

Horn Thin Timber Sale
Logging Feasibility Report

North Nestucca EA
Hebo Ranger District
Siuslaw National Forest
Tillamook County, Oregon

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Horn Thin Timber Sale

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Horn Thin Timber Sale

1. Sale Description:

Horn Thin Timber Sale is a commercial thinning sale containing approximately 448 acres. The sale area is located in sections 2, 3, 4, 5, 8, 9 & 10, T4S, R10W, W.M., Tillamook County, Oregon. Forest Service roads 1023 and 1024 and numerous spur roads off of them access the seven units within the sale area.

Douglas fir, western hemlock, red alder and Sitka spruce are the dominant species in most units. Directional felling may be required. As much as feasible big leaf maple will not be felled in the units. No Pacific yew was observed during stand exams, cruising and logging systems analyses. Any Pacific yew found during logging operations will not be felled. Minimum DBH for trees to be harvested is 7.0". Trees less than 7.0" will be protected where practical.

The sale is designed to yard with skyline (83%) and ground-based (17%) systems.

There are areas that will need multi-span configurations to yard the unit or portions of them. These are shown on yarding maps.

A yarder that has a 50 foot tower height was chosen to run in skyline analysis. A carriage that has multi-span capability and slackpulling capabilities was used in the analysis.

Tail-trees are necessary on most skyline roads. Multiple stump anchors may be needed for some landing locations as they are located in younger stands, the existing trees may be too small and the existing stumps may be too old to use.

A yarding system capable of lifting 20,000 pounds and transporting logs at least 1,200 feet to the landing area.

Ground based yarding shall be limited to slopes of 30 percent or less and use designated skid trails. All designated skid trails must be approved by the sale administrator.

Trimble GIS was used to calculate unit acres and meet Region 6 Acreage Determination Standards.

A string box was used to determine length for temporary roads.

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2. Resource Management Objectives:

The stand prescriptions, unit layout, logging and transportation plans will be designed to meet the following resource objectives:

- Develop stand into late-successional habitat consistent with the Northwest Forest Plan and the Northern Coast Range Adaptive Management Area Late Successional Reserve Assessment.
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- 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 during all phases of harvest activity.
- Protect T&E wildlife species by limiting operating seasons.

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3. Unit Logging Summary and Yarding Method:

Sale Name: Horn Thin

Units: 164, 165, 166, 180, 184, 208 & 209.

Ground Based Units: 165, 180, 184, 208 & 209

Skyline Based Units: 164, 165, 166, 180, 184, 208 & 209

Volume: 7.39 mmbf/15,010 ccf

Tower: 50 ft. (Madill 6150 SPCM used in analysis)

Carriage: Able to pass shackles and have slackpulling capabilities (Acme 20 used in analysis)

Tractor: Crawler tractor for landing clearing

Skidder

Delimber

Loader/shovel

Tail tree hardware

Intermediate support rigging hardware

Chokers: Length 12', diameter ½"

Tagline: Length 200', diameter ½"

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4. Line Capacities of Yarder and Proposed Carriage:

<u>Line</u>	<u>Diameter</u>	<u>Drum Capacity</u>
Skyline	0.875	2,000 feet/EIPS
Mainline	0.625	2,300 feet/EIPS
Haulback	0.50	4,300 feet/EIPS
Strawline	n/a	
Guyline	0.625	300 feet/EIPS
Choker	0.50	
Carriage: Eagle Eaglet; 1,200 pounds		

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5. Estimated Labor:

<u>Yarding Labor</u>	<u>Number</u>
Hooktender	1
Rigging slinger	1
Choker setter w/radio	1
Choker setter	1
Yarder engineer	1
Loader operator	1
Delimber operator	1
Landing chaser	1

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6. Estimated daily yarding production:

15 mbf/day net log scale

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7. Estimated Yarding Distances:

Unit #	Average Yarding Distance	Maximum Yarding Distance
164	1,031'	1,370'
165	575'	1,163'
166	865'	1,005'
180	585'	1,550'
184	410'	949'
208	583'	929'
209	392'	559'

