

TIMBER NOTICE OF SALE

SALE NAME: PIG KNUCKLE RIDGE

AGREEMENT NO: 30-092630

AUCTION: May 25, 2016 starting at 10:00 a.m., **COUNTY:** Snohomish
Northwest Region Office, Sedro Woolley, WA

SALE LOCATION: Sale located approximately 17 miles southeast of Granite Falls, WA.

**PRODUCTS SOLD
AND SALE AREA:**

All timber bounded by white timber sale boundary tags, property lines and CH-ML Road, except trees marked with blue paint on the bole and root collar, forest products tagged out by yellow leave tree area tags and cedar snags, preexisting dead and down cedar trees and cedar logs in Unit #1.

All timber bounded by white timber sale boundary tags, except trees marked with blue paint on the bole and root collar, forest products tagged out by yellow leave tree area tags and cedar snags, preexisting dead and down cedar trees and cedar logs in Unit #2.

All timber bounded by orange right of way tags.

The above described products on part(s) of Sections 22, 23, 24 and 25 all in Township 29 North, Range 8 East, W.M., containing 170 acres, more or less.

CERTIFICATION: This sale is certified under the Sustainable Forestry Initiative® program Standard (cert no: BV-SFIS-US09000572)

ESTIMATED SALE VOLUMES AND QUALITY:

Species	Avg DBH	Ring Count	Total MBF	MBF by Grade								
				1P	2P	3P	SM	1S	2S	3S	4S	UT
Hemlock	12	9	3,985						582	2,252	875	276
Douglas fir	19		633						392	193	47	1
Red alder	13		246						34	50	88	74
Silver fir	15		242						87	120	35	
Red cedar	15		97							71	26	
Cottonwood	19		41						30			11
Sale Total			5,244									

MINIMUM BID: \$543,000.00 **BID METHOD:** Sealed Bids

PERFORMANCE SECURITY: \$100,000.00 **SALE TYPE:** Lump Sum

EXPIRATION DATE: March 31, 2019 **ALLOCATION:** Export Restricted

BID DEPOSIT: \$54,300.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Cable; cable or shovel on sustained slopes 35% or less. Falling and Yarding will not be permitted from November 1 to March 31 unless authorized in writing by the Contract Administrator (THIS PERTAINS TO GROUND-BASED EQUIPMENT ONLY) to reduce soil damage and erosion.

Additional restrictions apply, see Remarks section below.

TIMBER NOTICE OF SALE

ROADS: 112.50 stations of required construction. 6.20 stations of required reconstruction. 52.84 stations of optional construction. 52.84 stations of road to be abandoned if built. 108.10 stations of required pre-haul maintenance.

Rock may be obtained from the following source(s) on State land at no charge to the Purchaser: CH-49 Hardrock Pit at station 260+30 of the CH-ML Road. CH-78 Hardrock Pit at station 409+30 of the CH-ML Road.

Stockpile of 3-inch-minus ballast rock is available for use in the CH-78 Hardrock Pit.

Development of existing rock source(s) will involve clearing, stripping, drilling, shooting, and processing rock to generate riprap and 3-inch-minus ballast.

An estimated total quantity of rock needed for this proposal: 295 cubic yards of riprap and 13,170 cubic yards of ballast rock.

Additional restrictions apply, see Remarks section below.

Road construction, road reconstruction, road abandonment, and the hauling of rock will not be permitted from November 1 to March 31 unless authorized in writing by the Contract Administrator to reduce soil damage and siltation. The hauling of forest products will not be permitted from November 1 to March 31 unless authorized in writing by the Contract Administrator to reduce soil damage and siltation.

ACREAGE DETERMINATION

CRUISE METHOD: Acres determined by GPS traverse. 176.7 acres gross. 4.1 acres deducted for green tree retention clumps, 2.7 acres deducted for existing roads and 0.3 acres deducted for open void space. 169.9 acres net. Cruised using variable plot method. Expansion factor used is 40.00, 54.44 and 71.11. Sighting height is 4.5 feet. A total of 82 plots were taken.

Shapefiles of units are available upon request.

FEES: \$93,081.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

SPECIAL REMARKS: 1. Wildlife timing restrictions are: no falling, bucking, yarding or operation of heavy equipment April 1 to August 31 from one hour before official sunrise to two hours after official sunrise and one before and after official sunset. Timing restrictions will be applied to the areas of the sale depicted on the timber sale map as Wildlife Timing Restriction.

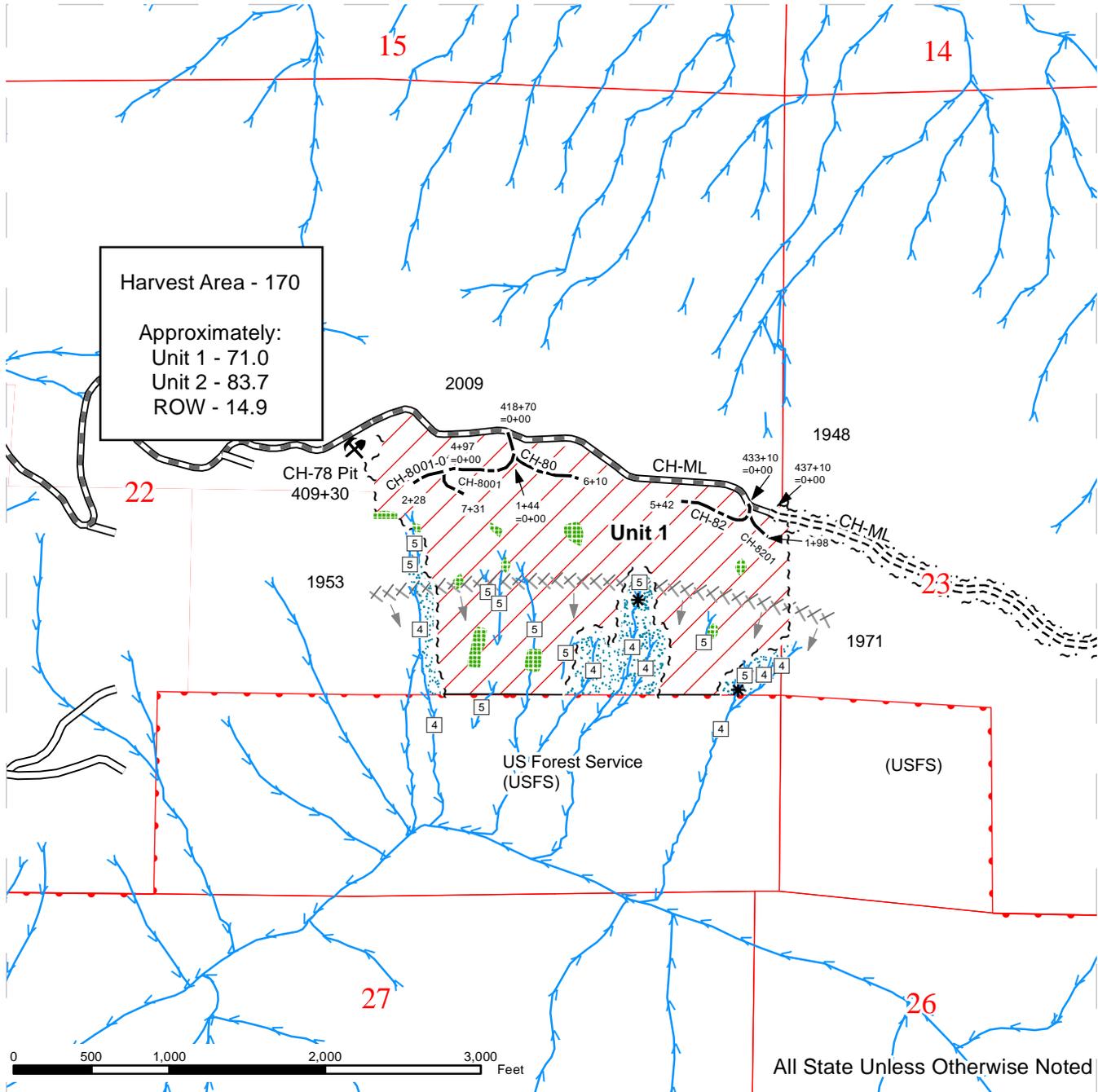
2. Trees marked with red paint and a yellow "T" represent the last take tree along property line boundaries.

3. No haul is allowed through City of Everett land. Use the designated haul route as depicted on the Driving Map.

TIMBER SALE MAP

SALE NAME: PIG KNUCKLE RIDGE
AGREEMENT#: 92630
TOWNSHIP(S): T29R08E
TRUST(S): Common School and Indemnity(3), Capitol Grant(7)

REGION: Northwest Region
COUNTY(S): SNOHOMISH
ELEVATION RGE: 1313-2669

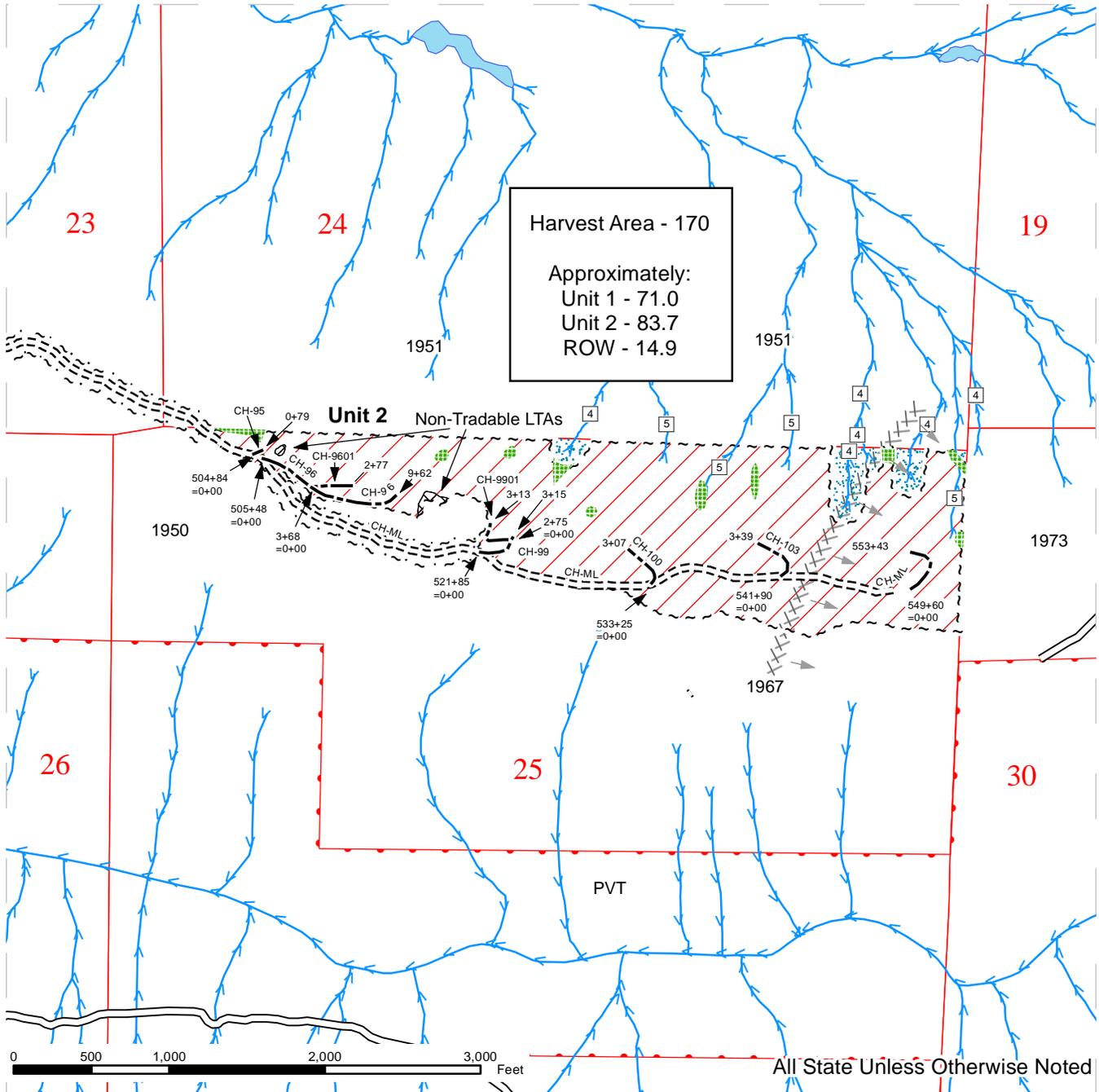


Sale Area	ROW	DNR Managed Lands
Sale Boundary Tags	Leave Trees	Existing Rock Pit
Sale Boundary No Tags	Riparian Mgt Zone	Wildlife Timing Restriction
Optional Construction	Non-Tradable Leave Trees	
Required Construction	Streams	
Existing Roads	Stream Type	
Pre-haul Maintenance	Stream Type Break	

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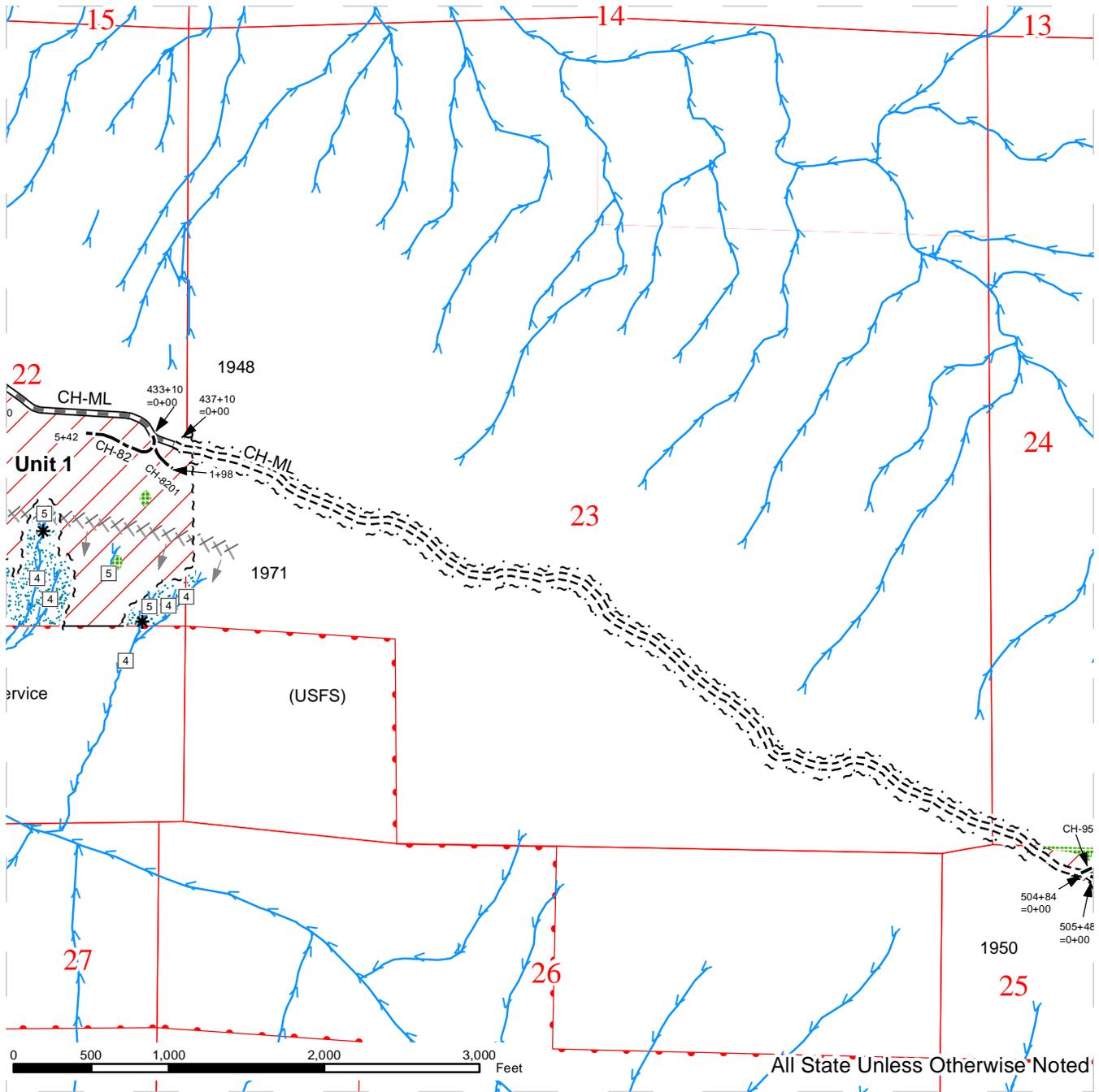


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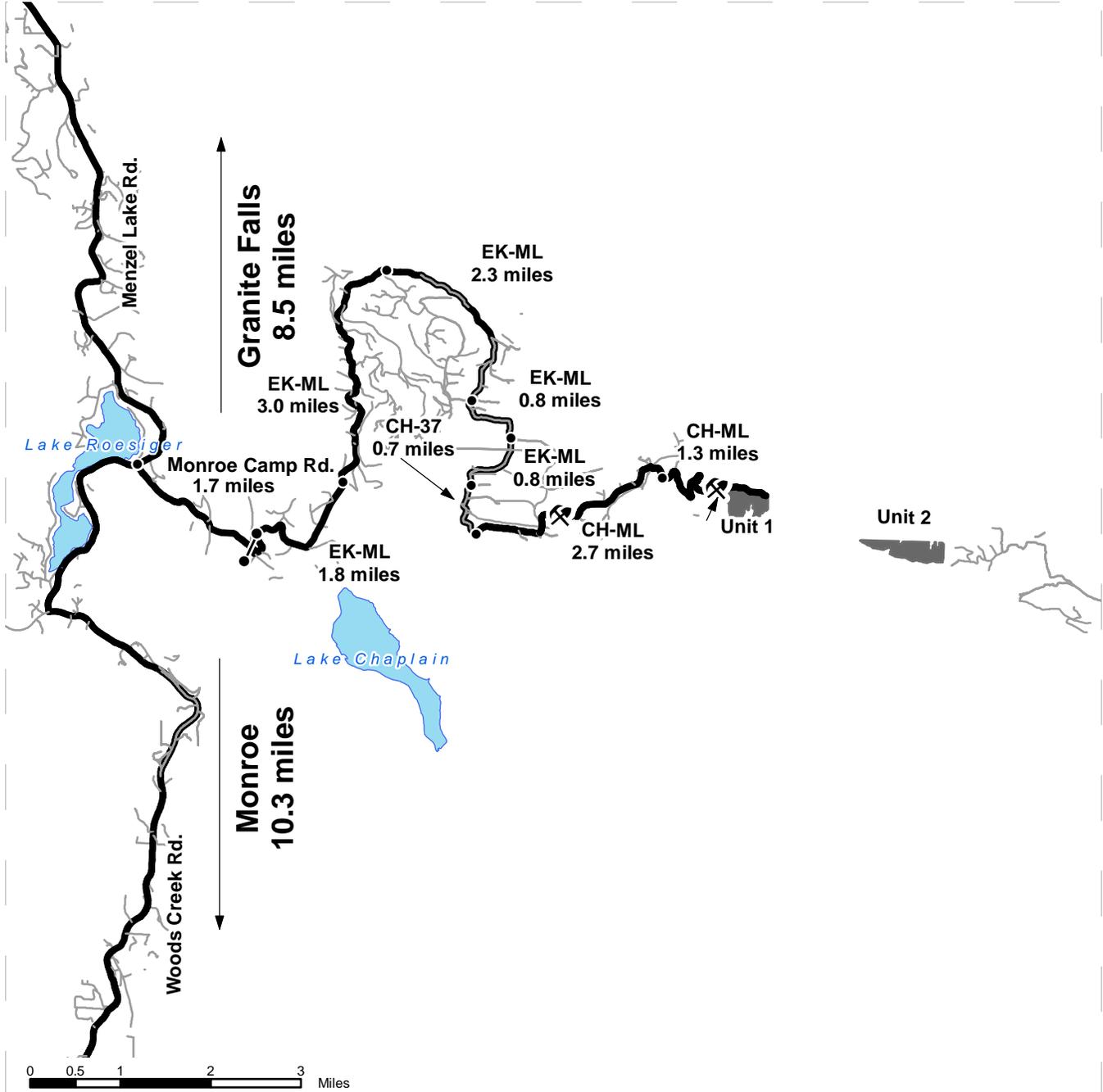


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DRIVING MAP

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REGION: Northwest Region
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Timber Sale Unit
 Other Route
 Haul Route

Other Map Points

- Distance Indicator
- Gate
- ⚡ Existing Rock Pit

DRIVING DIRECTIONS:

From Granite Falls, travel south towards Lake Roesiger on Menzel Lake Road for approximately 8 miles to the Lake Roesiger Store. Turn left onto Monroe Camp Road and follow for 1.7 miles to the EK-ML gate.

From the gate, continue on EK-ML for 1.8 miles. Stay left to remain on EK-ML, and then continue another 3 miles. Hang left again, and follow for 2.3 miles. Turn left to stay on EK-ML. Travel 0.8 miles and then hang right. In another 0.8 miles hang right onto CH-37. In 0.7 miles turn left onto CH-ML. After 2.7 miles turn left with CH-ML and proceed uphill 1.3 miles. Unit 1 will be on your right just beyond the rock pit.

For Unit 2, drive another 0.5 miles to the end of CH-ML. From there, a staked road line will continue east. Travel on foot along the ridge for a little over 1 mile to reach Unit 2.



**STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES**

**BILL OF SALE AND CONTRACT FOR
FOREST PRODUCTS**

Export Restricted Lump Sum AGREEMENT NO. 30-092630

SALE NAME: PIG KNUCKLE RIDGE

**THE STATE OF WASHINGTON DEPARTMENT OF NATURAL
RESOURCES, HEREINAFTER ACTING SOLELY, IN ITS PROPRIETARY
CAPACITY, STATE, AND PURCHASER, AGREE AS FOLLOWS:**

Section G: General Terms

G-001 Definitions

The following definitions apply throughout this contract;

Bill of Sale and Contract for Forest Products: Contract between the Purchaser and the State, which sets forth the procedures and obligations of the Purchaser in exchange for the right to remove forest products from the sale area. The Bill of Sale and Contract for Forest Products may include a Road Plan for any road construction or reconstruction, where applicable.

Contract Administrator: Region Manager's designee responsible for assuring that the contractual obligations of the Purchaser are met.

Forest Product: Any material derived from the forest for commercial use.

Purchaser: The company or individual that has entered a Bill of Sale and Contract for Forest Products with the State for the right to harvest and remove forest products from the timber sale area.

Road Construction: Includes building new and maintaining existing forest roads and associated work that may be optional or required as described in the Road Plan.

State: The Washington State Department of Natural Resources, landowner and seller of Forest Products from the timber sale area. The State is represented by the Region Manager as designated on the contract signature page. Contractual obligations to the State are enforced by the Region Manager or the designated Contract Administrator.

Subcontractor: Individual or company employed by the Purchaser to perform a portion or all of the services required by The Bill of Sale and Contract for Forest Products. The Purchaser is responsible for independently negotiating, procuring and paying for all subcontracted services rendered.

G-011 Right to Remove Forest Products and Contract Area

Purchaser was the successful bidder on May 25, 2016 and the sale was confirmed on _____. The State, as owner, agrees to sell to Purchaser, and Purchaser agrees to purchase as much of the following forest products as can be cut and removed during the term of this contract: All timber bounded by white timber sale boundary tags, property lines and CH-ML Road, except trees marked with blue paint on the bole and root collar, forest products tagged out by yellow leave tree area tags and cedar snags, preexisting dead and down cedar trees and cedar logs in Unit #1.

All timber bounded by white timber sale boundary tags, except trees marked with blue paint on the bole and root collar, forest products tagged out by yellow leave tree area tags and cedar snags, preexisting dead and down cedar trees and cedar logs in Unit #2.

All timber bounded by orange right of way tags.

The above described products, located on approximately 170 acres on part(s) of Sections 22, 23, 24, and 25 all in Township 29 North, Range 8 East W.M. in Snohomish County(s) as designated on the sale area and as shown on the attached timber sale map.

All forest products described above from the bole of the tree that meet or exceed 2 inches diameter inside bark on the small end are eligible for removal. Above ground components of a tree that remain as by-products after the manufacture of logs, including but not limited to tree tops, branches, limbs, needles, leaves, stumps, are not eligible for removal under the terms of this contract.

Forest products purchased under a contract that is designated as export restricted shall not be exported until processed. Forest products purchased under a contract that is designated as exportable may be exported prior to processing.

G-020 Inspection By Purchaser

Purchaser hereby warrants to the State that they have had an opportunity to fully inspect the sale area and the forest products being sold. Purchaser further warrants to

the State that they enter this contract based solely upon their own judgment of the value of the forest products, formed after their own examination and inspection of both the timber sale area and the forest products being sold. Purchaser also warrants to the State that they enter this contract without any reliance upon the volume estimates, acreage estimates, appraisals, pre-bid documentation, or any other representations by the State Department of Natural Resources.

G-025 Schedules

The following attached schedules are hereby incorporated by reference:

Schedule	Title
A	NW Ground-Based Equip Specifications (Rev11/05/14)

G-031 Contract Term

Purchaser shall complete all work required by this contract prior to March 31, 2019.

G-040 Contract Term Adjustment - No Payment

Purchaser may request an adjustment in the contract term. A claim must be submitted in writing and received by the State within 30 days after the start of interruption or delay. The claim must also indicate the actual or anticipated length of interruption or delay. The State may grant an adjustment without charge only if the cause for contract term adjustment is beyond Purchaser's control. The cause must be one of the following and the adjustment may be granted only if operations or planned operations under this contract are actually interrupted or delayed:

- a. Road and bridge failures which deny access.
- b. Access road closures imposed by road owner.
- c. Excessive suspensions as provided in clause G-220.
- d. Regulatory actions not arising from Purchaser's failure to comply with this contract which will prevent timber harvest for a period less than 6 months.

G-051 Contract Term Extension - Payment

Extensions of this contract term may be granted only if, in the judgment of the State, Purchaser is acting in good faith and is endeavoring to remove the forest products conveyed. The term of this contract may be extended for a reasonable time by the State if all of the following conditions are satisfied:

- a. A written request for extension of the contract term must be received prior to the expiration date of the contract.
- b. Completion of all required roads and compliance with all contract and regulatory requirements.

- c. For the first extension, not to exceed 1 year, payment of at least 25 percent of the total contract price.

For the second extension, not to exceed 1 year, payment of at least 90 percent of the total contract price.

The payments shall not include the initial deposit which shall be held according to the provisions of RCW 79.15.100.

- d. Payment of an amount based on 12 percent interest per annum on the unpaid portion of the total contract price.

All payments, except the initial deposit, will be deducted from the total contract price to determine the unpaid portion of the contract.

- e. Payment of \$665.00 per acre per annum for the acres on which an operating release has not been issued in the sale area.
- f. In no event will the extension charge be less than \$200.00.
- g. Extension payments are non-refundable.

G-053 Surveys - Sensitive, Threatened, Endangered Species

Whenever the State determines that a survey for sensitive, threatened, or endangered species is prudent, or when Purchaser determines a survey is prudent and the State agrees, Purchaser shall perform such surveys at Purchaser's expense and to the standards required by the State. The survey information shall be supplied to the State.

G-060 Exclusion of Warranties

The PARTIES AGREE that the IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE and ALL OTHER WARRANTIES EXPRESSED OR IMPLIED ARE EXCLUDED from this transaction and shall not apply to the goods sold. For example, THE FOLLOWING SPECIFIC MATTERS ARE NOT WARRANTED, and are EXCLUDED from this transaction:

- a. The MERCHANTABILITY of the forest products. The use of the term "merchantable" in any document is not intended to vary the foregoing.
- b. The CONDITION of the forest products. The forest products will be conveyed "AS IS."
- c. The ACREAGE contained within any sale area. Any acreage descriptions appearing in the timber notice of sale, timber sale contract, or other documents are estimates only, provided solely for administrative and identification purposes.

- d. The VOLUME, QUALITY, OR GRADE of the forest products. The State neither warrants nor limits the amount of timber to be harvested. The descriptions of the forest products to be conveyed are estimates only, made solely for administrative and identification purposes.
- e. The CORRECTNESS OF ANY SOIL OR SURFACE CONDITIONS, PRE-SALE CONSTRUCTION APPRAISALS, INVESTIGATIONS, AND ALL OTHER PRE-BID DOCUMENTS PREPARED BY OR FOR THE STATE. These documents have been prepared for the State's appraisal purposes only.
- f. THAT THE SALE AREA IS FREE FROM THREATENED OR ENDANGERED SPECIES or their habitat. The State is not responsible for any interference with forestry operations that result from the presence of any threatened or endangered species, or the presence of their habitat, within the sale area.
- g. THAT THE FORESTRY OPERATIONS to be performed under this contract WILL BE FREE FROM REGULATORY ACTIONS by governmental agencies. The State is not responsible for actions to enforce regulatory laws, such as the Washington Forest Practices Act (chapter 76.09 RCW), taken by the Department of Natural Resources or any other agency that may affect the operability of this timber sale.
- h. Items contained in any other documents prepared for or by the State.

