



TIMBER NOTICE OF SALE

SALE NAME: BRUSHCRASHER VRH VDT RMZ WMZ AGREEMENT NO: 30-98288

AUCTION: March 25, 2020 starting at 10:00 a.m., COUNTY: Snohomish Northwest Region Office, Sedro Woolley, WA

SALE LOCATION: Sale located approximately 3 miles northeast of Gold Bar, WA.

PRODUCTS SOLD AND SALE AREA:

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

All timber as described for removal in Schedule B, bounded by white timber sale boundary tags, WF-87 and blue special management tags within Units #1B and #1C.

All timber bounded by orange right of way tags, except that title to the timber within the right of way tags is not conveyed to the Purchaser unless the road segment is actually constructed, except as described in Schedule B.

The above described products on part(s) of Sections 21 and 28 all in Township 28 North, Range 9 East, W.M., containing 209 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:

Table with columns: Species, Avg DBH, Ring Count, Total MBF, Total \$/MBF, and MBF by Grade (1P, 2P, 3P, SM, 1S, 2S, 3S, 4S, UT). Rows include Hemlock, Douglas fir, Red cedar, Red alder, Silver fir, and Sale Total.

MINIMUM BID: \$320/MBF (est. value \$1,198,000.00) BID METHOD: Sealed Bids

PERFORMANCE SECURITY: \$100,000.00 SALE TYPE: MBF Scale

EXPIRATION DATE: March 31, 2022 ALLOCATION: Export Restricted

BIDDABLE SPECIES: Douglas fir

BID DEPOSIT: \$119,800.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Cable OR tethered equipment (See H-141 for restrictions); shovel, feller-buncher or tracked skidder (See H-141 for restrictions) on sustained slopes 35% or less; self-leveling equipment on sustained slopes 50% or less; Falling and Yarding will not be permitted



TIMBER NOTICE OF SALE

from November 1 to March 31 unless authorized in writing by the Contract Administrator (THIS PERTAINS TO GROUND-BASED EQUIPMENT ONLY) to reduce soil damage and erosion.

Additional restrictions apply, see Remarks section below.

ROADS:

27.68 stations of required construction. 57.60 stations of optional construction. 14.30 stations of optional reconstruction. 455.50 stations of required prehaul maintenance. 40.30 stations of optional prehaul maintenance. 30.80 stations of abandonment. 46.78 stations of abandonment, if built. Rock may be obtained from the following source on State land at no charge to the Purchaser: WF-85 Pit at station 449+20 of the WF-ML Road.

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

An estimated total quantity of rock needed for this proposal: 244 cubic yards of riprap and 9,550 cubic yards of ballast rock.

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

ACREAGE DETERMINATION

CRUISE METHOD: Acres determined by GPS traverse. Cruise was conducted via variable and fixed plot sample type. See Cruise Narrative for further details. Shapefiles of units are available upon request after the BNR meeting in which the sale is presented.

FEES: \$89,131.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

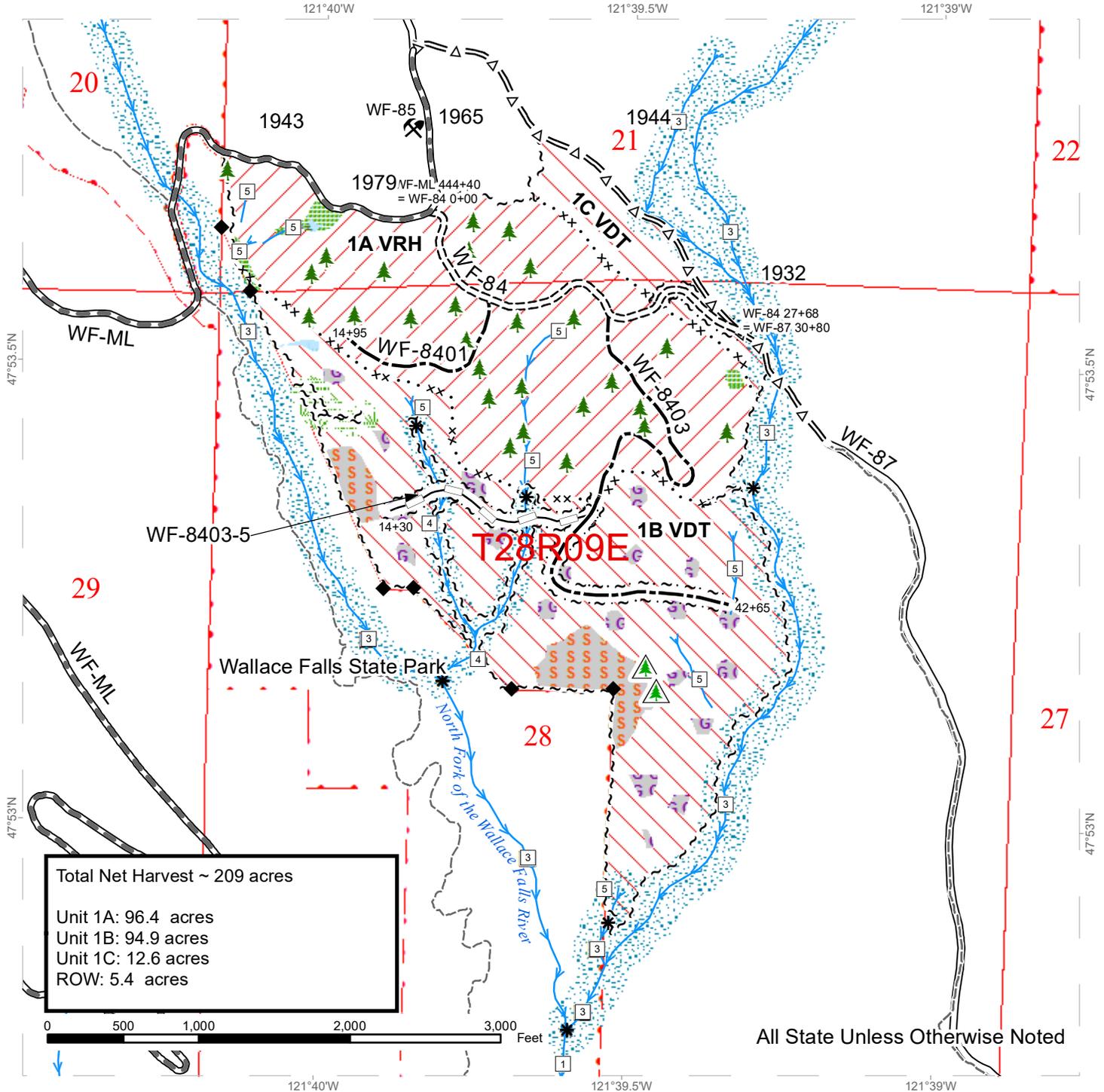
SPECIAL REMARKS:

