



**TIMBER NOTICE OF SALE**

**SALE NAME:** WOLVERINE

**AGREEMENT NO:** 30-98224

**AUCTION:** February 27, 2020 starting at 10:00 a.m., **COUNTY:** Lewis  
Pacific Cascade Region Office, Castle Rock, WA

**SALE LOCATION:** Sale located approximately 4 miles northwest of Pe Ell

**PRODUCTS SOLD AND SALE AREA:** All timber, except leave trees bound by yellow "Leave Tree Area" tags, leave trees marked with blue paint, and all down timber existing 7 years prior to the day of sale, bounded by the following; white "Timber Sale Boundary" tags with pink "Harvest Boundary" flagging, reprod, and the N-1530 road in Unit 1; white "Timber Sale Boundary" tags with pink "Harvest Boundary" flagging and reprod in Units 2 and 3; white "Timber Sale Boundary" tags with pink "Harvest Boundary" flagging in Unit 3; white "Timber Sale Boundary" tags with pink "Harvest Boundary" flagging, and the N-1400 road in Unit 4; All timber bound by orange "Right of Way" tags and orange flagging in Unit 5 on part(s) of Sections 15, 16, 21 and 22 all in Township 13 North, Range 5 West, W.M., containing 67 acres, more or less.

**CERTIFICATION:** This sale is certified under the Sustainable Forestry Initiative® program Standard (cert no: PwC-SFIFM-513)

**ESTIMATED SALE VOLUMES AND QUALITY:**

Species	Avg DBH	Ring Count	Total MBF	MBF by Grade									
				1P	2P	3P	SM	1S	2S	3S	4S	UT	
Douglas fir	20	6	3,444			19	34			2,486	761	128	16
Red alder	16		144						9	63	19	27	26
Maple	14		57						3	3	7	16	27
Grand fir	27		36							32	3		
Hemlock	17		20							8	9	2	
Red cedar	28		2								2		
Sale Total			3,703										

**MINIMUM BID:** \$1,302,000.00 **BID METHOD:** Sealed Bids

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

**EXPIRATION DATE:** October 31, 2021 **ALLOCATION:** Export Restricted

**BID DEPOSIT:** \$130,200.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

**HARVEST METHOD:** Cable, and Shovel. Harvesting activities are estimated to be 80% ground-based harvesting and 20% cable, cable assist. Ground-based harvesting equipment shall be restricted to sustained slopes of 45% and less, and restricted during saturated soil conditions. See clauses H-140 and H-141 for further harvest requirements. A detailed felling and yarding plan shall be required prior to any harvest activities and approved in writing by the Contract Administrator. Shovel Yarding will not be permitted from November 1 to April 30 unless authorized in writing by the Contract Administrator.



## TIMBER NOTICE OF SALE

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**ROADS:** 16.80 stations of optional construction. 558.00 stations of required pre-haul maintenance. Rock for construction, reconstruction, and pre-haul maintenance under this contract may be obtained at no cost to the Purchaser from the following rock sources; the Topelt Quarry located in Section 15, Township 13 North, Range 05 West, WM. Rock used in accordance with the quantities on the ROCK 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. All road work Road construction will not be permitted from October 1 to May 31 unless authorized in writing by the Contract Administrator. The hauling of forest products will not be permitted from November 1 to April 30 unless authorized in writing by the Contract Administrator.

### ACREAGE DETERMINATION

**CRUISE METHOD:** The sale acres were determined by GPS delineation. Cruise was completed using variable plot cruise methods.

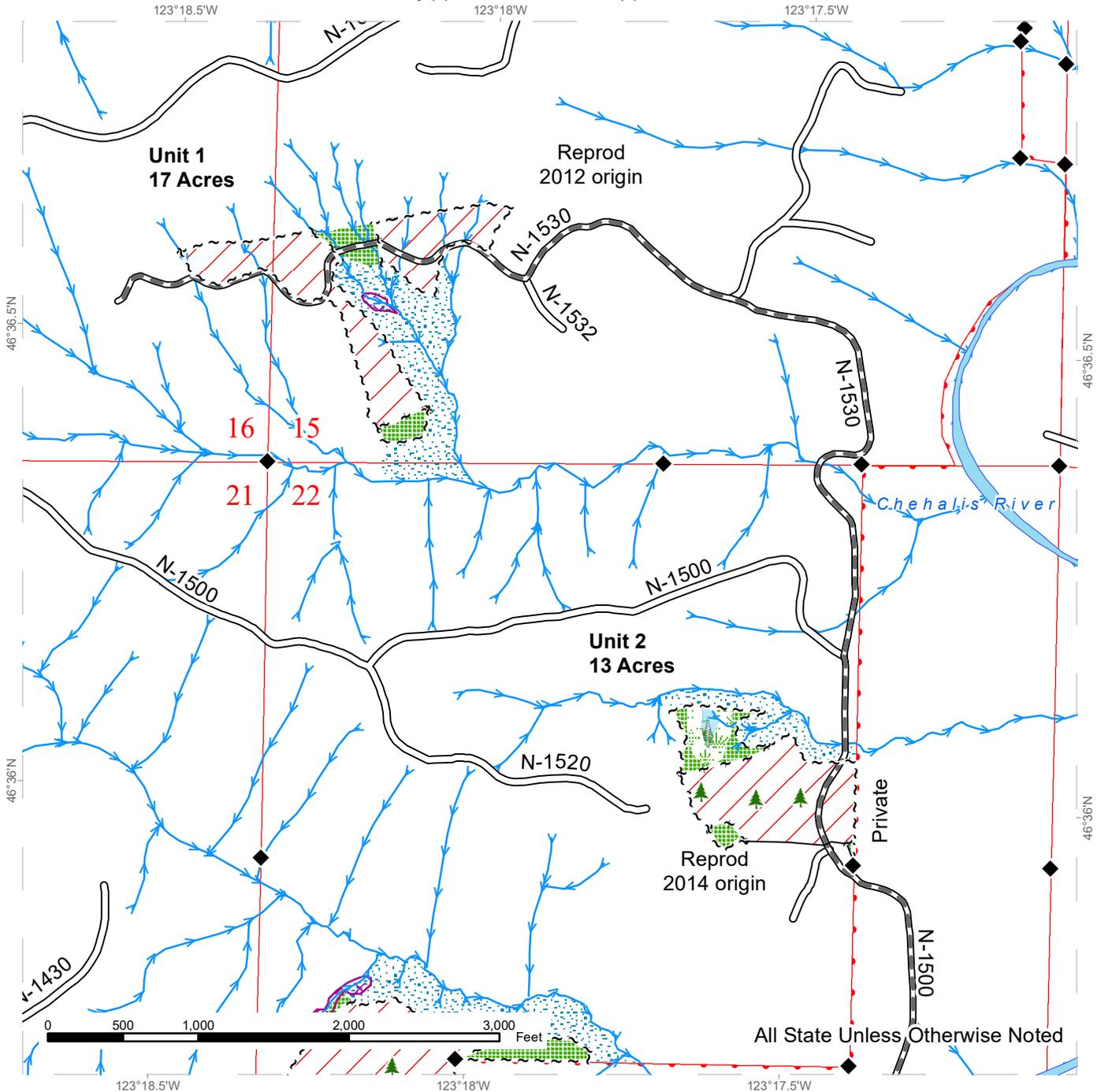
**FEES:** \$62,951.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

**SPECIAL REMARKS:** This sale has approximately 19 MBF 3P, 34 MBF SM, 9 MBF of high quality 2 saw DF, 178 MBF of high quality 3 saw, see cruise for details. PCP 1-1 gate keys may be obtained from the Pacific Cascade Region office.

# TIMBER SALE MAP

**SALE NAME:** WOLVERINE  
**AGREEMENT #:** 30-098224  
**TOWNSHIP(S):** T13R5W  
**TRUST(S):** Common School and Indemnity (3), State Forest Transfer (1)

**REGION:** Pacific Cascade Region  
**COUNTY(S):** Lewis  
**ELEVATION RGE:** 480-840



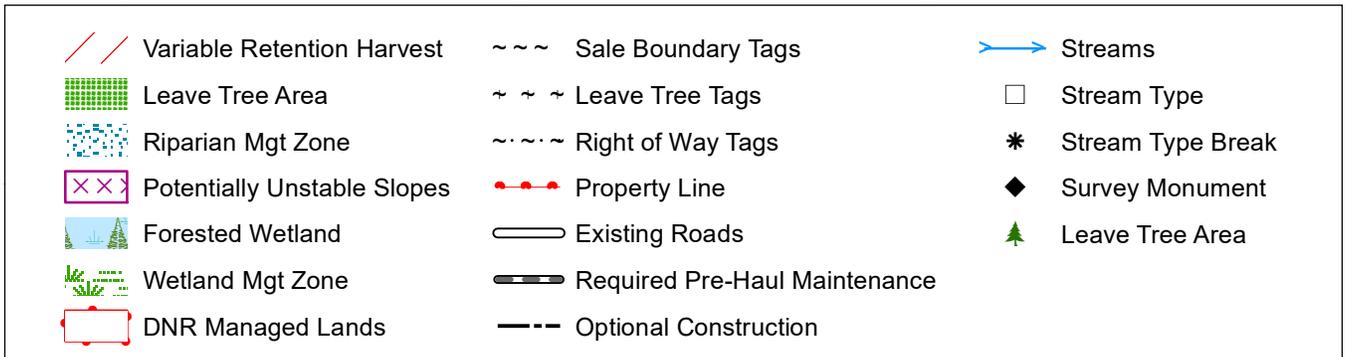
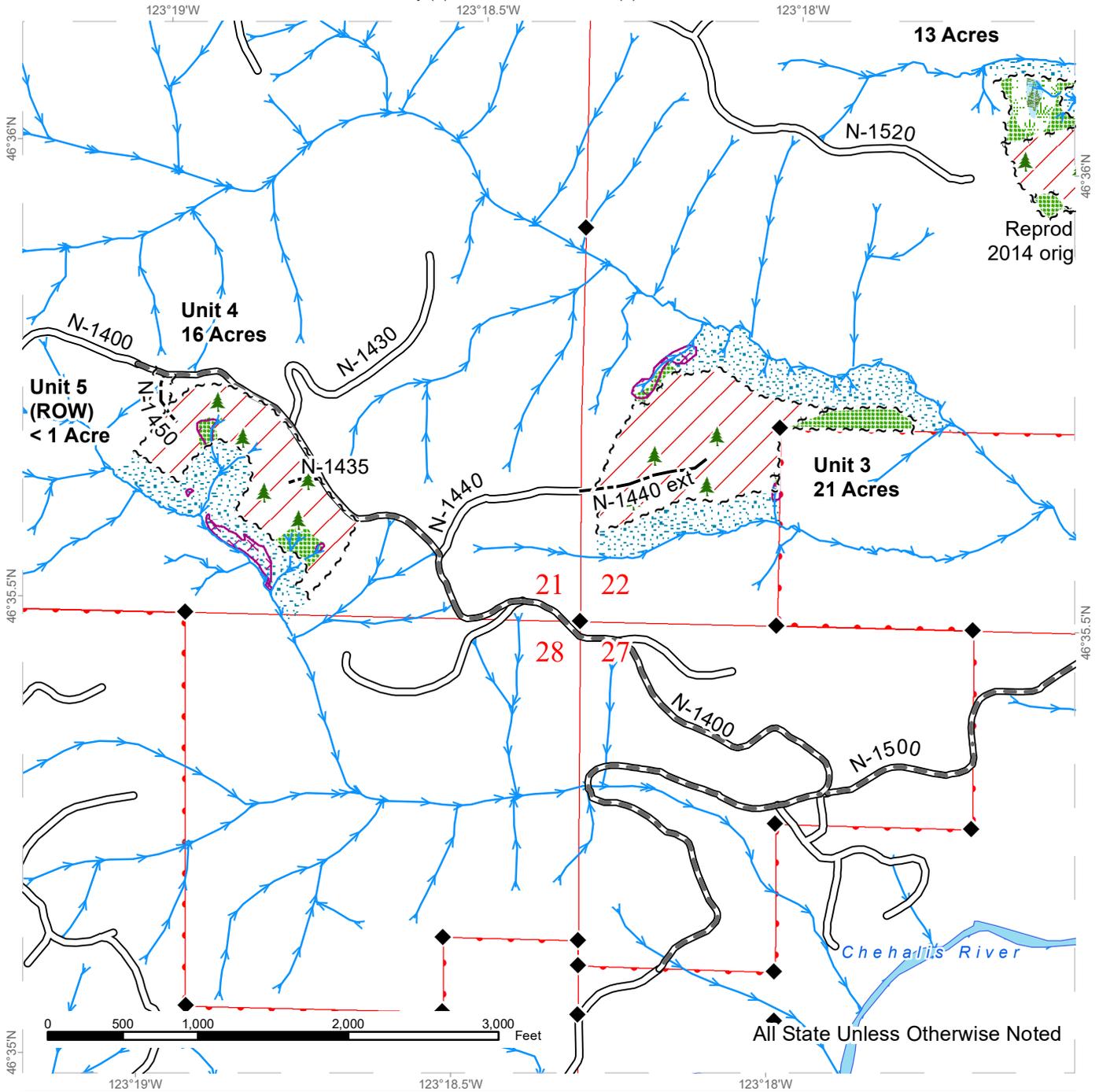
	Variable Retention Harvest		Sale Boundary Tags		Streams
	Leave Tree Area		Leave Tree Tags		Stream Type
	Riparian Mgt Zone		Right of Way Tags		Stream Type Break
	Potentially Unstable Slopes		Property Line		Survey Monument
	Forested Wetland		Existing Roads		Leave Tree Area
	Wetland Mgt Zone		Required Pre-Haul Maintenance		
	DNR Managed Lands				



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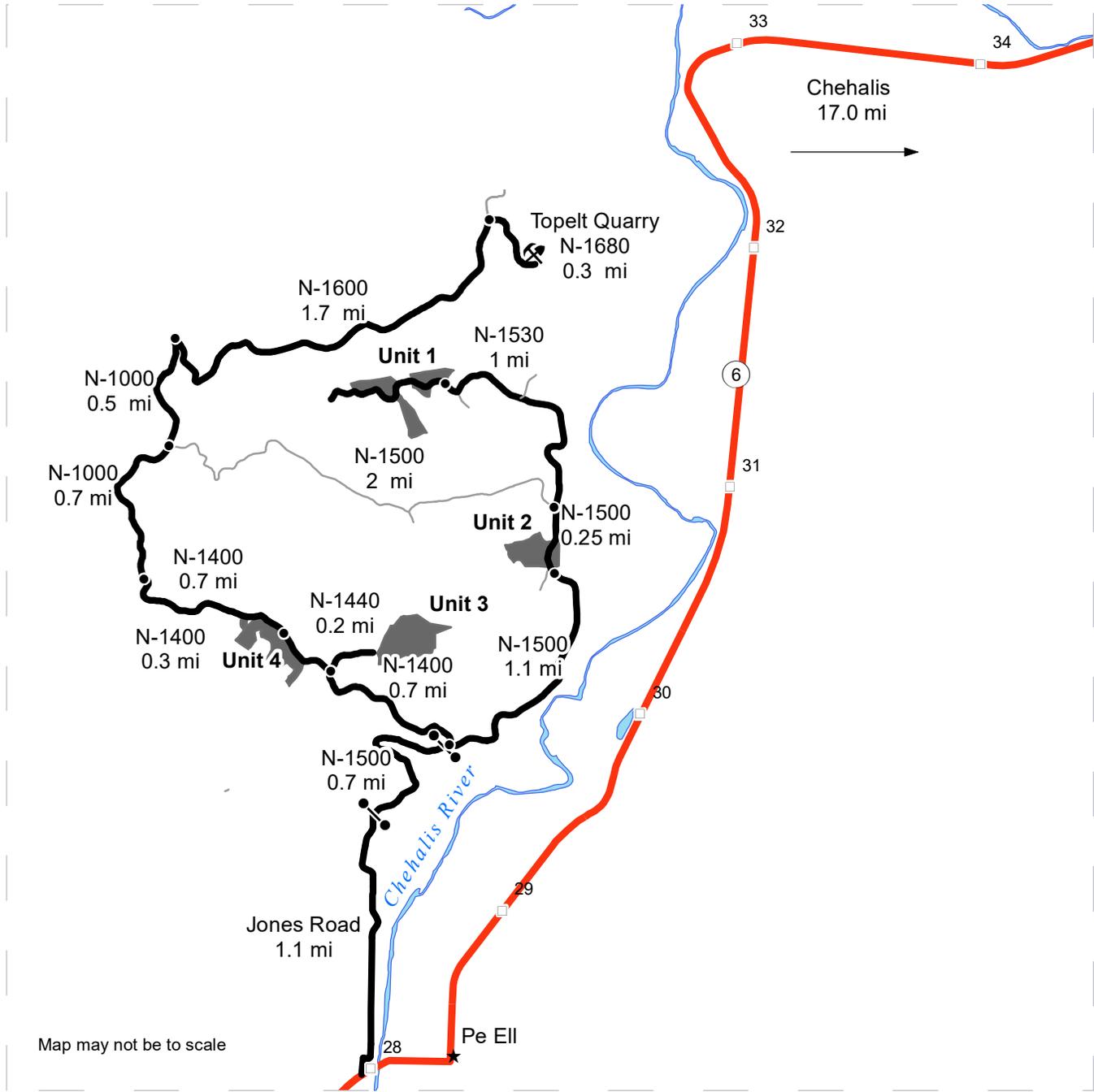
**REGION:** Pacific Cascade Region  
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# DRIVING MAP

**SALE NAME:** WOLVERINE  
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**TOWNSHIP(S):** T13R5W  
**TRUST(S):** Common School and Indemnity (3), State Forest Transfer (1)

**REGION:** Pacific Cascade Region  
**COUNTY(S):** Lewis  
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Map may not be to scale

- Timber Sale Unit
- Highway
- Haul Route
- Other Road
- Milepost Markers
- Distance Indicator
- Gate (PCP 1-1)
- Rock Pit

**DRIVING DIRECTIONS:**

From State Route 6, milepost 28 turn north onto Jones Road just west of milepost 28. Continue on Jones road for 1.1 miles to a farm panel gate on private property. Continue through gate onto the N-1500 and follow for 0.7 miles to yellow gate. Units 1 and 2 are accessed via the N-1500 from the gate continue northeast 1.1 miles to unit 2. Unit 1 is located off the N-1530, at junction with N-1500 and N1530 continue north for 1 mile. To access units 3 and 4 head north on N-1400, unit 4 is located south of N-1400. Unit 4 turn west on N-1440, unit is located 90 feet past end of road



**STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES**

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

**Export Restricted Lump Sum AGREEMENT NO. 30-098224**

**SALE NAME: WOLVERINE**

**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 into 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 February 27, 2020 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, except leave trees bound by yellow "Leave Tree Area" tags, leave trees marked with blue paint, and all down timber existing 7 years prior to the day of sale, bounded by the following; white "Timber Sale Boundary" tags with pink "Harvest Boundary" flagging, reprod, and the N-1530 road in Unit 1; white "Timber Sale Boundary" tags with pink "Harvest Boundary" flagging and reprod in Units 2 and 3; white "Timber Sale Boundary" tags with pink "Harvest Boundary" flagging in Unit 3; white "Timber Sale Boundary" tags with pink "Harvest Boundary" flagging, and the N-1400 road in Unit 4; All timber bound by orange "Right of Way" tags and orange flagging in Unit 5, located on approximately 67 acres on part(s) of Sections 15, 16, 21, and 22 all in Township 13 North, Range 5 West W.M. in Lewis 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-031 Contract Term

Purchaser shall complete all work required by this contract prior to October 31, 2021.

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 \$983.00 per acre per annum for the acres on which an operating release has not been issued for all harvest units.
- 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. TE812521-1 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, ITP TE812521-1 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.

The pricing schedule has not been set for the sale.

**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 via endorsement 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 Castle Rock, 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 address of record:

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; N-1000, N-1400, N-1435, N-1440, N-1450, N-1500, N-1530, N-1600, and N-1680. 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-380 Road Easement and Road Use Permit Requirements

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

Easement between the State and Hemphill-O'Neill Lumber Company Inc. Dated: 7/10/1980 Expires: Indefinitely

Easement between the State and Milwaukee Land Company. Dated: 2/20/1956 Expires: Indefinitely

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:

Resource, including the terms and provisions thereof,

For: Archeological site

In Favor of: Resource RCW 27.53

Disclosed by Application No.: 07-001868

Granted: 6/15/1979

Expires: Indefinite

Resource, including the terms and provisions thereof,

For: Archeological site

In Favor of: Resource RCW 27.53  
Disclosed by Application No.: 07-001869  
Granted: 6/15/1979  
Expires: Indefinite

Resource, including the terms and provisions thereof,  
For: Archeological site  
In Favor of: Resource RCW 27.53  
Disclosed by Application No.: 07-001870  
Granted: 6/15/1979  
Expires: Indefinite

Easement, including the terms and provisions thereof,  
For: Road  
In Favor of: Doty Lumber & Shingle Company  
Disclosed by Application No.: 50-008424  
Granted: 3/27/1912  
Expires: Indefinite

Easement, including the terms and provisions thereof,  
For: Railroad  
In Favor of: Northern Pacific Railway Company  
Disclosed by Application No.: 50-041383  
Granted: 1/31/1900  
Expires: Indefinite

Easement, including the terms and provisions thereof,  
For: Road  
In Favor of: Hemphill-O'Neill Lumber Company  
Disclosed by Application No.: 50-043262  
Granted: 7/10/1980  
Expires: Indefinite

Lease, including the terms and provisions thereof,  
For: Land Use License  
In Favor of: Washington Department of Fish & Wildlife  
Disclosed by Application No.: 60-095576  
Granted: 5/2/2017  
Expires: 6/30/2022

Lease, including the terms and provisions thereof,  
For: Land Use License  
In Favor of: Washington Department of Fish and Wildlife  
Disclosed by Application No.: 60-096820  
Granted: 4/23/2018  
Expires: 6/30/2020

Lease, including the terms and provisions thereof,  
For: Minor Forest Products  
In Favor of: DNR – Pacific Cascade Region  
Disclosed by Application No.: 35-CP0012  
Granted: 10/17/2016  
Expires: Indefinite

Special Notations: Archaeological sites have been identified within Sections 15, 21 and 22, Township 13 North, Range 5 West, W.M. area of your proposed activity, please contact the State Lands Archaeologist for any recommendations.

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 \$96,278.00. The total contract price consists of a \$0.00 contract bid price plus \$96,278.00 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-010 Cutting and Yarding Schedule

Shovel Yarding will not be permitted from November 1 to April 30 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 100 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 unit containing the damaged leave tree, 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 12 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-120 Harvesting Equipment

Forest products sold under this contract shall be harvested and removed using Cable, cable assist systems, and shovels. Authority to use other equipment or to operate outside the equipment specifications detailed above must be approved in writing by the State.

H-125 Log Suspension Requirements

Lead-end suspension is required for all yarding activities.

H-126 Tailholds on State Land

If Purchaser tailholds on State land, methods to minimize damage to live trees outside the sale area shall be employed and must be approved in writing by the Contract Administrator.

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 all roads from November 1 to April 30 unless authorized in writing by the Contract Administrator.

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

Only shovels track mounted with hydraulic boom and grapple will be allowed.

Shovel must be large enough to pick up one of the largest logs 35 feet from the machine.

Ground based yarding equipment shall only operate during dry soil conditions.

Long butts remaining on sale must be dispersed as directed by the Contract Administrator.

Sediment delivery from roads will not be allowed. Hauling operations will be shut down as needed until conditions improve or work can be completed that eliminates the delivery of sediment.

Cable-assist will only be allowed in areas where a written harvest plan has been provided to the CA and the CA has provided written approval for cable-assist logging to occur.

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:

No yarding will be permitted through or over areas identified to be potentially unstable on the FPA Slope Stability Form and maps.

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.

H-230 Tops and Limbs Outside the Sale Boundary

Tops and limbs outside the sale boundary as a result of Purchaser's operation shall be removed concurrently with the yarding operation unless otherwise directed by the Contract Administrator.

H-240 Lop and Scatter

The tops of all felled trees shall be lopped and slash scattered away from leave trees .

H-250 Additional Falling Requirements

Within all units, all non-merchantable hardwood stems 2 inches DBH or 10 feet tall, shall be felled concurrently with felling operations. Areas of young or immature timber may be excluded from this requirement by the Contract Administrator.

Section C: Construction and Maintenance

C-040 Road Plan

Road construction and associated work provisions of the Road Plan for this sale, dated 2/26/2019 are hereby made a part of this contract.

C-050 Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on N-1400, N-1435, N-1440, N-1450, N-1500, N-1530, N-1440 EXT. 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 all roads not listed in Clause C-060. 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 equipment rate schedule on file at the Region office or Engineering Division in Olympia. The State shall reimburse Purchaser for said costs within 30 days of receipt and approval of the statement.

C-080 Landing Locations Approved Prior to Construction

Landings shall be marked by Purchaser and approved by the Contract Administrator prior to construction.

## 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-030 Landing Debris Clean Up

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

## S-035 Logging Debris Clean Up

Slash and debris created from harvest activities shall be treated in a manner approved in writing by the Contract Administrator.

## S-050 Cessation of Operations for Low Humidity

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 all streams 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 10 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 all harvest units.

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

STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES

\_\_\_\_\_  
Purchaser

\_\_\_\_\_  
Eric Wisch

\_\_\_\_\_  
Print Name

Pacific Cascade Region Manager

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Address: \_\_\_\_\_

CORPORATE ACKNOWLEDGEMENT  
(Required for both LLC and Inc. Entities)

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 \_\_\_\_\_

## PRE-CRUISE NARRATIVE

Sale Name: <b>Wolverine</b>	Region: <b>Pacific Cascade</b>
Agreement #: <b>30-098224</b>	District: Frances
Contact Forester: Roy Franklin Phone / Location: 360.520.1971	County(s): Choose a county, Lewis
Alternate Contact: Maureen Crabtree Phone / Location: 360.623.917	Other information: <a href="#">Click here to enter text.</a>

Type of Sale: Lump Sum	
Harvest System: Ground based <a href="#">Click here to enter text.</a>	80%
Harvest System: Uphill Cable <a href="#">Click here to enter text.</a>	20%
Harvest System: Select harvest system <a href="#">Click here to enter text.</a>	<a href="#">Click here to enter percent sale acres.</a>

### UNIT ACREAGES AND METHOD OF DETERMINATION:

Unit # Harvest R/W or RMZ WMZ	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	15, 16/13N/ 5W	1, 3	34.7	13.9	2.9	1	0	16.9	GPS (Garmin)
2	22/13N/5W	1	23.5	7.8	2.5	0.6	0	12.6	GPS (Garmin)
3	22/13N/5W	1	41.1	17	3	0	0	21.1	GPS (Garmin)
4	21/13N/5W	1	29.1	11	1.7	0	0	16.4	GPS (Garmin)
5 R/W	21/13N/5W	1	0.3	0	0	0	0	0.3	GPS (Garmin)
<b>TOTAL ACRES</b>			128.7	49.7	10.1	1.6	0	67.3	

### HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Leave, take, paint color, tags, flagging etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
1	Variable retention harvest. Boundaries are marked with white "Timber Sale Boundary" tags and pink "Timber Harvest Boundary"		Leave trees are marked in clumps only.

	flagging. Clumped leave trees are marked with yellow "Leave Tree Area" tags, pink "Timber Harvest Boundary" flagging, and blue paint.		
2	Variable retention harvest. Boundaries are marked with white "Timber Sale Boundary" tags and pink "Timber Harvest Boundary" flagging. Clumped leave trees are marked with yellow "Leave Tree Area" tags, pink "Timber Harvest Boundary" flagging, and blue paint.		Leave trees are marked mainly in clumps.
3	Variable retention harvest. Boundaries are marked with white "Timber Sale Boundary" tags and pink "Timber Harvest Boundary" flagging. Clumped leave trees are marked with yellow "Leave Tree Area" tags, pink "Timber Harvest Boundary" flagging, and blue paint.		Leave trees are marked mainly in clumps.
4	Variable retention harvest. Boundaries are marked with white "Timber Sale Boundary" tags and pink "Timber Harvest Boundary" flagging. Clumped leave trees are marked with yellow "Leave Tree Area" tags, pink "Timber Harvest Boundary" flagging, and blue paint.		Leave trees are marked mainly in clumps.
5 ROW	Right-of-Way harvest. Boundaries are marked with Orange "Right-of-Way" tags, orange flagging, and orange paint.		