G-062 Habitat Conservation Plan

The State has entered into a Habitat Conservation Plan (HCP) with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (the Services) to address state trust land management issues relating to compliance with the Federal Endangered Species Act. The activities to be carried out under this contract are located within the State's HCP area and are subject to the terms and conditions of the HCP, and the Services' Incidental Take Permit Nos. 812521 and 1168 (collectively referred to as ITP), or as amended hereafter by the Services. The ITP authorizes the incidental take of certain federally listed threatened and endangered species, as specified in the ITP conditions. All HCP materials, including the ITP, are available for review at the State's Regional Offices and the administrative headquarters in Olympia, Washington.

By signing this contract, Purchaser agrees to comply with the terms and conditions of the ITP, and the HCP, which shall become terms of this contract. The State agrees to authorize the lawful activities of the Purchaser carried out pursuant to this contract, PROVIDED the Purchaser remains in compliance with the terms and conditions of both the HCP and ITP. The requirements set forth in this contract are intended to comply with the terms and conditions of the HCP and ITP. Accordingly, non-compliance with the terms and conditions of the HCP and ITP will render the authorization provided in this paragraph void, be deemed a breach of the contract and may subject Purchaser to liability for violation of the Endangered Species Act.

Any modifications to the contract shall be proposed in writing by Purchaser, shall continue to meet the terms and conditions of the HCP and ITP, and shall require the prior written approval of the Region Manager before taking effect.

G-063 Incidental Take Permit Notification Requirements

- a. Purchaser shall immediately notify the Contract Administrator of new locations of permit species covered by the Incidental Take Permits (ITP) that are discovered within the area covered by the State's Habitat Conservation Plan (HCP), including, but not limited to: locations of occupied murrelet habitat; spotted owl nest sites; wolves; grizzly bears; nests, communal roosts, or feeding concentrations of bald eagles; peregrine falcon nests; Columbian white-tailed deer; Aleutian Canada geese; Oregon silverspot butterflies; and additional stream reaches found to contain bull trout. Purchaser is required to notify the Contract Administrator upon discovery of any fish species found in streams or bodies of water classified as non-fish bearing. In all circumstances, notification must occur within a 24 hour time period.
- b. Upon locating any live, dead, injured, or sick specimens of any permit species covered by the ITP, Purchaser shall immediately notify the Contract Administrator. Purchaser shall notify the Contract Administrator if there is any doubt as to the identification of a discovered permit species. Purchaser may be required to take certain actions to help the Contract Administrator safeguard the well-being of any live, injured or sick specimens of any permit species discovered, until the proper disposition of such specimens can be determined by the Contract Administrator. Any such requirements will be explained to Purchaser by the Contract Administrator during the Pre-Work Conference. In all circumstances, notification must occur within a 24 hour time period.
- c. Purchaser shall refer to a specific ITP number, PRT-812521 or ITP 1168 (copies which are located in the region office) in all correspondence and reports concerning permit activities.
- d. Provisions and requirements of the ITP shall be clearly presented and explained to Purchaser by Contract Administrator during the Pre-Work Conference as per contract clause G-330. All applicable provisions of the ITP and this schedule must be presented and clearly explained by Purchaser to all authorized officers, employees, contractors, or agents of Purchaser conducting authorized activities in the timber sale area. Any questions Purchaser may have about the ITP should be directed to the Contract Administrator.

G-064 Permits

Purchaser is responsible for obtaining any permits not already obtained by the State that relate to Purchaser's operation. Forest Practice Application / Hydraulic Project Approval permits obtained by the State shall be transferred to Purchaser. Purchaser is responsible for all permits, amendments and renewals.

G-065 Regulatory Disclaimer

The State disclaims any responsibility for, or liability relating to, regulatory actions by any government agency, including actions pursuant to the Forest Practices Act, Ch. 76.09 RCW that may affect the operability of the timber sale.

G-066 Governmental Regulatory Actions

a. Risk

Purchaser shall be responsible for any increased operational costs arising from any applicable foreign or domestic governmental regulation or order that does not cause contract performance to become commercially impracticable or that does not substantially frustrate the purpose of the contract. If impracticability or frustration results from Purchaser's failure to comply with this contract, Purchaser shall remain responsible for payment of the total contract price notwithstanding the impracticability or frustration.

b. Sale Area

When portions of the sale area become subject to a foreign or domestic governmental regulation or order that will likely prevent timber harvest for a period that will exceed the expiration date of this contract, and Purchaser has complied with this contract, the following shall apply:

i. RCW 79.15.140 shall govern all adjustments to the contract area.

c. Adjustment of Price

The State shall adjust the total contract price by subtracting from the total contract price an amount determined in the following manner: The State shall cause the timber sale area subject to governmental regulation or order to be measured. The State shall calculate the percentage of the total sale area subject to the governmental regulation or order. The State shall reduce the total contract price by that calculated percentage. However, variations in species, value, costs, or other items pertaining to the affected sale area will be analyzed and included in the adjustment if deemed appropriate by the State. The State will further reduce the total contract price by the reasonable cost of unamortized roads Purchaser constructed but was unable to fully use for removing timber. A reduction in total contract price terminates all of the Purchaser's rights to purchase and remove the timber and all other interest in the affected sale area.

G-070 Limitation on Damage

In the event of a breach of any provision of this contract by the State, the exclusive remedy available to Purchaser will be limited to a return of the initial deposit, unapplied payments, and credit for unamortized improvements made by Purchaser.

The State shall not be liable for any damages, whether direct, incidental or consequential.

G-080 Scope of State Advice

No advice by any agent, employee, or representative of the State regarding the method or manner of performing shall constitute a representation or warranty that said method, manner or result thereof will conform to the contract or be suitable for Purchaser's purposes under the contract. Purchaser's reliance on any State advice regarding the method or manner of performance shall not relieve Purchaser of any risk or obligation under the contract. Purchaser retains the final responsibility for its operations under this contract and State shall not be liable for any injuries resulting from Purchaser's reliance on any State advice regarding the method or manner of performance.

G-091 Sale Area Adjustment

The Parties may agree to adjustments in the sale area boundary. The cumulative changes to the sale area during the term of the contract shall not exceed more than four percent of the original sale area. If the sale area is increased, the added forest products become a part of this contract. The State shall determine the volume added and shall calculate the increase to the total contract price using the rates set forth in clause G-101, G-102, or G-103. If the sale area is reduced, the State shall determine the volume to be reduced. The State shall calculate the reduction to the total contract price using the rates set forth in clause G-101, G-102, or G-103.

G-101 Forest Products Not Designated

Any forest products not designated for removal, which must be removed in the course of operations authorized by the State, shall be approved and designated by the Contract Administrator. Added forest products become a part of this contract and the Scribner log scale volume, as defined by the Northwest Log Rules Advisory Group, shall be determined by the Contract Administrator. Added forest products shall be paid for at the following contract payment rates per Mbf Scribner log scale.

Contract Item	Appraised Price	Overbid Factor	Price	Fees	Contract Payment Rate
Cottonwood	\$44.68	0	\$0.00	\$9.00	\$9.00
Douglas fir	\$129.38	0	\$0.00	\$9.00	\$9.00
Hemlock	\$93.69	0	\$0.00	\$9.00	\$9.00
Red alder	\$120.22	0	\$0.00	\$9.00	\$9.00
Red cedar	\$335.83	0	\$0.00	\$9.00	\$9.00
Silver fir	\$98.26	0	\$0.00	\$9.00	\$9.00
Other	\$126.05	0	\$0.00	\$9.00	\$9.00

G-106 Adding Naturally Damaged Forest Products

Any forest products not designated for removal that are seriously damaged by disease, insects or wind, or that may contribute seriously to the spread of insect or disease damage may be added to this sale by the State's Contract Administrator. Additions must be in unlogged areas of the sale and added volume shall not exceed an amount equal to 10 percent of the original advertised volume. Added forest products become a

part of this contract and shall be paid for at the rate set forth in clause G-101, G-102 or G-103.

G-111 Title and Risk of Loss

Title to the forest products under this contract passes to the Purchaser after they are removed from the sale area, if adequate advance payment or payment security has been provided to the State under this contract. Purchaser bears all risk of loss of, or damage to, and has an insurable interest in, the forest products described in this contract from the time the sale is confirmed under RCW 79.15.120. Breach of this contract shall have no effect on this provision.

G-116 Sustainable Forestry Initiative® (SFI) Certification

Forest products purchased under this contract are certified as being in conformance with the Sustainable Forestry Initiative program Standard under certificate number: BV-SFIS-US09000572.

Purchaser shall have at least one person regularly on-site during active operations that have completed training according to the requirements outlined within the SFI® program Standard. Purchaser shall designate in writing the name(s) of the individual(s) who will be on-site and provide proof of their successful completion of an approved training program prior to active operations.

G-120 Responsibility for Work

All work, equipment, and materials necessary to perform this contract shall be the responsibility of Purchaser. Any damage to improvements, except as provided in clause G-121 or unless the State issues an operating release pursuant to clause G-280, shall be repaired promptly to the satisfaction of the State and at Purchaser's expense.

G-121 Exceptions

Exceptions to Purchaser's responsibility in clause G-120 shall be limited exclusively to the following. These exceptions shall not apply where road damage occurs due to Purchaser's failure to take reasonable precautions or to exercise sound forest engineering and construction practices.

Road is defined as the road bed, including but not limited to its component parts, such as subgrade, ditches, culverts, bridges, and cattle guards.

For the purposes of this clause, damage will be identified by the State and is defined as:

1. Failure of (a) required improvements or roads designated in clause C-050, or (b) required or optional construction completed to the point that authorization to haul has been issued;
2. Caused by a single event from forces beyond the control of Purchaser, its employees, agents, or invitees, including independent contractors; and

3. Includes, but is not limited to natural disasters such as earthquakes, volcanic eruptions, landslides, and floods.

The repair work identified by the State shall be promptly completed by Purchaser at an agreed price. The State may elect to accomplish repairs by means of State-provided resources. The State will bear the cost to repair damages caused by a third party. In all other cases, the Purchaser shall bear responsibility for the costs as described below.

For each event, Purchaser shall be solely responsible for the initial \$5,000 in repairs. For repairs in excess of \$5,000, the parties shall share equally the portion of costs between \$5,000 and \$15,000. The State shall be solely responsible for the portion of the cost of repairs that exceed \$15,000.

Nothing contained in clauses G-120 and G-121 shall be construed as relieving Purchaser of responsibility for, or damage resulting from, Purchaser's operations or negligence, nor shall Purchaser be relieved from full responsibility for making good any defective work or materials. Authorization to haul does not warrant that Purchaser built roads are free from material defect and the State may require additional work, at Purchasers expense regardless of cost, to remedy deficiencies at any time.

G-140 Indemnity

To the fullest extent permitted by law, Purchaser shall indemnify, defend and hold harmless State, agencies of State and all officials, agents and employees of State, from and against all claims arising out of or resulting from the performance of the contract. "Claim" as used in this contract means any financial loss, claim, suit, action, damage, or expense, including but not limited to attorneys' fees, attributable for bodily injury, sickness, disease or death, or injury to or destruction of tangible property including loss of use resulting therefrom. Purchasers' obligations to indemnify, defend, and hold harmless includes any claim by Purchasers' agents, employees, representatives, or any subcontractor or its employees. Purchaser expressly agrees to indemnify, defend, and hold harmless State for any claim arising out of or incident to Purchasers' or any subcontractors' performance or failure to perform the contract. Purchasers' obligation to indemnify, defend, and hold harmless State shall not be eliminated or reduced by any actual or alleged concurrent negligence of State or its agents, agencies, employees and officials. Purchaser waives its immunity under Title 51 RCW to the extent it is required to indemnify, defend and hold harmless State and its agencies, officials, agents or employees.

G-150 Insurance

Purchaser shall, at its cost and expense, buy and maintain insurance of the types and amounts listed below. Failure to buy and maintain the required insurance may result in a breach and/or termination of the contract at State's option. State may suspend Purchaser operations until required insurance has been secured.

All insurance and surety bonds should be issued by companies admitted to do business within the State of Washington and have a rating of A-, Class VII or better in the most recently published edition of Best's Reports. If an insurer is not admitted, all insurance

policies and procedures for issuing the insurance policies must comply with Chapter 48.15 RCW and 284-15 WAC.

The State of Washington, Department of Natural Resources region office of sale origin shall be provided written notice before cancellation or non-renewal of any insurance referred to therein, in accord with the following specifications:

1. Insurers subject to Chapter 48.18 RCW (admitted and regulated by the Insurance Commissioner): The insurer shall give the State 45 days advance notice of cancellation or non-renewal. If cancellation is due to non-payment of premium, the State shall be given 10 days advance notice of cancellation.
2. Insurers subject to Chapter 48.15 RCW (surplus lines): The State shall be given 20 days advance notice of cancellation. If cancellation is due to non-payment of premium, the State shall be given 10 days advance notice of cancellation.

Before starting work, Purchaser shall furnish State of Washington, Department of Natural Resources with a certificate(s) of insurance, executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements specified in the contract. Insurance coverage shall be obtained by the Purchaser prior to operations commencing and continually maintained in full force until all contract obligations have been satisfied or an operating release has been signed by the State.

Purchaser shall include all subcontractors as insured under all required insurance policies, or shall furnish separate certificates of insurance and endorsements for each subcontractor. Subcontractor(s) must comply fully with all insurance requirements stated herein. Failure of subcontractor(s) to comply with insurance requirements does not limit Purchaser's liability or responsibility.

The State of Washington, Department of Natural Resources, its elected and appointed officials, agents and employees shall be named as an additional insured on all general liability, excess, umbrella, and property insurance policies.

All insurance provided in compliance with this contract shall be primary as to any other insurance or self-insurance programs afforded to or maintained by State. Purchaser waives all rights against State for recovery of damages to the extent these damages are covered by general liability or umbrella insurance maintained pursuant to this contract.

By requiring insurance herein, State does not represent that coverage and limits will be adequate to protect Purchaser and such coverage and limits shall not limit Purchaser's liability under the indemnities and reimbursements granted to State in this contract.

The limits of insurance, which may be increased as deemed necessary by State of Washington, Department of Natural Resources, shall not be less than as follows:

Commercial General Liability (CGL) Insurance. Purchaser shall maintain general liability (CGL) insurance, and, if necessary, commercial umbrella insurance with a limit of not less than \$1,000,000.00 per each occurrence. If such CGL insurance contains aggregate limits, the General Aggregate limit shall be at least twice the "each occurrence" limit. CGL insurance shall have products-completed operations aggregate limit of at least two times the "each occurrence" limit. CGL coverage shall include a Logging and Lumbering Endorsement (i.e. Logger's Broad-Form) to cover the events that include, but are not limited to, fire suppression expenses, accidental timber trespasses, and wildfire property damage with limits of not less than \$2,000,000.00 each occurrence.

CGL insurance shall be written on Insurance Services Office (ISO) occurrence form CG 00 01 (or a substitute form providing equivalent coverage). All insurance shall cover liability arising out of premises, operations, independent contractors, products completed operations, personal injury and advertising injury, and liability assumed under an insured contract (including the tort liability of another party assumed in a business contract), and contain separation of insured (cross liability) condition.

Employer's Liability "Stop Gap" Insurance. Purchaser shall buy employers liability insurance, and, if necessary, commercial umbrella liability insurance with limits not less than \$1,000,000.00 each accident for bodily injury by accident or \$1,000,000.00 each employee for bodily injury by disease.

Workers' Compensation Coverage. Purchaser shall comply with all State of Washington workers' compensation statutes and regulations. Workers' compensation coverage shall be provided for all employees of Purchaser and employees of any subcontractor or sub-subcontractor. Coverage shall include bodily injury (including death) by accident or disease, which exists out of or in connection with the performance of this contract. Except as prohibited by law, Purchaser waives all rights of subrogation against State for recovery of damages to the extent they are covered by workers' compensation, employer's liability, commercial general liability, or commercial umbrella liability insurance.

If Purchaser, subcontractor or sub-subcontractor fails to comply with all State of Washington workers' compensation statutes and regulations and State incurs fines or is required by law to provide benefits to or obtain coverage for such employees, Purchaser shall indemnify State. Indemnity shall include all fines, payment of benefits to Purchaser or subcontractor employees, or their heirs or legal representatives, and the cost of effecting coverage on behalf of such employees.

Business Auto Policy (BAP). Purchaser shall maintain business auto liability and, if necessary, commercial umbrella liability insurance with a limit not less than \$1,000,000.00 per accident. Such insurance shall cover liability arising out of "Any Auto". Business auto coverage shall be written on ISO form CA 00 01, or substitute liability form providing equivalent coverage. If necessary the policy shall be endorsed to provide contractual liability coverage and cover a "covered pollution cost or

expense" as provided in the 1990 or later editions of CA 00 01. Purchaser waives all rights against State for the recovery of damages to the extent they are covered by business auto liability or commercial umbrella liability insurance.

G-160 Agents

The State's rights and duties will be exercised by the Region Manager at Sedro Woolley, Washington. The Region Manager will notify Purchaser in writing who is responsible for administering the contract. The Region Manager has sole authority to waive, modify, or amend the terms of this contract in the manner prescribed in clause G-180. No agent, employee, or representative of the State has any authority to bind the State to any affirmation, representation, or warranty concerning the forest products conveyed beyond the terms of this contract.

Purchaser is required to have a person on site during all operations who is authorized to receive instructions and notices from the State. Purchaser shall inform the State in writing who is authorized to receive instructions and notices from the State, and any limits to this person's authority.

G-170 Assignment and Delegation

No rights or interest in this contract shall be assigned by Purchaser without prior written permission of the State. Any attempted assignment shall be void and ineffective for all purposes unless made in conformity with this paragraph. Purchaser may perform any duty through a delegate, but Purchaser is not thereby relieved of any duty to perform or any liability. Any assignee or delegate shall be bound by the terms of the contract in the same manner as Purchaser.

G-180 Modifications

Waivers, modifications, or amendments of the terms of this contract must be in writing signed by Purchaser and the State.

G-190 Contract Complete

This contract is the final expression of the Parties' agreement. There are no understandings, agreements, or representations, expressed or implied, which are not specified in this contract.

G-200 Notice

Notices required to be given under the following clauses shall be in writing and shall be delivered to Purchaser's authorized agent or sent by certified mail to Purchaser's post office address:

G-210 Violation of Contract

G-220 State Suspends Operations

All other notices required to be given under this contract shall be in writing and delivered to the authorized agent or mailed to the Party's post office address. Purchaser agrees to notify the State of any change of address.

G-210 Violation of Contract

- a. If Purchaser violates any provision of this contract, the Contract Administrator, by written notice, may suspend those operations in violation. If the violation is capable of being remedied, Purchaser has 30 days after receipt of a suspension notice to remedy the violation. If the violation cannot be remedied (such as a violation of WAC 240-15-015) or Purchaser fails to remedy the violation within 30 days after receipt of a suspension notice, the State may terminate the rights of Purchaser under this contract and collect damages.
- b. If the contract expires pursuant to clause G-030 or G-031 without Purchaser having performed all its duties under this contract, Purchaser's right to operate is terminated and Purchaser shall not have the right to remedy the breach. This provision shall not relieve Purchaser of any payment obligations.
- c. The State has the right to remedy the breach in the absence of any indicated attempt by Purchaser or if Purchaser is unable, as determined by the State, to remedy the breach. Any expense incurred by the State shall be charged to Purchaser and shall be paid within 30 days of receipt of billing.
- d. If Purchaser's violation is a result of a failure to make a payment when due, in addition to a. and b. above, interest shall accrue on the unpaid balance at 12 percent per annum, beginning the date payment was due.

G-220 State Suspends Operation

The Contract Administrator may suspend any operation of Purchaser under this contract when the State is suffering, or there is a reasonable expectation the State will suffer environmental, monetary, or other damage if the operation is allowed to continue.

Purchaser shall be in breach of this contract if the operation continues after the suspension notice or if the operation resumes without prior approval and notice from the Contract Administrator.

Purchaser may request a modification of a suspension within 30 days of the start of suspension through the dispute resolution process in clause G-240. If this process results in a finding that the suspension exceeded the time reasonably necessary to stop or prevent damage to the State, Purchaser is entitled to request a contract term adjustment under clause G-040.

If it reasonably appears that the damage that the State is suffering, or can reasonably be expected to suffer if the operation is allowed to continue, will prevent harvest for a period that will exceed 6 months, and Purchaser has complied with this contract, the provisions of clause G-066 shall govern just as if the harvest was prevented by an applicable foreign or domestic governmental regulation or order.

G-230 Unauthorized Activity

Any cutting, removal, or damage of forest products by Purchaser, its employees, agents, or invitees, including independent contractors, in a manner inconsistent with the terms of this contract or State law, is unauthorized. Such activity may subject Purchaser to liability for triple the value of said forest products under RCW 79.02.320 or RCW 79.02.300 and may result in prosecution under RCW 79.02.330 or other applicable statutes.

G-240 Dispute Resolution

The following procedures apply in the event of a dispute regarding interpretation or administration of this contract and the parties agree that these procedures must be followed before a lawsuit can be initiated.

- a. In the event of a dispute, Purchaser must make a written request to the Region Manager for resolution prior to seeking other relief.
- b. The Region Manager will issue a written decision on Purchaser's request within ten business days.
- c. Within ten business days of receipt of the Region Manager's decision, Purchaser may make a written request for resolution to the Deputy Supervisor - Uplands of the Department of Natural Resources.
- d. Unless otherwise agreed, a conference will be held by the Deputy Supervisor - Uplands within 30 calendar days of the receipt of Purchaser's request for review of the Region Manager's written decision. Purchaser and the Region Manager will have an opportunity to present their positions. The Deputy Supervisor - Uplands will issue a decision within a reasonable time of being presented with both Parties' positions.

G-250 Compliance with All Laws

Purchaser shall comply with all applicable statutes, regulations and laws, including, but not limited to; chapter 27.53 RCW, chapter 68.50 RCW, WAC 240-15 and WAC 296-54. Failure to comply may result in forfeiture of this contract.

G-260 Venue

This contract shall be governed by the laws of the State of Washington. In the event of a lawsuit involving this contract, venue shall be proper only in Thurston County Superior Court.

G-270 Equipment Left on State Land

All equipment owned or in the possession of Purchaser, its employees, agents, or invitees, including independent contractors, shall be removed from the sale area and other State land by the termination date of this contract. Equipment remaining unclaimed on State land 60 days after the expiration of the contract period is subject to disposition as provided by law. Purchaser shall pay to the State all costs of moving, storing, and disposing of such equipment. The State shall not be responsible for any

damages to or loss of the equipment or damage caused by the moving, storing or disposal of the equipment.

G-280 Operating Release

An operating release is a written document, signed by the State and Purchaser, indicating that Purchaser has been relieved of certain rights or responsibilities with regard to the entire or a portion of the timber sales contract. Purchaser and State may agree to an operating release for this sale, or portion of this sale, prior to the contract expiration, when all contract requirements pertaining to the release area have been satisfactorily completed. Upon issuance of a release, Purchaser's right to cut and remove forest products on the released area will terminate.

G-310 Road Use Authorization

Purchaser is authorized to use the following State roads and roads for which the State has acquired easements and road use permits; EK-ML, CH-ML (STA 197+40 to 553+43), CH-37, CH-80, CH-8001, CH-8001-01, CH-82, CH-8201, CH-95, CH-96, CH-9601, CH-99, CH-9901, CH-100, and CH-103. The State may authorize in writing the use of other roads subject to fees, restrictions, and prior rights.

G-330 Pre-work Conference

Purchaser shall arrange with the Contract Administrator to review this contract and to examine the sale area before beginning any operations. A plan of operations shall be developed and agreed upon by the Contract Administrator and Purchaser before beginning any operations. To the extent that the plan of operations is inconsistent with the contract, the terms of the contract shall prevail. State's acceptance and approval of Purchaser's plan of operations shall not be construed as any statement or warranty that the plan of operations is adequate for Purchaser's purposes or complies with applicable laws.

G-340 Preservation of Markers

Any legal land subdivision survey corners and witness objects are to be preserved. If such are destroyed or disturbed, the Purchaser shall, at the Purchaser's own expense, re-establish them through a licensed land surveyor in accordance with U.S. General Land Office standards. Corners and/or witness objects that must be disturbed or destroyed in the process of road construction or logging shall be adequately referenced and/or replaced in accordance with RCW 58.24.040(8). Such references must be approved by the Contract Administrator prior to removal of said corners and/or witness objects.

G-360 Road Use Reservation

The State shall have the right to use, without charge, all existing roads and any road constructed or reconstructed on State lands by Purchaser under this contract. The State may extend such rights to others. If the State grants such rights to others, the State shall require performance or payment, as directed by the State, for their proportionate share of maintenance based on their use.

G-370 Blocking Roads

Purchaser shall not block the CH-ML Road, unless authority is granted in writing by the Contract Administrator.

G-380 Road Easement and Road Use Permit Requirements

Purchaser agrees to comply with the terms and conditions of the attached:

Easements with:
City of Everett; #55-090098; dated May 28, 2014.

G-430 Open Fires

Purchaser shall not set, or allow to be set by Purchaser's employees, agents, invitees and independent contractors, any open fire at any time of the year without first obtaining permission, in writing, from the Contract Administrator.

G-450 Encumbrances

This contract and Purchaser's activities are subject to the following:

DATA MISSING

Section P: Payments and Securities

P-011 Initial Deposit

Purchaser paid DATA MISSING initial deposit, which will be maintained pursuant to RCW 79.15.100(3). If the operating authority on this contract expires without Purchaser's payment of the full amount specified in Clause P-020, the initial deposit will be immediately forfeited to the State, and will be offset against Purchaser's remaining balance due. Any excess initial deposit funds not needed to ensure full payment of the contract price, or not needed to complete any remaining obligations of the Purchaser existing after contract expiration, will be refunded to the Purchaser.

P-020 Payment for Forest Products

Purchaser agrees to pay the total, lump sum contract price of \$140,277.00. The total contract price consists of a \$0.00 contract bid price plus \$140,277.00 in fees. Fees collected shall be retained by the state unless the contract is adjusted via the G-066 clause. Purchaser shall be liable for the entire purchase price, and will not be entitled to any refunds or offsets unless expressly stated in this contract.

THE PURCHASE PRICE SHALL NOT BE AFFECTED BY ANY FACTORS, INCLUDING: the amount of forest products actually present within the contract area, the actual acreage covered by the contract area, the amount or volume of forest products actually cut or removed by purchaser, whether it becomes physically impossible or uneconomic to remove the forest products, and whether the subject forest products have been lost or damaged by fire or any other cause. The only situations Purchaser may not be liable for the full purchase price are governed by clause G-066, concerning governmental regulatory actions taken during the term of the contract.

P-045 Guarantee of Payment

Purchaser will pay for forest products prior to cutting or will guarantee payment by posting an approved payment security. The amount of cash or payment security shall be determined by the State and shall equal or exceed the value of the cutting proposed by Purchaser.

P-050 Billing Procedure

The State will compute and forward to Purchaser statements of charges provided for in the contract. Purchaser shall deliver payment to the State on or before the date shown on the billing statement.

P-080 Payment Account Refund

Advance payments made under P-045 or P-045.2 remaining on account above the value for the charges shall be returned to Purchaser within 30 days following the final report of charges. Refunds not made within the 30 day period will accrue interest at the interest rate, as established by WAC 332-100-030, computed on a daily basis until paid.

P-090 Performance Security

Purchaser agrees to furnish, within 30 days of the confirmation date, security acceptable to the State in the amount of \$100,000.00. The Security provided shall guarantee performance of all provisions of this contract and payment of any damages caused by operations under this contract or resulting from Purchaser's noncompliance with any rule or law. Acceptable performance security may be in the form of a performance bond, irrevocable letter of credit, cash, savings or certificate of deposit account assignments, and must name the State as the obligee or beneficiary. A letter of credit must comply with Title 62A RCW, Article 5. Performance security must remain in full force over the duration of the contract length. Surety bonds issued shall conform to the issuance and rating requirements in clause G-150. The State shall retain the performance security pursuant to RCW 79.15.100. Purchaser shall not operate unless the performance security has been accepted by the State. If at any time the State decides that the security document or amount has become unsatisfactory, Purchaser agrees to suspend operations and, within 30 days of notification, to replace the security with one acceptable to the State or to supplement the amount of the existing security.

P-100 Performance Security Reduction

The State may reduce the performance security after an operating release has been issued if the State determines that adequate security exists for any remaining obligations of Purchaser.

Section H: Harvesting Operations

H-001 Operations Outside the Sale Boundaries

No operations shall occur outside the sale boundaries, as described within the contract, unless approved in writing by the State.

H-010 Cutting and Yarding Schedule

Falling and Yarding will not be permitted from November 1 to March 31 BY GROUND-BASED EQUIPMENT unless authorized in writing by the Contract Administrator.

H-013 Reserve Tree Damage Definition

Reserve trees are trees required and designated for retention within the sale boundary. Purchaser shall protect reserve trees from being cut, damaged, or removed during operations.

Reserve tree damage exists when one or more of the following criteria occur as a result of Purchaser's operation, as determined by the Contract Administrator:

- a. A reserve tree has one or more scars on its trunk exposing the cambium layer, which in total exceeds 200 square inches.
- b. A reserve tree top is broken or the live crown ratio is reduced below 30 percent.
- c. A reserve tree has more than 1/3 of the circumference of its root system injured such that the cambium layer is exposed.

If the Contract Administrator determines that a reserve tree has been cut or damaged, the Purchaser shall provide a replacement reserve tree of like condition, size, and species within the sale area, as approved by the Contract Administrator. Purchaser may be required to pay liquidated damages for Excessive Reserve Tree Damage as detailed in clause D-041.

