"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Grand Ball
Sale AT-341-2023-W00560-01

District: Astoria

Date: September 12, 2022

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	$3,511,467.78	$189,661.88	$3,701,129.66
		Project Work:	($323,002.00)
		Advertised Value:	$3,378,127.66

"STEWARDSHIP IN FORESTRY"

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Grand Ball
Sale AT-341-2023-W00560-01

District: Astoria

Date: September 12, 2022

Timber Description

Location:

Stand Stocking: 80%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	26	0	97
Western Hemlock / Fir	15	0	95
Alder (Red)	15	0	95
Maple	17	0	93

Volume by Grade	2S	3S & 4S 6"-11"	8" - 9"	10" - 11"	12"+	6" - 7"	Camprun	Total
Douglas - Fir	5,218	1,196	0	0	0	0	0	6,414
Western Hemlock / Fir	269	281	0	0	0	0	0	550
Red Cedar	0	0	0	0	0	0	0	0
Alder (Red)	0	0	103	140	117	120	0	480
Maple	0	0	0	0	0	0	169	169
Total	5,487	1,477	103	140	117	120	169	7,613

Comments: Pond Values Used: Local Pond Values, August, 2022.

Expected Log Markets: Mist, Willamina, Banks, Clatskanie, Tillamook, Warrenton, Eugene, Longview, WA, Elma, WA, Chehalis, WA, and Vancouver, WA.

PRICING:

Western Red Cedar and other Cedars stumpage = pond value - (Douglas-fir) logging cost.
$999.50/MBF = $1,303/MBF - $303.50/MBF

Spruce stumpage = pond value - (Douglas-fir) logging cost.
$253.50/MBF = $557/MBF - $303.50/MBF

Fuel cost allowance based on month local pond values were collected.

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

Machine Washing for Invasive Weed Compliance = $2,000

Ditch Filters:
Bales of straw 10 @ $12/bale = $120.00
2 hours of labor @ $45/hr = $90.00

TOTAL Other Costs (with Profit & Risk to be added): $2210.00

Other Costs (No Profit & Risk added):
None.

SLASH PILING
(See attached appraisal. Includes move-in, pile materials, and end-hauling) = $16,762

ROAD MAINTENANCE
(See attached Road Maintenance Cost Summary Sheet)
TOTAL Road Maintenance: $27,811/7,613 MBF = $3.65/MBF

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District: Astoria **Date: September 12, 2022**

Logging Conditions

Combination#: 1	Douglas - Fir	84.00%	
	Western Hemlock / Fir	84.00%	
	Alder (Red)	84.00%	
	Maple	84.00%	
Logging System:	Shovel	**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:	8	**bd. ft / load:**	4500
cost / mbf:	$113.54		
machines:	Shovel Logger		

Combination#: 2	Douglas - Fir	16.00%	
	Western Hemlock / Fir	16.00%	
	Alder (Red)	16.00%	
	Maple	16.00%	
Logging System:	Cable: Medium Tower >40 - <70	**Process:**	Manual Falling/Delimbing
yarding distance:	Medium (800 ft)	**downhill yarding:**	No
tree size:	Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF		
loads / day:	8	**bd. ft / load:**	4250
cost / mbf:	$198.34		
machines:	Log Loader (A) Tower Yarder (Medium)		

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Grand Ball
Sale AT-341-2023-W00560-01

District: Astoria **Date: September 12, 2022**

Logging Costs

Operating Seasons:	3.00	**Profit Risk:**	12%
Project Costs:	$323,002.00	**Other Costs (P/R):**	$2,210.00
Slash Disposal:	$16,762.00	**Other Costs:**	$0.00

Miles of Road

Road Maintenance: $3.65

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	4.6
Western Hemlock / Fir	$0.00	2.0	4.0
Alder (Red)	$0.00	2.0	3.4
Maple	$0.00	2.0	3.4

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Grand Ball
Sale AT-341-2023-W00560-01

District: Astoria **Date: September 12, 2022**

Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Brand & Paint	Other	Total
Douglas - Fir									
$127.11	$3.76	$1.73	$134.34	$0.29	$32.07	$2.20	$2.00	$0.00	$303.50
Western Hemlock / Fir									
$127.11	$3.83	$1.73	$157.50	$0.29	$34.86	$2.20	$2.00	$0.00	$329.52
Alder (Red)									
$127.11	$3.83	$1.73	$185.29	$0.29	$38.19	$2.20	$2.00	$0.00	$360.64
Maple									
$127.11	$3.91	$1.73	$188.82	$0.29	$38.62	$2.20	$2.00	$0.00	$364.68

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	$0.00	$819.77	$516.27	$0.00
Western Hemlock / Fir	$0.00	$693.36	$363.84	$0.00
Alder (Red)	$0.00	$729.25	$368.61	$0.00
Maple	$0.00	$440.00	$75.32	$0.00

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Grand Ball
Sale AT-341-2023-W00560-01

District: Astoria **Date: September 12, 2022**

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
Maple	0	$0.00	$0.00

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	6,414	$516.27	$3,311,355.78
Western Hemlock / Fir	550	$363.84	$200,112.00
Alder (Red)	480	$368.61	$176,932.80
Maple	169	$75.32	$12,729.08

Gross Timber Sale Value

Recovery: $3,701,129.66

Prepared By: John Tillotson **Phone:** 503-325-5451

Road Maintenance Cost Summary (Interim and Post Harvest)

Sale: **Grand Ball** **MBF:** 7,613
Date: September 16, 2022 **$$/MBF:** $3.65
By: John Czarnecki CB

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	
First Interim Operations	Grader 14G	$875	1	8	$113	$1,779	
Second Interim Operations	Grader 14G	$875	1	8	$113	$1,779	
	Dump Truck 12CY	$184	1	12	$89	$1,252	
	Rubber tired backhoe	$361	1	4	$87	$709	
	Vibratory Roller	$875	1	8	$87	$1,571	
	Buster Creek Mainline Clean-up w/ C315 Excavator	$905	1	8	$114	$1,817	
Final Road Maintenance	Grader 14G	$875	1	36	$113	$4,943	
	Dump Truck 12CY	$184	2	16	$89	$1,792	
	FE Loader C966	$875	1	8	$94	$1,627	
	Vibratory Roller	$875	1	36	$87	$4,007	
	Water Truck 2,500 gallon	$214	1	16	$101	$1,830	
	C315 Excavator	$905	1	8	$114	$1,817	
	Labor			8	$45	$360	
Subtotal							**$25,283**
	Additional costing for fuel				10%	$2,528	
Total							**$27,811**

First and Second Interim Operations Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	2.5	2.5	1.0	8
Vibratory Roller	1.5	1.5	1.0	8

Final Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	1.5	6.1	4.1	33
Vibratory Roller	1.5	6.1	4.1	33

Process and compact: All crushed rock roads
Wage Road 1.0 Miles
Grand Rapids Road 3.2 Miles
Buster Creek Mainline 0.3 Miles
Unnamed Spurs 1.6 Miles

Grade & Process Total = 6.1 Miles

Site Prep Appraisal

Sale Number: AT-341-2023-W00560-01
Sale Name: Grand Ball
Date: 09/19/2022

Vegetation Type/Zone	Vegetation Type/Zone Code	Production Rate (hr/ac)	Estimated Piles/Acre	Landing Production Rate (hrs/30 acres)
Doug-fir	A	0.5	0.5	6
Hemlock/Fir	B	1.3	4.5	8
Hemlock/Spruce	C	1.8	6.0	10
Hemlock	D	1.8	6.0	8
Conifer/Hardwood	E	1.0	2.0	8
Whole Tree Yarding	F	0.5	0.5	12

Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area	
1	MC	A	41	21	$145.00	$2,972.50	
2	MC	A	73	37	$145.00	$5,292.50	
					In-unit Piling	**Sub Total =**	$8,265.00

Sale Area	Number of Landings to be Piled	# cable acres per area	Total Cost/Area	Number of In-Unit Piles	Material Cost/Pile	Total Cost/Area	
1	11	9	$261.00	31.5	$5.00	$157.50	
2	23	13	$377.00	59.5	$5.00	$297.50	
*Cost includes separating firewood					Materials	**Sub Total =**	$455.00

Additonal Move-in allowance

Move-In Allowance	Number of Move-In's	Total Move-In Allowance				
$1,290.00	2	$2,580.00	Brush Piler		Landing Piling	**Sub Total =**	$638.00
$184.00	2	$368.00	Dump Truck (12cy)				
					Move-In	**Sub Total =**	$2,948.00

Slash Endhaul Dump Truck hrs	Cost/Hour	Total	Loader hrs	Cost/Hour	Total		
24	$89.00	$2,136.00	16	$145.00	$2,320.00		
						Sub Total =	$4,456.00
						Grand Total =	**$16,762.00**

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Grand Ball

Project No. 1: ROAD CONSTRUCTION:

Road segment	*Length (Sta)*	*Length (Mile)*	*Cost*		*With additional fuel allowance per project*
Unsurfaced					
1A to 1B, 2A to 2B, 2C to 2D	26.30	0.50	$12,546.43		$13,801
Surfaced					
1C to 1D, 1E to 1F, 2E to 2F, 2G to 2H	10.25	0.19	$18,628.38		$20,491
Road Maint.			$2,364.22		$2,601
Move-In			$2,017.93		$2,220
TOTALS	36.55	0.69		$35,557	$39,113

Project No. 2: ROAD IMPROVEMENT:

Road segment	*Length (Sta)*	*Length (Mile)*	*Cost*		
I1 to I2, I3 to I4, I5 to I6,	308.75	5.85	$113,133.47		$124,447
I7 to I8, I9 to I10, I11 to I12,					
I13 to I14, I15 to I16, I17 to I18,					
and I19 to I20					
Road Maint.			$8,579.78		$9,438
Move-In			$7,323.07		$8,055
TOTALS		5.85		$129,036	$141,940

SPECIAL PROJECTS (Move-In and Road Maint. are included separetly as needed, for each Special Project)**:**

Description	*Length/Vol.*	*Cost*		
Proj. 3 Rock Crushing		$125,553.18		$138,108
Proj. 4 Road Vacating		$3,492.00		$3,841
TOTAL			$129,045	$141,950
10% Increase Fuel Allowance			$29,363.85	

GRAND TOTAL **$323,002**

Compiled By: Cole Hatcher CH Date: 09/20/2022

Move In and Maintenance Calculator for Construction and Improvement

SALE NAME: Grand Ball

Project No. 1: ROAD CONSTRUCTION:

Road segment	Length/Sta	Length/Mile	Cost	
Unsurfaced				
1A to 1B, 2A to 2B, 2C to 2D	26.30	0.50	$12,546.43	
Surfaced				
1C to 1D, 1E to 1F, 2E to 2F, 2G to 2H	10.25	0.19	$18,628.38	
TOTALS	36.55	0.69		$31,175

Project No. 2: ROAD IMPROVEMENT:

Road segment	Length/Sta	Length/Mile	Cost	
I1 to I2, I3 to I4, I5 to I6, I7 to I8, I9 to I10, I11 to I12, I13 to I14, I15 to I16, I17 to I18, and I19 to I20	308.75	5.85	$113,133.47	
TOTALS		5.85		$113,133

MOVE IN (Construction & Improvement Only)

Equipment	Length/Mile	Cost	
Vibratory Roller		$875.00	
D8 Dozer		$1,581.00	
C315 Excavator		$905.00	
C330 Excavator		$1,581.00	
C966 Loader		$875.00	
14 G Grader		$875.00	
Water Truck (2,500 gal)		$214.00	
20cy Highway Dump w/ pup trailer (3x)		$645.00	
24cy Off Highway Dump		$870.00	
10-12cy Highway Dump (5x)		$920.00	
TOTAL			$9,341

ROAD MAINTENANCE (Construction & Improvement Only)

	Length/Mile	Cost	
Final Project Road Maintenance	12.25	$10,944.00	
TOTAL			$10,944