**OTHER PRE-CRUISE INFORMATION:**

Unit #	Primary,secondary Species / Estimated Volume (MBF)	Access information (Gates, locks, etc.)	Photos, traverse maps required
1	DF, WH, RA, BLM 700 MBF	From State Route 6, milepost 28 turn north onto Jones Road just west of milepost 28. Continue on Jones road for 1.1 miles to a farm panel gate on private property. Continue through gate onto the N-1500 and follow for 0.7 miles to yellow gate. Units 1 and 2 are accessed via the N-1500 from the yellow gate continue northeast 1.1 miles to unit 2.	Maps on TSDC
2	DF, WH, RA, BLM 516 MBF	Unit 1 is located off the N-1530, at junction with N-1500 and N1530 continue north for	Maps on TSDC

		1 mile.	
3	DF, WH, RA, BLM 840 MBF	To access units 3 & 4 head north on N-1400, unit 4 is located south of N-1400.	Maps on TSDC
4	DF, WH, RA, BLM 652 MBF	Unit 4 turn west on N-1440, unit is located 90 feet past end of road.	Maps on TSDC
5 ROW		Unit 5 is located 0.5 miles northwest of the junction with N-1400 & N1440. This ROW is for N-1450 construction.	Maps on TSDC
TOTAL MBF	2,708		

**REMARKS:**

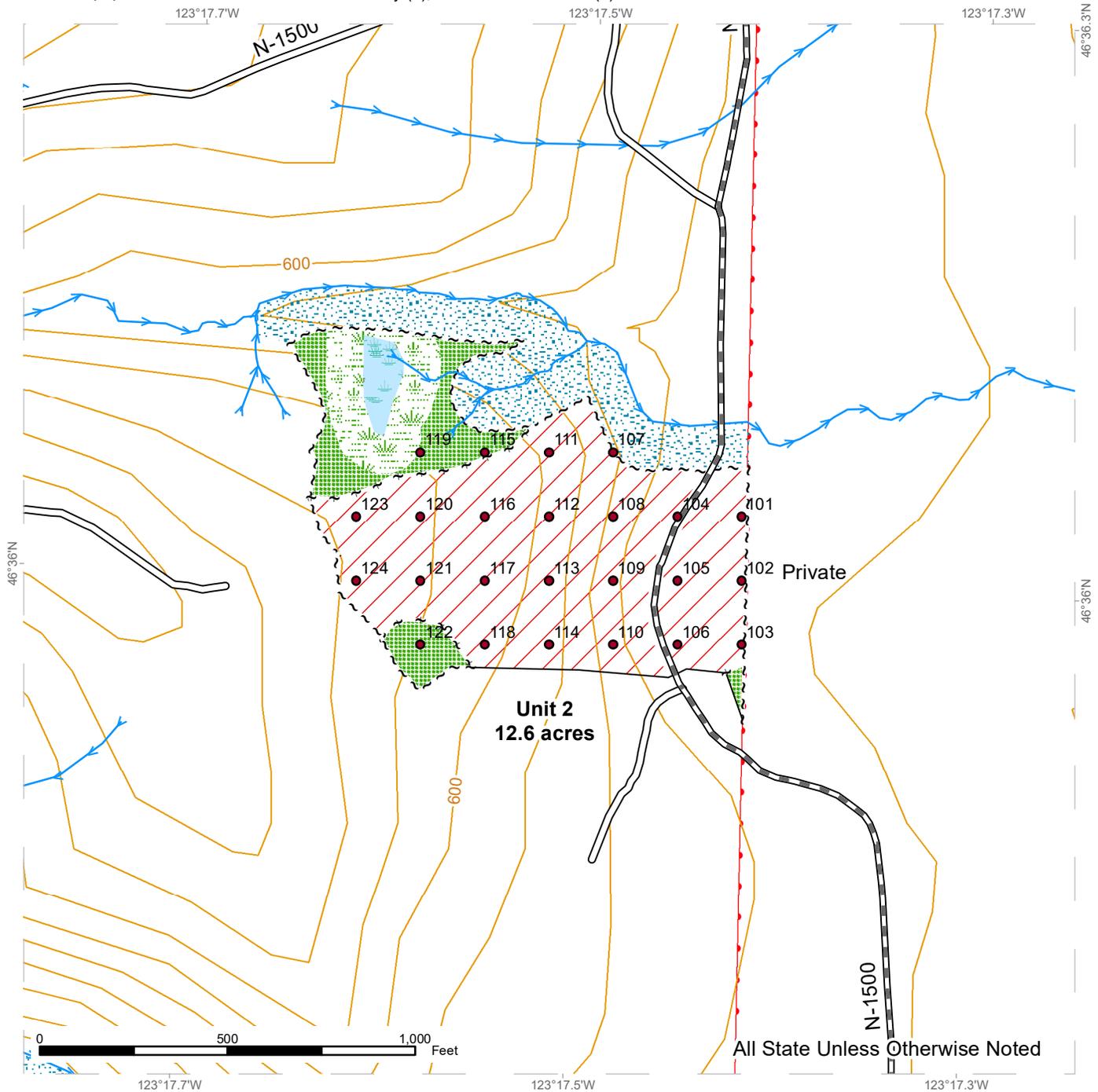
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Prepared By: Maureen Crabtree Date: 6/11/2018	Title:	CC:
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# LOGGING PLAN MAP

**SALE NAME:** WOLVERINE  
**AGREEMENT#:** None  
**TOWNSHIP(S):** T13R5W  
**TRUST(S):** Common School and Indemnity (3), State Forest Transfer (1)

**REGION:** Pacific Cascade Region  
**COUNTY(S):** Lewis  
**ELEVATION RGE:** 480-840



All State Unless Otherwise Noted

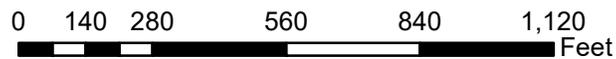
	Leave Tree Area		Right of Way Tags		Streams
	Riparian Mgt Zone		Property Line		Stream Type
	Forested Wetland		Existing Roads		Stream Type Break
	Wetland Mgt Zone		Required Pre-Haul Maintenance		
	DNR Managed Lands		Ground Harvest		
	Sale Boundary Tags		Cable Harvest		
	Timber Type Change				
	Leave Tree Tags				





**FMA POLYGON AND SAMPLE POINT INFORMATION**

FMA_NM:	WOLVERINE U2	Township:	T13R05W
FMA_ID:	176526	DNR Region:	PACIFIC CASC
Acres:	16	Total Sample Points:	24
County:	LEWIS	Spacing Between Points:	Width: 171 Height: 171
Imagery:	2017 Orthophoto (1-ft Color) [HXIP]		Point Rotation Degrees: 0



Scale 1:2,100

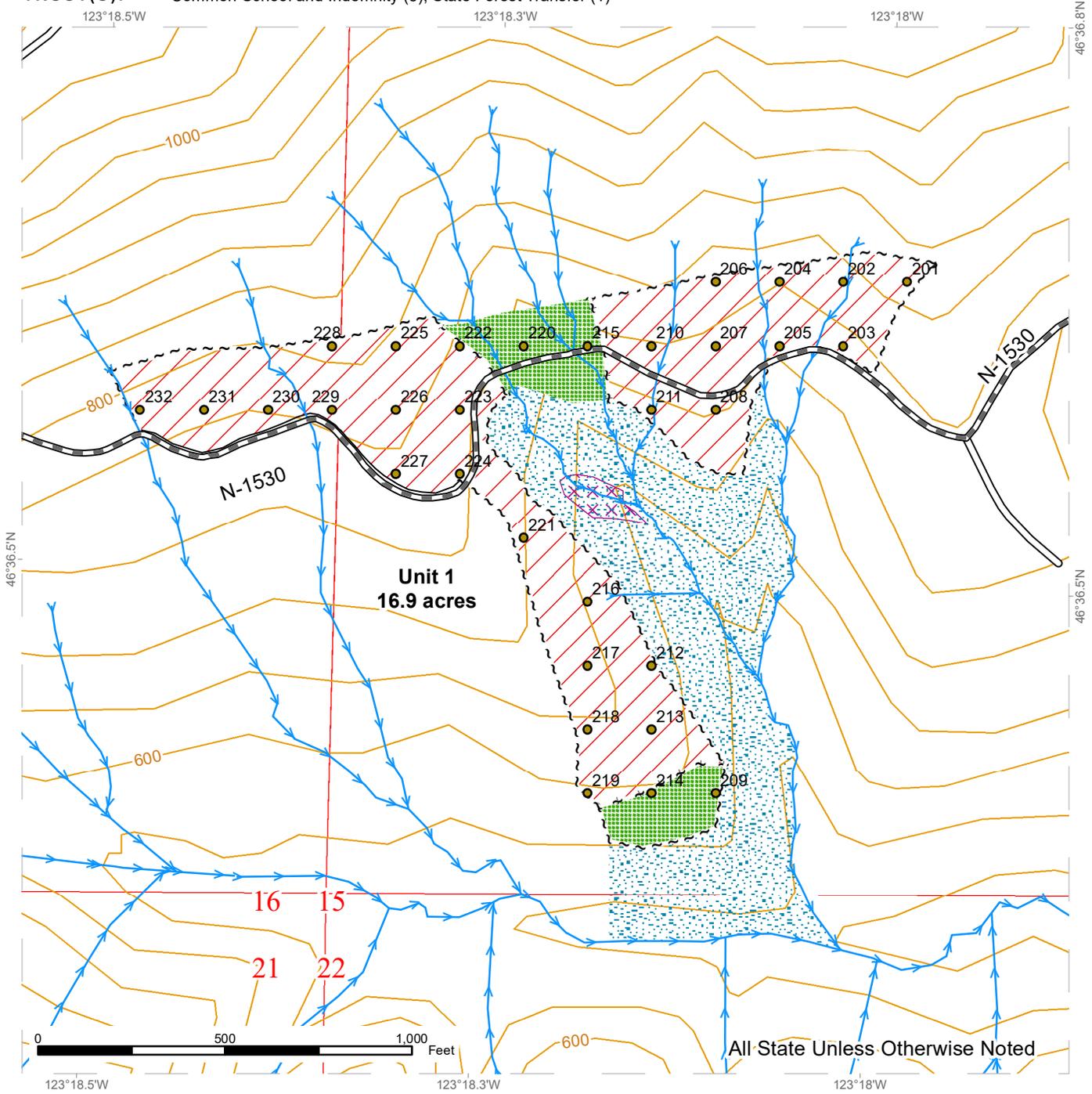
**Legend**

- Sample Points
- FMA polys
- Public Land Survey Sections

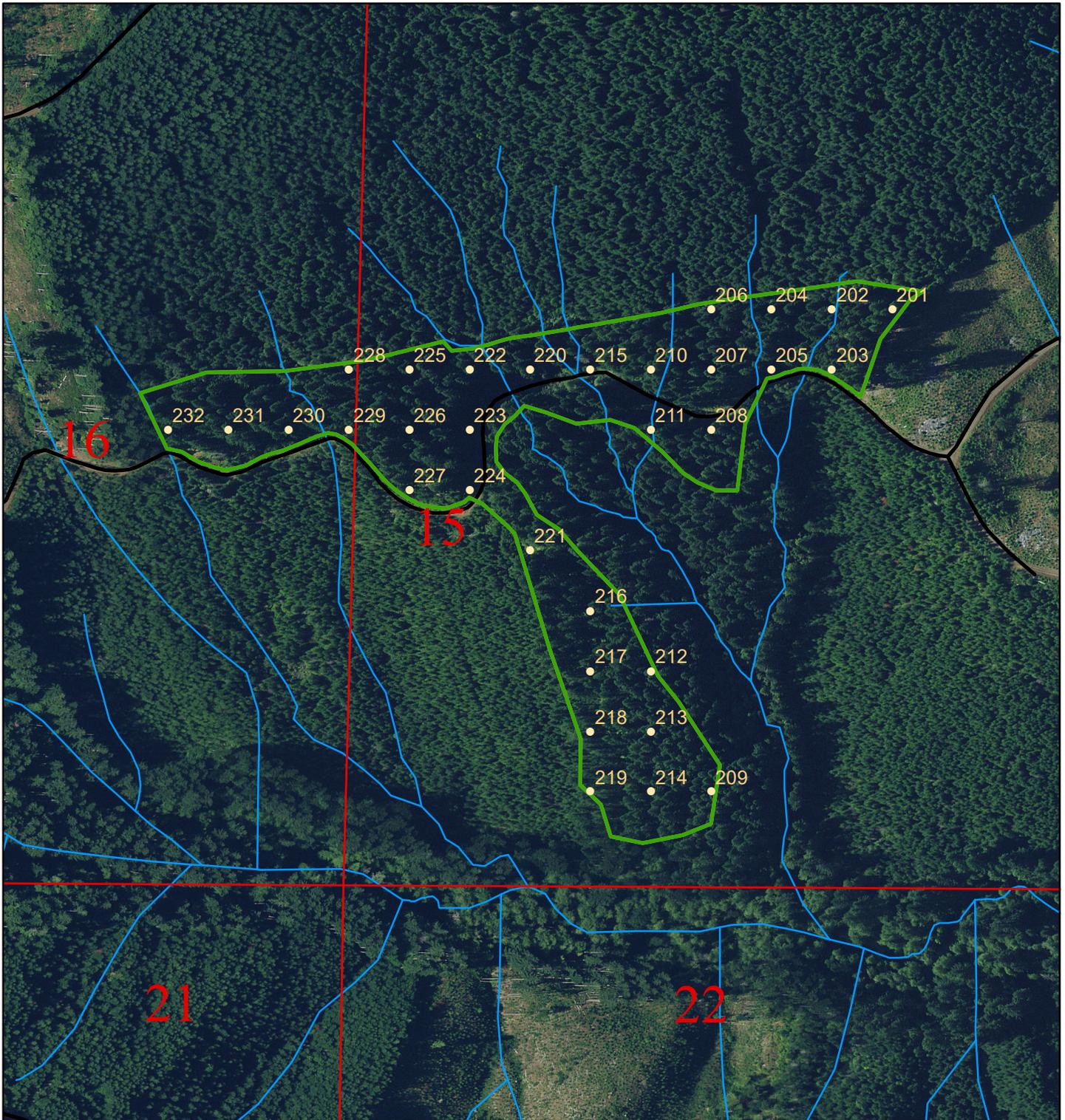
# LOGGING PLAN MAP

**SALE NAME:** WOLVERINE  
**AGREEMENT#:** None  
**TOWNSHIP(S):** T13R5W  
**TRUST(S):** Common School and Indemnity (3), State Forest Transfer (1)

**REGION:** Pacific Cascade Region  
**COUNTY(S):** Lewis  
**ELEVATION RGE:** 480-840

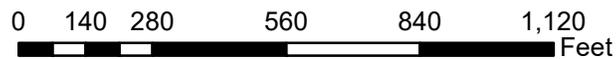


	Leave Tree Area		Right of Way Tags		Streams
	Riparian Mgt Zone		Property Line		Stream Type
	Potentially Unstable Slopes		Existing Roads		Stream Type Break
	DNR Managed Lands		Required Pre-Haul Maintenance		
	Sale Boundary Tags		Ground Harvest		
	Timber Type Change		Cable Harvest		
	Leave Tree Tags				



**FMA POLYGON AND SAMPLE POINT INFORMATION**

FMA_NM:	WOLVERINE U1	Township:	T13R05W
FMA_ID:	198834	DNR Region:	PACIFIC CASC
Acres:	21	Total Sample Points:	32
County:	LEWIS	Spacing Between Points:	Width: 171 Height: 171
Imagery:	2017 Orthophoto (1-ft Color) [HXIP]	Point Rotation Degrees:	0



Scale 1:3,900

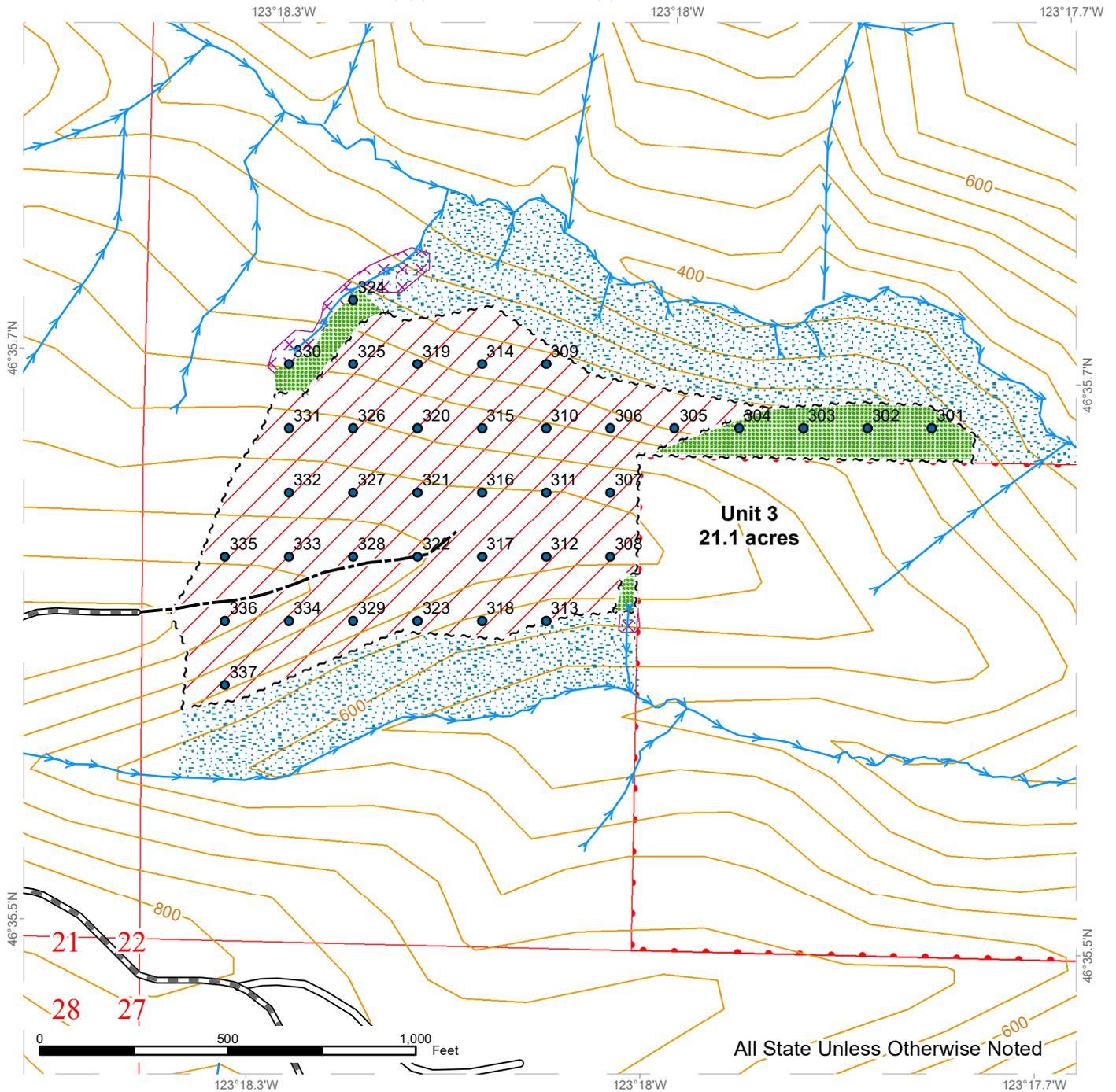
**Legend**

- Sample Points
- FMA polys
- Public Land Survey Sections

# LOGGING PLAN MAP

**SALE NAME:** WOLVERINE  
**AGREEMENT#:** None  
**TOWNSHIP(S):** T13R5W  
**TRUST(S):** Common School and Indemnity (3), State Forest Transfer (1)

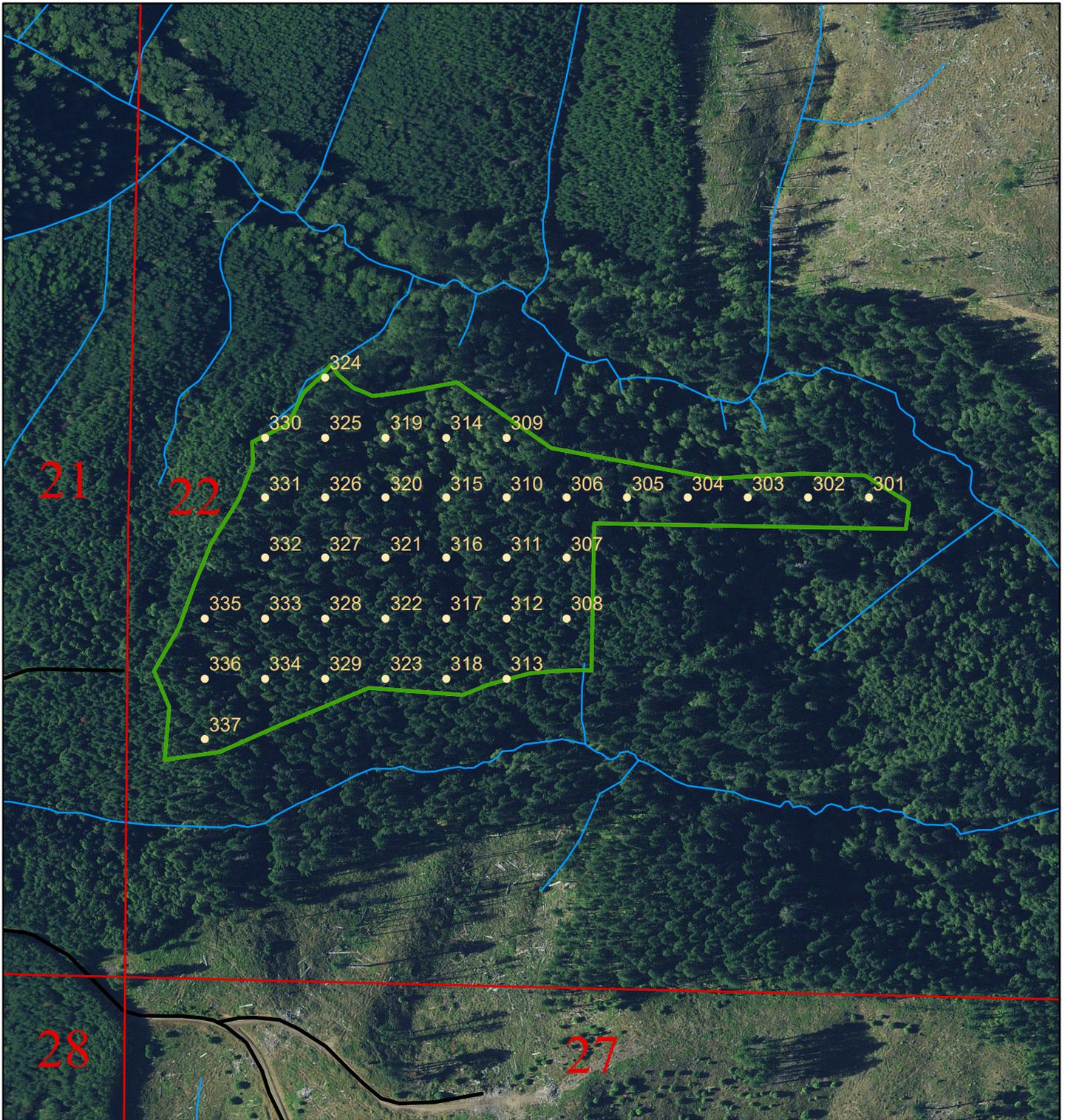
**REGION:** Pacific Cascade Region  
**COUNTY(S):** Lewis  
**ELEVATION RGE:** 480-840



All State Unless Otherwise Noted

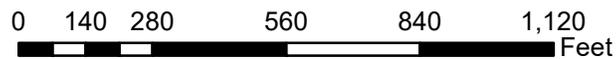
	Leave Tree Area		Right of Way Tags		Streams
	Riparian Mgt Zone		Property Line		Stream Type
	Potentially Unstable Slopes		Existing Roads		Stream Type Break
	DNR Managed Lands		Required Pre-Haul Maintenance		
	Sale Boundary Tags		Optional Construction		
	Timber Type Change		Ground Harvest		
	Leave Tree Tags		Cable Harvest		





**FMA POLYGON AND SAMPLE POINT INFORMATION**

FMA_NM:	WOLVERINE U3	Township:	T13R05W
FMA_ID:	176490	DNR Region:	PACIFIC CASC
Acres:	24	Total Sample Points:	37
County:	LEWIS	Spacing Between Points:	Width: 171 Height: 171
Imagery:	2017 Orthophoto (1-ft Color) [HXIP]		Point Rotation Degrees: 0



Scale 1:3,700

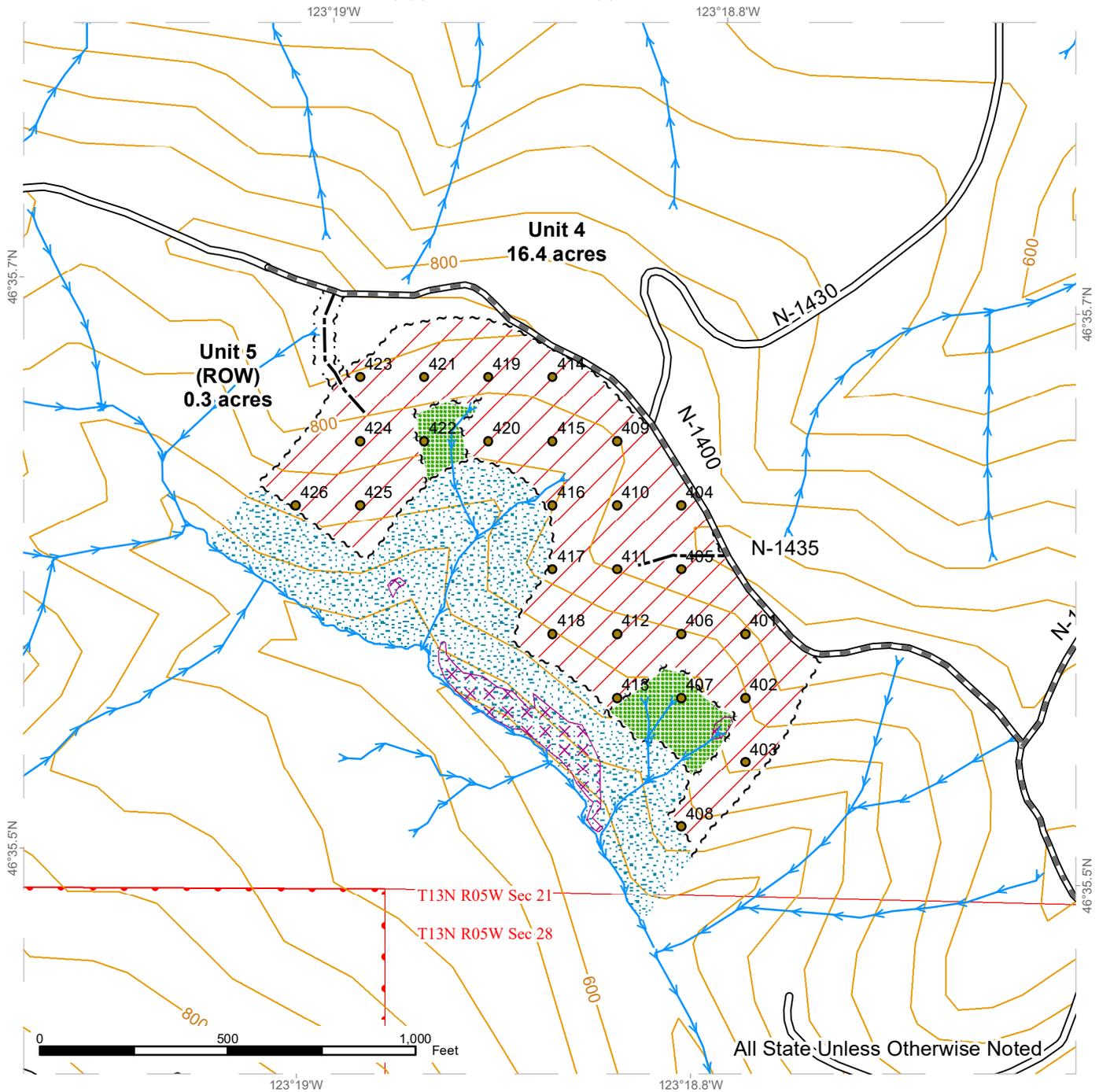
**Legend**

- Sample Points
- FMA polys
- Public Land Survey Sections

# LOGGING PLAN MAP

**SALE NAME:** WOLVERINE  
**AGREEMENT#:** None  
**TOWNSHIP(S):** T13R5W  
**TRUST(S):** Common School and Indemnity (3), State Forest Transfer (1)

**REGION:** Pacific Cascade Region  
**COUNTY(S):** Lewis  
**ELEVATION RGE:** 480-840



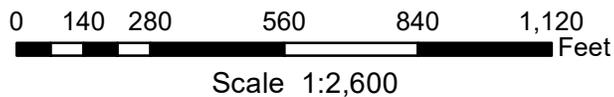
	Leave Tree Area		Right of Way Tags		Streams
	Riparian Mgt Zone		Property Line		Stream Type
	Potentially Unstable Slopes		Existing Roads		Stream Type Break
	DNR Managed Lands		Required Pre-Haul Maintenance		
	Sale Boundary Tags		Optional Construction		
	Timber Type Change		Ground Harvest		
	Leave Tree Tags		Cable Harvest		





**FMA POLYGON AND SAMPLE POINT INFORMATION**

FMA_NM:	WOLVERINE U4	Township:	T13R05W
FMA_ID:	291266	DNR Region:	PACIFIC CASC
Acres:	18	Total Sample Points:	26
County:	LEWIS	Spacing Between Points:	Width: 171 Height: 171
Imagery:	2017 Orthophoto (1-ft Color) [HXIP]	Point Rotation Degrees:	0



**Legend**

- Sample Points
- FMA polys
- Public Land Survey Sections

# Cruise Narrative

<b>Sale Name: Wolverine</b>	<b>Region:</b> Pacific Cascade
<b>App. #:</b> 30-098224	<b>District:</b> Frances
<b>Lead Cruiser:</b> Dan Clark	<b>Completion date:</b> 08/14/2019
<b>Other Cruisers:</b> Alex Chaney, Calvin Bailey	

**Unit acreage specifications:**

Unit #	Cruised acres	Cruised acres agree with sale acres? Yes/No	If acres do not agree explain why.
1	16.9	Yes	
2	12.6	Yes	
3	21.1	Yes	
4	16.4	Yes	
5	0.4	No	Measured in field
Total acres	67.4		

**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 (Cru./Tally)	Total number of plots
1	VP	46.94/27.78	16'	171'x171'	1:1	27
2	VP	40	16'	171'x171'	1:1	19
3	VP	46.94/27.78	16'	171'x171'	1:1	31
4	VP	46.94/27.78	16'	171'x171'	1:1	23
5	ITS	NA	NA	NA	1:10 trees	NA

**Sale/Cruise Description:**

<b>Minor species cruise intensity:</b>	Cruised on appropriate plots.
<b>Minimum cruise spec:</b>	40% Of Form- Factor at 16 feet D.O.B or 5 inch Top, and merchantable top.
<b>Avg. ring count by sp:</b>	<b>DF =</b> 6 <b>WH =</b> NA <b>SS =</b> NA
<b>Leave/take tree description:</b>	Leave tree clumps are bounded with yellow "Leave Tree Area" tags and pink flagging, individual leave trees are marked with a single band of blue paint.
<b>Sort Description:</b>	<p><b>HA</b>– Logs meeting the following criteria: Surface characteristics for a high quality A sort will have sound tight knots not to exceed 1 ½" in diameter, numbering not more than an average of one per foot of log length. May include logs with not more than two larger knots. Knots and knot indicators ½" in diameter and smaller shall not be a determining factor. Logs will have a growth ring count of 6 or more rings per inch in the outer third top end of the log. (min dia 8".)</p> <p><b>HB</b> – Logs meeting the following criteria: Surface characteristics for a B sort will have sound tight knots not to exceed 1 ½" in diameter. May include logs with not more than two larger knots up to 2 ½" in diameter. Logs will have a growth ring count of 6 or more rings per inch in the outer third to end of the log. (min dia 8".)</p> <p><b>R</b> – Logs meeting the following criteria: Gross diameter of 12 inches or</p>

	<p>greater, excessive knots greater than 2 ½ inches with recovery less than 65% of the net scale.  <b>D-</b> Domestic logs</p>
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**Field observations:**

Wolverine  
This sale consist of 4 units and a right of way which you can access through Jones Rd, Topelt Rd or McCormick Cr Rd.

All units in this sale are 75 year old mature dominant Douglas fir. The minor species are Grand fir, Western hemlock, Red cedar, Red alder and Big leaf maple. The quality of logs in this sale are mostly domestic and high quality B logs. However there is some rough logs, high quality A logs, special mill logs and peeler logs. The average DBH for Douglas fir is 20" with the average bole height of 98ft. Unit 4 has remnant of old growth trees but most are marked as leave trees.

Unit 5 is a Right of Way that is less than an acre with 35 year old Douglas fir. This average DBH for this ROW is 13.3" with an average bole height of 80ft.

Overall this sale has a good mix of domestic and high quality logs. Some of the defects I observed in this sale were light storm damage, blowdown, pockets of dead trees and spiked knots. I did not observe any bear damage. This sale is 80% ground based and 20% uphill cable logging. All roads are drivable but need some pre-haul maintenance. If you access this sale off Jones Rd which is the haul route, you will need the PCP-1 key for the gate. But if you access this sale through Topelt Rd or McCormick Cr Rd no keys are required for access.

**Grants: 01 and 03**

**Prepared by: Alex Chaney**

**Title: Timber Cruiser**

TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																										
T13N R05W S15 Ty00U1 THRU T13N R05W S15 TyROW5				Project: <b>WOLVERIN</b>										Page <b>1</b>																
				Acres <b>67.40</b>										Date <b>8/14/2019</b>																
														Time <b>12:18:41PM</b>																
Spp	S T	So rt	Gr 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										
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99														
DF	CU	CU			100.0	338											8	9		0.00	22.2									
DF	HA	3P				278	278	19									34	32	1560	8.07	.2									
DF	HA	SM	1		2.7	522	508	34									38	24	946	4.01	.5									
DF	HA	2S				128	128	9									40	12	200	1.28	.6									
DF	HB	2S	30		3.2	15,895	15,388	1,037									39	15	372	2.00	41.4									
DF	HB	3S	6		.9	2,669	2,646	178									39	10	132	0.72	20.0									
DF	D	2S	41		3.9	22,237	21,372	1,440									38	17	474	2.48	45.1									
DF	D	3S	14		1.4	7,160	7,061	476									37	8	83	0.61	85.0									
DF	D	4S	4			1,892	1,892	128									27	5	30	0.26	63.7									
DF	D	UT				241	241	16									19	6	45	0.41	5.4									
DF	RO	3S	4		1.8	1,619	1,589	107									38	22	870	4.68	1.8									
<b>DF Totals</b>					93	3.5	52,979	51,104	3,444								8	15	20	57	1	3	7	89	33	10	179	1.17	285.9	
RA	CU	CU			100.0	64											8	8		0.00	5.9									
RA	D	UT	17			382	382	26									26	6	39	0.41	9.9									
RA	D	1S	6		8.3	141	129	9									40	19	550	3.78	.2									
RA	D	2S	45		6.4	1,004	940	63									39	13	239	1.79	3.9									
RA	D	3S	13		7.8	302	279	19									34	11	133	1.06	2.1									
RA	D	4S	10		1.8	215	211	14									33	8	72	0.69	2.9									
RA	D	4S	9		3.0	197	191	13									37	5	48	0.49	4.0									
<b>RA Totals</b>					4	7.5	2,306	2,133	144								18	32	44	6	6	8	10	76	27	8	73	0.81	29.0	
BM	CU	CU			100.0	81											14	8		0.00	6.3									
BM	D	UT	47			399	399	27									30	6	56	0.58	7.1									
BM	D	1S	5		6.7	52	49	3									30	16	280	1.90	.2									
BM	D	2S	6		16.7	53	44	3									19	13	100	1.20	.4									
BM	D	3S	12			106	106	7									26	10	96	0.85	1.1									
BM	D	4S	27		4.6	237	226	15									26	9	59	0.62	3.8									
BM	D	4S	3			21	21	1									24	7	40	0.46	.5									
<b>BM Totals</b>					2	10.9	948	844	57								28	49	17	6	16	33	33	18	23	8	43	0.52	19.5	
RC	CU	CU			100.0	3											11	8		0.00	.2									
RC	D	3S	100		9.1	36	33	2									36	13	200	2.92	.2									
<b>RC Totals</b>					0	16.7	39	33	2									24	11	100	2.23	.3								
GF	CU	CU			100.0	6											5	15		0.00	1.1									
GF	D	2S	90		1.6	485	477	32									39	17	440	2.18	1.1									
GF	D	3S	10			50	50	3									40	9	130	0.87	.4									
<b>GF Totals</b>					1	2.6	541	527	36									25	15	206	1.68	2.6								
WH	CU	CU															3	17		0.00	.6									
WH	D	2S	41		3.9	126	121	8									40	13	234	1.44	.5									
WH	D	3S	48			140	140	9									37	8	103	0.71	1.4									
WH	D	4S	11			30	30	2									24	5	28	0.32	1.1									
<b>WH Totals</b>					1	1.7	297	292	20									27	31	42	4	3	15	78	28	9	82	0.75	3.5	
<b>Totals</b>						3.8	57,111	54,934	3,703									9	16	21	54	2	4	7	87	32	10	161	1.12	340.9

TC PSTATS						<b>PROJECT STATISTICS</b>				PAGE	1
						<b>PROJECT</b>		<b>WOLVERIN</b>		DATE	8/14/2019
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt	
13N	05	15	WOLVERINE	00U1	THR	67.40	101	456	S	W	
13N	05W	15	WOLVERINE	ROW5							
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL			101	456	4.5						
CRUISE			54	204	3.8	9,061	2.3				
DBH COUNT REFOREST COUNT			46	217	4.7						
BLANKS			1								
100 %											
<b>STAND SUMMARY</b>											
SAMPLE TREES		TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC	
DOUG FIR	156	109.2	19.9	97	53.1	236.9	52,979	51,104	11,025	10,964	
R ALDER	21	13.4	15.9	67	4.6	18.5	2,306	2,133	649	634	
BL MAPLE	18	9.7	13.5	55	2.6	9.6	948	844	259	236	
GRAND F	4	.5	26.8	123	0.4	2.1	541	527	108	106	
WHEMLOCK	4	1.4	16.5	79	0.5	2.0	297	292	75	75	
WR CEDAR	1	.2	28.0	49	0.1	.7	39	33	18	17	
<b>TOTAL</b>	<b>204</b>	<b>134.4</b>	<b>19.2</b>	<b>91</b>	<b>61.6</b>	<b>269.9</b>	<b>57,111</b>	<b>54,934</b>	<b>12,135</b>	<b>12,031</b>	
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	10	15		
DOUG FIR		77.5	6.3	891	951	1,011					
R ALDER		61.0	14.0	204	238	271					
BL MAPLE		73.9	19.7	116	145	173					
GRAND F		28.1	16.0	842	1,003	1,163					
WHEMLOCK		60.4	34.5	165	253	340					
WR CEDAR											
<b>TOTAL</b>		<b>90.0</b>	<b>6.4</b>	<b>747</b>	<b>798</b>	<b>850</b>	<b>323</b>	<b>81</b>	<b>36</b>		
CL	68.1	COEFF		SAMPLE TREES - CF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		69.4	5.6	185	197	208					
R ALDER		61.8	14.2	61	71	81					
BL MAPLE		70.8	18.9	32	39	47					
GRAND F		22.6	12.9	175	201	227					
WHEMLOCK		55.2	31.5	44	64	85					
WR CEDAR											
<b>TOTAL</b>		<b>79.3</b>	<b>5.7</b>	<b>159</b>	<b>169</b>	<b>178</b>	<b>251</b>	<b>63</b>	<b>28</b>		
CL	68.1	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		102.7	10.2	98	109	120					
R ALDER		251.4	25.0	10	13	17					
BL MAPLE		294.6	29.3	7	10	13					
GRAND F		707.1	70.3	0	1	1					
WHEMLOCK		603.9	60.0	1	1	2					
WR CEDAR		1005.0	99.9	0	0	0					
<b>TOTAL</b>		<b>80.6</b>	<b>8.0</b>	<b>124</b>	<b>134</b>	<b>145</b>	<b>259</b>	<b>65</b>	<b>29</b>		
CL	68.1	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		58.6	5.8	223	237	251					
R ALDER		235.2	23.4	14	19	23					
BL MAPLE		271.3	27.0	7	10	12					
GRAND F		707.1	70.3	1	2	4					

TC PSTATS						<b>PROJECT STATISTICS</b>				PAGE	2	
						<b>PROJECT WOLVERIN</b>				DATE	8/14/2019	
TWP	RGE	SC	TRACT	TYPE		ACRES			PLOTS	TREES	CuFt	BdFt
13N	05	15	WOLVERINE	00U1	THR	67.40			101	456	S	W
13N	05W	15	WOLVERINE	ROW5								
CL	68.1	COEFF		<b>BASAL AREA/ACRE</b>			# OF PLOTS REQ.		INF. POP.			
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK		621.8	61.8	1	2	3						
WR CEDAR		1005.0	99.9	0	1	1						
<b>TOTAL</b>		<b>42.5</b>	<b>4.2</b>	<b>259</b>	<b>270</b>	<b>281</b>	<b>72</b>	<b>18</b>	<b>8</b>			
CL	68.1	COEFF		<b>NET BF/ACRE</b>			# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR		56.6	5.6	48,227	51,104	53,981						
R ALDER		243.3	24.2	1,617	2,133	2,649						
BL MAPLE		267.6	26.6	620	844	1,069						
GRAND F		709.8	70.6	155	527	899						
WHEMLOCK		621.0	61.7	112	292	473						
WR CEDAR		1005.0	99.9	0	33	65						
<b>TOTAL</b>		<b>46.9</b>	<b>4.7</b>	<b>52,371</b>	<b>54,934</b>	<b>57,496</b>	<b>88</b>	<b>22</b>	<b>10</b>			
CL	68.1	COEFF		<b>NET CUFT FT/ACRE</b>			# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR		56.1	5.6	10,352	10,964	11,575						
R ALDER		243.9	24.3	480	634	787						
BL MAPLE		260.9	25.9	175	236	297						
GRAND F		707.4	70.3	32	106	181						
WHEMLOCK		622.6	61.9	29	75	122						
WR CEDAR		1005.0	99.9	0	17	34						
<b>TOTAL</b>		<b>43.8</b>	<b>4.3</b>	<b>11,508</b>	<b>12,031</b>	<b>12,555</b>	<b>76</b>	<b>19</b>	<b>8</b>			
CL	68.1	COEFF		<b>V_BAR/ACRE</b>			# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR				204	216	228						
R ALDER		132.4	13.2	87	115	143						
BL MAPLE		249.2	24.8	65	88	111						
GRAND F		709.1	70.5	73	248	422						
WHEMLOCK		603.9	60.0	55	144	232						
WR CEDAR		1005.0	99.9	0	47	94						
<b>TOTAL</b>		<b>43.8</b>	<b>4.4</b>	<b>194</b>	<b>204</b>	<b>213</b>	<b>77</b>	<b>19</b>	<b>9</b>			

T13N R05W S15 T00U1										T13N R05W S15 T00U1				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
13N	05W	15	WOLVERINE	00U1	16.90	27	36	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	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99						
DF		CU	CU		100.0	624												13	9		0.00	24.4
DF		HB	2S	17	2.2	9,677	9,467	160			53	47				100		40	14	318	1.64	29.7
DF		HB	3S	3		1,231	1,231	21		100						100		40	9	134	0.67	9.2
DF		DM	2S	59	3.7	32,843	31,619	534			17	83	0	3		96		38	17	497	2.67	63.6
DF		DM	3S	9	2.1	4,699	4,602	78	21	79			2	14	8	77		36	8	89	0.75	51.7
DF		DM	4S	1		733	733	12	65	35			51	26	24			23	6	28	0.36	25.8
DF		RO	3S	11	2.0	5,723	5,606	95				100				100		40	24	1056	5.48	5.3
<b>DF</b>	<b>Totals</b>			98	4.1	55,530	53,257	900	3	10	19	68	1	3	1	94		33	12	254	1.64	209.7
RA		CU	CU		100.0	219												25	7		0.00	4.9
RA		DM	UT	32		233	233	4	16	84			84	16				21	8	54	0.61	4.3
RA		DM	2S	23	4.2	168	161	3		100						100		40	13	230	1.66	.7
RA		DM	3S	22	11.1	175	156	3		100						100		40	11	160	1.03	1.0
RA		DM	4S	11		76	76	1		100				100				24	8	40	0.57	1.9
RA		DM	4S	12		81	81	1	100							100		40	5	48	0.47	1.7
<b>RA</b>	<b>Totals</b>			1	25.8	952	707	12	17	60	23		28	16		56		27	8	49	0.51	14.5
BM		DM	UT	100		164	164	3	100							100		34	5	40	0.46	4.1
<b>BM</b>	<b>Totals</b>			0		164	164	3	100							100		34	5	40	0.46	4.1
<b>Type Totals</b>					4.4	56,646	54,128	915	3	10	19	67	1	4	1	94		33	12	237	1.56	228.2

T13N R05W S15 T00U2 T13N R05W S15 T00U2  
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt  
 13N 05W 15 WOLVERINE 00U2 12.60 19 39 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	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99						
DF		CU	CU		100.0	116												3	13		0.00	18.7
DF		HA	2S	1		684	684	9			100						100	40	12	200	1.28	3.4
DF		HB	2S	20	2.5	8,237	8,028	101			31	69			8	92		39	16	396	2.16	20.3
DF		HB	3S	1	8.3	410	376	5		100							100	40	9	110	0.61	3.4
DF		DM	2S	68	5.1	28,680	27,204	343			20	80		2		98		39	18	509	2.61	53.5
DF		DM	3S	6	.5	2,757	2,744	35		96	4			5	16	4	75	35	9	98	0.78	28.1
DF		DM	4S	1		373	373	5	100								100	28	6	34	0.35	10.9
DF		DM	UT	2		623	623	8			8	92		8	92			26	16	283	1.79	2.2
DF		RO	3S	1		257	257	3			100			26		74		31	12	152	1.30	1.7
<b>DF</b>	<b>Totals</b>			86	4.4	42,138	40,291	508	1	7	23	69		2	3	2	93	32	14	283	1.84	142.2
RA		CU	CU		100.0	47												5	8		0.00	17.2
RA		DM	UT	35		857	857	11	89	11				29	12	58		26	6	27	0.30	31.3
RA		DM	2S	23	10.3	614	551	7		100						100		40	14	260	2.11	2.1
RA		DM	3S	19	9.1	518	471	6		100				100				30	10	100	0.89	4.7
RA		DM	4S	23		545	545	7		100						100		32	8	70	0.57	7.8
<b>RA</b>	<b>Totals</b>			5	6.1	2,581	2,423	31	31	46	23		10	24	43	23		22	7	38	0.50	63.1
GF		CU	CU		100.0	33												5	15		0.00	5.8
GF		DM	2S	90	1.6	2,592	2,551	32			16	84				100		39	17	440	2.18	5.8
GF		DM	3S	10		267	267	3		100						100		40	9	130	0.87	2.1
<b>GF</b>	<b>Totals</b>			6	2.6	2,893	2,819	36		9	14	76				100		25	15	206	1.68	13.7
WH		CU	CU															3	17		0.00	3.1
WH		DM	2S	48	3.9	676	650	8			100					100		40	13	234	1.44	2.8
WH		DM	3S	44		577	577	7	15	85						100		40	9	131	0.82	4.4
WH		DM	4S	8		104	104	1	100					38	62			32	5	35	0.39	2.9
<b>WH</b>	<b>Totals</b>			3	2.0	1,358	1,331	17	14	37	49			3	5	92		29	11	101	0.87	13.2
RC		CU	CU		100.0	18												11	8		0.00	.9
RC		DM	3S	100	9.1	193	175	2			100					100		36	13	200	2.92	.9
<b>RC</b>	<b>Totals</b>			0	16.7	210	175	2			100					100		24	11	100	2.23	1.8
<b>Type Totals</b>					4.4	49,180	47,039	593	3	10	23	64		2	4	4	90	29	12	201	1.51	233.9

T13N R05W S15 T00U3										T13N R05W S15 T00U3				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
13N	05W	15	WOLVERINE	00U3	21.10	31	63	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	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99						
DF		CU	CU		100.0	295												8	9		0.00	21.6
DF		HB	2S	37	5.4	17,744	16,791	354			29	71					100	40	16	426	2.39	39.4
DF		DM	2S	37	3.5	17,021	16,431	347			27	73	1			99	39	16	399	2.07	41.1	
DF		DM	3S	22	1.5	9,957	9,812	207	21	79			0	2	6	91	38	8	95	0.65	103.5	
DF		DM	4S	3		1,616	1,616	34	100				23	28	25	24	26	5	31	0.27	51.8	
DF		DM	UT	1		83	83	2	100				100				16	5	20	0.17	4.2	
<b>DF</b>	<b>Totals</b>			89	4.2	46,716	44,734	944	8	17	21	54	1	1	2	95	33	10	171	1.15	261.7	
RA		CU	CU															7			0.00	4.0
RA		DM	UT	8		390	390	8	20	80			20			80	28	7	50	0.50	7.8	
RA		DM	1S	9	8.3	451	413	9				100				100	40	19	550	3.78	.8	
RA		DM	2S	57	6.0	2,707	2,545	54			100					100	39	13	237	1.76	10.7	
RA		DM	3S	8	6.3	374	351	7		100						100	36	11	150	1.21	2.3	
RA		DM	4S	6	4.1	302	289	6		100						100	40	8	91	0.88	3.2	
RA		DM	4S	12	3.6	517	498	11	100						11	89	37	5	47	0.50	10.6	
<b>RA</b>	<b>Totals</b>			9	5.3	4,741	4,487	95	13	21	57	9	2		1	97	32	9	114	1.08	39.5	
BM		DM	UT	100		918	918	19	43	22	34		4		55	42	32	7	72	0.70	12.8	
<b>BM</b>	<b>Totals</b>			2		918	918	19	43	22	34		4		55	42	32	7	72	0.70	12.8	
<b>Type Totals</b>					4.3	52,375	50,138	1,058	9	18	24	49	1	1	3	94	33	10	160	1.13	313.9	

T13N R05W S15 T00U4 T13N R05W S15 T00U4  
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt  
 13N 05W 15 WOLVERINE 00U4 16.40 23 57 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		
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf			
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99							
DF	CU	CU			100.0	279												7	5		0.00	23.2	
DF	HA	3P	1			1,143	1,143	19										34	32	1560	8.07	.7	
DF	HA	SM	3		2.7	2,146	2,087	34							41	59		38	24	946	4.01	2.2	
DF	HB	2S	39		1.8	26,194	25,716	422			40	60					3	97		351	1.84	73.2	
DF	HB	3S	14		.7	9,385	9,317	153			100						22	78		133	0.73	70.3	
DF	DM	2S	20		2.9	13,609	13,209	217			18	82					21	79		512	2.63	25.8	
DF	DM	3S	14		1.0	9,382	9,290	152	60	40					8	42	50	36	7	67	0.47	138.7	
DF	DM	4S	7			4,534	4,534	74	97	3				18	36		46	27	5	29	0.24	155.8	
DF	DM	UT	1			252	252	4	100					100				18	5	20	0.17	12.6	
DF	RO	3S	1			557	557	9									100	40	21	760	3.34	.7	
<b>DF</b>	<b>Totals</b>			96	2.0	67,480	66,105	1,084	15	20	19	46		2	4	18	77	32	9	131	0.84	503.3	
BM	CU	CU			100.0	331												14	8		0.00	26.0	
BM	DM	UT	13			288	288	5	74	26				8	92			25	6	34	0.36	8.6	
BM	DM	1S	10		6.7	214	200	3				100					100	30	16	280	1.90	.7	
BM	DM	2S	8		16.7	216	180	3			100			48	52			19	13	100	1.20	1.8	
BM	DM	3S	21			436	436	7		100				28	33	39		26	10	96	0.85	4.5	
BM	DM	4S	43		4.6	974	929	15		100				32	37	17	14	26	9	59	0.62	15.8	
BM	DM	4S	5			88	88	1	100								100	24	7	40	0.46	2.2	
<b>BM</b>	<b>Totals</b>			3	16.7	2,547	2,121	35	14	68	8	9		25	53	16	6	20	8	36	0.44	59.7	
RA	CU	CU																	6			0.00	1.0
RA	DM	UT	42			171	171	3	19	81				100				29	8	80	0.87	2.1	
RA	DM	3S	42		5.6	182	172	3		100							100	40	11	170	1.12	1.0	
RA	DM	4S	16			61	61	1	100								100	40	6	60	0.43	1.0	
<b>RA</b>	<b>Totals</b>			1	2.4	414	404	7	23	77				42		58		28	8	78	0.82	5.2	
WH	DM	3S	75			134	134	2	100								100	34	7	60	0.53	2.2	
WH	DM	4S	25			45	45	1	100					100				17	5	20	0.20	2.2	
<b>WH</b>	<b>Totals</b>			0		179	179	3	100					25		75		26	6	40	0.42	4.5	
<b>Type Totals</b>					2.6	70,620	68,808	1,128	16	22	19	44		2	5	17	75	31	8	120	0.81	572.6	



TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	WOLVERIN			DATE	8/14/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
13N	05W	15	WOLVERINE	00U1	16.90	27	108	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL				27	108	4.0				
CRUISE				12	36	3.0	1,369	2.6		
DBH COUNT										
REFOREST										
COUNT				14	67	4.8				
BLANKS				1						
100 %										
<b>STAND SUMMARY</b>										
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR		29	70.9	25.2	102	49.0	246.2	55,530	53,257	11,595
R ALDER		5	6.0	15.0	71	1.9	7.4	952	707	251
BL MAPLE		2	4.1	12.0	40	0.9	3.2	164	164	64
<b>TOTAL</b>		<b>36</b>	<b>81.0</b>	<b>24.1</b>	<b>97</b>	<b>52.3</b>	<b>256.8</b>	<b>56,646</b>	<b>54,128</b>	<b>11,910</b>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	<b>SAMPLE TREES - BF</b>				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		45.0	9.0	1,207	1,327	1,446				
R ALDER		39.1	22.4	138	178	217				
BL MAPLE										
<b>TOTAL</b>		<b>61.4</b>	<b>11.0</b>	<b>1,013</b>	<b>1,138</b>	<b>1,264</b>	<b>151</b>	<b>38</b>	<b>17</b>	
CL:	68.1 %	COEFF	<b>SAMPLE TREES - CF</b>				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		42.0	8.4	256	279	303				
R ALDER		50.2	28.7	36	51	65				
BL MAPLE										
<b>TOTAL</b>		<b>57.1</b>	<b>10.2</b>	<b>217</b>	<b>242</b>	<b>267</b>	<b>130</b>	<b>33</b>	<b>14</b>	
CL:	68.1 %	COEFF	<b>TREES/ACRE</b>				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		62.5	12.3	62	71	80				
R ALDER		385.6	75.6	1	6	11				
BL MAPLE		519.6	101.9		4	8				
<b>TOTAL</b>		<b>61.2</b>	<b>12.0</b>	<b>71</b>	<b>81</b>	<b>91</b>	<b>155</b>	<b>39</b>	<b>17</b>	
CL:	68.1 %	COEFF	<b>BASAL AREA/ACRE</b>				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		51.1	10.0	222	246	271				
R ALDER		423.5	83.0	1	7	13				
BL MAPLE		519.6	101.9		3	6				
<b>TOTAL</b>		<b>46.1</b>	<b>9.0</b>	<b>234</b>	<b>257</b>	<b>280</b>	<b>88</b>	<b>22</b>	<b>10</b>	
CL:	68.1 %	COEFF	<b>NET BF/ACRE</b>				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		50.9	10.0	47,943	53,257	58,572				
R ALDER		440.6	86.4	96	707	1,317				
BL MAPLE		519.6	101.9		164	331				
<b>TOTAL</b>		<b>48.4</b>	<b>9.5</b>	<b>48,990</b>	<b>54,128</b>	<b>59,266</b>	<b>97</b>	<b>24</b>	<b>11</b>	
CL:	68.1 %	COEFF	<b>NET CUFT FT/ACRE</b>				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		51.0	10.0	10,337	11,486	12,635				
R ALDER		431.8	84.6	31	200	370				
BL MAPLE		519.6	101.9		64	129				

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	WOLVERIN			DATE	8/14/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES		PLOTS	TREES	CuFt	BdFt
13N	05W	15	WOLVERINE	00U1	16.90		27	108	S	W
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
<b>TOTAL</b>		47.8	9.4	10,649	11,750	12,851	95	24	11	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR				195	216	238				
R ALDER		442.0	86.6	13	96	179				
BL MAPLE		519.6	101.9		51	103				
<b>TOTAL</b>		354.2	69.4	191	211	231	5,207	1,302	579	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	WOLVERIN			DATE	8/14/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
13N	05W	15	WOLVERINE	00U2	12.60	19	72	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		19	72	3.8						
CRUISE		12	39	3.3	994	3.9				
DBH COUNT										
REFOREST										
COUNT		7	22	3.1						
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
DOUG FIR	27	39.5	27.7	121	31.4	165.3	42,138	40,291	8,453	8,430
R ALDER	4	31.3	12.0	59	7.1	24.6	2,581	2,423	704	688
GRAND F	4	2.9	26.8	123	2.2	11.4	2,893	2,819	579	569
WHEMLOCK	3	4.4	19.0	91	2.0	8.6	1,358	1,331	340	340
WR CEDAR	1	.9	28.0	49	0.7	3.7	210	175	98	92
<b>TOTAL</b>	<b>39</b>	<b>78.9</b>	<b>22.3</b>	<b>94</b>	<b>45.3</b>	<b>213.6</b>	<b>49,180</b>	<b>47,039</b>	<b>10,174</b>	<b>10,119</b>
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	10	15	
DOUG FIR	54.8	10.7		1,131	1,267	1,404				
R ALDER	88.0	50.3		68	138	207				
GRAND F	28.1	16.0		842	1,003	1,163				
WHEMLOCK	39.6	27.4		225	310	395				
WR CEDAR										
<b>TOTAL</b>	<b>70.6</b>	<b>11.3</b>		<b>908</b>	<b>1,023</b>	<b>1,139</b>	<b>199</b>	<b>50</b>	<b>22</b>	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	44.9	8.8		235	258	280				
R ALDER	101.0	57.7		18	42	66				
GRAND F	22.6	12.9		175	201	227				
WHEMLOCK	32.5	22.5		61	79	97				
WR CEDAR										
<b>TOTAL</b>	<b>59.2</b>	<b>9.5</b>		<b>192</b>	<b>212</b>	<b>232</b>	<b>140</b>	<b>35</b>	<b>16</b>	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	62.4	14.7		34	39	45				
R ALDER	182.3	43.0		18	31	45				
GRAND F	299.5	70.6		1	3	5				
WHEMLOCK	324.2	76.4		1	4	8				
WR CEDAR	435.9	102.7			1	2				
<b>TOTAL</b>	<b>55.6</b>	<b>13.1</b>		<b>69</b>	<b>79</b>	<b>89</b>	<b>130</b>	<b>33</b>	<b>14</b>	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	56.9	13.4		143	165	187				
R ALDER	164.5	38.8		15	25	34				
GRAND F	299.6	70.6		3	11	19				
WHEMLOCK	316.5	74.6		2	9	15				
WR CEDAR	435.9	102.7			4	8				
<b>TOTAL</b>	<b>27.5</b>	<b>6.5</b>		<b>200</b>	<b>214</b>	<b>227</b>	<b>32</b>	<b>8</b>	<b>4</b>	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	58.1	13.7		34,779	40,291	45,802				
R ALDER	165.1	38.9		1,481	2,423	3,366				

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	WOLVERIN			DATE	8/14/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
13N	05W	15	WOLVERINE	00U2	12.60	19	72	S	W	
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
GRAND F		300.8	70.9	821	2,819	4,817				
WHEMLOCK		301.1	70.9	387	1,331	2,276				
WR CEDAR		435.9	102.7		175	355				
<b>TOTAL</b>		<i>41.1</i>	<i>9.7</i>	<i>42,487</i>	<i>47,039</i>	<i>51,591</i>	<i>71</i>	<i>18</i>	<i>8</i>	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		57.0	13.4	7,298	8,430	9,563				
R ALDER		165.9	39.1	419	688	956				
GRAND F		299.7	70.6	167	569	971				
WHEMLOCK		303.5	71.5	97	340	583				
WR CEDAR		435.9	102.7		92	186				
<b>TOTAL</b>		<i>35.9</i>	<i>8.5</i>	<i>9,263</i>	<i>10,119</i>	<i>10,974</i>	<i>54</i>	<i>14</i>	<i>6</i>	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR				210	244	277				
R ALDER		46.8	11.0	60	98	137				
GRAND F		300.5	70.8	72	248	423				
WHEMLOCK		301.5	71.0	45	155	264				
WR CEDAR		435.9	102.7		47	95				
<b>TOTAL</b>		<i>181.1</i>	<i>42.7</i>	<i>199</i>	<i>220</i>	<i>241</i>	<i>1,384</i>	<i>346</i>	<i>154</i>	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	WOLVERIN			DATE	8/14/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
13N	05W	15	WOLVERINE	00U3	21.10	31	135	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		31	135	4.4						
CRUISE		15	63	4.2	2,607	2.4				
DBH COUNT										
REFOREST										
COUNT		16	72	4.5						
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
DOUG FIR	50	95.7	20.4	108	47.9	216.3	46,716	44,734	10,045	9,996
R ALDER	10	17.7	19.3	75	8.2	35.9	4,741	4,487	1,362	1,362
BL MAPLE	3	10.1	13.7	52	2.8	10.3	918	918	282	282
<b>TOTAL</b>	<b>63</b>	<b>123.5</b>	<b>19.7</b>	<b>99</b>	<b>59.1</b>	<b>262.6</b>	<b>52,375</b>	<b>50,138</b>	<b>11,688</b>	<b>11,640</b>
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	10	15	
DOUG FIR	85.1	12.0		767	872	976				
R ALDER	51.3	17.1		257	310	363				
BL MAPLE	94.9	65.6		65	190	315				
<b>TOTAL</b>	<b>94.1</b>	<b>11.8</b>		<b>661</b>	<b>750</b>	<b>839</b>	<b>354</b>	<b>88</b>	<b>39</b>	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	74.5	10.5		164	184	203				
R ALDER	48.5	16.1		79	94	109				
BL MAPLE	92.3	63.8		22	61	101				
<b>TOTAL</b>	<b>79.3</b>	<b>10.0</b>		<b>147</b>	<b>163</b>	<b>180</b>	<b>251</b>	<b>63</b>	<b>28</b>	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	81.8	14.7		82	96	110				
R ALDER	177.9	31.9		12	18	23				
BL MAPLE	250.6	45.0		6	10	15				
<b>TOTAL</b>	<b>54.4</b>	<b>9.8</b>		<b>111</b>	<b>124</b>	<b>136</b>	<b>118</b>	<b>30</b>	<b>13</b>	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	61.3	11.0		193	216	240				
R ALDER	169.4	30.4		25	36	47				
BL MAPLE	220.4	39.5		6	10	14				
<b>TOTAL</b>	<b>39.1</b>	<b>7.0</b>		<b>244</b>	<b>263</b>	<b>281</b>	<b>61</b>	<b>15</b>	<b>7</b>	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	57.8	10.4		40,093	44,734	49,374				
R ALDER	170.4	30.6		3,115	4,487	5,859				
BL MAPLE	221.9	39.8		552	918	1,283				
<b>TOTAL</b>	<b>42.9</b>	<b>7.7</b>		<b>46,277</b>	<b>50,138</b>	<b>54,000</b>	<b>74</b>	<b>18</b>	<b>8</b>	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	58.8	10.6		8,941	9,996	11,051				
R ALDER	169.0	30.3		949	1,362	1,775				
BL MAPLE	222.2	39.9		169	282	394				
<b>TOTAL</b>	<b>40.0</b>	<b>7.2</b>		<b>10,805</b>	<b>11,640</b>	<b>12,474</b>	<b>64</b>	<b>16</b>	<b>7</b>	

TC TSTATS				<b>STATISTICS</b>				PAGE	2	
				PROJECT	WOLVERIN			DATE	8/14/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
13N	05W	15	WOLVERINE	00U3	21.10	31	135	S	W	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15	
DOUG FIR				185	207	228				
R ALDER		37.9	6.8	87	125	163				
BL MAPLE		101.5	18.2	53	89	124				
<b>TOTAL</b>		203.6	36.5	176	191	206	1,655	414	184	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	WOLVERIN			DATE	8/14/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
13N	05W	15	WOLVERINE	00U4	16.40	23	132	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		23	132	5.7						
CRUISE		14	57	4.1	4,000	1.4				
DBH COUNT										
REFOREST										
COUNT		9	56	6.2						
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
DOUG FIR	41	216.9	16.2	87	76.9	309.3	67,480	66,105	13,784	13,724
BL MAPLE	13	22.7	13.6	59	6.2	22.8	2,547	2,121	634	540
R ALDER	2	2.1	17.5	72	0.8	3.5	414	404	117	117
WHEMLOCK	1	2.2	12.0	60	0.5	1.8	179	179	48	48
<b>TOTAL</b>	<b>57</b>	<b>243.9</b>	<b>15.9</b>	<b>84</b>	<b>84.5</b>	<b>337.4</b>	<b>70,620</b>	<b>68,808</b>	<b>14,582</b>	<b>14,428</b>
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	10	15	
DOUG FIR	89.4	14.3		667	779	890				
BL MAPLE	67.7	21.4		109	138	168				
R ALDER	25.4	23.8		149	195	241				
WHEMLOCK										
<b>TOTAL</b>	<b>108.2</b>	<b>14.9</b>		<b>520</b>	<b>611</b>	<b>701</b>	<b>468</b>	<b>117</b>	<b>52</b>	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	79.5	12.7		135	154	174				
BL MAPLE	51.4	16.2		28	34	39				
R ALDER	14.2	13.3		49	56	64				
WHEMLOCK										
<b>TOTAL</b>	<b>95.6</b>	<b>13.1</b>		<b>107</b>	<b>123</b>	<b>139</b>	<b>365</b>	<b>91</b>	<b>41</b>	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	66.3	14.1		186	217	248				
BL MAPLE	184.0	39.2		14	23	32				
R ALDER	331.4	70.6		1	2	4				
WHEMLOCK	479.6	102.2			2	5				
<b>TOTAL</b>	<b>53.1</b>	<b>11.3</b>		<b>216</b>	<b>244</b>	<b>271</b>	<b>118</b>	<b>29</b>	<b>13</b>	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	47.3	10.1		278	309	340				
BL MAPLE	168.4	35.9		15	23	31				
R ALDER	332.6	70.8		1	3	6				
WHEMLOCK	479.6	102.2			2	4				
<b>TOTAL</b>	<b>32.9</b>	<b>7.0</b>		<b>314</b>	<b>337</b>	<b>361</b>	<b>45</b>	<b>11</b>	<b>5</b>	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	45.6	9.7		59,686	66,105	72,524				
BL MAPLE	160.4	34.2		1,396	2,121	2,846				
R ALDER	335.6	71.5		115	404	692				
WHEMLOCK	479.6	102.2			179	361				
<b>TOTAL</b>	<b>38.6</b>	<b>8.2</b>		<b>63,147</b>	<b>68,808</b>	<b>74,469</b>	<b>62</b>	<b>16</b>	<b>7</b>	

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	WOLVERIN			DATE	8/14/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
13N	05W	15	WOLVERINE	00U4	16.40	23	132	S	W	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15	
DOUG FIR		45.8	9.8	12,385	13,724	15,064				
BL MAPLE		158.2	33.7	358	540	722				
R ALDER		332.3	70.8	34	117	199				
WHEMLOCK		479.6	102.2		48	96				
<b>TOTAL</b>		36.8	7.8	13,297	14,428	15,559	57	14	6	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15	
DOUG FIR				193	214	234				
BL MAPLE		157.4	33.5	61	93	125				
R ALDER		341.1	72.7	33	116	199				
WHEMLOCK		479.6	102.2		102	206				
<b>TOTAL</b>		254.9	54.3	187	204	221	2,712	678	301	

TC TSTATS		<b>STATISTICS</b>							PAGE	1	
		<b>PROJECT WOLVERIN</b>							DATE	8/14/2019	
<b>TWP</b>	<b>RGE</b>	<b>SECT</b>	<b>TRACT</b>	<b>TYPE</b>	<b>ACRES</b>	<b>PLOTS</b>	<b>TREES</b>	<b>CuFt</b>	<b>BdFt</b>		
<b>13N</b>	<b>05W</b>	<b>15</b>	<b>WOLVERINE</b>	<b>ROW5</b>	0.40	1	9	S	W		
				TREES	ESTIMATED			PERCENT			
				PER PLOT	TOTAL			SAMPLE			
		PLOTS	TREES		TREES			TREES			
TOTAL		1	9	9.0							
CRUISE		1	9	9.0	90			10.0			
DBH COUNT											
REFOREST											
COUNT											
BLANKS											
100 %											
<b>STAND SUMMARY</b>											
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
DOUG FIR	9	225.0	13.3	80	59.8	218.4	22,500	21,750	6,558	6,558	
<b>TOTAL</b>	<b>9</b>	<b>225.0</b>	<b>13.3</b>	<b>80</b>	<b>59.8</b>	<b>218.4</b>	<b>22,500</b>	<b>21,750</b>	<b>6,558</b>	<b>6,558</b>	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF	<b>SAMPLE TREES - BF</b>				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	70.5	24.9		73	97	121					
<b>TOTAL</b>	<b>70.5</b>	<b>24.9</b>		<b>73</b>	<b>97</b>	<b>121</b>	<b>223</b>	<b>56</b>	<b>25</b>		
CL:	68.1 %	COEFF	<b>SAMPLE TREES - CF</b>				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	77.2	27.3		21	29	37					
<b>TOTAL</b>	<b>77.2</b>	<b>27.3</b>		<b>21</b>	<b>29</b>	<b>37</b>	<b>268</b>	<b>67</b>	<b>30</b>		

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

T13N R05W S15 Ty00U	16.9
T13N R05W S15 Ty00U	12.6
T13N R05W S15 TyROW	.4

**Project WOLVERIN**  
**Acres 67.40**

**Page No 1**  
**Date: 8/14/2019**  
**Time 12:18:43PM**

Species	Total	Total	Total	Net Cubic Ft/		CF/	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log	LF	Gross	Net	Gross	Net
DOUG FIR	7,363	17,777	21,178	100.36	41.57	1.21	7,431	7,389	3,571	3,444
R ALDER	904	1,556	1,203	47.24	27.44	0.87	438	427	155	144
BL MAPLE	654	890	462	24.28	17.85	0.63	174	159	64	57
GRAND F	37	99		196.44	72.44	1.86	73	72	36	36
WHEMLOCK	92	201	162	55.05	25.22	0.76	51	51	20	20
WR CEDAR	11	11	29	104.95	104.95	2.92	12	12	3	2
<b>Totals</b>	9,061	20,534	23,034	89.50	39.49	1.17	8,179	8,109	3,849	3,703

Wood Type Species	Total	Total	Total	Net Cubic Ft/		CF/	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log	LF	Gross	Net	Gross	Net
C	7,502	18,088	21,369	100.28	41.59	1.21	7,567	7,523	3,630	3,502
H	1,558	2,446	1,665	37.60	23.95	0.79	612	586	219	201
<b>Totals</b>	9,061	20,534	23,034	89.50	39.49	1.17	8,179	8,109	3,849	3,703



Forest Practices Application/Notification  
Notice of Decision

FPA/N No: 2936855  
Effective Date: 09/20/2019  
Expiration Date: 09/20/2022  
Shut Down Zone: 651N, 655  
EARR Tax Credit: [x] Eligible [ ] Non-eligible  
Reference: Wolverine TBS  
30-098224

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

Number of Years Granted on Multi-Year Request

- Class II  Class III  Class IVG  Class IVS  4 years  5 years

Conditions on Approval / Reasons for Disapproval

No additional conditions.

Issued By: Brooke Acosta

Region: Pacific Cascade

Title: Forest Practices Forester

Date: 09/20/2019

Copies to:  Landowner, Timber Owner and Operator.

Issued in person:  Landowner  Timber Owner  Operator By:

**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  
Pacific Cascade Region  
PO Box 280  
Castle Rock WA 98611

**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.

**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 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.

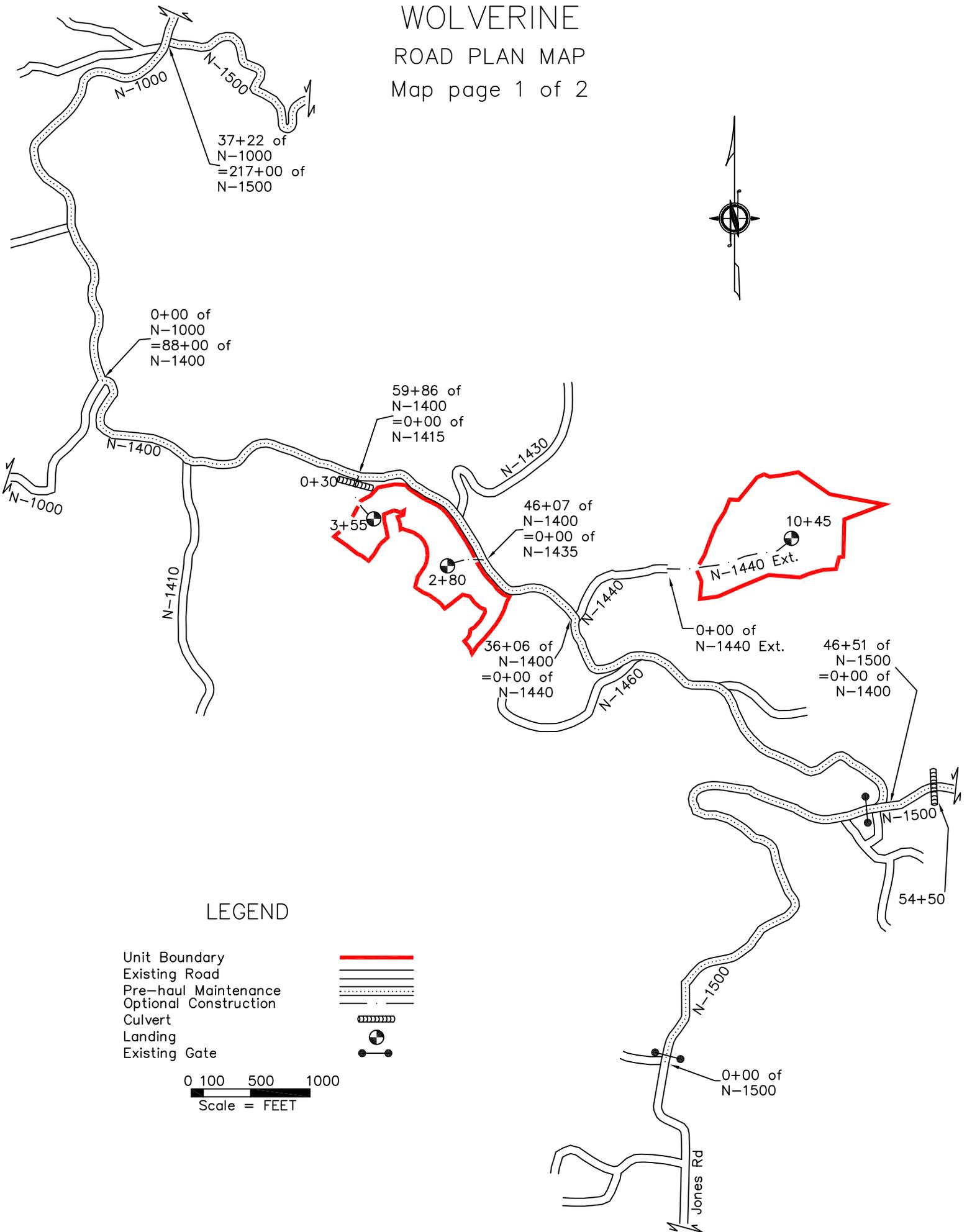
Failure by the seller to send the required notice to the DNR at the time of sale will be prima facie evidence in an action by the buyer against the seller for costs related to the continuing forest land obligation prior to sale.

**DNR affidavit of mailing:**

On this day _____,	I placed in the United States mail at _____	Castle Rock	_____	WA,
(date)		(post office location)		
postage paid, a true and accurate copy of this document. Notice of Decision FPA # _____				
_____	_____			
(Printed name)		(Signature)		

# WOLVERINE ROAD PLAN MAP

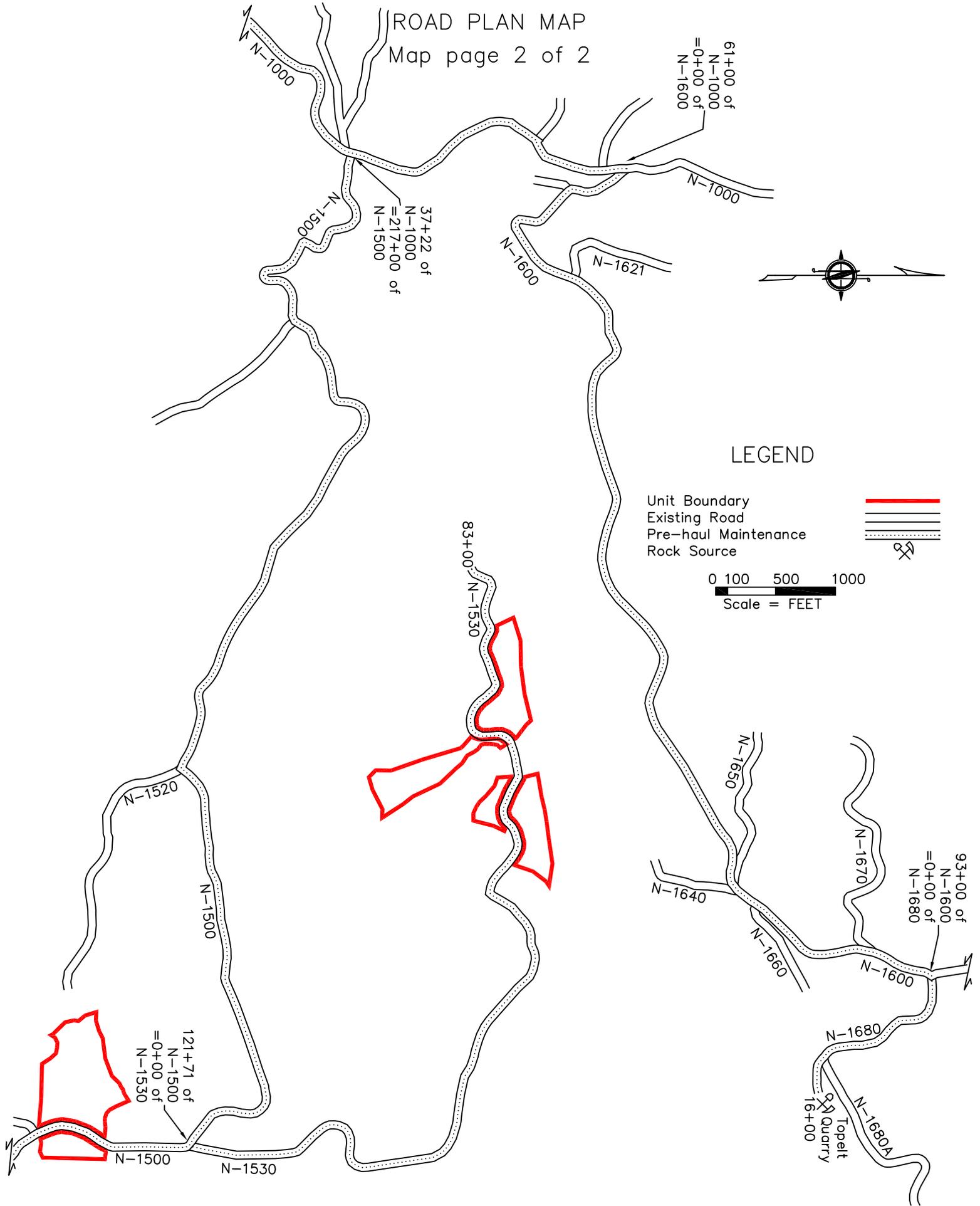
Map page 1 of 2



# WOLVERINE

## ROAD PLAN MAP

Map page 2 of 2



STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES

WOLVERINE TIMBER SALE ROAD PLAN  
LEWIS COUNTY  
LEWIS DISTRICT  
PACIFIC CASCADE REGION

AGREEMENT NO.: 30-098224

STAFF ENGINEER: CHRIS WERNER

DATE: 06/19/2018

DRAWN & COMPILED BY: ALICIA COMPTON

MODIFIED DATE: 02/26/2019

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>
N-1500	0+00 to 217+00	Pre-haul Maintenance
N-1530	0+00 to 83+00	Pre-haul Maintenance
N-1400	0+00 to 88+00	Pre-haul Maintenance
N-1000	0+00 to 61+00	Pre-haul Maintenance
N-1600	0+00 to 93+00	Pre-haul Maintenance
N-1680	0+00 to 16+00	Pre-haul Maintenance

**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>
N-1415	0+00 to 3+55	Construction
N-1435	0+00 to 2+80	Construction
N-1440 Ext.	0+00 to 10+45	Construction

**0-4 CONSTRUCTION**

Construction includes, but is not limited to clearing, grubbing, right-of-way debris disposal, excavation and/or embankment to subgrade, ditch construction, ditch-out construction, landing construction, acquisition and installation of drainage structures; acquisition, processing and application of rock and grass seeding.

**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>
N-1500	0+00 to 217+00	Grade, Shape, and Compact road. Apply rock and compact per ROCK LIST. Install culvert per the CULVERT LIST. Ditch road per Clause 2-7. Brush road in accordance with Clause 3-1.
N-1530	0+00 to 83+00	Grade, Shape, and Compact road. Apply rock and compact per the ROCK LIST. Brush road in accordance with the Clause 3-1.
N-1400	0+00 to 88+00	Grade, Shape, and Compact road. Apply rock and compact per the ROCK LIST. Brush road in accordance with the Clause 3-1.
N-1000	0+00 to 61+00	Grade, Shape, and Compact road. Apply rock and compact per the ROCK LIST.
N-1600	0+00 to 93+00	Grade, Shape, and Compact road. Apply rock and compact per the ROCK LIST.
N-1680	0+00 to 16+00	Grade, Shape, and Compact road.

**0-7 POST-HAUL MAINTENANCE**

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

**0-12 DEVELOP ROCK SOURCE**

Purchaser shall develop an existing rock source. Development will involve stripping and removing overburden, drilling and shooting, and manufacturing rock as required per ROCK LIST. 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 Contract Administrator for any submitted plan that changes the scope of work or environmental condition from the original road 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.

**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

**1-6 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.
7. Road Plan maps.

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, and may not begin without written approval from the Contract Administrator.

**1-9 DAMAGED METALLIC COATING**

Any cut ends, or 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 or cold galvanizing compound.

**1-10 WSDOT STANDARD SPECIFICATION REFERENCE**

References in this road plan to “WSDOT Standard Specifications” mean the Washington State Department of Transportation’s Standard Specifications for Road, Bridge, and Municipal Construction 2012 (M41-10).

**1-15 ROAD MARKING**

Purchaser shall perform road work in accordance with the state’s marked location. All road work is marked as follows:

- Road centerline marked with wooden stakes, orange flagging, orange paint and RP’s for Construction.
- Pre-haul maintenance marked with wooden stakes, orange flagging and orange 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.

**1-20 COMPLETE BY DATE**

Purchaser shall complete road work before the start of timber haul.

**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.

**1-22 WORK NOTIFICATIONS**

Purchaser shall notify the Contract Administrator a minimum of 7 business days before work begins.

**1-23 ROAD WORK PHASE APPROVAL**

Purchaser shall obtain written approval from the Contract Administrator upon completion of each of the following phases of road work:

- Subgrade construction
- Rock application

**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. Restrictions for hauling forest products are specified in Contract Clause H-130 HAULING SCHEDULE.

<u>Road</u>	<u>Stations</u>	<u>Activity</u>	<u>Closure Period</u>
All Roads	All Stations	Road work	September 30 <sup>th</sup> – June 1 <sup>st</sup>

**1-26 OPERATING DURING CLOSURE PERIOD**

If permission is granted to operate during a closure period listed in Clause 1-25 ACTIVITY TIMING RESTRICTION or Contract Clause H-130 HAULING SCHEDULE, 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:

- Wheel track rutting exceeds 6 inches on pit run roads.
- Wheel track rutting exceeds 4 inches on crushed rock roads.
- Wheel track rutting exceeds 4 inches on native surface roads.
- 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. Before and during any suspension, Purchaser shall protect the work from damage or deterioration.

**1-32 BRIDGE SURFACE RESTRICTION**

The use of metal tracked equipment is not allowed on bridge surfaces at any time. If Purchaser must run equipment on bridge surfaces, then rubber tired equipment or other methods, approved in writing by Contract Administrator, must be used.

If tracked equipment is used on bridge surfaces, Purchaser shall immediately cease all road construction and hauling operations. Purchaser shall remove any dirt, rock, or other material tracked or spilled on the bridge surface(s) and have surface(s) evaluated by the District Engineer or their designee for any damage caused by transporting equipment. Any damage to the surface(s) will be repaired, at the Purchaser's expense, as directed by the Contract Administrator.

**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. Purchaser shall request a SNOW PLOWING AGREEMENT each time plowing occurs. If damage occurs while plowing, further permission to plow may be revoked by the Contract Administrator.

**1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS**

Purchaser shall immediately remove any mud, dirt, rock, or other material tracked or spilled on to county roads and state highways.

If additional damage to the surface, signs, guardrails, etc. occurs then the damage will be repaired, at the Purchaser's expense, as directed by the Contract Administrator when authorized by the county or WSDOT.

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.

**2-4 PASSAGE OF LIGHT VEHICLES**

Purchaser shall maintain road(s) in a condition that will allow the passage of light administrative vehicles.

**2-5 MAINTENANCE GRADING – EXISTING ROAD**

Purchaser shall use a grader to shape the existing surface before timber haul. Purchaser shall accomplish all grading using a motor grader with a minimum of 175 horsepower.

**2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS**

On the following road, Purchaser shall clean ditches, headwalls, and catchbasins. Work must be completed before timber haul and must be done in accordance with the TYPICAL SECTION SHEET. Pulling ditch material across the road or mixing in with the road surface is not allowed.

<u>Road</u>	<u>Stations</u>
N-1500	56+00 to 76+00

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

**3-1 BRUSHING**

On the following road(s), Purchaser shall cut vegetative material up to 3 inches in diameter, including limbs, as shown on the BRUSHING DETAIL. Brushing must be achieved by cutting of brush, trees, and branches. Root systems and stumps of cut vegetation may not be disturbed unless directed by the Contract Administrator. Purchaser shall remove brushing debris from the road surface, ditchlines, and culvert inlets and outlets.

<u>Road</u>	<u>Stations</u>
N-1500	0+00 to 37+00 & 56+00 to 113+50
N-1530	0+00 to 83+00
N-1400	26+00 to 88+00

### **3-2 BRUSHING RESTRICTION**

Pulling, digging, pushing over, and other non-cutting methods used for vegetation removal may not be used for brushing. Purchaser shall submit a detailed list of equipment and methods to be used during brushing, for approval by the Contract Administrator before starting work. Excavator buckets, log loaders and similar equipment may not be used for brushing unless otherwise approved in writing by the Contract Administrator.

### **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 and within waste and debris areas, 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.

### **3-7 RIGHT-OF-WAY DECKING**

Purchaser shall deck all right-of-way timber. Decks must be parallel to the road centerline and placed within the cleared right-of-way. Decks must be free of dirt, limbs, and other right-of-way debris, and removable by standard log loading equipment from the roadbed.

### **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 45%.
- Against standing trees.

### **3-10 GRUBBING**

Purchaser shall remove all stumps between the grubbing limits specified on the TYPICAL SECTION SHEET and within waste and debris areas. Purchaser shall also remove stumps with undercut roots outside the grubbing limits. Purchaser shall remove stumps using a hydraulic mounted excavator unless authorized in writing by the Contract Administrator. Stumps over 24 inches diameter must be split. Stumps over 40 inches must be quartered. Grubbing must be completed before starting excavation and embankment.

### **3-12 STUMP PLACEMENT**

Purchaser shall place grubbed stumps outside of the clearing limits or as directed by the Contract Administrator and in compliance with all other clauses in this road plan. Stumps must be positioned upright, with root wads in contact with the forest floor on stable locations.

### **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, except by burning, before timber haul.

### **3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS**

Waste areas for organic debris are located within the cleared right-of-way or in natural openings as designated and at areas approved in writing by the Contract Administrator.

### **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 45%.
- 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 in natural openings and as directed 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. 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:

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 18 percent favorable and 14 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Maximum grade change for sag vertical curves is 6% in 100 feet.
- Maximum grade change for crest vertical curves is 6% in 100 feet.

**4-5 CUT SLOPE RATIO**

Purchaser shall construct excavation slopes no steeper than shown on the following table:

<u>Material Type</u>	<u>Excavation Slope Ratio</u>	<u>Excavation Slope Percent</u>
Common Earth (all side slopes)	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:

<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 60 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.

**4-21 TURNOUTS**

Purchaser shall construct turnouts intervisible with a maximum distance of 1,000 feet between turnouts. Locations may be adjusted to fit the final subgrade alignment and sight distances. Locations changes are subject to written approval by the Contract Administrator. Minimum dimensions are shown on the TYPICAL SECTION SHEET.

**4-22 TURNAROUNDS**

Turnarounds must be no larger than 30 feet long and 30 feet wide. Locations are subject to written approval by the Contract Administrator.

**4-25 DITCH CONSTRUCTION AND RECONSTRUCTION**

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

**4-27 DITCH WORK – MATERIAL USE PROHIBITED**

Purchaser shall not pull ditch material across the road or mix in with the road surface. Excavated material must be scattered outside the grubbing limits.

**4-28 DITCH DRAINAGE**

Ditches must drain to cross-drain culverts or ditchouts.

**4-29 DITCHOUTS**

Purchaser shall construct ditchouts as identified on the CULVERT LIST and 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 55%, 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 areas approved by the Contract Administrator. The amount of material allowed in a waste area is at the discretion of the Contract Administrator.

**4-38 PROHIBITED WASTE DISPOSAL AREAS**

Purchaser shall not deposit waste material in the following areas:

- Within 50 feet of a cross drain culvert.
- Within 100 feet of a live stream or wetland.
- Within a riparian management zone.
- On side slopes steeper than 45%.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Within the operational area for cable landings.
- Against standing timber.
- Outside the clearing limits.

**4-47 NATIVE MATERIAL**

Native material consists of naturally occurring material that is free of organic debris, trash, and rocks greater than 6 inches in any dimension.

**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.

**4-56 DRY WEATHER SHAPING**

The Contract Administrator may require the application of water to facilitate shaping activities. The method of water application is subject to written approval by the Contract Administrator.

**4-60 FILL COMPACTION**

Purchaser shall compact all embankment and waste material in accordance with the COMPACTION LIST by routing equipment over the entire width of each lift.

**4-61 SUBGRADE COMPACTION**

Purchaser shall compact constructed and reconstructed subgrades deeper than 5 feet at the road shoulder in accordance with the COMPACTION LIST by routing equipment over the entire width except ditch. Purchaser shall obtain written approval from the Contract Administrator for subgrade compaction before rock application.

**4-62 DRY WEATHER COMPACTION**

The Contract Administrator may require the application of water to facilitate compaction activities. The method of water application is subject to written approval by the Contract Administrator.

**4-63 EXISTING SURFACE COMPACTION**

Purchaser shall compact maintained road surfaces in accordance with the COMPACTION LIST 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 CULVERT 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 10-17 through 10-22.

**5-6 CULVERT TYPE**

Purchaser shall install culverts made of plastic in accordance with Clauses 10-17 through 10-22.

**5-12 UNUSED MATERIALS STATE PROPERTY**

On required roads, any materials listed on the CULVERT 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 Corrugated Polyethylene Pipe Association’s “Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings”. Corrugated Polyethylene pipe must be installed in a manner consistent with the manufacturer’s recommendations.

**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**

All 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.

**5-20 ENERGY DISSIPATERS**

Purchaser shall install energy dissipaters in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all culverts on the CULVERT LIST that specify the placement of rock. Energy dissipater installation is subject to approval by the Contract Administrator.

The type of energy dissipater and the amount of material must be consistent with the specifications listed on the CULVERT LIST. Energy dissipaters must extend a minimum of 1 foot to each side of the culvert at the outlet and a minimum of 2 feet beyond the outlet. Rock must be set in place by machine. Placement must with a zero-drop-height only. No placement by end dumping or dropping of rock is allowed.

**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 culverts on the CULVERT LIST that specify the placement of rock. 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. Rock must be set in place by machine. Placement must be with a zero-drop-height only. 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 ROCK 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. Purchaser shall notify the Contract Administrator a minimum of 7 calendar days before starting any operations in the listed locations.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
Topelt Quarry	Sec. 15 T13R05W	Select Pit Run & Quarry Spalls (See ROCK LIST)

**6-5 ROCK FROM COMMERCIAL SOURCE**

Rock used in accordance with the quantities on the ROCK LIST shall be obtained from the listed commercial source at the Purchaser's expense. Additional rock sources are subject to written approval by the Contract Administrator before their use. Rock source(s) must be a WSDOT certified source.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
Hope Creek Quarry	Highway 6	2 ½ INCH MINUS

**6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE**

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. Purchaser shall notify the Contract Administrator a minimum of 7 calendar days before starting any operations in the rock source.

<u>Source</u>	<u>Rock Type</u>
Topelt Quarry	See ROCK LIST

**6-12 ROCK SOURCE SPECIFICATIONS**

Rock sources must be in accordance with the following specifications, unless otherwise specified in the ROCK SOURCE DEVELOPMENT PLAN:

- Pit walls must be maintained in a condition to minimize the possibility of the walls sliding or failing.
- All vehicle access to the top of the pit faces must be blocked.

**6-14 DRILL AND SHOOT**

Rock drilling and shooting must meet the following specifications:

- Oversize material remaining in the rock source at the conclusion of the timber sale may not exceed 5% of the total volume mined in that source.
- Oversize material is defined as rock fragments larger than two feet in any dimension.
- Oversized rock that exceeds the maximum allowable amount must be placed at the discretion of the Contract Administrator.
- Purchaser shall notify the Contract Administrator a minimum of 7 working days before blasting operations.
- Purchaser shall submit an informational drilling and shooting plan to the Contract Administrator 7 working days before any drilling.
- All operations must be carried out in compliance with 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 the Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.
- Purchaser shall block access roads and trails before blasting operations.

**6-22 FRACTURE REQUIREMENT FOR ROCK**

A minimum of 50% by visual inspection of coarse aggregate must have at least one fractured face. Coarse aggregate is the material greater than 1/4-inch in size.

**6-23 ROCK GRADATION TYPES**

Purchaser shall provide rock in accordance with the types and amounts listed in the ROCK LIST. Rock must meet the following specifications for gradation and uniform quality when placed in hauling vehicles. Purchaser shall provide a sieve analysis upon request from the Contract Administrator.

**6-32 2 ½-INCH MINUS CRUSHED ROCK**

% Passing 2 ½" square sieve	100%
% Passing 1 ¼" square sieve	55 - 75%
% Passing U.S. #4 sieve	20 - 45%

Of the fraction passing the No. 4 sieve, 40% to 60% must pass the No. 10 sieve.

The portion of aggregate retained on the No. 4 sieve may not contain more than 0.2 percent organic debris and trash. All percentages are by weight.

**6-41 SELECT PIT RUN ROCK**

No more than 50 percent of the rock may be larger than 4 inches in any dimension and no rock may be larger than 8 inches in any dimension. Select Pit Run rock may not contain more than 5 percent by weight of organic debris, dirt, and trash. Rock may require processing to meet this specification.

**6-43 QUARRY SPALLS**

% Passing 8" square sieve	100%
% Passing 3" square sieve	40% maximum
% Passing 3/4" square sieve	10% maximum

Rock may not contain more than 5 percent vegetative debris or trash. All percentages are by weight.

**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 ROCK LIST 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.

**6-56 ROCK MEASUREMENT BY TRUCK VOLUME**

Measurement of SPOT ROCK, LANDING ROCK and QUARRY SPALLS rock is on a cubic yard truck measure basis. The Contract Administrator will measure each truck box before rock hauling. An average of such volumes for each truck will be used to tally the volume hauled. The Contract Administrator may periodically require that a load be flattened off and its volume calculated. Purchaser shall maintain load tally sheets for each truck as shown in ROCK ACCOUNTABILITY DETAIL and shall give them to the Contract Administrator on a weekly basis during rocking operations.

**6-70 APPROVAL BEFORE ROCK APPLICATION**

Purchaser shall obtain written approval from the Contract Administrator for compaction before rock application.

**6-71 ROCK APPLICATION**

Purchaser shall apply rock in accordance with the specifications and quantities shown on the ROCK LIST. Rock must be spread, shaped, and compacted full width concurrent with rock hauling operations. The Contract Administrator will direct locations for rock that is to be applied as spot patching. Road surfaces must be compacted in accordance with the COMPACTION LIST 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.

**6-76 DRY WEATHER ROCK COMPACTION**

The Contract Administrator may require the application of water to facilitate compaction of the rock surfacing. The method of water application is subject to approval by the Contract Administrator.

**SECTION 7 – STRUCTURES**

**7-71 GATE CLOSURE DURING HAUL**

On the following road(s), Purchaser shall keep gates closed and locked except for passing vehicles. If Purchaser elects to use an alternate plan for gate security, Purchaser shall submit a detailed plan to the Contract Administrator for written approval.

<u>Road</u>	<u>Station</u>
N-1500	0+00
N-1500	37+00

**SECTION 8 – EROSION CONTROL**

**8-2 PROTECTION FOR EXPOSED SOIL**

Purchaser shall provide and evenly spread a 4-inch layer of straw to all exposed soils at culvert installations. Soils must be covered before the first anticipated storm event. Soils may not sit exposed during any rain event.

**8-15 REVEGETATION**

Purchaser shall spread grass seed on all exposed soils resulting from road work activities. Using manual dispersal. Other methods of covering must be approved in writing by the Contract Administrator. Required seed not spread by the termination of this contract will become the property of the state.

<u>Road</u>	<u>Location</u>	<u>Qty (lbs)*</u>	<u>Type</u>
ALL ROADS	ALL STATIONS	50	Grass Seed

\*Quantities are estimates only. Actual quantities may vary and are the responsibility of the Purchaser.

**8-16 REVEGETATION SUPPLY**

The Purchaser shall provide the grass seed.

**8-17 REVEGETATION TIMING**

Purchaser shall revegetate 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 on all exposed soils within 50 feet of streams or wetlands if revegetation occurs between July 1 and March 31. The protective cover may consist of straw. Seed must be covered before the first anticipated storm event. Seed may not be allowed to sit exposed during any rain event. 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 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 grass seed 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 40 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 unless a comparable mix is approved in writing by the Contract Administrator.

<u>Kind and Variety of Seed in Mixture</u>	<u>% by Weight</u>
Perennial Rye	35-45
Red Fescue	30-40
Highland Bent	5-15
White Clover	10-20
Inert and Other Crop	0.5

## SECTION 9 – POST-HAUL ROAD WORK

### **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.

### **9-11 LANDING EMBANKMENT**

Purchaser shall slope landing embankments to the original construction specifications.

## SECTION 10 MATERIALS

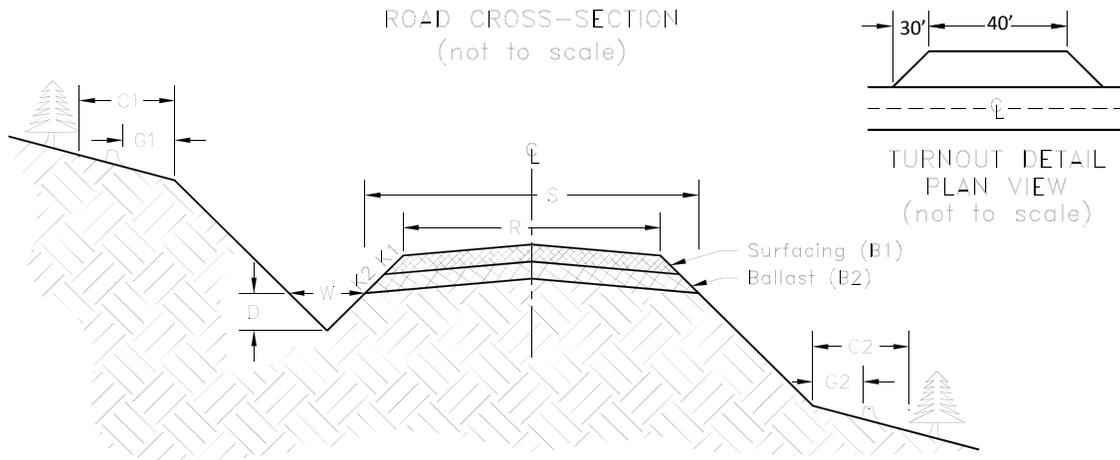
### **10-17 CORRUGATED PLASTIC CULVERT**

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.

### **10-22 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. Couplings must be split coupling band. Split coupling bands must have a minimum of four corrugations, two on each side of the pipe joint.

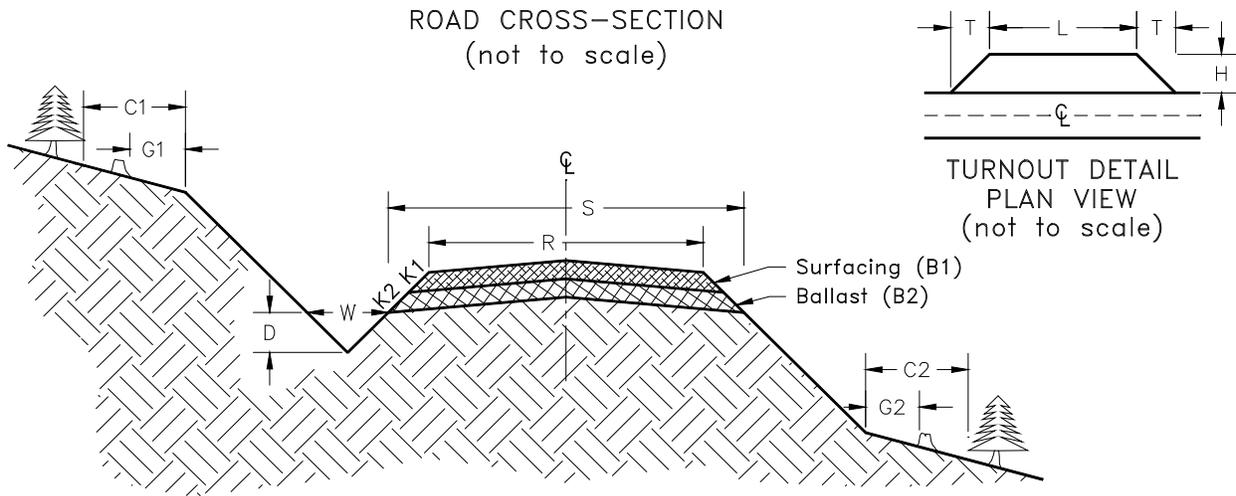
# TYPICAL SECTION SHEET



Road Number	From Station	To Station	Tolerance Class	Subgrade Width	Road Width	Ditch		Crown in. @ CL	Grubbing Limits		Clearing Limits	
						Width	Depth		G1	G2	C1	C2
				S	R	W	D					
N-1500	0+00	217+00	A	15'	12'	3'	1'	4"				
N-1530	0+00	83+00	A	15'	12'	3'	1'	4"				
N-1400	0+00	88+00	A	15'	12'	3'	1'	4"				
N-1000	0+00	61+00	A	15'	12'	3'	1'	4"				
N-1600	0+00	93+00	A	15'	12'	3'	1'	4"				
N-1680	0+00	16+00	A	15'	12'	3'	1'	4"				
N-1440 Ext.	0+00	10+45	C	15'	12'	3'	1'	4"	5'	5'	10'	10'
N-1435	0+00	2+80	C	15'	12'	3'	1'	4"	5'	5'	10'	10'
N-1415	0+00	3+55	C	15'	12'	3'	1'	4"	5'	5'	10'	10'

\* - Optional Construction – If roads are built the rock is REQUIRED per the ROCK LIST.

**ROCK LIST**  
(Page 1 of 2)

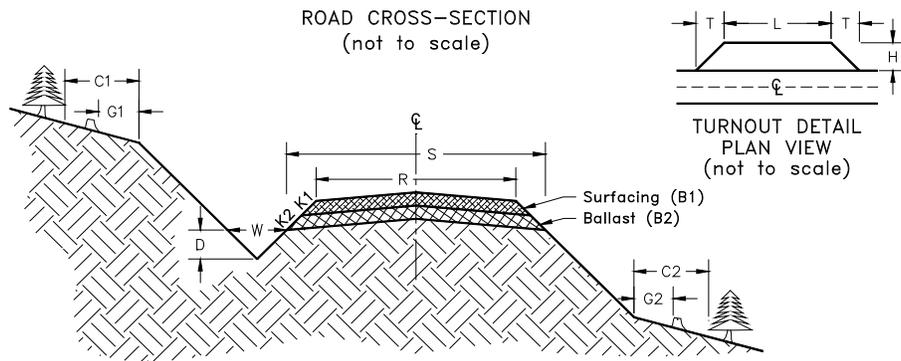


**BALLAST**

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y./ Station	# of Stations	C.Y. Subtotal	Rock Source
			K2	B2	SELECT PIT RUN (SPR)			
N-1440 Ext.	0+00	10+45	1 ½ : 1	15"	81	10.45	845	Topelt Quarry
N-1435	0+00	2+80	1 ½ : 1	15"	81	2.80	225	Topelt Quarry
N-1415	0+00	3+55	1 ½ : 1	15"	81	3.55	290	Topelt Quarry
Landings					50	5	250	Topelt Quarry
Turnarounds					50	3	150	Topelt Quarry
Turnouts					50	2	100	Topelt Quarry
Intersections					50	3	150	Topelt Quarry

SPR BALLAST TOTAL **2,010** Cubic Yards

## ROCK LIST (Page 2 of 2)



### SURFACE

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y./ Station	# of Stations	C.Y. Total	Rock Source
			K1	B1	2 ½ Inch Minus			
N-1500	0+00	217+00	1 ½ : 1		300 yds <sup>3</sup> Replacement rock			COMMERCIAL
N-1530	0+00	83+00	1 ½ : 1		100 yds <sup>3</sup> Replacement rock			COMMERCIAL
N-1400	0+00	88+00	1 ½ : 1		100 yds <sup>3</sup> Replacement rock			COMMERCIAL
N-1000	0+00	61+00	1 ½ : 1		100 yds <sup>3</sup> Replacement rock			COMMERCIAL
N-1600	0+00	93+00	1 ½ : 1		100 yds <sup>3</sup> Replacement rock			COMMERCIAL

2 ½ INCH MINUS SURFACE TOTAL **700** Cubic Yards

### QUARRY SPALLS

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y./ Station	# of Stations	C.Y. Total	Rock Source
			K1	B1	Quarry Spalls			
CULVERTS					1	2	2	Topelt Quarry

QUARRY SPALLS TOTAL **2** Cubic Yards

## CULVERT LIST

Road Number	Location	Culvert		Length (ft)			Riprap (C.Y.)			Backfill Material	Placement Method
		Dia.	Gauge	Culvert	Downspt	Flume	Inlet	Outlet	Type		
N-1500	54+50	18"		30'			.5	.5	QS	NT	ZDH
N-1415	0+30	18"		60'			.5	.5	QS	NT	ZDH

**Key:**

QS - Quarry Spalls  
 NT - Native (bank run)  
 SL - Select Fill  
 ZDH - Zero Drop Height  
 LL - Light Loose Riprap  
 Downspout - Full round pipe

### COMPACTION LIST

Road	From Station	To Station	Type	Max Depth Per Lift (inches)	Equipment Type	Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)
N-1500	0+00	217+00	Pre-haul Surface		Vibratory Smooth Drum	20000	4	5
N-1530	0+00	83+00	Pre-haul Surface		Vibratory Smooth Drum	20000	4	5
N-1400	0+00	88+00	Pre-haul Surface		Vibratory Smooth Drum	20000	4	5
N-1000	0+00	61+00	Pre-haul Surface		Vibratory Smooth Drum	20000	4	5
N-1600	0+00	93+00	Pre-haul Surface		Vibratory Smooth Drum	20000	4	5
N-1680	0+00	16+00	Pre-haul Surface		Vibratory Smooth Drum	20000	4	5
N-1440 Ext.	0+00	10+45	Subgrade	8"	Vibratory Smooth Drum	20000	4	5
N-1435	0+00	2+80	Subgrade	8"	Vibratory Smooth Drum	20000	4	5
N-1415	0+00	3+55	Subgrade	8"	Vibratory Smooth Drum	20000	4	5
WASTE AREAS AND EMBANKMENTS				24"	Vibratory Smooth Drum	20000	4	5

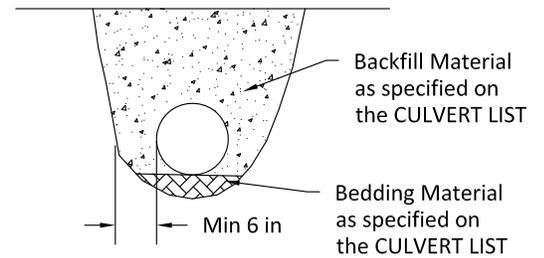
**CULVERT AND DRAINAGE SPECIFICATION DETAIL**  
PAGE 1 OF 2

**INSTALLATION REQUIREMENTS:**

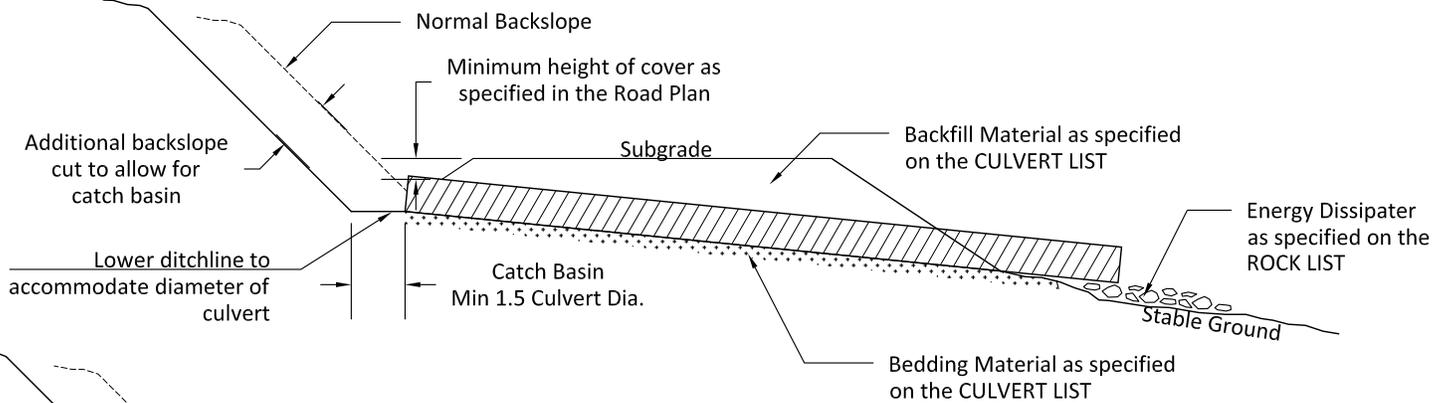
1. Proper preparation of foundation and placement of any required bedding material shall precede the installation of all culverts. This includes necessary leveling of the native trench bottom and compaction of required bedding material to form a uniform, dense, unyielding base. The pipe must be uniformly supported along the barrel.
2. Backfill material shall be compacted under the culvert haunches, around the sides, and above the culvert in accordance with the COMPACTION LIST.

ALL DRAWINGS ARE NOT TO SCALE

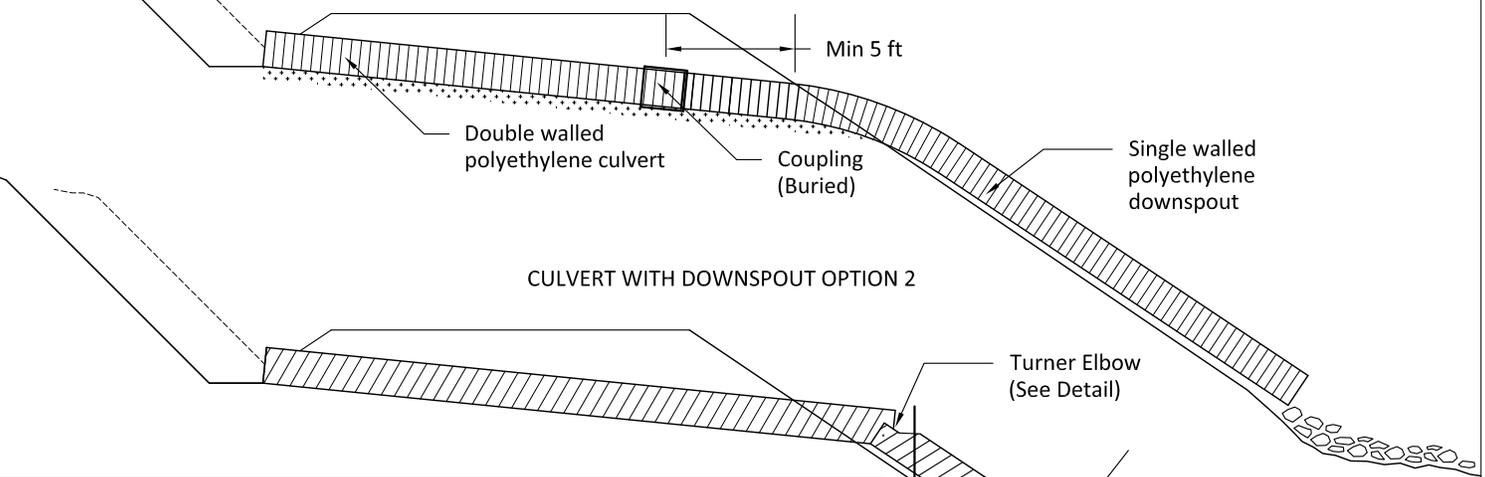
**CROSS SECTION**



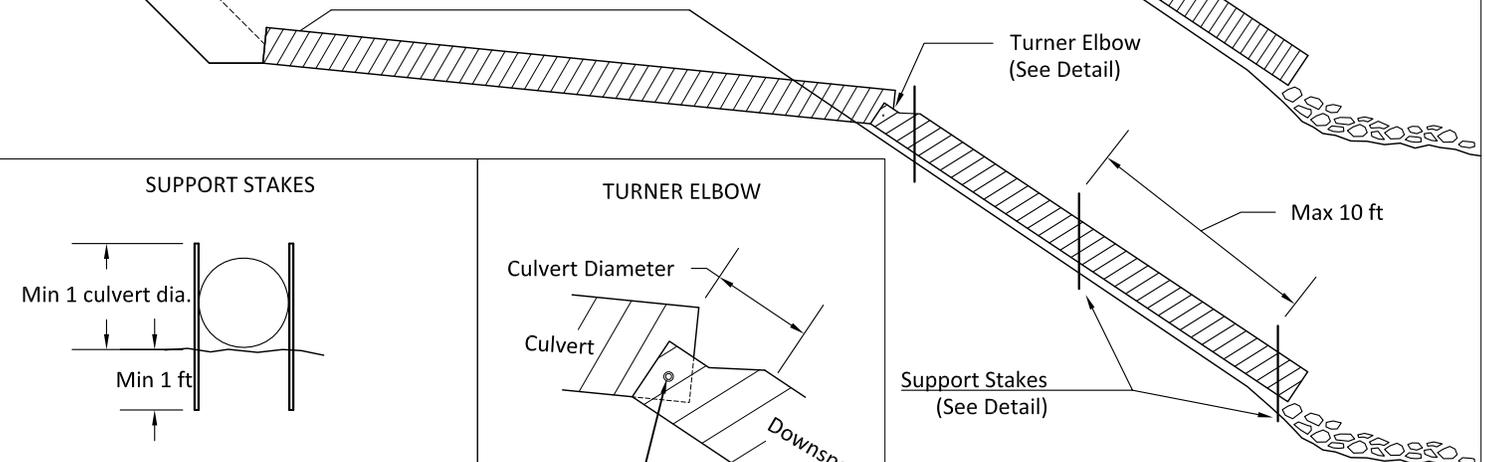
**CULVERT PROFILE (TYPICAL)**



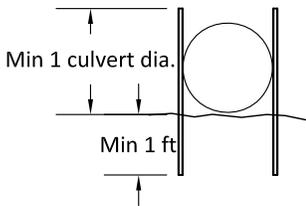
**CULVERT WITH DOWNSPOUT OPTION 1**



**CULVERT WITH DOWNSPOUT OPTION 2**

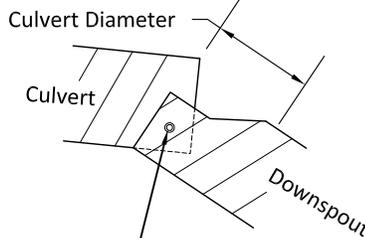


**SUPPORT STAKES**



Stake Material: T-post with rust protection coating.  
Connections: Bolt support stakes to the culvert with  $\frac{5}{8}$ " u-bolts, with washers on both the inside and outside of the culvert.  
Alternative staking methods may be approved, in writing, by the Contract Administrator.

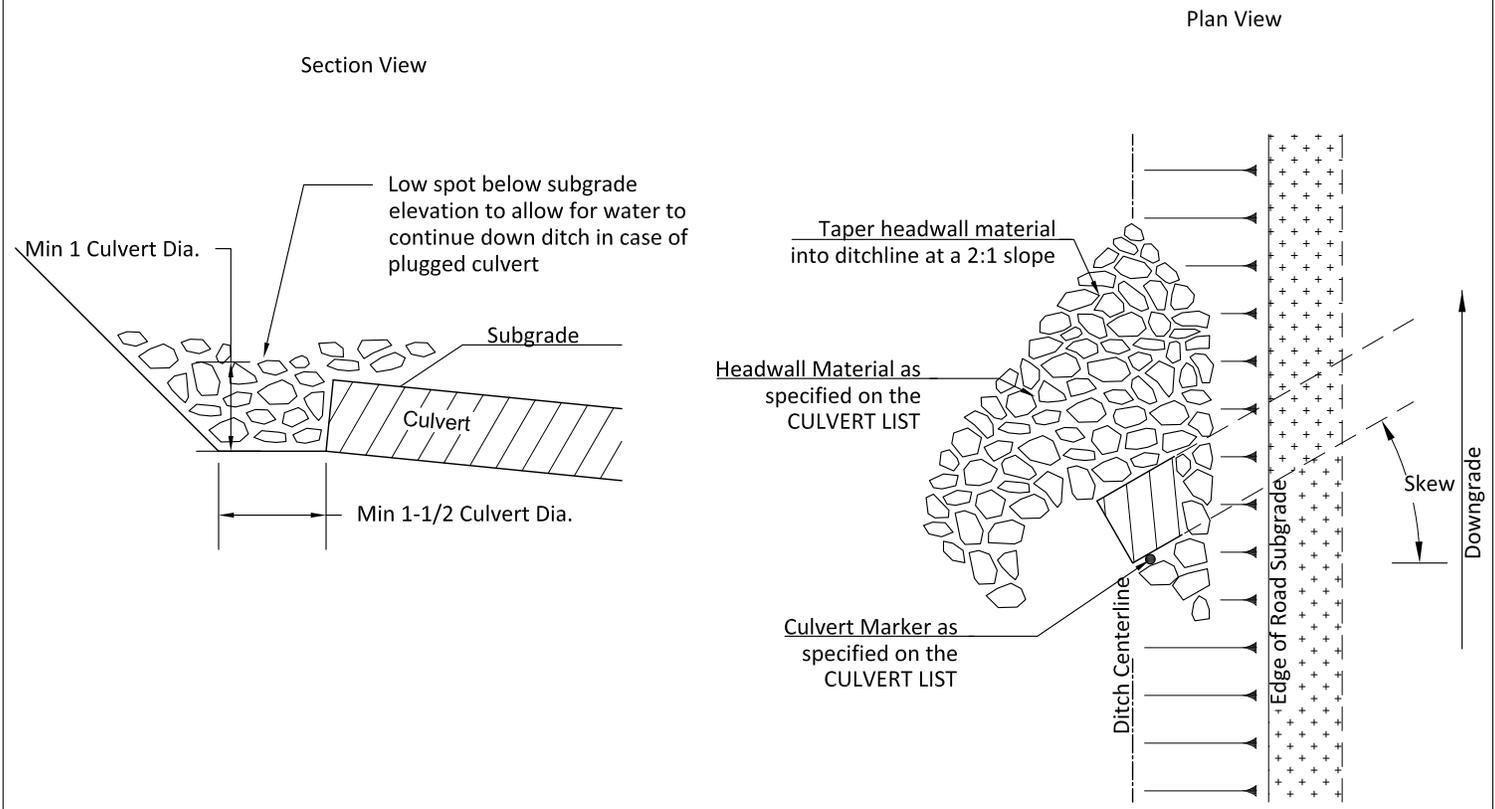
**TURNER ELBOW**



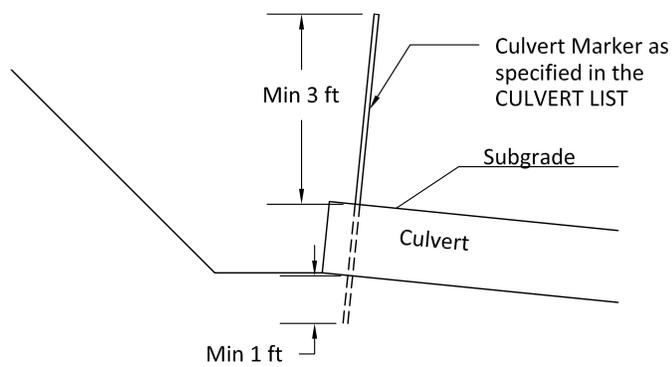
Bolted with  $\frac{5}{8}$ " galvanized bolts and washers (both sides)  
Downspout must be 6 inches larger in diameter than the culvert.

**CULVERT AND DRAINAGE SPECIFICATION DETAIL**  
**PAGE 2 OF 2**

**HEADWALLS**

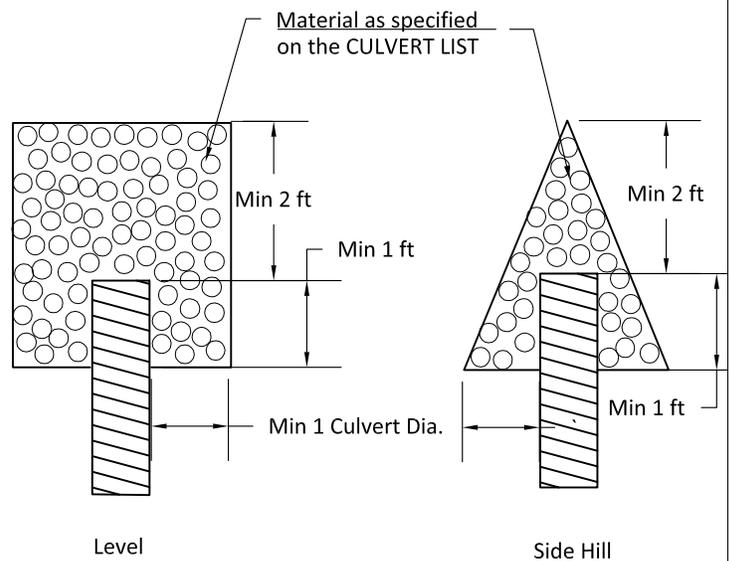


**CULVERT MARKERS**



Culvert Marker Material: 1 Inch I.D., Schedule 40 PVC Pipe, White. Marker must be capped on the top.  
 Culvert Marker Placement: Place on uphill side of culvert, between corrugations if possible.  
 Alternative culvert marker types may be approved, in writing, by the Contract Administrator.

**ENERGY DISSIPATORS**



Min Energy Dissipater Depth: 1 Culvert Dia.

## FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Page 1 of 2

### 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 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, shape, and compact the road surface, turnouts, and shoulders to the original shape on the TYPICAL SECTION SHEET 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

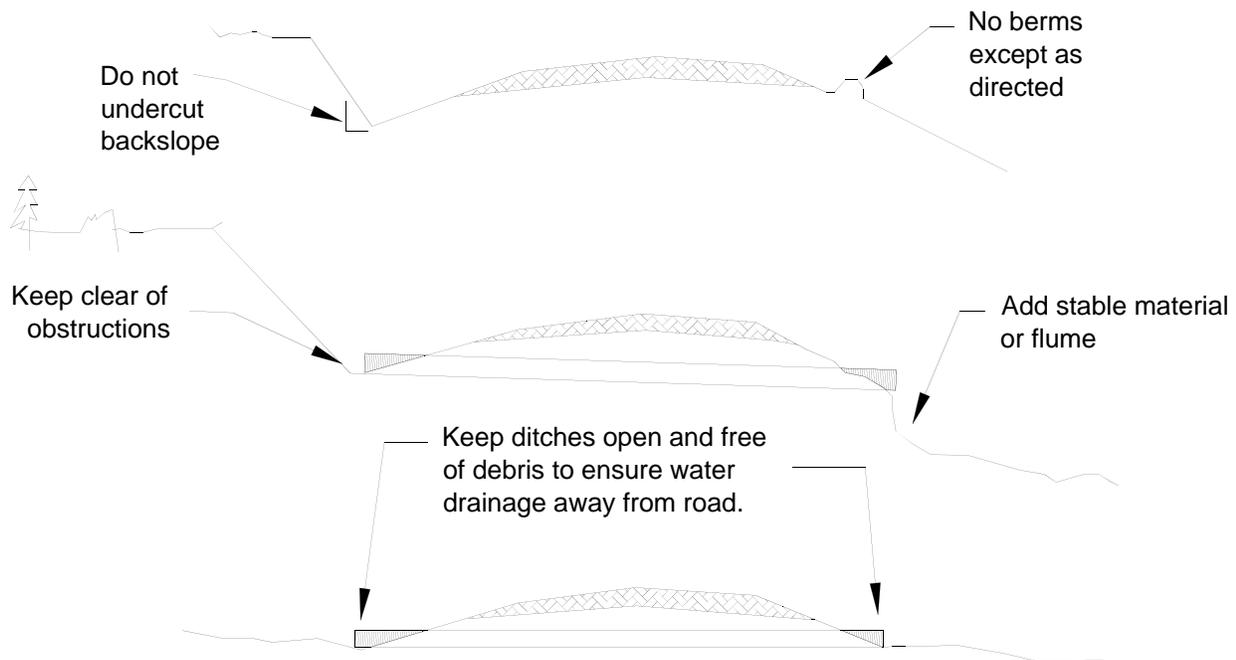
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

### Termination of Use or End of Season

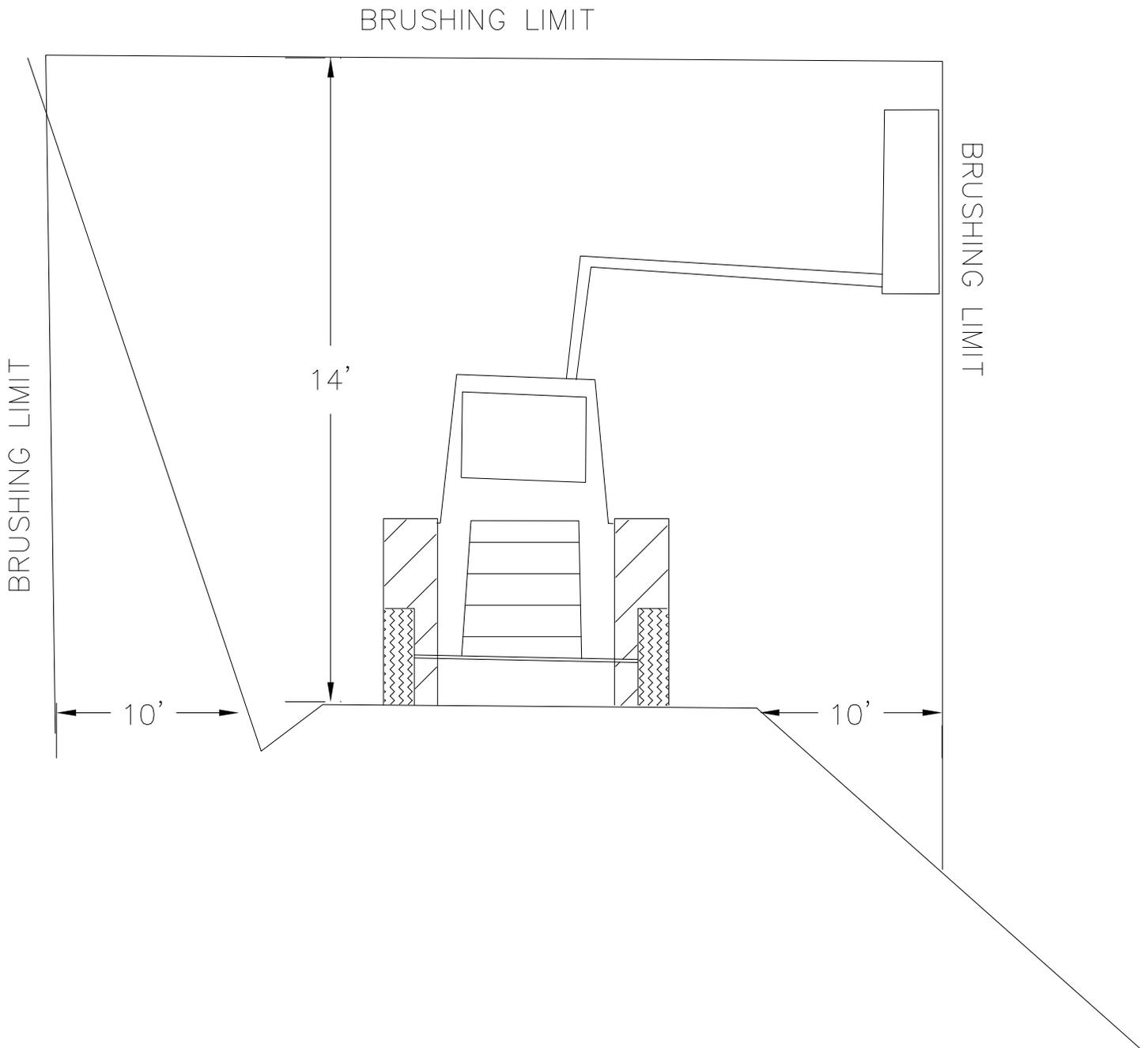
- At the conclusion of logging operations, ensure all conditions of these specifications have been met.

### Debris

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



# BRUSHING SECTION DETAIL





STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES  
PACIFIC CASCADE REGION

**TOPELT QUARRY DEVELOPMENT PLAN**

Section 15, Township 13 North, Range 05 West, W.M.

(Page 1 of 2)

1. Mining shall begin in Area B. If additional rock is needed mining and development shall continue into Area A and then Area C.
2. All vegetation including stumps shall be cleared a minimum of 30 feet beyond the top of all working faces. Trees shall be cleared to a minimum of  $\frac{3}{4}$  of the height of the tallest tree adjacent to the pit. The Contractor shall maintain a minimum of 25 foot wide stripped area from the pit face at all times.
3. Overburden shall be pushed or end hauled to the designated waste area and compacted. Minimal acceptable compaction is achieved by placing waste material in 2 foot or shallower lifts and routing excavation equipment over entire width of the lifts.
4. Root wads and organic debris larger than one cubic foot in volume shall be separated from overburden material and piled in the designated waste area.
5. Working bench width shall be a minimum of 25 feet.
6. The pit floor shall have continuity of slope be left in a smooth and neat condition, providing drainage to the northwest for the upper floor and to the south for the lower floor at a minimum of 2 percent. All knobs, bumps, or extrusions shall be removed to the designated floor level by excavation or drill and shoot techniques.
7. At the end of operations, pit faces and walls shall be scaled and cleared of loose and overhanging material, benches shall have safety berms constructed or access blocked to highway vehicles. Upon completion of operations in the pit, the area will be left in a condition that will not endanger public safety, damage property, or be hazardous to animal or human life.
8. All operations shall be carried out in compliance with all regulations of:
  - Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration.
  - Safety Standards – Metal and Nonmetallic Mines, Quarries, Pits, and Crushing Operations” (296-61 WAC), Washington Department of Labor and Industries.
  - “Safety Standards for Construction Work” (296-155 WAC), Washington Department of Labor and Industries.
9. The Operator shall submit an informational drilling and shooting plan to the Contract Administrator 10 working days prior to any drilling (Form #M-126PAC).
10. At the completion of rock source operations, Contractor shall ask Contract Administrator for written approval of final rock source condition and compliance with the terms of this plan.
11. The pit area shall be worked and left in a condition that future operations may proceed in an orderly manner.

Date of last update 07/9/18. C W

WOLVERINE

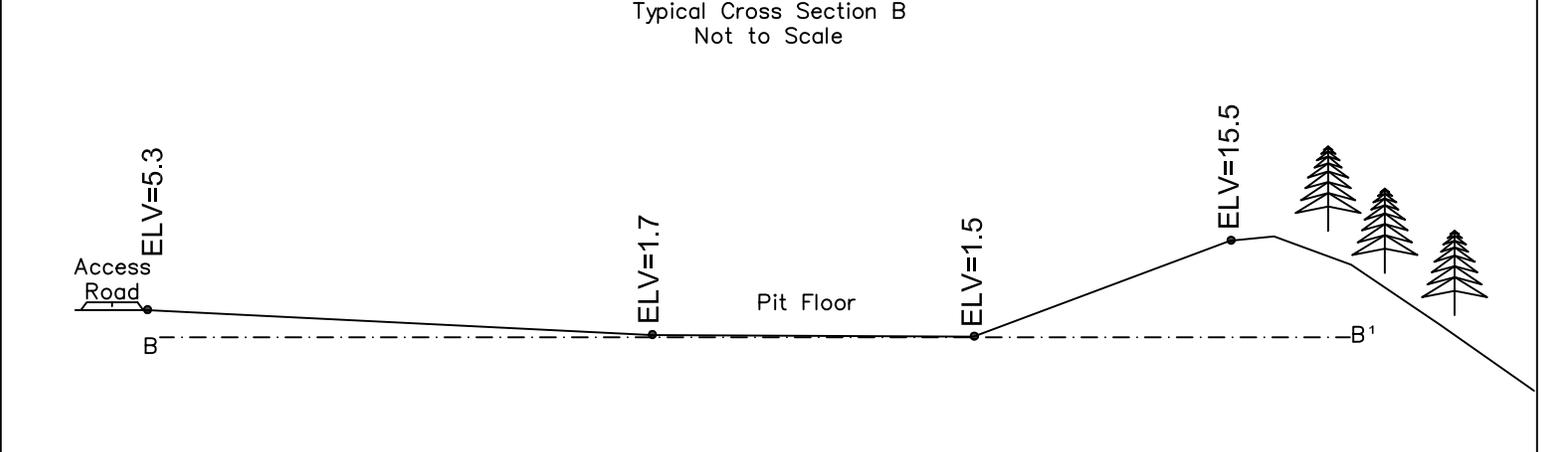
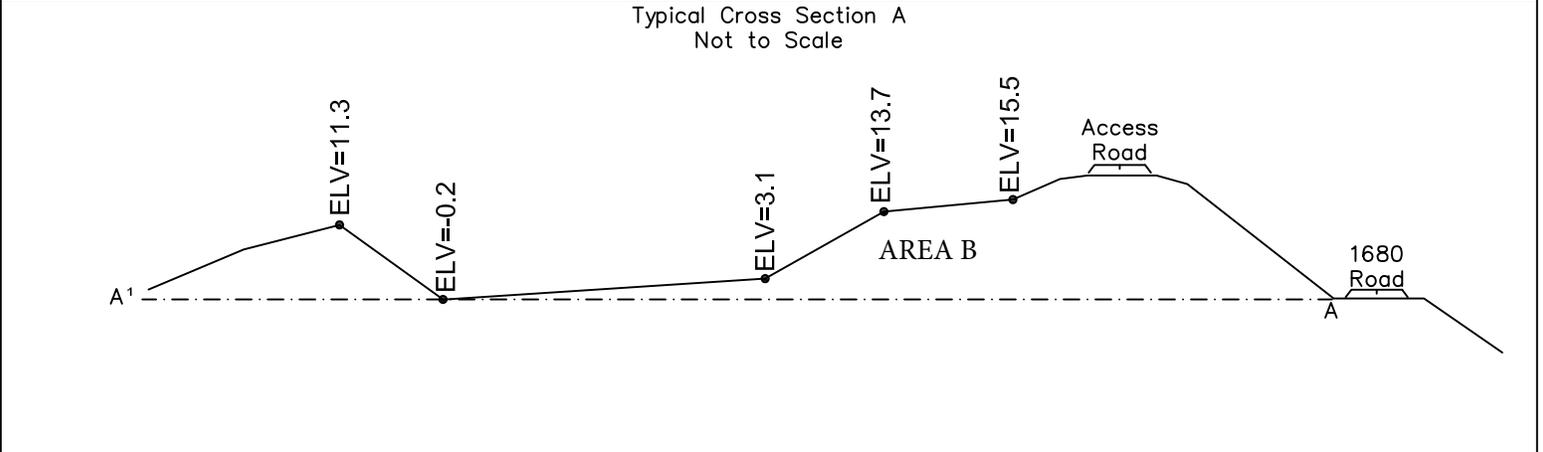
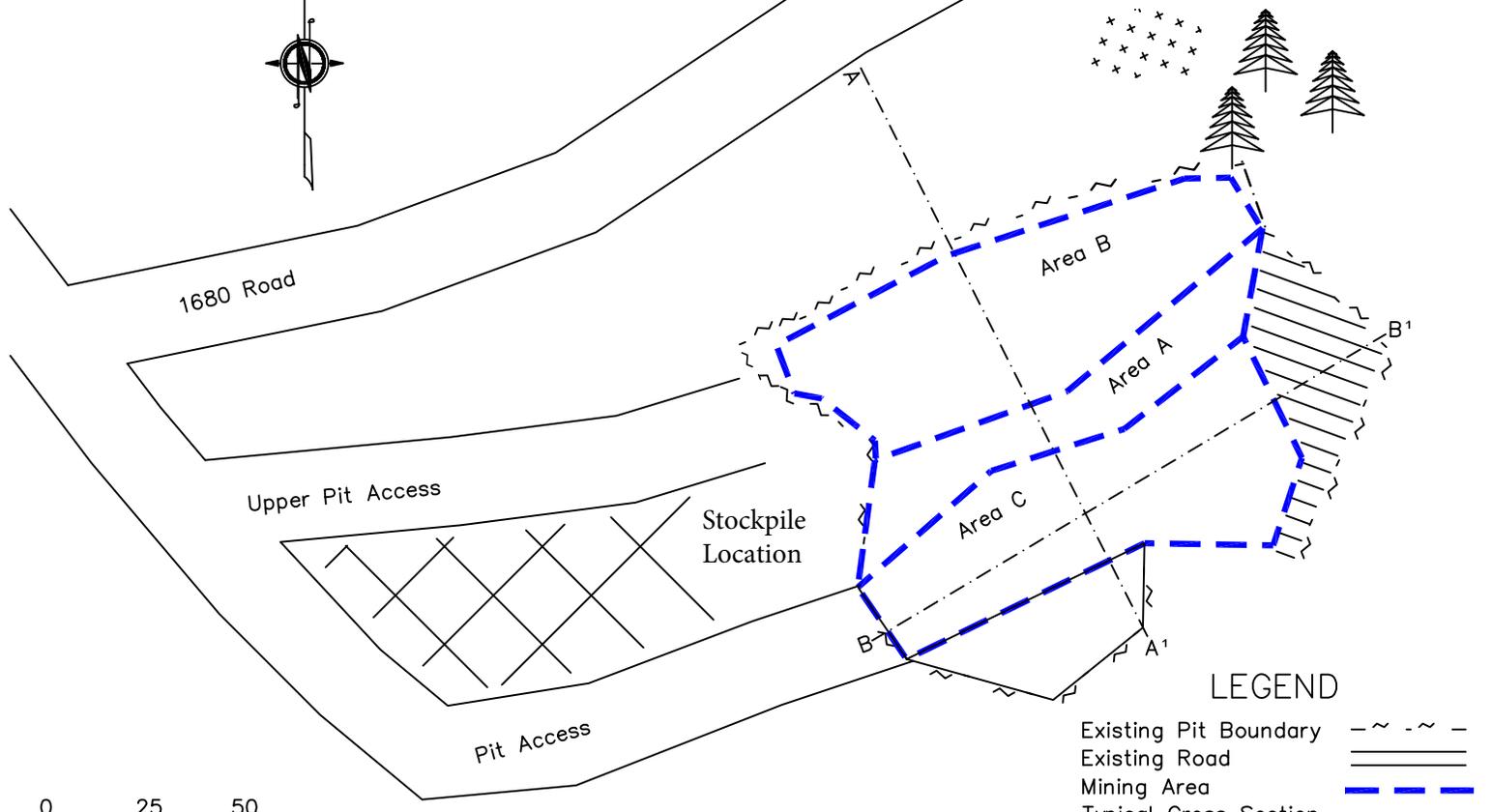
30-098224

MODIFIED DATE: FEBRUARY 26, 2019

Page 29 of 30

# TOPELT QUARRY DEVELOPMENT PLAN

SEC. 15, T13N, R05W, W.M.



DEPARTMENT OF NATURAL RESOURCES

SUMMARY - Road Development Costs

REGION: PACIFIC CASCADE

DISTRICT: LEWIS

SALE/PROJECT NAME: Wolverine TBS

CONTRACT NUMBER: 30-098224

LEGAL DESCRIPTION: Sec. 21 & 22 T13R05W

ROAD NUMBER:

Required: N-1500, N-1530, N-1400, N-1000, N-1600, N-1680

Optional: N-1440 Ext., N-1435, N-1415

ROAD STANDARD:	Construction	Reconstruction	Pre-haul maintenance
NUMBER OF STATIONS:	<u>16.80</u>	<u>0.00</u>	<u>558.00</u>
SIDESLOPE:	<u>25%</u>	<u>20%</u>	<u>20%</u>
CLEARING AND GRUBBING:	<u>\$2,214</u>	<u>\$0</u>	
EXCAVATION AND FILL:	<u>\$4,536</u>	<u>\$0</u>	
MISC. MAINTENANCE:	<u>\$150</u>	<u>\$0</u>	<u>\$11,552</u>
ROCK TOTALS:			
Required:	<u>\$30,687</u>	<u>\$0</u>	<u>\$13,209</u>
Optional:	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
Total:	<u>\$30,687</u>	<u>\$0</u>	<u>\$13,209</u>
CULVERTS AND FLUMES:	<u>\$1,500</u>	<u>\$0</u>	<u>\$750</u>
	<u>\$0</u>	<u>\$0</u>	<u>\$ -</u>
GENERAL EXPENSES:	<u>\$3,518</u>	<u>\$0</u>	<u>\$2,296</u>
MOBILIZATION:	<u>\$1,993</u>	<u>\$0</u>	<u>\$1,993</u>
TOTAL COSTS:	<u><u>\$44,596</u></u>	<u><u>\$0</u></u>	<u><u>\$29,799</u></u>
COST PER STATION:	<u>\$2,655</u>		<u>\$53</u>

ROAD DEACTIVATION AND ABANDONMENT COSTS: \$0

NOTE: Profit and risk are included  
in equipment rates used for this appraisal.

TOTAL (All Roads) =	<u>\$74,396</u>
TOTAL w/o Optional Rock (All Roads) =	<u>\$74,396</u>
SALE VOLUME MBF =	<u>4,000</u>
TOTAL COST PER MBF =	<u>\$18.60</u>
TOTAL COST PER MBF w/o Optional Rock =	<u>\$18.60</u>

Compiled by: Chris Werner

Date: 02/26/19

**I. CLEARING AND GRUBBING:**

Flat Rate -	% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/Station	Width Factor	Total Stations	Sub Total
N-1440 Ext	25	30.0	1.20	2.44	\$45	1.00	10.45	\$1,377
N-1435	25	30.0	1.20	2.44	\$45	1.00	2.80	\$369
N-1415	25	30.0	1.20	2.44	\$45	1.00	3.55	\$468
<b>Total Stations=</b>								<b>16.80</b>

**II. \* Required Construction**

Required Stations= 0.00  
 Optional Stations= 16.80  
 Total Stations= 16.80  
 Required Clear and Grub Sub-total= \$ -  
 Optional Clear and Grub Sub-total= \$ 2,214  
 Clear and Grub TOTAL = \$ 2,213.57

Flat Rate -	% Side Slope	Exc. Type	Production Factor	Cost/Station	Width Factor	Total Stations	Sub Total	
N-1440 Ext	25	1.2	2.25	\$100	1.00	10.45	\$2,822	
N-1435	25	1.2	2.25	\$100	1.00	2.80	\$756	
N-1415	25	1.2	2.25	\$100	1.00	3.55	\$959	
<b>Total Stations=</b>								<b>16.80</b>

**IV. CULVERTS AND FLUMES:**

\*End Haul, Over Haul, Large Fills/Cuts

End Haul/Over Haul Large Fills/Cuts	Estimated Vol. (cy)	No. of Equip. Days	Cost/day	Sub Total
				\$0
				\$0

Required Excavation Sub-total= \$ -  
 Optional Excavation Sub-total= \$ 4,556  
 Excavation TOTAL = \$ 4,556.00

Required				Sub-total	
Description	Qty.	Installed Gauge	No./Length	Cost/ft	Sub-total
Culverts	1		60	\$25.00	\$1,500
<b>Bands &amp; Gaskets</b>					<b>\$0</b>
Required Culvert Subtotal =					<b>\$1,500</b>

Optional					
Description	Qty.	Gauge	Diameter	No./Length	Sub-total
CPP			18	30	\$18.00
<b>Bands &amp; Gaskets</b>					<b>\$0</b>
Optional Culvert Subtotal =					<b>\$0</b>
Culvert Total =					<b>\$1,500</b>

Description	Type	Width	Length	Cost/ft.	Sub-total
				\$0	\$0
				\$0	\$0
				\$0	\$0
				\$0	\$0
Structure Total =					<b>\$0</b>

Required	Optional	
Pounds	Pounds	
50	\$3.00	
	\$0	
Grass Seeding Total =		<b>\$150</b>

**III. BALLAST AND SURFACING :**

Required Rock									
UNIT COSTS	Ballast	Surfacing	Landing	Culvert	Drill & Shoot	Ballast	Surfacing	Landing	Culvert
Dig and load	\$3.50			\$3.50					\$1.00
Crushing	\$1.00			\$1.00					\$1.00
Purchase	\$4.63			\$4.63					\$4.63
Riprap source:	\$2.00			\$2.00					\$1.00
Stockpile source:	\$2.00			\$2.00					\$2.00
R.T. Miles =	5.0								
Ave. Speed =	19								
Delay (Hrs.) =	0.2								
Cost / Hour =	\$100.00								
CY / Load =	10								
Use tax	\$0.08			\$0.08					\$0.08
TOTAL (\$/cy)	\$15.26	\$0.00	\$15.26	\$13.10					\$0.00
* Haul Formula: (R.T.Miles/MPH+Delay)/(Hr / Cyload)									
Ballast	1360	Cu. yds @	\$15.26	/cu. yd =	\$20,754				\$0
Surfacing	0	Cu. yds @	\$0.00	/cu. yd =	\$0				\$0
Landings	250	Cu. yds @	\$15.26	/cu. yd =	\$3,815				\$13
Culverts	1	Cu. yds @	\$13.10	/cu. yd =	\$6,104				\$0
Ballast	400	Cu. yds @	\$15.26	/cu. yd =	\$6,104				\$0
Stockpile	0	Cu. yds @	\$0.00	/cu. yd =	\$0				\$0
Total Rock= 2,011									
Required Rock total = \$30,687									

**Optional Rock**

UNIT COSTS	Ballast	Surfacing	Landing	Culvert	Drill & Shoot	Ballast	Surfacing	Landing	Culvert
Dig and load	\$2.50			\$2.50					\$3.00
Crushing									
Purchase	\$3.46			\$3.46					\$3.46
Riprap source:	\$2.00			\$2.00					\$2.00
Stockpile source:	\$1.50			\$1.50					\$1.00
R.T. Miles =	3.5								
Ave. Speed =	19								
Delay (Hrs.) =	0.2								
Cost / Hour =	\$90.00								
CY / Load =	10								
Use tax	\$0.00			\$0.00					\$0.00
TOTAL (\$/cy)	\$10.46	\$0.00	\$10.46	\$8.46					\$0.00
* Haul Formula: (R.T.Miles/MPH+Delay)/(Hr / Cyload)									
Ballast	0	Cu. yds @	\$10.46	/cu. yd =	\$0				\$0
Surfacing	0	Cu. yds @	\$0.00	/cu. yd =	\$0				\$0
Landings	0	Cu. yds @	\$10.46	/cu. yd =	\$0				\$0
Culverts	0.0	Cu. yds @	\$8.46	/cu. yd =	\$0.00				\$0.00
Turn Arounads	0	Cu. yds @	\$10.46	/cu. yd =	\$0				\$0
Stockpile	0	Cu. yds @	\$0.00	/cu. yd =	\$0				\$0
Total Rock= 0									
Optional Rock total = \$0									

Rock Total= \$30,687

Required Construction= \$ 1,650.00  
 Optional Construction= \$ 6,749.57  
 Required Rock= \$30,687  
 Optional Rock= \$0  
 Required Sub-total= \$ 32,336.50  
 Options Sub-total= \$ 6,749.57  
 Sub-TOTAL = \$ 39,086.07

**VI. GENERAL EXPENSES:**

Overhead & General Exp. Add 9% \$3,518

**VII. MOBILIZATION:**

Total Mobilization = \$3,985  
 Mobilization sub-total = \$1,992.50  
 SHEET TOTAL = \$44,596

SALE NAME: Wolverine TBS

CONTRACT NUMBER: 30-098224

Total stations Pre-Haul Maintenance = 558.00

I. MISC. MAINTENANCE ITEMS:

	Cost/ Station	Total Stations	Sub Total
mechanical brushing (\$/sta) =	25.00	239.50	\$5,988
hand brushing =			\$0
ditch cleaning (\$/sta) =	55.00	20.00	\$1,100
Sediment Traps (ea.) =	60.00		\$0
grading (\$/sta) =	6.00	558.00	\$3,348
compacting (\$/sta) =	2.00	558.00	\$1,116

Misc TOTAL = \$11,552

III. BALLAST AND SURFACING :

Ballast source: Topelt Quarry  
 Surface source: COMMERCIAL  
 Riprap source : Topelt Quarry

Description	cu.yds/sta x stations =	cubic yards
Ballast (4" Jaw Run)	0	0
Surfacing (2 1/2"-)	0	0
Stockpile (2 1/2"-)		

UNIT COSTS	Stockpile	Surfacing	Quarry Spalls
Drill & Shoot			
Dig and load			\$1.50
Crushing			
Purchase		\$10.60	
Haul *		\$4.86	\$4.50
Spread		\$1.00	\$1.00
Compact		\$1.00	
Strip			\$2.00
Reclamation			
Use tax		\$0.08	\$0.08
<b>TOTAL (\$/cy)</b>	\$0.00	\$18.86	\$9.72

\* Haul Formula: (R.T.Miles/MPH+Delay)/(\$/hr / Cy/load)

R.T. Miles = 10.0  
 Ave. Speed = 35  
 Delay (Hrs.)= 0.2  
 Cost / Hour = \$100.00  
 CY / Load = 10

Surfacing (2 1/2"-) 700 Cu. yds @ \$0.00 /cu. yd = \$0  
 Quarry Spalls 1 Cu. yds @ \$9.72 /cu. yd = \$9.72

Rock total = \$13,209

IV. CULVERTS AND FLUMES:

Description	Qty.	Gauge	Diameter (in.)	No/Length (ft)	Installed Cost/ft	Sub-total
CPP	1		18	30	\$25.00	\$750
Bands & Gaskets						\$0

Culvert total = \$750

V. STRUCTURES

Description	Type	Width	Length	Cost/ft.	Sub-total
					\$0
					\$0
					\$0

Sub-TOTAL = \$25,511

VI. GENERAL EXPENSES:

Overhead & General Exp. Add 9% \$2,296

VII. MOBILIZATION:

Total Mobilization = \$3,985 Mobilization sub-total = \$1,992.50

Road No. 0  
 Standard: Pre-haul maintenance  
 Stations: 558.00

SHEET TOTAL = \$29,799

By: Chris Werner

Sheet 3 of 4

Date: 02/26/19

VII. MOBILIZATION:	Description	\$ per Move	# of Moves	Sub-total
	Dump Trucks	100	3	\$300
* Move in costs are averaged over all three sheets.	Grader	160	1	\$160
	Compactor	450	1	\$450
	Excavator	450	2	\$900
	Dozer (D8)	450	1	\$450
	Front end loader	450	1	\$450
	Rock crusher		1	\$0
	Drill	\$1,000	1	\$1,000
	Dozer (D5)	\$275	1	\$275

Construction Mobilization sub-total =	\$1,992.50
Reconstruction Mobilization sub-total =	
Pre-haul Mobilization sub-total =	\$1,992.50
Total Mobilization =	<u>\$3,985</u>

## 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*

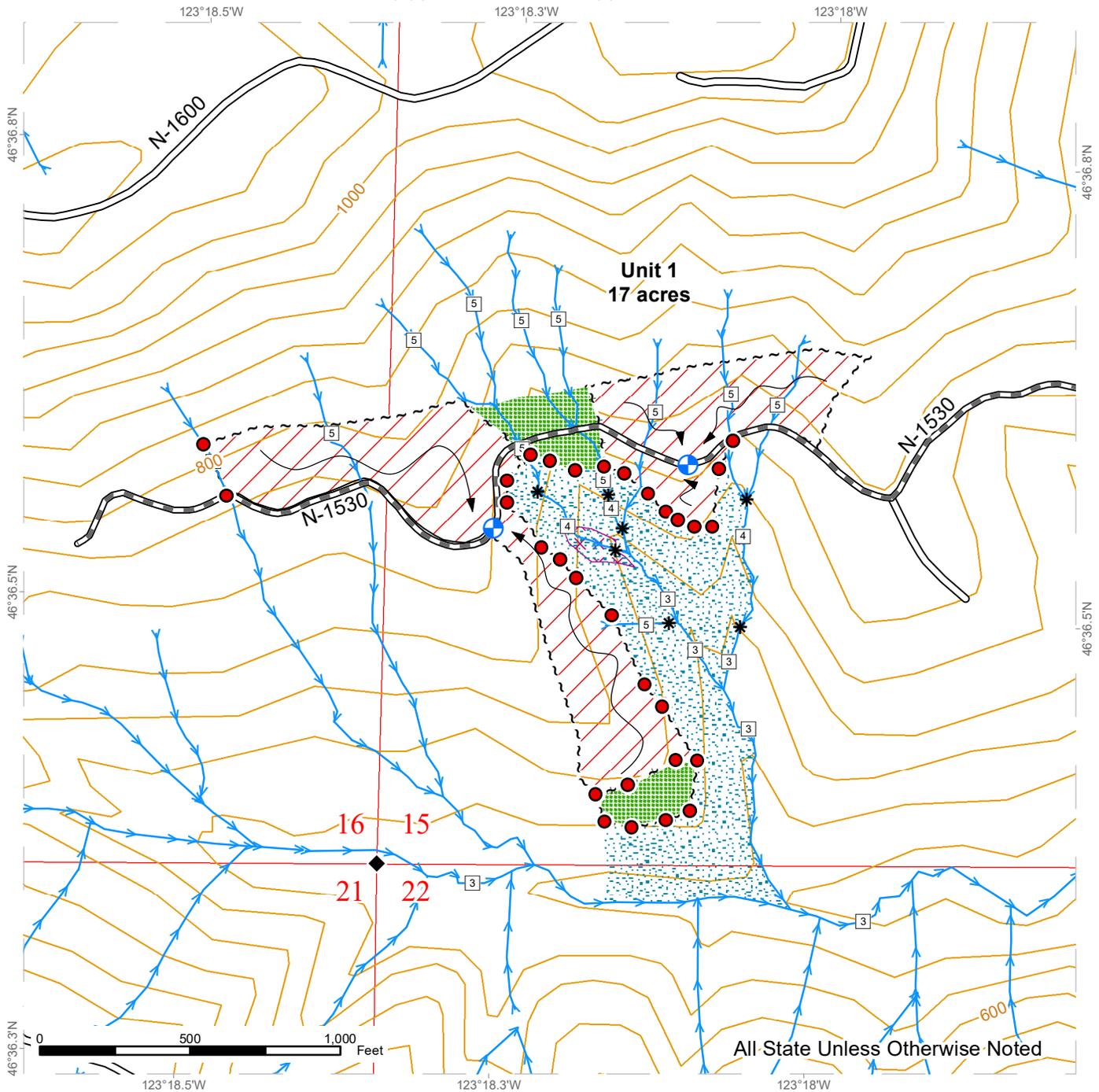
All parties must make their own assessment of the taxable or non-taxable status of any work performed under the timber sale contract. The Department of Revenue bears responsibility for determining forest road excise taxes. The Department of Natural Resources developed this form to help estimate the impact 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)

# LOGGING PLAN MAP

**SALE NAME:** WOLVERINE  
**AGREEMENT#:** None  
**TOWNSHIP(S):** T13R5W  
**TRUST(S):** Common School and Indemnity (3), State Forest Transfer (1)

**REGION:** Pacific Cascade Region  
**COUNTY(S):** Lewis  
**ELEVATION RGE:** 480-840



All State Unless Otherwise Noted

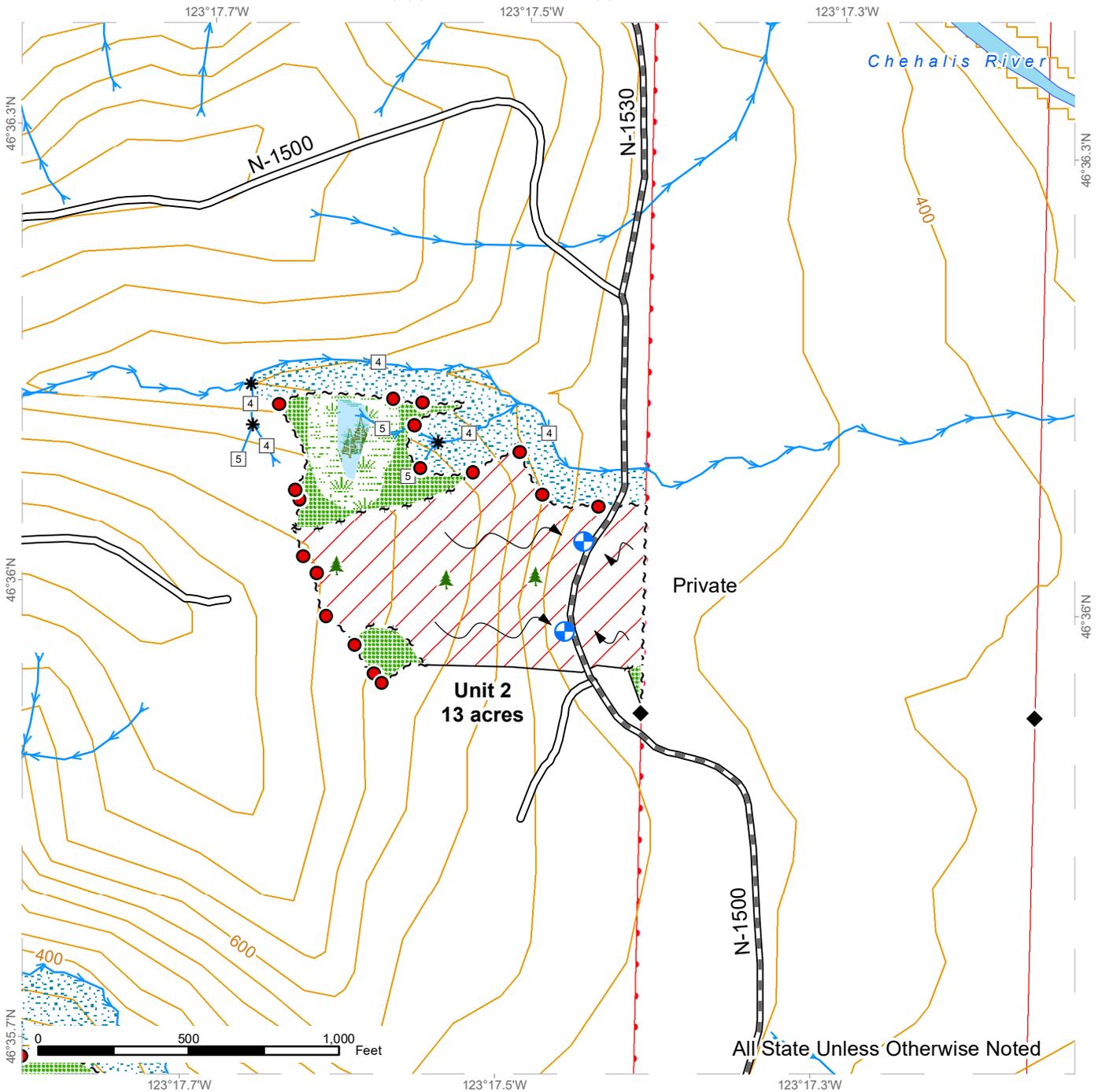
	Leave Tree Area		Right of Way Tags		Streams
	Riparian Mgt Zone		Property Line		Survey Monument
	Potentially Unstable Slopes		Existing Roads		Stream Type
	DNR Managed Lands		Required Pre-Haul Maintenance		Stream Type Break
	Sale Boundary Tags		Ground Harvest		Landing - Proposed
	Timber Type Change		Cable Harvest		Traverse Point
	Leave Tree Tags				



# LOGGING PLAN MAP

**SALE NAME:** WOLVERINE  
**AGREEMENT#:** None  
**TOWNSHIP(S):** T13R5W  
**TRUST(S):** Common School and Indemnity (3), State Forest Transfer (1)

**REGION:** Pacific Cascade Region  
**COUNTY(S):** Lewis  
**ELEVATION RGE:** 480-840



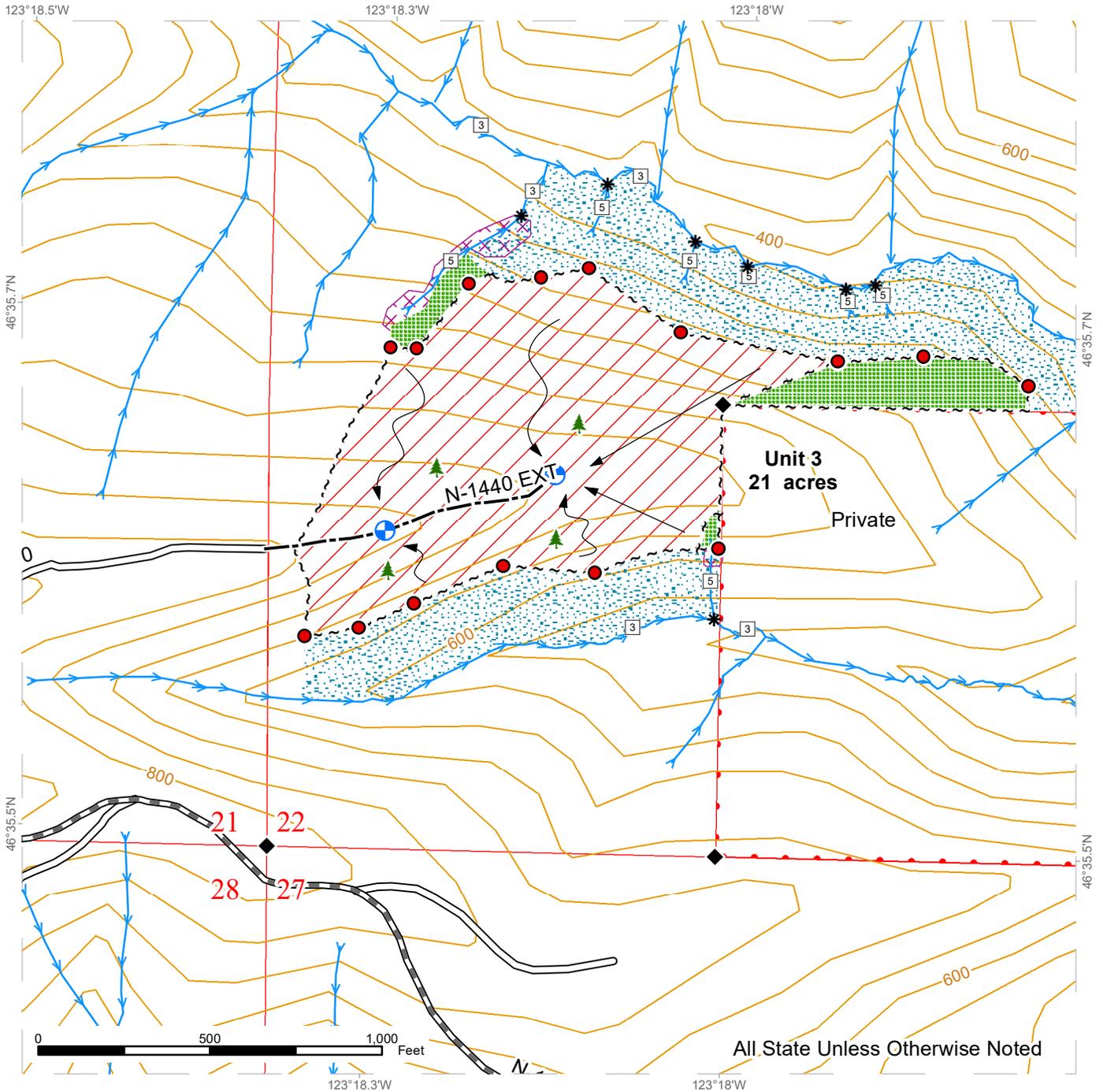
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	Riparian Mgt Zone		Property Line		Survey Monument
	Forested Wetland		Existing Roads		Stream Type
	Wetland Mgt Zone		Required Pre-Haul Maintenance		Stream Type Break
	DNR Managed Lands		Ground Harvest		Landing - Proposed
	Sale Boundary Tags		Cable Harvest		Leave Tree Area
	Timber Type Change				Traverse Point
	Leave Tree Tags				



# LOGGING PLAN MAP

**SALE NAME:** WOLVERINE  
**AGREEMENT#:** None  
**TOWNSHIP(S):** T13R5W  
**TRUST(S):** Common School and Indemnity (3), State Forest Transfer (1)