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8. Unit Summary:

Stand/unit#	Sky Acreage	Ground Acreage	New Temp Road Length (ft)	Existing Temp Road Length (ft)	# Corridors Skyline/Groundbase	# Landings Skyline/Groundbase
164	23.88	0	0	0	8/0	7
165	96.18	11.69	0	1,883'	87/25	43
166	33.16	0	0	0	14/0	9
180	148.53	36.64	91'	505'	122/40	77
184	27.47	15.65	441'	1,128'	21/34	20
208	21.66	0	0	697'	16/0	7
209	20.62	13.38	0	1,158'	32/33	22
Totals	371.50	77.36	532'	5,371'	300/132	185*

*Multiple landings used for skyline/groundbase

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9. Payload Analysis Summary:

Payload analysis calculations were based on a 0.875 diameter skyline cable and a 50 foot tower coupled with a carriage that can pass shackles and has lateral yarding capabilities.

In order to gain adequate deflection, tailtrees were used on most analyzed profiles. Additional lift can be gained in some cases by hanging across draws and up adjacent slopes.

The payload analysis was determined by using the SkylineXL 3.01 Profile Analysis program and standing skyline or multi-span skyline systems. Adequate tree sizes are available for tailtrees and intermediate supports using a rigging height of up to 30 feet. Adequate payloads equate to three average logs or two long logs (whole tree length, measured from stump cut to 6.0" top).

Net payloads to landing ranged from 4,184 lbs to 13,264 lbs.

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10. CT6.42# Contract Clauses:

CT6.42# SPECIAL YARDING/SKIDDING METHODS. (1/93) Methods other than those specified may be approved. When appropriate, such approval shall include changes in current contract rates and Sale Area Map shall be revised.

1. Except during lateral yarding, the yarding system must keep one end suspended above ground during in-haul.
2. The carriage shall be positioned such that during lateral yarding, logs are to be yarded away from stream courses.
3. Ground-lead yarding is permitted within 50 feet of payment unit boundaries, 50 feet of tail trees, and 50 feet of tower position.
4. Skyline roads will be spaced so as to cause the least amount of damage to the residual stand. This may require spacing from no closer than 100 feet or no further apart than 150 feet at back end of the road when radial roads are used. If parallel roads are to be used design the distance to be 200 feet center to center. Where situations warrant changes to this the Forest Service will determine if this can change on a case by case basis.

5. When skyline, haulback or other cable pass through areas of residual trees or reproduction more than 18 inches in height, lines shall be pulled out of the residual trees or reproduction area prior to restringing the next skyline road.
6. Skyline corridors shall be as narrow as possible but normally not exceed 12 feet in width.
7. Location of all skyline roads shall be agreed and approved prior to felling and or yarding.
8. Yarding across streams shall require logs to be fully suspended for 50 feet slope distance both sides of stream channel and or outside the buffered area.
9. A slackpulling carriage able to maintain a fixed position on the skyline during lateral yarding and can pass over intermediate supports. The carriage must be capable of lateral yarding up to 75 feet from skyline. An extra 75' of tagline may be needed on the end of the carriage choker.
10. Tractor assist may be required.

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11. Logging Plan Narrative:

All unit boundaries are marked with blue boundary tags, blue ribbon and orange paint.

All landings are marked with yellow tags and florescent pink flagging.

All temporary spurs (existing and new) are marked with yellow tags and solid blue/white flagging.

Minor clearing is required for some landings.

Landings are located to minimize yarding over buffered stream and headwalls.

All roads and landings will be reviewed on the ground by a District hydrologist and the Forest transportation planner for the timber sale appraisal and contract.

Log hauling will be limited to **dry season on most temporary roads** because of cost associated with the quantity of rock needed.

There are perennial streams and headwalls that exist within the units. Theses areas will be buffered and excluded from the units. Buffer boundaries will be marked on the

ground to protect slope stability and water quality. Full log suspension is required over streams and headwalls. Intermittent streams will not be buffered.