1. BARK SLIPPAGE: Cutting and yarding within the Variable Density Thinning areas shall not be permitted during the bark slippage season, unless authorized in writing by the Contract Administrator. This season is estimated to run from April 1 to July 15, but shall vary dependent on weather conditions. If permission is granted to operate during the bark slippage season, the Purchaser shall be required to provide a plan outlining mitigation measures.
2. Unit 1B has a component of required uphill cable thinning (see H-141). The rest of the sale is intended to be harvested with ground-based equipment.
3. Intermediate support locations must be designated by the Purchaser and approved by the Contract Administrator prior to harvest.
4. A portion of Unit 1A (VRH) was previously thinned.
5. SkylineXL profiles are available at the Northwest Region office upon request.
6. A temporary blockage of the first 400 feet of the WF-ML is likely to occur during the life of the timber sale contract. The blockage is to replace two culverts with bridges and will likely occur during the fish window in either 2020 or 2021. Contact the DNR Northwest Region timber sales office for additional information.
7. HQ DF noted within the sale area. See cruise for further details (approximately 263 mbf of the above listed DF 2S is deemed high quality by the Department).
8. Douglas-fir and redcedar poles were noted within the sale area.

TIMBER SALE MAP

SALE NAME: BRUSHCRASHER VRH VDT RMZ WMZ
AGREEMENT #: 30-098288
TOWNSHIP(S): T28R9E
TRUST(S): State Forest Transfer (1)

REGION: Northwest Region
COUNTY(S): Snohomish
ELEVATION RGE: 1080-1960



Total Net Harvest ~ 209 acres
 Unit 1A: 96.4 acres
 Unit 1B: 94.9 acres
 Unit 1C: 12.6 acres
 ROW: 5.4 acres