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: 1A to 1B (1.1), 1C to 1D (2.0), 1E to 1F (2.1), 2A to 2B (24.1), **NEW CONSTRUCTION:** 36.55 **STATIONS** 0.69 **MILES**
ROAD: 2C to 2D (1.1), 2E to 2F (3.2), 2G to 2F (2.95) **IMPROVEMENT:** **STATIONS** 0.00 **MILES**
POINTS:

CLEARING & GRUBBING

	Method	Acres/amount	x	Rate	=	Cost
Unsurfaced						
1A to 1B, 2A to 2B, 2C to 2D	Scatter outside of right of way	1.81	x	$1,503.00	=	$2,722.38
Surfaced						
1C to 1D, 1E to 1F, 2E to 2F, 2G	Scatter outside of right of way	1.03	x	$1,503.00	=	$1,552.69

SUB TOTAL FOR CLEARING & GRUBBING $4,275

EXCAVATION

	Material		Cy/amount	x	Rate	=	Cost
1A to 1B							
0+00 to 1+10	Balanced construction	$/sta.	1.10	x	$138.00	=	$151.80
				x		=	$0.00
1C to 1D							
0+00 to 2+00	Balanced construction	$/sta.	2.00	x	$138.00	=	$276.00
2+00	Landing construction	$/LDG	1	x	$438.00	=	$438.00
1E to 1F							
0+00 to 2+10	Common drift (≤ 50% slopes)	$/cy	650	x	$2.02	=	$1,313.00
0+00 to 2+10	End-haul excavation	$/cy	650	x	$4.50	=	$2,925.00
0+00 to 2+10	Embankment compaction	$/cy	650	x	$0.79	=	$513.50
0+00 to 2+10	Waste material compaction	$/cy	650	x	$0.45	=	$292.50
0+00 to 2+10	Cut slope rounding	$/sta	2	x	$49.00	=	$98.00
2A to 2B							
0+00 to 24+10	Balanced construction	$/sta.	24.10	x	$138.00	=	$3,325.80
4+90, 8+30, 15+00	Construct turnout w/ C315	$/hr	3	x	$114.00	=	$342.00
11+45	Reconstruct fill w/ C330	$/hr	4	x	$175.00	=	$700.00
19+00	Construct turnaround w/ C31	$/hr	1	x	$114.00	=	$114.00
2C to 2D							
0+00 to 1+10	Balanced construction	$/sta.	1.10	x	$138.00	=	$151.80
				x		=	$0.00
2E to 2F							
0+00 to 3+20	Balanced construction	$/sta.	3.20	x	$138.00	=	$441.60
2+00	Construct turnaround w/ C31	$/hr	1	x	$114.00	=	$114.00
3+20	Landing construction	$/LDG	1	x	$438.00	=	$438.00
2G to 2H							
0+00 to 2+95	Balanced construction	$/sta.	2.95	x	$138.00	=	$407.10
2+95	Landing construction	$/LDG	1	x	$438.00	=	$438.00

SUB TOTAL FOR EXCAVATION $12,480

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
1C to 1D					**2G to 2H**				
0+00	18" CPP	40	$21.95	$878.00	0+00	18" CPP	40	$21.95	$878.00
1E to 1F									
0+00	18" CPP	30	$21.95	$658.50					
2A to 2B									
11+45	24" CPP	40	$30.39	$1,215.60					
2C to 2D									
0+00	18" CPP	40	$21.95	$878.00					
2E to 2F									
0+80	18" CPP	30	$21.95	$658.50					

	Description	Quantity	Rate	Cost
Other/miscellaneous:				
Culvert stakes & markers:	6' X 2½" white fiberglass (Carsonite) posts	6	$23.00	$138.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION $5,305

Subtotal of Clearing, Exc.,Culv. ***$22,060***

SURFACING

Subgrade prep:	Description	Stations/ amount	x	Rate/ sta/amt	Cost
1C to 1D, 1E to 1F, 2E to 2F, 2G to 2H	Grade, Shape and Ditch 16'	10.25	x	$27.91	$286.08
1A to 1B, 2A to 2B, 2C to 2D	Grade, Shape and Outslope 14'	26.30		$20.63	$542.57
All segments	Subgrade Compaction	36.55	x	$22.69	$829.32

ROAD SEGMENT	1A to 1B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	1A to 1B Volume (CY) per		0+00 to 1+10 Number of					
Junction	5"-0" crushed	0+00	N/A	junction	33	junctions	1	33	$3.73	$123	
Total Rock for Road Segment:			1A to 1B					33			$123

ROAD SEGMENT	1C to 1D			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	1C to 1D Volume (CY) per		0+00 to 2+00 Number of					
Base Rock	5"-0" crushed	0+00 to 2+00	10	station	63	stations	2.00	126	$3.73	$470	
Culvert Bedding/Backfill	1 1/2"-0" culvert backfill	0+00	N/A	culvert	33	culverts	1	33	$4.27	$141	
Landings	6"-0" pit-run	2+00	N/A	landing	77	landings	1	77	$2.81	$216	
Total Rock for Road Segment:			1C to 1D					236			$827

ROAD SEGMENT	1E to 1F			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	1E to 1F Volume (CY) per		0+00 to 2+10 Number of					
Base Rock	5"-0" crushed	0+00 to 2+10	10	station	63	stations	2.10	132	$3.73	$493	
Junction	1 1/2"-0" crushed	0+00, 2+10	N/A	junctions	11	junctions	2	22	$15.32	$337	
Traction Rock	1 1/2"-0" crushed	0+00 to 2+10	2	station	13	stations	2.10	27	$15.32	$418	
Culvert Bedding/Backfill	1 1/2"-0" culvert backfill	0+00	N/A	culvert	33	culverts	1	33	$4.27	$141	
Total Rock for Road Segment:			1E to 1F					215			$1,390

ROAD SEGMENT	2A to 2B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A to 2B Volume (CY) per		0+00 to 24+10 Number of					
Base Rock	5"-0" crushed	0+00 to 1+00	10	station	63	stations	1.00	63	$3.73	$235	
Junction	1 1/2"-0" crushed	0+00	N/A	junction	11	junctions	1	11	$15.32	$169	
Subgrade Reinforcement	6"-0" pit-run	15+00 to 17+00	N/A	load	11	loads	10	110	$2.81	$309	
Total Rock for Road Segment:			2A to 2B					184			$713

ROAD SEGMENT	2C to 2D			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	2C to 2D Volume (CY) per		0+00 to 1+10 Number of					
Junction	5"-0" crushed	0+00	N/A	junction	33	junctions	1	33	$3.73	$123	
Culvert Bedding/Backfill	1 1/2"-0" culvert backfill	0+00	N/A	culvert	33	culverts	1	33	$4.27	$141	
Total Rock for Road Segment:			2C to 2D					66			$264

ROAD SEGMENT	2E to 2F			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	2E to 2F Volume (CY) per		0+00 to 3+20 Number of					
Base Rock	5"-0" crushed	0+00 to 3+20	10	station	63	stations	3.20	202	$3.73	$752	
Junction	1 1/2"-0" crushed	0+00	N/A	junctions	11	junctions	1	11	$15.32	$169	
Culvert Bedding/Backfill	1 1/2"-0" culvert backfill	0+80	N/A	culvert	33	culverts	1	33	$4.27	$141	
Turnaround	5"-0" crushed	2+00	N/A	turnaround	22	turnarounds	1	22	$3.73	$82	
Landings	6"-0" pit-run	3+20	N/A	landing	77	landings	1	77	$2.81	$216	
Total Rock for Road Segment:			2E to 2F					345			$1,360

ROAD SEGMENT	2G to 2H			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	2G to 2H Volume (CY) per		0+00 to 2+95 Number of					
Base Rock	5"-0" crushed	0+00 to 2+95	10	station	63	stations	2.95	186	$3.73	$693	
Junction	1 1/2"-0" crushed	0+00	N/A	junction	11	junctions	1	11	$15.32	$169	
Culvert Bedding/Backfill	1 1/2"-0" culvert backfill	0+00	N/A	culvert	33	culverts	1	33	$4.27	$141	
Landings	6"-0" pit-run	2+95	N/A	landing	77	landings	1	77	$2.81	$216	
Total Rock for Road Segment:			2G to 2H					307			$1,219

Processing:

Description	No.sta	Rate/sta	Cost
Water, Process & Compact Base Rock (5"-0"): (2 times for 2 lifts)	11.25	$126.96	$1,428
Traction Rock Water, Process & Compact	2.10	$63.48	$133

	6"-0"pr	5"-0" crushed	1 1/2"-0" crushed	1 1/2"-0" culvert backfill	Total	
SUB TOTAL FOR SURFACING	341	797	82	165	1,385	**$9,115**

SPECIAL PROJECTS

Description	Cy/Amount	Rate	Cost

SUB TOTAL FOR SPECIAL PROJECTS $0

Subtotal of Surfacing & Spec. Proj. *$9,115*

Subtotal of Clearing, Exc., Culv. *$22,060*

GRAND TOTAL **$31,175**

Compiled By: Cole Hatcher Date: 09/19/2022

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Grand Ball
ROAD: I1 to I2 (205.15), I3 to I4 (16.1), I5 to I6 (6.65), I7 to I8 (2.7), I9 to I10 (12.55), I11 to I12 (5.1), I13 to I14 (31.15), I15 to I16 (5.6), I17 to I18 (10.95), I19 to 20 (12.8)

NEW CONSTRUCTION: ____ STATIONS 0.00 MILES
IMPROVEMENT: 308.75 STATIONS 5.85 MILES

CLEARING & GRUBBING

	Method	Acres/amount	x	Rate	=	Cost
I5 to I6 and I9 to I10 (Sta. 3+20)	Scatter outside of right of way	0.7	x	$1,503.00	=	$977.93

SUB TOTAL FOR CLEARING & GRUBBING $978

EXCAVATION

	Material		Cy/amount	x	Rate	=	Cost
I1 to I2							
88+00	Construct waste area w/C330	$/hr	2	x	$175.00	=	$350.00
49+25, 103+55, 117+40, 130+15, 156+40, 185+75, 192+90	Clean Culvert catch basin, inlet, and outlet w/C315	$/hr	6	x	$114.00	=	$684.00
175+20, 175+60	Install a series of 3 rock ditch filters w/C315	$/hr	2	x	$114.00	=	$228.00
I3 to I4							
14+10	Clean Culvert catch basin, inlet, and outlet w/C315	$/hr	1	x	$114.00	=	$114.00
I5 to I6							
0+00 to 6+65	Dichouts and clearing deris w/C330	$/hr	3	x	$175.00	=	$525.00
I9 to I10							
10+00	Clean Culvert catch basin, inlet, and outlet w/C315	$/hr	1	x	$114.00	=	$114.00
12+50	Construct turnaround and ditchout w/C3	$/hr	1	x	$175.00	=	$175.00
I13 to I14							
5+15, 11+60, 16+85	Clean Culvert catch basin, inlet, and outlet w/C315	$/hr	3	x	$114.00	=	$342.00
27+70	Remove culvert and backfill with reject w/C315 and 12cy dump truck	$/hr	1	x	$203.00	=	$203.00
I19 to I20							
0+80, 6+00	Clean Culvert catch basin, inlet, and outlet w/C315	$/hr	2.00	x	$114.00	=	$228.00
6+00	Install a series of 3 rock ditch filters w/C315	$/hr	1.00	x	$114.00	=	$114.00
6+00	Install energy dissipator w/C315 and 12cy dump truck	$/dissipator	1.00	x	$203.00	=	$203.00

SUB TOTAL FOR EXCAVATION $3,280

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
I1 to I2					**I7 to I8**				
29+70	18" CPP	30	$21.95	$658.50	0+00	18" CPP	30	$21.95	$658.50
105+65	18" CPP	30	$21.95	$658.50	**I9 to I10**				
197+00	18" CPP	40	$21.95	$878.00	7+20	18" CPP	30	$21.95	$658.50
I3 to I4					**I13 to I14**				
0+90	18" CPP	40	$21.95	$878.00	1+40	18" CPP	30	$21.95	$658.50
7+60	18" CPP	30	$21.95	$658.50	24+00	18" CPP	30	$21.95	$658.50
I5 to I6					**I17 to I18**				
4+30	18" CPP	30	$21.95	$658.50	0+40	18" CPP	40	$21.95	$878.00