Removal of designated reserve trees from the sale area is unauthorized, and may invoke the use of the G-230 'Trespass and Unauthorized Activity' clause. Purchaser is required to leave all cut or damaged reserve trees on site.

H-017 Preventing Excessive Soil Disturbance

Operations may be suspended when soil rutting exceeds 4 inches as measured from the natural ground line. To reduce soil damage, the Contract Administrator may require water bars to be constructed, grass seed to be placed on exposed soils, or other mitigation measures. Suspended operations shall not resume unless approval to do so has been given, in writing, by the Contract Administrator.

H-035 Fall Trees Into Sale Area

Trees shall be felled into the sale area unless otherwise approved by the Contract Administrator.

H-051 Branding and Painting

Purchaser shall provide a State of Washington registered log brand, acceptable to the State, unless the State agrees to furnish the brand. All purchased timber shall be branded in a manner that meets the requirements of WAC 240-15-030(2)(a)(i). All

timber purchased under a contract designated as export restricted shall also be painted in a manner that meets the requirements of WAC 240-15-030(2)(a)(ii).

For pulp loads purchased under a contract designated as export restricted, Purchaser shall brand at least 3 logs with legible brands at one end. Also, 10 logs shall be painted at one end with durable red paint.

H-080 Snags Not to be Felled

Snags not required to be felled for safety reasons may be left standing. Snags felled for safety reasons shall not be removed and must remain where felled.

H-110 Stump Height

Trees shall be cut as close to the ground as practicable. Stump height shall not exceed 12 inches in height measured on the uphill side, or 2 inches above the root collar, whichever is higher.

H-120 Harvesting Equipment

Forest products sold under this contract shall be felled by chainsaw and yarded by cable; felled by chainsaw or feller-buncher and yarded by cable or shovel on sustained slopes 35% or less, unless authority to use other equipment is granted in writing by the State.

H-125 Log Suspension Requirements

Lead-end suspension is required for all yarding activities.

H-127 Tailholds on Private Land

If Purchaser chooses to tailhold on private property, Purchaser shall obtain permit(s) and assumes responsibility for all costs and damages associated with the permit(s). Purchaser must provide the State with a copy of the executed permit(s) or a letter from the landowner indicating that a satisfactory tailhold permit(s) has been consummated between Purchaser and the landowner.

H-130 Hauling Schedule

The hauling of forest products will not be permitted on any road from November 1 to March 31 unless authorized in writing by the Contract Administrator .

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

- A. An on-site pre-work meeting shall be scheduled with the Contract Administrator, which shall include the operator and fallers, prior to commencement of any activities on site.
- B. A copy of the timber sale map and contract shall be present on site during active operations.
- C. Fall and yard away from all typed waters, balds, and cliffs when possible.

- D. Ground-based equipment crossings over Type 5 streams shall be located by Purchaser and approved by Contract Administrator before use.
- E. When it is necessary to cable yard across stream channels, crossings need to be as close to perpendicular as possible.
- F. Ground-based yarding shall not exceed 600 feet from any road.
- G. Marked leave trees may be traded for trees of the same size and species with prior approval from the Contract Administrator, except the two non-tradable leave tree clumps. See H-141.

Permission to do otherwise must be granted in writing by the Contract Administrator.

H-141 Additional Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

- A. The two leave tree clumps marked as non-tradable in Unit 2 are not tradable.
- B. Wildlife timing restrictions are: no falling, bucking, yarding or operation of heavy equipment April 1 to August 31 from one hour before official sunrise to two hours after official sunrise and one before and after official sunset. Timing restrictions shall be applied to the areas of the sale depicted on the timber sale map as Wildlife Timing Restriction.
- C. Tail-holding on US Forest Service land adjacent to Unit 1 is not permitted.

Permission to do otherwise must be granted in writing by the State.

H-190 Completion of Settings

Operations begun on any setting of the sale area shall be completed before any operation begins on subsequent settings unless authorized in writing by the Contract Administrator.

H-220 Protection of Residual or Adjacent Trees

Unless otherwise specified by this contract, the Contract Administrator shall identify damaged adjacent or leave trees that shall be paid for according to clause G-230.

Section C: Construction and Maintenance

C-040 Road Plan

Road construction and associated work provisions of the Road Plan for this sale, dated 10/1/2015 are hereby made a part of this contract.

C-050 Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on the CH-ML (409+30 to 553+43), CH-80, CH-8001, CH-8001-01, CH-82, CH-8201, CH-95, CH-96, CH-9601, CH-99,

CH-9901, CH-100, and CH-103 roads. All work shall be completed to the specifications detailed in the Road Plan.

C-060 Designated Road Maintainer

If required by the State, Purchaser shall perform maintenance and replacement work as directed by the Contract Administrator on the existing EK-ML, CH-ML (STA 197+40 to 409+30), and CH-37 roads. Purchaser shall furnish a statement in a form satisfactory to the State showing the costs incurred while performing this work. Costs shall be based on the rates set forth in the State current Equipment Rate Schedule on file at the region and Olympia offices. The State shall reimburse Purchaser for said costs within 30 days of receipt and approval of the statement.

Section S: Site Preparation and Protection

S-001 Emergency Response Plan

An Emergency Response Plan (ERP) shall be provided to the Contract Administrator containing but not limited to, valid contact numbers and procedures for medical emergencies, fire, hazardous spills, forest practice violations and any unauthorized or unlawful activity on or in the vicinity of the sale area. The Contract Administrator and the State shall be promptly notified whenever an incident occurs requiring an emergency response.

The ERP must be presented for inspection at the prework meeting and kept readily available to all personnel, including subcontractors, on site during active operations

S-010 Fire Hazardous Conditions

Purchaser acknowledges that operations under this Contract may increase the risk of fire. Purchaser shall conduct all operations under this agreement following the requirements of WAC 332-24-005 and WAC 332-24-405 and further agrees to use the highest degree of care to prevent uncontrolled fires from starting.

In the event of an uncontrolled fire, Purchaser agrees to provide equipment and personnel working at the site to safely and effectively engage in first response fire suppression activity.

Purchaser's failure to effectively engage in fire-safe operations is considered a breach and may result in suspension of operations

S-020 Extreme Hazard Abatement

Purchaser shall provide a written Extreme Hazard Abatement plan that meets the requirements of WAC 332-24 prior to the beginning of logging operations. The plan must be acceptable to the Contract Administrator. The plan will identify how Purchaser will accomplish abatement. Purchaser shall also provide, and keep current, a written timetable for completion of all specified work in the plan. The Contract Administrator's acceptance and approval of Purchaser's hazard abatement plan shall not be construed as any statement or warranty that the hazard abatement plan is adequate for Purchaser's purposes or complies with applicable laws.

S-030 Landing Debris Clean Up

Landing debris shall be disposed of in a manner approved in writing by the Contract Administrator.

S-050 Cessation of Operations for Low Humidity

During the "closed season", when the humidity is 30 percent or lower on the sale area, all operations must cease unless authority to continue is granted by the State in writing.

S-060 Pump Truck or Pump Trailer

Purchaser shall provide a fully functional pump truck or pump trailer equipped to meet the specifications of WAC 332-24-005 and WAC 332-24-405 during the "closed season" or as extended by the State and shall provide trained personnel to operate this equipment on the sale area during all operating periods.

S-100 Stream Cleanout

Slash or debris which enters any stream as a result of operations under this contract and which is identified by the Contract Administrator shall be removed and deposited in a stable position. Removal of slash or debris shall be accomplished in a manner that avoids damage to the natural stream bed and bank vegetation.

S-130 Hazardous Materials

a. Hazardous Materials and Waste - Regulatory Compliance

Purchaser is responsible for understanding and complying with all applicable local, state, and federal hazardous material/waste laws and regulations for operations conducted under this contract. Such regulations pertain to, but may not be limited to, hazardous material storage, handling and transport, personnel protection, release notification and emergency response, cleanup and waste disposal. Purchaser shall be responsible for restoring the site in the event of a spill.

b. Hazardous Materials Spill Prevention

All operations shall be conducted in a manner that avoids the release of hazardous materials, including petroleum products, into the environment (water, air or land).

c. Hazardous Materials Spill Containment, Control and Cleanup

If safe to do so, Purchaser shall take immediate action to contain and control all hazardous material spills. Purchaser shall ensure that enough quick response spill kits capable of absorbing 4 to 6 gallons of oil, coolant, solvent or contaminated water are available on site to quickly address potential spills from any piece of equipment at all times throughout active operations. If large quantities of bulk fuel/other hazardous materials are stored on site, Purchaser must be able to effectively control a container leak and contain &

recover a hazmat spill equal to the largest single on site storage container volume. (HAZWOPER reg. 29CFR 1910.120 (j) (1) (vii)).

d. Hazardous Material Release Reporting

Releases of oil or hazardous materials to the environment must be reported according to the State Department of Ecology (ECY). It is the responsibility of the Purchaser to have all emergency contact information readily available and a means of remote communication for purposes of quick notification. In the event of a spill, the Purchaser is responsible for notifying the following:

Appropriate Department of Ecology regional office (contact information below).

DNR Contract Administrator

ECY - Northwest Region:

1-425-649-7000

(Island, King, Kitsap, San Juan, Skagit, Snohomish, and Whatcom counties)

ECY - Southwest Region:

1-360-407-6300

(Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, and Wahkiakum counties)

ECY - Central Region:

1-509-575-2490

(Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, and Yakima counties)

ECY - Eastern Region:

1-509-329-3400

(Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, and Whitman counties)

S-131 Refuse Disposal

As required by RCW 70.93, All Purchaser generated refuse shall be removed from state lands for proper disposal prior to termination of this contract. No refuse shall be burned, buried or abandoned on state forest lands. All refuse shall be transported in a manner such that it is in compliance with RCW 70.93 and all loads or loose materials shall be covered/secured such that these waste materials are properly contained during transport.

Section D: Damages

D-013 Liquidated Damages or Failure to Perform

The following clauses provide for payments by Purchaser to the State for breaches of the terms of this contract other than failure to perform. These payments are agreed to

as liquidated damages and not as penalties. They are reasonable estimates of anticipated harm to the State, which will be caused by Purchaser's breach. These liquidated damages provisions are agreed to by the State and Purchaser with the understanding of the difficulty of proving loss and the inconvenience or infeasibility of obtaining an adequate remedy. These liquidated damages provisions provide greater certainty for the Purchaser by allowing the Purchaser to better assess its responsibilities under the contract.

Clause P-020 governs Purchaser's liability in the event Purchaser fails to perform any of the contract requirements other than the below liquidated damage clauses without written approval by the State. Purchaser's failure to pay for all or part of the forest products sold in this contract prior to expiration of the contract term results in substantial injury to the State. Therefore, Purchaser agrees to pay the State the full lump sum contract price in P-020 in the event of failure to perform.

D-041 Reserve Tree Excessive Damage

When Purchaser's operations exceed the damage limits set forth in clause H-013, Reserve Tree Damage Definition, and when the Contract Administrator determines that a suitable replacement for a damaged reserve tree is not possible, the damaged trees result in substantial injury to the State. The value of the damaged reserve trees at the time of the breach is not readily ascertainable. Therefore, the Purchaser agrees to pay the State as liquidated damages at the rate of \$1,000.00 per tree for all damaged reserve trees that are not replaced in the sale area.

IN WITNESS WHEREOF, the Parties hereto have entered into this contract.

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Purchaser

Jean Fike
Northwest Region Manager

Date: _____
Address: _____

Date: _____

CORPORATE ACKNOWLEDGEMENT

STATE OF _____)

_____)

COUNTY OF _____)

On this _____ day of _____, 20____, before me personally appeared _____

_____ to me known to be the _____ of the corporation

that executed the within and foregoing instrument and acknowledged said instrument to be the free and voluntary act and deed of the corporation, for the uses and purposes therein mentioned, and on oath stated that (he/she was) (they were) authorized to execute said instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Notary Public in and for the State of

My appointment expires _____

Schedule A
NW Ground-Based Equip Specifications (Rev11/05/14)

The following types of equipment are considered ground-based equipment: feller-buncher, processor, forwarder, skidder and shovel.

SHOVEL is defined as a low ground pressure track-mounted machine with hydraulic boom and grapple capable of picking up one end of the largest log 25 feet from the center of the machine.

LOG PROCESSOR/DE-LIMBER is defined as a mobile machine with a hydraulic boom capable of simultaneously bucking, delimiting and/or debarking and chipping whole trees while sitting stationary at the landing.

FELLER-BUNCHER/HARVESTER is defined as a track mounted machine with hydraulic boom and cutter head capable of felling, bucking, limbing, and decking logs in one operation.

FORWARDER is defined as a track or rubber tire machine used for transporting logs to a landing by use of a bunk with self loading boom in which logs are carried free of the ground.

RUBBER-TIRED SKIDDER is defined as a skidder mounted on rubber tires used to drag logs to a landing. Logs are generally pulled in groups of six or less, with one end on the ground.

TRACKED SKIDDER is defined as any tracked tractor or skidder, fixed or articulated, used to drag logs to landings. Logs are generally pulled in groups of six or less, with one end on the ground.

Harvester shall not deviate from the requirements set forth in this Schedule without prior written approval from the Contract Administrator.

FOR ALL YARDING:

Equipment will remain at least 30 feet from all water courses or areas of wet/soft soils, except as necessary to cross at approved locations. Water course crossing structures must be approved by the Contract Administrator.

Logging debris created by the operation will be removed from water courses concurrently with yarding.

WHEN SHOVEL YARDING IS AUTHORIZED:

S1. When yarding and loading operations are occurring simultaneously, an additional shovel will be required for loading to avoid extra trips to the landing.

S2. Shovel yarding will not be allowed to create ruts or soil puddling. Shovel routes should be dispersed to prevent creation of definable trails.

S3. Within shovel logged areas, to facilitate proper reforestation, logging debris will be dispersed as necessary to create clear, plantable spots at approximately a 11 foot x 11 foot spacing. Planting spots will be created concurrently with yarding.

LOG PROCESSORS will be allowed within the sale area only under one of the following conditions:

1. No tops or limbs will be allowed to accumulate on any landings, and all tops and limbs will be re-distributed into the unit, to the satisfaction of the Contract Administrator, and will provide for plantable spots every 11 feet by 11 feet.
2. Harvester must provide a written slash treatment plan, acceptable to the Contract Administrator, to address the additional slash accumulation. The Slash Treatment Plan will be a part of the Plan of Operations.



WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

FOREST EXCISE TAX ROAD SUMMARY SHEET

Region:

Timber Sale Name:

Application Number:

EXCISE TAX APPLICABLE ACTIVITIES

Construction: **linear feet**
Road to be constructed (optional and required) but not abandoned

Reconstruction: **linear feet**
Road to be reconstructed (optional and required) but not abandoned

Abandonment: **linear feet**
Abandonment of existing roads not reconstructed under the contract

Decommission: **linear feet**
Road to be made undriveable but not officially abandoned.

Pre-Haul Maintenance: **linear feet**
Existing road to receive maintenance work (specifically required by the contract) prior to haul

EXCISE TAX EXEMPT ACTIVITIES

Temporary Optional Construction: **linear feet**
Optional roads to be constructed and then abandoned

Temporary Optional Reconstruction: **linear feet**
Optional roads to be reconstructed and then abandoned

New Abandonment: **linear feet**
Abandonment of roads constructed or reconstructed under the contract

All parties must make their own assessment of the taxable or non-taxable status of any work performed under the timber sale contract. The Department of Revenue bears responsibility for determining forest road excise taxes. The Department of Natural Resources developed this form to help estimate the impact of forest excise taxes. However, the information provided may not precisely calculate the actual amount of taxes due. The Department of Revenue is available for consultation by calling 1.800.548.8829.

(Revised 6/13)

Cruise Narrative

Sale Name: Pig Knuckle Ridge	Region: Northwest
App. Number: 30-092630	District: Cascade
Lead cruiser: P. Kirner	Completion date: 11/2/15
Other cruisers on sale: ML, JM	

Unit acreage specifications:

Unit #	Cruised acres	Cruised acres agree with sale acres? Yes/No	If acres do not agree explain why.
1	71.0	Yes	
2	83.7	Yes	
R/W	14.9	Yes	External R/W between units 1 and 2
Total	169.6		

Unit cruise specifications:

Unit #	Sample type (VP, FP, ITS,100%)	Expansion factor (BAF, full/half)	Sighting height (4.5 ft, 16 ft.)	Grid size (Plot spacing or % of area)	Plot ratio (cruise:count)	Total number of plots
1	V.P.	Full 54.44 Full 40.00	4.5	260 x 260	1 to 1	42
2	V.P.	Full 54.44 Full 40.00	4.5	325 x 325	2 count 1 cruise	35
R/W	V.P.	Full 71.11	4.5	1,250 feet apart	All cruise	5
						82

Sale/Cruise Description:

Minor species cruise intensity:	The Red Alder and Red Cedar are minor species in this sale. A 40 B.A.F. was used to gather more of a sample on these two species.					
Minimum cruise spec:	8 inches D.B.H. having 5 inches at 16 feet.					
Avg ring count by sp:	DF =		WH =	9	SS =	
Leave/take tree description:	Unit 1 has 10 "Leave Tree Clumps" and 61 scattered blue painted trees. Unit 2 has 12 "Leave Tree Clumps" and 87 scattered blue painted trees.					
Other conditions	Approximately 85 percent of the sale area is uphill cable harvestable.					

Field observations:

Unit 1 is located seven miles up the CH mainline east of the Monroe Camp Road gate. Its elevation range is 2,300 feet to 1,400 feet. The species component in this unit is W. Hemlock, D Fir, R. Alder and trace amounts of R. Cedar and B. Cottonwood. The aspect of the unit is south.

Unit 2 is located a mile east of unit 1, along the ridge where new construction of the CH mainline will be extended. The elevation of this unit is 2,600 feet to 2,000 feet. The species component in this unit is W. Hemlock, P. Silver fir, and trace amounts of D. Fir and R. Cedar. The aspect is flat along the ridge falling to the north. Another way to access the unit is up the Sultan Basin Road, cross the Culmback Dam, another mile or so park and walk 20 minutes to the east end of the unit. A F1-1 key is required at the dam. This is not a haul route.

Western Hemlock is the major specie in this sale at 76 percent. The average Hemlock is 12.4" D.B.H and 60 feet tall. D. Fir makes up another 12 percent of the sale. Its average is 18.8" D.B.H. and 74 feet tall. R. Alder and P. Silver Fir are 5 percent each and there are trace amounts of R. Cedar and B. Cottonwood. The Alder and Cottonwood are in unit 1 only.

GRANTS: **Unit 1 78% 03, 22% 07 Unit 2 and R/W 100% 03**

PREPARED BY: P. Kirner

TITLE: Forest Check Cruiser 1

TC PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																			
Northwest		Project: PIGKNKLE										Page 1									
T29N R08E S22 Ty0001 71.00		Acres 169.60										Date 11/2/2015									
T29N R08E S23 TyRW 14.90												Time 12:35:06PM									
T29N R08E S25 Ty0002 83.70																					
S Spp	So T	Gr rt ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre	
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99						
DF	D	2S	61	7.4	2,495	2,312	392			55	45			2	98	40	15	342	2.16	6.8	
DF	D	3S	31	3.4	1,178	1,138	193		100					2	4	39	8	103	0.84	11.0	
DF	D	4S	7	2.8	285	277	47	60	40				42	23		21	6	24	0.36	11.4	
DF	D	UT	1		8	8	1		100				100			4	6	7	0.41	1.2	
DF Totals			12	5.8	3,966	3,735	633	4	34	34	28		3	2	2	92	31	9	123	1.09	30.3
WH	D	2S	14	10.0	3,812	3,430	582			91	9				100	40	13	231	1.59	14.9	
WH	D	3S	57	3.2	13,712	13,279	2,252		100					3	97	40	8	93	0.67	142.8	
WH	D	4S	22	2.4	5,289	5,160	875	99	1			13	27	24	36	28	5	29	0.31	180.3	
WH	D	UT	7	1.4	1,651	1,628	276	75	5	13	7	35	16	19	30	15	5	18	0.32	90.5	
WH Totals			76	4.0	24,464	23,497	3,985	27	57	14	2	5	7	8	79	29	6	55	0.53	428.4	
RC	D	3S	73	19.4	521	419	71		74	26					100	36	9	82	1.04	5.1	
RC	D	4S	27	5.6	161	152	26	82	18			34	32	14	19	23	5	24	0.33	6.4	
RC Totals			2	16.2	681	571	97	22	59	19		9	9	4	79	29	7	50	0.72	11.5	
RA	D	2S	13	8.6	220	201	34			100					100	30	14	193	1.76	1.0	
RA	D	3S	21	6.7	318	297	50		100					66	34	32	10	119	1.05	2.5	
RA	D	4S	36	10.9	581	518	88	17	83					52	48	33	6	46	0.53	11.2	
RA	D	UT	30		432	432	73	68	21	11		30	16	38	16	22	5	28	0.41	15.2	
RA Totals			5	6.7	1,551	1,448	246	26	57	17		9	51	11	29	27	7	48	0.58	29.9	
CW	D	2S	72	11.1	198	176	30			100					100	30	13	160	1.45	1.1	
CW	D	UT	28		66	66	11		100						100	30	8	60	0.64	1.1	
CW Totals			1	8.3	265	243	41		27	73					100	30	11	110	1.04	2.2	
SF	D	2S	36	3.0	531	515	87			100					100	40	14	268	1.58	1.9	
SF	D	3S	49	9.5	781	707	120		100					7	93	40	8	94	0.67	7.5	
SF	D	4S	15	4.0	212	203	34	91	9			7	20	59	13	26	5	27	0.28	7.5	
SF Totals			5	6.5	1,524	1,425	242	13	51	36		1	3	12	84	34	8	84	0.66	16.9	
Totals				4.7	32,452	30,918	5,244	23	54	18	5	5	9	8	78	29	7	60	0.58	519.3	

TC PSTATS		PROJECT STATISTICS							PAGE	1	
Northwest		PROJECT PIGKNKLE							DATE	11/2/2015	
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
29N	08E	22	PIG KNUCKLE	0001	169.60	82	423	S	W		
29N	08E	23	PIG KNUCKLE	RW							
29N	08E	25	PIG KNUCKLE	0002							
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		82	423	5.2							
CRUISE		41	208	5.1	51,342	.4					
DBH COUNT											
REFOREST											
COUNT		41	204	5.0							
BLANKS											
100 %											
STAND SUMMARY											
		SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK		150	253.6	12.4	60	60.5	213.3	24,464	23,497	6,704	6,704
DOUG FIR		25	14.3	18.8	74	6.4	27.5	3,966	3,735	1,027	1,027
R ALDER		15	18.7	13.4	51	5.0	18.3	1,551	1,448	470	472
PS FIR		9	7.5	15.4	82	2.5	9.7	1,524	1,425	374	374
WR CEDAR		8	7.5	14.5	51	2.2	8.5	681	571	239	239
COTWOOD		1	1.1	19.0	72	0.5	2.2	265	243	69	69
TOTAL		208	302.7	13.0	60	77.5	279.6	32,452	30,918	8,883	8,884
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL	68.1	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK		84.0	6.9	123	132	141					
DOUG FIR		89.8	18.3	383	468	554					
R ALDER		74.2	19.8	83	104	125					
PS FIR		58.8	20.8	195	247	298					
WR CEDAR		78.1	29.5	56	79	102					
COTWOOD											
TOTAL		120.0	8.3	159	174	188	575	293	144		
CL	68.1	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK		87.8	9.7	229	254	278					
DOUG FIR		179.2	19.8	12	14	17					
R ALDER		237.8	26.2	14	19	24					
PS FIR		308.6	34.0	5	7	10					
WR CEDAR		268.5	29.6	5	7	10					
COTWOOD		713.2	78.7	0	1	2					
TOTAL		69.1	7.6	280	303	326	191	97	48		
CL	68.1	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK		72.6	8.0	196	213	230					
DOUG FIR		160.7	17.7	23	28	32					
R ALDER		224.3	24.7	14	18	23					
PS FIR		303.6	33.5	6	10	13					
WR CEDAR		280.8	31.0	6	9	11					
COTWOOD		713.2	78.7	0	2	4					
TOTAL		47.4	5.2	265	280	294	90	46	22		
CL	68.1	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK		75.0	8.3	21,554	23,497	25,440					

TC PSTATS		PROJECT STATISTICS							PAGE	2
Northwest		PROJECT PIGKNKLE							DATE	11/2/2015
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
29N	08E	22	PIG KNUCKLE	0001	169.60	82	423	S	W	
29N	08E	23	PIG KNUCKLE	RW						
29N	08E	25	PIG KNUCKLE	0002						
CL	68.1	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		174.5	19.3	3,016	3,735	4,454				
R ALDER		222.5	24.6	1,092	1,448	1,803				
PS FIR		298.5	32.9	956	1,425	1,894				
WR CEDAR		285.4	31.5	391	571	751				
COTWOOD		713.2	78.7	52	243	433				
TOTAL		52.0	5.7	29,145	30,918	32,691	108	55	27	
CL	68.1	COEFF		V BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK				101	110	119				
DOUG FIR		128.2	14.2	110	136	162				
R ALDER		66.3	7.3	60	79	98				
PS FIR		268.9	29.7	99	147	195				
WR CEDAR		136.2	15.0	46	67	88				
COTWOOD		204.4	22.5	24	112	200				
TOTAL		49.2	5.4	104	111	117	97	49	24	

T29N R08E S22 T0001									T29N R08E S22 T0001				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt				
29N	08E	22	PIG KNUCKLE	0001	71.00	42	111	S	W				

Spp	So	Gr	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
								Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft		CF/ Lf
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
WH	DM	2S	10	8.3	1,763	1,616	115		80	20				100	40	14	272	1.83	5.9	
WH	DM	3S	49	3.8	7,918	7,618	541		100				4	96	40	8	90	0.69	84.7	
WH	DM	4S	29	.2	4,509	4,501	320	98	2			16	31	16	37	27	5	28	0.31	160.2
WH	DM	UT	12		1,740	1,740	124	59	11	14	16	39	22	39	13	5	18	0.37	96.9	
WH	Totals		61	2.9	15,930	15,475	1,099	35	51	10	4	9	11	7	73	26	6	44	0.50	347.8
RA	DM	2S	13	8.6	526	481	34		100					100	30	14	193	1.76	2.5	
RA	DM	3S	21	6.7	759	708	50		100					66	34	32	10	119	1.05	6.0
RA	DM	4S	36	10.9	1,388	1,236	88	17	83					52	48	33	6	46	0.53	26.7
RA	DM	UT	30		1,032	1,032	73	68	21	11		30	16	38	16	22	5	28	0.41	36.4
RA	Totals		14	6.7	3,706	3,458	246	26	57	17		9	51	11	29	27	7	48	0.58	71.5
DF	DM	2S	73	7.4	4,565	4,227	300		41	59				2	98	39	16	385	2.31	11.0
DF	DM	3S	20	4.3	1,206	1,155	82		100					4	9	38	8	95	0.82	12.2
DF	DM	4S	7	4.8	389	370	26	28	72			66	22	13	18	6	22	0.39	16.7	
DF	DM	UT													6			0.00	1.9	
DF	Totals		23	6.6	6,160	5,752	408	2	25	30	43	4	2	3	90	29	9	138	1.25	41.7
CW	DM	2S	72	11.1	474	421	30		100					100	30	13	160	1.45	2.6	
CW	DM	UT	28		158	158	11		100					100	30	8	60	0.64	2.6	
CW	Totals		2	8.3	632	579	41		27	73				100	30	11	110	1.04	5.3	
RC	DM	4S	100	13.0	165	144	10	100				15		36	49	27	5	25	0.33	5.6
RC	Totals		1	13.0	165	144	10	100				15		36	49	27	5	25	0.33	5.6
Type Totals				4.5	26,594	25,408	1,804	26	45	17	12	8	17	7	69	26	6	54	0.59	471.9

T29N R08E S23 TRW Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt 29N 08E 23 PIG KNUCKLE RW 14.90 5 24 S	T29N R08E S23 TRW BdFt W
---------------------------------------------------------------------------------------------------------------------	--------------------------------

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
									Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf	
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
WH		DM	2S	20	9.3	7,028	6,373	95	100				100				40	12	197	1.58	32.3
WH		DM	3S	45	11.1	15,580	13,844	206	100				100				40	8	82	0.67	169.1
WH		DM	4S	24	1.8	7,467	7,334	109	99	1			17	30	25	28	27	5	28	0.30	257.6
WH		DM	UT	11	7.3	3,553	3,292	49	100				37 39 24				25	5	26	0.30	125.1
WH	Totals			95	8.3	33,628	30,843	460	34	45	21		4	11	10	75	31	6	53	0.53	584.1
SF		DM	3S	60	50.0	1,391	695	10	100				100				40	9	60	0.83	11.6
SF		DM	4S	40	.0	464	464	7	100				100				34	5	40	0.29	11.6
SF	Totals			4	37.5	1,854	1,159	17	40	60				40	60		37	7	50	0.58	23.2
DF		DM	3S	85	14.3	632	541	8	100				100				40	7	60	1.03	9.0
DF		DM	4S	15		90	90	1	100				100				13	5	10	0.20	9.0
DF	Totals			2	12.5	722	632	9	14	86			14		86		27	6	35	0.82	18.0
Type Totals					9.9	36,204	32,634	486	34	47	20		4	10	11	74	31	6	52	0.54	625.3