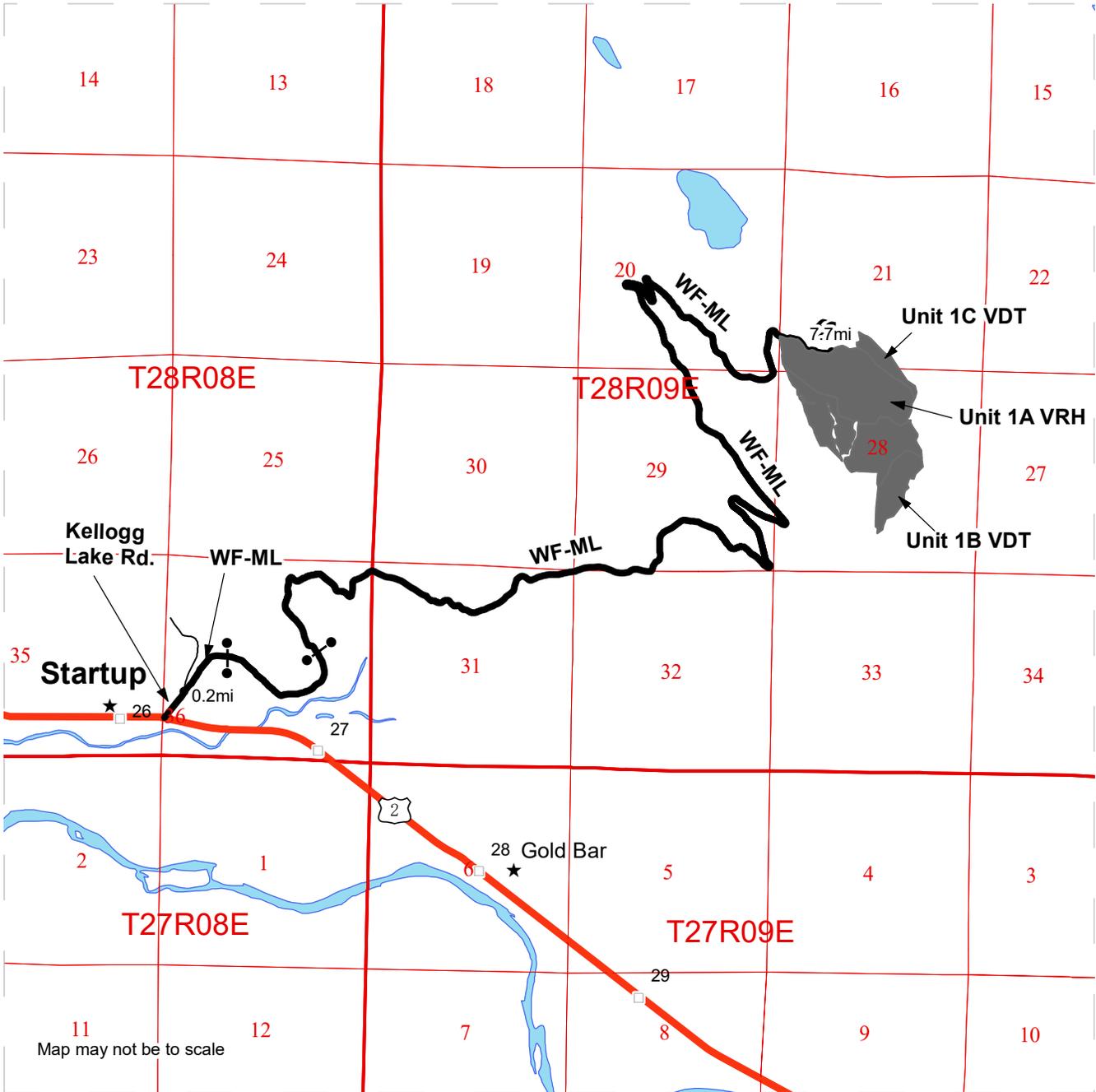
All State Unless Otherwise Noted

	Variable Retention Harvest		Sale Boundary Tags		Streams
	Variable Density Thinning		Special Mgmt Area		Stream Type
	Skip		Right of Way Tags		Stream Type Break
	Gap		Existing Roads		Leave Tree Area <1/4-acre
	Leave Tree Area		Required Pre-Haul Maintenance		Non-Tradeable Leave Trees
	Riparian Mgt Zone		Required Construction		Rock Pit
	Forested Wetland		Optional Pre-Haul Maintenance		Survey Monuments
	Wetland Mgt Zone		Optional Construction		
			Optional Reconstruction		
			Old Grades/Trails		

DRIVING MAP

SALE NAME: BRUSHCRASHER VRH VDT RMZ WMZ
AGREEMENT#: 30-098288
TOWNSHIP(S): T28R9E
TRUST(S): State Forest Transfer (1)

REGION: Northwest Region
COUNTY(S): Snohomish
ELEVATION RGE: 1080-1960



	Timber Sale Unit
	Haul Route
	Other Road
	Distance Indicator
	Gate
	Highway
	Rock Pit
	Town

DRIVING DIRECTIONS:

From Startup, WA travel .2 miles east on Hwy 2 to Kellogg Lake Rd.
 Turn left onto Kellogg Lake Rd.
 Continue .2 miles then take the first slight right onto the WF-ML.
 Stay on the WF-ML until the 7.5 mile marker which is across the road from the sale boundary.
 An F1-3 key is required to open two gates along the WF-ML.



**STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES**

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

Export Restricted MBF Scale AGREEMENT NO. 30-098288

SALE NAME: BRUSHCRASHER VRH VDT RMZ WMZ

**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-010 Products Sold and Sale Area

Purchaser was the successful bidder on March 25, 2020 and the sale was confirmed on _____. The State, as owner, agrees to sell to Purchaser, and Purchaser agrees to purchase, cut, and remove the following forest products: All timber bounded by white timber sale boundary tags, blue special management tags and the WF-ML Road, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar and forest products tagged out by yellow leave tree area tags in Unit #1A.

All timber as described for removal in Schedule B, bounded by white timber sale boundary tags, WF-87 and blue special management tags within Units #1B and #1C.

All timber bounded by orange right of way tags, except that title to the timber within the right of way tags is not conveyed to the Purchaser unless the road segment is actually constructed, except as described in Schedule B.

The above described products, located on approximately 209 acres on part(s) of Sections 21, and 28 all in Township 28 North, Range 9 East W.M. in Snohomish County(s) as shown on the attached timber sale map and as designated on the sale area.

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

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

G-020 Inspection By Purchaser

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

G-025 Schedules

The following attached schedules are hereby incorporated by reference:

Schedule	Title
B	Thinning Prescription

G-030 Contract Term

Purchaser shall remove the forest products conveyed and complete all work required by this contract prior to March 31, 2022.

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-050 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 contract value based on the contract payment rate and advertised volume.

For the second extension, not to exceed 1 year, payment of at least 90 percent of the contract value based on the contract payment rate base and advertised volume.

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 timber value of the contract.

To determine the unpaid portion of the contract, multiply the contract payment rate for each item by the remaining volume for each item based on the volumes from the Timber Notice of Sale. In addition, all cash deposits that can be used for timber payments, except the initial deposit, will be deducted from the unpaid portion of the contract.

- e. Payment of \$16.00 per acre per annum for the acres on which an operating release has not been issued Variable Retention Harvest (VRH) areas. Payment of \$3.00 per acre per annum for the acres on which an operating release has not been issued in Variable Density Thinning (VDT) areas.
- 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-090 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, added forest products become a part of this contract and shall be paid for at the same rate and manner as other forest products under this contract.

