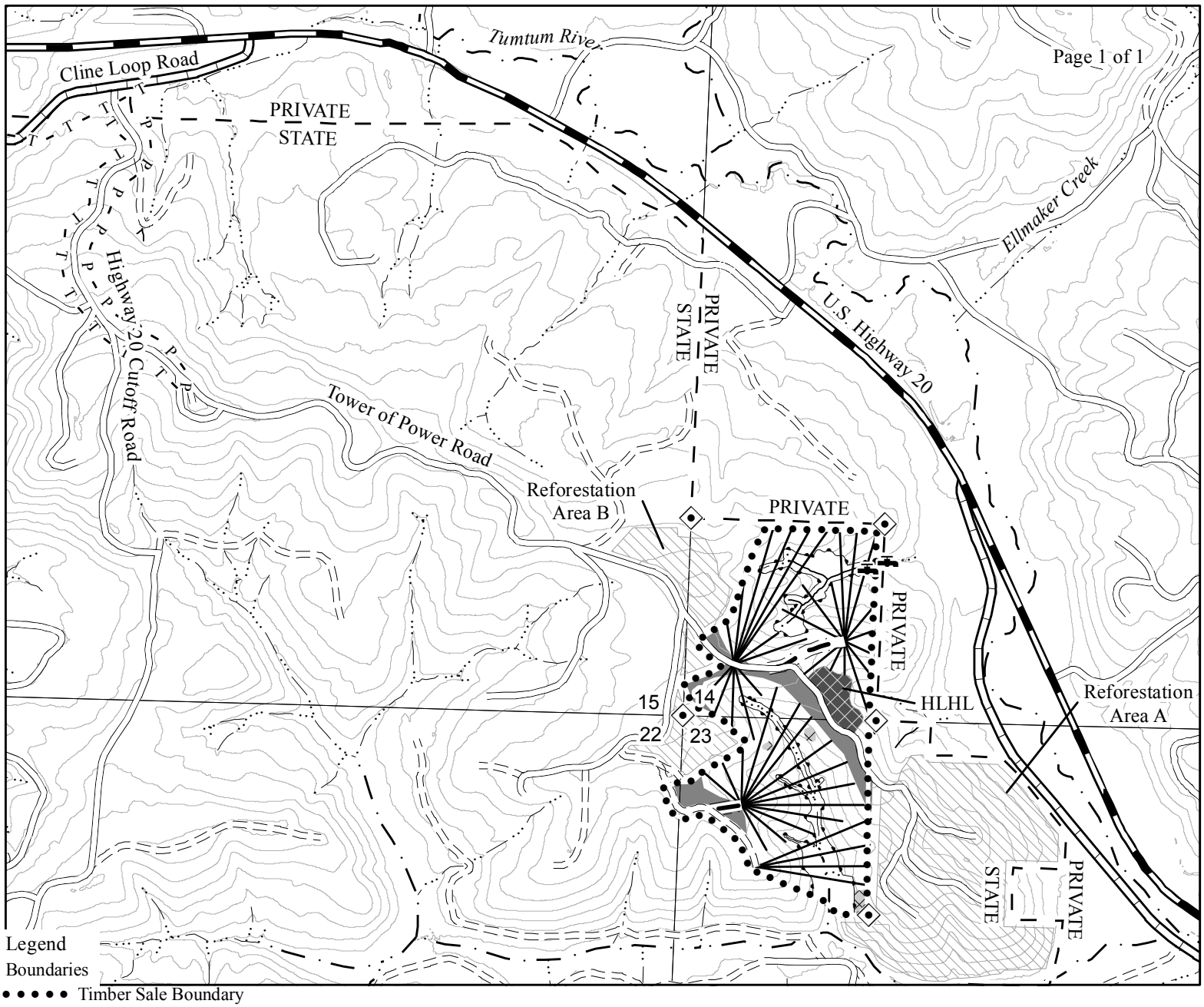
Target CV	Target SE	Actual CV	Actual SE
65%	9%	63.9%	9.2%

Note: Statistics shown are for Douglas-fir and hardwood trees combined. Percentages are for net board foot volume.

9. Total Volume (MBF) by Species and Grade: (See attached "Stand Table Summary" and "Species, Sort Grade").

Species	Gross Cruise Volume	Cruised D & B	Cruised D & B (MBF)	Hidden D & B	Hidden D & B (MBF)	GTR (MBF)	Net Sale Volume
Douglas-fir	1321	1%	13	7%	92	11	1216
Red alder	461	6%	28	4%	18	--	415
Total	1782	2%	41	6%	110	11	1631

Species	DBH	Net Vol.	2-Saw	3-Saw	3-Saw 12"+	4-Saw	Camp Run
	Grade Percentages		71%	14%	13%	2%	--
Douglas-fir	22.2	1216	864	170	158	24	--
	Grade Percentages		--	--	--	--	100%
Red alder	17.2	415	--	--	--	--	415
	Grade Percentages		53%	11%	10%	1%	25%
Total	20.9	1631	864	170	158	24	415



Legend

Boundaries
- Timber Sale Boundary
- State Forest Property Boundary
- Right of Way (Posted)

Roads
- Highway
- County Road
- Surfaced Road
- Unsurfaced Road
- New Construction

Streams
- Type F Stream
- Type D Stream
- Type N Stream
- Posted Stream Buffer

Yarding Method
- Tractor Yarding Area
- Cable Corridors
- Reforestation Area
- Buried Power Line
- Buried Fiber Optic
- Land Survey Monument
- Domestic Intake
- Green Tree Retention Area
- High Landslide Hazard Location (HLHL)

LOGGING PLAN

OF TIMBER SALE CONTRACT NO. 341-15-72
TOWER OF POWER
PORTIONS OF SECTIONS 14, 22 & 23, T11S, R8W, W.M.,
LINCOLN COUNTY, OREGON

NET ACRES CABLE = 41
NET ACRES TRACTOR = 6

This product is for informational use and may not have been prepared for or be suitable for legal, engineering or survey purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of this information.

Scale
1:12,000

1,000 0 1,000 2,000
Feet

N

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Date: 12/19/2014