	Description		Quantity	Rate	Cost
Other/miscellaneous:	Seed and mulch on waste area	$/bale	20.00	$12.06	$241.20
		$/lb	5.00	$1.80	$9.00
Culvert stakes & markers:	6' X 2½" white fiberglass (Carsonite) posts		21	$23.00	$483.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION $8,635

Subtotal of Clearing, Exc.,Culv. ***$12,893***

SURFACING			Stations/ amount	x	Rate/ sta/amt	Cost
Subgrade prep:	Description					
All "I" segment	Grade, Shape and Ditch 16'		308.75	x	$27.91	$8,617.21
All "I" segment	Subgrade Compaction		308.75	x	$22.69	$7,005.54
I3 to I4, I5 to I6, I17 to I18 (0+00 to	Sod removal, reestablish ditch, and pile debris. Backhoe to scatter debis on site.		24.35	x	$36.28	$883.42

ROAD SEGMENT	I1 to I2			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	I1 to I2 Volume (CY) per		0+00 to 205+15 Number of					
Surfacing	1 1/2"-0" crushed	0+00 to 67+45, 80+15 to 84+75, 104+10 to 136+15	3	station	19	stations	104.1	1,978	$15.32	$30,301	
Junctions	1 1/2"-0" crushed	0+00, 3+85, 5+75, 40+90, 52+75, 59+85	N/A	junction	11	junctions	6	66	$15.32	$1,011	
Turnouts	1 1/2"-0" crushed	11+75, 26+75, 33+25, 44+80, 55+95, 62+80, 113+05, 118+25, 129+25	N/A	turnout	11	turnouts	9	99	$15.32	$1,517	
Culvert Bedding and Backfill	1 1/2"-0" culvert backfill	29+70, 105+66, 197+00	N/A	culvert	33	culverts	3	99	$4.27	$423	
Surfacing	5"-0" crushed	67+45 to 80+15, 84+75 to 104+10, 136+15 to 205+15	5	station	31	stations	101.05	3,133	$3.73	$11,684	
Junctions	5"-0" crushed	78+35, 79+10, 205+15	N/A	junction	11	junctions	3	33	$3.73	$123	
Turnouts	5"-0" crushed	142+20, 145+25	N/A	turnout	22	turnouts	2	44	$3.73	$164	
Turnouts	5"-0" crushed	147+45, 150+85, 157+20, 177+00, 198+15	N/A	turnout	11	turnouts	5	55	$3.73	$205	
Rock Ditch Filters	6"-4" pit-run	175+20, 175+60	N/A	3 filter series	11	3 filter series	2	22	$2.81	$62	
Total Rock for Road Segment:			0					5,528			$45,491

ROAD SEGMENT	I3 to I4			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	I3 to I4 Volume (CY) per		0+00 to 16+10 Number of					
Surfacing	1 1/2"-0" crushed	0+00 to 9+90	3	station	19	stations	9.9	188	$15.32	$2,882	
Junctions	1 1/2"-0" crushed	0+00, 16+10	N/A	junction	11	junctions	2	22	$15.32	$337	
Turnouts	1 1/2"-0" crushed	3+50, 7+05, 8+45	N/A	turnout	11	turnouts	3	33	$15.32	$506	
Culvert Bedding and Backfill	1 1/2"-0" culvert backfill	0+90, 7+60	N/A	culvert	33	culverts	2	66	$4.27	$282	
Surfacing	5"-0" crushed	9+90 to 16+10	5	station	31	stations	6.2	192	$3.73	$717	
Turnouts	5"-0" crushed	10+35	N/A	turnout	22	turnouts	1	22	$3.73	$82	
Landings	6"-0" pit run	10+35	N/A	landing	55	landings	1	55	$2.81	$155	
Total Rock for Road Segment:			I3 to I4					578			$4,960

ROAD SEGMENT	I5 to I6			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	I5 to I6 Volume (CY) per		0+00 to 6+65 Number of					
Leveling Rock	5"-0" crushed		N/A	load	11	loads	3	33	$3.73	$123	
Surfacing	5"-0" crushed	0+00 to 6+65	5	station	31	stations	6.65	206	$3.73	$769	
Junctions	5"-0" crushed	0+00	N/A	junction	11	junctions	1	11	$3.73	$41	
Culvert Bedding and Backfill	1 1/2"-0" culvert backfill	4+30	N/A	culvert	33	culverts	1	33	$4.27	$141	
Total Rock for Road Segment:			I5 to I6					283			$1,074

ROAD SEGMENT	I7 to I8			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I7 to I8 Volume (CY) per		0+00 to 2+70 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surfacing	5"-0" crushed	0+00 to 2+70	5	station	31	stations	2.7	84	$3.73	$312	
Junctions	1 1/2"-0" crushed	0+00	N/A	junction	11	junctions	1	11	$15.32	$169	
Traction Rock	1 1/2"-0" crushed	0+00 to 2+50	2	station	13	stations	2.5	33	$15.32	$498	
Culvert Bedding and Backfill	1 1/2"-0" culvert backfill	0+00	N/A	culvert	33	culverts	1	33	$4.27	$141	
Landings	6"-0" pit run	2+70	N/A	landing	55	landings	1	55	$2.81	$155	
Total Rock for Road Segment:			I7 to I8					215			$1,274
ROAD SEGMENT	I9 to I10			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I9 to I10 Volume (CY) per		0+00 to 12+55 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surfacing	1 1/2"-0" crushed	0+00 to 12+55	2	station	13	stations	12.55	163	$15.32	$2,499	
Junctions	1 1/2"-0" crushed	0+00, 4+40	N/A	junction	11	junctions	2	22	$15.32	$337	
Turnouts	1 1/2"-0" crushed	6+45, 10+75	N/A	turnout	11	turnouts	2	22	$15.32	$337	
Culvert Bedding and Backfill	1 1/2"-0" culvert backfill	7+20	N/A	culvert	33	culverts	1	33	$4.27	$141	
Turnaround	5"-0" crushed	12+50	N/A	turnaround	33	turnaround	1	33	$3.73	$123	
Total Rock for Road Segment:			I9 to I10					273			$3,438
ROAD SEGMENT	I11 to I12			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I11 to I12 Volume (CY) per		0+00 to 5+10 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surfacing	1 1/2"-0" crushed	0+00 to 5+10	2	station	13	stations	5.1	66	$15.32	$1,016	
Junctions	1 1/2"-0" crushed	0+00	N/A	junction	11	junctions	1	11	$15.32	$169	
Turnaround	5"-0" crushed	3+00	N/A	turnaround	22	turnaround	1	22	$3.73	$82	
Total Rock for Road Segment:			I11 to I12					99			$1,266
ROAD SEGMENT	I13 to I14			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I13 to I14 Volume (CY) per		0+00 to 31+15 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surfacing	5"-0" crushed	0+00 to 31+15	5	station	31	stations	31.15	966	$3.73	$3,602	
Junctions	5"-0" crushed	0+00	N/A	junction	11	junctions	1	11	$3.73	$41	
Culvert Bedding and Backfill	1 1/2"-0" culvert backfill	1+40, 24+00	N/A	culvert	33	culverts	2	66	$4.27	$282	
Turnouts	5"-0" crushed	4+00, 10+50, 18+75	N/A	turnout	11	turnouts	3	33	$3.73	$123	
Total Rock for Road Segment:			I13 to I14					1,076			$4,048
ROAD SEGMENT	I15 to I16			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I15 to I16 Volume (CY) per		0+00 to 5+60 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surfacing	5"-0" crushed	0+00 to 4+90	5	station	31	stations	4.9	152	$3.73	$567	
Junctions	5"-0" crushed	0+00	N/A	junction	11	junctions	1	11	$3.73	$41	
Turnaround	5"-0" crushed	4+40	N/A	turnaround	22	turnaround	1	22	$3.73	$82	
Total Rock for Road Segment:			I15 to I16					185			$690
ROAD SEGMENT	I17 to I18			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I17 to I18 Volume (CY) per		0+00 to 10+95 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surfacing	5"-0" crushed	0+00 to 2+55	5	station	31	stations	2.55	79	$3.73	$295	
Junctions	5"-0" crushed	0+00	N/A	junction	11	junctions	1	11	$3.73	$41	
Culvert Bedding and Backfill	1 1/2"-0" culvert backfill	0+40	N/A	culvert	44	culverts	1	44	$4.27	$188	
Total Rock for Road Segment:			I17 to I18					134			$524

ROAD SEGMENT	I19 to I20			POINT TO POINT		Sta. to Sta.					
				I19 to I20		0+00 to 12+80		TOTAL			
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surfacing	5"-0" crushed	0+00 to 12+80	5	station	31	stations	12.8	397	$3.73	$1,480	
Junctions	5"-0" crushed	0+00, 12+80	N/A	junction	11	junctions	2	22	$3.73	$82	
Rock Ditch Filters	6"-4" pit-run	6+00	N/A	3 filter series	11	3 filter series	1	11	$2.81	$31	
Culvert Energy Dissipator	24"-6"riprap	6+00	N/A	dissipator	11	dissipators	1	11	$3.89	$43	
Landings	6"-0" pit run	7+95	N/A	landing	55	landings	1	55	$2.81	$155	
Total Rock for Road Segment:			I19 to I20					496			$1,790

Processing:

Description	No.sta	Rate/sta	Cost
Water, Process & Compact:	299.65	$63.48	$19,022
Traction Rock Water, Process & Compact	2.50	$63.48	$159

	24"-12" rr	24"-6" rr	12"-6" rr	6"-4" pr	6"-0"pr	5"-0" crushed	1 1/2"-0" crushed	2"-1" drainrock	1 1/2"-0" culvert backfill	Total	
SUB TOTAL FOR SURFACING	0	11	0	33	165	5,571	2,714	0	374	8,868	**$100,240**

SPECIAL PROJECTS

Description	Cy/Amount	Rate	Cost
			$0.00
			$0.00

SUB TOTAL FOR SPECIAL PROJECTS **$0**

Subtotal of Surfacing & Spec. Proj. *$100,240*
Subtotal of Clearing, Exc.,Culv. *$12,893*

GRAND TOTAL **$113,133**

Compiled By: Cole Hatcher

Date: 09/20/2022

Projects Road Maintenance Cost Summary

Sale: Grand Ball
Date: 20-Sep-22
By: Cole Hatcher CB

Final Project Maintenance may be spot grading with some segments of full water, process, and compact. This will be determined by STATE when roads are assessed for Final Project Maintenance.