T29N R08E S25 T0002	T29N R08E S25 T0002
Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt	BdFt
29N 08E 25 PIG KNUCKLE 0002 83.70 35 73 S	W

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
									Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft		CF/ Lf
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
WH	DM	2S		15	10.7	4,978	4,446	372			93	7				100	40	13	230	1.53	19.3
WH	DM	3S		62	1.7	18,293	17,979	1,505			100				3	97	40	8	96	0.65	187.3
WH	DM	4S		18	4.2	5,563	5,331	446	99	1			11	24	29	36	29	5	29	0.32	183.6
WH	DM	UT		5		1,238	1,238	104	82		18				31	22	14	5	16	0.28	78.8
WH	Totals			82	3.6	30,072	28,994	2,427	22	62	15	1	4	4	9	83	31	7	62	0.55	469.1
DF	DM	2S		42	7.2	1,184	1,099	92			100					100	40	14	252	1.86	4.4
DF	DM	3S		48	1.8	1,251	1,229	103			100					100	40	9	119	0.84	10.3
DF	DM	4S		9		231	231	19	100				6	27		67	29	5	32	0.34	7.3
DF	DM	UT		1		17	17	1			100		100				12	7	20	0.41	.8
DF	Totals			7	4.0	2,683	2,576	216	9	48	43		1	2		96	35	8	113	0.92	22.8
SF	DM	2S		38	3.0	1,076	1,044	87			100					100	40	14	268	1.58	3.9
SF	DM	3S		49	2.0	1,335	1,308	110			100				8	92	39	8	100	0.64	13.1
SF	DM	4S		13	4.9	346	329	28	89	11			9	25	49	16	25	5	25	0.28	13.1
SF	Totals			8	2.8	2,758	2,681	224	11	50	39		1	3	10	86	33	8	89	0.67	30.2
RC	DM	3S		82	19.4	1,055	850	71		74	26					100	36	9	82	1.04	10.4
RC	DM	4S		18		186	186	16	71	29			46	54			20	5	23	0.33	8.2
RC	Totals			3	16.5	1,240	1,035	87	13	66	21		8	10		82	29	7	56	0.82	18.6
Type Totals					4.0	36,753	35,287	2,954	20	60	19	1	4	4	8	84	31	7	65	0.58	540.6

TC TSTATS		STATISTICS						PAGE	1	
Northwest		PROJECT PIGKNKLE						DATE	11/2/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
29N	08E	22	PIG KNUCKLE	0001	71.00	42	209	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		42	209	5.0						
CRUISE		21	111	5.3	21,242	.5				
DBH COUNT										
REFOREST										
COUNT		21	98	4.7						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	75	226.0	11.5	52	48.1	163.4	15,930	15,475	4,534	4,531
R ALDER	15	44.7	13.4	51	12.0	43.8	3,706	3,458	1,123	1,126
DOUG FIR	17	20.2	18.8	72	9.0	38.9	6,160	5,752	1,492	1,492
COTWOOD	1	2.6	19.0	72	1.2	5.2	632	579	164	164
WR CEDAR	3	5.6	9.6	36	0.9	2.9	165	144	50	50
TOTAL	<i>111</i>	<i>299.2</i>	<i>12.5</i>	<i>53</i>	<i>71.9</i>	<i>254.1</i>	<i>26,594</i>	<i>25,408</i>	<i>7,365</i>	<i>7,364</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK	98.7	11.4		104	117	130				
R ALDER	74.2	19.8		83	104	125				
DOUG FIR	82.9	20.7		451	569	687				
COTWOOD										
WR CEDAR	57.3	39.6		16	27	37				
TOTAL	<i>144.2</i>	<i>13.7</i>		<i>158</i>	<i>183</i>	<i>208</i>	<i>830</i>	<i>423</i>	<i>207</i>	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK	100.1	15.4		191	226	261				
R ALDER	155.9	24.0		34	45	55				
DOUG FIR	159.9	24.7		15	20	25				
COTWOOD	508.6	78.4		1	3	5				
WR CEDAR	367.0	56.6		2	6	9				
TOTAL	<i>70.7</i>	<i>10.9</i>		<i>267</i>	<i>299</i>	<i>332</i>	<i>200</i>	<i>102</i>	<i>50</i>	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK	90.8	14.0		140	163	186				
R ALDER	145.2	22.4		34	44	54				
DOUG FIR	135.8	20.9		31	39	47				
COTWOOD	508.6	78.4		1	5	9				
WR CEDAR	364.9	56.3		1	3	4				
TOTAL	<i>48.9</i>	<i>7.5</i>		<i>235</i>	<i>254</i>	<i>273</i>	<i>96</i>	<i>49</i>	<i>24</i>	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK	98.3	15.2		13,129	15,475	17,820				
R ALDER	143.7	22.2		2,692	3,458	4,225				
DOUG FIR	153.5	23.7		4,390	5,752	7,113				
COTWOOD	508.6	78.4		125	579	1,034				
WR CEDAR	397.6	61.3		56	144	232				
TOTAL	<i>54.1</i>	<i>8.3</i>		<i>23,290</i>	<i>25,408</i>	<i>27,525</i>	<i>117</i>	<i>60</i>	<i>29</i>	

TC TSTATS				STATISTICS			PAGE 2		
Northwest				PROJECT PIGKNKLE			DATE 11/2/2015		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
29N	08E	22	PIG KNUCKLE	0001	71.00	42	209	S	W
CL: 68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10	
CL: 68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK	53.5	8.3	80	95	109				
R ALDER			61	79	96				
DOUG FIR	120.4	18.6	113	148	183				
COTWOOD	129.0	19.9	24	112	199				
WR CEDAR	397.6	61.3	19	50	81				
TOTAL	<i>185.7</i>	<i>28.6</i>	<i>92</i>	<i>100</i>	<i>108</i>	<i>1,377</i>	<i>703</i>	<i>344</i>	

TC TSTATS		STATISTICS						PAGE	1	
Northwest		PROJECT PIGKNKLE						DATE	11/2/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
29N	08E	23	PIG KNUCKLE	RW	14.90	5	24	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		5	24	4.8						
CRUISE		5	24	4.8	6,055	.4				
DBH COUNT										
REFOREST COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	22	385.7	12.2	58	89.6	312.9	33,628	30,843	9,549	9,574
PS FIR	1	11.6	15.0	78	3.7	14.2	1,854	1,159	501	496
DOUG FIR	1	9.0	17.0	58	3.4	14.2	722	632	391	394
TOTAL	24	406.4	12.4	58	96.9	341.3	36,204	32,634	10,441	10,464
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		75.0	16.4	102	122	142				
PS FIR										
DOUG FIR										
TOTAL		74.1	15.4	100	119	137	229	117	57	
CL:	68.1 %	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		98.2	48.8	197	386	574				
PS FIR		223.6	111.1		12	24				
DOUG FIR		223.6	111.1		9	19				
TOTAL		89.1	44.3	226	406	586	392	200	98	
CL:	68.1 %	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		47.1	23.4	240	313	386				
PS FIR		223.6	111.1		14	30				
DOUG FIR		223.6	111.1		14	30				
TOTAL		37.3	18.5	278	341	405	69	35	17	
CL:	68.1 %	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		28.8	14.3	26,427	30,843	35,260				
PS FIR		223.6	111.1		1,159	2,447				
DOUG FIR		223.6	111.1		632	1,333				
TOTAL		23.4	11.6	28,837	32,634	36,431	27	14	7	
CL:	68.1 %	COEFF	V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		28.8	14.3	84	99	113				
PS FIR		223.6	111.1		81	172				
DOUG FIR		223.6	111.1		44	94				
TOTAL		23.4	11.6	84	96	107	27	14	7	

TC TSTATS		STATISTICS						PAGE	1	
Northwest		PROJECT PIGKNKLE						DATE	11/2/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
29N	08E	25	PIG KNUCKLE	0002	83.70	35	190	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		35	190	5.4						
CRUISE		15	73	4.9	24,045	.3				
DBH COUNT										
REFOREST										
COUNT		20	106	5.3						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	53	253.5	13.1	66	65.7	238.0	30,072	28,994	8,037	8,036
DOUG FIR	7	10.3	18.9	81	4.6	20.2	2,683	2,576	745	745
PS FIR	8	13.1	15.5	83	4.4	17.1	2,758	2,681	670	670
WR CEDAR	5	10.4	16.2	59	3.7	14.9	1,240	1,035	441	441
TOTAL	73	287.3	13.6	67	78.7	290.2	36,753	35,287	9,893	9,892
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK	69.1	9.5		142	157	172				
DOUG FIR	49.3	20.1		225	281	338				
PS FIR	54.2	20.4		211	265	319				
WR CEDAR	51.8	25.8		82	110	138				
TOTAL	68.6	8.0		163	177	192	188	96	47	
CL:	68.1 %	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK	49.3	8.3		232	253	275				
DOUG FIR	208.7	35.3		7	10	14				
PS FIR	205.0	34.6		9	13	18				
WR CEDAR	200.1	33.8		7	10	14				
TOTAL	42.0	7.1		267	287	308	70	36	18	
CL:	68.1 %	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK	43.0	7.3		221	238	255				
DOUG FIR	196.8	33.2		14	20	27				
PS FIR	200.8	33.9		11	17	23				
WR CEDAR	196.8	33.2		10	15	20				
TOTAL	28.6	4.8		276	290	304	33	17	8	
CL:	68.1 %	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK	44.2	7.5		26,829	28,994	31,160				
DOUG FIR	198.5	33.5		1,712	2,576	3,440				
PS FIR	193.7	32.7		1,804	2,681	3,558				
WR CEDAR	193.4	32.7		697	1,035	1,374				
TOTAL	33.1	5.6		33,312	35,287	37,262	44	22	11	
CL:	68.1 %	COEFF	V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK				113	122	131				
DOUG FIR	117.6	19.9		85	127	170				
PS FIR	169.1	28.6		105	157	208				
WR CEDAR	57.4	9.7		47	70	92				
TOTAL	253.1	42.7		115	122	128	2,558	1,305	640	

Species Summary - Trees, Logs, Tons, CCF, MBF

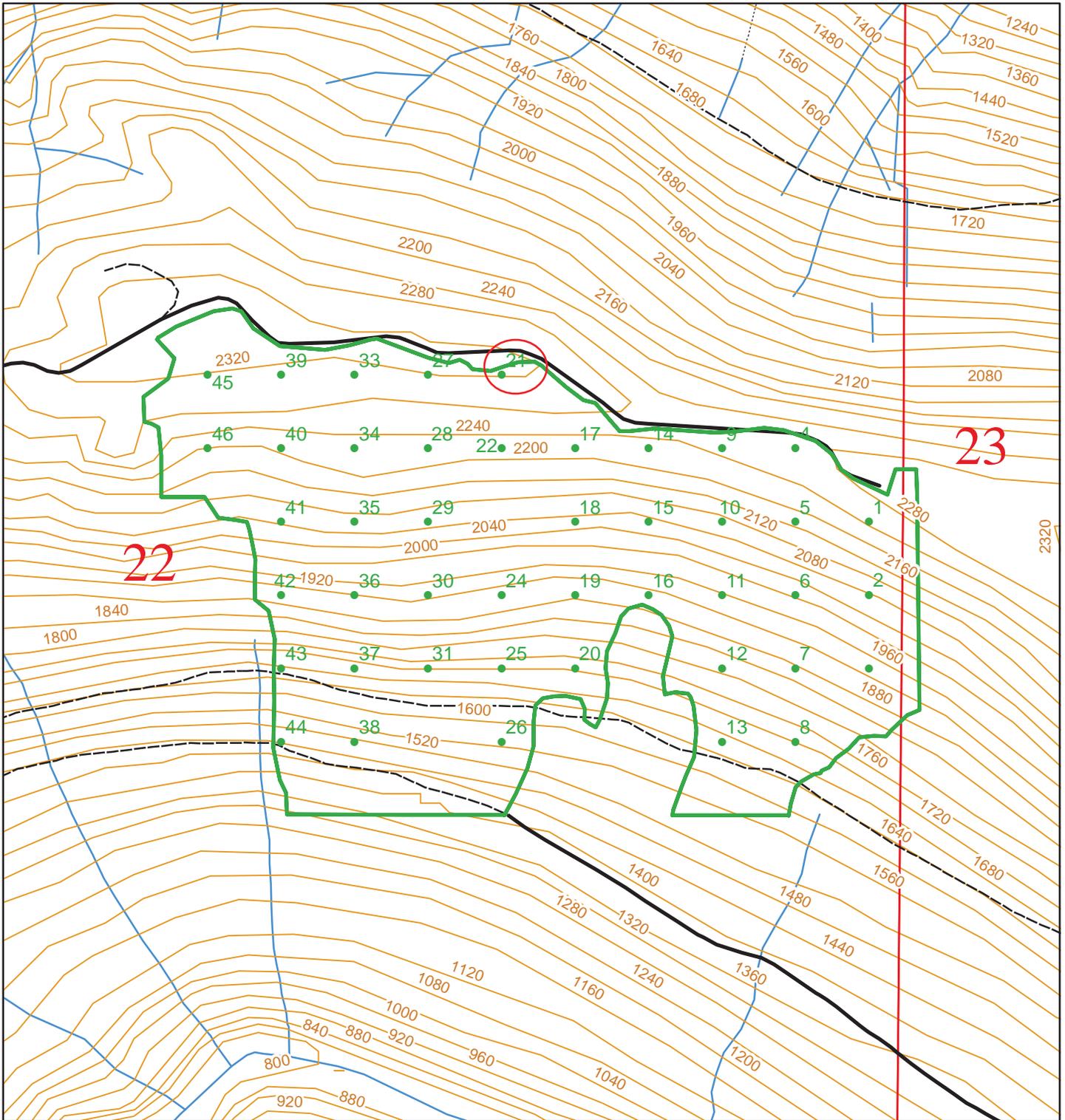
T29N R08E S22 Ty0001	71.0
T29N R08E S23 TyRW	14.9
T29N R08E S25 Ty0002	83.7

Project PIGKNKLE
Acres 169.60

Page No 1
Date: 11/2/2015
Time 12:35:07PM

Species	Total	Total	Total	Net Cubic Ft/		CF/ LF	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log		Gross	Net	Gross	Net
WHEMLOCK	43,012	72,656	36,381	26.43	15.65	0.55	11,369	11,370	4,149	3,985
DOUG FIR	2,432	5,142	4,963	71.59	33.86	1.11	1,741	1,741	673	633
R ALDER	3,172	5,076	2,193	25.21	15.76	0.61	798	800	263	246
PS FIR	1,272	2,869	1,819	49.88	22.11	0.66	635	634	258	242
WR CEDAR	1,267	1,956	952	31.97	20.72	0.72	405	405	116	97
COTWOOD	187	374	286	62.42	31.21	1.04	117	117	45	41
Totals	51,342	88,072	46,595	29.35	17.11	0.60	15,065	15,067	5,504	5,244

Wood Type Species	Total	Total	Total	Net Cubic Ft/		CF/ LF	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log		Gross	Net	Gross	Net
C	47,983	82,623	44,115	29.49	17.13	0.59	14,151	14,151	5,196	4,957
H	3,359	5,450	2,479	27.28	16.82	0.64	914	916	308	287
Totals	51,342	88,072	46,595	29.35	17.11	0.60	15,065	15,067	5,504	5,244



FMU POLYGON AND SAMPLE POINT INFORMATION

FMU_NM:	PIG KNUCKLE RIDGE U1	Township:	T29R08E
FMU_ID:	90627	DNR Region:	NORTHWEST
Acres:	74	Total Sample Points:	46
County:	SNOHOMISH	Spacing Between Points:	Width: 260 Height: 260
		Point Rotation Degrees:	0

Dropped Plots ○

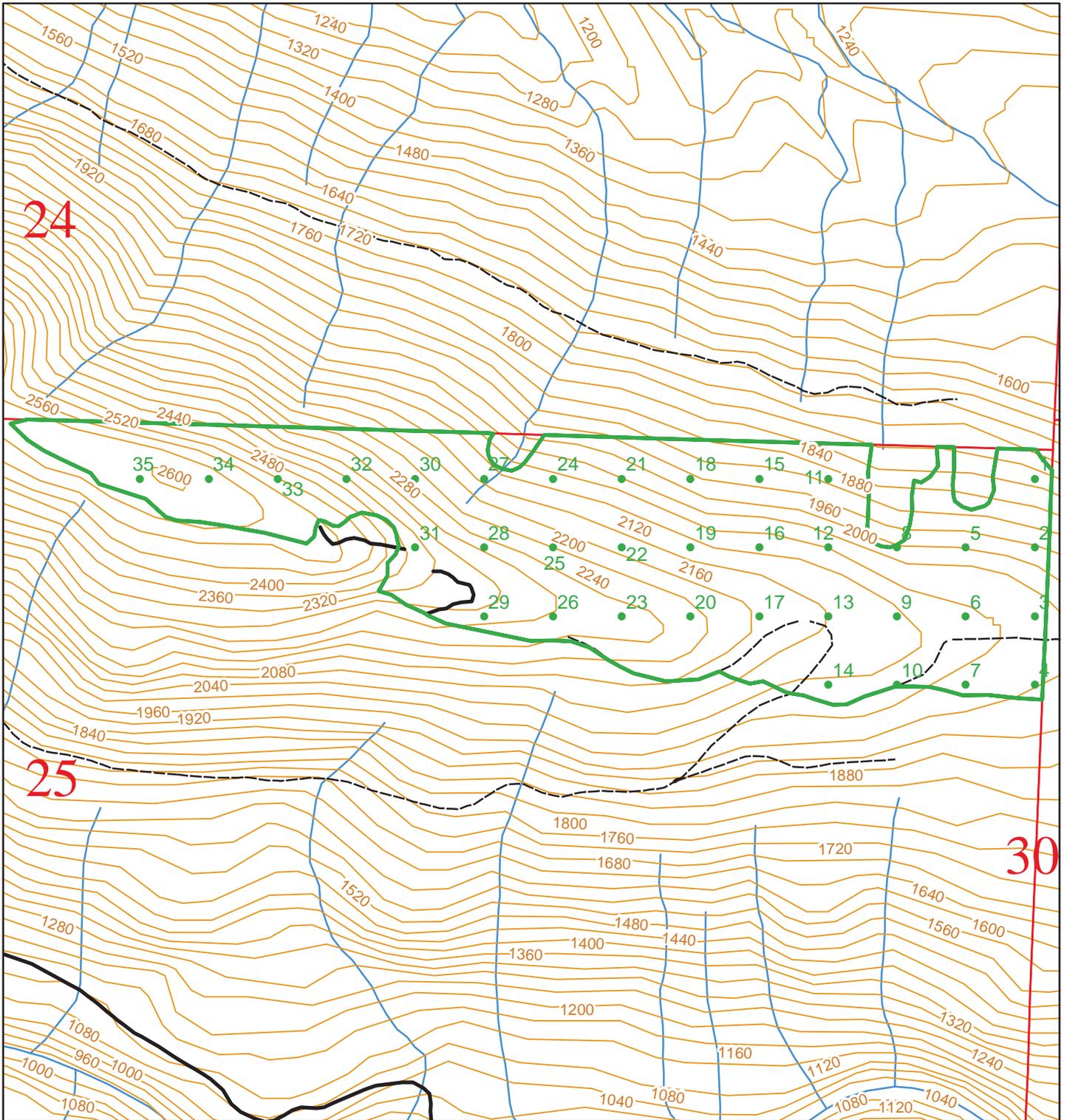


Scale 1:6,000



Legend

- Sample Points
- FMU polys
- Public Land Survey Sections
- Contours 40-foot



FMU POLYGON AND SAMPLE POINT INFORMATION

FMU_NM:	PIG KNUCKLE RIDGE U2	Township:	T29R08E
FMU_ID:	90626	DNR Region:	NORTHWEST
Acres:	88	Total Sample Points:	35
County:	SNOHOMISH	Spacing Between Points:	325
		Point Rotation Degrees:	0



Scale 1:8,000

Legend

- Sample Points
- FMU polys
- Public Land Survey Sections
- Contours 40-foot

PRE-CRUISE NARRATIVE

Sale Name: Pig Knuckle Ridge	Region: Northwest
Agreement #: 30-092630	District: Cascade
Contact Forester: Brian Bailey Phone / Location: (360) 691-7677	County(s): Snohomish, Choose a county
Alternate Contact: Greg Anderson Phone / Location: (360) 333-7983	Other information: Click here to enter text.

Type of Sale: Lump Sum	
Harvest System: Uphill Cable Click here to enter text.	85%
Harvest System: Ground based Click here to enter text.	15%
Harvest System: Select harvest system Click here to enter text.	Click here to enter percent sale acres.

UNIT ACREAGES AND METHOD OF DETERMINATION:

Unit #	Legal Description (Enter only one legal for each unit) Sec/Twp/Rng	Grant or Trust	Gross Proposal Acres	Deductions from Gross Acres (No harvest acres)				Net Harvest Acres	Acreage Determination (List method and error of closure if applicable)
				RMZ/WMZ Acres	Leave Tree Acres	Existing Road Acres	Other Acres (describe)		
1	22/T29/R08E	*	73.9		1.9	1.0***		71.0	GPS (Garmin)
2	25/T29/R08E	3	87.9		2.2	1.7***	0.3**	83.7	GPS (Garmin)
R/W	23/T29/R08E	3	14.9					14.9	Combination
	Enter Sec / Twp / Rng								Choose an item.
	Enter Sec / Twp / Rng								Choose an item.
	Enter Sec / Twp / Rng								Choose an item.
TOTAL ACRES			176.7		4.1	2.7	0.3	169.6	

HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Leave, take, paint color, tags, flagging etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
1	Unit 1 is a Variable Retention Harvest (VRH). Take all trees bounded by white	N/A	593 Total Leave Trees (532 Clumped, 61

	"Timber Sale Boundary" tags, road CH-ML, or bounded by and including trees painted with two red bands and a yellow "T". Trees bounded by yellow "Leave Tree Area" tags are designated as leave trees. All blue painted trees are also designated as leave trees.		Scattered)
2	Unit 2 is a Variable Retention Harvest (VRH). Take all trees bounded by white "Timber Sale Boundary" tags. Trees bounded by yellow "Leave Tree Area" tags are designated as leave trees. All blue painted trees are designated as leave trees.	N/A	704 Total Leave Trees (617 Clumped, 87 Scattered).
ROW	Marked with orange "Right-of-Way Boundary" tags. Centerline marked with stakes and orange flagging.	N/A	N/A

OTHER PRE-CRUISE INFORMATION:

Unit #	Primary,secondary Species / Estimated Volume (MBF)	Access information (Gates, locks, etc.)	Photos, traverse maps required
1	WH,DF / 2,485 mbf	Sale is accessed from Monroe Camp Road through EK-ML. An F1 key is required.	Traverse and vicinity maps are attached.
2	WH,DF / 2,930 mbf		
R/W	WH,DF / 521 mbf		
TOTAL MBF	5,936 mbf		

REMARKS:

Directions: From Granite Falls, travel south towards Lake Roesiger on Menzel Lake Road for approximately 8 miles to the Lake Roesiger Store. Turn left onto Monroe Camp Road, and follow for 1.7 miles to the EK-ML gate.

From the gate, continue on EK-ML for 1.8 miles. Stay left to remain on EK-ML, and then continue another 3 miles. Hang left again, and follow for 2.3 miles. Turn left to stay on EK-ML. Travel 0.8 miles and then hang

right. In another 0.8 miles hang right onto CH-37. In 0.7 miles turn left onto CH-ML. After 2.7 miles turn left with CH-ML and proceed uphill 1.3 miles. Unit 1 will be on your right just beyond the rock pit.

For Unit 2, drive another 0.5 miles to the end of CH-ML. From there, a staked road line will continue east. Travel on foot along the ridge for a little over 1 mile to reach Unit 2.

Alternative access is across Spada Lake's Culmback Dam. Access is currently restricted by PUD, but the Culmback Dam gate can be opened with an F1-1 key. Contact PUD to gain access. Once across the dam, drive less than a mile to the P-5800 turnoff. Park here and follow the abandoned road for three-quarters of a mile to Unit 2.

Notes:

The southern boundary of Unit 1 is against US Forest Service property. GPS traverse points were taken at the carsonite posts.

Two abandoned roads transect the southern portion of Unit 1 and provide alternative access into the unit.

*Unit 1 Trust breakout is 57.5 acres (78%) to Trust 03 and 16.4 acres (22%) to Trust 07.

** Acreage for two voids are deducted: 1) Rock pit along P-5800 (0.27 acres); 2) Gravel landing along NW-1358762 (0.03 acres).

***Road Deductions: Unit 1 = EK-ML length of 1376' by average width of 20' = 0.63 acres
EK-92 length of 859' by average width of 20' = 0.39 acres
Unit 2 = NW-1358762 length of 791' by average width of 15' = 0.27 acres
P-5803/P-5800 length of 3735' by average width of 17' = 1.46

ROW calculations: Between Unit 1 and Unit 2 - length of 6278' by average width of 83' = 12 acres
South of Unit 2 - length of 1414' by average width of 90' = 2.9 acres

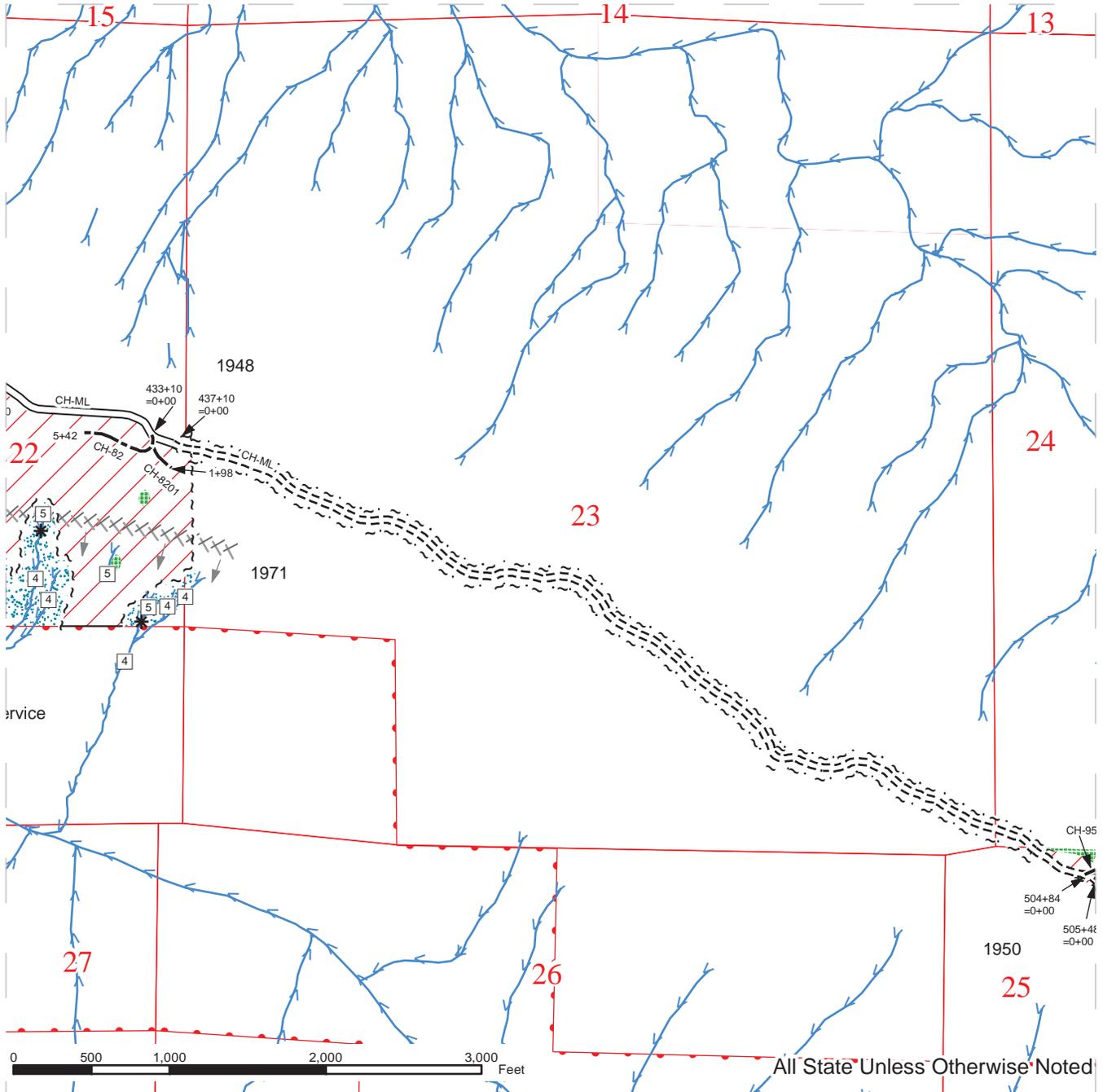
VRH volume estimated at approximately 35 mbf/acre.

