

Weist Thin
Logging Feasibility Report

West Alsea Watershed
Central Coast Ranger District

Siuslaw National Forest

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Summary

Commercial thinning of three managed stands ranging in age from 31 to 44 years old and divided into eight thinning units. The residual trees left after logging operations, creation of “course woody debris” and snag creation are complete will range from 50 to 75 trees per acre (TPA). Acres estimates are based on GIS and are estimated to be approximately 343 acres thinned. All the units were cruised and the cruise volume to be removed is 4,856 MBF or 9,677 CCF.

The project area is located in T.13S., R.11W., Sec. 33
T.14S., R11W., Sec. 4, 5

Douglas-fir is the dominant species in all the units, although some of the units have significant amounts of Western Hemlock. Felling of hardwoods is only anticipated to occur minimally to insure the safety of operations. No Pacific Yew were observed during layout operations but should any exist on site, none are to be felled. Minimum DBH of trees to be harvested is 7”.

Temporary road to be reopened will total approximately 11,685 feet or 2.21 miles. Approximately 3,330 feet or 0.63 miles of “new” temporary roads are planned. All temporary roads will be closed after operations are complete. No deadman anchors are planned and tailholding on opposite slopes (where line lengths and topography permit) is encouraged. Use of tailtrees and intermediate supports will be necessary.

Field run profiles were run and analysis was done using SkylineXL_1.

Most system roads will require some form of treatment prior to use, such as waterbar removal, additional rock or roadside brushing.

Skyline, yoader and ground based yarding are the planned yarding systems, except those areas that lend themselves to picking up logs adjacent to the road with a “loader” located in the road. A total of 69 landings are planned for this sale (fifteen are planned as skyline, twenty three are planned as yoader, eleven are planned as tractor and the remaining twenty will use a combination of two of the above. Twelve old grown over spurs will be “temporarily” reopened and nine “new temporary” spurs will be constructed to access landing locations. All “temp” spurs will be closed after logging operations are completed.

I. Resource Management Objectives

The silvicultural prescription, unit layout, and logging and transportation plans are designed to meet the following objectives:

- Speed stand development of late-successional forest characteristics in managed stands by thinning these heavily stocked stands to maintain stand health, promote tree growth, and enhance stand diversity.
- Manage riparian reserves consistent with the Northwest Forest Plan's Aquatic Conservation Strategy.
- Protect water quality and fish habitat in all streams.
- Minimize soil disturbance in all phases of harvest activity.
- Protect T & E species by limiting operating seasons

II. Timber Characteristics

All eight units (3 stands) are plantations that were planted in the sixties and seventies and have had various precommercial activities within them. Portions of different units have different stocking levels and trees sizes as a result of not only different site characteristics but different precommercial activities.

The silvicultural prescription for the units is designed to leave a varying number of trees per acre after harvest activities ranging from 61 trees per acre (low end on unit 1) to 86 trees per acre (high end unit 10). This is an over the "sale area" goal and will likely vary somewhat on an acre to acre basis.

III. Recommended System

A. Logging System requirements:

The following requirements are designed to meet the resource management objectives stated in section I.

1. Skyline logging system

- Except in lateral yarding, the yarding system must be capable of keeping the leading end of the logs suspended above the ground during the inhaul portion of the yarding cycle (single end suspension required)
- Except in lateral yarding, the yarding system must be capable of keeping the logs fully suspended above the ground during the inhaul portion of the yarding cycle (full suspension required).
- Where skyline corridors pass through stream buffers, skyline corridors will be spaced so that no more than 20% of the existing canopy will be removed within any given 1,000 feet of reach of the stream.

- The minimum corridor spacing will be 120 feet at the back end of where yarding occurs and the maximum skyline corridor width will be no more than 12 feet after harvest activities.