Type	Equipment/Rationale			Hours	Rate	Cost	
Project Work	Grader 14G			32	$113	$3,616	
Final Haul	Dump Truck 12CY			16	$89	$1,424	
Road	FE Loader C966			16	$94	$1,504	
Maintenance	Vibratory Roller			32	$87	$2,784	
	Water Truck 2,500 gallon			16	$101	$1,616	
Total							$10,944

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

NOTE:

Wage Road (1 mile to Grand Rapids Road Junction)	1.05	Miles
Nicolai Mainline (West Kerry Stockpile to Bovine Mainline)	4.63	Miles
Bovine Mainline	4.87	Miles
Northrup Creek Road	1.70	Miles
TOTAL=	12.25	Miles

Grand Ball

Block and Waterbar Costs for 2A to 2B

Work Description	Station	C330	D10/12 trk	Labor	Straw-bales	Seed-lbs
2A to 2B						
Block road with a tank trap	0+00	1.00				
Walk equipment to back end of project		2.00				
Remove and haul off old culvert	11+45	3.00	1	2	12	2
Install waterbars every 300 to 400 feet		2.00				
Total Quantity (Hours)	0	8	1	2	12	2
Mobilization		$1,581.00	$184.00			
Rates		$175.00	$89.00	$45.00	$12.06	$1.80
Total Dollars		$1,400	$89	$90	$145	$4

Total Cost **$3,492**

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 3 **Contract Name: Grand Ball**

Quarry: Buster Creek Swell:

Location: NW 1/4, Section 25, T5N, R7W, W.M. Shrink: 16%

County: Clatsop

By: C.Bangs Loading Hopper: Yes

Date: 09/20/22

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"		CR			
5"-0"	40%	CR		6,368	6,368
6"-0"		PR		539	539
24"-6"		PR		11	11
TOTAL CUBIC YARDS OF ROCK:				6,918	**6,918**

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Loading Hopper	1	$622	$622	Powder	1	$395	$395
Screening Plants	1	$622	$622				
2 Stage Crusher	1	$2,445	$2,445				
Drill & Compressor	1	$1,581	$1,581				
Off Highway Dump Truck	2	$622	$1,244				
Excavator	1	$1,581	$1,581				
Front End Loader	1	$1,581	$1,581				
D6	1	$875	$875				

SUB TOTAL FOR MOBILIZATION $10,946

EQUIPMENT SET UP	TIMES	RATE	COST
2 Stage Crusher	1	$2,445	$2,445
Screening Plants	1	$330	$330
Loading Hopper	1	$330	$330
Original Calibration	1	$612	$612

SUB TOTAL FOR SET UP COSTS $3,717

TOTAL MOBILIZATION & SET UP COSTS $14,663

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clear and Grub (Rock Source Area)	10.0	hrs	$175	$1,750
Clear (Waste Area - Leave Stumps)	10.0	hrs	$175	$1,750
Burn Clearing and Grubbing Debris	15.0	hrs	$175	$2,625
Move in Fire Truck	1.0		$214	$214

TOTAL CLEARING & GRUBBING COSTS $6,339

3) EXCAVATION

MATERIAL DESCRIPTION		QUANTITY	UNIT	RATE	COST
Overburden Removal (excavate, load	Excavator	30	hrs	$175.00	$5,250
haul, spread), Bench Construction	OR Truck	30	hrs	$143.00	$4,290

TOTAL EXCAVATION COSTS $9,540

4) DEVELOP ROCK

ROCK SUMMARY

Type	Cu. yd. Vol.	Weight
crushed	6,368	92%
pit run	539	8%
rip rap	0	0
Total	6,907	
reject	2,547	36.9%

METHOD	%	QUANTITY	RATE	COST
Ripping	10%	691	$3.40	$2,348
Drill & shoot	80%	7,563	$3.50	$26,472
Oversize red	10%	691	$5.80	$4,006
Other				

TOTAL ROCK DEVELOPMENT COSTS $32,826

5) CALIBRATION & TESTING

DESCRIPTION	NO.	$/TEST	COST
Calibrate			
Calibrate			
Test	3	$57.30	$172
Test			

TOTAL CALIBRATION & TESTING COSTS $172

6) FEEDING & LOADING

DESCRIPTION		CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock		8,915	$0.78	$6,941
Shot Rock Handling	Excavator	60	$175.00	$10,500
	ORx2	120	$143.00	$17,160

TOTAL FEEDING & LOADING COSTS $34,601

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed		3 stage w/s	110		
1-1/2"-0"	crushed		3 stage w/s	120		
5"-0"	crushed	6,368	2 stage w/s	140	$2.48	$15,784

TOTAL ROCK CRUSHING COSTS $15,784

8) STOCKPILING

STOCKPILE SITE PREPARATION

Equipment	Hours	Rate	Total
Dozer			
Compactor			
Grader			
Excavator			

SUB TOTAL

Rock for Floor (CY)	$/CY Haul	Total

HAUL & STOCKPILE STOCKPILE LOCATION	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1.					
2.					
3.					
4.					
5.					
6.					

SUB TOTAL

TOTAL STOCKPILING COSTS

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area.	$9,628
$3.78 /CY 2,547 CY	
Final Quarry Dev., Access Road Const., Waterbarring, Drainage,	$2,000
Block Quarry Access	

TOTAL MISCELLANEOUS COSTS $11,628

10) GRAND TOTAL: **$125,553**

$/Cubic Yard $19.72

Footnotes:

CRUSHED ROCK COST

SALE NAME: Grand Ball
PROJECT: No. 1 and 2
Stockpile: Buster Creek Stockpile Site

MATERIAL: 1 1/2"-0" culvert backfill

DATE: 09/20/2022
BY: W. Lawrence

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
1C to 1D		33				0.30	1.00	1.00	0.10	2.40
1E to 1F		33				0.20	0.90	0.90	0.10	2.10
2C to 2D		33				0.10	0.20	0.50	0.10	0.90
2E to 2F	0.80	33				0.10	0.40	0.50	0.10	1.10
2G to 2H		33				0.10	0.40	0.60	0.10	1.20
I1 to I2	197.00	99				0.73	1.00	0.60	0.10	2.43
I3 to I4	7.60	66				1.00	1.21	0.60	0.10	2.91
I5 to I6	4.30	33				0.93	1.00	0.80	0.10	2.83
I7 to I8		33				0.72	0.80	0.40	0.10	2.02
I9 to I10	7.20	33				0.71	0.70	0.40	0.10	1.91
I13 to I14	24.00	66				0.09	0.30	0.40	0.10	0.89
I17 to I18	0.40	44				0.10	0.50	0.56	0.10	1.26
TOTAL	241.30	539								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL						**0.47**	**0.74**	**0.59**	**0.10**	**1.90**
								Average Round Trip Distance (miles)	3.80	

ROCK HAUL:

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

Truck type: D12 No. trucks: 7
Delay min.: 6 Efficiency: 85%

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

Ave haul: $3.01 /cy
Load: $0.48 /cy
Spread: $0.78 /cy

Production: cy/day = 1,469

CRUSHED ROCK HAUL COSTS 539 cy @ **$4.27 /cy**

CRUSHED ROCK COST

SALE NAME: Grand Ball
PROJECT: No. 1 and 2
Stockpile: Kerry Stockpile Site

MATERIAL: 1 1/2"-0"

DATE: 09/20/2022
BY: W. Lawrence

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
1E to 1F	2.10	49	5.00	3.00	5.30	2.00	2.00	1.00	0.50	18.80
2A to 2B		11	5.00	3.00	5.30	3.00	2.20	1.00	0.50	20.00
2E to 2F		11	5.00	3.00	5.30	3.30	2.50	1.00	0.50	20.60
2G to 2H		11	5.00	3.00	5.30	3.30	2.60	1.00	0.50	20.70
I1 to I2	136.15	2,143	5.00	3.00	5.30	2.00	2.07	1.00	0.50	18.87
I3 to I4	16.10	243	5.00	3.00	5.30	1.80	1.75	1.00	0.50	18.35
I7 to I8	2.50	44	5.00	3.00	5.30	1.95	1.90	1.00	0.50	18.65
I9 to I10	12.55	207	5.00	3.00	5.30	2.50	2.60	1.00	0.50	19.90
I11 to I12	5.10	77	5.00	3.00	5.30	2.50	2.58	1.00	0.50	19.88
TOTAL	174.50 STA./NO.	2,796 CU. YD.								AVERAGE HAUL
CUBIC YARD WEIGHTED HAUL			**5.00**	**3.00**	**5.30**	**2.05**	**2.10**	**1.00**	**0.50**	**18.94**

Average Round Trip Distance (miles) 37.89

ROCK HAUL:

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

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

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

Ave haul: $12.31 /cy
Load: $1.08 /cy
Spread: $1.92 /cy

Production: cy/day = 451

CRUSHED ROCK HAUL COSTS 2,796 cy @ **$15.32 /cy**

CRUSHED ROCK COST

SALE NAME: Grand Ball
PROJECT: No. 1 and 2
Stockpile: Buster Creek Quarry
MATERIAL: 5"-0"
DATE: 09/20/2022
BY: W. Lawrence

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
1A to 1B		33			1.80	0.90	0.30	0.20	0.20	3.40
1C to 1D	2.00	126			1.60	0.80	0.30	0.20	0.20	3.10
1E to 1F	2.10	132			1.50	0.60	0.30	0.20	0.20	2.80
2A to 2B	1.00	63				0.20	0.20	0.10	0.20	0.70
2C to 2D		33				0.20	0.20	0.10	0.20	0.70
2E to 2F	3.20	224						0.10	0.10	0.20
2G to 2H	2.95	186							0.10	0.10
I1 to I2	205.15	3,265			1.20	0.60	0.30	0.20	0.20	2.50
I3 to I4	16.10	214			0.60	0.40	0.24	0.20	0.20	1.64
I5 to I6	6.65	250			0.60	0.39	0.30	0.20	0.20	1.69
I7 to I8	2.70	84			0.50	0.30	0.20	0.20	0.20	1.40
I9 to I10	12.50	33			0.48	0.20	0.20	0.20	0.20	1.28
I11 to I12	3.00	22			0.45	0.20	0.20	0.20	0.20	1.25
I13 to I14	31.15	1,010					0.10	0.10	0.10	0.30
I15 to I16	4.90	185					0.10	0.17	0.10	0.37
I17 to I18	2.55	90						0.03	0.10	0.13
I19 to I20	12.80	419					0.33	0.30	0.20	0.83
TOTAL	308.75	6,369								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					**0.74**	**0.38**	**0.24**	**0.18**	**0.17**	**1.70**
								Average Round Trip Distance (miles)	3.41	

ROCK HAUL:

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

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

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

Ave haul: $2.46 /cy
Load: $0.48 /cy
Spread: $0.78 /cy

Production: cy/day = 1,282

CRUSHED ROCK HAUL COSTS 6,369 cy @ **$3.73 /cy**

PIT RUN ROCK COST

SALE NAME: Grand Ball
PROJECT: No. 1 and 2
QUARRY: Buster Creek Quarry

MATERIAL: 6"-0", 6"-4" Pit-Run
24"-6" Riprap

DATE: 09/20/2022
BY: W. Lawrence

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
1C to 1D	2.00	77			1.00	1.00	0.70	0.20	0.20	3.10
2A to 2B	17.00	110					0.30	0.20	0.20	0.70
2E to 2F	3.20	77							0.10	0.10
2G to 2H	2.95	77							0.10	0.10
I1 to I2	175.60	22			1.20	0.60	0.30	0.20	0.20	2.50
I3 to I4	1.35	55			0.60	0.40	0.24	0.20	0.20	1.64
I7 to I8	2.70	55			0.50	0.30	0.20	0.20	0.20	1.40
I19 to I20	7.95	66					0.33	0.30	0.20	0.83
TOTAL	212.75	539								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					0.3	0.2	0.3	0.2	0.2	1.11
									Average Round Trip Distance (miles)	2.23

ROCK HAUL:

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

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

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

Ave haul: $2.03 /cy
Load: $0.30 /cy
Spread: $0.48 /cy

Production: cy/day = 1,559

PIT RUN ROCK HAUL COSTS 539 cy @ **$2.81 /cy**

RIP RAP ROCK COST

SALE NAME: Grand Ball
PROJECT: No. 1 and 2
QUARRY: Buster Creek Quarry

MATERIAL: Rip Rap

DATE: 09/20/2022
BY: W. Lawrence

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
I19 to I20	7.95	11					0.33	0.30	0.20	0.83
TOTAL	7.95 STA./NO.	11 CU. YD.								
CUBIC YARD WEIGHTED HAUL							**0.3**	**0.3**	**0.2**	**AVERAGE HAUL 0.83**
							Average Round Trip Distance (miles)		1.66	

ROCK HAUL:

Truck type: D12 No. trucks: 1
Delay min.: 6 Efficiency: 85%

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

Ave haul: $2.08 /cy
Load: $1.80 /cy
Develop: /cy

Production: cy/day = 303

RIP RAP ROCK HAUL COSTS 11 cy @ **$3.89 /cy**

Grand Ball
TIMBER CRUISE REPORT
FY 2023

1. **Sale Area Location:** Portions of Section 19 of T5N, R6W, and portions of Section 24 & 25 of T5N, R7W, W.M., Clatsop County, OR.

