

Battle Thin Stewardship
Timber Sale
Logging Feasibility Report

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

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Date: May 16, 2014

Battle Thin Stewardship Timber Sale

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Battle Thin Stewardship Timber Sale

1. Sale Description:

Battle Thin Stewardship Timber Sale is a commercial thinning containing approximately 239 acres. The sale area is located in sections 1, 2, 10, 11 and 12, T3S, R9W, W.M., Tillamook County, Oregon. Forest Service road #8172 and numerous spur roads off of them access the nine units within the sale area.

Douglas fir, western hemlock, Sitka spruce and red alder 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 diameter at breast height (dbh) for trees to be harvested is 7.0". Trees less than 7.0" dbh will be protected where practical.

The sale is designed to yard with skyline (74%) and ground-based (26%) systems.

There are areas that will need multi-span configurations to yard the unit or portions of them.

A yarder with a 50 foot tower height, capable of lifting 20,000 lbs and transporting logs at least 1,200 feet was used in the analysis. A carriage with multi-span and slackpulling capabilities was used in the analysis.

Tail anchor trees are necessary on most skyline corridors. Multiple stump anchors may be needed for some landing locations. The existing trees in younger stands may be too small in diameter and existing stumps too decayed to use.

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 GPS mobile device was used to determine harvest acres. Trimble GPS mobile device meets Region 6 acreage determination standards.

Trimble GPS mobile device was used to calculate temporary roads lengths..

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2. Resource Management Objectives:

The stand prescriptions, unit layout, logging and transportation plans are 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.
-
- 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: Battle Thin

Units: 13, 20, 29, 32, 33, 36, 39, 46, 44 and 50.

Ground Based Units: 13, 20, 29, 39, 39, 46 and 50

Skyline Based Units: 13, 20, 29, 32, 33, 39, 44, 46 and 50.

Volume (est): 3,352 mmbf/7,130 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 100', 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:

| <u>Unit #</u> | <u>Average Yarding Distance</u> | <u>Maximum Yarding Distance</u> |
|---------------|---------------------------------|---------------------------------|
| 13 | 395' | 780' |
| 20 | 497' | 940' |
| 29 | 365' | 727' |
| 32 | 530' | 1,209' |
| 33 | 307' | 471' |
| 39 | 363' | 832' |
| 44 | 577' | 1,814' |
| 46 | 300' | 547' |
| 50 | 541' | 779' |

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8. Unit Summary:

| Stand/unit# | Sky Acreage | Ground Acreage | New Temp Road Length (ft) | Exist. Temp Road Length (ft) | # Corridors Skyline/Groundbase | *# Landings Skyline/Groundbase |
|-------------|-------------|----------------|---------------------------|------------------------------|--------------------------------|--------------------------------|
| 13 | 15 | 2 | 603' | | 21/2 | 4 |
| 20 | 15 | 6 | | | 16/4 | 2 |
| 29 | 11 | 11 | | | 18/10 | 8 |
| 32 | 23 | 0 | 134' | | 17/7 | 5 |
| 33 | 6 | 0 | | | 10/0 | 2 |
| 39 | 18 | 3 | 266' | | 22/6 | 6 |
| 44 | 44 | 0 | | | 51/0 | 12 |
| 46 | 4 | 2 | | | 8/6 | 2 |

| | | | | | | |
|---------------|------------|-----------|---------------|--|---------------|-----------|
| 50 | 42 | 37 | 557' | | 43/34 | 13 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Totals | 178 | 61 | 1,560' | | 206/69 | 54 |

***Multiple landings used for skyline/groundbase. Total landings analyzed: 54.**

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9. Payload Analysis Summary:

Payload analysis calculations are 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, tailhold anchor trees were used on 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 3,261 lbs to 31,082 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 corridors 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 corridor when radial corridors are used. If parallel corridors 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 cables 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 corridor.
6. Skyline corridors shall be as narrow as possible but normally not exceed 12 feet in width.
7. Location of all skyline corridors 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 100' 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 solid blue/white 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.

Perennial and intermittent streams and headwalls exist within the units. These streams and headwalls are buffered. Buffer boundaries are marked on the ground to protect slope stability and water quality. Full log suspension is required over streams and headwalls.

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 intermediate supports.