B. Acceptable Yarding Equipment:

1. Skyline Logging System

- A skyline system capable of transporting logs for a horizontal distance of at least 1,000 feet. A rigging length of up to 1,500 feet may be necessary to reach tailholds.
- The skyline system must: (1) be capable of meeting log suspension requirements stated above; (2) be capable of lateral yarding up to 150 feet ; (3) be capable of operating in a multispan configuration.
- A carriage capable of maintaining a fixed position on the skyline while lateral yarding up to 150 feet to either side of the skyline and be capable of passing support jacks where intermediate supports are used.

C. Recommended Yarding System

Make	Linkbelt Crane (SPCM)
Tower Height	50' / 2 guylines
Skyline Length / Diameter	1,650' ¾" EIPS (all on yarder)
Mainline Length / Diameter	1,700' of 0.5625" EIPS (all on yarder)
Haulback Length / Diameter	2,000' of 0.5" IPS (all on yarder)
Carriage / Make	Acme 8 (IS capable)
Weight	700 pounds

Other Equipment – Hardware for rigging two tailtrees, two intermediate supports and a small landing tractor for clearing and constructing landings.

Unit Narratives

Note - although specific “yoader” landing locations are identified for units 2, 3, 5, and 6 in “fan” type settings, the operator is encouraged to use parallel settings when the opportunity presents itself.

Unit # 1 (stand # 144) 10 acres

Legal Description: T.13S., R.10W., Sec. 33

Year of Origin: 1979

This unit lies adjacent to and on both sides of the 5300-312 as well to the east of the 5300-311 roads, with the 5300-312 being a gated road at the junction with the 5300.

The condition of the 5300-311 is good and will need little work to make it suitable for haul, while the 5300-312 road has a good base but is grown over with brush and will need some work. Also the 312 spur has a concrete bridge which hasn't been used for years and should be inspected prior to use.

Two streams providing water to the Waldport municipal district flow through the unit, with a collection point downstream of the unit (an earth dam). Both have stream buffers and although yarding over the streams is not anticipated, skylines passing through the buffers is expected.

The unit is geographically divided into 3 pieces by a stream and road (5300-312) but was originally all part of the same stand (stand # 144). Two types of yarding systems are planned for this unit. Landing A, located at the end of the 312 spur and is one of the original landings used for this stand. Due to the convex nature of the slope west of the landing, it will be necessary to use intermediate supports to meet suspension requirements on some of the skyline roads. Landing B is located adjacent to 5300-311 spur at the top of the hill and on the east side of said road. A small amount of earth work will be necessary to make it suitable for use, as the landing will need a base east of the road. Landing B is planned as a skyline landing, no intermediate supports or tailtrees are anticipated as skyline tailholds can be located on trees on opposite slopes. Landing C is located at the junction of the 311 and 312 spurs and is planned as a tractor landing. No streams are involved and the ground is gentle (less than 20%).

The south boundary of the area planned for tractor is adjacent to a east / west property line, with Forest Capitol being the owner to the south, care should be taken to avoid damage to the property boundary posts.

Unit # 2 (stand # 177) 7 acres

Legal Description: T.14S., R.10W., Sec. 5

Year of Origin: 1966

This unit lies to the west and north of road 5300. The north and west boundary of the unit is a posted property line, with a survey monument lying near the northwest corner of the unit.

The southwest boundary lies along a portion of Eckman Creek and is buffered. Logging lines will likely pass through the buffer to reach tailholds, no yarding will occur over or through the buffer.

Two spurs will be re-opened to access two of the three landings. Landing A is at the end of 370' grownover spur, while landing B is at the end of a 130' spur. Both spurs exit the 5300 road at the same location (on the big curve) but immediately become two after leaving the main road. Landing A is a new landing location, while landing B was used previously. Landing C is located on the 5300 road and will take no work to make it suitable for use, although it will block the road entirely and the 5300 road must remain open for intermittent use. Parallel landing settings along the 5300 road could also be used in the yoader portion of the unit.

Landings A and B are designed as single span skyline landings. Tailtrees located along the unit boundary will be used to provide additional lift. Landing C is designed as a yoader landing and one tailtree is anticipated for this landing, other skyline roads will anchor across the creek.