2. **Fund Distribution:** BOF 100%, CSL 0% BOF Tax Code: 8-01 (100%)

3. **Sale Acreage by Area:**

Unit	Harvest Type	Gross Acres	Non-Stocked	Stream Buffer Acres	Existing R/W Acres	New R/W Non-stocked	New R/W	Reserve Tree Area	Net Acres	Survey Method
1	Modified Clearcut	56	-	2	4	-	<1	<1	50	GIS
2	Modified Clearcut	104	7	3	4	-	2	2	86	GIS
3	In-Unit R/W	2	-	-	-	1	-	-	1	LxW
TOTALS		**162**	**7**	**5**	**8**	**1**	**1**	**2**	**137**	

***The unstocked R/W is within Unit 2.**

4. Cruisers and Cruise Dates: Kevin Berry, John Czarnecki, Ryan Simpson, and Michele Huffman (09/13/2022 – 09/14/2022)

5. Cruise Method and Computation:

Units 1 and 2: Units 1 and 2 were variable plot cruised utilizing a Relaskop with a 54.45 BAF for conifers and 33.61 BAF for hardwood trees. A total of 64 plots were sampled on a 6 by 4 chain spacing. The count to grade ratio was 1:2, which resulted in 28 grade plots and 36 count plots. Two count plots were dropped due to their proximity to a buffer.

Data was collected on Allegro 2 data collectors and downloaded to the Atterbury SuperACE 2008 program for computing. See the attached Cruise Designs for more details on the cruise method. The cruise calculations were processed in the Astoria District office.

UNIT	CRUISE	TRACT	TYPE	ACRES
1 and 2	GBALL	U12	00MC	136
3 (R/W)	GBALL	U3	00MC	1

6. Timber Description:

Units 1 and 2 are modified clearcuts with an average age of 75 years. The stand consists of Douglas-fir and western hemlock with a minor portion of red alder and bigleaf maple. The average take Douglas-fir is 26.0 inches DBH and is 97 feet to a merchantable top. The average take western hemlock is 15.5 inches DBH and is 44 feet to a merchantable top. The average take red alder is 14.5 inches DBH and is 43 feet to a merchantable top. The average take bigleaf maple is 17.0 inches DBH and is 33 feet to a merchantable top. Average net volume to be harvested per acre is 56 MBF. All trees were cruised to a merchantable top of six inches DIB, 40% of form point, or an otherwise anticipated break point.

Unit 3 (R/W) In-unit Right-of-Way was cruised with Units 1 and 2. One acre of new construction was considered non-stocked and was not included in the cruise. The average net volume to be harvested per acre is 56 MBF.

7. Statistical Analysis and Stand Summary:

Statistics for Stand B.F. volumes

Unit	Estimated CV	Target SE%	Actual CV	Actual SE%
1 & 2	50%	8%	58.5%	7.3%

8. Volumes by Species and Log Grade:

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

Conifer

Species	DBH	Net Vol.	2 Saw	3 Saw	4 Saw	% D & B	% Sale
Douglas-fir	26.0"	6,414	5,218	1,115	81	1.0%	84%
Western hemlock	15.5"	550	269	233	48	1.7%	7%
TOTALS	--	**6,964**	**5,487**	**1,348**	**129**	--	--

Hardwood

Species	DBH	Net Vol.	12"+	10"-11"	8"-9"	6"-7"	% D & B	% Sale
Red alder	14.5"	480	117	140	103	120	1.1%	6%
Bigleaf maple	17.0"	169	84	10	26	49	5.2%	2%
TOTALS	--	**649**	**201**	**150**	**129**	**169**	--	--

TOTAL VOLUME	7,613 MBF

9. Approvals:

Prepared by: John Czarnecki **Date:** 09/16/2022

Unit Forester Approval: [signature] **Date:** 9/26/2022

10. Attachments:
Cruise Design and Map (3 pages)
Volume Report (3 pages)
Statistics Report (7 pages)
Log Stock Table (3 pages)
Stand Table Summary (2 pages)

Revised August, 2002

CRUISE DESIGN
ASTORIA DISTRICT

Sale Name: __Grand Ball__ **Units** __U12__

Harvest Type: Modified Clearcut

Approx. Cruise Acres: _136_ **Estimated CV%** _50_ Net BF/Acre **SE% Objective** _8%_ Net BF/Acre

Planned Sale Volume: 10,855 MBF **Estimated Sale Area Value/Acre:** $34,125/Acre

A. Cruise Goals: (a) Grade minimum __100__ conifer trees.
(b) Sample 66 plots (28 grade/ 38 count); (c) Other goals (____ Determine "automark" thinning standards; __X__ Determine log grades for sale value; _____ Determine snag and leave tree species and sizes.

B. Cruise Design:

1. **Plot Cruises:** BAF(Confier) **54.45**
   BAF(Hardwood) **33.61**

   Unit 1:

   Cruise Line Direction: 0°/180°
   Cruise Line Spacing _6_ (chains) __396__ (Feet)
   Cruise Plot Spacing _4_ (chains) _264_ (Feet)
   Grade/Count Ratio __1:2__

   Unit 2:

   Cruise Line Direction: 8°/188°
   Cruise Line Spacing _6_ (chains) __396__ (Feet)
   Cruise Plot Spacing _4_ (chains) _264_ (Feet)
   Grade/Count Ratio __1:2__

Take plots as marked on cruise map.

Grade minor species (true fir, spruce, cedar, maple, etc.) on count plots if encountered.

DO NOT: record any 22' log lengths, or any 12', 24', or 32' log lengths for hardwoods.

DO NOT: record snags < 12" DBH or record snag measurements on count plots.

C. Tree Measurements:

1. **Diameter:** Minimum DBH to cruise is _8"_ for conifers and _8"_ for hardwoods. Record dbh to nearest ½" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.

2. **Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.

3. **Top Cruise Diameter (TCD):** Minimum top outside bark is _7"_ for conifers and _7"_ for hardwoods or __40__% of dob at 16' form point. Generally, use 7" outside bark for trees < 20" dbh and 40% of dob @ FP for conifer trees > 20" dbh.

4. **Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer

species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree. Hardwoods shall be recorded in 8' and 10' multiples.

6. **Species, Sort, and Grade Codes:**

A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple); SN (Snag). For "leave trees", add an "L" to the species code (such as DL, HL, CL, etc.)

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

C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
Hardwoods: Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill, or R = Camp Run; 0 = Cull.
All Maple Camp Run = R

Grade oversized 3-SAW (DIB ≥ 12", knots > 2½" inside scaling cylinder affecting > 50% of log)

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

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

9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back), Compass, Allegro II Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint, Permanent Marker.

10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: John Czarnecki
Approved by: _____
Date: 7/21/2022

TIMBER CRUISE

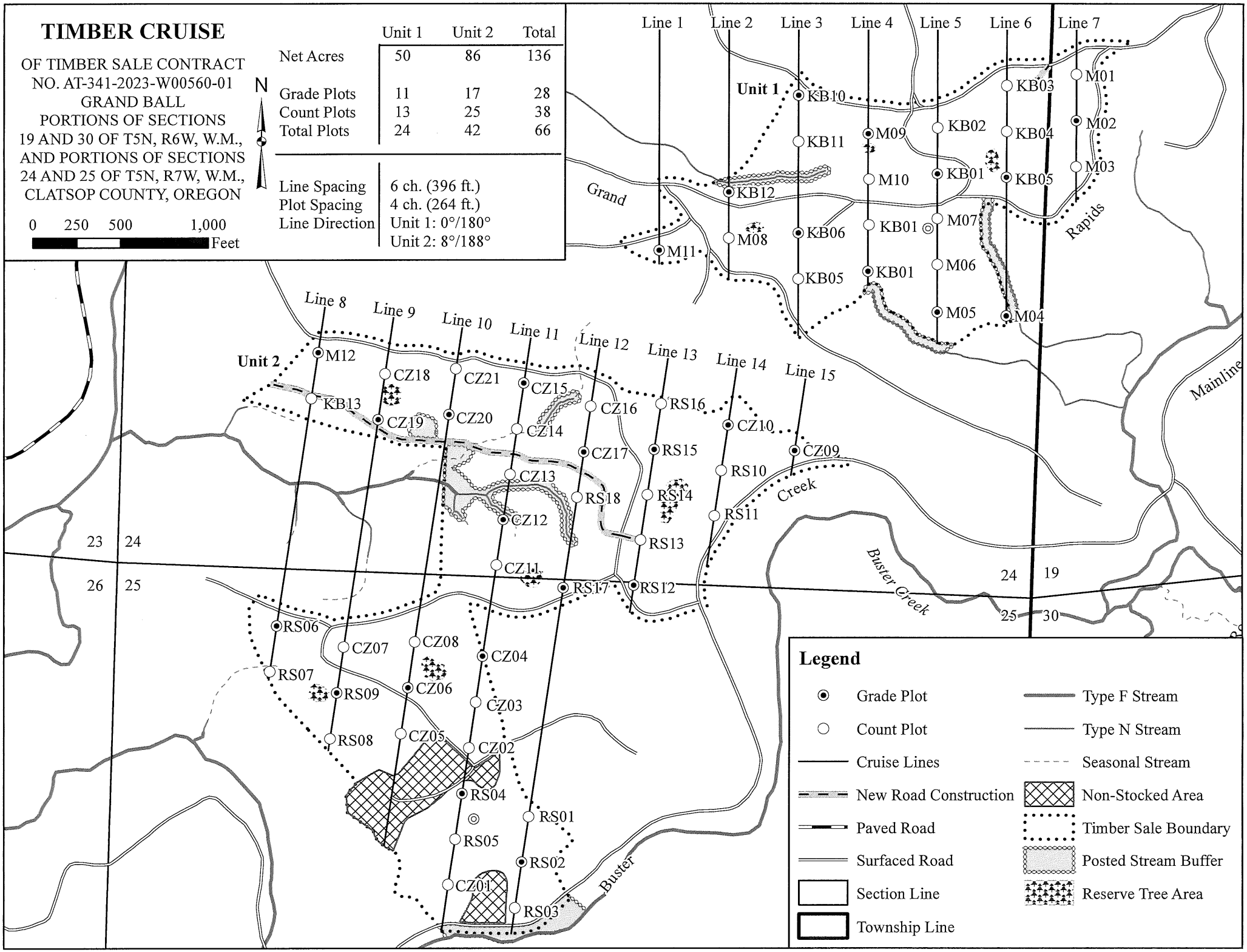
OF TIMBER SALE CONTRACT
NO. AT-341-2023-W00560-01
GRAND BALL
PORTIONS OF SECTIONS
19 AND 30 OF T5N, R6W, W.M.,
AND PORTIONS OF SECTIONS
24 AND 25 OF T5N, R7W, W.M.,
CLATSOP COUNTY, OREGON

0 250 500 1,000 Feet

N

	Unit 1	Unit 2	Total
Net Acres	50	86	136
Grade Plots	11	17	28
Count Plots	13	25	38
Total Plots	24	42	66

Line Spacing	6 ch. (396 ft.)
Plot Spacing	4 ch. (264 ft.)
Line Direction	Unit 1: 0°/180°
	Unit 2: 8°/188°



Legend

- Grade Plot
- Count Plot
- Cruise Lines
- New Road Construction
- Paved Road
- Surfaced Road
- Section Line
- Township Line
- Type F Stream
- Type N Stream
- Seasonal Stream
- Non-Stocked Area
- Timber Sale Boundary
- Posted Stream Buffer
- Reserve Tree Area

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T05N R07W S25 Ty00MC 136.00
T05N R07W S25 Ty00MC 1.00