Prepared By: Date:	Title:	CC:
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TIMBER SALE MAP

SALE NAME: PIG KNUCKLE RIDGE
AGREEMENT#: 92630
TOWNSHIP(S): T29R08E
TRUST(S): Common School and Indemnity(3), Capitol Grant(7)

REGION: Northwest Region
COUNTY(S): SNOHOMISH
ELEVATION RGE: 1313-2669



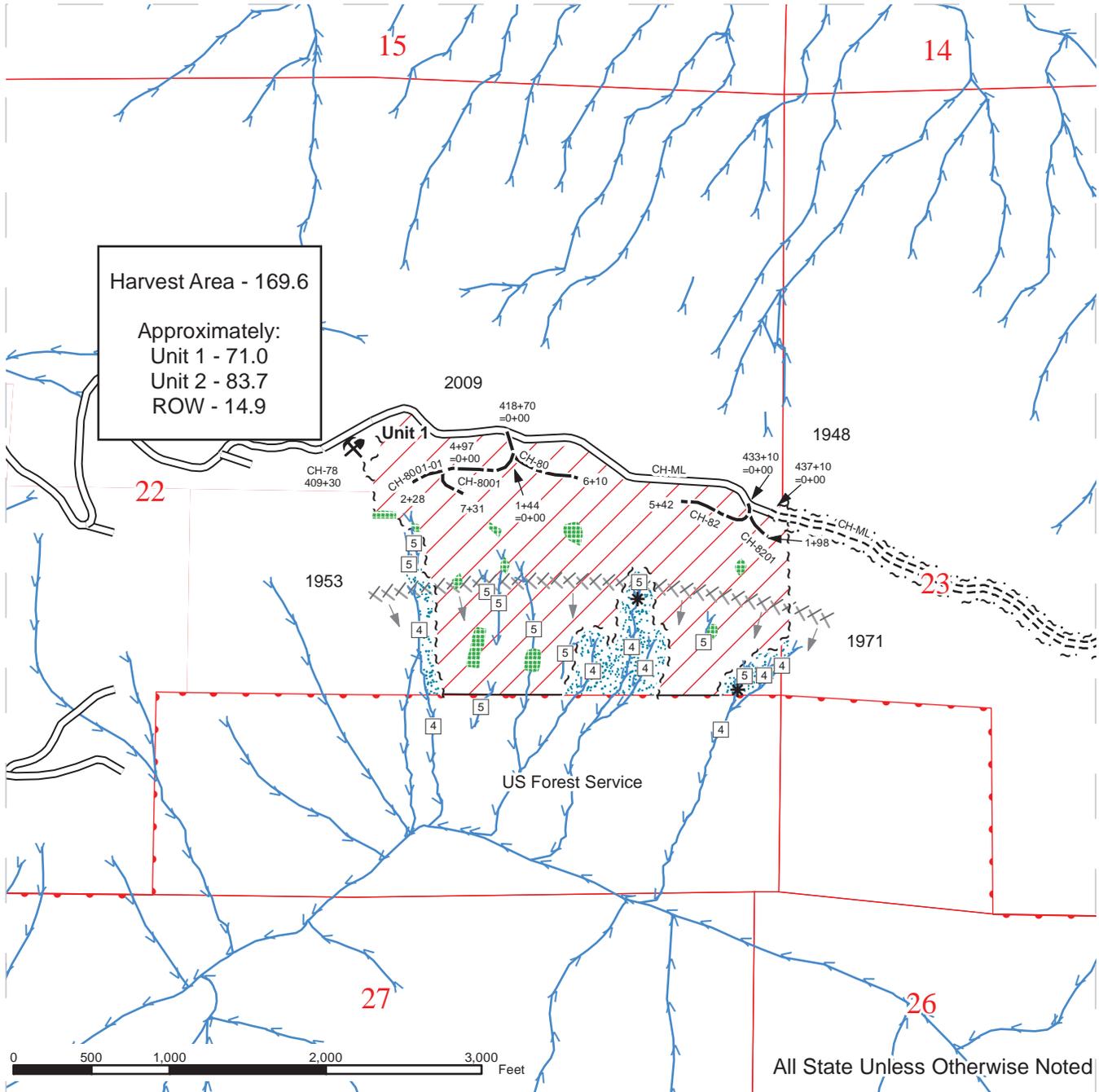
Sale Area	ROW	DNR Managed Lands
Sale Boundary Tags	Leave Trees	Existing Rock Pit
Sale Boundary No Tags	Riparian Mgt Zone	Wildlife Timing Restriction
Optional Construction	Non-Tradable Leave Trees	
Required Construction	Streams	
Required Reconstruction	Stream Type	
Existing Roads	Stream Type Break	



TIMBER SALE MAP

SALE NAME: PIG KNUCKLE RIDGE
AGREEMENT#: 92630
TOWNSHIP(S): T29R08E
TRUST(S): Common School and Indemnity(3), Capitol Grant(7)

REGION: Northwest Region
COUNTY(S): SNOHOMISH
ELEVATION RGE: 1313-2669

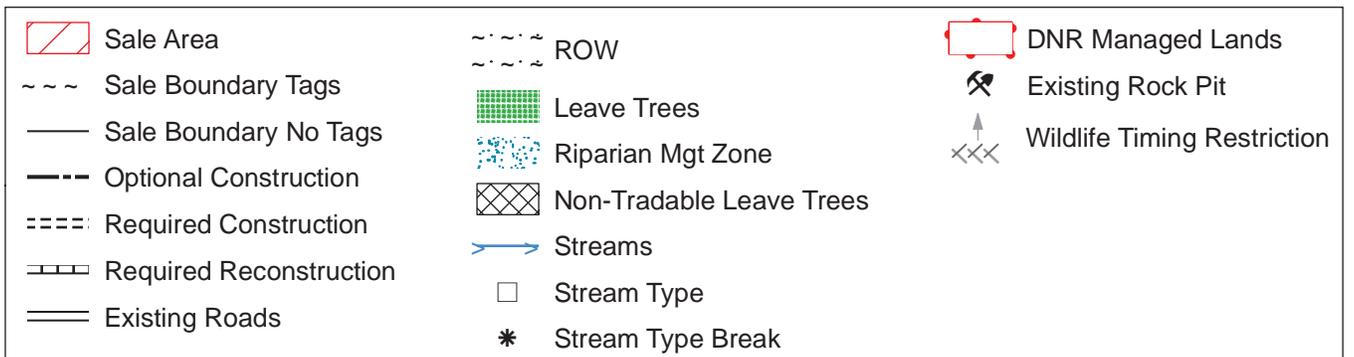
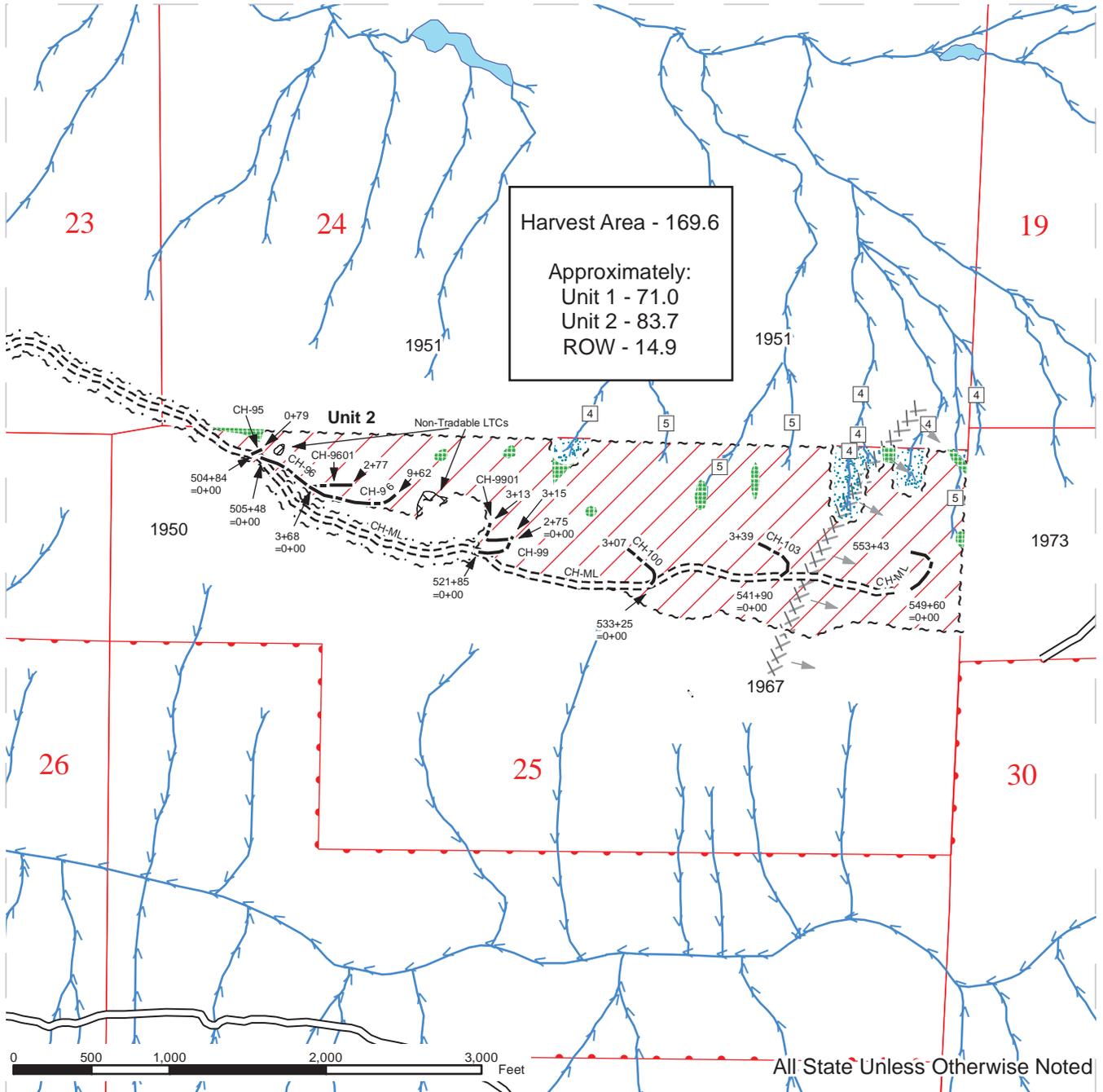


	Sale Area		ROW		DNR Managed Lands
	Sale Boundary Tags		Leave Trees		Existing Rock Pit
	Sale Boundary No Tags		Riparian Mgt Zone		Wildlife Timing Restriction
	Optional Construction		Non-Tradable Leave Trees		Streams
	Required Construction		Stream Type		Stream Type Break
	Required Reconstruction				
	Existing Roads				

TIMBER SALE MAP

SALE NAME: PIG KNUCKLE RIDGE
AGREEMENT#: 92630
TOWNSHIP(S): T29R08E
TRUST(S): Common School and Indemnity(3), Capitol Grant(7)

REGION: Northwest Region
COUNTY(S): SNOHOMISH
ELEVATION RGE: 1313-2669



Pig Knuckle Ridge

T29 R08 E Sec. 20, 22, 23, 25
 Cascade District, Starbird Unit



Harvest Area:
 176.7 Gross Acres
 169.6 Net Acres

Approximate Net Acreage:
 Unit 1 = 71.0
 Unit 2 = 83.7
 ROW = 14.9

- Pig Knuckle Ridge
- GPS Points
- Leave Tree Clumps
- New Road
- ROW
- Streams



*Approximate net acreage

Pig Knuckle Ridge

T29 R08 E Sec. 20, 22, 23, 25
 Cascade District, Starbird Unit



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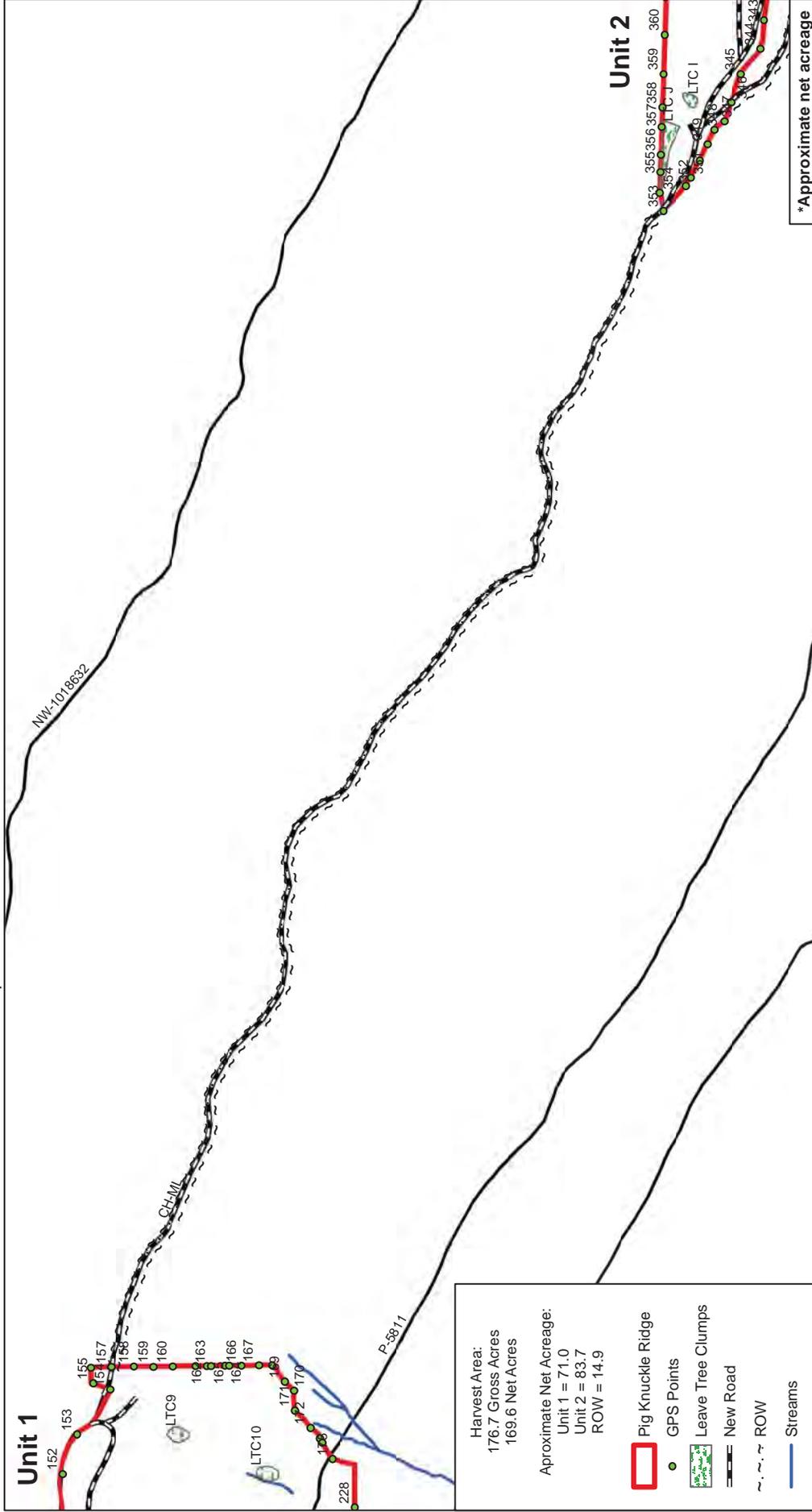
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TZ9 R08 E Sec. 20, 22, 23, 25
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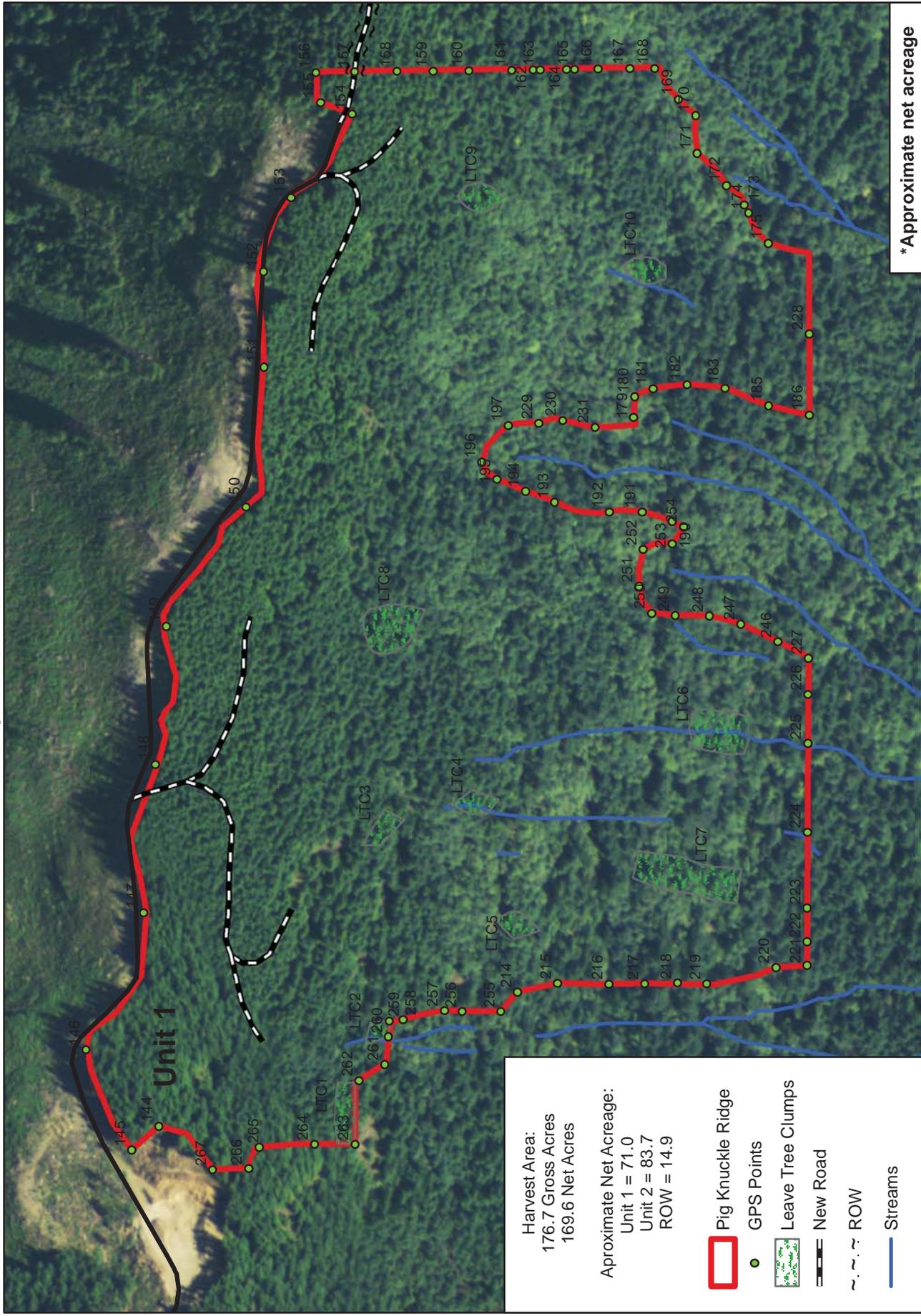
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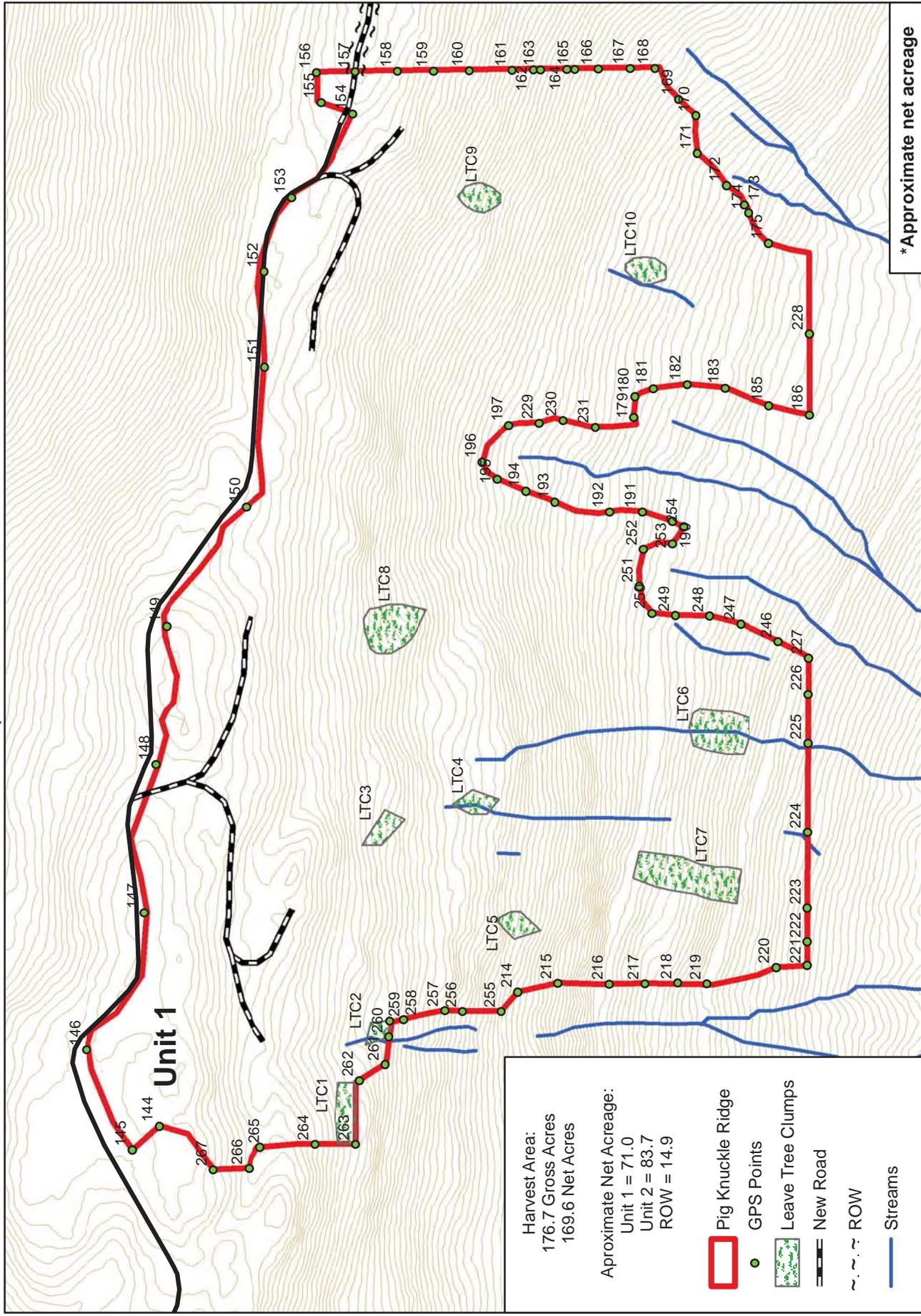
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T29 R08 E Sec. 20, 22, 23, 25
 Cascade District, Starbird Unit