**REGION:** Pacific Cascade Region  
**COUNTY(S):** Lewis  
**ELEVATION RGE:** 480-840



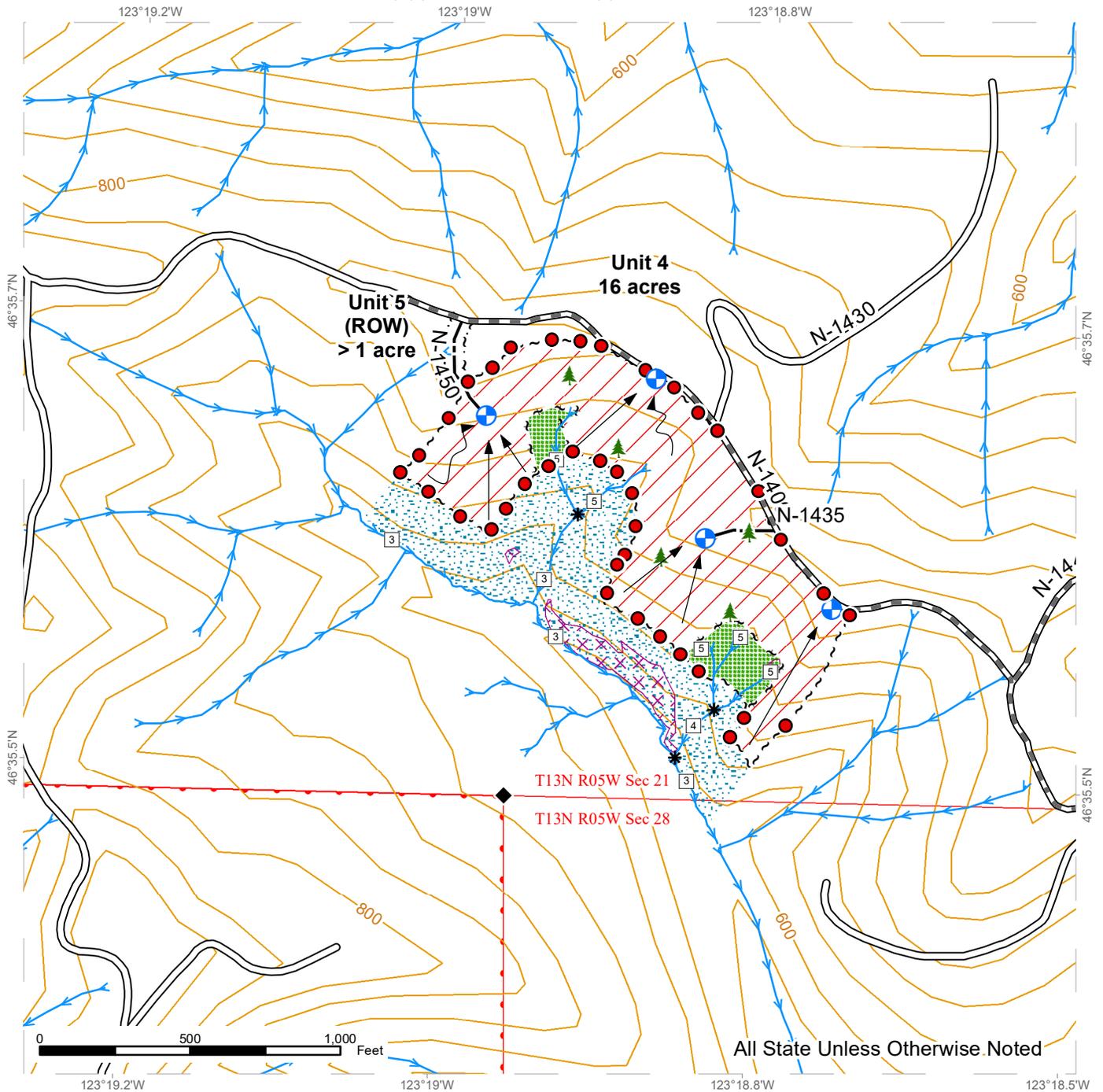
	Leave Tree Area		Right of Way Tags		Streams
	Riparian Mgt Zone		Property Line		Survey Monument
	Potentially Unstable Slopes		Existing Roads		Stream Type
	DNR Managed Lands		Required Pre-Haul Maintenance		Stream Type Break
	Sale Boundary Tags		Optional Construction		Landing - Proposed
	Timber Type Change		Ground Harvest		Leave Tree Area
	Leave Tree Tags		Cable Harvest		Traverse Point



# LOGGING PLAN MAP

**SALE NAME:** WOLVERINE  
**AGREEMENT#:** None  
**TOWNSHIP(S):** T13R5W  
**TRUST(S):** Common School and Indemnity (3), State Forest Transfer (1)

**REGION:** Pacific Cascade Region  
**COUNTY(S):** Lewis  
**ELEVATION RGE:** 480-840



All State Unless Otherwise Noted

	Leave Tree Area		Right of Way Tags		Streams
	Riparian Mgt Zone		Property Line		Survey Monument
	Potentially Unstable Slopes		Existing Roads		Stream Type
	DNR Managed Lands		Required Pre-Haul Maintenance		Stream Type Break
	Sale Boundary Tags		Optional Construction		Landing - Proposed
	Timber Type Change		Ground Harvest		Leave Tree Area
	Leave Tree Tags		Cable Harvest		Traverse Point



## EASEMENT

THIS AGREEMENT, made and entered into this 10<sup>th</sup> day of July, 1980, by and between HEMPHILL-O'NEILL LUMBER COMPANY, INC., a Washington corporation, and HENRY M. DATE and MARY J. DATE, husband and wife, herein called "Hemphill-O'Neill," and STATE OF WASHINGTON, acting by and through the Department of Natural Resources, herein called "State," WITNESSETH:

## I

A. Hemphill-O'Neill for and in consideration of an amount hereinafter identified for cost shared road and the grant hereinafter made by State, hereby grants and conveys to State, its successors and assigns, a permanent easement upon, over, and along rights of way sixty (60) feet in width, over and across portions of the NE $\frac{1}{4}$ SE $\frac{1}{4}$ , S $\frac{1}{2}$ SE $\frac{1}{4}$ , Section 22; NW $\frac{1}{4}$ NE $\frac{1}{4}$ , Section 27, Township 13 North, Range 5 West, W.M., in Lewis County, Washington, being thirty (30) feet on each side of the centerline of a road or roads located approximately as shown in red on the attached "Exhibit A."

Subject as to said lands to all matters of public record.

B. Hemphill-O'Neill for and in consideration of the grant hereinafter made by State, hereby grants and conveys to State, its successors and assigns, a permanent easement upon, over, and along rights of way sixty (60) feet in width, over and across portions of the W $\frac{1}{2}$ E $\frac{1}{2}$ , Section 36, Township 13 North, Range 5 West; SW $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ SW $\frac{1}{4}$ , Section 9, Township 13 North, Range 4 West, W.M., in Lewis County, Washington, being thirty (30) feet on each side of the centerlines of a road or roads located approximately as shown in red on the attached "Exhibit B and C."

Subject as to said lands to all matters of public record.

C. State, for and in consideration of Thirty Three Thousand Two Hundred Nineteen and No/100 Dollars (\$33,219.00) for right of way timber and the grant hereinabove made, hereby grants and conveys to Hemphill-O'Neill, its successors and assigns, a permanent easement upon, over, and along rights of way sixty (60) feet in width over and across portions of the W $\frac{1}{2}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$ , Section 22; N $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ NW $\frac{1}{4}$ , Section 27, Township 13 North, Range 5 West, W.M., in Lewis County, Washington, being thirty (30) feet on each side of the centerline of a road or roads located approximately as shown in green on the attached "Exhibit A."

Subject as to said lands to all matters of public record, including the rights granted to the State in a Quitclaim Deed by Milwaukee Land Company, dated June 14, 1967, and recorded in the records of Lewis County, Washington on the 5th day of July, 1967, in Volume 453 of Deeds, pages 209-210, under Auditor's File No. 712722.

D. State, for and in consideration of the grant hereinabove made, hereby grants and conveys to Hemphill-O'Neill, its successors and assigns, a permanent easement upon, over, and along rights of way sixty (60) feet in width over and across SE $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$ , Section 36, Township 13 North, Range 5 West, W.M., in Lewis County, Washington, being thirty (30) feet on each side of the centerline of a road or roads located approximately as shown in green on the attached "Exhibit B."

Subject as to said lands to all matters of public record.

## II

The parties hereto hereby agree that the rights hereinabove granted by one party hereto to the other shall be subject to the following terms and conditions:

1. The easements are conveyed for the purpose of construction, reconstruction, use and maintenance of a road or roads for the purpose of hauling forest products and other valuable materials from lands now owned or hereafter acquired by the parties hereto, and to provide access to said lands for land management and administrative activities.

It is mutually agreed by the parties hereto that Hemphill-O'Neill will construct the road shown in red and green on Exhibit A in accordance with the agreed upon road construction specifications, filed with the parties in their respective offices at Chehalis, Washington.

Provided, however, thirty (30) days prior to any construction, reconstruction, and/or betterment of said roads by either party on lands of the other party, the initiating party will submit to the land owning party a written request for joint review of the proposed project, upon completion of which the initiating party will submit a complete and detailed plan of operations. Each party's operations, specified herein shall be conducted in accordance with the provisions of the approved plan of operations. Said parties shall provide the other party the right of examination of the right of way before any construction, reconstruction, or development is commenced.

2. Each party hereto reserves for itself, its successors and assigns, the right at all times for any purpose, to cross and recross at any place on grade or otherwise on its own lands, and to use the rights of way, as shown on Exhibit A, in a manner that will not unreasonably interfere with the rights granted herein.

Each party further reserves to itself, its successors and assigns and permittees, the right to use, maintain, patrol, reconstruct and repair said roads, as shown on Exhibits B and C, for any and all purposes, provided that use for the hauling of timber or other valuable materials shall be initiated by serving notice to the other party acknowledging such use shall be predicated on the basis of sharing in the value of the road. Each party agrees that upon receipt of this notice of intent the parties shall mutually agree as to their respective percentage of the total use and the then replacement value of the roadway or other such facility. Each party shall pay, or cause to be paid, its share of the roadway or facility being considered.

3. Each party hereto may grant to third parties, upon such terms as it chooses, on its own lands, any or all of the rights reserved by it herein; provided, that use by such party shall be subject to the terms and conditions of this agreement and shall not unreasonably interfere with the rights granted to the other party herein.

4. Each party hereto may permit its respective agents, contractors, licensees, lessees, purchasers of timber or other valuable materials, and their agents, hereinafter individually referred to as "Permittee" and collectively referred to as "Permittees," to exercise the rights granted to it herein; provided, that when a party hereto or one of its Permittees plans to use any portion of said roads for the purpose of hauling timber or other valuable materials, such party shall notify the other thereof at least fifteen (15) days prior to the commencement of use of said rights, advising of the portion of road to be used, the approximate dates when such use will begin and end, and of the approximate volumes of forest products or valuable materials to be hauled and forthwith upon the completion of such use notify the other party thereof.

5. The cost of road maintenance and resurfacing shall be allocated on the basis of respective uses of said roads. When any party uses a road, that party shall perform or cause to be performed, or contribute or cause to be contributed, that share of maintenance and resurfacing occasioned by such use as hereinafter provided. During periods when a road is being used solely by one party, such party shall maintain that portion of said road so used to the standards existing at the time use is commenced. During periods when more than one party is using the same road, or any portion thereof, the parties hereto shall meet and establish necessary maintenance provisions. Such provisions shall include, but shall not be limited to:

(a) The appointment of a maintainer, which may be one of the parties hereto or any third party, who will perform or cause to be performed at a reasonable and agreed upon rate the maintenance and resurfacing of the road or the portion thereof being used; and

(b) A method of payment by which each party using said road or a portion thereof, shall pay its pro rata share of the cost incurred by said maintainer in maintaining or resurfacing said road or portion thereof.

For purposes of this agreement, maintenance is defined as the work normally necessary to preserve and keep the roadway, road structure and road facilities as nearly as possible in their present condition or as hereafter improved.

6. Each party using any portion of a road shall repair, or cause to be repaired, at its sole cost and expense, that damage to said road occasioned by it which is in excess of that which it would cause through normal and prudent usage of said road. Should inordinate damage to a road occur which is not caused by an authorized user of said road, the parties hereto shall meet to agree upon the cost of replacement, the party to undertake the replacement, and the shares of replacement cost to be borne by each user of said road.

7. Unless the parties hereto agree in writing to share the costs of improvements in advance of such improvements being made, such improvements shall be solely for the account of the improver.

8. Each party hereto reserves to itself all timber now on or hereafter growing within the rights of way on its said lands.

9. Each party hereto shall require each of its Permittees, before using any of said roads on the lands of the other party hereto for commercial purposes, to:

(a) Obtain and during the term of such use, maintain a policy of liability insurance in a form generally acceptable in the trade and customary in the area of said rights of way, insuring said Permittee against liability arising out of its operations, including use of vehicles. Minimum amounts of insurance shall be:

(1) For log haulers, and other miscellaneous users operating heavy trucks (over one (1) ton), Two Hundred Fifty Thousand Dollars (\$250,000.00) for injury to one person, Five Hundred Thousand Dollars (\$500,000.00) for any one occurrence, and Two Hundred Fifty Thousand Dollars (\$250,000.00) property damage for any one occurrence;

(2) For fern cutters, bough cutters, shake cutters, or other miscellaneous users operating pickup trucks, light trucks (under one (1) ton) or passenger cars for the purpose of transporting miscellaneous forest products, One Hundred Thousand Dollars (\$100,000.00) for injury to one person, Three Hundred Thousand Dollars (\$300,000.00) for any one occurrence, and One Hundred Thousand Dollars (\$100,000.00) property damage for any one occurrence; or

(3) Such other limits as the parties hereto may agree upon in writing from time to time.

(b) Deliver to each party hereto a certificate from the insurer of said Permittee certifying that coverage in not less than the above named amounts is in force and that, in the event of cancellation or modification of such coverage, the insurer will give each party hereto ten (10) days written notice prior to any cancellation or modification.

10. All obligations under this easement which involve the expenditure of funds by the State shall be subject to the availability of such appropriated funds.

11. The parties hereto hereby agree that the State shall pay to Hemphill-O'Neill for its share of the cost shared road as shown on Exhibit A, an amount equal to 88% of the actual construction cost not to exceed \$119,380.00. Payment of the State share shall be subject to the terms of the agreement between the State and Hemphill-O'Neill dated May 2, 1980, on file in their respective offices at Chehalis, Washington.

IN WITNESS WHEREOF, the parties hereto have executed this instrument, in duplicate, to become effective as of the day and year first above written.

HEMPHILL-O'NEILL LUMBER COMPANY, INC.

By *Robert H. O'Neill*  
President Title

Attest *Walter M. Brown*  
Vice-President Title

*Henry M. Date*  
HENRY M. DATE

*Mary J. Date*  
MARY J. DATE



Affix Seal of Corporation

STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES

By *Bert L. Cole*  
*Beverly K. Kuriki, Adm Asst*  
BERT L. COLE  
Commissioner of Public Lands

Affix Seal of Commissioner  
of Public Lands

App. No. E-1296  
mja

PROOF READ *Diagles*

*Walter Little*  
7/19/80

STATE OF WASHINGTON )  
 ) ss  
County of Lewis )

On this 7th day of July, 19 80, before me personally appeared Robert H. O'Neill and Wm. M. Blum, to me known to be the President and Vice President, respectively, of EMPHILL-O'NEILL LUMBER COMPANY, INC., the corporation that executed the within and foregoing instrument, and acknowledged said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that they were authorized to execute said instrument and that the seal affixed is the corporate seal of said corporation.

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



Betty R. Brodie  
Notary Public in and for the State of Washington, residing at Centralia

STATE OF WASHINGTON )  
 ) ss  
County of Lewis )

On this day personally appeared before me Henry M. Date and Mary I. Date, to me known to be the individual s described in and who executed the within and foregoing instrument and acknowledged the same as their free and voluntary act and conveyance for the uses and purposes therein mentioned.

Given under my hand and official seal this 7th day of July, 19 80.



Betty R. Brodie  
Notary Public in and for the State of Washington, residing at Centralia

STATE OF WASHINGTON )  
 ) ss  
COUNTY OF THURSTON )

On this \_\_\_\_\_ day of \_\_\_\_\_, 19 \_\_\_\_\_, before me personally appeared BERT L. COLE, to me known to be the Commissioner of Public Lands, and ex officio administrator of the Department of Natural Resources of the State of Washington, the Department that executed the within and foregoing instrument on behalf of the State of Washington, and acknowledged said instrument to be the free and voluntary act and deed of the State of Washington for the uses and purposes therein mentioned, and on oath stated that he was authorized to execute said instrument and that the seal affixed is the official seal of the Commissioner of Public Lands for the State of Washington.

IN WITNESS WHEREOF, I have hereunto set my hand and seal the day and year set forth above.

\_\_\_\_\_  
Notary Public in and for the State of Washington, residing at Olympia.

STATE OF WASHINGTON )  
 ) ss  
COUNTY OF THURSTON )

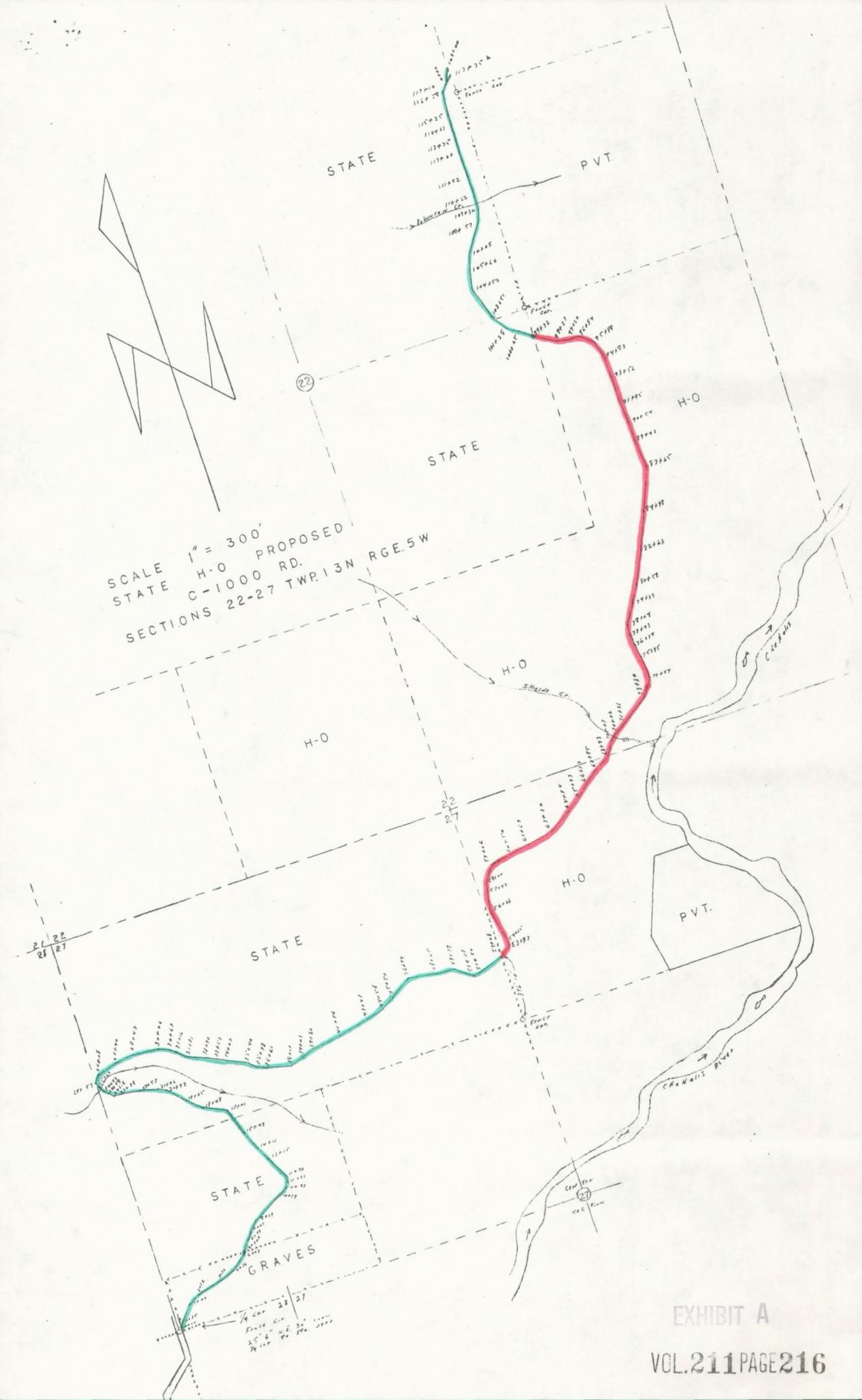
On this 11<sup>th</sup> day of July, 19 80, before me personally appeared BEVERLY R. KIUCHI, to me known to have signature authorization delegated to her to sign for BERT L. COLE, the Commissioner of Public Lands, and ex officio administrator of the Department of Natural Resources of the State of Washington, the Department that executed the within and foregoing instrument on behalf of the State of Washington, and acknowledged said instrument to be the free and voluntary act and deed of the State of Washington for the uses and purposes therein mentioned, and on oath stated that she was authorized to execute said instrument and that the seal affixed is the official seal of the Commissioner of Public Lands for the State of Washington.

IN WITNESS WHEREOF, I have hereunto set my hand and seal the day and year set forth above.

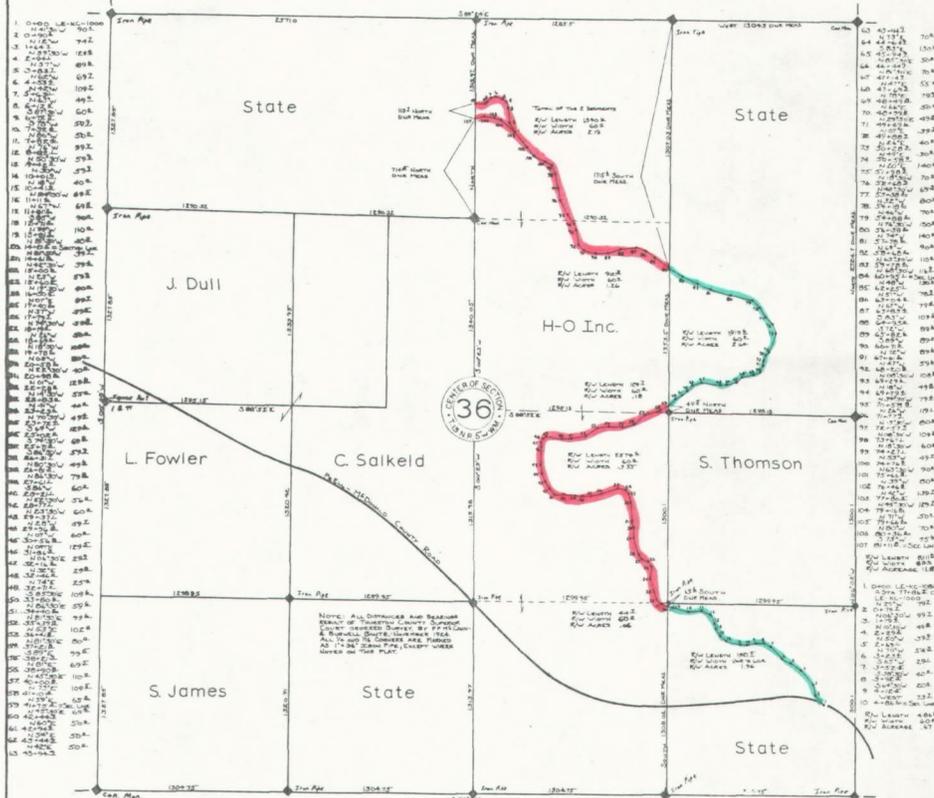


Nancy L. Janison  
Notary Public in and for the State of  
Washington, residing at Olympia.

SCALE 1" = 300'  
 STATE H-O PROPOSED  
 STATE C-1000 RD.  
 SECTIONS 22-27 TWP. 13N RGE. 5W



STATE OF WASHINGTON  
 DEPARTMENT OF NATURAL RESOURCES  
 RIGHT OF WAY PLAT  
 LE-KC-1000  
 LE-KC-1080 ROAD  
 SEC. 36 T.13 N. R.5 W. W.M.  
 LEWIS COUNTY, WASH.  
 SCALE 1 INCH = 400 FEET



DECLINATION 21°E  
 TRAVERSED BY: L.S.-J.R.  
 DRAWN BY: SCS  
 DATE 6-17-77  
 APPLICATION NUMBER  
 APPROVED:  
 AREA ENGINEER *E.L.A.*  
 DIVISION, OLYMPIA *Sam*

WILLIAM MURDOCK, SUPERVISOR, DIVISION OF ENGINEERING, DO  
 HEREBY CERTIFY THAT THIS MAP ACCURATELY REPRESENTS THE  
 LOCATION OF SAID ACCESS ROAD ACROSS SECTION 36 TOWNSHIP  
 13 NORTH, RANGE 5W WILLAMETTE MERIDIAN  
*William J. Murdock*  
 SUPERVISOR DIVISION OF ENGINEERING  
 05-77

EXHIBIT B

STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES  
BERT L. COLE, Commissioner of Public Lands

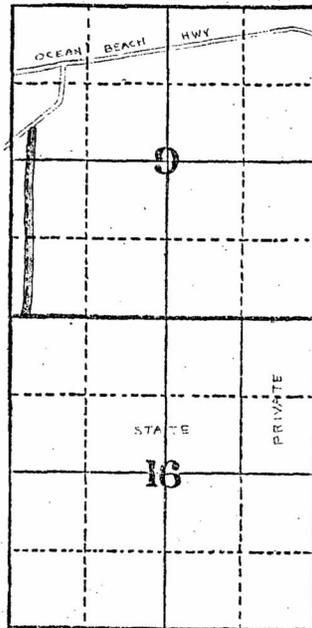
Application No. ....

County LEWIS

Name of Sale .....

District LEWIS

TOWNSHIP 13 NORTH, RANGE 4 (W.) W.M.



RECORDED FILED VOL PAGE  
 200 JUN 18 AM 10:00  
*State of WA*  
*W. R. ...*  
 WASHINGTON AUDITOR  
*98504*

SCALE: 2" = 1 mile

Drawn By: W.L.

Date: 5-8-80

LEGEND

PROPOSED ROAD - - - - -

712722  
QUIT CLAIM DEED

WHEREAS, The Milwaukee Land Company, an Iowa corporation, on the 20th day of February, 1956, conveyed by Quit Claim Deed, filed as Lewis County, Washington, Auditor's No. 562202 in Volume 383 of Deeds, at page 420, the following described lands to RAY GRAVES:

South half of the south half of the southwest quarter of the northwest quarter (S $\frac{1}{2}$  S $\frac{1}{2}$  SW $\frac{1}{4}$  NW $\frac{1}{4}$ ), Section 27, Township 13 North, Range 5 West, W.M. situated in Lewis County, Washington,

and

WHEREAS, In said quit claim deed the said Milwaukee Land Company expressly saved, excepted, and reserved to itself, its successors and assigns, all rights to minerals and fossils, including coal, natural gas and oil which may be in or upon said lands, together with full rights of exploration and extraction, and

WHEREAS, The said Milwaukee Land Company further expressly reserved unto itself, its successors, assigns, and permittees, a perpetual easement and right to maintain, improve, repair, use and operate over a then existing logging road as then located upon and across the said lands extending from the southwest corner thereof in a generally northeasterly direction to the northern boundary thereof;

NOW THEREFORE, The Milwaukee Land Company, an Iowa corporation, for and in consideration of Ten Dollars (\$10.00) receipt of which is hereby acknowledged, conveys and quit claims to the State of Washington, acting by and through the Department of Natural Resources, all of its right, title, and interest in and to said perpetual easement for a logging road upon and over the said:

South half of the south half of the southwest quarter of the northwest quarter (S $\frac{1}{2}$  S $\frac{1}{2}$  SW $\frac{1}{4}$  NW $\frac{1}{4}$ ), Section 27, Township 13 North, Range 5 West, W.M., situated in Lewis County, Washington.

SUBJECT to said reservation of mineral rights as contained in said quit claim deed, dated the 20th day of February 1956, to Ray Graves, and the Grantor further reserves to itself, its successors and assigns, the right to use said roadway for the purpose of exploring for and removing minerals pursuant to said reservation of mineral rights.

IN WITNESS WHEREOF, the grantor has executed this instrument this 14th day of June, 1967.

MILWAUKEE LAND COMPANY

By *C. E. Snipper*  
President

ATTEST:

*J. P. ...*  
Secretary