Project: GBALL
Acres 137.00

Page 1
Date 9/23/2022
Time 9:08:25AM

Spp	S T	So Grt ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
H		DO2S	48	1.7	1,993	1,960	269			29	71			7	93	38	16	415	2.38	4.7
H		DO3S	43	1.6	1,725	1,697	233		54	16	30	2	3	21	73	36	9	128	1.02	13.3
H		DO4S	9	2.2	360	352	48		100			54	37	9		20	6	27	0.47	13.1
H	**Totals**		7	1.7	4,078	4,009	550 ~~549~~		32	21	47	6	4	13	77	30	9	129	1.13	31.0
D		DOCU														14	19		0.00	1.7
D		DO2S	81	.8	38,416	38,091	5,218			27	73	0	3	2	94	39	17	513	2.74	74.3
D		DO3S	17	1.7	8,276	8,136	1,115		47	16	37	6	14	10	71	33	10	160	1.23	51.0
D		DO4S	2	3.8	615	592	81		98	2		54	30	16		22	7	32	0.54	18.7
D	**Totals**		84	1.0	47,307	46,819	6,414		9	25	66	2	6	4	89	34	14	321	2.04	145.7
A		DO1S	24	1.1	864	855	117		19	81				16	84	38	13	222	1.54	3.9
A		DO2S	29	1.7	1,036	1,018	140		100				24		76	35	11	145	1.18	7.0
A		DO3S	22	1.6	763	751	103		81	19			20	19	62	37	10	136	1.04	5.5
A		DO4S	25		874	874	120		100			54	17	5	24	21	7	31	0.54	27.8
A	**Totals**		6	1.1	3,539	3,499	480 ~~479~~		76	24		13	15	9	62	27	8	79	0.89	44.3
M		DOCU														13	17		0.00	1.3
M		DO1S	49	7.3	657	610	84			61	39	4	40	12	44	32	14	248	2.14	2.5
M		DO2S	6		75	75	10		100				100			29	10	108	1.32	.7
M		DO3S	16	5.1	200	190	26		100			10	13	24	53	31	9	80	1.07	2.4
M		DO4S	29	2.4	365	356	49		100			33	28	17	23	26	7	38	0.64	9.4
M	**Totals**		2	5.1	1,298	1,231	169		50	30	19	13	36	15	37	27	9	76	0.99	16.3
C		DO2S	64		2	2	0				100		42		58	35	18	463	3.67	.0
C		DO3S	30		1	1	0		100					26	74	38	9	120	1.50	.0
C		DO4S	6		0	0	0		100			100				17	6	23	0.58	.0
C	**Totals**		0		2	2	0		35		65	6	27	8	60	29	10	156	1.85	.0
Totals				1.2	56,224	55,561	7,613 ~~7,612~~		16	24	59	3	7	5	85	32	12	234	1.69	237.3

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: GBALL

Date 9/23/2022

Time 9:20:59AM

T05N R07W S25 T00MC

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
05N	07W	25	U12_TAKE	00MC	136.00	64	174	1	W

T05N R07W S25 T00MC

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
D		DO	CU														14	19		0.00	1.7
D		DO	2S	81	.8	38,416	38,091	5,180			27	73	0	3	2	94	39	17	513	2.74	74.3
D		DO	3S	17	1.7	8,276	8,136	1,106		47	16	37	6	14	10	71	33	10	160	1.23	51.0
D		DO	4S	2	3.8	615	592	81		98	2		54	30	16		22	7	32	0.54	18.7
D	**Totals**			84	1.0	47,307	46,819	6,367		9	25	66	2	6	4	89	34	14	321	2.04	145.7
A		DO	1S	24	1.1	864	855	116		19	81				16	84	38	13	222	1.54	3.9
A		DO	2S	29	1.7	1,036	1,018	139		100				24		76	35	11	145	1.18	7.0
A		DO	3S	22	1.6	763	751	102		81	19			20	19	62	37	10	136	1.04	5.5
A		DO	4S	25		874	874	119		100			54	17	5	24	21	7	31	0.54	27.8
A	**Totals**			6	1.1	3,539	3,499	476		76	24		13	15	9	62	27	8	79	0.89	44.3
H		DO	2S	48	1.7	1,993	1,960	267			29	71			7	93	38	16	415	2.38	4.7
H		DO	3S	43	1.6	1,725	1,697	231		54	16	30	2	3	21	73	36	9	128	1.02	13.3
H		DO	4S	9	2.2	360	352	48		100			54	37	9		20	6	27	0.47	13.1
H	**Totals**			7	1.7	4,078	4,009	545		32	21	47	6	4	13	77	30	9	129	1.13	31.0
M		DO	CU														13	17		0.00	1.3
M		DO	1S	49	7.3	657	609	83			61	39	4	40	12	44	32	14	248	2.14	2.5
M		DO	2S	6		75	75	10		100				100			29	10	108	1.32	.7
M		DO	3S	16	5.1	200	190	26		100			10	13	24	53	31	9	80	1.07	2.4
M		DO	4S	29	2.4	365	356	48		100			33	28	17	23	26	7	38	0.64	9.4
M	**Totals**			2	5.1	1,298	1,231	167		51	30	19	13	36	15	37	27	9	76	0.99	16.3
Type Totals					1.2	56,221	55,558	7,556		16	24	59	3	7	5	85	32	12	234	1.69	237.2

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: GBALL

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Date 9/23/2022
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Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
05N	07W	25	U3 R/W	00MC	1.00	64	181	1	W

T05N R07W S25 T00MC

T05N R07W S25 T00MC

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
D		DO	CU														14	19		0.00	1.7
D		DO	2S	81	.8	38,416	38,091	38			27	73	0	3	2	94	39	17	513	2.74	74.3
D		DO	3S	17	1.7	8,276	8,136	8		47	16	37	6	14	10	71	33	10	160	1.23	51.0
D		DO	4S	2	3.8	615	592	1		98	2		54	30	16		22	7	32	0.54	18.7
D	**Totals**			84	1.0	47,307	46,819	47		9	25	66	2	6	4	89	34	14	321	2.04	145.7
A		DO	1S	24	1.1	864	855	1		19	81				16	84	38	13	222	1.54	3.9
A		DO	2S	29	1.7	1,036	1,018	1		100				24		76	35	11	145	1.18	7.0
A		DO	3S	22	1.6	763	751	1		81	19			20	19	62	37	10	136	1.04	5.5
A		DO	4S	25		874	874	1		100			54	17	5	24	21	7	31	0.54	27.8
A	**Totals**			6	1.1	3,539	3,499	3		76	24		13	15	9	62	27	8	79	0.89	44.3
H		DO	2S	48	1.7	1,993	1,960	2			29	71			7	93	38	16	415	2.38	4.7
H		DO	3S	43	1.6	1,725	1,697	2		54	16	30	2	3	21	73	36	9	128	1.02	13.3
H		DO	4S	9	2.2	360	352	0		100			54	37	9		20	6	27	0.47	13.1
H	**Totals**			7	1.7	4,078	4,009	4		32	21	47	6	4	13	77	30	9	129	1.13	31.0
M		DO	CU														15	16		0.00	1.8
M		DO	1S	52	6.9	703	654	1			57	43	4	44	13	40	32	15	263	2.33	2.5
M		DO	2S	6		73	73	0		100				100			29	10	108	1.32	.7
M		DO	3S	15	5.0	197	187	0		100			10	13	24	53	31	9	79	1.09	2.4
M		DO	4S	27	2.5	346	338	0		100			31	28	18	23	27	7	39	0.63	8.7
M	**Totals**			2	5.1	1,320	1,252	1		48	30	22	12	38	15	35	27	9	78	1.01	16.1
C		DO	2S	64		209	209	0				100		42		58	35	18	463	3.67	.5
C		DO	3S	30		94	94	0		100					26	74	38	9	120	1.50	.8
C		DO	4S	6		19	19	0		100			100				17	6	23	0.58	.8
C	**Totals**			1		321	321	0		35		65	6	27	8	60	29	10	156	1.85	2.1
Type Totals					1.2	56,564	55,901	56		16	24	59	3	7	5	85	32	12	234	1.69	239.1

TC TSTATS

STATISTICS

PAGE 1

PROJECT GBALL

DATE 9/23/2022

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	07W	25	U12	00MC	136.00	64	379	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	64	379	5.9		
CRUISE	28	181	6.5	16,362	1.1
DBH COUNT					
REFOREST					
COUNT	36	198	5.5		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	108	53.1	26.0	97	38.4	196.0	47,307	46,819	10,174	10,174
R ALDER	22	28.7	14.5	43	8.7	33.1	3,539	3,499	1,044	1,044
WHEMLOCK	18	21.9	15.4	44	7.2	28.1	4,078	4,009	1,037	1,037
BL MAPLE	26	13.8	16.7	33	5.1	20.8	1,288	1,221	424	424
SNAG	2	1.8	26.1	98	1.3	6.8				
CEDLEAV	3	1.0	24.7	60	0.7	3.4	321	321	110	110
MAPLELV	2	.1	55.6	54	0.1	1.1	43	41	16	16
TOTAL	*181*	*120.3*	*21.0*	*67*	*63.1*	*289.3*	*56,575*	*55,911*	*12,806*	*12,806*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL: 68.1 %	COEFF		**SAMPLE TREES - BF**			# OF TREES REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR	57.9	5.6	1,202	1,273	1,344			
R ALDER	61.8	13.5	148	170	193			
WHEMLOCK	117.3	28.4	355	497	638			
BL MAPLE	106.5	21.3	110	140	170			
SNAG								
CEDLEAV	70.5	48.8	212	413	615			
MAPLELV	101.3	94.8	38	740	1,442			
TOTAL	*91.3*	*6.8*	*806*	*865*	*924*	*333*	*83*	*37*

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR	79.3	9.9	48	53	58			
R ALDER	192.0	24.0	22	29	36			
WHEMLOCK	208.3	26.0	16	22	28			
BL MAPLE	214.5	26.8	10	14	17			
SNAG	463.7	57.9	1	2	3			
CEDLEAV	425.7	53.2	0	1	2			
MAPLELV	567.0	70.8	0	0	0			
TOTAL	*61.6*	*7.7*	*111*	*120*	*130*	*152*	*38*	*17*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR	72.3	9.0	178	196	214			
R ALDER	170.3	21.3	26	33	40			
WHEMLOCK	172.7	21.6	22	28	34			
BL MAPLE	188.8	23.6	16	21	26			
SNAG	461.9	57.7	3	7	11			
CEDLEAV	390.4	48.8	2	3	5			
MAPLELV	561.2	70.1	0	1	2			
TOTAL	*46.6*	*5.8*	*272*	*289*	*306*	*87*	*22*	*10*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15

STATISTICS

PROJECT GBALL

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	07W	25	U12	00MC	136.00	64	379	1	W

CL: 68.1%
SD: 1.0

	COEFF VAR.	S.E.%	NET BF/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	74.4	9.3	42,471	46,819	51,167			
R ALDER	170.7	21.3	2,753	3,499	4,245			
WHEMLOCK	191.7	23.9	3,049	4,009	4,969			
BL MAPLE	185.1	23.1	939	1,221	1,503			
SNAG								
CEDLEAV	401.1	50.1	160	321	482			
MAPLELV	669.1	83.6	7	41	76			
TOTAL	*58.5*	*7.3*	*51,825*	*55,911*	*59,997*	*137*	*34*	*15*

PROJECT STATISTICS

PROJECT GBALL

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	07	25	U12_TAKE	00MC	137.00	128	744	1	W
05N	07W	25	U3 R/W	00MC					