G-100 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 shall be paid for at the same rate and manner as other forest products under this contract.

G-105 Adding Naturally Damaged Forest Products

Any forest products not designated for removal that are seriously damaged by disease, insects or wind, or that may contribute seriously to the spread of insect or disease damage may be added to this sale by the Contract Administrator. Additions must be in unlogged areas of the sale and added volume shall not exceed an amount equal to 10 percent of the original advertised volume. Added forest products become a part of this contract and shall be paid for at the same rate and manner as other forest products under this contract.

G-110 Title and Risk of Loss

Title to the forest products conveyed passes at confirmation of the sale. Purchaser bears the risk of loss of or damage to and has an insurable interest in the forest products in this contract from the time of confirmation of the sale of forest products. In the event of loss of or damage to the forest products after passage of title, whether the

cause is foreseeable or unforeseeable, the forest products shall be paid for by Purchaser. Breach of this contract shall have no effect on this provision. Title to the forest products not removed from the sale area within the period specified in this contract shall revert to the State as provided in RCW 79.15.100.

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 Sedro Woolley, Washington. The Region Manager will notify Purchaser in writing who is responsible for administering the contract. The Region Manager has sole authority to

waive, modify, or amend the terms of this contract in the manner prescribed in clause G-180. No agent, employee, or representative of the State has any authority to bind the State to any affirmation, representation, or warranty concerning the forest products conveyed beyond the terms of this contract.

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

G-170 Assignment and Delegation

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

G-180 Modifications

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

G-190 Contract Complete

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

G-200 Notice

Notices required to be given under the following clauses shall be in writing and shall be delivered to Purchaser's authorized agent or sent by certified mail to Purchaser's 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; WF-ML, WF-84, WF-8401, WF-8403, WF-8403-05, WF-87. The State may authorize in writing the use of other roads subject to fees, restrictions, and prior rights.

G-330 Pre-work Conference

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

G-340 Preservation of Markers

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

G-360 Road Use Reservation

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

G-370 Blocking Roads

Purchaser shall not block the WF-ML, WF-87, WF-84 roads, unless authority is granted in writing by the Contract Administrator.

G-380 Road Easement and Road Use Permit Requirements

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

Easements with:

Clarence J. and Hazel M. Mertz; #55-002345; dated October 7, 1989.
Port Blakely; #55-002451; dated March 30, 1993.

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:

Easement, including the terms and provisions thereof,
For: Road
In Favor of: Washington State Parks & Recreation Commission
Disclosed by Application No.: 50-092007
Granted: 10/30/2015
Expires: Indefinite

Easement, including the terms and provisions thereof,
For: Road Use Permit
In Favor of: Weyerhaeuser NR Company, Cascade H & A, LLC
Disclosed by Application No.: 50-095453
Granted: 6/11/2018
Expires: 10/31/2022

Lease, including the terms and provisions thereof,
For: Recreation
In Favor of: State of Washington
Disclosed by Application No.: 59-088686
Granted: 2/9/2012
Expires: 2/8/2047

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

Section P: Payments and Securities

P-010 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 the 'Payment for Forest Products' clause, 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-021 Payment for Forest Products

Purchaser agrees to pay the following rates per MBF Scribner net log scale for forest products conveyed and cut or removed from the sale area plus \$89,131.00 on day of sale and \$9.00 per MBF upon removal in fees. Fees collected shall be retained by the state unless the contract is adjusted via the G-066 clause.

DATA MISSING

Species that are conveyed but are not listed in the table above shall be paid for at a rate to be determined by the State.

Utility logs, special cull and peelable cull logs of all species, included on loads of logs that are required to be removed and scaled per clause H-150 will be paid for on an adjusted gross scale basis at the rate of \$20.00 per MBF plus fees.

P-027 Payment for Removal of Optional Forest Products

Purchaser agrees to weigh all loads and pay the rate of \$2.00 per ton for forest products approved for removal from the sale area under clause H-157.

P-040 Weighing and Scaling Costs

Purchaser agrees to pay for all scaling and weighing costs for logs and other products sold under this contract. Purchaser also agrees to pay for all costs associated with the transmission and reporting of scale or weight data.

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-052 Payment Procedure

If a third party Log and Load Reporting Service (LLRS) is required by this contract the State will compute and forward to the Purchaser statements of charges provided for in the contract. Purchaser shall deliver payment to the Northwest region office on or before the date shown on the billing statement.

If a third party LLRS is not required by this contract, Purchaser shall pay for forest products removed on a monthly basis. Payments will be submitted to the Northwest region office on or before the fourteenth of the month following the month in which the timber was removed or, according to an alternate payment schedule as approved by the State with at least one payment each month for timber removed. The alternate payment

schedule, once approved by the State, shall become part of this contract and may be changed only with written approval of the State.

Payment will be based on the contract rate multiplied by the tons (tonnage contracts) or volume (mbf contracts) removed during the month or payment period. Included with the payment will be a summary report along with all related load tickets and the corresponding certified weight tickets for the payment period. The summary report will be generated using a computer spreadsheet and list the load tickets in ascending numerical order with the corresponding ticket number and weight or volume for each load.

P-070 Payment for Products: Damage, Theft, Loss, or Mismanufacture

Forest products included in this agreement which are destroyed, damaged, stolen, lost, or mismanufactured shall be paid for by Purchaser on demand of the State. The rates contained in clause P-021 shall apply.

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 L: Log Definitions and Accountability

L-010 Forest Products Conveyed

Forest products conveyed are all logs or parts of logs described by the 'Products Sold and Sale Area' (G-010) clause meeting the removal requirements listed in the 'Required Removal of Forest Products' (H-150) clause.

L-020 Short Logs - Peeler Blocks

Logs or parts of logs which are removed from the sale area that fail to meet the minimum gross length requirements shall be scaled and graded as short logs or peeler blocks. Such material shall be paid for at the forest products rates specified in this contract.

L-060 Load Tickets

Purchaser shall complete and use load tickets as directed by the Contract Administrator and, if required, use other identification as directed by the State to ensure accounting of forest products removed from the sale area. A load ticket must be fixed, as designated by the Contract Administrator, to each truck and trailer load prior to leaving the landing.

Purchaser shall account for all load tickets issued by the Contract Administrator and return unused tickets at termination of the contract, or as otherwise required by the Contract Administrator. Unused tickets not returned shall be subject to liquidated damages per clause D-030.

The State may also treat load tickets either not accounted for or not returned as lost forest products per clause P-070. All costs associated with computing the billings for lost forest products shall be borne by Purchaser

L-071 Log and Load Reporting Service

This contract requires the use of a State approved third party Log and Load Reporting Service (LLRS). Purchaser shall ensure log volume measurement data and/or load and weight data is received by the LLRS within DATA MISSING of logs being measured or weighed. Purchaser agrees to pay the LLRS for log and load data supplied to the State.

If during the term of this contract, the State discontinues use of the LLRS, the State will notify the Purchaser in writing and the Purchaser will then be responsible to send log scale and/or weight information to the State.

L-080 Scaling Rules

Determination of volume and grade of any forest products shall be conducted by a state approved third party scaling organization and in accordance with the Westside log scaling and grading rules and Scribner Volume Table, revised July 1, 1972, contained in the Northwest Log Rules Eastside and Westside Log Scaling Handbook (developed and produced by the Northwest Log Rules Advisory Group) and in effect on the date of confirmation of this contract.

Special scaling specifications shall be noted on the State's Brand Designation form which is hereby incorporated to this contract by reference.

L-110 State Approval of Log Scaling and Weighing Locations

Forest Product measurement and weighing facilities required by this contract must be approved by the State. Forest products sold under the contract which require log scaling shall be scaled, measured, or counted by a State approved third party log scaling organization. Forest products sold under the contract which require weighing shall be weighed at a location that meets Washington State Department of Agriculture approval.

Prior to forest products being hauled, the Contract Administrator must authorize in writing the use of State approved measurement and/or weighing facilities that are at or en-route to final destinations. Forest products from this sale shall be measured or weighed at facilities, which are currently approved for use by the State and are currently authorized for this sale. The State reserves the right to verify load volume and weights with State employees or contractors at the State's own expense. The State reserves the right to revoke the authorization of previously approved measurement locations.

L-120 Long Log Taper Distribution

Forest products over 40 feet long plus trim shall be segment scaled and the lower segment diameters shall be determined using actual taper. In order to utilize taper rules for determining segment diameters for poles and pilings greater than 40 feet in length plus trim, Purchaser must request use of a Pole and Piling Scaling Specification Agreement on file in the region office. Approval for usage of a special Pole and Piling Scaling Specification Agreement may be granted at the sole discretion of the State.

Following State approval for usage of the Pole and Piling Scaling Specification Agreement, the Brand Designation form shall be amended to incorporate the long log taper rules. The volume reported by the scaling organization for forest products over 40 feet plus trim will be expanded by 5 percent and the additional 5 percent volume shall be billed to the purchaser at the contract rate.

L-130 Conversion Factors

Forest products removed from the sale area that are not measured in units specified in the 'Payment for Forest Products' clause of this contract shall be converted to board feet using Department of Natural Resources' standard conversion factors.

Section H: Harvesting Operations

H-011 Certification of Fallers and Yarder Operators

All persons engaged in the felling and yarding of timber must receive certification in writing from the Contract Administrator. Certification may be revoked when the Contract Administrator determines that non-compliance of leave tree selection criteria or cut tree selection criteria is occurring, or excessive damage to leave trees or skid trails is occurring.

Excessive damage for leave trees is defined in clause H-012.

Excessive skid trail damage is defined in clause H-015 or H-016.

When leave tree damage exceeds the limits set forth in clause H-012, Purchaser shall be subject to liquidated damages (clause D-040 or D-041).

H-012 Leave Tree Damage Definition

Leave trees are trees required for retention within the sale boundary. Purchaser shall protect leave trees from being cut, damaged, or removed during operations.

Leave tree damage exists when more than 5 percent of the leave trees are damaged in a unit and when one or more of the following criteria occur as a result of Purchaser's operation, as determined by the Contract Administrator:

- a. A leave tree has one or more scars on its trunk exposing the cambium layer, which in total exceeds 20 square inches.
- b. A leave tree top is broken or the live crown ratio is reduced below 30 percent.
- c. A leave 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 leave tree has been cut or damaged, the Purchaser may be required to pay liquidated damages for Excessive Leave Tree Damage as detailed in clause D-040.

H-013 Reserve Tree Damage Definition

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

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

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

If the Contract Administrator determines that a reserve tree has been cut or damaged, the Purchaser shall provide a replacement reserve tree of like condition, size, and species within the sale 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-015 Skid Trail Requirements

A skid trail is defined as an area that is used for more than three passes by any equipment.

Purchaser shall comply with the following during the yarding operation:

- a. Skid trails will not exceed 14 feet in width, including rub trees.
- b. Skid trails shall not cover more than 10 percent of the total acreage on one unit.
- c. Skid trail location will be pre-approved by the Contract Administrator.
- d. Except for rub trees, skid trails shall be felled and yarded prior to the felling of adjacent timber.
- e. Rub trees shall be left standing until all timber tributary to the skid trail has been removed.
- f. Excessive soil damage is not permitted. Excessive soil damage is described in clause H-017.
- g. Skid trails will be water barred at the time of completion of yarding, if required by the Contract Administrator.

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

H-017 Preventing Excessive Soil Disturbance

Operations may be suspended when soil rutting exceeds 8 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-025 Timing Requirements for Timber Removal

All timber must be removed within 60 of being felled.

H-030 Timber Falling

Trees shall be felled and logs shall be bucked to obtain the greatest practicable utilization of forest products and other valuable materials conveyed.

H-035 Fall Trees Into Sale Area

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

H-040 Purchaser Harvest Plan

Purchaser shall, as part of the plan of operations, prepare an acceptable harvest plan for the sale area. The plan shall address the falling, yarding and hauling of forest products, which are part(s) of this contract. The harvest plan shall be approved by the Contract Administrator prior to beginning the harvest operation. Purchaser shall not deviate from the harvest plan without prior written approval by the Contract Administrator.

H-050 Rub Trees

Trees designated for cutting along skid trails and cable corridors shall be left standing as rub trees until all timber that is tributary to the skid trail or cable corridor has been removed.

H-052 Branding and Painting

Forest products shall be branded with a brand furnished by the State prior to removal from the landing. All purchased timber shall be branded in a manner that meets the requirements of WAC 240-15-030(2)(a)(i). All timber purchased under a contract designated as export restricted shall also be painted in a manner that meets the requirements of WAC 240-15-030(2)(a)(ii).

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

H-080 Snags Not to be Felled

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

H-110 Stump Height

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

H-120 Harvesting Equipment

Forest products sold under this contract shall be harvested and removed using cable or tethered equipment (See H-141 for restrictions); shovel, feller-buncher or tracked skidder (See H-141 for restrictions) on sustained slopes 35% or less; self-leveling equipment on sustained slopes 50% or less. 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-130 Hauling Schedule

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

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

A. The following types of equipment are considered ground-based equipment:

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

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

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

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

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

C. When yarding and loading operations are occurring simultaneously, an additional shovel shall be required for loading to avoid extra trips to the landing. Shovel yarding shall not be allowed to create ruts or soil puddling. Shovel routes should be dispersed to prevent creation of definable trails.

D. BARK SLIPPAGE: Cutting and yarding within the Variable Density Thinning areas shall not be permitted during the bark slippage season, unless authorized in writing by the Contract Administrator. This season is estimated to run from April 1 to July 15, but shall vary dependent on weather conditions. If

permission is granted to operate during the bark slippage season, the Purchaser shall be required to provide a plan outlining mitigation measures.

- E. No tops or limbs shall be allowed to accumulate on any landings. Tops and limbs shall be redistributed in the unit to the satisfaction of the Contract Administrator.
- F. Leave trees in Unit 1A that are marked with a single blue band may be exchanged for unmarked trees of similar size and wildlife characteristics upon prior approval by the Contract Administrator.
- G. Maintain a 30-foot equipment limitation zone on either side of all type-5 streams.
- H. Trees shall be felled away from stream channels and any standing water or wet swales when feasible.
- I. Intermediate supports, if necessary for yarding, shall be marked by the Purchaser and approved by the Contract Administrator prior to felling unit timber.
- J. Ground-based yarding shall not exceed 800 feet from any road unless authorized in writing by the Contract Administrator.
- K. Both gates on the WF-ML be closed and locked at the end of each day. Drivers leaving the WF-ML must swing the lower gate closed each time they pass through it.
- L. Any signs or structures that are damaged or moved shall be repaired or replaced at the Purchaser's expense and must be approved by the Contract Administrator.
- M. Purchaser is responsible for all notification signage relating to logging or road construction activity at the Purchaser's expense.

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

H-141 Additional Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

- A. A copy of the timber sale map and contract shall be present on site during active operations.
- B. Unit 1B contains two skips marked with yellow "Leave Tree Area" tags. Trees inside of the skips are not to be harvested and are considered non-tradeable.

- C. Any tree painted with two blue bands are not to be harvested and are considered non-tradeable.
- D. The approximately 28 acre piece of Unit 1B designated as cable thinning as seen on the Logging Plan Map shall be yarded with cable based equipment. Tethered falling equipment and falling with chainsaws are both permitted.
- E. Tailholding, cutting, and/or yarding of trees is not permitted in inner gorge areas along Stream I on the eastern edge of the sale. Suspending cables over inner gorges is allowed as long as no trees in inner gorge areas are significantly damaged by logging activities.
- F. Trees along the property line with Wallace Falls State Park shall be felled into the timber sale area.
- G. Tailholding is not permitted on any tree inside Wallace Falls State Park.
- H. If any portion of a felled tree lands across the property line in Wallace Falls State Park it shall be left where it lies.
- I. Purchaser must obtain prior written approval from the Contract Administrator for areas as to where to utilize tracked skidder or tethered harvester equipment prior to use. Trees may be felled and pre-bunched by the equipment but must be yarded by cable, if authorized by the Contract Administrator.

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

H-150 Required Removal of Forest Products

Purchaser shall remove from the sale area and present for scaling or weighing all forest products conveyed in the G-010 clause that meet the following minimum dimensions:

Species	Net bd ft	Log length (ft)	Log dib
All species	10	12	5

The State may treat failure to remove forest products left on the sale area that meet the above specifications as a breach of this contract. At the State's option, forest products that meet the above specifications and are left on the sale area may be scaled for volume or measured and converted to weight by the State or a third party scaling organization and billed to Purchaser at the contract payment rate. All costs associated with scaling, measuring and computing the billing will be borne by the Purchaser.

H-157 Optional Removal of Forest Products Not Designated

If in the course of operations, Purchaser decides to remove forest products that are below the minimum designated removal specifications per the 'Required Removal of Forest Products' (H-150), the payment rates in clause P-027 shall apply.

Forest products designated as optional shall be decked separately from forest products designated as required for removal. Prior to removal from the sale area, optional forest products as described in this clause must be inspected and approved by the Contract Administrator. Optional forest products may not be mixed with forest products that are required for removal by this contract and shall be removed from the sale area in separate truck loads using load tickets specified by the Contract Administrator.

All material removed under this clause is subject to the same log and load accountability rules as defined in the Log Definitions and Accountability section of this contract. Purchaser shall follow the payment procedures as required in the P-052 clause and will submit a separate summary report for all forest products removed from the sale area under the authority of this clause.

H-160 Mismatch

Mismatch is defined as forest products remaining on the sale area that would have met the specifications in clause H-150 if bucking lengths had been varied to include such products.

The State may treat mismatch as a breach of this contract. At the State's option, forest products that are left on the sale area may be scaled for volume by the State or a third party scaling organization and billed to Purchaser at the contract payment rate. All costs associated with scaling and computing the billing will be borne by Purchaser.

H-180 Removal of Specialized Forest Products or Firewood

Prior to the removal of conveyed specialized forest products or firewood from the sale area, Purchaser and the State shall agree in writing to the method of accounting for/and removal of such products.

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-240 Lop and Scatter

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

Section C: Construction and Maintenance**C-040 Road Plan**

Road construction and associated work provisions of the Road Plan for this sale, dated 7/24/2019 are hereby made a part of this contract.

C-050 Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on WF-8401, WF-8403, WF-8403-05, WF-87 (0+00 to 30+80) roads. All work shall be completed to the specifications detailed in the Road Plan.

C-060 Designated Road Maintainer

If required by the State, Purchaser shall perform maintenance and replacement work as directed by the Contract Administrator on the WF-ML, WF-84, WF-87 (30+80 to 40+30) roads. Purchaser shall furnish a statement in a form satisfactory to the State showing the costs incurred while performing this work. Costs shall be based on the rates set forth in the 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.

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

S-130 Hazardous Materials

a. Hazardous Materials and Waste - Regulatory Compliance

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

b. Hazardous Materials Spill Prevention

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

c. Hazardous Materials Spill Containment, Control and Cleanup

If safe to do so, Purchaser shall take immediate action to contain and control all hazardous material spills. Purchaser shall ensure that enough quick response spill kits capable of absorbing 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-010 Liquidated Damages

The clauses in the DAMAGES section of this contract provide for payments by Purchaser to the State for certain breaches of the terms of this contract. These payments are agreed to as liquidated damages and not as penalties. They are reasonable estimates of anticipated harm to the State 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.

D-020 Failure to Remove Forest Products

Purchaser's failure to remove all or part of the forest products sold in this agreement prior to the expiration of the contract term results in substantial injury to the State. The value of the forest products sold at the time of breach is not readily ascertainable. Purchaser's failure to perform disrupts the State's management plans, the actual cost of which is difficult to assess. A resale involves additional time and expense and is not an adequate remedy. Therefore, Purchaser agrees to pay the State as liquidated damages a sum calculated using the following formula:

$$LD = .35V-ID-P+C+A$$

Where:

LD = Liquidated Damage value.

V = The unremoved value at the date of breach of contract. The value is determined by subtracting the removal volume to date from the State's cruise volume multiplied by the contract bid rates.

ID = Initial Deposit paid at date of contract that has not been applied to timber payments.

P = Advance payments received but not yet applied to specific contract requirements.

C = Charges assessed for contract requirements completed prior to breach of contract but not paid for.

A = Administrative Fee = \$2,500.00.

The above formula reflects the Purchaser's forfeiture of the initial deposit in accordance with clause P-010 by deducting the initial deposit from the amount owed. In no event shall the liquidated damages be less than zero. Interest on the liquidated damage is owed from the date of breach until final payment, calculated using the following formula: Interest = $r \times LD \times N$.

Where:

r = daily equivalent of an annual interest at current interest rate as established by WAC 332-100-030.

LD = Liquidated damage value.

N = Number of days from date of breach to date payment is received.