Unit # 3 (stand # 179A) 58 acres

Legal Description: T.14S., R.10W., Sec. 4 & 5

Year of Origin: 1975

This unit lies on both sides of road 5313, with both the north and south boundaries near tributaries to Eckman Creek.

Several streams lie adjacent to the unit and all are buffered. No yarding over the streams is anticipated, although skyline roads from several landings are likely to pass through the buffers to anchor on opposite slopes.

Three existing non-system roads that are grownover are planned for re-opening servicing landings A, C and K. A new temp road will be built for landing L. This new road location will be over a broad flat ridge (originally tractor yarded).

This unit is planned to be yarded to 12 separate landings. Landings A, B, C, D and J being used as both yoader and tractor landings. Landings E, G, H, and I being used as yoader landings and landings F, K and L being tractor landings. Parallel settings with the yoader would apply to that portion of the unit involving landings B, E, G, H and I.

Landings B, D, E,F, G, H and I are all located in the 5313 road and as such will impede any traffic coming from the southeast down the road.

Where the cable systems are planned all yarding is planned uphill. Where the ground based yarding is occurring most will be over downhill or level ground. Landing locations are designed to meet these objectives.

Protect known survey monument west of landing J.

Unit # 4 (stand # 179C) 24 acres

Legal Description: T.14S., R.10W., Sec. 4 & 5

Year of Origin: 1976

This unit lies on the both sides of the 5300, with the majority of the unit lying on the east side of the road.

No live streams lie within the unit although a tributary of Eckman Creek lies to the east of the unit.

One grownover (but driveable) spur services this unit. Near the southern unit boundary this spur forks, with the west fork servicing landing C and the east fork servicing landings B and D. The spurs will need some work to make them suitable for use.

This unit is designed to be yarded to 4 landings. Landing A being located along the 5300 road and will act as a tractor landing for both sides of the 5300 road. Landing B is located at the end of a 740' not driveable spur and landing D is located along said spur. Landing C is located at the end of the driveable portion of the spur. Landings B and C are designed to be both ground based (in and around the landings) and skyline. Both landings B and C will utilize intermediate supports and tailtrees to provide lift. Tree size is small and the operator will be unable to rig these tree very high (less than 30'). Landing D is designed as both a yoader and tractor landing (although few trees are anticipated to be yarded to this landing using a tractor).

Protect known survey monument west of landing C.

Unit # 5 (stand # 179A & B) 33 acres

Legal Description: T.14S., R.10W., Sec. 4

Year of Origin: 1975 & 1981

This unit lies on both sides of the 5313, near tributaries of Eckman Creek, and near where the 5313 hooks and turns north.

One live stream lies within the unit, between landings D and I, and cuts the unit into two pieces. All are buffered with no yarding planned through any of the buffers, although it will likely be necessary for several of the landings to have skylines passing through said buffers.

Two grownover spurs will be re-opened to provide access to landings F, G, H, and C. One spur is 950' in length will be re-opened to provide access to landings F, G and H. This spur is in pretty good shape although the access point off of the 5313 has been blocked. The other spur is 170' in length and will service landing C. This spur is in good shape but the approach has been cut off and will need to be re-established.

Twelve landings are designed to yard this sale. Landings A, B, C, D, F, I, J, and L are designed as yoader (all but landing F and L being located on the 5313 road). Landing H is planned as a skyline landing and landings G and K are planned as tractor landings. Landing E will be used as both yoader and tractor (with the tractor portion actually occurring for a portion of unit 10).

Most of the ground based yarding for landing G will be over level ground or slightly uphill (slopes less than 15%).

Yarding for the tractor (landing K) will be over level or slightly uphill ground (slopes up to 15%), with a little bit of downhill from the east side of the 5313.

Tailtrees are anticipated for several of the landings but the use of some may be avoided by anchoring across the creek when opposing slopes are available.

Landings A, B, C, D, I, and J are stretches of road where "parallel settings" with the yoader could be applied, rather than fixed landing locations using a "fan" type setting.