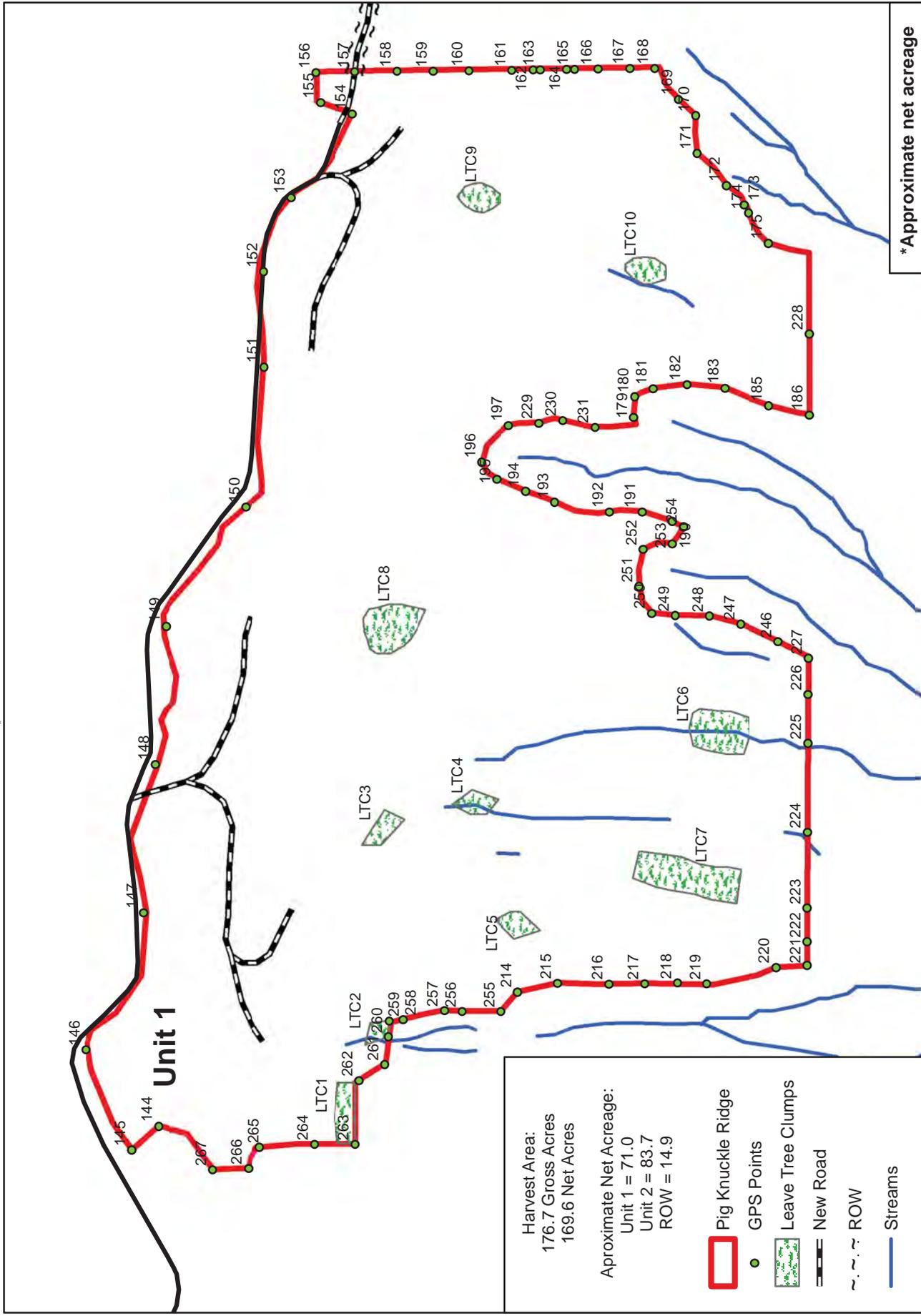
Pig Knuckle Ridge

T29 R08 E Sec. 20, 22, 23, 25
Cascade District, Starbird Unit



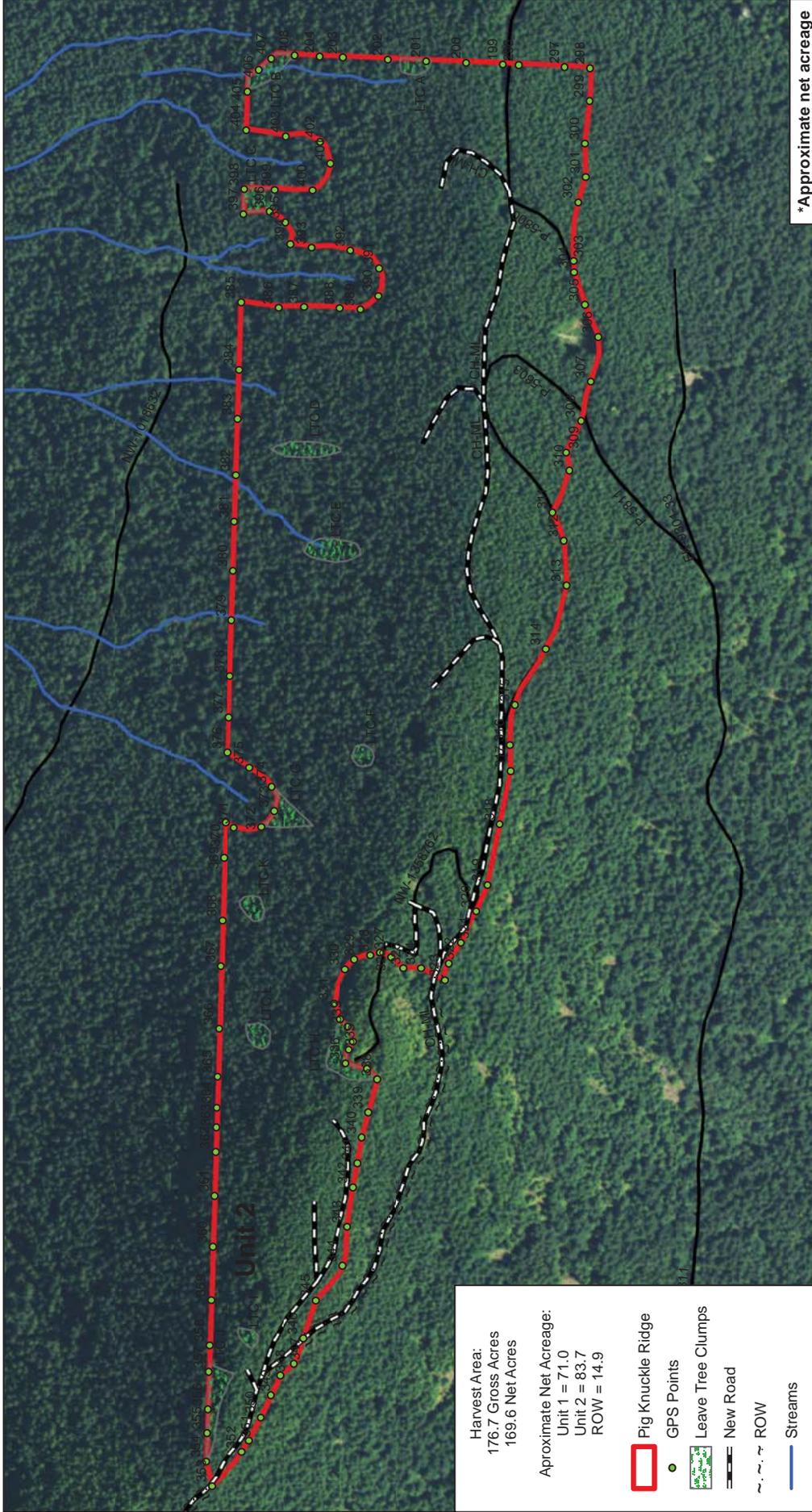
Pig Knuckle Ridge

T29 R08 E Sec. 20, 22, 23, 25
Cascade District, Starbird Unit



Pig Knuckle Ridge

T29 R08 E Sec. 22, 23, 25
 Cascade District, Starbird Unit



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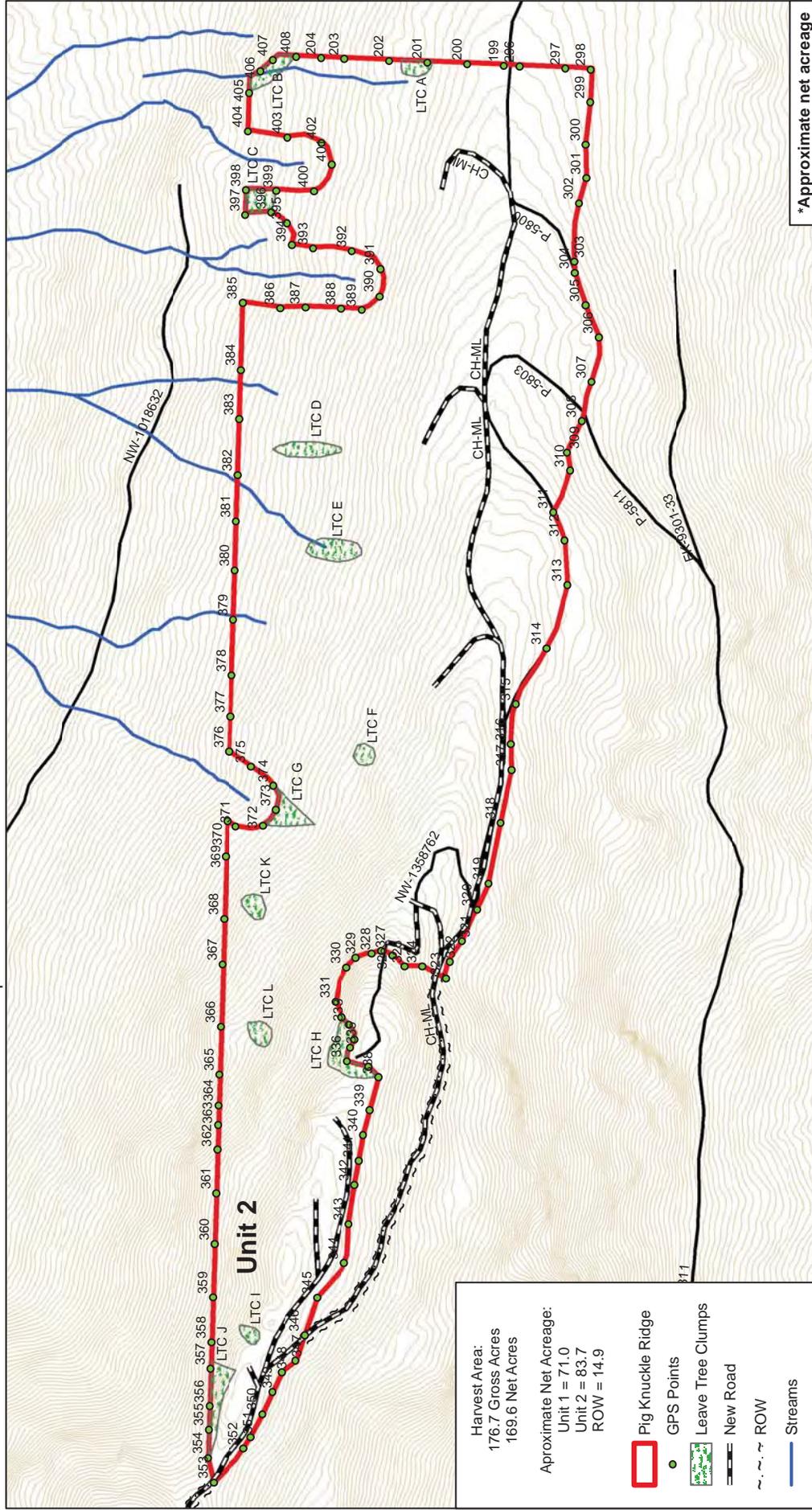
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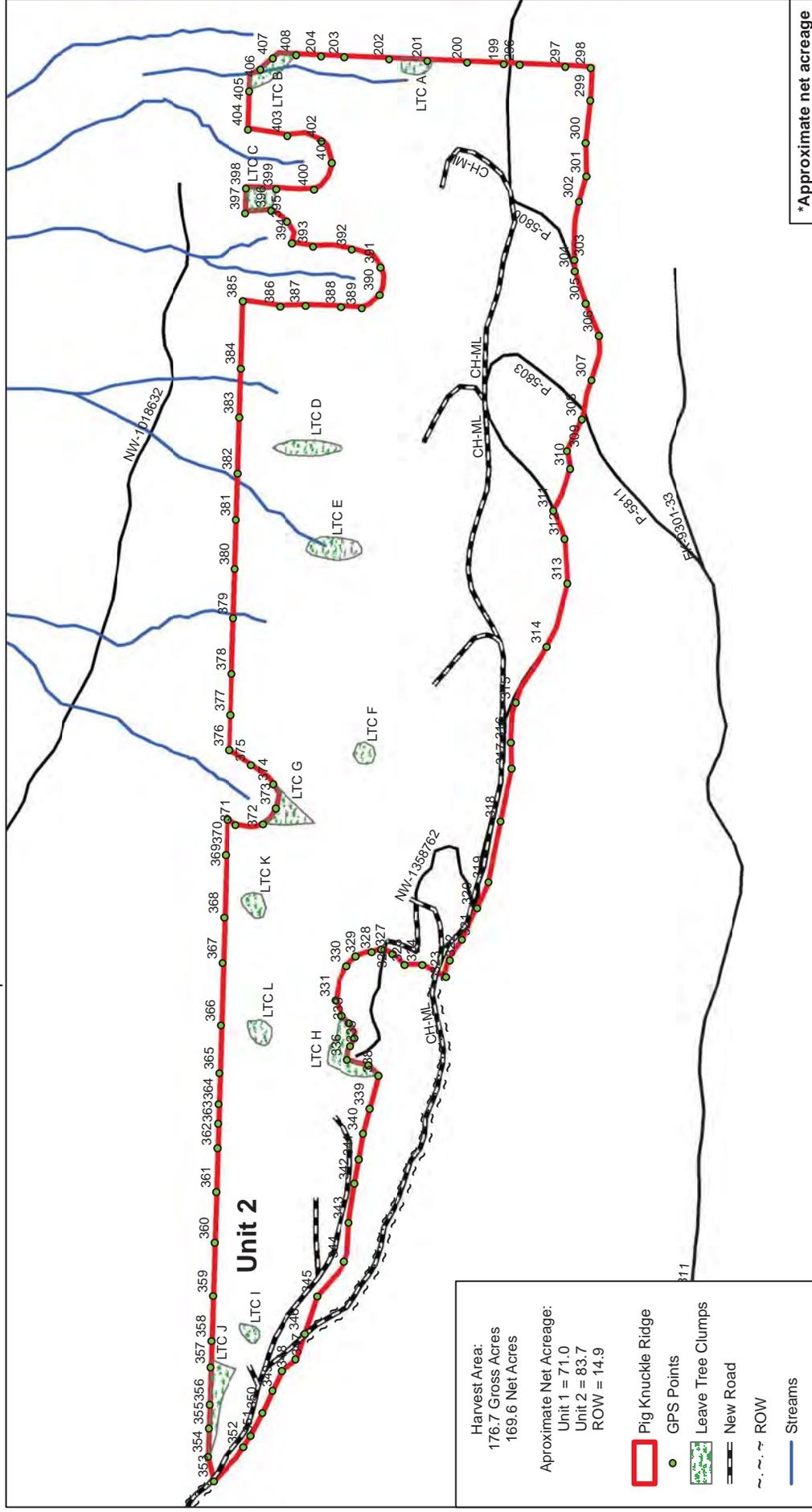
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Pig Knuckle Ridge

T29 R08 E Sec. 22, 23, 25
 Cascade District, Starbird Unit



*Approximate net acreage





WASHINGTON STATE DEPARTMENT OF
Natural Resources
 Peter Goldmark - Commissioner of Public Lands

FPA/N No: 2814988

Effective Date: 2/26/2016

Expiration Date: 2/26/2019

**Forest Practices Application/Notification
 Notice of Decision**

Shut Down Zone: 658

EARR Tax Credit: Eligible Non-eligible

Reference: **Pig Knuckle Ridge**

DECISION:

- NOTIFICATION Operations shall not begin before the effective date.
- APPROVED This Forest Practices Application is subject to the conditions listed below.
- DISAPPROVED This Forest Practices Application is disapproved for the reasons listed below.
- CLOSED Applicant has withdrawn FPA/N.

FPA/N CLASSIFICATION

- Class II
- Class III
- Class IVG
- Class IVS

Number of Years Granted on Multi-Year Request

- 4yrs
- 5 yrs

Conditions on Approval / Reasons for Disapproval

THIS OPERATION IS SUBJECT TO THESE CONDITIONS:

No additional condition.

FOR YOUR INFORMATION:

Notify DNR Northwest Region Office (360-856-3500) 48 business hours before commencing timber harvest operations. Please provide the application number and legal description for your operation.

Issued By: Steven Huang *S.H.*

Region: Northwest

Title: Skykomish Forest Practice Forester

Date: 2/26/2016

Copies to: Landowner, Timber Owner and Operator

Issued in Person: Landowner, Timber Owner Operator By: *S. Huang*

Appeal Information

You have thirty (30) days to appeal this Decision and any related State Environmental Policy Act determinations to the Pollution Control Hearings Board in writing at the following addresses:

Physical address: 1111 Israel Rd. SW, Ste 301, Tumwater, WA 98501

Mailing address: P.O. BOX 40903, OLYMPIA, WA 98504-0903

Information regarding the Pollution Control Hearings Board can be found at: <http://www.eluho.wa.gov/>

At the same time you file an appeal with the Pollution Control Hearings Board, also send a copy of the appeal to the Department of Natural Resources' region office and the Office of the Attorney General at the following addresses:

Office of the Attorney General
Natural Resources Division
1125 Washington Street SE
PO Box 40100
Olympia, WA 98504-0100

And

Department Of Natural Resources
Northwest Region
919 N Township Street
Sedro-Woolley, WA 98284

Other Applicable Laws

Operating as described in this application/notification does not ensure compliance with the Endangered Species Act, or other federal, state, or local laws.

Hydraulic Project Approval (HPA) (Chapter 77.55RCW and WAC 222-50-020(2))

The Department of Fish and Wildlife (WDFW), as the jurisdictional agency issuing HPAs, has final authority for approving water crossing structures in Type S and F waters. WDFW continues to have authority on Type N waters and may exercise that authority on some Type N waters.

Notice: The HPA water crossing requirements supersede what is indicated on the FPA. Landowners are required by law to follow the provisions as directed on the HPA.

Transfer of Forest Practices Application/Notification (WAC 222-20-010)

Use the "Notice of Transfer of Approved Forest Practices Application/Notification" form. This form is available at region offices and on the Forest Practices Division website: <http://www.dnr.wa.gov/businesspermits/forestpractices>. Notify DNR of new Operators within 48 hours.

Continuing Forest Land Obligations (RCW 76.09.060, RCW 76.09.070, RCW 76.09.390, and WAC 222-20-055)

Obligations include reforestation, road maintenance and abandonment plans, conversions of forest land to non-forestry use and/or harvest strategies on perennial non-fish habitat (Type Np) waters in Eastern Washington.

Before the sale or transfer of land or perpetual timber rights subject to continuing forest land obligations, the seller must notify the buyer of such an obligation on a form titled "Notice of Continuing Forest Land Obligation". The seller and buyer must both sign the "Notice of Continuing Forest Land Obligation" form and send it to the DNR Region Office for retention. This form is available at DNR region offices.

If the seller fails to notify the buyer about the continuing forest land obligation, the seller must pay the buyer's costs related to continuing forest land obligations, including all legal costs and reasonable attorneys' fees incurred by the buyer in enforcing the continuing forest land obligation against the seller.

Failure by the seller to send the required notice to the DNR at the time of sale will be prima facie evidence in an action by the buyer against the seller for costs related to the continuing forest land obligation prior to sale.

DNR affidavit of mailing:

On this day _____, I placed in the United States mail at Sedro-Woolley, WA, postage paid, a true and accurate copy of the attached document. Notice of Decision FPA # __2814__

_____ L Utgard _____

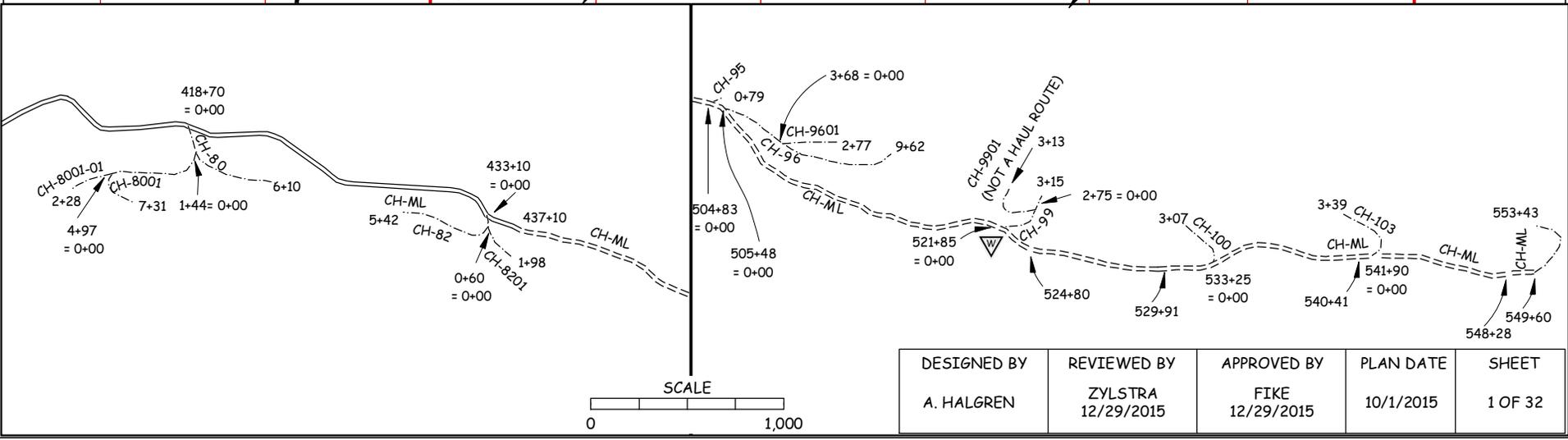
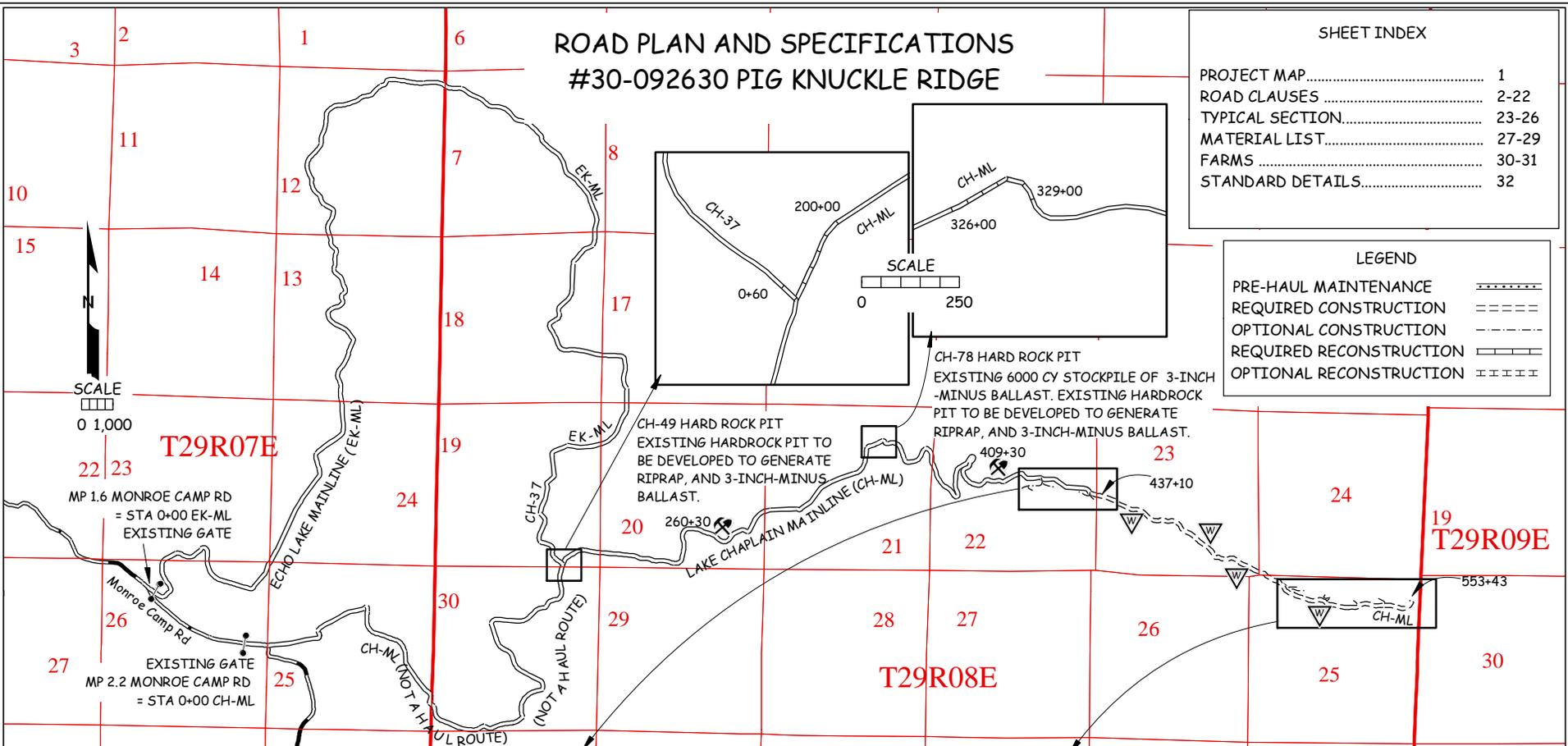
(Printed name)

(Signature)

ROAD PLAN AND SPECIFICATIONS #30-092630 PIG KNUCKLE RIDGE

SHEET INDEX	
PROJECT MAP.....	1
ROAD CLAUSES	2-22
TYPICAL SECTION.....	23-26
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LEGEND	
PRE-HAUL MAINTENANCE	-----
REQUIRED CONSTRUCTION	-----
OPTIONAL CONSTRUCTION	-----
REQUIRED RECONSTRUCTION	-----
OPTIONAL RECONSTRUCTION	-----



DESIGNED BY	REVIEWED BY	APPROVED BY	PLAN DATE	SHEET
A. HALGREN	ZYLSTRA 12/29/2015	FIKE 12/29/2015	10/1/2015	1 OF 32

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

PIG KNUCKLE RIDGE TIMBER SALE ROAD PLAN
SNOHOMISH COUNTY
CASCADE DISTRICT

AGREEMENT NO.: 30-092630

STAFF ENGINEER: A. HALGREN

DATE: OCTOBER 1, 2015

SECTION 0 – SCOPE OF PROJECT

0-1 ROAD PLAN SCOPE

Clauses in this road plan apply to all road related work, including landings and rock source development, unless otherwise noted.

0-2 REQUIRED ROADS

The specified work on the following roads is required.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
CH-ML	197+40 to 200+00	RECONSTRUCTION
CH-ML	326+00 to 329+00	RECONSTRUCTION
CH-ML	329+00 to 437+10	PRE-HAUL MAINTENANCE
CH-ML	437+10 to 549+60	CONSTRUCTION
CH-37	0+00 to 0+60	RECONSTRUCTION

0-3 OPTIONAL ROADS

The specified work on the following roads is not required. Any optional roads built by the Purchaser must meet all the specifications in the road plan.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
CH-ML	549+60 to 553+43	CONSTRUCTION
CH-80	0+00 to 6+10	CONSTRUCTION
CH-8001	0+00 to 7+31	CONSTRUCTION
CH-8001-01	0+00 to 2+28	CONSTRUCTION
CH-82	0+00 to 5+42	CONSTRUCTION
CH-8201	0+00 to 1+98	CONSTRUCTION
CH-95	0+00 to 0+79	CONSTRUCTION
CH-96	0+00 to 9+62	CONSTRUCTION
CH-9601	0+00 to 2+77	CONSTRUCTION
CH-99	0+00 to 3+15	CONSTRUCTION
CH-9901	0+00 to 3+13	CONSTRUCTION
CH-100	0+00 to 3+07	CONSTRUCTION
CH-103	0+00 to 3+39	CONSTRUCTION

0-4 CONSTRUCTION

Construction includes, but is not limited to clearing, grubbing, excavation and embankment to sub-grade, full bench sidecast, full bench end-haul, landing and turnout construction, drill and shoot, and application of 3-inch-minus ballast rock.

0-5 RECONSTRUCTION

This project includes, but is not limited to the following reconstruction requirements:

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
CH-ML	197+70 to 200+00	Widen the existing road in accordance with clause 4-10.
CH-37	0+00 to 0+60	
CH-ML	326+00 to 329+00	

0-6 PRE-HAUL MAINTENANCE

This project includes, but is not limited to the following pre-haul maintenance requirements:

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
CH-ML	329+00 to 338+70	Blading, shaping, and ditching the road surface, existing culvert clean out, and application of 3-inch-minus ballast rock.
CH-ML	338+70 to 437+10	Blading, shaping, and ditching the road surface, and existing culvert clean out

0-7 POST-HAUL MAINTENANCE

This project includes post-haul road maintenance listed in Clause 9-5 POST-HAUL MAINTENANCE 9-5.

0-10 ABANDONMENT

This project includes abandonment listed in Clause 9-21 ROAD ABANDONMENT.

0-12 DEVELOP ROCK SOURCE

Purchaser shall develop existing rock sources. Rock source development will involve clearing, stripping, drilling, shooting, and processing rock to generate riprap and 3-inch-minus ballast. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

If the Purchaser desires a change from this road plan including, but not limited to, relocation, extension, change in design, or adding roads; a revised road plan must be submitted in writing to the Contract Administrator for consideration. Before work begins, Purchaser shall obtain approval from the State for the submitted plan.

1-2 UNFORESEEN CONDITIONS

Quantities established in this road plan are minimum acceptable values. Additional quantities required by the state due to unforeseen conditions, or Purchaser's choice of construction season or techniques will be at the Purchaser's expense. Unforeseen conditions include, but are not limited to, solid subsurface rock, subsurface springs, saturated ground, and unstable soils.

1-3 ROAD DIMENSIONS

Purchaser shall perform road work in accordance with the dimensions shown on the TYPICAL SECTION SHEET and the specifications within this road plan unless controlled by construction stakes or design data (plan, profile, and cross-sections).

1-4 ROAD TOLERANCES

Purchaser shall perform road work within the tolerances listed below. The tolerance class for each road is listed on the TYPICAL SECTION SHEET.

<u>Tolerance Class</u>	<u>A</u>	<u>B</u>	<u>C</u>
Road and Subgrade Width (feet)	+1.5	+1.5	+2.0
Subgrade Elevation (feet +/-)	0.5	1.0	2.0
Centerline alignment (feet lt./rt.)	1.0	1.5	3.0

1-5 DESIGN DATA

Profile and cross section design data is available upon request at the Department of Natural Resources Northwest Region Office in Sedro Woolley, WA.

1-6 ORDER OF PRECEDENCE

Any conflict or inconsistency in the road plan will be resolved by giving the documents precedence in the following order:

1. Addenda.
2. Designs or Plans. On designs and plans, figured dimensions shall take precedence over scaled dimensions.
3. Road Plan Clauses.
4. Typical Section Sheet.
5. Standard Lists.
6. Standard Details.

In case of any ambiguity or dispute over interpreting the road plan, the Contract Administrator’s or designee’s decision will be final.

1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS

Purchaser shall repair or replace all materials, roadway infrastructure, and road components damaged during road work or operation activities. The Contract Administrator will direct repairs and replacements. Repairs to structural materials must be made in accordance with the manufacturer’s recommendation.

1-9 DAMAGED METALLIC COATING

Any damaged galvanized or aluminized coating on existing or new bridge components, culverts, downspouts, and flumes must be cleaned and treated with a minimum of two coats of zinc rich paint.

1-18 REFERENCE POINT DAMAGE

Purchaser shall reset reference points (RPs) that were moved or damaged at any time during construction to their original locations. Excavation and embankment may not proceed on road segments controlled by said RPs until Purchaser resets all moved or damaged RPs.

1-21 HAUL APPROVAL

Purchaser shall not use roads under this road plan for any hauling other than timber cut on the right-of-way, without written approval from the Contract Administrator.

1-25 ACTIVITY TIMING RESTRICTION

The specified activities are not allowed during the listed closure period(s) unless authorized in writing by the Contract Administrator.

<u>Activity</u>	<u>Closure Period</u>
Rock hauling, construction, reconstruction, or abandonment	November 1 to March 31

1-26 OPERATING DURING CLOSURE PERIOD

If permission is granted to operate during a closure period listed in Clause 1-25 ACTIVITY TIMING RESTRICTION, Purchaser shall provide a maintenance plan to include further protection of state resources. Purchaser shall obtain written approval from the Contract Administrator for the maintenance plan, and shall put preventative measures in place before operating during the closure period. Purchaser is required to maintain all haul roads at their own expense including those listed in Contract Clause C-060 DESIGNATED ROAD MAINTAINER. If other operators are using, or desire to use these designated maintainer roads, a joint operating plan must be developed. All parties shall follow this plan.

1-29 SEDIMENT RESTRICTION

Purchaser shall not allow silt-bearing runoff to enter any streams.

1-30 CLOSURE TO PREVENT DAMAGE

In accordance with Contract Clause G-220 STATE SUSPENDS OPERATION, the Contract Administrator will suspend road work or hauling right-of-way timber, forest products, or rock under the following conditions:

- Surface or base stability problems persist.
- Weather is such that satisfactory results cannot be obtained in an area of operations.
- When, in the opinion of the Contract Administrator excessive road damage or rutting may occur.

Operations must stop unless authority to continue working or hauling is granted in writing by the Contract Administrator. In the event that surface or base stability problems persist, Purchaser shall cease operations, or perform corrective maintenance or repairs, subject to specifications within this road plan.

1-33 SNOW PLOWING RESTRICTION

Snowplowing will be allowed after the execution of a SNOW PLOWING AGREEMENT, which is available from the Contract Administrator upon request. If damage occurs while plowing, further permission to plow may be revoked by the Contract Administrator.

SECTION 2 – MAINTENANCE

2-1 GENERAL ROAD MAINTENANCE

Purchaser shall maintain all roads used under this contract in accordance with the FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS for the entire term of this contract. Maintenance is required even during periods of inactivity.

2-2 ROAD MAINTENANCE – PURCHASER MAINTENANCE

Purchaser shall perform maintenance on roads listed in Contract Clause C-050 PURCHASER ROAD MAINTENANCE AND REPAIR in accordance with FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS.

2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER

Purchaser may be required to perform maintenance on roads listed in Contract Clause C-060 DESIGNATED ROAD MAINTAINER as directed by the Contract Administrator. Purchaser shall maintain roads in accordance with FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS.

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

Purchaser shall clean ditches, headwalls, and catchbasins. Work must be completed before application of rock and must be done in accordance with the TYPICAL SECTION.

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

3-5 CLEARING

Purchaser shall fall all vegetative material larger than 2 inches DBH or over 5 feet high between the marked right-of-way boundaries or if not marked in the field, between the clearing limits specified on the TYPICAL SECTION SHEET. Clearing must be completed before starting excavation and embankment.

3-8 PROHIBITED DECKING AREAS

Purchaser shall not deck right-of-way timber in the following areas:

- Within the grubbing limits.
- Within 50 feet of any stream.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- On slopes greater than 40%.
- Against standing trees unless approved by the Contract Administrator.

3-10 GRUBBING

Purchaser shall remove all stumps between the grubbing limits specified on the TYPICAL SECTION SHEET. Purchaser shall also remove stumps with undercut roots outside the grubbing limits. Grubbing must be completed before starting excavation and embankment.

3-20 ORGANIC DEBRIS DEFINITION

Organic debris is defined as all vegetative material not eligible for removal by Contract Clause G-010 PRODUCTS SOLD AND SALE AREA or G-011 RIGHT TO REMOVE FOREST PRODUCTS AND CONTRACT AREA, that is larger than one cubic foot in volume within the clearing limits as shown on the TYPICAL SECTION SHEET.