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	128	744	5.8		
CRUISE	56	355	6.3	16,085	2.2
DBH COUNT					
REFOREST					
COUNT	72	389	5.4		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	216	53.1	26.0	97	38.4	196.0	47,307	46,819	10,174	10,174
R ALDER	44	28.7	14.5	43	8.7	33.1	3,539	3,499	1,044	1,044
WHEMLOCK	36	21.9	15.4	44	7.2	28.1	4,078	4,009	1,037	1,037
BL MAPLE	54	13.8	16.7	33	5.1	20.8	1,298	1,231	435	435
SNAG	2	.0	26.1	98	0.0	.0				
WR CEDAR	3	.0	24.7	60	0.0	.0	2	2	1	1
TOTAL	*355*	*117.4*	*20.8*	*67*	*60.9*	*278.1*	*56,224*	*55,561*	*12,691*	*12,691*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	SAMPLE TREES - BF LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	57.8	3.9	1,223	1,273	1,323			
R ALDER	61.0	9.2	155	170	186			
WHEMLOCK	115.6	19.3	401	497	592			
BL MAPLE	129.8	17.7	134	163	191			
SNAG								
WR CEDAR	70.5	48.8	212	413	615			
TOTAL	*90.5*	*4.8*	*832*	*874*	*916*	*327*	*82*	*36*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	TREES/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	148.6	13.1	46	53	60			
R ALDER	286.1	25.3	21	29	36			
WHEMLOCK	307.7	27.2	16	22	28			
BL MAPLE	315.8	27.9	10	14	18			
SNAG	660.9	58.4	0	0	0			
WR CEDAR	608.0	53.7	0	0	0			
TOTAL	*130.8*	*11.5*	*104*	*117*	*131*	*683*	*171*	*76*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	BASAL AREA/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	141.5	12.5	172	196	220			
R ALDER	257.8	22.8	26	33	41			
WHEMLOCK	261.0	23.1	22	28	35			
BL MAPLE	281.9	24.9	16	21	26			
SNAG	658.3	58.1	0	0	0			
WR CEDAR	559.0	49.4	0	0	0			
TOTAL	*118.9*	*10.5*	*249*	*278*	*307*	*564*	*141*	*63*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	NET BF/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	143.5	12.7	40,885	46,819	52,754			
R ALDER	258.4	22.8	2,700	3,499	4,297			
WHEMLOCK	285.8	25.2	2,997	4,009	5,021			
BL MAPLE	276.5	24.4	931	1,231	1,532			

TC PSTATS

PROJECT STATISTICS

PROJECT GBALL

DATE 9/23/2022

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	07	25	U12_TAKE	00MC	137.00	128	744	1	W
05N	07W	25	U3 R/W	00MC					

			NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
CL	68.1	COEFF						
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
SNAG									
WR CEDAR		573.9	50.7	1	2	4			
TOTAL		*128.7*	*11.4*	*49,247*	*55,561*	*61,875*	*661*	*165*	*73*

TC TSTATS

STATISTICS

PAGE 1

PROJECT GBALL

DATE 9/23/2022

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	07W	25	U12 TAKE	00MC	136.00	64	365	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	64	365	5.7		
CRUISE	28	174	6.2	15,965	1.1
DBH COUNT					
REFOREST					
COUNT	36	191	5.3		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	108	53.1	26.0	97	38.4	196.0	47,307	46,819	10,174	10,174
R ALDER	22	28.7	14.5	43	8.7	33.1	3,539	3,499	1,044	1,044
WHEMLOCK	18	21.9	15.4	44	7.2	28.1	4,078	4,009	1,037	1,037
BL MAPLE	26	13.8	16.7	33	5.1	20.8	1,298	1,231	435	435
TOTAL	*174*	*117.4*	*20.8*	*67*	*60.9*	*278.0*	*56,221*	*55,558*	*12,690*	*12,690*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL: 68.1 %	COEFF		**SAMPLE TREES - BF**			# OF TREES REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR	57.9	5.6	1,202	1,273	1,344			
R ALDER	61.8	13.5	148	170	193			
WHEMLOCK	117.3	28.4	355	497	638			
BL MAPLE	105.5	21.1	111	141	170			
TOTAL	*89.9*	*6.8*	*824*	*884*	*944*	*323*	*81*	*36*

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR	79.3	9.9	48	53	58			
R ALDER	192.0	24.0	22	29	36			
WHEMLOCK	208.3	26.0	16	22	28			
BL MAPLE	214.5	26.8	10	14	17			
TOTAL	*61.2*	*7.6*	*108*	*117*	*126*	*150*	*37*	*17*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR	72.3	9.0	178	196	214			
R ALDER	170.3	21.3	26	33	40			
WHEMLOCK	172.7	21.6	22	28	34			
BL MAPLE	188.8	23.6	16	21	26			
TOTAL	*47.2*	*5.9*	*262*	*278*	*294*	*89*	*22*	*10*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR	74.4	9.3	42,471	46,819	51,167			
R ALDER	170.7	21.3	2,753	3,499	4,245			
WHEMLOCK	191.7	23.9	3,049	4,009	4,969			
BL MAPLE	184.7	23.1	947	1,231	1,515			
TOTAL	*58.9*	*7.4*	*51,475*	*55,558*	*59,642*	*138*	*35*	*15*

STATISTICS

PROJECT GBALL

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	07W	25	U3 R/W	00MC	1.00	64	379	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	64	379	5.9		
CRUISE	28	181	6.5	120	150.8
DBH COUNT					
REFOREST					
COUNT	36	198	5.5		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	108	53.1	26.0	97	38.4	196.0	47,307	46,819	10,174	10,174
R ALDER	22	28.7	14.5	43	8.7	33.1	3,539	3,499	1,044	1,044
WHEMLOCK	18	21.9	15.4	44	7.2	28.1	4,078	4,009	1,037	1,037
BL MAPLE	28	13.5	17.2	33	5.3	21.9	1,320	1,252	437	437
SNAG	2	1.8	26.1	98	1.3	6.8				
WR CEDAR	3	1.0	24.7	60	0.7	3.4	321	321	110	110
TOTAL	*181*	*120.0*	*21.0*	*67*	*63.1*	*289.3*	*56,564*	*55,901*	*12,803*	*12,803*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

SAMPLE TREES - BF

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	57.9	5.6	1,202	1,273	1,344			
R ALDER	61.8	13.5	148	170	193			
WHEMLOCK	117.3	28.4	355	497	638			
BL MAPLE	140.7	27.1	133	183	232			
SNAG								
WR CEDAR	70.5	48.8	212	413	615			
TOTAL	*91.3*	*6.8*	*806*	*865*	*924*	*333*	*83*	*37*

TREES/ACRE

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	79.3	9.9	48	53	58			
R ALDER	192.0	24.0	22	29	36			
WHEMLOCK	208.3	26.0	16	22	28			
BL MAPLE	216.7	27.1	10	14	17			
SNAG	463.7	57.9	1	2	3			
WR CEDAR	425.7	53.2	0	1	2			
TOTAL	*61.8*	*7.7*	*111*	*120*	*129*	*152*	*38*	*17*

BASAL AREA/ACRE

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	72.3	9.0	178	196	214			
R ALDER	170.3	21.3	26	33	40			
WHEMLOCK	172.7	21.6	22	28	34			
BL MAPLE	189.4	23.7	17	22	27			
SNAG	461.9	57.7	3	7	11			
WR CEDAR	390.4	48.8	2	3	5			
TOTAL	*46.6*	*5.8*	*272*	*289*	*306*	*87*	*22*	*10*

NET BF/ACRE

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	74.4	9.3	42,471	46,819	51,167			
R ALDER	170.7	21.3	2,753	3,499	4,245			
WHEMLOCK	191.7	23.9	3,049	4,009	4,969			
BL MAPLE	190.0	23.7	955	1,252	1,550			
SNAG								
WR CEDAR	401.1	50.1	160	321	482			

STATISTICS

PROJECT GBALL

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	07W	25	U3 R/W	00MC	1.00	64	379	1	W

CL: 68.1 %
SD: 1.0

	COEFF VAR.	S.E.%	NET BF/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
TOTAL	*58.5*	*7.3*	*51,815*	*55,901*	*59,988*	*137*	*34*	*15*

TC PLOGSTVB

Log Stock Table - MBF

T05N R07W S25 Ty00MC 136.00
T05N R07W S25 Ty00MC 1.00

Project: GBALL
Acres 137.00

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Date 9/23/2022
Time 9:11:44AM

Spp	S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches 2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
H		DO	2S	32	19	6.3	18	3.3						18						
H		DO	2S	38	13		13	2.4						13						
H		DO	2S	40	240	1.4	237	43.2						24		102	111			
H		DO	3S	20	6		6	1.0				3		3						
H		DO	3S	30	6		6	1.1			6									
H		DO	3S	32	37	2.7	36	6.6				21	5		11					
H		DO	3S	34	14		14	2.5			14									
H		DO	3S	36	15		15	2.7			9	5								
H		DO	3S	38	6		6	1.1			6									
H		DO	3S	40	153	1.8	150	27.4			16	7	34			61		32		
H		DO	4S	16	14		14	2.6			14									
H		DO	4S	18	12		12	2.1			12									
H		DO	4S	24	14		14	2.6			12	2								
H		DO	4S	28	4		4	.7			4									
H		DO	4S	32	5	20.0	4	.8			4									
H		Totals			559	1.7	549	7.2			97	38	39	59	11	163	111	32		
D		DO	2S	16	3		3	.0						3						
D		DO	2S	20	3		3	.0						3						
D		DO	2S	24	112		112	1.7						19		8		56	29	
D		DO	2S	28	22		22	.3						13		9				
D		DO	2S	30	44		44	.7						21	11	12				
D		DO	2S	32	96		96	1.5						57	39					
D		DO	2S	34	13		13	.2							13					
D		DO	2S	36	23		23	.4						23						
D		DO	2S	38	12		12	.2							12					
D		DO	2S	40	4,936		4,892	76.3						281	501	1492	1638	944	35	
D		DO	3S	16	14	5.2	13	.2					8	5						
D		DO	3S	18	9		9	.1					6	3						
D		DO	3S	20	43	1.9	42	.7				11	22	3		5				
D		DO	3S	24	18		18	.3				10	8							
D		DO	3S	26	43		43	.7			3	4	23	5	8					
D		DO	3S	28	31	5.7	30	.5			7	3	9	10						
D		DO	3S	30	60		60	.9			6	12	22		9	10				
D		DO	3S	32	106	1.1	105	1.6			11	5	42	15	32					
D		DO	3S	34	4		4	.1				4								
D		DO	3S	36	51		51	.8			9	20	15	6						

TC PLOGSTVB

Log Stock Table - MBF

T05N R07W S25 Ty00MC 136.00
T05N R07W S25 Ty00MC 1.00

Project: GBALL
Acres 137.00

Date 9/23/2022
Time 9:11:44AM

Spp	S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches 2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
D		DO	3S	38	12		12	.2				6	6							
D		DO	3S	40	741	2.0	727	11.3			49	41	164	15	38	68	92	172	87	
D		DO	4S	12	8		8	.1			1	3	2	2						
D		DO	4S	14	2		2	.0					2							
D		DO	4S	16	5		5	.1			1	4								
D		DO	4S	18	18		18	.3			6	9	4							
D		DO	4S	20	11		11	.2			11									
D		DO	4S	24	14		14	.2			9	5								
D		DO	4S	26	4		4	.1			4									
D		DO	4S	28	7		7	.1			7									
D		DO	4S	34	16	20.0	13	.2			13									
D		Totals			6,481	1.0	6,414	84.3			138	138	332	484	664	1605	1730	1172	151	
A		DO	1S	32	19		19	3.9						19						
A		DO	1S	40	100	1.3	98	20.5					22	23	53					
A		DO	2S	24	17		17	3.6					17							
A		DO	2S	30	17	7.7	16	3.3					16							
A		DO	2S	40	108	1.1	106	22.2					106							
A		DO	3S	30	22	7.7	20	4.2					20							
A		DO	3S	32	19		19	4.0								19				
A		DO	3S	40	63		63	13.2				63								
A		DO	4S	12	19		19	3.9			19									
A		DO	4S	16	27		27	5.6			25	2								
A		DO	4S	18	3		3	.6			3									
A		DO	4S	20	16		16	3.3			16									
A		DO	4S	24	5		5	1.0			5									
A		DO	4S	30	16		16	3.3			16									
A		DO	4S	34	7		7	1.4			7									
A		DO	4S	36	5		5	1.0			5									
A		DO	4S	40	24		24	5.0			24									
A		Totals			485	1.1	479	6.3			117	66	182	42	53	19				
M		DO	1S	20	3		3	2.0						3						
M		DO	1S	26	0	3.9	0	.0											0	
M		DO	1S	28	30	11.1	27	16.1						8		19				
M		DO	1S	30	6		6	3.7						6						
M		DO	1S	32	10	3.1	10	5.9								10				