Unit # 6 (stand # 179A) 87 acres
Legal Description: T.14S., R.10W., Sec. 4
Year of Origin: 1975

This unit lies adjacent to and on the west side of the 5313 as well as on both sides of the 5313-412.

The unusual shape of the unit is defined by the number and location of several streams. Also, an area that is marshy and has several small feeder streams was buffered outside the unit. This marshy area lies to the north of landings I, J and K. All live streams are buffered and although skyline roads will often pass through the buffers, no yarding through the buffers is planned.

Road 5313-412 provides access to seven landings (A, B, C, D, E, F and G) with two temp spurs off of the 412 providing additional access to landings A (810') and C (280'). These temp spurs are in good shape and to be re-opened for haul and closed again after harvest activities. Access to the remaining landings (H, I, J, K, L and M) will be from the 5313 and associated temp spurs. Landing H is located on the 5313, while landings I and J are located on an old grownover spur (725') to be temporarily re-opened for harvest activities. Landing K is located at the end of a "new temp" spur (370') off of the spur accessing landings I and J. This new location of the spur and landing is over gentle ground (slopes less than 20%).

Thirteen landings are planned for this unit. All three types of yarding (skyline, yoader, and tractor) are planned for this unit. Landings A, H, J and K are planned as skyline landings, while landings C, F and I are planned as a tractor landings. All other landings (B, D, E, G, L, and M) are planned as a combination of either skyline / tractor or yoader / tractor.

To meet suspension requirements, for yoader landing L, it will likely be necessary to use 1 tailtree, while the other skyline roads will anchor across the buffered stream. The anchors for the skyline, for yoader landing M, are planned to be located across the creek and no intermediate supports or tailtrees are anticipated.

The portion of the unit that is yoader and served by landings D and E could also be yarded using parallel settings along the 412 spur, rather than two fixed landing locations.

No intermediate supports are anticipated, although tailtrees will frequently be used as well as passing the skyline outside the unit boundary and anchoring on opposing slopes.

Unit # 7 (stand # 179A) 14 acres
Legal Description: T.14S., R.10W., Sec. 4
Year of Origin: 1975

The southern piece of this unit lies on the west side of and adjacent to the 5313, and the northern piece of the unit is located west of the 5313 spur at the end of a 490' old grownover spur.

Three buffered streams are near this unit, one to the north and one to the south, as well as one proceeding part way through the middle. No yarding through the buffers is anticipated, although skyline roads may pass through the buffers.

No re-opening of old spurs or creation of new spurs is needed. Both landings are located on the 5313.

Two yoader landings are planned for this unit. Short tailtrees located near the unit boundary may be necessary to improve suspension.

Unit # 10 (stand # 179B) 109 acres
Legal Description: T.14S., R.10W., Sec. 4
Year of Origin: 1981

This unit lies to the east of the 5313 road, with the 5313-413 passing down through a portion of the unit. In general the unit lies on both sides of a north / south ridge and it is also the eastern most unit in this sale.

Several small streams (headwaters mostly) lies adjacent to or just inside the unit. All have been buffered and no yarding over or through any of these streams is planned.

The 5313-413 serves the southern portion of the unit, with six “new temp” spurs off of it or grownover spurs associated with it.

Three grownover spurs will be temporarily re-opened to service landings B, C, D, (one spur); landings I and J (the second spur), and landing L and S (the third spur). In addition to the grownover spurs being re-opened, six new temporary spurs will be constructed. A 380 foot spur for landing C, a 320 foot spur for landing D, a 150 foot spur for landing F, a 50 foot spur for landing G, a 500 foot spur for landing I and a 270 foot spur for landing J.. All of these spurs are over gentle ground with slopes ranging from 0% to 20%. All will be closed after harvest activities are complete.

A total of nineteen landings are planned for this unit. Landings B, G, H, Q and R are planned as skyline only. Landings F, K, L, M, N and are planned as yoader only. Landings A, E and P are planned as tractor only. Landings C, D, I, J, O and R are planned as either skyline / tractor or yoader / tractor.

The southwest corner, west of landing O and adjacent to and east of the 5313 is planned as tractor to be downhill yarded to landing E on unit 7.