Skyline landings generally use fan-shaped and parallel settings, with most turnroads using single-span configurations. Tailholding on opposing slopes is emphasized, where opportunities exist, to reduce the need for tailtrees and intermediate supports.

Where yarding will occur over streams, some areas may lack the deflection necessary to obtain full suspension of logs during whole-tree yarding. Shorter log lengths will be required over these areas.

Some ground-based logging is planned in units 165, 180, 184, 208 & 209. Most of the remaining units will require some loader/shovel logging along the roadway or on designated skid trails.

Directional felling may be needed in several units. Extra tagline may be needed in areas that require directional felling.

Units 164, 165, 166, 184, 208 & 209 contain ½ acre and 1 acre “gaps”. Largest Doug fir in middle of gap designated with orange tracer paint.

Units 165 and 184 have survey monuments and bearing trees. These are designated with orange tracer paint and are identified on sale area maps.

Logging Systems Information

Landing	Logging System Type	Guyline Anchor Trees	Multiple Guy Anchors	Special Anchors	Intermediate Supports	Tailtrees	Logging Profiles Run and Azimuth/Length	
184A	S,Y	P				TT, 20		
184B	S,Y	P			1	TT, 20		
184C	S,Y	P			1	TT, 20		
184D	S,Y	P			1	TT, 20	Yes	7, 1,009
184E	S,Y	P			1	TT, 20		
184F	S,Y	P				TT, 20		
184G	S,Y	P			1	TT, 20		
184H	S,Y	P				TT, 20		
184I	S,Y	P				TT, 20		
184J	S,Y,G	P				TT, 20		
184K	S,Y	P				TT, 20		
184K	S,Y	P				TT, 20		
184L	S,Y	P				TT, 20		
184M	S,Y,G	P				TT, 20		
184N	S,Y,G	P				TT, 20		
184O	S,Y,G	P				TT, 20		
184P,Q,R	S,Y,G	P				TT, 20		
184S	S,Y,G	P				TT, 20		
184T	S,Y	P				TT, 20		

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>410'</u>	Average Net Pound per Payload:	<u>6,817 lbs</u>
Average Mainline Tension:	<u>5,255 lbs</u>	Average Slope:	<u>45%</u>
Maximum Tagline Needed:	<u>50'</u>	Total Number of Corridors:	<u>21</u>
Maximum Yarding Distance:	<u>949'</u>	Total Number of Landings:	<u>20</u>

Notes

Logging Systems Information

Landing	Logging System Type	Guyline Anchor Trees	Multiple Guy Anchors	Special Anchors	Intermediate Supports	Tailtrees	Logging Profiles Run and Azimuth/Length
209V	S	B				TT 3	
209A-D	S	B				TT 3	
209E	S	B			1	TT 3	
209F	S	B			1	TT 3	
209G-J	GB,Y	P				TT 3	
209K	S,GB,Y	P				TT 3	
209L	S,GB,Y	P				TT 3	
209M	S,GB,Y	P				TT 3	
209N	GB,Y	M				TT 3	
209O	GB,Y	M				TT 3	
209P	GB,Y	M				TT 10	
209Q	Y	M				TT 10	
209R	Y	M				TT 10	
209S	Y	M				TT 10	
209T	Y	M				TT 10	
209U	S	P				TT 3	
209W	S	P				TT 3	

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).