TC PLOGSTVB

Log Stock Table - MBF

T05N R07W S25 Ty00MC 136.00
T05N R07W S25 Ty00MC 1.00

Project: GBALL
Acres 137.00

Date 9/23/2022
Time 9:11:44AM

Spp	ST	Sort	Grade	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+
M		DO	1S	34	0		0	.0			0			
M		DO	1S	40	40	7.2	37	21.9			11	26		
M		DO	2S	28	7		7	4.1			7			
M		DO	2S	30	3		3	2.0			3			
M		DO	3S	18	1		1	.7		1				
M		DO	3S	20	1		1	.8		1				
M		DO	3S	26	2		2	1.0		2				
M		DO	3S	28	2		2	1.0		2				
M		DO	3S	34	7	10.0	6	3.7		6				
M		DO	3S	36	7		7	4.1		7				
M		DO	3S	38	8	9.1	7	4.1		7				
M		DO	4S	14	1		1	.7		1				
M		DO	4S	16	2		2	1.3		2				
M		DO	4S	18	2	13.7	2	1.2		2				
M		DO	4S	20	10		10	6.2		5 6				
M		DO	4S	24	4		4	2.5		4				
M		DO	4S	28	3		3	1.8		3				
M		DO	4S	30	7	12.5	6	3.7		6				
M		DO	4S	34	8		8	4.9		8				
M		DO	4S	36	3		3	1.6		3				
M		DO	4S	38	8		8	5.0		8				
M		Totals			178	5.1	169	2.2		41 34	10 29	55		0
C		DO	2S	30	0		0	27.0				0		
C		DO	2S	40	0		0	38.0				0		
C		DO	3S	32	0		0	7.6			0			
C		DO	3S	40	0		0	21.5		0				
C		DO	4S	16	0		0	3.6		0				
C		DO	4S	20	0		0	2.3		0				
C		Totals			0		0	.0		0 0	0	0		
Total		All Species			7,703	1.2	7,612	100.0		393 276	563 614	727 1842	1841 1205	151

TC PSTNDSUM

Stand Table Summary

Page 1
Date: 9/23/2022

T05N R07W S25 Ty00MC 136.00
T05N R07W S25 Ty00MC 1.00

Project GBALL
Acres 137.00

Time: 9:12:04AM
Grown Year:

Spc	S T	DBH	Sample Trees	FF 16'	Tot Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
D		10	2	88	82	3.327	1.81	3.33	15.0	60.0		50	200		68	27
D		12	2	79	60	2.311	1.81	2.31	19.0	40.0		44	92		60	13
D		16	6	83	71	3.899	5.44	6.50	24.0	70.0		156	455		214	62
D		18	4	84	95	2.054	3.63	4.11	33.3	107.5		137	442		187	61
D		19	4	86	102	1.843	3.63	4.61	31.4	114.0		145	525		198	72
D		20	6	87	139	2.496	5.44	7.49	38.7	156.7		289	1,173		397	161
D		21	6	85	117	2.264	5.44	5.28	42.4	158.6		224	838		307	115
D		22	10	85	110	3.437	9.07	8.94	42.7	171.5		382	1,533		523	210
D		23	6	89	139	1.887	5.44	5.66	50.0	210.0		283	1,189		388	163
D		24	6	85	144	1.733	5.44	5.20	55.4	217.8		288	1,132		395	155
D		25	6	87	134	1.597	5.44	4.79	57.4	241.1		275	1,155		377	158
D		26	4	87	146	.984	3.63	2.95	61.8	288.3		183	852		250	117
D		27	16	85	143	3.652	14.52	11.41	66.8	281.6		763	3,213		1,045	440
D		28	16	87	151	3.395	14.52	11.03	73.6	342.7		812	3,782		1,112	518
D		29	10	87	150	1.978	9.07	6.73	75.3	354.7		506	2,386		694	327
D		30	12	86	142	2.218	10.89	6.65	86.4	398.3		575	2,651		788	363
D		31	18	85	149	3.116	16.33	10.04	88.6	409.3		889	4,110		1,218	563
D		32	16	86	160	2.600	14.52	9.42	90.2	443.8		850	4,182		1,165	573
D		33	6	88	159	.917	5.44	3.36	95.5	490.9		321	1,650		440	226
D		34	8	87	144	1.151	7.26	3.45	113.4	552.5		392	1,908		537	261
D		35	10	87	150	1.358	9.07	4.35	111.5	551.3		485	2,396		664	328
D		36	22	86	153	2.824	19.96	9.24	120.9	620.3		1,117	5,733		1,530	785
D		37	4	86	161	.486	3.63	1.70	123.6	634.3		210	1,079		288	148
D		38	2	86	163	.230	1.81	.92	116.2	622.5		107	574		147	79
D		41	8	86	156	.792	7.26	2.77	144.1	761.4		399	2,110		547	289
D		42	4	84	150	.377	3.63	1.32	148.0	755.7		195	998		268	137
D		51	2	81	157	.128	1.81	.38	253.0	1203.3		97	462		133	63
D		Totals	216	86	127	53.057	196.00	143.96	70.7	325.2		10,174	46,819		13,939	6,414
H		9	2	83	20	3.536	1.56	3.54	5.0	20.0		18	71		24	10
H		10	4	84	35	5.729	3.12	5.73	8.5	30.0		49	172		67	24
H		12	4	86	58	3.978	3.12	3.98	19.5	55.0		78	219		106	30
H		13	2	86	73	1.695	1.56	3.39	15.5	55.0		53	186		72	26
H		16	2	88	102	1.119	1.56	2.24	32.0	120.0		72	269		98	37
H		18	4	86	85	1.768	3.12	3.54	33.5	107.5		118	380		162	52
H		19	2	78	39	.793	1.56	.79	34.0	40.0		27	32		37	4
H		20	2	80	46	.716	1.56	.72	43.0	60.0		31	43		42	6
H		24	2	86	94	.497	1.56	.99	65.5	220.0		65	219		89	30
H		26	4	87	142	.847	3.12	2.54	72.2	330.0		183	839		251	115
H		28	2	82	116	.365	1.56	1.10	69.7	280.0		76	307		105	42
H		31	4	85	148	.596	3.12	1.79	105.3	506.7		188	906		258	124
H		35	2	83	129	.234	1.56	.70	113.7	523.3		80	367		109	50
H		Totals	36	85	58	21.876	28.12	31.04	33.4	129.2		1,037	4,009		1,421	549
A		9	4	86	17	6.808	3.01	6.81	5.0	20.0		34	136		47	19
A		10	2	87	18	2.757	1.50	2.76	7.0	30.0		19	83		26	11
A		13	2	86	57	1.632	1.50	1.63	24.0	60.0		39	98		54	13
A		14	4	86	73	2.814	3.01	5.63	18.0	65.0		101	366		139	50
A		15	6	86	79	3.676	4.51	7.35	22.2	73.3		163	539		223	74
A		16	4	87	67	2.154	3.01	3.23	28.7	80.0		93	258		127	35
A		17	8	87	80	3.816	6.02	7.63	28.9	97.5		220	744		302	102
A		18	8	86	76	3.404	6.02	5.96	34.9	111.4		208	664		284	91
A		21	2	86	88	.625	1.50	1.25	48.5	170.0		61	213		83	29
A		22	2	86	92	.570	1.50	1.14	55.0	210.0		63	239		86	33

Stand Table Summary

Date: 9/23/2022

T05N R07W S25 Ty00MC 136.00
T05N R07W S25 Ty00MC 1.00

Project GBALL

Acres 137.00

Time: 9:12:04AM

Grown Year:

Spc	S T	DBH	Sample Trees	FF 16'	Tot Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
A		25	2	87	61	.441	1.50	.88	49.0	180.0		43	159		59	22
A		Totals	44	86	56	28.697	33.08	44.27	23.6	79.0		1,044	3,499		1,430	479
M		11	2	86	58	1.212	.80	1.21	17.0	50.0		21	61		28	8
M		12	8	86	36	4.075	3.20	4.08	14.0	40.0		57	163		78	22
M		14	4	87	26	1.497	1.60	.75	17.0	30.0		13	22		17	3
M		15	4	87	38	1.304	1.60	1.30	20.0	35.0		26	46		36	6
M		17	10	79	46	2.538	4.00	2.53	32.8	82.1		83	208		114	29
M		18	2	87	53	.453	.80	.91	23.5	75.0		21	68		29	9
M		19	2	86	84	.406	.80	.81	35.5	120.0		29	98		40	13
M		21	2	87	43	.333	.80	.33	44.0	60.0		15	20		20	3
M		22	2	86	42	.303	.80	.30	51.0	150.0		15	45		21	6
M		24	2	86	84	.255	.80	.51	61.5	200.0		31	102		43	14
M		25	2	87	58	.235	.80	.47	49.0	165.0		23	77		32	11
M		27	8	87	62	.805	3.20	1.41	59.4	207.1		84	292		115	40
M		28	2	87	54	.187	.80	.19	58.0	130.0		11	24		15	3
M		31	2	87	37	.153	.80	.15	37.0	30.0		6	5		8	1
M		52	1	87	45	.000	.01	.00	205.0	210.0		0	0		0	0
M		60	1	86	72	.000	.01	.00	156.0	635.0		0	0		0	0
M		Totals	54	85	44	13.757	20.82	14.96	29.1	82.3		435	1,231		595	169
C		19	1	67	93	.004	.01	.01	34.0	70.0		0	1		0	0
C		29	1	81	62	.002	.01	.00	58.0	190.0		0	1		0	0
C		32	1	83	101	.001	.01	.00	103.0	360.0		0	1		0	0
C		Totals	3	74	87	.008	.02	.02	53.4	156.3		1	2		1	0
SN		23	1	89	93	.009	.02									
SN		31	1	88	140	.005	.02									
SN		Totals	2	89	110	.013	.05									
Totals			355	86	87	117.407	278.10	234.24	54.2	237.2		12,691	55,561		17,387	7,612

LOGGING PLAN MAP

OF TIMBER SALE CONTRACT
NO. AT-341-2023-W00560-01
GRAND BALL
PORTIONS OF SECTIONS
19 OF T5N, R6W,
AND PORTIONS OF SECTIONS
24 AND 25 OF T5N, R7W, W.M.,
CLATSOP COUNTY, OREGON

Unit	Tractor	Cable	Acres
Unit 1 (MC):	82%	18%	50
Unit 2 (MC):	85%	15%	86
Unit 3 (RW):	100%	0%	1
Total:	84%	16%	137

0 500 1,000 2,000 Feet

1 inch = 1,000 feet
Contours = 20 feet

N

13 18
24 19
Road
Grand
Unit 1
Rapids
103
Mainline
Nehalem River
Creek
23 24
26 25
Unit 2
24 19
25 30
Road
Ridge
Buster Creek
Buster
Reed
T5N, R7W
T5N, R6W
Buster Creek Quarry

Legend

- Timber Sale Boundary
- Section Line
- Paved Road
- Surfaced Road
- New Road Construction - Surfaced
- New Road Construction - Unsurfaced
- Existing Landing
- Rock Quarry
- Type F Stream
- Type N Stream
- Non-Posted Stream Buffer
- Posted Stream Buffer
- Non-Stocked Area
- Reserve Tree Area
- Survey Monument
- T Ground Based Yarding
- Cable Based Yarding