No intermediate supports are anticipated on this unit, although tailtrees will be used frequently.

Much of the area where skyline is planned for landings Q and R was originally initially planned as ground based and could be yarded that way. Few and poor locations to access the 5313 spur with a tractor and some short steeper pitches made a cable system more viable.

Protect known survey monuments north of landing B and east of landings F and G.

Logging Systems Information							Unit #	6
Landing	Logging System Type	Guyline Anchor Trees	Multiple Guy Anchors	Special Anchors	Intermediate Supports	Tailtrees	Logging Profiles Run and Azimuth/Length	
A	S	P	no	no	no	7		
B	GB & Y	P	no	no	no	2	yes	
C	GB & Y	P	no	no	no	1	yes	
D	GB & Y	P	no	no	no	1		
E	GB & Y	P	no	no	no	no		
F	GB & Y	P	no	no	no	1		
G	GB & S	P	no	no	no	1		
H	S	P	no	no	no	7		
I	GB	no	no	no	no	no		
J	S	P	no	no	no	2		
K	S	P	no	no	no	4		
L	Y	P	no	no	no	1		
M	Y	P	no	no	no	no		

Key: Logging System abbreviations are Skyline (S), Ground-Based (GB), Yoader (Y), Helicopter (H), or a combination of logging systems for each landing. Guyline anchor trees abbreviations are P for plantation, M for mature, and B for both. Special anchor abbreviations are Equipment (Eq), Deadmen (D), Earth (E), guyline (G) anchor, and tailhold (T). Abbreviations for intermediate supports (IS) and tailtree (TT).

Unit Totals and Averages

Average Yarding Distance:	<u>287</u>	Average Net Pound per Payload:	<u>2266</u>
Average Mainline Tension:	<u>2385</u>	Average Slope:	<u>30%</u>
Maximum Tagline Needed:	<u>none</u>	Total Number of Corridors:	<u>61</u>
Maximum Yarding Distance:	<u>980'</u>	Total Number of Landings:	<u>13</u>

Notes

Average yarding distance for ground based is 210'

Logging Systems Information							Unit #	10
Landing	Logging System Type	Guyline Anchor Trees	Multiple Guy Anchors	Special Anchors	Intermediate Supports	Tailtrees	Logging Profiles Run and Azimuth/Length	
A	GB	no	no	no	no	no		
B	S	P	no	no	no	5		
C	GB & S	P	no	no	no	8		
D	GB & Y	P	no	no	no	10		
E	GB	no	no	no	no	no		
F	S	P	no	no	no	6		
G	S	P	no	no	no	3		
H	S	P	no	no	no	2		
I	GB & S	P	no	no	no	1		
J	GB & S	P	no	no	no	4		
K	Y	P	no	no	no	1		
L	Y	P	no	no	no	1		
M	Y	P	no	no	no	no		
N	Y	P	no	no	no	3		
O	GB & S	P	no	no	no	8		
P	GB	no	no	no	no	no		
Q	GB & S	P	no	no	no	8		
R	GB & S	P	no	no	no	3		
S	S & Y	P	no	no	no	2		

Key: Logging System abbreviations are Skyline (S), Ground-Based (GB), Yoader (Y), Helicopter (H), or a combination of logging systems for each landing. Guyline anchor trees abbreviations are P for plantation, M for mature, and B for both. Special anchor abbreviations are Equipment (Eq), Deadmen (D), Earth (E), guyline (G) anchor, and tailhold (T). Abbreviations for intermediate supports (IS) and tailtree (TT).

Unit Totals and Averages

Average Yarding Distance:	<u>274'</u>	Average Net Pound per Payload:	<u>2150</u>
Average Mainline Tension:	<u>2600</u>	Average Slope:	<u>35%</u>
Maximum Tagline Needed:	<u>none</u>	Total Number of Corridors:	<u>95</u>
Maximum Yarding Distance:	<u>760'</u>	Total Number of Landings:	<u>19</u>

Notes

Average skidding distance for ground based is 270'