**Lewis River Hydroelectric Projects**
**Terrestrial Coordination Committee (TCC)**
**Meeting Agenda**

**Date & Time:** **Wednesday, January 9, 2019**
**9:00 a.m. – 3:00 p.m.**

**Place:** **Merwin Hydro Control Center**
**105 Merwin Village Court**
**Ariel, WA 98603**

**Contacts:** **Kendel Emmerson (503) 813-6040; cell 503-703-7734**

| Time | Discussion Item |
|---|---|
| 9:00 a.m. | Welcome<br>➢ Review Agenda & 11/14/18 Meeting Notes<br>➢ Review and Accept Agenda & 11/14/18 Meeting Notes |
| 9:15 a.m. | ➢ Land Acquisition Update (Confidential)<br>➢ TNC Update (Confidential) |
| 9:30 a.m. | Devil's Backbone Update; budget and 2019 planning |
| 10:00 a.m. | Forestry Plan Review Memo; Approval |
| 10:45 a.m. | Study/Work Product Updates |
| 11:00 a.m. | Next Meeting's Agenda<br>Note: all meeting notes and the meeting schedule can be located at: http://www.pacificorp.com/es/hydro.html |
| 11:15 a.m. | Safety[1] orientation for site visit to 2019 proposed harvest area in Management Unit 27 |
| 12:30 p.m. | Arrive at Management Unit 27, have lunch review proposed harvest maps. If time allows look at new meadows in Management Unit 36 or Management Unit 38. |
| 2:00 p.m. | Leave for HCC and return by 3 pm. |
| **3:00 p.m.** | **Meeting adjourn** |

1 Please bring rain gear and sturdy walking shoes for hiking in the forest. No hard hats needed for this tour. PacifiCorp will have 2 vehicles for transportation of up to 4 additional passengers.

# PLEASE BRING YOUR LUNCH

Join by Phone
+1 (503) 813-5252 [Portland, Ore.]
+1 (855) 499-5252 [Toll Free]
**Conference ID: 631927**

**FINAL Meeting Notes**
**Lewis River License Implementation**
**Terrestrial Coordination Committee (TCC) Meeting**
**January 9, 2019**
**Merwin Hydro Control Center & Field Tour**

**TCC Representatives Present: (6)**
Kendel Emmerson, PacifiCorp
Summer Peterman, PacifiCorp
Kim McCune, PacifiCorp
Peggy Miller, WDFW
Amanda Froberg, Cowlitz PUD
Erik White, Cowlitz Indian Tribe

**Calendar:**

| | | |
|---|---|---|
| February 13, 2019 | TCC Meeting | Merwin HCC |

| **Assignments from January 9, 2019** | **Status** |
|---|---|
| None | |

| **Parking Lot Items** | **Status** |
|---|---|
| Emmerson/McCune: Contact PacifiCorp's properties department to discuss further TNC detail and report to the TCC at the next meeting. | **In progress** |

Kendel Emmerson (PacifiCorp) called the meeting to order at 9:05am. Emmerson reviewed the agenda and asked the TCC if there were any changes/additions. No additions were requested.

The TCC reviewed the November 14, 2018 meeting notes and the meeting notes were approved without change at 9:10am.

**Public Comment Opportunity:**
None

**Land Acquisition Update (CONFIDENTIAL)**
Emmerson informed the TCC attendees that the title review completion is expected in approximately two (2) weeks. PacifiCorp will also review with an approximate close date of August 2019.

Additional detail around this topic is considered confidential and proprietary and not for public viewing.

**Other (CONFIDENTIAL)**
TNC – Emmerson informed the TCC attendees that PacifiCorp's property department requested an appraisal. PacifiCorp expects to receive an estimate by the February 13, 2019 TCC meeting.

Additional detail around this topic is considered confidential and proprietary and not for public viewing.

**Devil's Backbone Update; Budget and 2019 Planning**

Amanda Froberg (Cowlitz PUD) provided a map of Devil's Backbone Unit 1 and an update of the anticipated 2019 (Year 1) Annual Plan Budget as outlined below in Table 2.1-1 below and in **Attachment A**. **The TCC agreed that the PUD would go out for a logging bid package after the RMEF grant determination ($10,500), which is approximately March 31, 2019, to see if it is possible to complete the Devil's Backbone forest management plan this year, as the current budget is approximately $16,000 shy of the goal.**

Froberg also noted that the DNR approved the alternate plan designation until December 4, 2021.

**Table 2.1-1. Anticipated 2019 (Year 11) Annual Plan Budget (2019 dollars).**

| 2019 Budget | | |
|---|---|---|
| Dec 26, 2018 Annual Payment | $19,158 | |
| 2018 Carry Forward | $ 41,775 | Includes 2015 - 2018 Timber Fund |
| Interest on 2018 Ending Balance | $ 1,984 | |
| Total 2019 Budget | $ 62,917 | |
| **WHMP Activity** | **Estimated 2019 Cost** | **Assumptions** |
| Administration | $5,000 | Includes general oversight and accounting, preparing Annual Report and Annual Plan, contracting, maintaining project files, participating in TCC meetings related to implementing Cowlitz PUD's WHMP. |
| Annual inspection to monitor and manage public access | $0 | Included in invasive plant surveys. |
| Invasive plant surveys at high priority sites | $0 | None in 2019. |
| Invasive plant species control | $0 | None in 2019. |
| Northern Goshawk Survey | $3,500 | Intensive Survey |
| Meridian Forester Oversite | $3,000 | Final prep and sale administration. |
| 5.8-acre Devil's Backbone Patch Cut | $89,000 | Based on cost estimates in Appendix C. Have to complete public bidding process. |
| Estimated cost of management activities | **$100,500** | |
| Estimated amount remaining in 2018 budget at year end | $-37,583 | Any funds not spent by year end, plus accrued interest, remain in the WHMP budget to be carried into the following year.[2] |

| Grants Submitted | Amount Requested | |
|---|---|---|
| RMEF PAC Grant | $10,500 | Determination by March 31st? |
| Matching Funds from PacifiCorp | $10,500 | |

[2] TCC members desire that any unspent monies/carry forward be designated for future timber management activities.

**Forestry Plan Review Memo; Approval**

Emmerson informed the TCC attendees that PacifiCorp incorporated all TCC comments and responses into a comment matrix attached to the Forestry Plan Memorandum, dated January 4, 2019 (**Attachment B**).

Emmerson also included a map that contains management units 33-39 to show which timber harvest areas have been classified as THA-S (steep) vs. THA-F (flat). All timber harvest areas in management units 1-32 are THA-F.

The following are highlights and changes that resulted from TCC review:

- Reforestation Inspections and Replanting on pages 3 & 4 remain largely unchanged.
- First PCT Criteria and Methods noted that all THAs would be PCT at least once. The only difference between THA-S and THA-F is how the slash will managed.
- Added the following bullet to PCT methods: The spacing objective is approximately 14 x 14 feet, but may be adjusted as needed to meet individual THA needs.
- Added the following third bullet and added the following descriptive text to the Commercial Thinning text:
    - Trees should have an average live crown ratio of greater than or equal to 35 percent. Live crown ratio is the ratio of crown length to total tree height, or percentage of the tree's total height that has foliage.

    - Height to diameter (H/D) ratios should be < 70. H/D ratios are determined by dividing the height by dbh of the residual trees that would remain after thinning. For an example a 100-foot tree that is 20 inches in dbh has a H/D of 60.0. The dbh is converted to feet by dividing by 12, so 20 inch dbh / 12 inches= 1.67, then divide 100/1.67 to get an H/D = 60.0. A stand with H/D ratio > 80 would be prone to snow damage, breakage, and wind throw.

- Added the following text to Clearcut Timber Harvest:
    - Some of the THAs that PacifiCorp acquired are beyond silviculture management due to stocking, lack of management by prior owner, and age. The TCC has determine that these THAs do not currently meet WHMP objectives and would be too costly or unable to manage them to meet WHMP objectives. Therefore, these stands will be allowed to grow until they provide merchantable timber, at which time they will be evaluated for clearcutting and to begin WHMP practices.

**The TCC agreed that they will review the final draft and be prepared to approve the memorandum at the February 13, 2019 TCC meeting.**

**Study/Work Product Updates**

Wetlands – Culverts in Bankers and pumphouse ponds are in bad shape. PacifiCorp will have engineers look at their condition during the drain this year (approximately July 2019) and we will advise the TCC of next steps**.**

Oak Orchard – Removed all Douglas firs last week as approved by the TCC. The fell trees were left on the ground and pulled aside into older stands. Most of the trees fell on the cliff side so there are no piles of limbs. Each unit has one (1) snag. There is considerably more light coming in just with the 50' buffer. At the next TCC meeting, PacifiCorp will have photos. In addition, the crew pulled scotch broom (no chemical use). The first application of Plantskyyd was applied last fall on selected volunteer oaks. The next application will occur this spring. We anticipate a larger visual difference next year.

Pumona Orchard work has started. All Douglas trees within the boundaries were felled. The trees that were not able to be put over the edge were chipped and put into piles outside the orchard boundary. All shrubs were retained in the process. PacifiCorp will bring pictures to the next meeting.

**Tour Safety Briefing**
Emmerson informed the TCC tour attendees that we are headed to Management Unit 27 to view the 2019 proposed harvest area and if time permits we will look at the new meadows in Management Unit 36 or Unit 38. Unit 27 is located off a public road so watch for log trucks. Walking will be on gentle slopes but watch for tripping and overhead hazards. No hard hats required.

Emmerson provided maps of Management Unit 27 illustrating forage cover and planned harvests (see **Attachment C**) and approximately 20 acres of commercial thin and 15 acres clearcut. Green equals suitable area and pink indicates no access. Emmerson also provided pre and post timber cover:forage ratio for 2019 in **Attachment C**. In the planned harvest, there are concerns about certain public access along the northern border of Management Unit 27 so PacifiCorp will close access point at the northern boundary, will have no logging within 100 feet of the open road and property lines, and will commercially thin the first 200 feet to provide a visual barrier. PacifiCorp is using the same roadbeds and no permanent forage is planned for this unit yet, but there is room for at least 1-acre meadow north of the road.

**Management Unit 27**

**Management Unit 27**

**Management Unit 27**

The TCC also viewed the elk forage meadows in Management Unit 38 (Knee Knock and Hidden Meadow) that was scarified and seeded June 2018.

**Meadow in Management Unit 38**

**Agenda items for January 9, 2019**

- Review November 14, 2018 Meeting Notes
- 2018 Terrestrial Funds Year-end Accounting
- Cowlitz PUD and PacifiCorp WHMP Annual Report and Plan, 30-day review
- Land Acquisition Update (Confidential)
- TNC Update (Confidential)
- Forestry Plan Review Memo; Approval
- Study/Work Product Updates

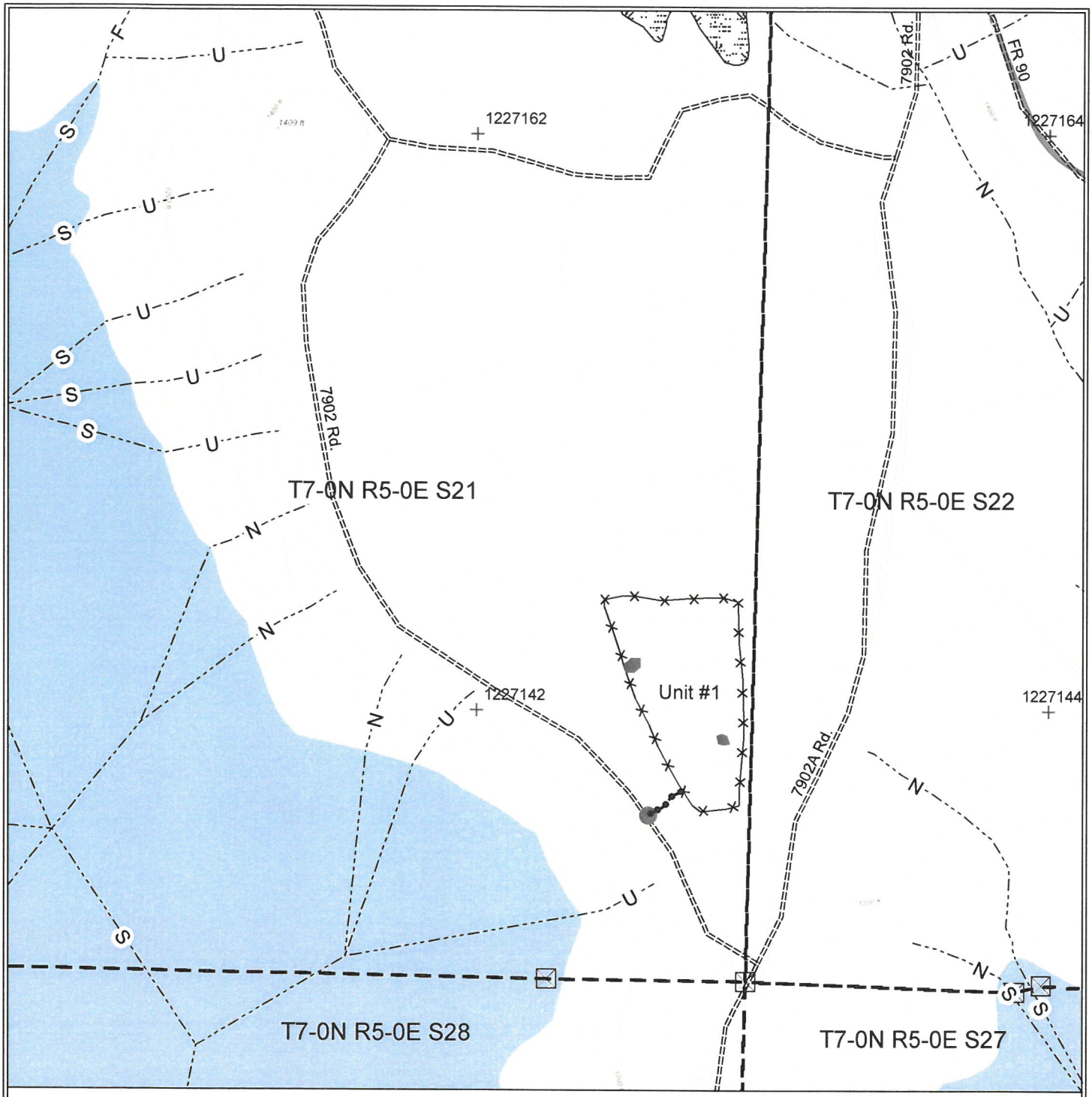
**Next Scheduled Meeting**

| |
|---|
| February 13, 2019 |
| Location: Merwin HCC |

**Attachments:**

- January 9, 2019 Meeting Agenda
- **Attachment A** – Devil's Backbone Update; budget and 2019 Planning
- **Attachment B** – Lewis River WHMP Lands Timber Harvest and Silviculture Planning Memorandum, January 4, 2019
- **Attachment C** - Management Unit 27 Maps; forage cover and planned harvests

*Adjourn 2:15pm*




## Devil's Backbone Unit #1

TWP 7N RNG 5E SEC 21

+ DNR Registration TIC
● Landing
Stream
Skid Trail
Existing Road
Wetland
Wildlife Retention Area
Timber Sale Boundary
Section Line

Net Acres = 5.8
Net MBF = 247
Elevation = 1280 ft.