Where yarding occurs over stream buffers, 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 13, 20, 29, 39, 46 and 50. Most remaining units will require some loader/shovel logging along roadways 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 13, 20, 32, 33, 39, 44, 46 and 50 contain ½ acre and 1 acre “gaps”. Largest Douglas fir in middle of ½ acre gap designated with (1) orange tracer painted band. Cut 83’ radius around designated tree. Largest Douglas fir in middle of 1 acre gap designated with (2) orange tracer painted bands. Cut 118’ radius around designated tree. All ‘gaps’ have GPS coordinates and are identified on sale area maps.

Unit 50 has one survey monument. This is designated with florescent pink flagging and identified on sale area maps.

Battle Thin Unit Summary sheet

Hebo Ranger District

General Information

Unit # : 32 **Stand # :** 302032
 Legal Location: S12, T3S, R9W., W.M., Tillamook Co., OR Acres: 23
 Photo Number: 1974 38-20c 35 Residual TPA Post Harvest: 70
 Silvicultural Prescription: DxD 15 Residual TPA Post DWD & Snags: 5
 Recon by/Date: M.Ruedy, E.Hays, N.Pearson 2/25 & 26, 2014

Volume Information

Source of volume estimate: Cruise Estimated Volume: 318 mbf/623 ccf

Special Considerations

| | Yes | No | | Yes | No |
|----------------------------|--------------------------|-------------------------------------|-----------------|--------------------------|-------------------------------------|
| Power Lines: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Fences: | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Invasive/Sensitive Plants: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Heritage Sites: | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Dump Sites: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Meadows: | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Survey Monuments: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Water Systems: | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Improvements: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Other: | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Road and Landing Information

| Landing | Road Type | Road Length | Existing or New | | Landing | Road Type | Road Length | Existing or New |
|---------|------------|-------------|-----------------|--|---------|-----------|-------------|-----------------|
| 32B | non-system | 134' | New | | | | | |
| 32C | non-system | 1,761' | Existing | | | | | |
| 32D | 8172-112 | | Existing | | | | | |
| 32E | 8172-112 | | Existing | | | | | |
| 32F | 8172-112 | | Existing | | | | | |
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Notes

General Information: Existing spur 32-1 is 1,761' in length. New temp road 32-1a is 134' in length.

Battle Thin Unit Summary sheet

Hebo Ranger District

General Information

Unit # : 33 **Stand # :** 302033
 Legal Location: S11, T3S, R9W., W.M., Tillamook Co., OR Acres: 6
 Photo Number: 1970 38-19b 26 Residual TPA Post Harvest: 60
 Silvicultural Prescription: DxD 16 Residual TPA Post DWD & Snags: 5
 Recon by/Date: M.Ruedy 2/4/2014

Volume Information

Source of volume estimate: Cruise Estimated Volume: 83 mbf/162 ccf

Special Considerations

| | Yes | No | | Yes | No |
|----------------------------|--------------------------|-------------------------------------|-----------------|--------------------------|-------------------------------------|
| Power Lines: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Fences: | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Invasive/Sensitive Plants: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Heritage Sites: | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Dump Sites: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Meadows: | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Survey Monuments: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Water Systems: | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Improvements: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Other: | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Road and Landing Information

| Landing | Road Type | Road Length | Existing or New | | Landing | Road Type | Road Length | Existing or New |
|---------|------------|-------------|-----------------|--|---------|-----------|-------------|-----------------|
| 33A | non-system | | Existing | | | | | |
| 33B | non-system | | Existing | | | | | |
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General Information:

Battle Thin Unit Summary sheet

Hebo Ranger District

General Information

Unit # : 39 **Stand # :** 302039
 Legal Location: S10/11, T3S, R9W, W.M., Tillamook Co., OR Acres: 21
 Photo Number: 1982 38-19b 25 Residual TPA Post Harvest: 70
 Silvicultural Prescription: DxD 15 Residual TPA Post DWD & Snags: 5
 Recon by/Date: M.Ruedy 2/26/2014

Volume Information

Source of volume estimate: Cruise Estimated Volume: 290 mbf/569 ccf

Special Considerations

| | Yes | No | | Yes | No |
|----------------------------|--------------------------|-------------------------------------|-----------------|--------------------------|-------------------------------------|
| Power Lines: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Fences: | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Invasive/Sensitive Plants: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Heritage Sites: | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Dump Sites: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Meadows: | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Survey Monuments: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Water Systems: | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Improvements: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Other: | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Road and Landing Information

| Landing | Road Type | Road Length | Existing or New | | Landing | Road Type | Road Length | Existing or New |
|---------|------------|-------------|-----------------|--|---------|-----------|-------------|-----------------|
| 39A | non-system | 266' | New | | | | | |
| 39B | non-system | 582' | Existing | | | | | |
| 39C | non-system | | Existing | | | | | |
| 39D | non-system | | Existing | | | | | |
| 39E | 8172-113 | 500' | Existing | | | | | |
| 39F | 8172-113 | | Existing | | | | | |
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Notes

General Information: existing temp spur 39-1 is 582' in length; spur 39-2 is 500' in length; new temp spur 39-1a is 266' in length.