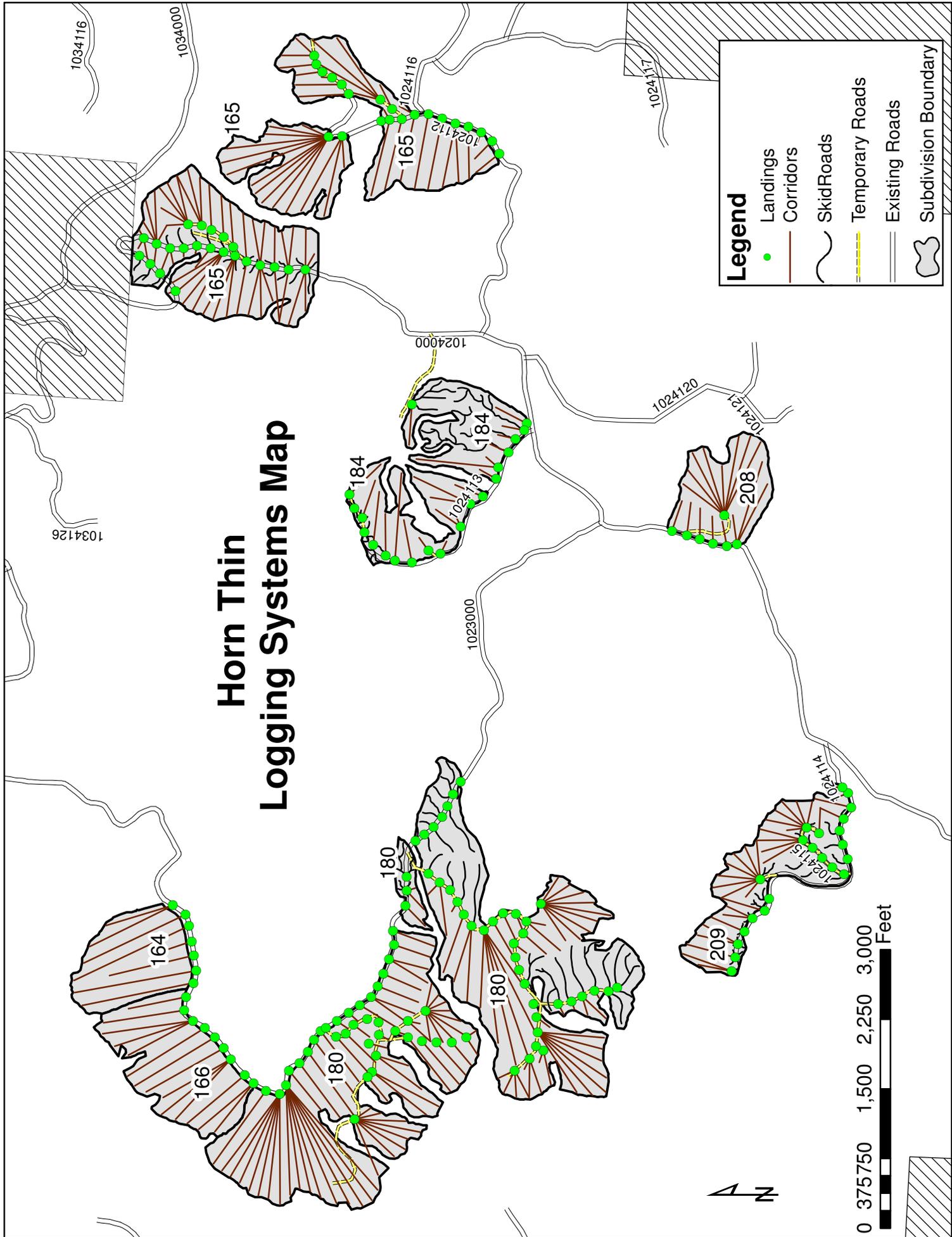
Unit Totals and Averages

Average Yarding Distance:	<u>392'</u>	Average Net Pound per Payload:	<u>13,455 lbs</u>
Average Mainline Tension:	<u>11,787 lbs</u>	Average Slope:	<u>75%</u>
Maximum Tagline Needed:	<u>20'</u>	Total Number of Corridors:	<u>32</u>
Maximum Yarding Distance:	<u>559'</u>	Total Number of Landings:	

Notes

General Information: Landings U, A-F, K,L M,U,W will have to tailhold across Horn Creek to get adequate lift. Total number of landings is 22.

Horn Thin Logging Systems Map



Legend

- Landings
- Corridors
- Skid Roads
- - - Temporary Roads
- Existing Roads
- ▨ Subdivision Boundary