N

Contour Interval = 40 feet

0 300 600 900 1,200 Feet

1 inch = 500 feet

G:\Projects\Current\CowlitzPUD\MapProjects\PatchCut2018\ForPractAppl.mxd

Published Date : 10/19/2018

higher than those shown in Table 2.1-1. As mentioned above, monies not spent remain in the WHMP budget and could be used to implement additional management activities during the current plan year or during following years.

If during the course of implementing this Annual Plan, to the extent known and at such time as Cowlitz PUD identifies significant cost savings or identifies cost overruns, Cowlitz PUD will notify the TCC.

**Table 2.1-1. Anticipated 2019 (Year 11) Annual Plan Budget (2019 dollars).**

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| **WHMP Activity** | **Estimated 2019 Cost** | **Assumptions** |
| Administration | $5,000 | Includes general oversight and accounting, preparing Annual Report and Annual Plan, contracting, maintaining project files, participating in TCC meetings related to implementing Cowlitz PUD's WHMP. |
| Annual inspection to monitor and manage public access | $0 | Included in invasive plant surveys. |
| Invasive plant surveys at high priority sites | $0 | None in 2019. |
| Invasive plant species control | $0 | None in 2019. |
| Northern Goshawk Survey | $3,500 | Intensive Survey |
| Meridian Forester Oversite | $3,000 | Final prep and sale administration. |
| 5.8-acre Devil's Backbone Patch Cut | $89,000 | Based on cost estimates in Appendix C. Have to complete public bidding process. |
| Estimated cost of management activities | **$100,500** | |
| Estimated amount remaining in 2018 budget at year end | $-37,583 | Any funds not spent by year end, plus accrued interest, remain in the WHMP budget to be carried into the following year. [2] |

| Grants Submitted | Amount Requested | |
|---|---|---|
| RMEF PAC Grant | $10,500 | Determination by March 31st? |
| Matching Funds from PacifiCorp | $10,500 | |

[2] TCC members desire that any unspent monies/carry forward be designated for future timber management activities.

| Elk Forage Plot Treatment Prescription: DBMU-2 | |
|---|---|
| **Cover type** | Mid-successional conifer forest |
| **Acres** | DBMU-2 is 104.5. The proposed treatment area within DBMU-2 is 5.8 acres. |
| **SGD Management Goals** | **Forestlands**: Promote forestland species composition and structures that benefit wildlife and provide an appropriate mosaic of big game hiding cover and forage. |
| **SGD Management Objectives** | **Forestland-a**: At the MU level, provide a range of alternatives for developing and maintaining a mix of forage and hiding cover for elk. **Forestland-b**: Maintain or create at least 8 snags, green retention trees, or wildlife reserve trees per acre, if available; retain larger trees and snags, and retain or create 4 logs/acre if possible. **Forestland-c**: At the MU level, promote habitat diversity by increasing or maintaining minor native tree species composition. |
| **Site Description** | DBMU-2 is a south facing, gently sloping (5-20 percent) site that is accessible from existing roads immediately south of the paved FR90 Road. The overstory forest is comprised of approximately 77 percent Douglas-fir and 23 percent western hemlock, with approximately 367 trees per acre. Stand age is approximately 45 years, the average canopy height is 95 feet, and crown closure is 100 percent. There are few small-diameter snags present as a result of overstory suppression, and no large diameter snags. There are few large diameter logs scattered throughout the area, with most in an advanced state of decay. The understory vegetation is mostly sparse, although with some patchy distribution. Understory species are dominated by Oregon grape and swordfern, with some patches of vine maple. Patchy herbaceous cover includes oxalis, inside-out-flower, bedstraw, vanilla-leaf. |
| **Site or Resource Constraints** | No steep slopes.<br>No sensitive soils.<br>No streams.<br>No sensitive species of concern (vegetation or wildlife).<br>Invasive weeds present along access road have been treated.<br>No visible forest health issues (insect or disease). |
| **Access** | Existing access to the site is good. Paved FR 90 road is immediately adjacent to DBMU-2. The 7092 road (gated near FR 90) provides access to the site with spur 7092A road. Cowlitz PUD has an easement for use of the 7092 road. |
| **Site Objective** | Create an approximately 5.8-acre patch cut within DBMU-2, that will be maintained as a grass/forb meadow in perpetuity, to provide forage for large ungulates (deer and elk). |
| **Site Prescription** | A location near the southern end of DBMU-2 was identified for the patch cut that has good access for logging equipment and vehicles, is distant from existing open roads, and has limited understory vegetation (see map).<br><br>The harvest unit is identified at the site with a perimeter of pink flagging, and red paint on trees immediately outside the unit boundary. Harvest will consist of removing all overstory trees within the 5.8 acre unit, except trees within the two designated wildlife retention areas. The total number of trees removed from the site is estimated at 2,127 trees (77 percent Doug-fir, 23 percent western hemlock). The diameter range of the trees in the unit are from 5 inches to 21 inches, with 33 percent of the trees less than 10 inches dbh, 66 percent of the trees between 10 and 18 inches dbh, and only 1 percent of the trees greater than 18 inches dbh. The total estimated harvest volume is 247 mbf, approximately 71 percent Douglas-fir and 29 percent western hemlock.<br><br>The trees will be harvested using a ground-based (tracked or tired) harvesting system with all logs forwarded to a single landing location for loading onto trucks. Following removal of the overstory trees, the stumps will be pulled from the ground and the stumps and unmerchantable slash will be burned in piles on-site. The purpose of stump removal is to maximize the area to be seeded for forage production. The use of ground-based harvesting equipment will scarify the soil and reduce the understory shrub competition. |

## Elk Forage Plot Treatment Prescription: DBMU-2

Soil scarification should occur throughout the unit sufficient to provide a good seed germination bed for establishment of a seeded grass forage mix. The site will not be replanted with commercial tree species, but will instead be seeded with a native grass forage mix to provide forage for desired big game species. The forage seed mix to be used was recommended by PacifiCorp and approved by the TCC.

| Forage Seed Mix (common name / variety) | Lbs (% by wt.) |
|---|---|
| Albion Perennial Ryegrass (Lolium perenne tetraploid var Albion) | 5 (25%) |
| Orchardgrass (Dactylis glomerata var Quick draw) | 4 (20%) |
| Annual Ryegrass (Lolium multiflorium tetraploid var tetrastar) | 3 (15%) |
| Crimson clover (Trifolium incarnatum) | 2 (10%) |
| Domino White Clover (Trifolium repens var Domino) | 2 (10%) |
| Ladino White Clover (Trifolium repens var Ladino) | 2 (10%) |
| Small Burnet (Sanguisorba minor) | 2 (10%) |
| **TOTAL** | **20 lbs/ac.** |

Access to the site for logging equipment, and for log hauling purposes, will be south from FR90 on the 7902 road, then following the 7902A spur to the south to a point near the corner between Section 21 and 22, then to the northwest along the 7092 road to the designated landing site. Cowlitz PUD has an easement for use of the 7092 and 7092A spur for management of their property. Road 7902 and spur 7902A are stable roads with solid base material. These roads will require minor clearing of encroaching overstory vegetation along the shoulder, the addition of surfacing gravel along some sections, and clearing of existing ditch lines and surface drainage. The existing culverts under these roads are in good condition.

All commercial logs will be forwarded from the unit to the designated landing site adjacent to road 7902. The forwarding skid road is approximately 150 feet long. The landing site is a flat area immediately adjacent to the road. The skid road and landing area may require the removal of a few trees in order to provide sufficient room for log transport, sorting, and loading operations to be conducted safely. The skid road and landing area will be seeded with the native grass forage seed mixture following completion of the harvesting operation.

Two wildlife retention areas are designated within the unit; one near the northwest boundary and one near the southeast boundary. The southern retention site encompasses an area approximately 1,200 square feet; the northern retention site encompasses an area approximately 2,200 square feet. The wildlife retention areas are marked with yellow paint and care should be taken during the logging operation to protect them from disturbance. Large down logs within the unit (outside of wildlife retention areas) may be disturbed or removed as needed to efficiently conduct the logging operation and provide additional space for forage production. If feasible, large down logs and other unmerchantable material may be accumulated in a few select areas outside the north and west boundaries of the unit to provide micro-habitat sites for wildlife. Most unmerchantable material and logging slash will be piled and burned within the unit.

During the summer of 2019, goshawk surveys will be conducted within and adjacent to the unit to determine if any goshawks are present, possibly foraging, or occupying the area, and therefore requiring mitigation.

Harvesting is proposed to occur in the fall of 2019. Distribution of the grass forage seed mixture will be

| Elk Forage Plot Treatment Prescription: DBMU-2 | |
|---|---|
| | conducted in the spring of 2020. Burning of the residual piles will be conducted in the fall of 2020. Additional grass forage seeding may occur at the location of the burned piles in the spring of 2021. |

| Implementation Schedule | |
|---|---|
| **Time Period** | **Activity** |
| Spring 2019 | Interview and select logging contractor to conduct harvest operation. |
| Summer 2019 | Conduct goshawk survey. |
| Fall 2019 | Mobilize on-site, road improvements, harvest timber, pull stumps, pile unmerchantable material, and scarify the soil. |
| Spring 2020 | Seed grass forage mixture throughout the unit, skid road, and landing area. |
| Summer 2020 | Monitor grass seeding to confirm establishment. |
| Fall 2020 | Additional grass seeding, if necessary. Burn stumps and unmerchantable material piles. |
| Spring 2021 | Seed grass forage mixture in areas exposed after burning piles. |
| Summer 2023 / 2024 | Monitor site for ungulate use. Cut any encroaching conifer seedlings becoming established within the forage area. |
| Subsequent 5-year intervals | Monitor site for ungulate use. Cut any encroaching conifer seedlings becoming established within the forage area. |

PACIFICORP
A BERKSHIRE HATHAWAY ENERGY COMPANY

# Memo

**To:** Terrestrial Coordination Committee

**From:** Kendel Emmerson, Principal Environmental Scientist

**Date:** 1/4/2019

**Re:** Lewis River Wildlife Habitat Management Plan (WHMP) Lands Timber Harvest and Silviculture Planning.

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The Terrestrial Coordination Committee (TCC) has successfully pursued land acquisitions to fulfill the Lewis River Settlement Agreement 10.1 Yale Land Acquisition and Habitat Protection Fund, 10.2 Swift No. 1 and Swift No. 2 Land Acquisition and Habitat Protection Fund, and 10.3 Lewis River Land Acquisition and Habitat Enhancement Fund commitments. This has resulted in over a 5,000 acre increase in Lewis River Wildlife Habitat Management Plan (WHMP) lands, which is a 46% increase since receiving the Lewis River licenses in 2008.

Most of the newly acquired lands were recently harvested for timber resulting in thousands of acres of early successional forested habitat that require silviculture management practices to be applied over the next several years. Because these lands were industrial timber lands and harvested according to Washington State Forest Practices rules, these harvest areas do not meet WHMP standards, (e.g. harvesting on steep slopes, clearcutting large areas, and clearcutting within WHMP riparian and wetland buffers). Most of these lands are forested conifer vegetation cover types (e.g. pole, seedling, mid-successional conifer), so most WHMP management actions will be under the WHMP Chapter 12 Forestland Habitat Management goals and objectives which are as follows:

**Goal:** Promote forestland species composition and structures that benefit wildlife and provide an appropriate mosaic of big game hiding cover and forage.

**Objective a:** At the Management Unit level, provide a range of alternatives for developing and maintaining a mix of forage and hiding cover for elk, considering activities on adjacent lands, over the life of the licenses. Revise Management Unit Plans for Wildlife Habitat Management Plan lands associated with the Merwin Project and create new plans for Wildlife Habitat Management Plan lands at the Yale and Swift No. 1 Projects.

**Objective b**: Over the life of the licenses, maintain or create at least eight snags (>= 20 inches [50 cm] diameter at breast height [dbh]), green retention trees (>=

15 inches [38 cm] dbh), or wildlife reserve trees (>=15 inches [38 cm] dbh) per acre (19.8 per ha) if available within the harvest area. Retain larger trees and snags representative of the harvest area. A different number of snags, retention, or reserve trees would be allowed only to meet specific wildlife objectives. To the extent possible, retain or create 4 logs/acre (9.9/ha) (>= 24 inches [60 cm] diameter and 50 feet [15 m] long).

**Objective c:** At the Management Unit level, promote forest habitat diversity for wildlife by increasing or maintaining minor native tree species (e.g., cottonwood [*Populus* sp.], bigleaf maple [*Acer macrophyllum*], western redcedar [*Thuja plicata*]) composition where appropriate site conditions exist over the life of the licenses.

This memo does not change or modify the existing WHMP, it is intended to only provide guidelines for scheduling actions associated with reforestation inspections, replanting, silviculture, and timber harvest to meet WHMP habitat goals and objectives and to effectively manage future budgets and workloads. This is intended to be adaptive management, therefore the actual year a management action is scheduled and the method of implementation are ultimately dependent on timber harvest area conditions and best method to meet WHMP goals and objectives. This original memo was provided to the TCC on October 2, 2018 and was discussed at the October 10 and November 14, 2018 TCC meetings. Attachment A provides comment matrix for each of the comments received.

**Timber Harvest Types:**
To manage cost and prioritize timber harvest areas (THAs) to meet WHMP objectives, these harvest areas have been divided into two types:

**THA-Flat (THA-F)** are timber harvest areas capable of having active forest management to improve wildlife habitat. These THAs are less than 40 percent slope and greater than 200 feet from an open road. An open road is defined as any road that public is able to access either seasonally or year-round (e.g. Highway 503, Wapiti Way, or Forest Service 90). The THA-F are considered suitable for future forest management practices to improve wildlife habitat (e.g. commercial thinning and clearcut) and will be managed with WHMP Forestland Best Management Practices.

**THA-Steep (THA-S)** areas that have topography and/or other constraints that limit forest management to meet WHMP goals and objectives. These are timber harvest areas that are greater than 40 percent slope and/or within 200 feet of an open road. These areas are not suitable for future timber harvest under the WHMP and will be managed using standard forestry silviculture

practices. These are the forested areas that will be allowed to mature into late-successional conifer forests.

THA-S timber harvest areas are only located within Management Units 33-39. Attachment B provides map showing these management units with the each THA by type, harvest identification number, and acreages. Harvest identification are unique number assigned to each THA and include 6 numbers, the first two numbers are the year of harvest, followed by 2 digits for management unit, and the last two digits are unique number followed by CC for clearcut or CT for commercial thin. For example 043632 CC is a 2004 clearcut harvest in management unit 36.

**Reforestation Inspections:**

WHMP Chapter 12 Section 12.4.1 Reforestation Inspections requires that THAs be inspected in the spring and fall each year for the first 15 years following timber harvests. The overall goal of the inspections is to evaluate the growth of each THA and identify necessary management such as interplanting, invasive plant control, tree spacing, forage condition, browse damage to seedlings, trespass issues, and overall seedling development. The spring inspection evaluates winter damage as well as the effect of the previous year's invasive plant species, pre-commercial thinning (PCT), or pruning treatments. The fall inspection identifies THA issues and treatment to implement during the following growing season.

Currently the THAs that are less than 15 years old total 2,476 acres or 58% of the total harvest areas. Approximately 73 percent (1811 acres) of the THAs under 15 years old are on newly acquired lands. Due to this significant increase it is no longer feasible to complete the biannual inspections on THAs for the first 15 years post-harvest. Therefore to meet WHMP inspection objectives and manage inspection costs, THAs will be evaluated on the following schedule:

- Year 1-3 spring and fall inspections to determine seedling survival and invasive plant species needs. For example, a 2010 timber harvest will be inspected in spring and fall of 2011, 2012, and 2013.
- Year 6 fall inspection to insure that WHMP replanting standards have been achieved and to determine when the stand should be scheduled for first PCT. For example, a 2010 timber harvest would be inspected in fall 2016.
- Year 10 fall inspection to evaluate pruning and 2$^{nd}$ PCT needs. For example, a 2010 harvest would be inspected in fall 2020.
- An addition spring inspection following interplanting, invasive plant species control, PCT, or pruning to evaluate the effectiveness of the previous year's activities.

**Replanting**:

The Washington Forest Practices Board rules for reforestation are as follows:

> WAC 222-34-010 Required reforestation--West of Cascades Summit. [Effective 7/1/05]
>
> (2) Reforestation standards. A harvested area is reforested when that area contains an average of 190 or more vigorous, undamaged commercial species seedlings per acre that have survived on the site for at least 1 growing season. Up to 20 percent of the harvested area may contain fewer than 190 seedlings per acre, but no portion of the harvested area with timber growing capacity may contain less than 150 seedlings per acre. The department may determine that less than an average of 190 seedlings per acre is acceptable if fewer seedlings will reasonably utilize the timber growing capacity of the site.

The WHMP Chapter 12 Forestland Section 12.5.9 Regeneration Practices Planting and Maintenance states timber harvest areas will be replanted with conifer species (e.g., Douglas-fir [*Pseudotsuga menziesii*], ponderosa pine [*Pinus ponderosa*], western redcedar, noble fir [*Abies procera*] and western hemlock [*Tsuga heterophylla*]) and with hardwoods (e.g. alder and cottonwood) in more mesic sites. The exact percentage of each species will be determined on a case-by-case basis depending on site conditions and overall management intent, but the following is to be used as guideline. The WHMP standard for replanting a THA is to have a minimum stocking of approximately 302 well-spaced seedlings per acre in 5 years after planting. The following is a WHMP guideline for determining replanting stocking levels:

| Site Conditions | Trees per Acre | Spacing |
|---|---|---|
| Good - little to no mortality expected | 302 | 12 x 12 |
| Moderate - some mortality expected | 360 | 11 x11 |
| Low –significant mortality expected | 435 | 10 x 10 |

However, in more recent years the TCC has supported replanting a THA at 222 trees per acre (TPA) or 14 x 14 foot spacing. This TPA is more in line with meeting WHMP objectives for maintaining forage. As a result the WHMP standard of 302 well-spaced seedling per acre 5 years after planting is not achievable. Therefore the reforestation inspection scheduled for year 6 post-harvest (5 years after planting) will evaluate

percent mortality to be no more than 15 percent with the percentage based on replanting stocking levels.

**Pre-Commercial thinning and Pruning:**

Pre-Commercial thinning (PCT) is an important procedure where natural reproduction or overplanting initially has produced too high of a tree density (TPA). Therefore trees need to be removed to improve growing conditions. Every timber harvest area is PCT at least once before the stand is 10 years old and depending on the stand vigor and remaining forage may be PCT a second time between years 10 and 15.

The WHMP Chapter 12 Forestland Section 12.5.9 Regeneration Practices Pre-commercial Thinning has the PCT objectives as follows:

- Maintain a forage component (shrubs, grasses, forbs) in the understory on approximately 50 percent of the area for the first 15 years.
- Maintain proper spacing, growth form, and vigor of the saplings.
- Maintain and increase stand diversity, where feasible.

<u>First PCT Criteria and Methods</u>

First PCT should typically occur prior to stand year 10. Due to variations in stand production, some THAs may need to be PCT prior to stand year 10. Therefore, all THAs should be evaluated 6 years following harvest, when the trees would in their 5th growing season (e.g., THA harvested in year 2005 would be evaluated year 2011). When a THA meets some or all of the following criteria the first PCT may be implemented:

- Tree height is 5 to 7 feet tall
- Spacing is less than 14 x 14 feet and/or TPA is greater than 222
- Overlapping branches with adjacent trees
- If a stand is identified as THA-F and has $\geq$ 50 percent of forage (grasses, shrubs, and forbs) then PCT to WHMP standards and if forage < 50 percent then PCT to forest industry standards as described below.
- Stands identified as THA-S will be PCT to forest industry standards as described below.

*First PCT Methods*:

All stands will be PCT using the same methods spacing, selection, and removal methods. The only difference will be how the slash (i.e., debris from tree removal ) will be managed:

- THA-F stands that have ≥ 50 percent remaining forage (grasses, shrubs, and forbs) will have the slash managed to WHMP standards, which is to cut sapling 4 inches from the ground and the limbs are lopped off and scattered to accelerate decomposition.
- THA-S and THA-F stands with < 50 percent remaining forage will have slash managed more in line with industrial forest methods, which includes cutting trees below the living limbs and minimally handle the slash to ensure that it does not impede the growth of the remaining trees.

These PCT methods will apply to every stand regardless of timber harvest type or percent forage.

- PCT in THAs with trees > 3 inches diameter may be conducted using a hack-n-squirt method (herbicides applied to a cut [hack] through the tree bark into the cambium layer). This method of thinning trees, while they are still standing, reduces slash accumulation.
- Hardwood tree species that are to remain in the plantation include cottonwood, bitter cherry (*Prunus emarginata*), cascara (*Frangula purshiana*), and Pacific dogwood (*Cornus nuttallii*). Red alder (*Alnus rubra*) and bigleaf maple may be retained to maintain or increase diversity.
- Trees and shrubs that provide forage but are competing for sunlight with desired conifer seedlings can be cut back to promote resprouting and reduce competition. This is only considered where these trees and shrubs are within 5 feet of the lateral branches of the seedlings.
- Select trees to maximize diversity of species. Do not remove western redcedars.
- The spacing objective is approximately 14 x 14 feet, but may be adjusted as needed to meet individual THA needs.

Pruning and Second PCT Criteria and Methods

Pruning and, if needed, a second PCT will occur when the stands are between 10 and 15 years. THA-F may be PCT and pruned whereas THA-S will only be PCT. This is a critical age for determining dominant trees, growth characteristics, and promoting understory forage and diversity. The objective of pruning is to promote understory diversity and prolong forage. Therefore, pruning will only occur in THA-F that have > 30 percent of forage (grasses, shrubs, and forbs) remaining in the understory.

Reforestation Inspection in year 10 will evaluate all THAs to determine if the pruning needs are needed for THA-F and if a 2nd PCT is required. If 2nd PCT is required, to reduce costs, it may occur at the same time as pruning. All THAs that meet the following criteria will have a 2nd PCT:

- Tree height is 20-24 feet tall.
- Spacing is less than 15 x 15 feet and/or 194 tree per acre.

*Pruning Methods:*

- Prune the lower branches of the trees to a height of 5 to 6 feet.
- Dominant trees should not be pruned. Dominant trees break the line-of-sight and provide hiding cover, dominant trees create long open visual corridors that should be avoided.

*Second PCT Methods:*

- To reduce slash accumulation, this PCT will preferably be completed by using a hack-n-squirt method (herbicides applied to a cut [hack] through the tree bark into the cambium layer where one hatchet mark is made every 3 inches in circumference at waist height). Enough herbicide should be applied to saturate the hatchet mark without the herbicide running out onto the bole of the tree.
- If PCT is occurring in THA-F and concurrently with pruning, then trees may be felled and branches lopped and scattered to reduce slash competition for grasses and shrubs.
- Hardwood tree species should remain in the plantation. Cottonwood, bitter cherry, cascara, dogwood, red alder and bigleaf maple may be retained to maintain or increase diversity.
- PCT to approximately 15 by 15 feet or 194 trees per acre.
- Select trees to maximize diversity of species. Do not remove western redcedars.

**Commercial Thinning**:

Commercial thinning is a type of selective harvest that is an intermediate harvest prior to clearcutting. Commercial thinning improves tree spacing and reduces canopy cover, which should result in increased growth in leave trees and improved forage in the understory. Commercial thinning objectives are as follows:

• Remove overstory or understory tree to promote tree growth and understory vegetation to greatest extent possible.

In general, THA-F may be commercially thinned once as pole and potentially, a second time, as mid-successional conifer; upland mixed stands usually are only commercially thinned once. THA-F areas should be evaluated for commercial thinning at 25 years post-harvest. Stands that meet some or all of the following criteria may be a candidate for commercial thinning:

- The canopy closure is >70 percent.
- The TPA is greater than 100.
- Average diameter at breast height is > 8 inches.
- Trees should have an average live crown ratio of greater than or equal to 35 percent. Live crown ratio is the ratio of crown length to total tree height, or percentage of the tree's total height that has foliage.
- Height to diameter (H/D) ratios should be $\leq$ 70. H/D ratios are determined by dividing the height by dbh of the residual trees that would remain after thinning. For an example a 100-foot tree that is 20 inches in dbh has a H/D of 60.0. The dbh is converted to feet by dividing by 12, so 20 inch dbh / 12 inches= 1.67, then divide 100/1.67 to get an H/D = 60.0. A stand with H/D ratio $\geq$ 80 would be prone to snow damage, breakage, and windthrow.

The desired stand condition after a commercial thinning should be an open, diverse stand structure where trees can maximize growth potential while still providing wildlife habitat. This is best achieved by evaluating the tree spacing and the percentage of crown ratio. Ultimately the commercial thin when completed should have canopy cover < 70 percent, no less than 100 undamaged, well-distributed saplings or merchantable trees per acre of a commercial species or combinations thereof remaining, and an average dbh > 8 inches. As with all timber harvest, commercial thins will be provided in the Annual Plan and approved by the TCC prior to conducting.

THA-S areas will not be commercially thinned but will thin through natural succession and environmental processes.

**Clearcut Timber Harvest**

At approximately 60 years stands will be evaluated for clearcut harvest. THA-F areas selected for harvest will be dependent on cover:forage model priorities. If cover forage ratios are not being met in the Management Unit, a clearcut harvest will be considered as soon as stands are commercially feasible to meet WHMP cover forage ratio standards.

THA-S areas will not be harvested and will continue to grow to provide mature stand habitat. This schedule is not to be considered a timber harvest rotation age because THAs are selected for harvest dependent on cover:forage model priorities.

Some of the THAs that PacifiCorp acquired are beyond silviculture management due to stocking, lack of management by prior owner, and age. The TCC has determined that these THAs do not currently meet WHMP objectives and would be too costly or unable to manage them to meet WHMP objectives. Therefore these stands will be allowed to grow until they provide merchantable timber, at which time they will be evaluated for clearcutting and to begin WHMP practices.

**Attachment A**

# Responses to Comments Received on the October 2, 2018
# Draft Lewis River Wildlife Habitat Management Plan (WHMP) Lands Timber Harvest and Silviculture Planning.

| Commenter | Comment Number | Location | Comment | Response |
|---|---|---|---|---|
| October 10, 2018 TCC meeting | 1 | Introduction | **Revision:** To avoid confusion the THA-Habitat (THA-H) and THA-Forestry (THA-F) should be changed to THA-Flat (THA-F) for habitat (THA-H) and THA-Steep (THA-S) for forestry (THA-F) | Change was accepted and THA-H and THA-F were changed to THA-F and THA-S. A Timber Harvest Type section was added following the introduction that described the difference and maps showing the areas where THA-S are located are provided. |
| November 14, 2018 TCC meeting | 2 | Pre-Commercial thinning and Pruning second paragraph 1st bullet | **Comment:** The TCC requested that HEP and other models be reviewed to provide preferred percent cover per THA for the PCT Criteria and methods. | The HEP and other models were reviewed. These models are based on landscape level analysis not individual timber harvest stands. The 50 percent is directly from the WHMP Section 12.5.9 Regeneration Practices pre-commercial thinning second paragraph first sentence. |
| November 14, 2018 TCC meeting | 3 | First PCT Criteria and Methods 3rd bullet | **Revision:** Need to add language that this is adaptive management and criteria in the memo can be revised as needed to meet management objectives. The <50 percent forage is subjective and be revised in the future if need be | The Introduction Section seemed like a more appropriate place for this addition. The following paragraph was added to introductions: "This memo does not change or modify the existing WHMP, it is intended to only provide guidelines for scheduling reforestation, inspections, silviculture, and harvest to meet WHMP habitat goals and objectives and to effectively manage future budgets and workloads. This is intended to be adaptive management, therefore the actual year a management action is scheduled and the method of implementation are ultimately dependent on timber harvest area conditions and best method to meet WHMP goals and objectives. This original memo was provided to the TCC on October 2, 2018 for review Attachment A provides comment matrix for each of the comments received. " |
| November 14, 2018 TCC meeting | 4 | Commercial Thinning | **Revision:** Evaluate percentage of commercial thinning with percentage of crown ratio to best accomplish WHMP goals | The 4th paragraph second sentence revised to: "This is best achieved by evaluating the tree spacing and the percentage of crown ratio." |
| November 14, 2018 TCC meeting | 5 | Commercial Thinning 4th bullet | **Revision:** • Trees should have an average live crown ratio of > 35 percent. Provide examples and explanatory context | The 4th bullet was revised to the following: "• Trees should have an average live crown ratio of greater than or equal to 35 percent. Live crown ratio is the ratio of crown length to total tree height, or percentage of the tree's total height that has foliage. " |
| November 14, 2018 TCC meeting | 6 | Commercial Thinning 5th bullet | **Revision:** • Height to diameter ratios should be < 70. Provide summary that TCC approval on TPA and harvest | The 5th bullet was revised to the following: " • Height to diameter (H/D) ratios should be < 70. H/D ratios are determined by dividing the height by dbh of the residual trees that would remain after thinning. For an example a 100-foot tree that is 20 inches in dbh has a H/D of 60.0. The dbh is converted to feet by dividing by 12, so 20 inch dbh / 12 inches= 1.67, then divide 100/1.67 to get an H/D = 60.0. A stand with H/D ratio > 80 would be prone to snow damage, breakage, and windthrow." The 4th paragraph last sentence was revised to the following: "As with all timber harvest, commercial thins will be provided in the Annual Plan and approved by the TCC prior to conducting. " |
| November 14, 2018 TCC meeting | 7 | First PCT Methods | **Revision:** The spacing objective is approximately 14 by 14 feet, but may be adjusted as needed to meet individual THA needs. | The second paragraph fifth bullet was revised to the following: " • The spacing objective is approximately 14 by 14 feet, but may be adjusted as needed to meet individual THA needs." |
| Gifford Pinchot NF, Mt Adams Ranger District | 8 | Replanting last paragraph and last sentence | **Comment:** "with standard no more than 15% mortality"…what is "standard"? | Although this is an industry standard it is not a documented standard. The word standard has been removed. |
| Washington Department of Fish and Wildlife | 9 | Introduction 3rd paragraph | **Revision:** Moved Paragraph 3 to 2nd positions "In addition, most of the lands acquired were industrial timber lands and were harvested according to Washington State Forest Practices rules. As a result, some of these THAs do not meet WHMP standards, such as; harvesting on steep slopes, clearcutting large areas, and clearcutting within WHMP riparian and wetland buffers" | Moved the paragraph up and added the last sentence from the 1st paragraph to make complete second paragraph. |

**Attachment A**

| Commenter | Comment Number | Location | Comment | Response |
|---|---|---|---|---|
| Washington Department of Fish and Wildlife | 10 | Introduction 3rd paragraph | **Comment:**<br>Suggest including reference to the section of the WHMP that allows for adaptive management in situations where deviation from the WHMP is appropriate or needed. | The last paragraph was revised to the following:<br>"This memo does not change or modify the existing WHMP, it is intended to only provide guidelines for scheduling reforestation, inspections, silviculture, and harvest to meet WHMP habitat goals and objectives and to effectively manage future budgets and workloads. This is intended to be adaptive management, therefore the actual year a management action is scheduled and the method of implementation are ultimately dependent on timber harvest area conditions and best method to meet WHMP goals and objectives. This original memo was provided to the TCC on October 2, 2018 for review Attachment A provides comment matrix for each of the comments received. " |
| Washington Department of Fish and Wildlife | 11 | Introduction 3rd paragraph | **Comment:**<br>Someplace in here I would like to see a specific reference to the fact that we want these activities conducted in their entirety within what would be the larger WHMP style buffers. I.E. thin the buffers too. | Last paragraph and second to last sentence was revised to the following:<br>"This is intended to be adaptive management, therefore the actual year a management action is scheduled and the method of implementation are ultimately dependent on timber harvest area conditions and best method to meet WHMP goals and objectives." |
| Washington Department of Fish and Wildlife | 12 | Introduction 3rd paragraph | **Revision**:<br>To meet WHMP habitat goals and objectives and to effectively manage future WHMP budgets and work load this memo was developed to update the WHMP criteria under which forestry practices should be conducted. It provides ~~a schedule~~ management practices and procedures for reforestation, silviculture, and harvest. These updated criteria and practices ~~This schedule~~ allow for budget planning, scheduling reforestation inspections and management actions, and tracking stands over time. ~~This~~ The ~~schedule~~ criteria and practices ~~is to be used~~ guidelines for planning ~~and guidelines only~~. Adaptive management and case-by-case decisions based on stand conditions will be used to determine the actual year of the management action and the forest prescription that will ~~vary to~~ meet WHMP goals and objectives and specific timber harvest area (THA) needs. | Other than the last sentence, these edits were not included. This is because "update the WHMP criteria under which forestry practices should be conducted." and "These updated criteria and practices" imply that WHMP is being revised. Revision to the WHMP will require Federal Energy Regulatory Commission approval. Please see WHMP Volume 1 Section 16.5.2 Revise the Wildlife Habitat Management Plan. Last paragraph and second to last sentence was revised to the following: "This is intended to be adaptive management, therefore the actual year a management action is scheduled and the method of implementation are ultimately dependent on timber harvest area conditions and best method to meet WHMP goals and objectives." |
| Washington Department of Fish and Wildlife | 13 | Introduction 4th paragraph | **Revision:**<br>To manage cost and prioritize THAs to meet WHMP objectives, these harvest areas have been divided into THA ~~habitat~~ flat (THA-~~H~~F), ideal for active forest management to improve wildlife habitat and THA ~~forestry~~ steep (THA-~~F~~S), areas better suited for natural succession and environmental processes with limited early forest management actions. | A Timber Harvest Type section was added following the introduction that described the difference and maps showing the areas where THA-S are located are provided. The following are the THA-F and THA-S definitions: "THA-Flat (THA-F) are timber harvest areas capable of having active forest management to improve wildlife habitat. These THAs are less than 40 percent slope and greater than 200 feet from an open road. An open road is defined as any road that public is able to access either seasonally or year-round (e.g. Highway 503, Wapiti Way, or Forest Service 90). The THA-F are considered suitable for future forest management practices to improve wildlife habitat (e.g. commercial thinning and clearcut) and will be managed with WHMP Forestland Best Management Practices.<br><br>THA-Steep (THA-S) areas that have topography and/or other constraints that limit forest management to meet WHMP goals and objectives. These are timber harvest areas that are greater than 40 percent slope and/or within 200 feet of an open road. These areas are not suitable for future timber harvest under the WHMP and will best be managed using standard forestry silviculture practices. These are the forested areas that will be allowed to mature into late-successional conifer forests." |

**Attachment A**

| Commenter | Comment Number | Location | Comment | Response |
|---|---|---|---|---|
| Washington Department of Fish and Wildlife | 14 | Comment to Introduction 4th paragraph | **Comment:**<br>Peggy, I think we have a fundamentally different interpretation of what Kendel is trying to get at here. You've read this section to mean that they more or less wouldn't be doing thinning, etc. in the steep areas. My read is that they will still do most of the activities including the thinning, inspections, etc. but that the pre-commercial thinning just doesn't have the intensity of the activities on the flat areas. For example, on the flat areas they chop up the cut down trees, pile the debris, try to clear paths for walking and patches where sun can hit the ground for forage, etc. In the steep stuff I think they intend to still do the thinning but more or less just leave the trees where they fall. Note that if your interpretation is correct that I don't really think that they should go that way. This would leave large areas (the steep stuff) too thick and slow to recover under natural tree growth.<br>Eric, we may be saying the same thing. THA-S will likely follow the first 6 years of THA-F but after the 1st PCT left to natural succession. We need additional clarification from Kendel about weed inspections etc. It also might help to know the age and stand condition of the new land acquire that falls into the THA-S category. How many acres are beyond the 1st PCT so early actions no longer apply? Once all THA-S is beyond the 1st PCT then first 6 year activities will no longer apply to THA-S. | Many of these comments are addressed in other sections of the memo.<br>**First PCT Methods section first paragraph and first and second bullet:**<br>"All stands will be PCT using the same methods spacing, selection, and removal methods. The only difference will be how the slash (i.e., debris from tree removal ) will managed:<br>• THA-F stands that have > 50 percent remaining forage (grasses, shrubs, and forbs) will have the slash managed to WHMP standards, which is to cut sapling 4 inches from the ground and the limbs are lopped off and scattered to accelerate decomposition.<br>• THA-S and THA-F stands with < 50 percent remaining forage will have slash managed more in line with industrial forest methods, which includes cutting trees below the living limbs and minimally handle the slash to ensure that it does not impede the growth of the remaining trees. "<br>**The Pruning and Second PCT Criteria and Methods first paragraph has been revised as follows:**<br>"Pruning and, if needed, a second PCT will occur when the stands are between 10 and 15 years. THA-F may be PCT and pruned whereas THA-S will only be PCT. This is a critical age for determining dominant trees, growth characteristics, and promoting understory forage and diversity. The objective of pruning is to promote understory diversity and prolong forage. Therefore, pruning will only occur in THA-F that have > 30 percent of forage (grasses, shrubs, and forbs) remaining in the understory."<br>Inspection will be applied to both THA-F and THA-S that includes invasive plant species needs.<br>**Reforestation Inspections:** This applies to timber harvest areas (THAs)<br>**Timber Harvest Type Section:**<br>The last paragraph was added and maps of Management Unit 33-39 are attached showing the THA-F vs THA-S. "THA-S timber harvest areas are only located within Management Units 33-39. Attachment B provides map showing these management units with the each THA by type, harvest identification number, and acreages. Harvest identification are unique number assigned to each THA and include 6 numbers, the first two numbers are the year of harvest, followed by 2 digits for management unit, and the last two digits are unique number followed by CC for clearcut or CT for commercial thin. For example 043632 CC is a 2004 clearcut harvest in management unit 36. " |
| Washington Department of Fish and Wildlife | 15 | THA-H definition edits and comment | **Revision:**<br>THA-~~H~~F are~~ timber harvest~~ areas that are less than 40% slope and greater than 200 feet from an open road. An open road is define as an ungated public road (such as HWY 503 or FS 90). The THA-~~H~~F are considered suitable for future ~~timber harvests~~ forest management practices to improve wildlife habitat (such as commercial thinning and clearcut) and will be managed with to WHMP ~~standards~~ objectives and practices.<br>Objectives:<br>Developing and maintaining a mix of forage and hiding cover for elk;<br>Maintain or create snags, wildlife reserve, and/or trees green retention trees; and<br>Promote forest habitat diversity for wildlife by increasing or maintaining minor native tree species.<br><br>Management criteria for practices and processes:<br>Cover:forage ratios<br>Vegetation cover types<br>Stand structure<br>**Comment:**<br>Nice to include the bulleted items here so that we're more clearly telling the story of what we're trying to achieve here. | The THA-F definition has been modified to the following:<br>"THA-Flat (THA-F) are timber harvest areas capable of having active forest management to improve wildlife habitat. These THAs are less than 40 percent slope and greater than 200 feet from an open road. An open road is defined as any road that public is able to access either seasonally or year-round (e.g. Highway 503, Wapiti Way, or Forest Service 90). The THA-F are considered suitable for future forest management practices to improve wildlife habitat (e.g. commercial thinning and clearcut) and will be managed with WHMP Forestland Best Management Practices. "<br>The Forestland management goals and objectives have added verbatim to the introduction. |

**Attachment A**

| Commenter | Comment Number | Location | Comment | Response |
|---|---|---|---|---|
| Washington Department of Fish and Wildlife | 16 | THA-F (THA-S) definition edits and comments | **Revision**:<br>THA-~~F~~S are timber harvest areas that are greater than 40% slope or within 200 feet of an open road (any not categorized as THA-F). These ~~areas~~ are unmanaged areas not suitable for ~~future timber~~ harvest under the WHMP. They will be thinned at an early age but are ~~and will~~ best left to natural succession and environmental processes ~~be managed using standard forestry silviculture practices which~~ that will promote mature timber over time.<br>**Comment**:<br>Again I'm a bit unclear here. . . … I think that these areas are still managed (and so it really is still under the WHMP) but I recognize that these areas are the where we're not going to pour a bunch of money to do the really pretty fancy thinning. Maybe a sentence saying something more like, "These areas are not suitable for the full breadth of thinning strategies typically incorporated in the WHMP. Instead thinning will be conducted to achieve spacing goals described in more detail below but more intensive activities such as piling of thinning debris, bucking of thinned trees, pruning, etc. | **The THA-S definition has been modified to the following:**<br>THA-Steep (THA-S) areas that have topography and/or other constraints that limit forest management to meet WHMP goals and objectives. These are timber harvest areas that are greater than 40 percent slope and/or within 200 feet of an open road. These areas are not suitable for future timber harvest under the WHMP and will best be managed using standard forestry silviculture practices. These are the forested areas that will be allowed to mature into late-successional conifer forests.<br>This section defines how the timber harvest type is determined. The following sections following describe how the THA-F and THA-S will be managed. |
| Washington Department of Fish and Wildlife | 17 | Reforestation Inspections paragraph 1 | **Revision**:<br>~~Two survey inspections are conducted each year, one in the spring and then "again in the fall~~. | Accepted |
| Washington Department of Fish and Wildlife | 18 | Reforestation Inspections paragraph 1 | **Revision:**<br>The fall inspection identifies THA issues and treatments to ~~managed~~ implemented during the following growing season. | Accepted |
| Washington Department of Fish and Wildlife | 19 | Reforestation Inspections paragraph 2 | **Revision:**<br>Currently, ~~the~~ THA-F~~s~~ that are less than 15 years old total 2,476 acres or 58% of the total ~~harvest~~ THA-F areas. Approximately 73% (1811 acres) of ~~the~~ THA-F~~s~~ under 15 years old are on newly acquired lands. Due to this significant increase it is no longer feasible to complete the biannual inspections on THA-F areas for the first 15 years post-harvest.<br>**Comment**: I think that this still applies to all of the THA, i.e. timber harvest areas . .. .not just the type F areas. In any case it should apply to all areas, we still want them to do this even on the steep stuff.<br><br>You're right the acreage may apply to both. It is my understanding that | This applies to all timber harvest areas. To avoid confusion the THAs acronym has been described as timber harvest areas (THAs) when it first appears in the document in the timber harvest type section. |
| Washington Department of Fish and Wildlife | 20 | Reforestation Inspections paragraph 3 | **Revision:**<br>Therefore to meet WHMP inspection objectives and manage inspection costs, THA-F areas will be evaluated on the following schedule:<br><br>• Year 1-3: spring and fall inspections to determine seedling survival and invasive plant species needs. For example, a 2010 timber harvest will be inspected in spring and fall of 2011, 2012, and 2013.<br>• Year 6: fall inspection to insure that WHMP replanting standards have been achieved and to determine if or when the stand will ~~be in need of 1~~$^{st}$ the first pre-commercial thin (PCT). For example, a 2010 timber harvest would be inspected in fall 2016.<br>• Year 10: fall inspection to evaluate pruning and 2nd PCT needs. For example, a 2010 harvest would be inspected in fall 2020.<br>• An additional~~ly~~ spring inspection following interplanting, invasive plant species control, PCT, or pruning to evaluate the effectiveness of the previous year's activities.<br>**Comment:**<br>Again good edits to the text but I think it still applies to all areas. .. . . Not just F. The first two will likely apply to both This (3rd bullet) would apply to THA-F only This (4th bullet) will apply to THA-F but not all of it will likely apply to THA-S | This section applies to all THAs (THA-F or THA-S).<br>The section was modified as follows:<br>"Therefore to meet WHMP inspection objectives and manage inspection costs, THAs will be evaluated on the following schedule:<br><br>• Year 1-3 spring and fall inspections to determine seedling survival and invasive plant species needs. For example, a 2010 timber harvest will be inspected in spring and fall of 2011, 2012, and 2013.<br>• Year 6 fall inspection to insure that WHMP replanting standards have been achieved and to determine when the stand will ready for the first PCT. For example, a 2010 timber harvest would be inspected in fall 2016.<br>• Year 10 fall inspection to evaluate pruning and 2nd PCT needs. For example, a 2010 harvest would be inspected in fall 2020.<br>• An addition spring inspection following interplanting, invasive plant species control, PCT, or pruning to evaluate the effectiveness of the previous year's activities. " |

**Attachment A**

| Commenter | Comment Number | Location | Comment | Response |
|---|---|---|---|---|
| Washington Department of Fish and Wildlife | 21 | Replanting last paragraph | **Revision:**<br>"The following are the desirable THA-F criteria/conditions for the first five years after a clear cut.<br><br>Year 0: Clear cut timber leaving unique areas, shrub islands and leave trees; and<br>Scarify the area.<br>Seed the area with a mixture of palatable and nutritious forb and grasses<br><br>Year 1: Plant a mixture of 222 seeding species per acre at 14 x 14 spacing.<br><br>Year 2: An average of 190 or more vigorous, undamaged commercial species seedlings per acre (WAC 222-34-010). If less than an average of 190 trees per acre, interplant as needed; Good forb and grass generation, reseed if needed.<br><br>Years 3 – 5: No more than 15% stocking mortality within the stand (WHMP), interplant as needed; and<br>Palatable and nutritious forage available, reseed as needed."<br><br>~~Therefore the reforestation inspection scheduled for year 6 post-harvest (5 years after planting) will evaluate percent mortality with standard no more than 15% mortality with the percentage based on replanting stocking levels.~~ | Replanting objectives are applied to all timber harvest areas regardless of harvest type (THA-S and THA-F). Although these condition/criteria may apply to many THAs, it does not apply to all scenarios and replanting. Reforestation objectives are adapted to the individual THA needs. This last paragraph is to explain the WHMP reforestation guidelines no longer meets our current needs so therefore to provide a more adaptive guideline the 15% mortality with the percentage based on replanting stocking levels is provided. |
| Washington Department of Fish and Wildlife | 22 | Pre-Commercial thinning (PCT) and Pruning second paragraph | **Revision:**<br>The WHMP Chapter 12 Forestland Section 12.5.9 Regeneration Practices Pre-commercial Thinning describes has the PCT stand objectives as follows. When these objects are not being met, the 1st PCT should be implemented. | Revision not accepted. This is language is from the WHMP section 12.5.9 and it states " The objective of pre-commercial thinning is to maintain a forage component in the understory on approximately 50 percent of the area for the first 15 years while additionally developing the proper spacing, growth form, and vigor of the saplings.". The following section First PCT Criteria and methods describes the criteria for meeting these objectives and when to initiate first PCT. |
| Washington Department of Fish and Wildlife | 23 | First PCT Criteria and Methods 1st paragraph | **Revision:**<br>Due to variations in stand production, some THAs may need to be PCT prior to stand year 10. Therefore, all THAs should be evaluated 6 years following harvest, when the trees would be in their 5th growing season (e.g. THA harvested in year 2000 would be evaluated year 2006 and should have the first PCT completed by 2011). ~~Assuming all WHMP stands were planted the year following harvest this would occur 11 years post-harvest. For example, stands harvested in year 2000 should have the first PCT completed by 2011.~~<br><br>~~Due to variations in stand production, some THAs may need to be PCT prior to stand year 10. Therefore, all THAs should be evaluated 6 years following harvest, when the trees would in their 5th growing season (e.g. THA harvested in year 2005 would be evaluated year 2011). THA will be evaluated for the following criteria prior to PCT:~~ | Accepted |
| Washington Department of Fish and Wildlife | 24 | First PCT Criteria and Methods following the 1st paragraph | **Revision:** Criteria:<br>When the following criteria are met or exceeded the first PCT should be implemented:<br>Years 6 - 10 | The last sentence of the 1st paragraph was revised to the following:<br>"When a THA meets or exceeds the following criteria the first PCT may be implemented:" |
| Washington Department of Fish and Wildlife | 25 | First PCT Criteria and Methods following the 1st paragraph | **Revision:**<br>Insert the following bullet<br>• Adjacent tree branches overlapping, and palatable and nutritious forage is diminishing | This bullet is addressing two separate concerns overcrowding and forage. The "palatable and nutritious forage is diminishing" is already address in the second to the last bullet. A bullet will be inserted that will read " Adjacent trees have overlapping branches" to address overcrowding. |

**Attachment A**

| Commenter | Comment Number | Location | Comment | Response |
|---|---|---|---|---|
| Washington Department of Fish and Wildlife | 26 | First PCT Criteria and Methods Section Comment to 3rd bullet regarding percent forage | **Comment:**<br>Confusing. If greater than 50 % forage cover we may want to wait longer to PCT, not decide if using flat or steep prescriptions. Canopy coverage, basal coverage, or stems per acre may be a better metric. If soils are poor and forage and trees will never grow well we may want to shift the unit to THA-S prescriptions permanently. Also the first three bullets are when to PCT. The last two bullets are how to PCT, so they really don't fit here. | THE WHMP PCT objective is to maintain a forage component (shrubs, grasses, forbs) in the understory on approximately 50 percent of the area for the first 15 years. This achieved through the PCT methods; therefore it is not a criteria for determining when to implement PCT in a stand. The first PCT should occur in every stand regardless of forage quantity or quality. The only difference is the which PCT method implemented. If soils are so poor to support forage or trees then it would likely change the vegetation cover type to a non-forest type. The last two bullets will be moved to first PCT methods. "All stands will be PCT using the same methods spacing, selection, and removal methods. The only difference will be how the slash (i.e., debris from tree removal ) will be managed:<br>• THA-F stand and have > 50 percent remaining forage (grasses, shrubs, and forbs) then slash will be managed to WHMP standards to cut sapling 4 inches of the ground and the limbs are lopped off and scattered to accelerate decomposition.<br>• THA-S stands and THA-F stands with < 50 percent remaining forage will have slash managed more in line with industrial forest methods, which only minimally handle the slash only to ensure that it does not impeded the growth of the remaining trees.<br><br>These PCT methods will apply to every stand regardless of timber harvest type or percent forage. " |
| Washington Department of Fish and Wildlife | 27 | First PCT Criteria and Methods Section insert the following paragraphs following bullets | **Revision:**<br>After the 1st PCT, THA-F desired stand conditions are trees 5 feet or taller at a spacing of 14 x 14 or greater allowing for continued forage growth and the eventual establishment of shrub-based understory.<br><br>There are some exceptions to the THA-F 1st PCT criteria. For THA-F stands between six and 10 years after clear cutting that have trees above 7 feet tall, dbh >3 inches, little to no under growth, and have well over 222 TPA, adaptive management will be implemented. The stand will be evaluated for potential response and resource availability for implementing a PCT to THA-S conditions. Trees identified for thinning will be felled and left in place. Likely, no additional action will be taken until trees reach the minimum marketable condition, at which time the stand will be harvested. After harvest, the THA-F area will revert to WHMP management standards to promote optimal wildlife habitat and canopy cover.<br><br>THA-S stands will also be evaluated for potential response and resource availability for implementing a 1st PCT. Likely 1st PTC will not occur unless trees can be easily felled by hand. Felled trees will be left in place. Otherwise the stand will naturally thin through succession and environmental processes.<br>**Comment:**<br>"Not so sure I agree with this . .. . we still want these areas thinned if reasonably possible. Eric, I see your point. I'm not sure if there are safety concerns going in with a chain saw on steep slopes. If not the I'd recommend thinning to the 1st PCT standards i.e. trees 5 feet or taller at a spacing of 14 x 14, with chain saw or hand equipment" | Not included. All stands (THA-F and THA-S) will be PCT to the same spacing. |
| Washington Department of Fish and Wildlife | 28 | First PCT methods first bullet | **Revision:**<br>Trees identified for thinning that are < 3 inches in diameter should be felled, and lopped, and scattered to reduce slash competition for grasses and shrubs. When chainsaws are used, the sapling is cut within 4 inches of the ground. This only applies to THA-H that will be PCT to meet WHMP Standards. | Not accepted. Trees selected for removal are based on spacing, not dbh. The method to remove the tree may vary depending on the size of the tree (e.g.. dbh). |
| Washington Department of Fish and Wildlife | 29 | First PCT methods second bullet | **Revision:**<br>THA-F and Tha-H_F areas with less than 50 percent forage will be PCT to forest industry THA-S standards where will have trees are felled in place. | Not accepted. This distinguish between THA-F and THA-S PCT slash management is described in bullets in the first paragraph. |
| Washington Department of Fish and Wildlife | 30 | First PCT methods third bullet | **Revision:**<br>• PCT in THAs with trees identified for thinning that are > 3 inches diameter may be conducted using a hack-n-squirt method (herbicides applied to a cut [hack] through the tree bark into the cambium layer). This method of thinning trees, while they are still standing, reduces slash accumulation. | Not accepted. Typically only one tree removal method is applied during a PCT either hack and squirt or cutting down. |

**Attachment A**

| Commenter | Comment Number | Location | Comment | Response |
|---|---|---|---|---|
| Washington Department of Fish and Wildlife | 31 | First PCT methods fourth bullet | **Revision**:<br>Hardwood tree species that are to remain in the plantation include cottonwood, bitter cherry, cascara, and dogwood. Red alder and bigleaf maple may be retained ~~in some THAs~~ to maintain or increase diversity.<br>**Comment**:<br>"Nice job here Peggy. I completely agree with the theme of your edits and you comment below. We want diversity in these stands and don't mind if the hardwood trees are able to secure a spot for themselves among the conifer . .. in fact we should favor it and promote more of this. Lets make sure that the final version includes "protections" for the hardwood trees. | Accepted |
| Washington Department of Fish and Wildlife | 32 | First PCT methods fifth bullet | **Revision:**<br>• Trees and shrubs that provide forage but are competing for sunlight with desired conifer seedlings can be cut back to promote resprouting and reduce competition. This is only ~~done~~ considered where these trees and shrubs are within 5 feet of the lateral branches of the seedlings.<br>**Comment:**<br>"Why? Future harvest value of conifer? If for wildlife may not want to cut shrubs back especially if limited amount of shrubs in area, instead may want to sacrifice sapling." | Accepted |
| Washington Department of Fish and Wildlife | 33 | First PCT methods sixth fifth bullet | **Revision:**<br>~~• When chainsaws are used, the sapling is cut within 4 inches of the ground and the limbs are lopped off and scattered to accelerate decomposition. This only applies to THA-F stand that will be PCT to meet WHMP standards. THA-S and THA-F that have less 50 percent forage will be PCT to forest industry standards and will have trees felled in place.~~ | Accepted |
| Washington Department of Fish and Wildlife | 34 | Pruning and Second PCT Criteria and Methods 1st paragraph | **Revision:**<br>Pruning and, if needed, a second PCT will occur when the stands are between 10 and 15 years. This is a critical age for determining dominant trees, growth characteristics, and promoting understory forage and diversity. The objective of pruning is to promote understory diversity and prolong forage. Diversity and prolong forage. ~~Therefore, pruning will only occur in THA-F that have > 30 percent of forage (grasses, shrubs, and forbs) remaining in the understory.~~<br>**Comments:**<br>"Should this be less than 30%? Otherwise should have a range such as >30% but <50%. If >50% you may not need to prune at that time.<br>Eric, See if suggestion below meets the intent."<br>"No I think she's trying to say that if it is already below 30 percent that its probably too hard to try to reclaim it and not much bang for the buck. I'm fine with 30 percent staying here. I think it's a practical course of action on stands that have already closed their canopy too much to really recover nice forage. " | Deleted sentence will remain. Stands that have less than 30% forage will not be pruned. It is assumed that pruning will retain existing forage, not increase forage amount. |
| Washington Department of Fish and Wildlife | 35 | Pruning and Second PCT Criteria and Methods insert the following after 1st paragraph | **Suggested Revision**:<br>Inspection in year 10 will evaluate the THA-F pruning and 2nd PCT needs. If 2nd PCT is needed it may occur at the same time as pruning to reduce costs.<br><br>Years 10 – 15 THA-F Pruning and 2nd PCT criteria:<br>• Tree height is over 20-24 feet tall.<br>• Spacing is less than 15' x 15' and/or 194 tree per acre. | The 2nd paragraph reads as follows:<br>"Reforestation Inspection in year 10 will evaluate the THA-F pruning needs and if a 2nd PCT is required. If 2nd PCT is required, to reduce costs, it may occur at the same time as pruning. All THA-F that meet the following criteria will have a 2nd PCT:<br><br>• Tree height is 20-24 feet tall.<br>• Spacing is less than 15' x 15' and/or 194 tree per acre." |

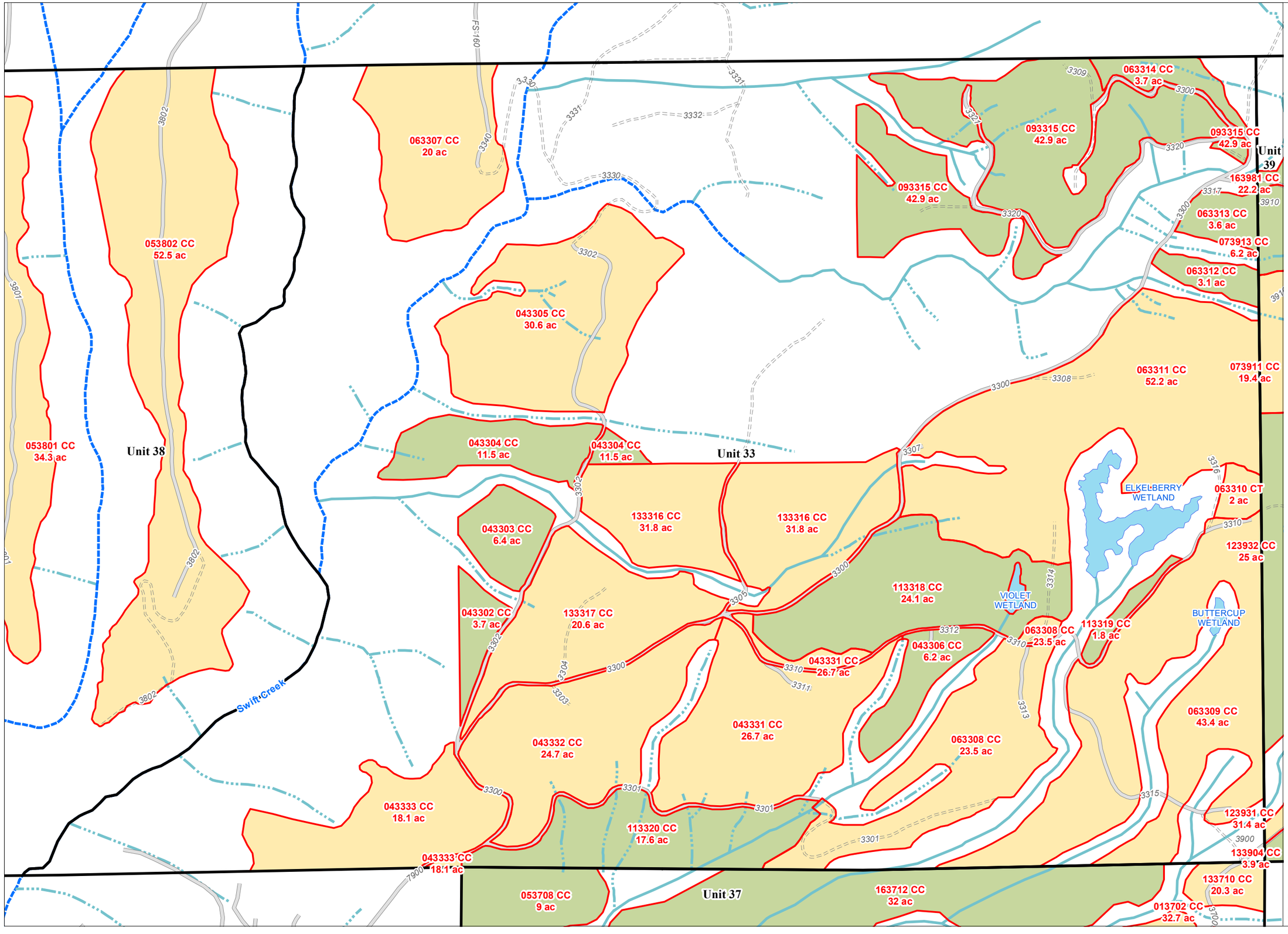
**Attachment A**

| Commenter | Comment Number | Location | Comment | Response |
|---|---|---|---|---|
| Washington Department of Fish and Wildlife | 36 | Pruning and Second PCT Criteria and Methods insert the following after 3rd paragraph | **Revision:**<br>Pruning Methods:<br>~~• When saplings reach a height of 20 to 24 feet,~~ Prune the lower branches of the trees ~~should be pruned~~ to a height of 5 to 6 feet.<br>• Dominant trees should not be pruned, dominant trees ~~this will~~ break the line-of-sight and provide hiding cover, ~~avoid~~ pruning dominant trees ~~creating~~ creates long open visual corridors that should be avoided, ~~and maintain hiding cover.~~<br>• If a stand meets pruning criteria and has less than 30% available forage (grasses, shrubs, and forbs), the stand will not be pruned. | Last bullet not accepted because it is stated in the last sentence of the first paragraph |
| Washington Department of Fish and Wildlife | 37 | Pruning and Second PCT Criteria and Methods insert the following after 3rd paragraph | **Revision:**<br>~~Reforestation Inspection in year 10 will evaluate the THA-H pruning needs and if a 2nd PCT is required. If 2nd PCT is required it may occur at the same time as pruning to reduce costs. All THA-H that meet the following criteria will have a 2nd PCT:~~<br><br>~~THA has > 30 percent of forage (grasses, shrubs, and forbs).~~<br>~~Tree height is 20-24 feet tall.~~<br>~~Spacing is less than 15' x 15' and/or 194 tree per acre.~~ | Accepted |
| Washington Department of Fish and Wildlife | 38 | Second PCT Methods 2nd bullet | **Revision:**<br>• If PCT is occurring in THA-F and concurrently with pruning, then trees may be felled, ~~and~~ lopped, and scattered to reduce slash competition for grasses and shrubs. | **Sentence was revised as follows:**<br>• If PCT is occurring in THA-F and concurrently with pruning, then trees may be felled and branches lopped and scattered to reduce slash competition for grasses and shrubs. |
| Washington Department of Fish and Wildlife | 39 | Second PCT Methods 3rd bullet | **Revision:**<br>• Hardwood tree species ~~that are to~~ should ~~-~~ remain in the plantation. ~~include~~.<br>~~c~~Cottonwood, bitter cherry, cascara, ~~and~~ dogwood~~,~~ ~~R~~red alder and bigleaf maple maybe retained ~~in some THAs~~ to maintain or increase diversity.<br>**Comment**:<br>"Per our mutual comments above .. .. we would like stronger language here to promote diversity in the forests. " | **Bullet was revised as follows:** •<br>Hardwood tree species should remain in the plantation. Cottonwood, bitter cherry, cascara, dogwood, red alder and bigleaf maple may be retained to maintain or increase diversity. |
| Washington Department of Fish and Wildlife | 40 | Second PCT Methods 4th bullet | **Revision:**<br>• ~~The spacing objective is~~ PCT to approximately 15 by 15 feet (4.5 by 4.5 m) spacing or 194 trees per acre (479 per ha). | Accepted |
| Washington Department of Fish and Wildlife | 41 | Following Second PCT Methods following the bullets | **Revision:**<br>After the 2nd PCT and/or pruning, desired stand conditions are a tree spacing of 15 x 15 or greater yielding 194 TPA or less with lower limbs removed allowing for continued development of a shrub-based understory. In addition, select trees should disrupt the line of sight and create hiding cover.<br>THA-S will not be pruned or have a 2nd PCT. Thinning and pruning will occur through natural succession and environmental processes. | The first paragraph will not be included because this already stated in section. THA-S may be PCT if needed and this is stated in the first paragraph of this section. |
| Washington Department of Fish and Wildlife | 42 | Commercial Thinning WDFW comment | **Comment:**<br>"Someplace either in this section or the CC section below I want them to get down in writing that if too much of the landscape (i.e. if cover forage ratios aren't being met in the Unit and won't recover any time soon), that clearcutting stands as soon as they are commercially feasible is an activity that the TCC may want to implement. Essentially, we would want to be able to cut these trees down in the clear cut fashion as soon as the project could pay for itself with the value of the wood. This will allow a much quicker course of action towards re-establishing these stands under WHMP standards. This is very unconventional forestry and certainly not what you would choose to do with a commercial tree farm<br><br>Eric does addition in Clear Cut section meet your intent?" | Last paragraph in Clearcut Timber Harvest Section read as follows:<br>"Some of the THAs that PacifiCorp acquired are beyond silviculture management due to stocking, lack of management by prior owner, and age. The TCC has determined that these THAs do not currently meet WHMP objectives and would be too costly or unable to manage them to meet WHMP objectives. Therefore these stands will be allowed to grow until they provide merchantable timber, at which time they will be evaluated for clearcutting and to begin WHMP practices." |

**Attachment A**

| Commenter | Comment Number | Location | Comment | Response |
|---|---|---|---|---|
| Washington Department of Fish and Wildlife | 43 | Commercial thinning 3rd paragraph | **Revision:**<br>In general, ~~THAs~~ THA-F may be commercially thinned once as pole and potentially again as mid-successional conifer; upland mixed stands usually are only commercially thinned once. ~~THAs~~ THA-F areas should be evaluated for commercial thinning at 25 years post-harvest. Stands that meet some or all of the following criteria may be a candidate for commercial thinning: | Accepted |
| Washington Department of Fish and Wildlife | 44 | Commercial Thinning above bullets | **Revision:**<br>Year 25 commercial thinning criteria | Not accepted. This is because this implies that this a rotation year. These ages are years a stand may be considered for commercial thinning. |
| Washington Department of Fish and Wildlife | 45 | Commercial thinning following the bullets | **Revision:**<br>The desired stand condition after a commercial thin is an open, diverse stand structure where trees can maximize growth potential while still providing optimal mature stand wildlife habitat. The canopy cover should be < 70% such that canopy cover will be at or below 70% at harvest, and TPA less than 100 with an average dbh > than 8 inches.<br><br>THA-S areas will not be commercially thinned but will thin through natural succession and environmental processes. | The sentence was included but revised to remove reference to mature stand since many of the commercial thinning occur will occur in pole habitat.<br>The WAC 222-34-010 Required reforestation--West of Cascades Summit<br>(b) Reforestation is not required where: (iii) Trees are removed under a thinning program reasonably expected to maximize the long-term production of commercial timber; or<br>(iv) An average of 190 vigorous, undamaged, well-distributed seedlings per acre of a commercial tree species are established on the area harvested (up to 20 percent of the harvested area may contain fewer than 190 seedlings per acre, but no acre of the harvested area with timber growing capacity may contain less than 150 seedlings per acre); or<br>(v) A minimum of 100 vigorous, undamaged, well-distributed saplings or merchantable trees per acre of a commercial species or combinations thereof, remain on the area harvested.<br>Therefore to meet Forest Practice Board rules the sentence will be revised as follows:<br>"The desired stand condition after a commercial thinning should be an open, diverse stand structure where trees can maximize growth potential while still providing wildlife habitat. The canopy cover should be < 70%, no less than 100 undamaged, well-distributed saplings or merchantable trees per acre of a commercial species or combinations thereof remaining and an average dbh > than 8 inches.<br><br>• THA-S areas will not be commercially thinned but will thin through natural succession and environmental processes." |
| Washington Department of Fish and Wildlife | 46 | Clearcut Timber Harvest | **Revision:**<br>Title changed to from Clearcut to Clear cut Timber Harvest | Not accepted. The correct and recognized spelling for clearcut timber harvest is as one word. |
| Washington Department of Fish and Wildlife | 47 | Clearcut Timber Harvest | **Revision:**<br>At approximately 60 years stands will be evaluated for clear cut harvest. THA-F areas selected for harvest will be dependent on cover:forage model priorities. If cover forage ratios are not being met in the Unit, a clear cut harvest will be considered as soon as stands are commercially feasible to meet WHMP cover forage ratio standards. THA-S areas will not be harvested and will continue to provide mature stand habitat. | Accepted |

# Attachment B




## Lewis River

*Silviculture*
(All Units)

*SWIFT*
***Unit 33***

**Timber Harvest Area Type**

- Flat
- Steep

- Harvest Area
- Management Unit
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other Stream
- Water Body
- Wetland, Pond
- Highway
- Road
- Abandon/Orphan Road

N
W E
S

0 450 900
Feet

1:7,000

PACIFICORP

Data is projected in UTM Zone 10, NAD83, meters.

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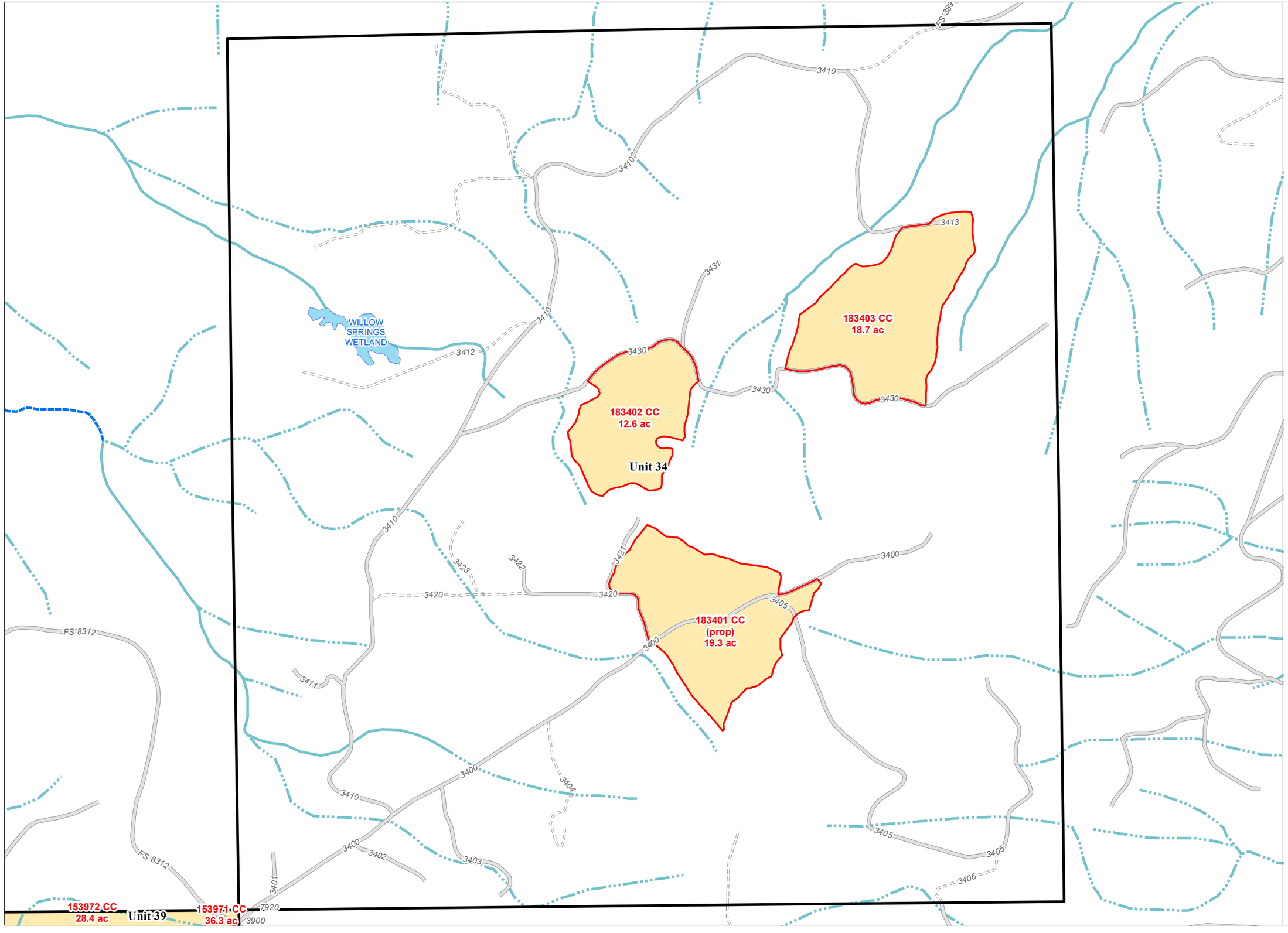
# Attachment B




## Lewis River

*Silviculture*
(All Units)

*SWIFT*
***Unit 34***

**Timber Harvest Area Type**

- Flat
- Steep

- Harvest Area
- Management Unit
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other Stream
- Water Body
- Wetland, Pond
- Highway
- Road
- Abandon/Orphan Road

N
W E
S

0 440 880
Feet

1:6,800

PACIFICORP

Data is projected in UTM Zone 10, NAD83, meters.

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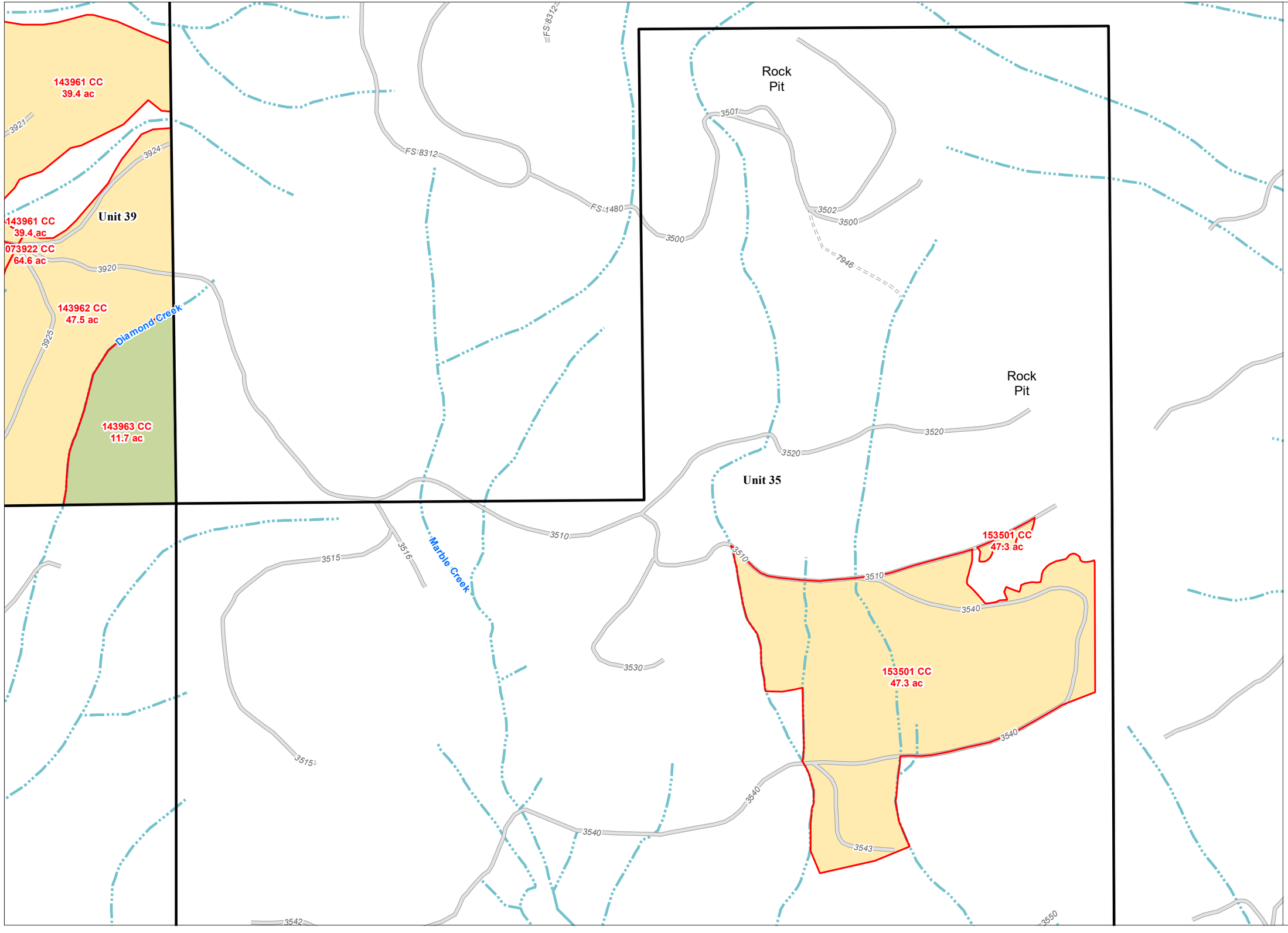
# Attachment B




## Lewis River

*Silviculture*
(All Units)

*SWIFT*
***Unit 35 - North***

**Timber Harvest Area Type**

- Flat
- Steep

- Harvest Area
- Management Unit
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other Stream
- Water Body
- Wetland, Pond
- Highway
- Road
- Abandon/Orphan Road

N
W E
S

0 380 760
Feet

1:6,000

PACIFICORP

Data is projected in UTM Zone 10, NAD83, meters.

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# Attachment B

## Lewis River

*Silviculture*
(All Units)

*SWIFT*
***Unit 36***

**Timber Harvest Area Type**

- Flat
- Steep

- Harvest Area
- Management Unit
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other Stream
- Water Body
- Wetland, Pond
- Highway
- Road
- Abandon/Orphan Road

0 440 880
Feet

1:6,800

PACIFICORP

Data is projected in UTM Zone 10, NAD83, meters.

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Unit 37
923701 CC
71.4 ac
143715 CC
28.5 ac
043632 CC
40.8 ac
043631 CC
11.9 ac
053643 CC
47.6 ac
053642 CC
52.8 ac
883622 CC
27.1 ac
883621 CC
32.5 ac
053641 CC
50.1 ac
Unit 36
163653 CC
20.2 ac
163654 CC
42.2 ac
163656 CC
2.4 ac
163655 CC
40.2 ac
163651 CC
49.9 ac
163652 CC
45.9 ac
883601 CC
18 ac
Unit 35
Unit 27
Unit 31-6
Rock Pit
Diamond Creek
Marble Creek
Swift Reservoir
WAPITI WAY
FS 90
FS 90
FS 90
FS 90
3720
3602
3600
3600
3600
3600
3601
7960
3617
3620
3610
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3560
9015

# Attachment B

043333 CC
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043333 CC
18.1 ac
043332 CC
24.7 ac
113320 CC
17.6 ac
063308 CC
23.5 ac
Unit 33
063309 CC
43.4 ac
063309 CC
43.4 ac
123931 CC
31.4 ac
133904 CC
3.9 ac
073921 CC
37.1 ac
073922 CC
64.6 ac
Unit 39
053708 CC
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163712 CC
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Unit 37
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31.9 ac
133709 CC
15.1 ac
143714 CC
51.8 ac
143715 CC
28.5 ac
923701 CC
71.4 ac
043632 CC
40.8 ac
Unit 36
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3301
3315
3900
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## Lewis River

*Silviculture*
(All Units)

*SWIFT*
***Unit 37***

**Timber Harvest Area Type**

- Flat
- Steep

- Harvest Area
- Management Unit
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other Stream
- Water Body
- Wetland, Pond
- Highway
- Road
- Abandon/Orphan Road

N
W E
S

0 425 850
Feet

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PACIFICORP

Data is projected in UTM Zone 10, NAD83, meters.

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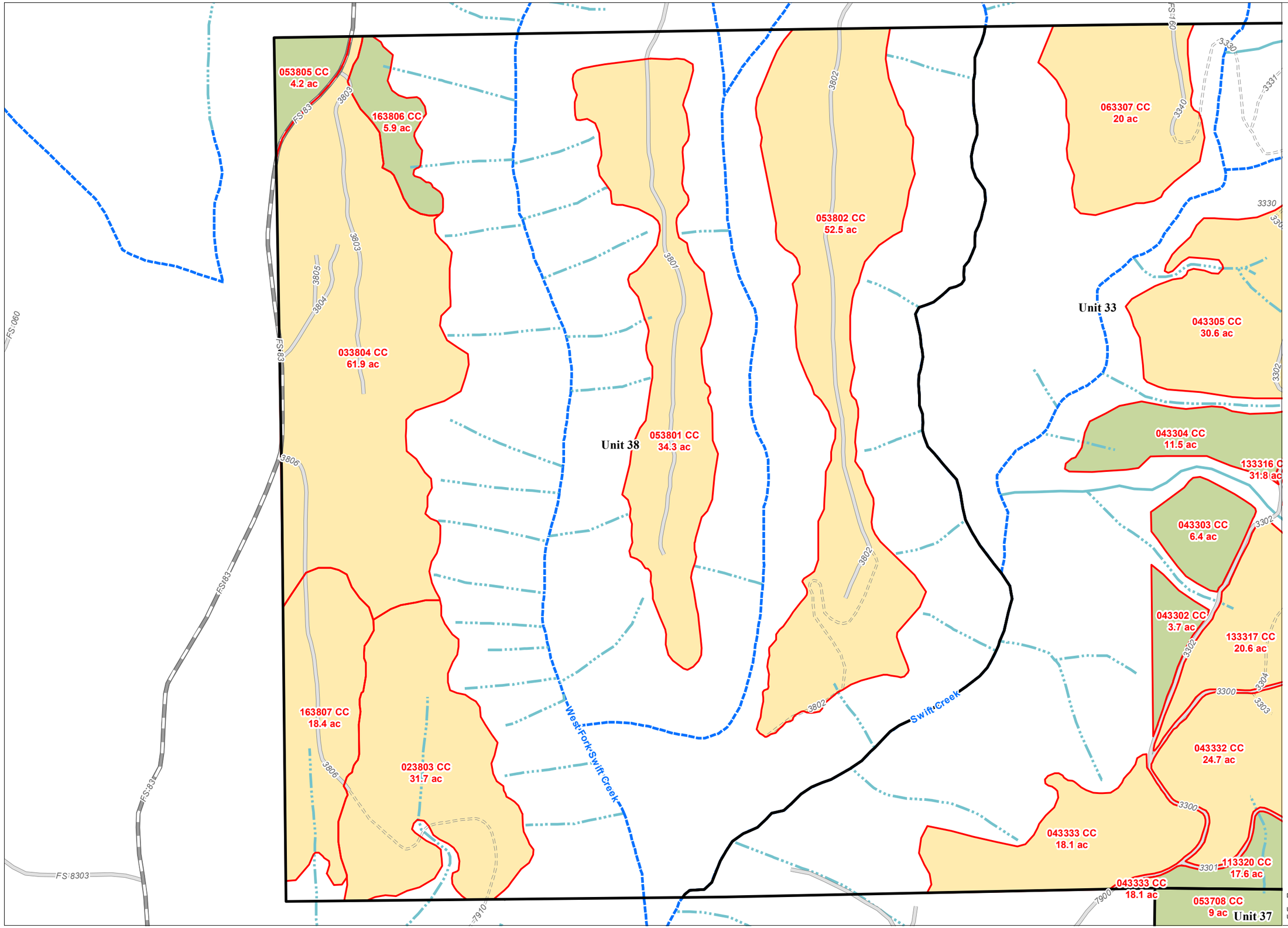
# Attachment B




## Lewis River

*Silviculture*
(All Units)

*SWIFT*
***Unit 38***

**Timber Harvest Area Type**

- Flat
- Steep

- Harvest Area
- Management Unit
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other Stream
- Water Body
- Wetland, Pond
- Highway
- Road
- Abandon/Orphan Road

0 420 840
Feet

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PACIFICORP

Data is projected in UTM Zone 10, NAD83, meters.

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# Attachment B

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42.9 ac
093315 CC
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52.2 ac
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073922 CC
64.6 ac
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143963 CC
11.7 ac
133904 CC
3.9 ac
063310 CT
2 ac
113318 CC
24.1 ac
113319 CC
1.8 ac
063308 CC
23.5 ac
063308 CC
23.5 ac
063309 CC
43.4 ac
063308 CC
23.5 ac
163712 CC
32 ac
133710 CC
20.3 ac

WHISTLE PIG WETLAND
VOLE WETLAND
ELKELBERRY WETLAND
BUTTERCUP WETLAND

Unit 34
Unit 39
Unit 33
Unit 37
Unit 35

Diamond Creek

FS 8312

## Lewis River

*Silviculture*
(All Units)

*SWIFT*
***Unit 39***

**Timber Harvest Area Type**

- Flat
- Steep

- Harvest Area
- Management Unit
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other Stream
- Water Body
- Wetland, Pond
- Highway
- Road
- Abandon/Orphan Road

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0 440 880
Feet

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PACIFICORP

Data is projected in UTM Zone 10, NAD83, meters.

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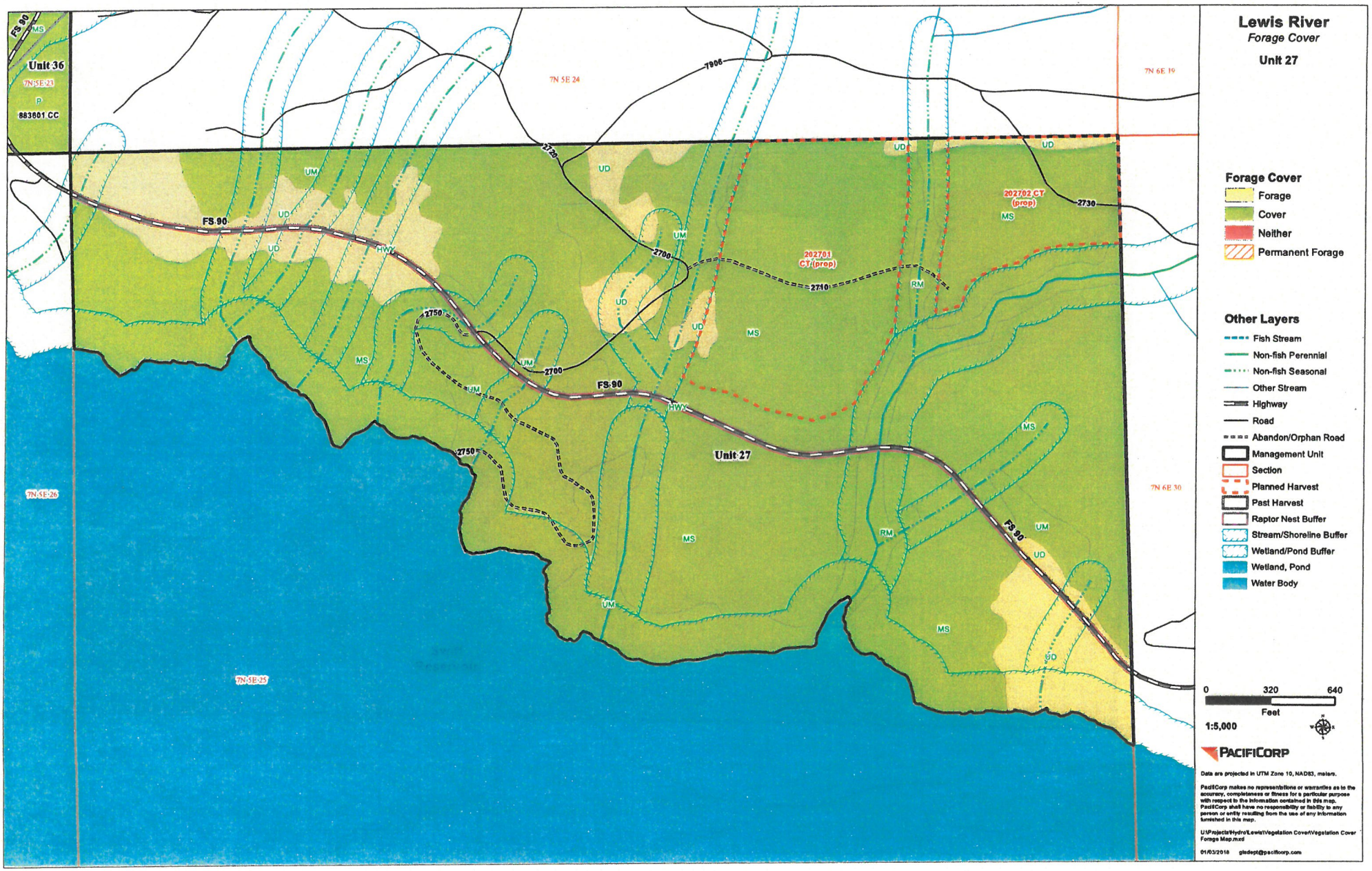
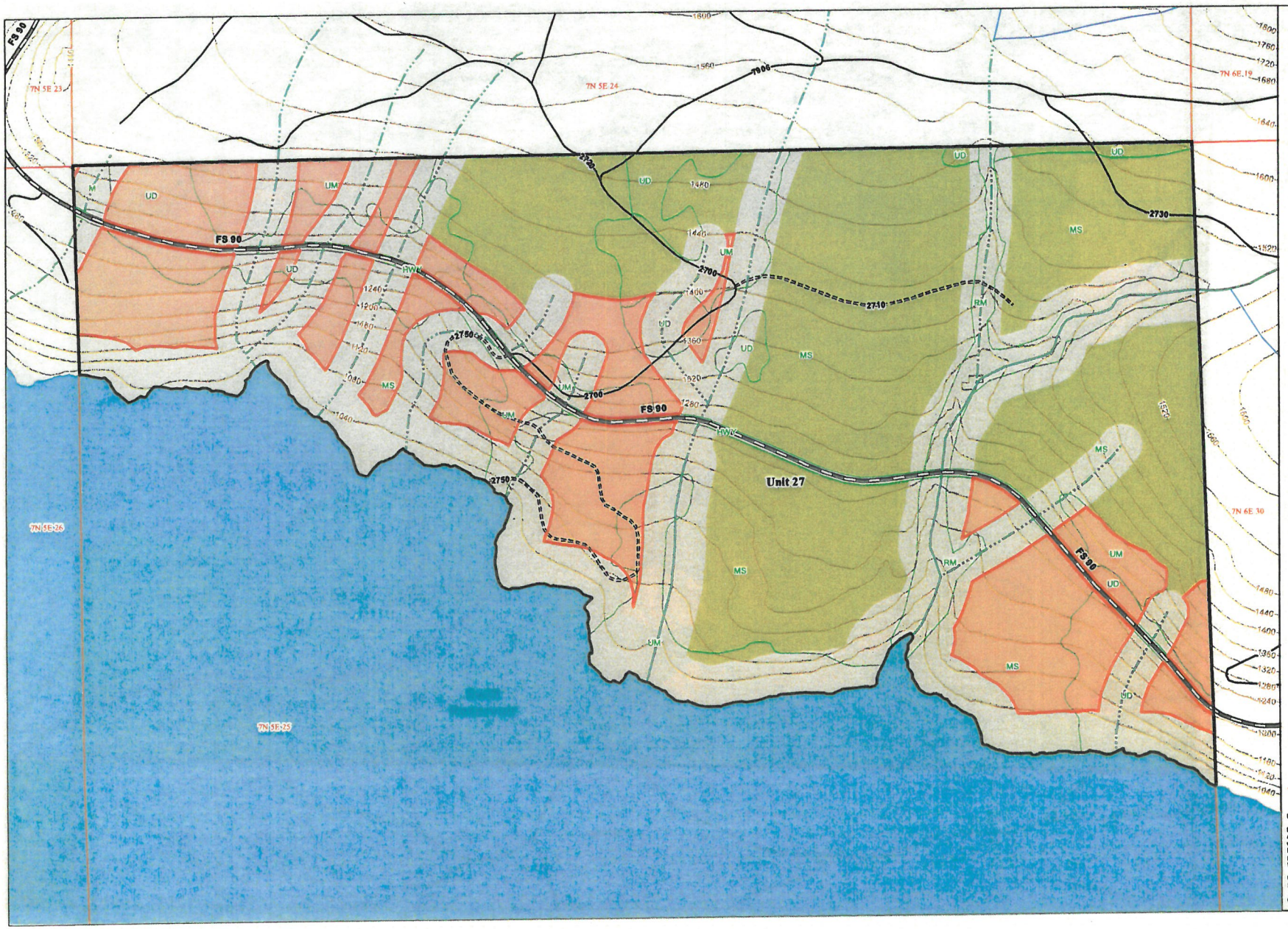
#1


Lewis River
Forage Cover
Unit 27
Forage Cover
Forage
Cover
Neither
Permanent Forage
Other Layers
Fish Stream
Non-fish Perennial
Non-fish Seasonal
Other Stream
Highway
Road
Abandon/Orphan Road
Management Unit
Section
Planned Harvest
Past Harvest
Raptor Nest Buffer
Stream/Shoreline Buffer
Wetland/Pond Buffer
Wetland, Pond
Water Body
0 320 640
Feet
1:5,000
PACIFICORP
Data are projected in UTM Zone 10, NAD83, meters.
PacifiCorp makes no representations or warranties as to the accuracy, completeness or fitness for a particular purpose with respect to the information contained in this map. PacifiCorp shall have no responsibility or liability to any person or entity resulting from the use of any information furnished in this map.
U:\Projects\Hydro\Lewis\Vegetation Cover\Vegetation Cover Forage Map.mxd
01/03/2018 gisdept@pacificorp.com
Unit 27
Unit 36
FS 90
HWY
7N 5E 24
7N 6E 19
7N 5E 26
7N 5E 25
7N 6E 30
7N 5E 23
P
883601 CC
202702 CT (prop)
202701 CT (prop)
7900
2720
2730
2700
2710
2750
UM
UD
MS
RM




# Lewis River

*2017 Vegetation Suitability Map Book*

*SWIFT*

*Unit 27*

- Suitable Area
- Marginal Access
- No Access

**Restricted/Unsuitable Areas**

- Riparian Buffer
- Wetland Buffer
- Riparian Mixed (1 ac +)
- Oak/Old Growth/Orchard
- Transmission ROW
- Shrubland, Sparse
- Farmland/Meadow
- Disturbed, Rock
- Highway, Secondary Road
- Facility, Residential
- Recreation Area
- Conservation Covenant
- Eagle Roost/Staging Area
- Priority Mature

**Base Layers**

- Vegetation Cover
- Management Unit
- Section
- Wetland, Pond
- Water Body
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other Stream
- Highway
- Road
- Abandon/Orphan Road
- Contour (40ft)

0 320 640

Feet

1:5,000

PACIFICORP

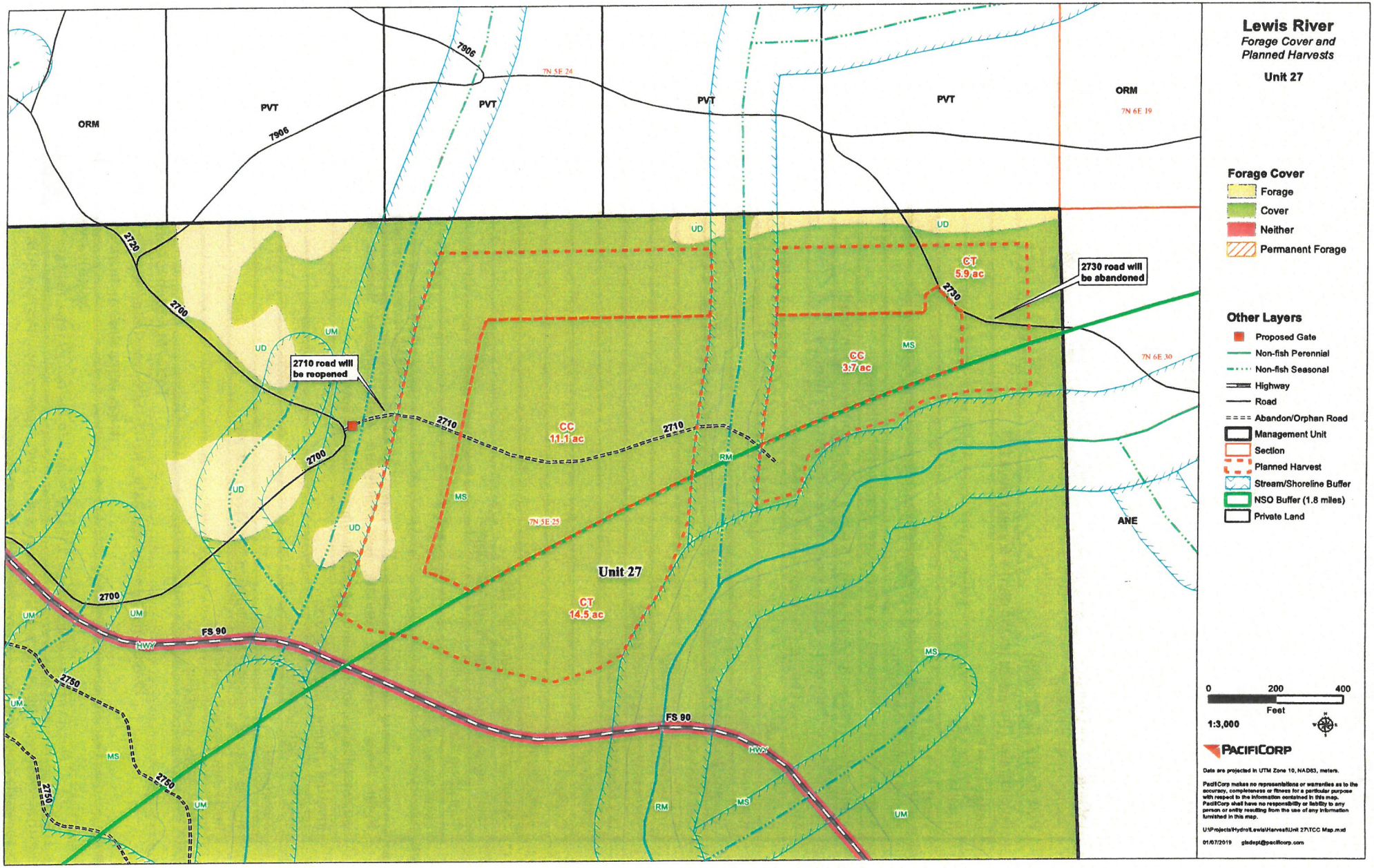
Data are projected in UTM Zone 10, NAD83, meters.



U:\Projects\Hydro\Lewis\Vegetation Suitability\Vegetation Suitability Map.mxd

03/07/2017 gisdept@pacificorp.com

#2


Lewis River
Forage Cover and Planned Harvests
Unit 27
Forage Cover
Forage
Cover
Neither
Permanent Forage
Other Layers
Proposed Gate
Non-fish Perennial
Non-fish Seasonal
Highway
Road
Abandon/Orphan Road
Management Unit
Section
Planned Harvest
Stream/Shoreline Buffer
NSO Buffer (1.8 miles)
Private Land
0 200 400
Feet
1:3,000
PACIFICORP
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U:\Projects\Hydro\Lewis\Harvest\Unit 27\TCC Map.mxd
01/07/2019 gisdept@pacificorp.com
ORM
PVT
7906
7N 5E 24
7N 6E 19
7N 6E 30
7N 5E 25
2720
2730
2710
2700
2750
2730 road will be abandoned
2710 road will be reopened
CT 5.9 ac
CC 3.7 ac
CC 11.1 ac
CT 14.5 ac
Unit 27
FS 90
HWY
UD
UM
MS
RM
ANE

## Management Unit 27 pre- and post- timber cover:forage ratio

| Cover vs. Forage | Vegetation Cover Types | Unit 27 2019 Pre-Harvest acres | Unit 27 2019 Post-Harvest |
|---|---|---|---|
| Cover | Old Growth (>26" dbh) | 0.00 | 0.00 |
| | Mature Conifer (21-26" dbh) | 0.00 | 0.00 |
| | Mature Conifer (Thinned) > than 5 years since commercially thinned | 0.00 | 0.00 |
| | Mid-Successional Conifer (16-20" dbh) | 175.64 | 147.34 |
| | Mid-Successional Conifer (Thinned) > than 5 years since CT | 0.00 | 0.00 |
| | Upland Mixed (conifer 30-70%) | 33.43 | 33.43 |
| | Upland Mixed (Thinned) > than 5 years since commercially thinned | 0.00 | 0.00 |
| | Young Upland Mixed[4] | 0.00 | 0.00 |
| | Pole Conifer (8-15" dbh) | 0.00 | 0.00 |
| | Pole Conifer (Thinned); (8-15" dbh) > 5 years since CT[4] | 0.00 | 0.00 |
| | Lodge Pole Pine | 0.00 | 0.00 |
| | Riparian Mixed | 10.08 | 10.08 |
| | **Total Acres of Cover** | **219.15** | **190.85** |
| Forage | Young Upland Deciduous | 0.00 | 0.00 |
| | Mature Conifer (Thinned) < 5 years since commercially thinned | 0.00 | 0.00 |
| | Pole Conifer (Thinned); (8-15" dbh) < 5 years since commercially thinned | 0.00 | 0.00 |
| | Upland Mixed (Thinned) < than 5 years since commercially thinned | 0.00 | 0.00 |
| | Mid-Successional Conifer (Thinned) < than 5 years since CT | 0.00 | 13.50 |
| | Riparian Shrub | 0.00 | 0.00 |
| | Riparian Deciduous | 0.00 | 0.00 |
| | Upland Deciduous | 30.90 | 30.90 |
| | Oak Woodland[2] | 0.00 | 0.00 |
| | Transmission Line ROW[2] | 0.00 | 0.00 |
| | Recreational (vegetated areas) | 0.00 | 0.00 |
| | Dry Meadow/Grassland[2] | 0.00 | 0.00 |
| | Shrubland[2] | 0.00 | 0.00 |
| | Orchard[2] | 0.00 | 0.00 |
| | Agriculture[2] | 0.00 | 0.00 |
| | Seedling/Sapling Conifer (5-8" dbh) | 0.00 | 0.00 |
| | Seedling/Sapling Conifer (New) (<4" dbh) | 0.00 | 14.80 |
| | Palustrine Wetlands [1,2] | 0.00 | 0.00 |
| | **Total Acres of Forage** | **30.90** | **59.20** |
| | **Total Acres of Cover:Forage** | 250.05 | 250.05 |
| Neither | Open Water (Palustrine Aquatic Bed, Palustrine Unconsolidated Bottom, Riverine Unconsolidated Bottom, and Lacustrine Unconsolidated Bottom) | 0.00 | 0.00 |
| | Riverine Unconsolidated Shore | 0.00 | 0.00 |
| | Highway right-of-way | 5.17 | 5.17 |
| | Residential | 0.00 | 0.00 |
| | Sparse veg.; Disturbed; Developed or PacifiCorp Facility | 0.00 | 0.00 |
| | Rock Outcropping and Talus | 0.00 | 0.00 |
| | **Total Acres of Neither** | **5.17** | **5.17** |
| | **Total Management Unit Acres** | **255.22** | **255.22** |
| | **Proposed Cover:Forage Ratio. No C:F ratio was determined in WHMP. It was depended on further analysis** | **70:30** | |
| | **Cover:Forage Ratio** | **88:12** | **77:23** |
| | **Percent of Permanent Forage (Total permanent forage acres[2]/ total Manageable Acres)** | **0%** | **0%** |

1. Palustrine Wetland includes all palustrine vegetation cover types except PAB and PUB.
2. These vegetation cover types are consider permanent forage