3-21 DISPOSAL COMPLETION

Purchaser shall remove organic debris from the road surface, ditchlines, and culvert inlets and outlets. Purchaser shall complete all disposal of organic debris, before application of rock.

3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

Waste areas for organic debris are located as listed below or at areas approved in writing by the Contract Administrator.

<u>Road</u>	<u>Disposal Location</u>
CH-ML	454+47 to 456+54
CH-ML	476+12 to 477+91
CH-ML	491+50 to 493+36
CH-ML	496+69 to 497+48
CH-ML	522+37 to 522+92

3-23 PROHIBITED DISPOSAL AREAS

Purchaser shall not place organic debris in the following areas:

- Within 50 feet of a cross drain culvert.
- Within 100 feet of a live stream, or wetland
- On road subgrades, or excavation and embankment slopes.
- On slopes greater than 40%.
- Within the operational area for cable landings where debris may shift or roll.
- On locations where brush can fall into the ditch or onto the road surface.
- Against standing timber.

3-24 BURYING ORGANIC DEBRIS RESTRICTED

Purchaser shall not bury organic debris unless otherwise stated in this plan.

3-25 SCATTERING ORGANIC DEBRIS

Purchaser shall scatter organic debris outside of the clearing limits in natural openings unless otherwise detailed in this road plan.

3-32 END HAULING ORGANIC DEBRIS

On slopes greater than 50% Purchaser shall end haul or push organic debris to the designated waste areas specified in Clause 3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS or to a waste area located by the Contract Administrator.

SECTION 4 – EXCAVATION

4-2 PIONEERING

Pioneering may not extend past construction that will be completed during the current construction season. Pioneering may not extend more than 500 feet beyond completed construction unless approved in writing by the Contract Administrator. In addition, the following actions must be taken as pioneering progresses:

- Drainage must be provided on all uncompleted construction.
- Road pioneering operations may not undercut the final cut slope or restrict drainage.
- Culverts at live stream crossings must be installed during pioneering operations prior to embankment.

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

Purchaser shall follow these standards for road grade and alignment except as designed:

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 18 percent favorable and 15 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Maximum grade change for sag vertical curves is 5% in 100 feet.
- Maximum grade change for crest vertical curves is 4% in 100 feet.

Grade limitations and alignment are modified as follows:

<u>Road</u>	<u>Stations</u>	<u>Minimum Curve Radius (ft)</u>	<u>Maximum Grade (%)</u>	
			<u>Favorable</u>	<u>Adverse</u>
CH-8001	4+50 to 6+74	65	-	10
CH-82*	0+00 to 1+60	50	-	15
CH-9901*	0+98 to 3+13	50	-	-

*Proposed road is not intended for haul.

4-5 CUT SLOPE RATIO

Purchaser shall construct excavation slopes no steeper than shown on the following table, unless construction staked or designed:

<u>Material Type</u>	<u>Excavation Slope Ratio</u>	<u>Excavation Slope Percent</u>
Common Earth (on side slopes up to 55%)	1:1	100
Fractured or loose rock	½:1	200
Hardpan or solid rock	¼:1	400

4-6 EMBANKMENT SLOPE RATIO

Purchaser shall construct embankment slopes no steeper than shown on the following table, unless construction staked or designed:

<u>Material Type</u>	<u>Embankment Slope Ratio</u>	<u>Embankment Slope Percent</u>
Sandy Soils	2:1	50
Common Earth and Rounded Gravel	1½:1	67
Angular Rock	1¼:1	80

4-7 SHAPING CUT AND FILL SLOPE

Purchaser shall construct excavation and embankment slopes to a uniform line and left rough for easier revegetation.

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

- 6 feet for curves of 50 to 79 feet radius.
- 4 feet for curves of 80 to 100 feet radius.

4-9 EMBANKMENT WIDENING

The minimum embankment widening is:

- 2 feet for embankment heights at centerline of 2 to 6 feet.
- 4 feet for embankment heights at centerline of greater than 6 feet.

Purchaser shall apply embankment widening equally to both sides of the road to achieve the required width.

4-10 WIDEN THE EXISTING SUBGRADE

On the following road(s), Purchaser shall widen the subgrade and fill slopes to the dimensions shown on the TYPICAL SECTION SHEET and add curve widening consistent with clause 4-8 CURVE WIDENING. If necessary, Purchaser shall reconstruct excavation slopes to provide sufficient width for the road surface and any ditches.

<u>Road</u>	<u>Stations</u>
CH-ML	197+70 to 200+00
CH-37	0+00 to 0+60
CH-ML	326+00 to 329+00

4-12 FULL BENCH CONSTRUCTION

On the following road(s), and where side slopes exceed 50%, Purchaser shall use full bench construction for the entire subgrade width. If designated, Purchaser shall end haul waste material to the location specified in Clause 4-37 WASTE AREA LOCATION.

<u>Road</u>	<u>Full Bench Location</u>	<u>Comments</u>
CH-ML	484+42 to 487+32	
CH-ML	495+36 to 497+48	
CH-ML	505+48 to 521+85	Convergence zone
CH-8001	1+70 to 4+50	

4-21 TURNOUTS

Purchaser shall construct turnouts intervisible with a maximum distance of 1,000 feet between turnouts. Locations are subject to written approval by the Contract Administrator. Minimum dimensions are shown on the TYPICAL SECTION SHEET.

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

Purchaser shall construct or reconstruct ditches into the subgrade as specified on the TYPICAL SECTION SHEET. Ditches must be constructed concurrently with construction of the subgrade.

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

Purchaser shall construct ditchouts at locations shown on the MATERIALS LIST and as needed or as directed by the Contract Administrator. Ditchouts must be constructed in a manner that diverts ditch water onto the forest floor and must have excavation backslopes no steeper than a 1:1 ratio.

4-35 WASTE MATERIAL DEFINITION

Waste material is defined as all dirt, rock, mud, or related material that is extraneous or unsuitable for construction material. Waste material, as used in Section 4 EXCAVATION, is not organic debris.

4-36 DISPOSAL OF WASTE MATERIAL

Purchaser may sidecast waste material on side slopes up to 45% if the waste material is compacted and free of organic debris. On side slopes greater than 45%, all waste material must be end hauled or pushed to the designated embankment sites and waste areas identified in Clause 4-37 WASTE AREA LOCATION.

4-37 WASTE AREA LOCATION

Purchaser shall deposit waste material in the listed designated areas. Additional waste areas may also be identified or approved by the Contract Administrator. The amount of material allowed in a waste area is at the discretion of the Contract Administrator.

<u>Road</u>	<u>Waste Area Location</u>
CH-ML	454+47 to 456+54
CH-ML	476+12 to 477+91
CH-ML	491+50 to 493+36
CH-ML	496+69 to 497+48
CH-ML	522+37 to 522+92

4-38 PROHIBITED WASTE DISPOSAL AREAS

Purchaser shall not deposit waste material in the following areas, except as otherwise specified in this plan:

- Within 50 feet of a cross drain culvert.
- Within 100 feet of a live stream or wetland.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Against standing timber.
- Outside the clearing limits.

4-55 ROAD SHAPING

Purchaser shall shape the subgrade and surface as shown on the TYPICAL SECTION SHEET. The subgrade and surface shape must ensure runoff in an even, un-concentrated manner, and must be uniform, firm, and rut-free.

4-60 FILL COMPACTION

Purchaser shall compact all embankment and waste material by routing equipment over the entire width of each lift.

4-61 SUBGRADE COMPACTION

Purchaser shall compact constructed and reconstructed subgrades by routing equipment over the entire width.

SECTION 5 – DRAINAGE

5-5 CULVERTS

Purchaser shall install culverts as part of this contract. Culverts must be installed concurrently with subgrade work and must be installed before subgrade compaction and rock application. Culvert locations and the minimum requirements for culvert length and diameter are designated on the MATERIALS LIST. Culvert, downspout, and flume lengths may be adjusted to fit as-built conditions and may not terminate directly on unprotected soil. Culverts must be new material and meet the specifications in Clauses 10-15 through 10-23.

5-11 UNUSED MATERIALS STATE PROPERTY

On required roads, any materials listed on the MATERIALS LIST that are not installed will become the property of the state. Purchaser shall stockpile materials as directed by the Contract Administrator.

5-15 CULVERT INSTALLATION

Culvert installation must be in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL and the National Corrugated Metal Pipe Association's "Installation Manual for Corrugated Steel Drainage Structures" and the Corrugated Polyethylene Pipe Association's "Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings".

5-17 CROSS DRAIN SKEW AND SLOPE

Cross drains, on road grades in excess of 3%, must be skewed at least 30 degrees from perpendicular to the road centerline, except where the cross drain is at the low point in the road culverts will not be skewed. Cross drain culverts must be installed at a slope steeper than the incoming ditch grade, but not less than 3% or more than 10%.

5-18 CULVERT DEPTH OF COVER

Cross drain culverts must be installed with a depth of cover of not less than 1 foot of compacted subgrade over the top of the culvert at the shallowest point.

5-25 CATCH BASINS

Purchaser shall construct catch basins in accordance with CULVERT AND DRAINAGE SPECIFICATION DETAIL. Minimum dimensions of catch basins are 2 feet wide and 4 feet long.

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

Purchaser shall construct headwalls in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all cross drain culverts. Rock used for headwalls must weigh at least 50 pounds. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets. Minimum specifications require that rock be placed at a width of one culvert diameter on each side of the culvert opening, and to a height of one culvert diameter above the top of the culvert. Rock may not restrict the flow of water into culvert inlets or catch basins. No placement by end dumping or dropping of rock is allowed.

SECTION 6 – ROCK AND SURFACING

6-2 ROCK SOURCE ON STATE LAND

Rock used in accordance with the quantities on the TYPICAL SECTION and MATERIALS LIST may be obtained from the following source(s) on state land at no charge to the Purchaser. Purchaser shall obtain written approval from the Contract Administrator for the use of material from any other source. If other operators are using, or desire to use the rock source(s), a joint operating plan must be developed. All parties shall follow this plan.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
CH-49 Hard Rock Pit	CH-ML, STA 260+30	3-inch-minus ballast
CH-78 Hard Rock Pit	CH-ML, STA 409+30	3-inch-minus ballast, riprap

6-3 ROCK SOURCE STATE LAND, EXISTING STOCKPILE

Rock used in accordance with the quantities on the TYPICAL SECTION and MATERIALS LIST may be obtained from the following existing stockpile(s) on state land at no charge to the Purchaser. Other stockpiles may not be used.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>	<u>Quantity</u>
CH-78 Hard Rock Pit	CH-ML, STA 409+30	3-inch-minus-ballast	6000 cubic yards

6-5 ROCK FROM COMMERCIAL SOURCE

Rock used in accordance with the quantities on the TYPICAL SECTION and MATERIALS LIST may be obtained from any commercial source at the Purchaser's expense. Rock sources are subject to written approval by the Contract Administrator before their use.

6-11 ROCK SOURCE DEVELOPMENT PLAN BY PURCHASER

Purchaser shall conduct rock source development and use at the following sources, in accordance with the written ROCK SOURCE DEVELOPMENT PLAN prepared by the state and included in this road plan. Upon completion of operations, the rock source must be left in the condition specified in the ROCK SOURCE DEVELOPMENT PLAN, and approved in writing by the Contract Administrator.

Rock source development plans prepared by the Purchaser must show the following information:

- Rock source location.
- Rock source overview showing access roads, development areas, stockpile locations, waste areas, and floor drainage.
- Rock source profiles showing development areas, bench locations including widths, and wall faces including heights.

6-12 ROCK SOURCE SPECIFICATIONS

Rock sources must be in accordance with the following specifications:

- Pit walls may not be undermined or over steepened. The maximum slope of the walls must be consistent with recognized engineering standards for the type of material being excavated in accordance with the following table:

Material	Maximum Slope Ratio (Horiz. :Vert.)	Maximum Slope Percent
Sand	2:1	50
Gravel	1.5:1	67
Common Earth	1:1	100
Fractured Rock	0.5:1	200
Solid Rock	0:1	vertical

- Pit walls must be maintained in a condition to minimize the possibility of the walls sliding or failing.
- The width of pit benches must be a minimum of 1.5 times the maximum length of the largest machine used.
- The surface of pit floors and benches must be uniform and free-draining at a minimum 2% outslope gradient.
- All operations must be carried out in compliance with all regulations of the Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration and Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.

6-20 ROCK GRADATION TYPES

Purchaser shall provide rock in accordance with the types and amounts listed in the TYPICAL SECTION and MATERIALS LIST. Rock must meet the following specifications for gradation and uniform quality when placed in hauling vehicles or during manufacture and placement into a stockpile. The exact point of evaluation for conformance to specifications will be determined by the Contract Administrator.

6-34 3-INCH MINUS BALLAST ROCK

Ballast rock must be 100% equal to, or smaller than, 3 inches in at least one dimension.

Rock may contain no more than 5 percent organic debris, dirt, and trash. All percentages are by weight.

6-50 LIGHT LOOSE RIP RAP

Rip rap must consist of angular, hard, sound, and durable stone. It must be free from segregation, seams, cracks, and other defects. Light loose rip rap must be free of rock fines, soil, organic debris or other extraneous material, and must meet the following requirements:

<u>At Least/Not More Than</u>	<u>Weight Range</u>
20% / 90%	300 lbs. to 1 ton
80% / --	50 lbs. to ½ ton
10% / 20%	50 lbs. max

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

Measurement of specified rock depths, are defined as the compacted depth(s) using the compaction methods required in this road plan. Estimated quantities specified in the TYPICAL SECTION are loose yards. Purchaser shall apply adequate amounts of rock to meet the specified rock depths. Specified rock depths are minimum requirements and are not subject to reduction.

6-70 APPROVAL BEFORE ROCK APPLICATION

Purchaser shall obtain written approval from the Contract Administrator for culvert installation, ditch construction, ditch reconstruction, headwall construction, and headwall reconstruction before rock application.

6-71 ROCK APPLICATION

Purchaser shall apply rock in accordance with the specifications and quantities shown on the TYPICAL SECTION. Rock must be spread, shaped, and compacted full width concurrent with rock hauling operations. Road surfaces must be compacted in accordance with the TYPICAL SECTION by routing equipment over the entire width

6-73 ROCK FOR WIDENED PORTIONS

Purchaser shall apply rock to turnarounds, turnouts, and areas with curve widening to the same depth and specifications as the traveled way.

SECTION 8 – EROSION CONTROL

8-15 REVEGETATION

Purchaser shall spread seed and fertilizer on all exposed soils within the grubbing limits resulting from road work activities. Cover all exposed soils using manual dispersal of grass seed and fertilizer. Other methods of covering must be approved in writing by the Contract Administrator.

8-16 REVEGETATION SUPPLY

The Purchaser shall provide the seed and fertilizer.

8-17 REVEGETATION TIMING

Purchaser shall revegetate during the first available opportunity after road work is completed. Soils may not be allowed to sit exposed for longer than one month without receiving revegetation treatment unless otherwise approved in writing by the Contract Administrator.

8-18 PROTECTION FOR SEED

Purchaser shall provide a protective cover for seed if revegetation occurs between July 1 and March 31. The protective cover may consist of dispersed straw, jute matting, or clear plastic sheets. The protective cover requirement may be waived in writing by the Contract Administrator if Purchaser is able to demonstrate a revegetation plan that will result in the establishment of a uniform dense crop (at least 50% coverage) of 3-inch tall grass by October 31.

8-19 ASSURANCE FOR SEEDED AREA

Purchaser shall ensure the growth of a uniform and dense crop (at least 50% coverage) of 3-inch tall grass. Purchaser shall reapply the grass seed and fertilizer in areas that have failed to germinate or have been damaged through any cause. Restore eroded or disturbed areas, clean up and properly dispose of eroded materials, and reapply the seed and fertilizer at no addition cost to the state.

8-25 GRASS SEED

Purchaser shall evenly spread the seed mixture listed below on all exposed soil inside the grubbing limits at a rate of 50 pounds per acre of exposed soil. Grass seed must meet the following specifications:

1. Weed seed may not exceed 0.5% by weight.
2. All seed species must have a minimum 90% germination rate, unless otherwise specified.
3. Seed must be certified.
4. Seed must be furnished in standard containers showing the following information:
 - a. Common name of seed
 - b. Net weight
 - c. Percent of purity
 - d. Percentage of germination
 - e. Percentage of weed seed and inert material
5. Seed must conform to the following mixture.

<u>Kind and Variety of Seed in Mixture</u>	<u>% by Weight</u>
Creeping Red Fescue	50
Elf Perennial Rye Grass	25
Highland Colonial Bentgrass	15
White Clover	10
Inert and Other Crop	0.5

8-27 FERTILIZER

Purchaser shall evenly spread the fertilizer listed below on all exposed soil inside the grubbing limits at a rate of 200 pounds per acre of exposed soil. Fertilizer must meet the following specifications:

<u>Chemical Component</u>	<u>% by Weight</u>
Nitrogen	16
Phosphorous	16
Potassium	16
Sulphur	3
Inerts	49

SECTION 9 – POST-HAUL ROAD WORK

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

Culverts removed from roads become the property of the Purchaser and must be removed from state land.

9-5 POST-HAUL MAINTENANCE

Purchaser shall perform post-haul maintenance in accordance with the FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS.

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

9-12 LANDING EMBANKMENT REMOVAL

Purchaser shall reduce or relocate the landing embankment. Place excavated material in a waste area approved in writing by the Contract Administrator.

9-21 ROAD ABANDONMENT

Purchaser shall abandon the following before the termination of this contract.

<u>Road</u>	<u>Stations</u>
CH-ML	549+60 to 553+43
CH-80	0+00 to 6+10
CH-8001	0+00 to 7+31
CH-8001-01	0+00 to 2+28
CH-82	0+00 to 5+42
CH-8201	0+00 to 1+98
CH-95	0+00 to 0+79
CH-96	0+00 to 9+62
CH-9601	0+00 to 2+77
CH-99	0+00 to 3+15
CH-9901	0+00 to 3+13
CH-100	0+00 to 3+07
CH-103	0+00 to 3+39

9-22 ABANDONMENT

- Remove all ditch relief culverts. The resulting slopes must be 1:1 or flatter. Place and compact the removed fill material in a location that will not erode into any Type 1 through 5 waters or wetlands.
- Remove all culverts in natural drainages. The resulting slopes must be 1:1 or flatter. Strive to match the existing native stream bank gradient. The natural streambed width must be re-established. Place and compact the removed fill material in a location that will not erode into any Type 1 through 5 waters or wetlands.
- Transport all removed culverts off site. All removed culverts are the property of the Purchaser.
- Construct non-drivable waterbars at natural drainage points and at a spacing that will produce a vertical drop of no more than 20 feet between waterbars and with a maximum horizontal spacing of 400 feet.
- Skew waterbars at least 30 degrees from perpendicular to the road centerline on roads in excess of 3 percent grade.
- Key waterbars into the cut-slope to intercept the ditch. Waterbars must be outsloped to provide positive drainage. Outlets must be on stable locations.
- Inslope or outslope the road as appropriate.
- Remove bridges and other structures.
- Pull back unstable fill that has potential of failing and entering any Type 1 through 5 waters or wetlands. Place and compact removed material in a stable location.
- Remove berms except as designed.
- Block the road by constructing an aggressive barrier of dense interlocked large woody debris (logs, stumps, root wads, etc.) so that four wheel highway vehicles cannot pass the point of abandonment. Typical barrier dimensions are 10 feet high by 20 feet deep, spanning the entire road prism from top of cutslope to toe of fillslope. Long term effectiveness is the primary objective. If necessary construct a vehicular turn-around near the point of abandonment.
- Apply grass seed to all exposed soils resulting from the abandonment work and in accordance with Section 8 EROSION CONTROL

SECTION 10 MATERIALS

10-15 CORRUGATED STEEL CULVERT

Metallic coated steel culverts must meet AASHTO M-36 (ASTM A-760) specifications. Culverts must be galvanized (zinc coated meeting AASHTO M-218).

10-16 CORRUGATED ALUMINUM CULVERT

Aluminum culverts must meet AASHTO M-196 (ASTM A-745) specifications.

10-17 CORRUGATED PLASTIC CULVERT

Polyethylene culverts must meet AASHTO M-294 specifications, or ASTM F-2648 specifications for recycled polyethylene. Culverts must be Type S – double walled with a corrugated exterior and smooth interior.

10-21 METAL BAND

Metal coupling and end bands must meet the AASHTO specification designated for the culvert and must have matching corrugations. Culverts 24 inches and smaller must have bands with a minimum width of 12 inches. Culverts over 24 inches must have bands with a minimum width of 24 inches.

10-22 PLASTIC BAND

Plastic coupling and end bands must meet the AASHTO specification designated for the culvert. Only fittings supplied or recommended by the culvert manufacturer may be used.

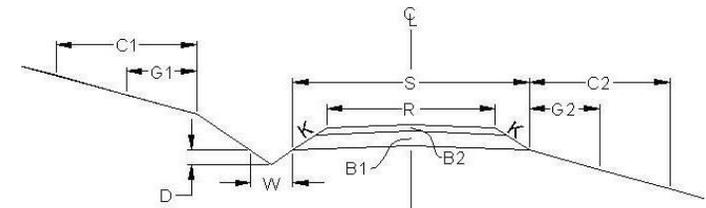
10-24 GAGE AND CORRUGATION

Metal culverts must conform to the following specifications for gage and corrugation as a function of diameter.

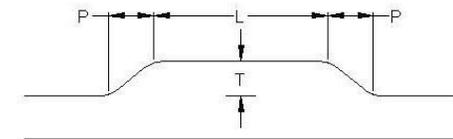
<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>
18"	16 (0.064")	2 ² / ₃ " X 1/2"
24" to 48"	14 (0.079")	2 ² / ₃ " X 1/2"
54" to 96"	14 (0.079")	3" X 1"

ROAD #		CH-ML*	CH-ML*	CH-ML	CH-ML
REQUIRED / OPTIONAL		REQUIRED	REQUIRED	REQUIRED	REQUIRED
CONSTRUCT / RECONSTRUCT		RECONSTRUCT	RECONSTRUCT	MAINTENANCE	MAINTENANCE
TOLERANCE CLASS (A/B/C)		C	C	C	C
STATION / MP TO		197+40	326+00	329+00	338+70
STATION / MP		200+00	329+00	338+70	437+10
ROAD WIDTH	R	12	12	12	12
CROWN (INCHES @ C/L)		3	3	3	3
DITCH WIDTH	W	3	3	3	3
DITCH DEPTH	D	1	1	1	1
TURNOUT LENGTH	L	50	50	50	50
TURNOUT WIDTH	T	10	10	10	10
TURNOUT TAPER	P	25	25	25	25
GRUBBING	G1	5	5	-	-
	G2	5	5	-	-
CLEARING	C1	10	10	-	-
	C2	10	10	-	-
ROCK FILLSLOPE	K:1	1 ½	1 ½	1 ½	1 ½
❖ BALLAST DEPTH	B1	18	18	6	-
CUBIC YARDS / STATION		114	114	34	-
➤ TOTAL CY BALLAST		300	350	330	-
❖ SURFACING DEPTH	B2	-	-	-	-
CUBIC YARDS / STATION		-	-	-	-
➤ TOTAL CY SURFACING		-	-	-	-
➤ TOTAL CUBIC YARDS		300	350	330	-
SUBGRADE WIDTH	S	16.5	16.5	13.5	-
BRUSHCUT (Y/N)		N	N	N	N
BLADE, SHAPE, & DITCH (Y/N)		Y	Y	Y	Y

TYPICAL SECTION



TURNOUT DETAIL (PLAN VIEW)



SYMBOL NOTES

- ❖ Specified Rock Depth is FINISHED COMPACTED DEPTH in inches.
- Specified Rock Quantity is LOOSE MEASURE (Truck Cubic Yards) needed to accomplish specified FINISHED COMPACTED DEPTH. Rock quantities include volume for turnouts, curve widening and landings.

* See clause 4-10 WIDEN THE EXISTING SUBGRADE

** Proposed construction is located on an existing abandoned grade.

Rock Totals Summary:

Type	Cubic Yards
Ballast	13,710
Light Loose Rip Rap	295

ROAD #		CH-ML	CH-ML**	CH-ML	CH-ML	CH-37*	CH-80	CH-8001
REQUIRED / OPTIONAL		REQUIRED	REQUIRED	REQUIRED	OPTIONAL	REQUIRED	OPTIONAL	OPTIONAL
CONSTRUCT / RECONSTRUCT		CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT	RECONSTRUCT	CONSTRUCT	CONSTRUCT
TOLERANCE CLASS (A/B/C)		C	C	C	C	C	C	C
STATION / MP TO		437+10	524+80	529+91	549+60	0+00	0+00	0+00
STATION / MP		524+80	529+91	549+60	553+43	0+60	6+10	7+31
ROAD WIDTH	R	12	12	12	12	12	12	12
CROWN (INCHES @ C/L)		3	3	3	3	3	3	3
DITCH WIDTH	W	3	3	3	2	3	2	2
DITCH DEPTH	D	1	1	1	1	1	1	1
TURNOUT LENGTH	L	50	50	50	25	50	25	25
TURNOUT WIDTH	T	10	10	10	10	10	10	10
TURNOUT TAPER	P	25	25	25	25	25	25	25
GRUBBING	G1	5	5	5	5	5	5	5
	G2	5	5	5	5	5	5	5
CLEARING	C1	10	10	10	10	10	10	10
	C2	10	10	10	10	10	10	10
ROCK FILLSLOPE	K:1	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½
❖ BALLAST DEPTH	B1	12	6	18	18	18	12	12
CUBIC YARDS / STATION		72	34	114	114	114	72	72
➤ TOTAL CY BALLAST		6320	180	2250	440	70	440	530
❖ SURFACING DEPTH	B2	-	-	-	-	-	-	-
CUBIC YARDS / STATION		-	-	-	-	-	-	-
➤ TOTAL CY SURFACING		-	-	-	-	-	-	-
➤ TOTAL CUBIC YARDS		6320	180	2250	440	70	440	530
SUBGRADE WIDTH	S	15	13.5	16.5	16.5	16.5	15	15
BRUSHCUT (Y/N)		N/A	N/A	N/A	N/A	N	N/A	N/A
BLADE, SHAPE, & DITCH (Y/N)		N/A	N/A	N/A	N/A	Y	N/A	N/A

ROAD #		CH-8001-01	CH-82	CH-8201	CH-95	CH-96	CH-9601	CH-99
REQUIRED / OPTIONAL		OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
CONSTRUCT / RECONSTRUCT		CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT
TOLERANCE CLASS (A/B/C)		C	C	C	C	C	C	C
STATION / MP TO		0+00	0+00	0+00	0+00	0+00	0+00	0+00
STATION / MP		2+28	5+42	1+98	0+79	9+62	2+77	3+15
ROAD WIDTH	R	12	12	12	12	12	12	12
CROWN (INCHES @ C/L)		3	3	3	3	3	3	3
DITCH WIDTH	W	2	2	2	2	2	2	2
DITCH DEPTH	D	1	1	1	1	1	1	1
TURNOUT LENGTH	L	25	25	25	25	25	25	25
TURNOUT WIDTH	T	10	10	10	10	10	10	10
TURNOUT TAPER	P	25	25	25	25	25	25	25
GRUBBING	G1	5	5	5	5	5	5	5
	G2	5	5	5	5	5	5	5
CLEARING	C1	10	10	10	10	10	10	10
	C2	10	10	10	10	10	10	10
ROCK FILLSLOPE	K:1	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½
❖ BALLAST DEPTH	B1	12	12	12	12	12	12	12
CUBIC YARDS / STATION		72	72	72	72	72	72	72
➤ TOTAL CY BALLAST		170	400	150	60	700	200	230
❖ SURFACING DEPTH	B2	-	-	-	-	-	-	-
CUBIC YARDS / STATION		-	-	-	-	-	-	-
➤ TOTAL CY SURFACING		-	-	-	-	-	-	-
➤ TOTAL CUBIC YARDS		170	400	150	60	700	200	230
SUBGRADE WIDTH	S	15	15	15	15	15	15	15
BRUSHCUT (Y/N)		N/A	N/A	N/A	N/A	N/A	N/A	N/A
BLADE, SHAPE, & DITCH (Y/N)		N/A	N/A	N/A	N/A	N/A	N/A	N/A

ROAD #		CH-9901	CH-100	CH-103			
REQUIRED / OPTIONAL		OPTIONAL	OPTIONAL	OPTIONAL			
CONSTRUCT / RECONSTRUCT		CONSTRUCT	CONSTRUCT	CONSTRUCT			
TOLERANCE CLASS (A/B/C)		C	C	C			
STATION / MP TO		0+00	0+00	0+00			
STATION / MP		3+13	3+07	3+39			
ROAD WIDTH	R	12	12	12			
CROWN (INCHES @ C/L)		3	3	3			
DITCH WIDTH	W	2	2	2			
DITCH DEPTH	D	1	1	1			
TURNOUT LENGTH	L	25	25	25			
TURNOUT WIDTH	T	10	10	10			
TURNOUT TAPER	P	25	25	25			
GRUBBING	G1	5	5	5			
	G2	5	5	5			
CLEARING	C1	10	10	10			
	C2	10	10	10			
ROCK FILLSLOPE	K:1	1 ½	1 ½	1 ½			
❖ BALLAST DEPTH	B1	6	12	12			
CUBIC YARDS / STATION		34	72	72			
➤ TOTAL CY BALLAST		110	230	250			
❖ SURFACING DEPTH	B2	-	-	-			
CUBIC YARDS / STATION		-	-	-			
➤ TOTAL CY SURFACING		-	-	-			
➤ TOTAL CUBIC YARDS		110	230	250			
SUBGRADE WIDTH	S	13.5	15	15			
BRUSHCUT (Y/N)		N/A	N/A	N/A			
BLADE, SHAPE, & DITCH (Y/N)		N/A	N/A	N/A			