Logging Systems Information

| Landing | Logging System Type | Guyline Anchor Trees | Multiple Guy Anchors | Special Anchors | Intermediate Supports | Tailtrees | Logging Profiles Run and Azimuth/Length |
|---------|---------------------|----------------------|----------------------|-----------------|-----------------------|-----------|---|
| 44A | S,Y | P | Yes | | 0 | 4 TT, 20 | No |
| 44B | S,Y | P | Yes | | 2 | 4 TT, 20 | Yes 105, 874 |
| 44C | S,Y | P | Yes | | 0 | 3 TT, 20 | No |
| 44D | S,Y | P | Yes | | 3 | 3 TT, 20 | No |
| 44E | S,Y | P | Yes | | 8 | 9 TT, 20 | Yes 60,1,251 150, 978 |
| 44F | S,Y | P | Yes | | 4 | 5 TT, 20 | Yes 90, 867 |
| 44G | S,Y | P | Yes | | 3 | 4 TT, 20 | No |
| 44H | S,Y | P | Yes | | 2 | 3 TT, 20 | No |
| 44I | S,Y | P | Yes | | 0 | 3 TT, 20 | No |
| 44J | S,Y | P | Yes | | 0 | 4 TT, 20 | No |
| 44K | S,Y | P | Yes | | 1 | 3 TT, 20 | No |
| 44L | S,Y | P | Yes | | 4 | 6 TT, 20 | No |
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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>576'</u> | Average Net Pound per Payload: | <u>7,805</u> |
| Average Mainline Tension: | <u>5,808</u> | Average Slope: | <u>60%</u> |
| Maximum Tagline Needed: | <u>20'</u> | Total Number of Corridors: | <u>51</u> |
| Maximum Yarding Distance: | <u>874</u> | Total Number of Landings: | <u>12</u> |

Notes

General Information:

Logging Systems Information

| Landing | Logging System Type | Guyline Anchor Trees | Multiple Guy Anchors | Special Anchors | Intermediate Supports | Tailtrees | Logging Profiles Run and Azimuth/Length | |
|---------|---------------------|----------------------|----------------------|-----------------|-----------------------|-----------|---|---------|
| 50A | S,Y,GB | P | Yes | | 3 | 3 TT, 20 | Yes | 240,595 |
| 50B | S,Y,GB | P | Yes | | 3 | 3 TT, 20 | No | |
| 50C | S,Y,GB | P | Yes | | | | No | |
| 50D | S,Y,GB | P | Yes | | 2 | 2 TT, 20 | No | |
| 50E | S,Y,GB | P | Yes | | 2 | 2TT, 20 | No | |
| 50F | S,Y,GB | P | Yes | | 0 | 1 TT, 20 | No | |
| 50G | S,Y,GB | P | Yes | | 1 | 1 TT, 20 | No | |
| 50H | S,Y,GB | P | Yes | | 0 | 0 | No | |
| 50I | S,Y,GB | P | Yes | | 1 | 1 TT, 20 | No | |
| 50J | S,Y,GB | P | Yes | | 5 | 5 TT, 20 | Yes | 240,879 |
| 50K | S,Y,GB | P | Yes | | 3 | 4 TT, 20 | No | |
| 50L | S,Y,GB | P | Yes | | 0 | 3 TT, 20 | No | |
| 50M | S,Y,GB | P | Yes | | 14 | 18 TT, 20 | Yes | 170,437 |
| | | | | | | | | |
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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>540</u> | Average Net Pound per Payload: | <u>11,062</u> |
| Average Mainline Tension: | <u>9,964</u> | Average Slope: | <u>45%</u> |
| Maximum Tagline Needed: | <u>20'</u> | Total Number of Corridors: | <u>43</u> |
| Maximum Yarding Distance: | <u>778'</u> | Total Number of Landings: | <u>13</u> |

Notes

General Information: