

**STATE FOREST LAND
ENVIRONMENTAL CHECKLIST**

Purpose of Checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for Applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can. *Questions in italics are supplemental to Ecology's standard environmental checklist. They have been added by the DNR to assist in the review of state forest land proposals. Adjacency and landscape/watershed-administrative-unit (WAU) maps for this proposal are available on the DNR internet website at <http://www.dnr.wa.gov> under "SEPA Center." These maps may also be reviewed at the DNR regional office responsible for the proposal. This checklist is to be used for SEPA evaluation of state forest land activities.*

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later. *All of the questions are intended to address the complete proposal as described by your response to question A-11. The proposal acres in question A-11 may cover a larger area than the forest practice application acres, or the actual timber sale acres.*

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NON PROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer" and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable:

Timber Sale Name: 4300 BD

Agreement #: 30-086796

2. Name of applicant: **Washington State Department of Natural Resources**

3. Address and phone number of applicant and contact person:

**Pacific Cascade Region
601 Bond Road
PO Box 280
Castle Rock, Washington 98611-0280
Phone: (360) 577-2025
Contact Person: Marcus Johns**

4. Date checklist prepared: **04/25/2011**

5. Agency requesting checklist: **Washington State Department of Natural Resources**

6. Proposed timing or schedule (including phasing, if applicable):

- a. *Auction Date: 07/25/2012*
b. *Planned contract end date (but may be extended): 11/30/2012*
c. *Phasing: Not applicable.*

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Yes.

Timber Sale

- a. *Site preparation:*

Site preparation, including herbicide application, may be necessary in order to reduce logging slash and competing vegetation to ensure that planting can be achieved at acceptable stocking levels to meet or exceed Forest Practice standards following harvest.

- b. *Regeneration Method:*

The harvest unit will be hand planted with conifer species following harvest to promote the continuation of a healthy conifer forest with diversity of tree species.

c. *Vegetation Management:*

Site will be assessed for silvicultural treatment needs in the next 2-7 years after harvest.

d. *Thinning:*

Pre-commercial thinning needs will be assessed at approximately 10 to 15 years of age. Commercial thinning potential will be assessed at approximately 25 to 35 years of age. Thinning will be done as needed to meet desired density, stocking, species diversity, and growth.

Roads: Road maintenance assessments will be conducted annually and will include periodic ditch and culvert cleanout, and road grading as necessary to minimize erosion and failures. Construction, reconstruction, and abandonment are associated with forest management activities.

Rock Pits and/or Sale: Rock will come from the Radar Ridge Rock Quarry (Sec 17, Township 11 north, Range 9 west, W.M.) This State owned quarry may be used as a rock source for future road construction, reconstruction, and/or maintenance as needed for management of Department lands.

Other: Firewood permits for the sale area may be made available to the public if, after harvest, downed wood created during operations is plentiful near roadsides.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

- 303 (d) – listed water body in WAU: temp sediment completed TMDL (total maximum daily load):
- Landscape plan:
- Watershed analysis:
- Interdisciplinary team (ID Team) report:
- Road design plan: Available upon request at the Pacific Cascade Region office.
- Wildlife report:
- Geotechnical report:
- Other specialist report(s):
- Memorandum of understanding (sportsmen’s groups, neighborhood associations, tribes, etc.):
- Rock pit plan: Available upon request at the Pacific Cascade Region office.
- Other: Forest Practices board manual; Forest Practices Activity Maps; Policy for Sustainable Forests (PSF 2006); State Soil Survey; Habitat Conservation Plan (HCP 1997); HCP Checklist; Riparian Forest Restoration Strategy (RFRS); Planning and Tracking Reports and associated maps; and Road Maintenance and Abandonment Plan (RMAP): #2502109. The following documents are all generated by Department’s GIS database: Weighted Old Growth Habitat Index (WOGHI); WAU Rain-On-Snow Layer; Marbled Murrelet Habitat Layer; and USGS and GLO maps.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

No.

10. List any government approvals or permits that will be needed for your proposal, if known.

- HPA Burning permit Shoreline permit Incidental take permit 1168 & PRT 812521 FPA # 2923685
- Other: 5-year blanket Tailhold HPA (#120945-2)

11. Give brief, complete description of our proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include specific information on project description.)

a. *Complete proposal description:*

Unit	Proposal Acres	RMZ/WMZ Acres	Unstable Slope Acres	Existing Road Acres	Sale Acres	Leave Tree Clump Acres	Harvest Acres
	<i>gross</i>			<i>within unit</i>			<i>net</i>
1	41	19	1	0	0	1	20
Totals	41	19	1	0	0	1	20

This proposal consists of one 20 acre variable retention harvest which will salvage timber damaged in a 2009 wind storm. The harvest unit is in the Nemah Watershed Administrative Unit (WAU) in the Washington Department of Natural Resource’s Radar Ridge forest management block in Pacific County: Section 15 of Township 11 North, Range 09 West.

b. *Timber stand description pre-harvest (include major timber species and origin date), type of harvest, overall unit objectives.*

Unit	Origin year	Species Composition
1	1959	Overstory: Western hemlock, Douglas-fir, western redcedar, red alder, Pacific silver fir and Sitka spruce. Understory: sword fern, salmonberry, elderberry, and huckleberry.

Type of Harvest:

This proposal is a variable retention harvest and salvage of 20 net harvest acres. Timber was damaged in the November, 2009 wind storm.

Overall Unit Objectives:

The objective of this proposal is:

- 1) Produce revenue for the Common School Trust (03) through the production of saw logs and pulp material.
- 2) Provide for wildlife and riparian habitat by developing vertical stand structure and age class distribution in the future stand.

c. Road activity summary. See also forest practice application (FPA) for maps and more details.

Type of Activity	How Many	Length (feet) (Estimated)	Acres (Estimated)	Fish Barrier Removals (#)
Construction		975	0.6	0
Reconstruction		0		0
Abandonment		0	0	0
Bridge Install/Replace	0			0
Culvert Install/Replace (fish)	0			0
Culvert Install/Replace (no fish)	0			

12. Location of proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist. (See timber sale map available at DNR region office, and/or color landscape/WAU map on the DNR website <http://www.dnr.wa.gov> under "SEPA Center.")

a. Legal description:

**Township 11 North, Range 09 West, Section 15, (W.M.)
Township 11 North, Range 09 West, Section 17, (W.M.) (Radar Ridge Rock Quarry)**

b. Distance and direction from nearest town (include road names):

The proposal is located approximately 5 road miles north of the town of Naselle, accessed by the State Route 101 to Johnson's Landing C-Line to E-Line to A-5600 to Middle Nemah A-Line to A-4300.

c. Identify the watershed administrative unit (WAU), the WAU Sub-basin(s), and acres. (See also landscape/WAU map on DNR website <http://www.dnr.wa.gov> under "SEPA Center.")

WAU Name	WAU Acres	Sub-basin	Sub-basin Acres	Net Harvest Acres
NEMAH	38842	17	3072	2
NEMAH	38842	18	1910	18

13. Discuss any known future activities not associated with this proposal that may result in a cumulative change in the environment when combined with the past and current proposal(s). (See digital ortho-photos for WAU and adjacency maps on DNR website <http://www.dnr.wa.gov> under "SEPA Center" for a broader landscape perspective.)

The following table is an estimated summary of past and future activities on Department of Natural Resources managed land and past activities on privately managed land in the Nemah WAU (information is based on Forest Practices applications that have been approved in the last seven years as of December 12, 2011, compiled by the Department's GIS database). No attempt was made to predict future timber harvest on private ownerships within the WAU. The source for this information only provided the acreage at the WAU level. Approximately 88 percent of the land managed by the Department, in the WAU, is covered with vegetation greater than 25 years old.

Nemah WAU	WAU Acres	Acres of Even-Aged Harvest Within the Last Seven Years	Acres of Uneven-Aged Harvest Within the Last Seven Years	Acres of Salvage Harvest Last Seven Years	Proposed Even-aged Harvest in the Future	Proposed Uneven-Aged Harvest in the Future
DNR Managed Land	10443	120	0	820	370	0
Private Ownership	28399	338	434	5009	Unknown	Unknown
Total	38842	458	434	5829	Unknown	Unknown

This proposal is located within the Nemah WAU. Agriculture and home sites are located in the valleys near the major streams. The uplands are mainly managed for timber production. Ownership includes large industrial forests, small private forests, and Department of Natural Resources managed forests. Forested stands within the WAU appear to be primarily second and third growth stands. The numbers of forest practice application areas shown on the WAU maps (referenced above on the Department's website) along with observations within the WAU indicate that the WAU is intensively managed for timber production, including regeneration harvest, thinning, and partial cuts.

The Department of Natural Resources has a multi-species Habitat Conservation Plan (HCP) with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service concerning threatened and endangered species and their habitats, which requires the Department to manage landscapes to provide and sustain long-term habitat in exchange for an Incidental Take Permit. This agreement substantially helps the Department to mitigate for cumulative effects related to management activities. The applicable strategies incorporated into this proposal are as follows:

- Retaining Riparian Management Zones (RMZ) averaging 165 feet wide along three Type 3 streams measured from the outer edge of 100 year floodplain. These measures are intended to protect water quality, stream bank integrity, stream temperatures, and provide down woody debris. RMZs will develop older riparian forest characteristics that, in combination with other strategies, will help support older riparian forest dependant wildlife and aquatic species.
- An Equipment Limitation Zone (ELZ), a 30 foot wide strip measured from each side of the ordinary high water mark, on three Type 5 streams located within and adjacent to the proposed units will minimize the possibility of sediment delivery and loss of stream function.

- Evaluating the proposal for potential slope instability, and excluding from the sale area with timber sale boundary tags approximately 1 acre that exhibited indicators of potentially unstable slopes.
- Retaining a minimum of 8 trees per acre (greater than 10 inches Diameter at Breast Height) clumped and scattered throughout the units. This strategy will provide legacy elements for recruitment of future snags, coarse woody debris, multi-layered stands, and large diameter trees. In combination, these features will provide elements of older forest habitat characteristics within the new plantation.
- Analyzing, designing, and constructing roads to minimize effects on the environment.
- Protection of occupied Marbled Murrelet habitat and modeled habitat on a landscape level within coastal ownership blocks. Modeled habitat and occupied habitat have been excluded from harvest, contributing towards increased retention of our older forests to improve structural diversity over the landscape. In addition, the Department of Natural Resources voluntarily requires daily timing restrictions on heavy equipment operations within 0.25 miles of occupied stands during the critical nesting season.

To reduce the risk of potential erosion, road cut banks will be re-vegetated with native grass seed prior to the onset of wet weather to prevent sediment delivery and maintain soil stability. Potentially unstable slopes have been protected by removing approximately 1 acre from the originally proposed harvest area.

After harvest, tree seedlings will be planted to reforest the site and may be complemented by the natural regeneration that is expected to occur. Understory vegetation will be disturbed and/or reduced within the proposed harvest area as a result of timber felling, bucking, yarding and site prep activities. Most of the vegetation will robustly re-establish within 2 to 3 years.

A regular maintenance schedule will be followed to allow for proper road surface run-off and drainage. Haul routes for this proposal have been evaluated for potential environmental impacts. To ensure sediment is minimized during hauling, cross-drains, sediment ponds, and other structures will be used to disconnect ditch water from flowing streams. Road ditch water will be routed to the forest floor for filtering to prevent it from entering live streams. New road construction was located on stable ridge-top locations, where possible. Road system analysis and design required under the HCP and analysis required under the Forest Practices RMAP process in the Radar Ridge Block was completed and approved (St. Helens District RMAP #R2502109, available at the Pacific Cascade Region Office). Road improvement projects identified in the RMAP began in 2003.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (check one):

Flat, Rolling, Hilly, Steep Slopes, Mountainous, Other:

1) *General description of the WAU or sub-basin(s) (landforms, climate, elevations, and forest vegetation zone).*

The topography of the Nemah WAU is variable. Rolling hills surround the lower reaches of the major streams, which occupy broad flat alluvial valleys. These valleys merge into estuaries at their confluences with Willapa Bay. Away from the bay, as the elevation increases, the topography is well dissected. The upper reaches of the main streams, along with their tributaries, typically occupy fairly deep valleys and V-notched draws confined by steep and broken hill slopes. The Forest Vegetation Zone is Sitka spruce with the major timber type being western hemlock, Sitka spruce, Pacific silver fir, and Douglas-fir. There are also significant areas of western redcedar Forest Vegetation Zone, with the major timber types being western redcedar and Sitka spruce. Elevations in the Nemah WAU range from 0-1977 feet with an average annual rainfall of 80-120 inches.

2) *Identify any difference between the proposal location and the general description of the WAU or sub-basin(s).*

The general description of the WAUs adequately describes the proposal location. The sale area is located near the ridge top in the mid elevations of the WAU.

b. What is the steepest slope on the site (approximate percent slope)?

The steepest slope within the site is approximately 72%.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland. *Note: The following table is created from state soil survey data. It is a roll-up of general soils information for the soils found in the entire sale area. It is only one of several site assessment tools used in conjunction with actual site inspections for slope stability concerns or erosion potential. It can help indicate potential for shallow, rapid soil movement, but often does not represent deeper soil sub-strata. The actual soils conditions in the sale area may vary considerably based on land-form shapes, presence of erosive situations, and other factors. The state soil survey is a compilation of various surveys with different standards.*

State Soil Survey #	Soil Texture or Soil Complex Name	% Slope	Acres
6004	SILT LOAM	30-70	20

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

Yes.

1) *Surface indications:*

Potential instability was identified by very steep slopes within headwalls where subsurface flow has resulted in substantial undercutting at the base of trees or active raveling and by wet, over steepened slopes within hollows. Potential failures associated with roads, in the vicinity, are indicated by slumping or cracking on down slope road shoulders.

- 2) *Is there evidence of natural slope failures in the sub-basin(s)?*
No Yes, type of failures (shallow vs. deep-seated) and failure site characteristics:

Due to the character of inner gorge and convergent slopes, episodic shallow slope failures have and will continue to occur even under forested conditions. Many of the Type 3, 4, and 5 streams flow through inner gorges in the sub-basins.

- 3) *Are there slope failures in the sub-basin(s) associated with timber harvest activities or roads?*
No Yes, type of failures (shallow vs. deep-seated) and failure site characteristics:
Associated management activity:

Occasional slope failures in the sub-basins are associated with forest roads from the past harvest (prior to FP board manual implementation), and are shallow, consisting of the side cast material. Road failures, when they occur, appears to be related to poor road location and poor construction techniques. These techniques include side casting on steep slopes, log puncheon crossings, and insufficient maintenance often resulting in uncontrolled drainage. Some failures unrelated to roads may have resulted from ground disturbance from yarding during the initial harvest. Numerous stream crossings in the WAU have been washed out, probably because culverts were undersized or became blocked.

- 4) *Is the proposed site similar to sites where slope failures have occurred previously in the sub-basin(s)?*
No Yes, describe similarities between the conditions and activities on these sites:

The sale vicinity has headwalls, and inner gorge slopes similar to that elsewhere in the sub-basins where unstable slopes and road stability issues are present.

- 5) *Describe any slope stability protection measures (including sale boundary location, road, and harvest system decisions) incorporated into this proposal.*

- **The areas with indicators of potential instability were excluded from the originally proposed harvest area. The aforementioned areas were delineated by foresters during sale layout and unit boundaries were adjusted to exclude those areas from harvest activities.**
- **Shovel logging will be restricted during wet soil conditions and to slopes <35%.**
- **Lead-end suspension will be required on all cable settings.**
- **Leave tree arrangement will be concentrated around Type 5 streams in order to allow root strength to maintain soil integrity.**
- **Roads will be crowned and ditched; cross-drains and ditch-outs will be installed and maintained to divert storm runoff to the forest floor. Soil exposed during construction of roads and logging will be revegetated. Side cast road construction will not be used on steep slopes. Construction will take place during dry weather conditions.**

- e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.
Approx. acreage new roads: 0.6 Approx. acreage new landings: 0 Fill source: Native

There will be filling and grading for culvert installation. The fill that is required will come from sources on site during road and landing construction. Typically a cross drain culvert requires about 30 cubic yards of fill.

- f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Some erosion could occur as a result of this proposal during the construction/re-construction of forest roads.

- g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? *Approximate percent of proposal in permanent road running surface (includes gravel roads):*

Less than 1% of the site will be covered with impervious surfaces such as gravel road.

- h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:
(Include protection measures for minimizing compaction or rutting.)

- **The retained trees will intercept precipitation thereby avoiding increased runoff and associated erosion. Maintaining both the leave trees and the understory vegetation will also help to buttress soils, protect them from erosion.**
- **Areas of exposed soil will be grass seeded shortly after construction.**
- **Drainage structures will be installed at locations which discharge ditch water onto the forest floor at the earliest point possible, thereby avoiding the possible diversion, concentration, and inappropriate discharge of runoff from roads on to potentially unstable slopes.**
- **There will be no organic material disposed of in road sub grades.**
- **After harvest, seedlings will be planted within the unit. Though disturbed, native plants such as grasses, ferns, salal, and other species will persist after harvest.**
- **Soil rutting exceeding four inches will be avoided, if rutting exceeds four inches, measured from the natural ground line, further yarding will be suspended. Soil disturbances may be water barred and grass seeded; and/or yarding suspended until such time that the future yarding will not cause additional damage. Limiting ground disturbance will help avoid possible interception of subsurface flow and the possible concentration of runoff along tracts of exposed mineral soils, and thus, avoiding erosion and possible destabilization gullyng.**
- **Any and/or all operations of this proposal may be temporarily suspended if there is a possibility of sediment being delivered to flowing water.**
- **An RMZ averaging 165 feet wide will be left along Type 3 streams. A 30 foot equipment limitation zone will be applied to all Type 5 streams within the proposal to decrease the possibility of sediment delivery or loss of stream function.**

2. Air

- a. What types of emissions to the air would result from the proposal (i.e., dust from truck traffic, rock mining, crushing or hauling, automobile, odors, and industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

Anticipated emissions include minor amounts of equipment exhaust, road dust resulting from hauling and construction, and smoke from pile burning. There will be no emissions once the proposal is complete.

- b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

None.

- c. Proposed measures to reduce or control emissions or other impacts to air, if any:

If landing debris is burned, it will be in accordance with Washington State's Smoke Management Plan. A burn permit will be obtained before burning occurs.

3. Water

- a. Surface:

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into. (See timber sale map available at DNR region office, or forest practice application base maps.)

Yes.

- a) Downstream water bodies:

Middle Nemah River.

- b) Complete the following riparian & wetland management zone table:

Wetland, Stream, Lake, Pond, or Saltwater Name (if any)	Water Type	Number (How many?)	Avg RMZ/WMZ Width in Feet (per side for streams)
Stream	3	3	165
Stream	5	3	None

- c) List RMZ/WMZ protection measures including silvicultural prescriptions, road-related RMZ/WMZ protection measures, and wind buffers.

An RMZ averaging 165 feet along Type 3 streams. An equipment limitation zone, a 30-foot wide zone, measured from the ordinary high water mark, along Type 5 streams, will be utilized to decrease the possibility of sediment delivery and loss of stream function. Wind buffers were deemed unnecessary due to topography and harvest unit layout with respect to prevailing winds.

- 2) Will the project require any work over, in, or adjacent to (within 200 feet) to the described waters? If yes, please describe and attach available plans.

No Yes (See RMZ/WMZ table above and timber sale map available at DNR region office.)

Description (include culverts):

Trees will be felled away from all streams. Trees may be cut in RMZs for safety or operational needs, but will be left in place to provide large woody debris functions in the riparian area.

Tailhold cables may be strung through the Type 3 RMZs, however, no timber will be yarded through them. Logs may be yarded over Type 5 streams. If yarding occurs near Type 5 streams, a 30-foot Equipment Limitation Zone will be utilized to maintain stream function, stream bank integrity and minimize possible sediment delivery. Timber will be removed from within 200 feet of Type 3 streams, but not from within 165 feet measured from the outer edge of the 100 year floodplain.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

None.

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. (Include diversions for fish-passage culvert installation.)

No Yes, description:

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

No Yes, describe location:

- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No Yes, type and volume:

This proposal could possibly introduce small amounts of sediment into the streams associated with this proposal during wet weather within or adjacent to the proposal area as a result of road building and harvest operation activity. The erosion control measures and operation procedures outlined in B.1.d.5. and B.1.h are expected to minimize delivery to water.

- 7) Does the sub-basin contain soils or terrain susceptible to surface erosion and/or mass wasting? What is the potential for eroded material to enter surface water?

Yes. Generally, the sub-basin contains soils or terrain susceptible to surface erosion or mass wasting is located on slopes steeper than 70%.

Based upon current DNR timber harvest management practices the potential for eroded material to enter surface water is minimal.

- 8) Is there evidence of changes to the channels in the WAU and sub-basin(s) due to surface erosion or mass wasting (accelerated aggradations, erosion, decrease in large organic debris (LOD), and change in channel dimensions)?

No Yes, describe changes and possible causes:

During the winters of 1996, 2007, and 2009, suspected 100-year precipitation events occurred. The storms set rainfall and flood level records in Southwest Washington and Northwestern Oregon. The events caused many shallow mass-wasting events. Some stream channels were affected by these flow events. The full extent and long-term impacts across the WAU from these storms is not known due to varying ownerships.

- 9) Could this proposal affect water quality based on the answers to the questions 1-8 above?

No Yes, explain:

This proposal could introduce minor amounts of sediment into the streams associated with this proposal during wet weather within or adjacent to the proposal area as a result of road building and harvest operation activity. The erosion control measures and operation procedures outlined in B.1.d.5. and B.1.h. are expected to minimize sediment delivery.

- 10) What are the approximate road miles per square mile in the WAU and sub-basin(s)?

Are you aware of areas where forest roads or road ditches intercept sub-surface flow and deliver surface water to streams, rather than back to the forest floor?

No Yes, describe:

There are 5.6 miles of road per square mile in the Nemah WAU. Road densities for the sub-basins are unknown, but are estimated to be very similar to those of the WAU. The relatively high density of roads in the WAU is attributable to the WAU being intensively managed for timber production by a multitude of ownerships. There are areas in the sub-basin that intercept sub-surface flow and deliver the water to streams. These areas are being repaired through the implementation of the Department's Road Maintenance and Abandonment Plan (RMAP).

- 11) Is the proposal within a significant rain-on-snow (ROS) zone? If not, **STOP HERE** and go to question B-3-a-13 below. Use the WAU or sub-basin(s) for the ROS percentage questions below.

No Yes, approximate percent of WAU in significant ROS zone.

Approximate percent of sub-basin(s):

- 12) If the proposal is within the significant ROS zone, what is the approximate percentage of the WAU or sub-basin(s) within the significant ROS zone (all ownerships) that is (are) rated as hydrologically mature?

- 13) Is there evidence of changes to channels associated with peak flows in the WAU or sub-basin(s)?

No Yes, describe observations:

Channels have been altered due to surface erosion caused by high stream flows with accompanying sediment loads and visible large woody debris delivery. Channels in steeper topography are V-notched due to erosion cutting, and on flatter topography, the eroded material collects behind large woody debris dams. There are aggradations in stream channels that flow at less than 20% gradient in many of the streams in the WAU and in sub-basins #17 and #18. As water velocity slows due to flatter topography and wider stream channels, aggradations of rock, woody debris, and natural silt fall out creating floodplains and braided channels in the lower reaches of major streams and the Nemah River.

Normally, there are few significant changes associated with peak flows in the WAU or sub-basins. During the winters of 1996, 2007, and 2009, suspected 100-year precipitation events occurred. Many channels in the WAU were altered during these events due to high stream flows.

- 14) Based on your answers to questions B-3-a-10 through B-3-a-13 above, describe whether and how this proposal, in combination with other past, current, or reasonably foreseeable proposals in the WAU and sub-basin(s), may contribute to a peak flow impact.

The location and size of the unit should not significantly contribute to increasing peak flow impacts. An RMZ averaging 165 feet wide along Type 3 streams and leave trees scattered and clumped throughout all units (along many Type 5 streams) should help maintain water quality and reduce the potential for increasing peak flows. Additionally, maintaining unit size less than 100 acres, and providing 5 years for green-up before harvesting adjacent DNR stands, will help decrease peak flow impacts within the Nemah WAU and sub-basins #17 and #18.

- 15) Is there water resource (public, domestic, agricultural, hatchery, etc.), or area of slope instability, downstream or down slope of the proposed activity that could be affected by changes in surface water amounts, quality, or movements as a result of this proposal?

No Yes, possible impacts:

- 16) Based on your answers to questions B-3-a-10 through B-3-a-15 above, note any protection measures addressing possible peak flow/flooding impacts.

The following are protection measures addressing peak flow/flooding impacts:

- Type 3 no harvest RMZs to protect stream banks from erosion.
- The proposal's harvest unit is less than 100 acres to minimize impacts to watershed hydrology. (Proposed unit = 20 acres).

- Retaining leave trees to intercept precipitation should allow for increased transpiration to moderate increases in soil moisture content.
- Implementation of a 30-foot wide equipment limitation zone along Type 5 streams.
- See B.1.d.5. and B.1.h. for further protection measures.

b. Ground Water:

- 1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

No.

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.\

Minor amounts of oil, fuel, and other lubricants may inadvertently be discharged to the ground as a result of heavy equipment use or mechanical failure. No lubricants will be disposed of on-site. All spills are required to be contained and cleaned-up. This proposed activity is expected to have no impact on ground water.

- 3) *Is there a water resource use (public, domestic, agricultural, hatchery, etc.), or area of slope instability, downstream or down slope of the proposed activity that could be affected by changes in groundwater amounts, timing, or movements as a result this proposal?*

No Yes, describe:

- a) Note protection measures, if any.

No specific protection measures were identified as necessary beyond those described in B.1.d.5 and B.1.h.

c. Water Runoff (including storm water):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Road surface water runoff will be collected by road ditches and ditch-outs and deposited on to the forest floor. Ditch-outs will be placed to minimize the amount of ditch water directly entering existing stream channels.

- 2) Could waste materials enter ground or surface waters? If so, generally describe.

Minimal amounts of waste material, such as slash or sediment, may enter surface water.

- a) Note protection measures, if any.

The potential for waste materials to enter ground or surface water is minimal because equipment operations are limited to areas 165 feet from Type 3 streams, and 30 feet from Type 5 streams. Leave tree concentrations in and around Type 5 streams will further reduce equipment operations in areas with potential to impact ground or surface water. No other specific protection measures will be necessary to protect these resources beyond those described in B.1.d.5., B.1.h., B.3.a.2., and B.3.a.16.

- d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:
(See surface water, ground water, and water runoff sections above, questions B-3-a-1-c, B-3-a-16, B-3-b-3-a, and B-3-c-2-a.)

See surface water, ground water, and water runoff sections above, questions B.1.d.5., B.1.h., B.3.a.1.c., B.3.a.16., B.3.b.3.a., and B.3.c.2.a.

4. Plants

- a. Check or circle types of vegetation found on the site:

- deciduous tree: alder, maple, aspen, cottonwood, western larch, birch, other:
evergreen tree: Douglas fir, grand fir, Pacific silver fir, ponderosa pine, lodgepole pine,
western hemlock, mountain hemlock, Englemann spruce, Sitka spruce,
red cedar, yellow cedar, other:
shrubs: huckleberry, salmonberry, salal, other:
grass
pasture
crop or grain
wet soil plants: cattail, buttercup, bullrush, skunk cabbage, devil's club, other:
water plants: water lily, eelgrass, milfoil, other:
other types of vegetation: **sword fern**
plant communities of concern:

- b. What kind and amount of vegetation will be removed or altered? (See answers to questions A-11-a, A-11-b, B-3-a-1-b and B-3-a-1-c. The following sub-questions merely supplement those answers.)

All conifer and hardwood trees will be removed as part of this harvest proposal, except the wildlife leave trees, green recruitment trees and the vegetation within the RMZs. Understory vegetation will be disturbed and/or reduced within the proposed harvest area as a result of timber felling, bucking, yarding and site preparation operations. Most of the vegetation will re-establish within 2 – 3 years after forestry activities are complete.

- 1) Describe the species, age, and structural diversity of the timber types immediately adjacent to the removal area. (See landscape/WAU and adjacency maps on the DNR website at: <http://www.dnr.wa.gov> under "SEPA Center.")

To the north, east and west is western hemlock, origin 1959. To the south is a Douglas-fir plantation, origin 2010.

- 2) Retention tree plan:

A combination of Sitka spruce, western hemlock, Douglas-fir, western redcedar, and red alder were left for green tree retention and snag recruitment. Reserve tree numbers were based on leaving eight trees per acre. Trees were left individually and in clumps. This type of leave tree pattern is conducive to a safe harvest operation and allows the distribution of wildlife trees throughout the proposal. When selecting wildlife trees, the highest preference was given to trees having form defects that may be desirable for birds, the largest trees, and the most wind firm species.

- c. List threatened or endangered *plant* species known to be on or near the site.

None found in database search.

- d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Retention tree clumps are identified across the harvest area. Some clumps were selected for their species diversity of native flora. These clumps will provide a local seed source for native overstory and understory species. Some natural regeneration of native species will occur on site after harvest. Wildlife trees were left in areas to protect snags, large down logs, advanced regeneration, and Type 5 streams. Trees with defects such as split or broken tops, dominant crowns, large diameters and large limbs were favored as leave trees to enhance wildlife potential.

5. Animal

- a. Circle or check any birds animals or unique habitats which have been observed on or near the site or are known to be on or near the site:

birds: hawk, heron, eagle, songbirds, pigeon, other:
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other:
unique habitats: talus slopes, caves, cliffs, oak woodlands, balds, mineral springs

- b. List any threatened or endangered species known to be on or near the site (include federal- and state-listed species).

The nearest marbled murrelet occupied stand is approximately 4.0 miles to the west of the proposal area.

- c. Is the site part of a migration route? If so, explain.

Pacific flyway Other migration route: Explain if any boxes checked:

This proposal is located in the Columbia River flyway, which is part of the Pacific flyway. While migrating through Pacific Northwest forests, many Neotropical birds are closely associated with riparian areas, cliffs, snags, and structurally unique trees. Riparian areas and special habitats are protected through implementation of the Department's Habitat Conservation Plan. Migratory waterfowl also use the Columbia River flyway; the area for this proposal is not generally the type of area used for resting or feeding by migratory waterfowl.

- d. Proposed measures to preserve or enhance wildlife, if any:

This sale has been designed to comply with the departments HCP and provide for the protection of wildlife and their habitats. Scattered and clumped leave trees allow for feeding, roosting, nesting, and areas for Neotropical migratory birds to use. Well engineered and constructed roads reduce potential water quality impacts for down-stream fish populations. Grass seeding exposed soil aids water quality and provides forage. Large diameter leave trees, and leave trees with unique crowns, will remain post harvest to enhance the wildlife habitat value of the future stand. The regenerated stand will be composed of mixed conifer species.

- 1) Note existing or proposed protection measures, if any, for the complete proposal described in question A-11.

- Riparian habitat
 - No harvest RMZ buffers on Type 3 streams to provide the following:
 - Maintaining or restoring freshwater habitat for salmonid species; and
 - Contributing to the conservation of other species that are dependent upon aquatic and riparian areas.
 - This is accomplished by identifying riparian areas and ensuring that management activities within those areas adequately protect riparian function.
 - Riparian function provides the delivery of high quality water, flood control, and stream bank stability are examples of services provided by riparian ecosystems. From an ecological perspective, riparian function can be viewed as providing habitat for numerous plant and animal species including clean water, shade, large woody debris and detrital nutrients for salmon habitat, damp soil and logs for terrestrial amphibian habitat, snags for cavity nesting birds, etc.
- Upland habitat
 - A minimum of 8 leave trees per acre were left clumped and scattered to provide additional structure in the regenerated stand.
- Marbled Murrelets
 - The proposal area was evaluated for the need for protection or other marbled murrelet mitigation opportunities. No other specific protection or mitigation was needed due to the location of this sale in relation to areas known to be occupied by marbled murrelets. The nearest site occupied by marbled murrelets is approximately 4.0 miles to the west of the proposal area.

6. **Energy and Natural Resources**

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Not applicable.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

Not applicable.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

Not applicable.

7. **Environmental Health**

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe.

There is a minimal hazard incidental to operating heavy equipment. There is the possibility of fire ignition during the operating period, especially during fire season.

1) Describe special emergency services that might be required.

There are no special emergency services required at this time.

2) Proposed measures to reduce or control environmental health hazards, if any:

Pump trucks and/or pump trailers will be required on site during fire season. In the event of a lubricant spill the Purchaser will contact the Department of Natural Resources and the Department of Ecology. Clean up materials will be kept on site during operations and notification to The Department of Ecology will be made in the event of a major spill.

A fire engine will be kept on site during burning operations. Burning will be done under low fire danger conditions, which will reduce the risk of fire spread.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

None.

2) What types and levels of noise would be created by or associated with the project on a short-term or long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from this site.

Log trucks will use forest roads, county roads, and State Route 4. This traffic is normal for the area and consistent with the existing traffic. Noise will be increased on site during daylight hours while operations are active.

3) Proposed measures to reduce or control noise impacts, if any:

None.

8. **Land and Shoreline Use**

a. What is the current use of the site and adjacent properties? (*Site includes the complete proposal, e.g. rock pits and access roads.*)

These state lands are managed for timber production by the Department of Natural Resources

b. Has the site been used for agriculture? If so, describe.

No.

c. Describe any structures on the site.

None.

d. Will any structures be demolished? If so, what?

No.

e. What is the current zoning classification of the site?

Forestry.

f. What is the current comprehensive plan designation of the site?

Forest Land.

g. If applicable, what is the current shoreline master program designation of the site?

Not applicable.

h. Has any part of the site been classified as an “environmentally sensitive” area? If so, specify.

No.

i. Approximately how many people would reside or work in the completed project?

None.

j. Approximately how many people would the completed project displace?

None.

k. Proposed measures to avoid or reduce displacement impacts, if any:

None.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

This proposal is consistent with current landscape objectives including the Department’s HCP and PSF. There is no change to the existing land use, and no impacts from adjacent land uses on this proposal.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

None.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None.

c. Proposed measures to reduce or control housing impacts, if any:

None.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principle exterior building material(s) proposed?

None.

b. What views in the immediate vicinity would be altered or obstructed?

Views in the immediate area will be temporarily altered by the removal of trees. This site is not part of any views from communities or public corridors.

1) *Is this proposal visible from a residential area, town, city, developed recreation site, or a scenic vista?*
No Yes, viewing location:

2) *Is this proposal visible from a major transportation or designated scenic corridor (county road, state or interstate highway, US route, river, or Columbia Gorge SMA)?*
No Yes, scenic corridor name:

3) *How will this proposal affect any views described in 1) or 2) above?*

Not applicable.

c. Proposed measures to reduce or control aesthetic impacts, if any:

None.

11. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

None.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

Not applicable.

c. What existing off-site sources of light or glare may affect your proposal?

None.

d. Proposed measures to reduce or control light and glare impacts, if any:

None.

12. Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity?

There is no designated recreation on the proposal area. However, hunting, hiking, horseback riding, mountain biking, mushroom and berry picking, and other informal outdoor recreation activities may occur on the proposal area.

- b. Would the proposed project displace any existing recreational uses? If so, describe:

Informal recreation will be displaced for the short term during periods of active logging.

- c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

None.

13. Historic and Cultural Preservation

- a. Are there any places or objects listed on, or proposed for national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

No.

- b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

Cultural resources were not observed on or next to the site.

- c. Proposed measures to reduce or control impacts, if any:

(Include all meetings or consultations with tribes, archaeologists, anthropologists or other authorities.)

This proposal was reviewed for archeological/historic resources using DNR's Planning and Tracking database and USGS and GLO maps. In the event that any unknown archaeological resources are encountered, ground disturbing activities would be halted and a Department of Natural Resources archaeologist will be contacted to survey the site and develop a Site Protection Plan.

14. Transportation

- a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

State Route 101 to Johnson's Landing C-Line to A-5600 to Middle Nemah A-Line to A-4300.

- 1) *Is it likely that this proposal will contribute to an existing safety, noise, dust, maintenance, or other transportation impact problem(s)?*

No.

- b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

Not applicable.

- c. How many parking spaces would the completed project have? How many would the project eliminate?

None.

- d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

- 1) *How does this proposal impact the overall transportation system/circulation in the surrounding area, if at all?*

This proposal expands the network of Department of Natural Resources' forest roads in the area.

- e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No.

- f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

5-20 trips per day during harvesting activities with periodic trips post harvest to conduct monitoring and timber stand improvements.

- g. Proposed measures to reduce or control transportation impacts, if any:

None.

15. Public Services

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

None.

b. Proposed measures to reduce or control direct impacts on public services, if any.

None.

16. Utilities

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

None.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

None.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Completed by: for Taylor K M₃ Product Sales Forester 12/19/2011
Padraic Callahan **Forester 2** Date: 12/12/2011
Title

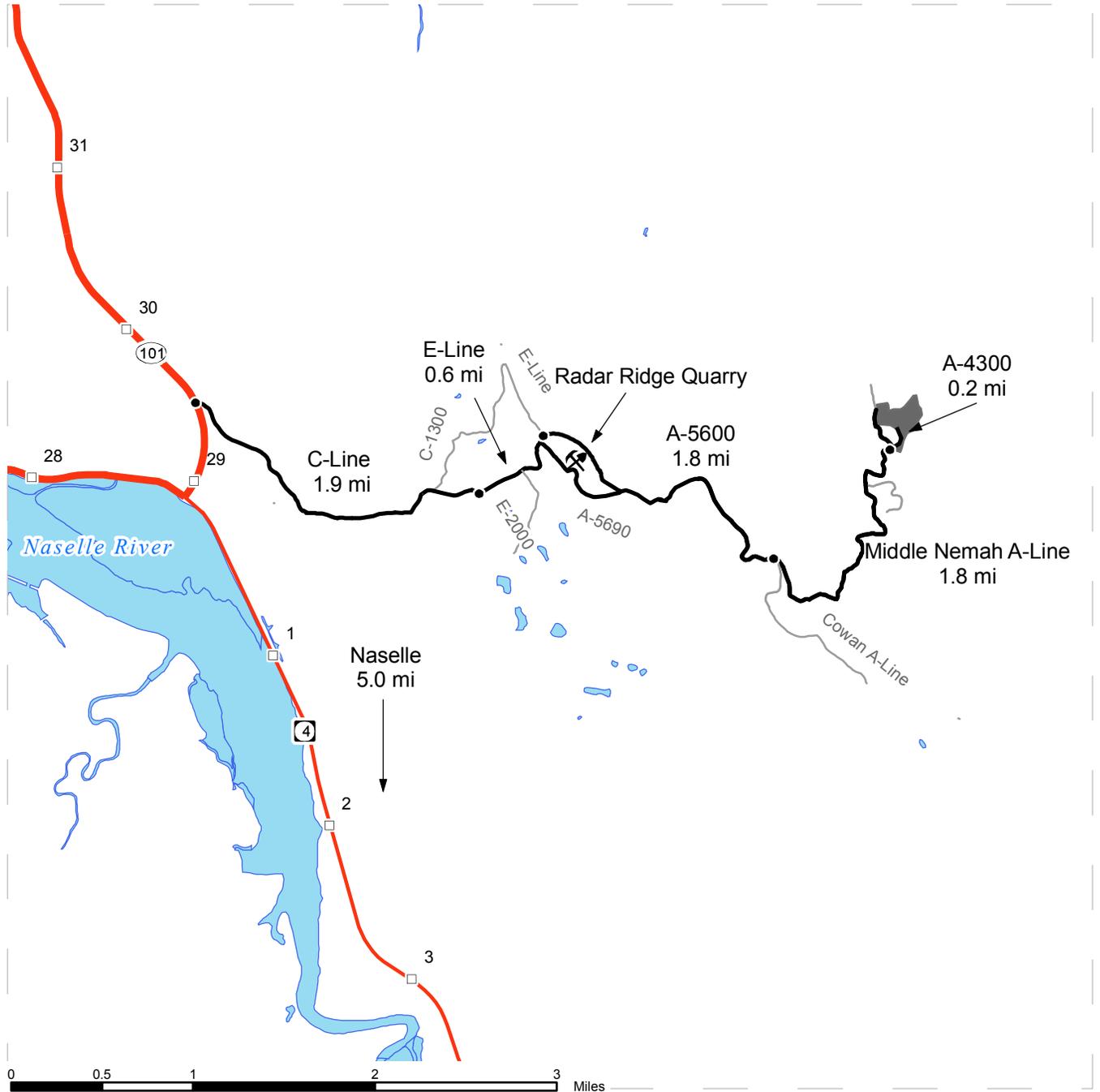
Reviewed by: Marcus A. Johns Prod. Sales Mgr 12/20/11
Title

Comments: _____

DRIVING MAP

SALE NAME: 4300 BD
AGREEMENT#: 30-086796
TOWNSHIP(S): T11R09W
TRUST(S): Common School and Indemnity(3)

REGION: Pacific Cascade Region
COUNTY(S): PACIFIC
ELEVATION RGE: 884-1017



- Timber Sale Unit
- Highway
- Haul Route
- Other Route
- Distance Indicators
- Milepost Markers
- X
 Existing Rock Pit

Driving Directions:

From US 101 milepost 29.5, turn East onto the C-Line and follow for 1.9 mi.
 The C-Line will turn into the E-Line; continue for another 0.6 mi.
 Turn slight right east onto the A-5600 and follow for 1.8 mi.
 Turn left onto the Middle Nemah A-Line and follow for 1.8 mi.
 Turn right (northeast) onto the A-4300 for <0.1 mi to unit.



TIMBER SALE MAP

SALE NAME: 4300 BD
AGREEMENT#: 30-086796
TOWNSHIP(S): T11R09W
TRUST(S): Common School and Indemnity(3)

REGION: Pacific Cascade Region
COUNTY(S): PACIFIC
ELEVATION RGE: 884-1017