MATERIALS LIST

LOCATION		CULVERT			DWNSTP		RIPRAP			FILL TYPE	TOLERANCE	REMARKS		
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			<u>Note:</u> Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:		
												Diameter	Gage	Corrugation
		18"										18" 16 2 2/3" x 1/2"		
		24" – 48"										24" – 48" 14 2 2/3" x 1/2"		
		54" – 96"										54" – 96" 14 3" x 1"		
CH-ML	441+74	18	32	XX	-	-	2	3	L	NT	C			
	445+47	18	36	XX	-	-	2	3	L	NT	C			
	450+70	18	32	XX	-	-	2	3	L	NT	C			
	453+70	18	32	XX	-	-	2	3	L	NT	C			
	456+54	18	36	XX	-	-	2	3	L	NT	C			
	459+85	18	32	XX	-	-	2	3	L	NT	C			
	462+70	18	36	XX	-	-	2	3	L	NT	C			
	465+27	18	32	XX	-	-	2	3	L	NT	C			
	468+39	-	-	-	-	-	-	-	-	-	-	Ditchout		
	471+69	18	36	GM	-	-	2	3	L	NT	C			
	475+28	18	32	GM	-	-	2	3	L	NT	C			
	479+13	18	36	GM	-	-	2	3	L	NT	C			
	483+96	18	36	GM	-	-	3	5	L	NT	C			
	485+96	18	36	GM	-	-	3	5	L	NT	C			
	488+25	18	36	GM	-	-	3	5	L	NT	C			
	494+05	18	36	GM	-	-	3	5	L	NT	C			
	498+28	18	36	GM	-	-	3	5	L	NT	C			
	501+51	18	36	GM	-	-	3	5	L	NT	C			
	509+53	18	36	GM	-	-	3	5	L	NT	C			
	513+32	18	36	GM	-	-	3	5	L	NT	C			
	515+52	18	36	GM	-	-	3	5	L	NT	C			

GM – Galvanized Metal PS – Polyethylene Pipe Single Wall PD – Polyethylene Pipe Dual Wall AM – Aluminized Metal C – Concrete XX – PD or GM
 H – Heavy Loose Riprap L – Light Loose Riprap SR – Shot Rock NT – Native (Bank Run) QS – Quarry Spalls

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS		
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			<u>Note:</u> Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:		
												Diameter	Gage	Corrugation
CH-ML (cont'd)	518+65	18	36	GM	-	-	3	5	L	NT	C			
	519+67	18	36	GM			3	7	L	NT	C			
	521+85	18	36	GM			3	7	L	NT	C			
	523+39	18	36	GM	-	-	3	5	L	NT	C			
	525+41	18	36	GM	-	-	3	5	L	NT	C			
	530+43	18	36	GM	-	-	3	5	L	NT	C			
	537+20	18	36	GM	-	-	3	5	L	NT	C			
	541+91	18	40	GM	-	-	3	5	L	NT	C			
	544+68	18	36	GM	-	-	3	5	L	NT	C			
	548+28	18	40	GM	-	-	3	5	L	NT	C			
	551+44	-	-	-	-	-	-	-	-	-	-	Ditchout		
	553+43	-	-	-	-	-	-	-	-	-	-	Ditchout		
CH-80	1+83	18	32	XX	-	-	2	3	L	NT	C			
	6+10	-	-	-	-	-	-	-	-	-	-	Ditchout		
CH-8001	4+51	18	36	XX	-	-	3	5	L	NT	C			
	7+31	18	32	XX	-	-	2	3	L	NT	C			
CH-8001-01	2+28	-	-	-	-	-	-	-	-	-	-	Ditchout		
CH-82	2+10	18	36	XX	-	-	2	3	L	NT	C			
	5+42	-	-	-	-	-	-	-	-	-	-	Ditchout		

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MATERIALS LIST

LOCATION		CULVERT			DWNST		RIPRAP			FILL TYPE	TOLERANCE	REMARKS		
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE					
												Note: Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:		
												<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>
												18"	16	2 2/3" x 1/2"
												24" – 48"	14	2 2/3" x 1/2"
												54" – 96"	14	3" x 1"
CH-8201	1+20	18	32	XX	-	-	2	3	L	NT	C			
CH-96	3+68	18	40	XX	-	-	2	3	L	NT	C			
	5+83	18	36	XX	-	-	2	3	L	NT	C			
	8+59	18	32	XX	-	-	2	3	L	NT	C			
CH-9601	0+00	18	40	XX	-	-	2	3	L	NT	C			
	2+04	18	32	XX	-	-	2	3	L	NT	C			
CH-99	0+00	18	32	GM	-	-	3	5	L	NT	C			
	0+54	18	36	GM	-	-	3	5	L	NT	C			
CH-9901	0+00	18	40	XX	-	-	2	3	L	NT	C			
	2+22	-	-	-	-	-	-	-	-	-	-			Ditchout
CH-100	0+00	18	36	XX	-	-	2	3	L	NT	C			
	3+06	-	-	-	-	-	-	-	-	-	-			Ditchout
CH-103	2+26	18	32	XX	-	-	2	3	L	NT	C			

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FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Cuts and Fills

- Maintain slope lines to a stable gradient compatible with the construction materials. Remove slides from ditches and the roadway. Repair fill-failures , in accordance with Clause 4-6 EMBANKMENT SLOPE RATIO, with selected material or material approved by the Contract Administrator. Remove overhanging material from the top of cut slopes.
- Waste material from slides or other sources shall be placed and compacted in stable locations identified in the road plan or approved by the Contract Administrator, so that sediment will not deliver to any streams or wetlands.
- Slide material and debris shall not be mixed into the road surface materials, unless approved by the Contract Administrator.

Surface

- Grade and shape the road surface, turnouts, and shoulders to the original shape on the TYPICAL SECTION SHEET. Inslope or outslope as directed, to provide a smooth, rut-free traveled surface and maintain surface water runoff in an even, unconcentrated manner.
- Blading shall not undercut the backslope or cut into geotextile fabric on the road.
- If required by the Contract Administrator, water shall be applied as necessary to control dust and retain fine surface rock.
- Surface material shall not be bladed off the roadway. Replace surface material when lost or worn away, or as directed by the Contract Administrator.
- Remove shoulder berms, created by grading, to facilitate drainage, except as marked or directed by the Contract Administrator.
- For roads with geotextile fabric: spread surface aggregate to fill in soft spots and wheel ruts (barrel spread) to prevent damage to the geotextile fabric.

Drainage

- Prevent silt bearing road surface and ditch runoff from delivering sediment to any streams or wetlands.
- Maintain rolling dips and drivable waterbars as needed to keep them functioning as intended.
- Maintain headwalls to the road shoulder level with material that will resist erosion.
- Maintain energy dissipaters at culvert outlets with non-erodible material or rock.
- Keep ditches, culverts, and other drainage structures clear of obstructions and functioning as intended.
- Inspect and clean culverts at least monthly, with additional inspections during storms and periods of high runoff. This shall be done even during periods of inactivity.

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Page 2 of 2

Preventative Maintenance

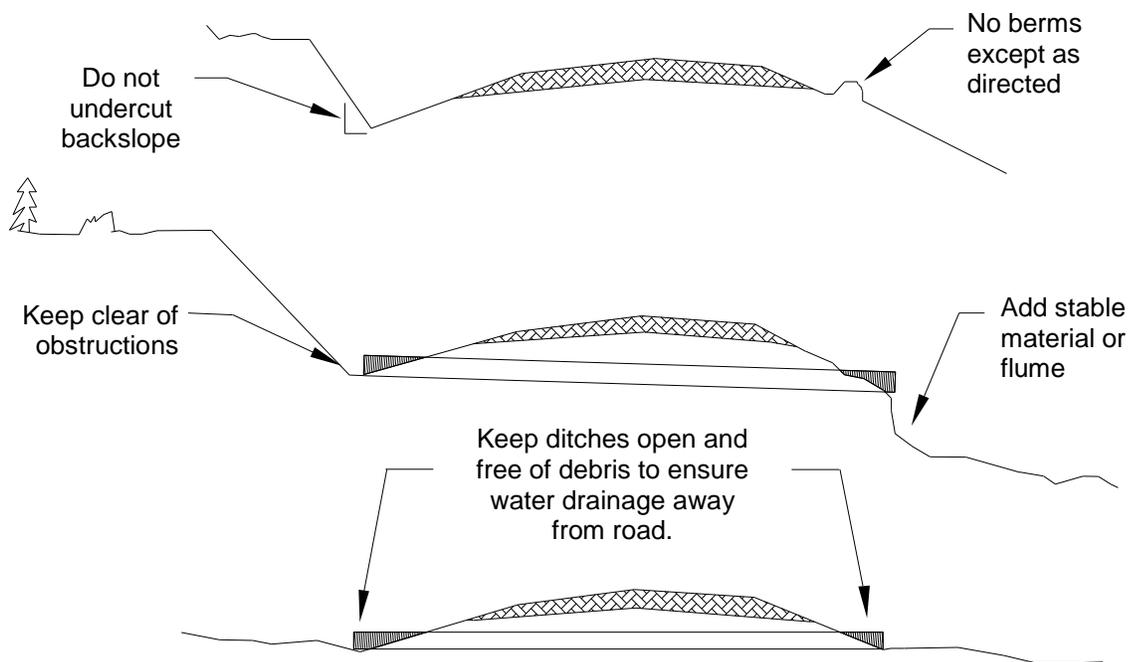
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

- At the conclusion of logging operations, ensure all conditions of these specifications have been met.

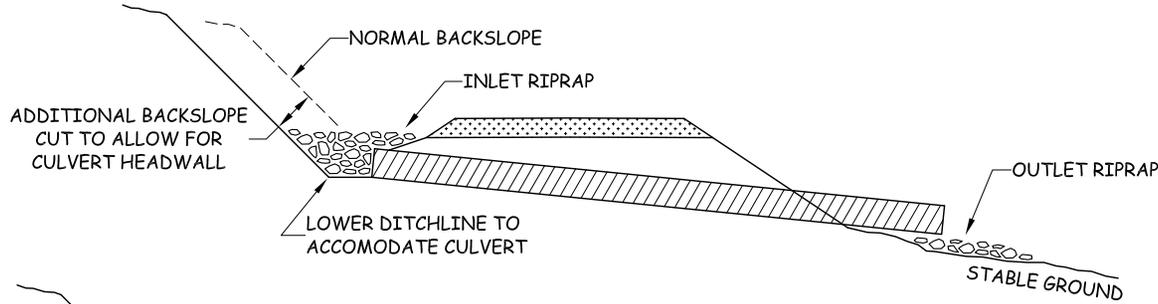
Debris

- Remove fallen timber, limbs, and stumps from the slopes, roadway, ditchlines, and culvert inlets.

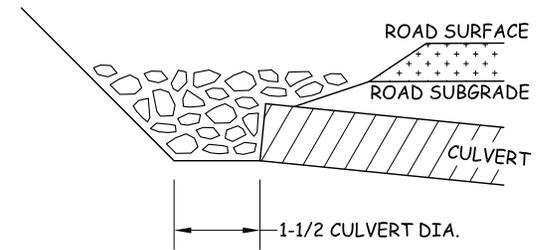


CULVERT AND DRAINAGE SPECIFICATIONS

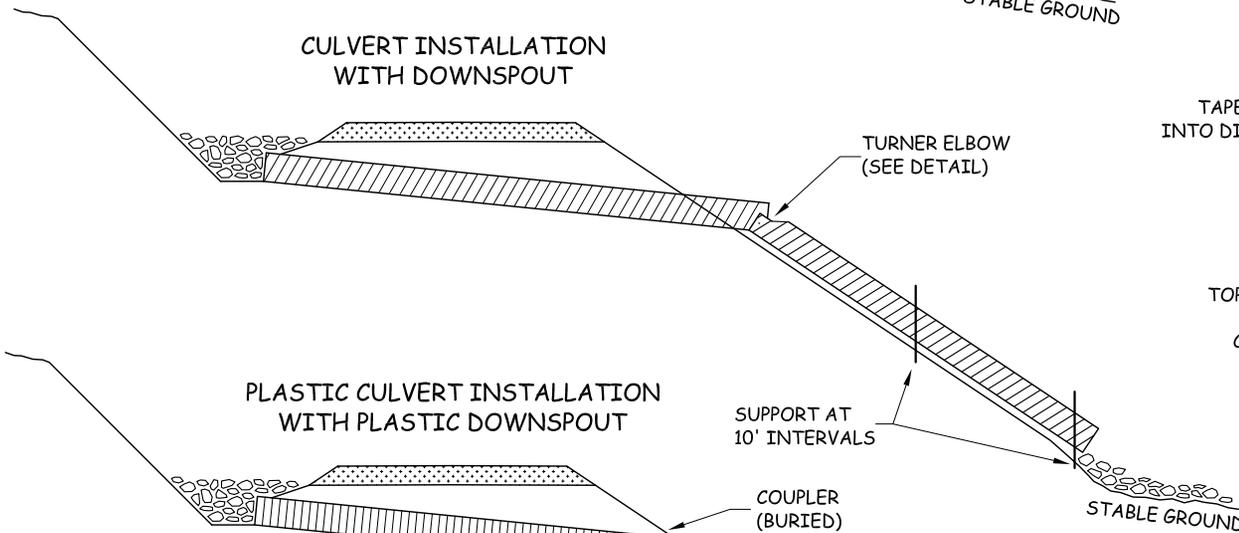
CULVERT INSTALLATION (TYPICAL)



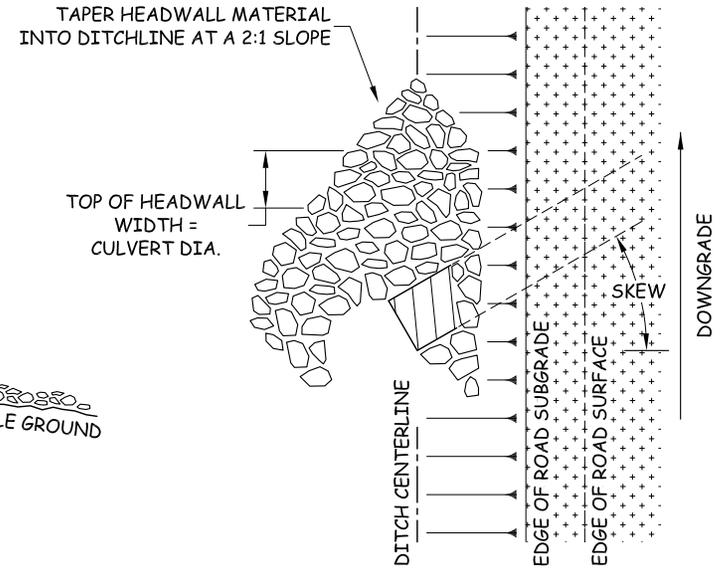
CULVERT HEADWALL - SECTION VIEW



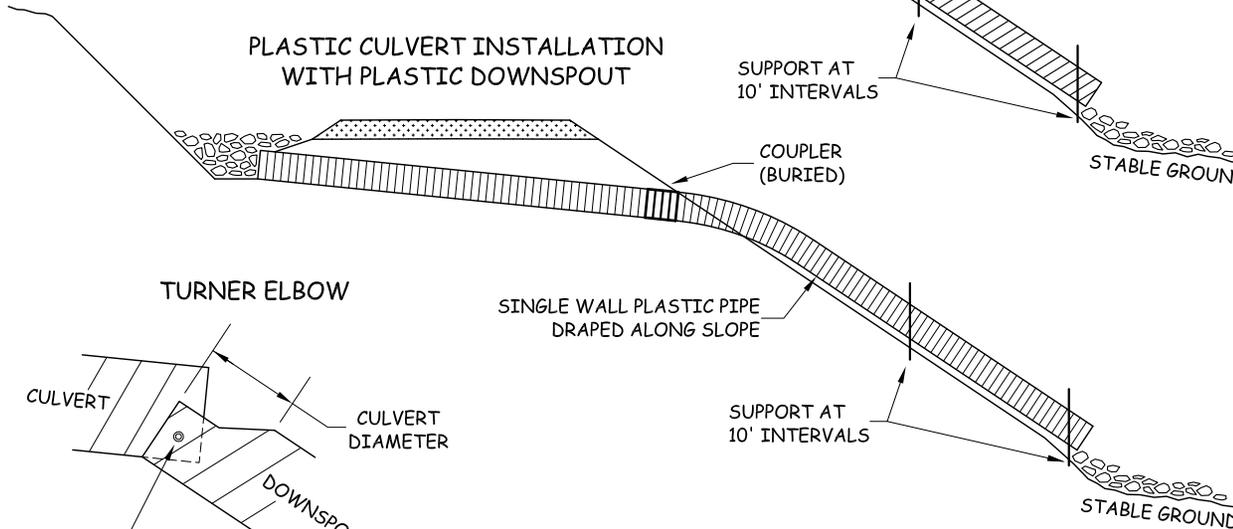
CULVERT INSTALLATION WITH DOWNSPOUT



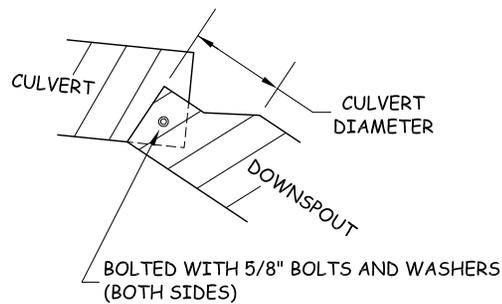
CULVERT HEADWALL - PLAN VIEW



PLASTIC CULVERT INSTALLATION WITH PLASTIC DOWNSPOUT



TURNER ELBOW



HEADWALL NOTE:
 HEADWALL TO BE CONSTRUCTED OF IMPERVIOUS MATERIAL THAT WILL RESIST EROSION AND ARMORED WITH RIPRAP QUANTITY SPECIFIED IN ROAD PLAN.

CONTRACT #	PROJECT	SHEET
30-092630	PIG KNUCKLE RIDGE	32 OF 32

SUMMARY - Road Development Costs

REGION: NW
DISTRICT: Cascade

SALE/PROJECT NAME: Pig Knuckle Ridge

CONTRACT #: 30-092630

ROAD NUMBERS:	-	-	-
ROAD STANDARD:	Construction	Reconstruction	Maintenance
NUMBER OF STATIONS:	165.34	5.60	108.10
CLEARING & GRUBBING:	\$33,515	\$413	
EXCAVATION AND FILL:	\$211,830	\$727	-
MISC. MAINTENANCE:			\$8,010
ROAD ROCK:	\$103,301	\$6,795	\$3,521
ROCK STOCKPILE PROD:	-	-	-
CULVERTS AND FLUMES:	\$25,693	\$0	-
STRUCTURES:	-	-	-
MOBILIZATION:	\$12,555	-	-
TOTAL COSTS:	\$386,894	\$7,935	\$11,532
COST PER STATION:	\$2,340	\$1,417	\$107
ROAD DEACTIVATION & ABANDONMENT COSTS:		\$4,500	

TOTAL (All Roads) = \$410,860
SALE VOLUME MBF = 5936
TOTAL \$/MBF = \$69

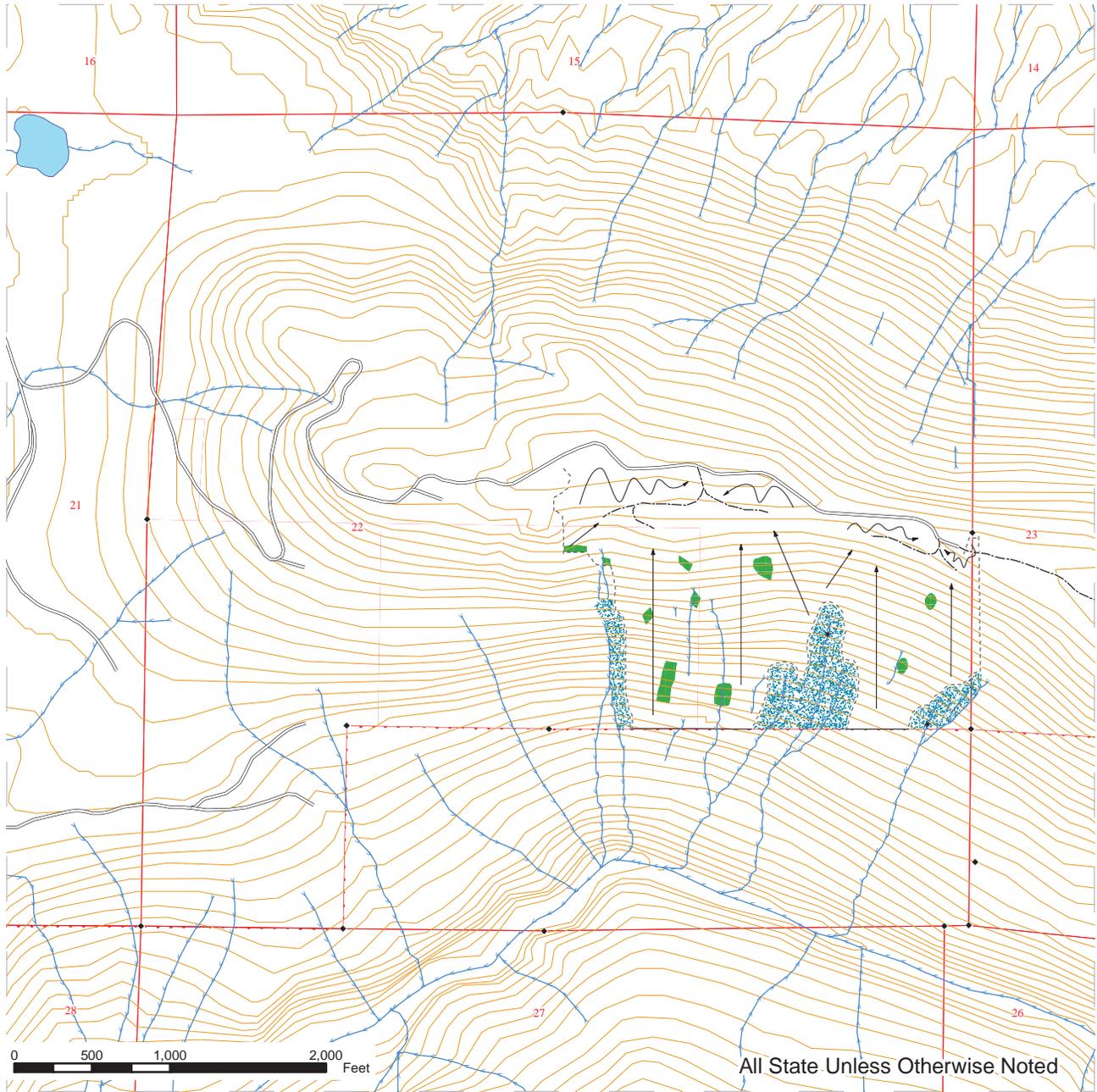
Compiled by: A. Halgren

Date: 42349

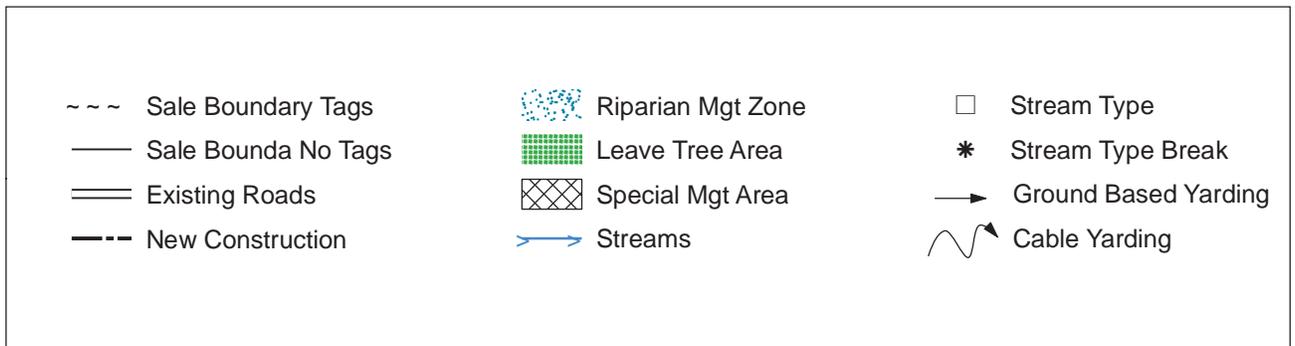
LOGGING PLAN MAP

SALE NAME: PIG KNUCKLE RIDGE
AGREEMENT#: 92630
TOWNSHIP(S): T29R08E
TRUST(S): Common School and Indemnity(3), Capitol Grant(7)

REGION: Northwest Region
COUNTY(S): SNOHOMISH
ELEVATION RGE: 1313-2669



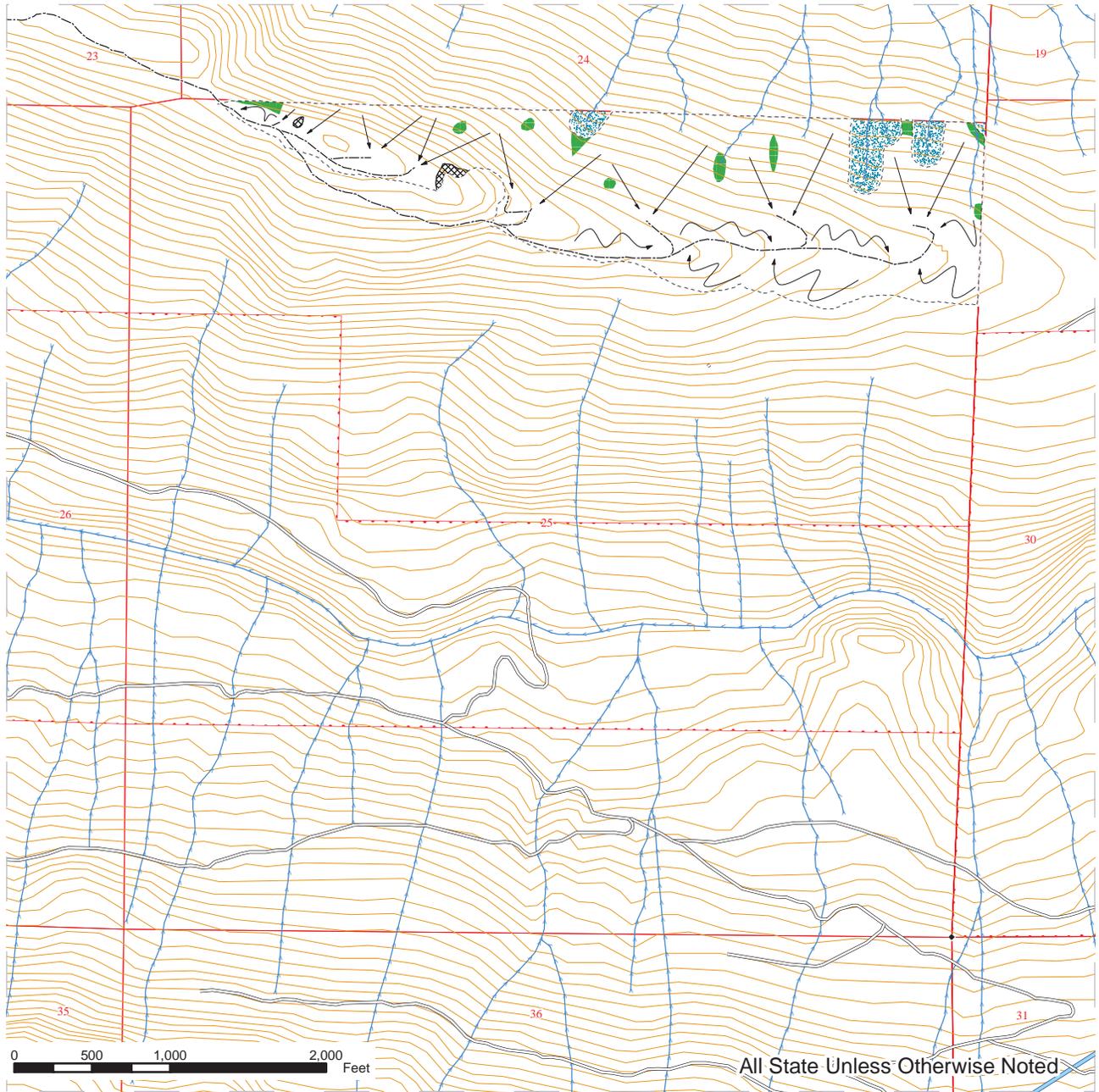
All State Unless Otherwise Noted



LOGGING PLAN MAP

SALE NAME: PIG KNUCKLE RIDGE
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ELEVATION RGE: 1313-2669



~ ~ ~	Sale Boundary Tags		Riparian Mgt Zone		Stream Type
— — —	Sale Bounda No Tags		Leave Tree Area		Stream Type Break
— — —	Existing Roads		Special Mgt Area		Ground Based Yarding
- - -	New Construction		Streams		Cable Yarding