D-030 Inadequate Log Accountability

Removal of forest products from the sale area without adequate branding and/or valid load tickets attached to the load and scaling forest products in a location other than the facility approved by the State can result in substantial injury to the State. Failure to properly account for loads and scaling and/or weighing information can result in loss to the State. The potential loss from not having proper branding, ticketing, scaling and/or weighing location and accountability is not readily ascertainable. Purchaser's failure to perform results in a loss of log weight and scale accountability, increases the potential for unauthorized removal of forest products, and increases the State's administration costs, the actual costs of which are difficult to assess.

Enforcement actions for unauthorized removal of forest products for each improperly branded load, improperly ticketed load, lost or unaccounted for tickets, or use of a facility not authorized for this sale or improper submission of scaling data are impractical, expensive, time consuming and are not an adequate remedy. Therefore, Purchaser agrees to pay the State, as liquidated damages, a sum of \$100 each time a load of logs does not have branding as required in the contract, \$250 each time a load of logs does not have a load ticket as required by the contract, \$250 each time a load ticket has not been filled out as required by the plan of operations, \$250 each time a load is weighed or scaled at a location not approved as required under this contract, \$250 each time a log ticket summary report is not submitted properly, and if a third party Log and Load Reporting Service is required, \$250 each time scaling or weight data is not properly submitted to the Log and Load Reporting Service per clause L-071, and \$250 each unused ticket that is not returned to the State, for any reason.

D-040 Leave Tree Excessive Damage

When Purchaser's operations exceed the damage limits set forth in clause H-012, Leave Tree Damage Definition, the trees damaged result in substantial injury to the State. The value of the damaged leave trees at the time of the breach is not readily ascertainable. Therefore, Purchaser agrees to pay the State as liquidated damages at the rate of \$250.00 per tree for all damaged trees in the Variable Density Thinning area.

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

DRAFT

DRAFT

DRAFT

the State as liquidated damages at the rate of \$1,000.00 per tree for all damaged reserve trees that are not replaced in the Variable Retention Harvest area.

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

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Purchaser

Tim Stapleton
Northwest Region Manager

Print Name

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 _____

Schedule B
Thinning Prescription

Thinning Prescription: Unit 1B (Variable Density Thinning)

Remove all timber within “gaps.”

Gaps are marked at their perimeter (first take tree) by a band of pink paint.

Thin to an average of 185 trees per acre (15.5 X 15.5 foot spacing) by removing trees in the following order:

1-Red alder of any size

2-Douglas-fir 8 to 18 inches DBH

3-Western hemlock 10 to 16 inches DBH

Do not remove any other tree species except within right of way and gaps.

Do not remove any timber within skips bound by yellow “Leave Tree” tags.

Thinning Prescription: Unit 1C (Variable Density Thinning)

Thin to an average of 140 trees per acre (17.5 X 17.5 foot spacing) by removing trees in the following order:

1-Red alder of any size

2-Silver fir of any size

3-Western hemlock 8 to 14 inches DBH

Do not remove any other tree species except within right of way.

If trees with ROW tags meet the prescription they can be cut.

Gaps and skips do not count toward the final TPA targets. The TPA is what is prescriptive and the spacing is a guideline to help achieve the TPA prescription.

Additional tree species may be removed for operational purposes only after written approval from the Contract Administrator (CA).

The Contract Administrator (CA) will approve and certify in writing all persons engaged in felling of timber prior to any cutting operations, per the H-011 clause of the contract.

Thinning Compliance

To ensure that the contractor is in compliance with the unit prescription, the contractor shall measure sample plots across the landscape concurrently while felling timber in each unit after 10% of the unit has been cut and every 10% of the unit acreage thereafter.

If the average plot data has fallen below the minimum residual trees per acre threshold for a submitted 10% portion of the harvest area the Harvester shall stop harvest activities until a recertification of fallers can be done.

DRAFT

DRAFT

DRAFT

The contractor shall not deviate from the requirements set forth in the Compliance portion of this schedule without prior written approval by the CA.



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 (optional and required) prior to haul

EXCISE TAX EXEMPT ACTIVITIES

Temporary Construction: **linear feet**
Roads to be constructed (optional and required) and then abandoned

Temporary Reconstruction: **linear feet**
Roads to be reconstructed (optional and required) and then abandoned

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 9/18)

PRE-CRUISE NARRATIVE

Sale Name: Brushcrasher	Region: Northwest
Agreement #: 30-098288	District: Cascade
Contact Forester: Sam Woodson Phone / Location: Granite Falls WC 360-386-3818	County(s): Choose a county, Snohomish
Alternate Contact: Tyson Whiteid Phone / Location: 360-280-0968	Other information: Click here to enter text.

Type of Sale: MBF Scale	
Harvest System: Ground based Click here to enter text.	88%
Harvest System: Cable thinning Click here to enter text.	12%
Harvest System: Select harvest system Click here to enter text.	Click here to enter percent sale acres.

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)		
1A VRH	28/28/9E 21/28/9E	01	100.1	-	3.7	-	-	96.4	GPS (Garmin)
1B VDT	28/28/9E 21/28/9E	01	102.5	-	-	-	9.2(skips) 4.5(ROW)	88.8	GPS (Garmin)
1B GAP	28/28/9E	01	6.1					6.1	GPS (Garmin)
1C VDT	28/28/9E 21/28/9E	01	13.5	-	-	-	0.9(ROW)	12.6	GPS (Garmin)
ROW	28/28/9E	01	-	-	-	-	-	5.4	GPS (Garmin)
TOTAL ACRES			222.2		3.7		9.2	209.3	

HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Leave, take, paint color, tags, flagging etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
1A	Unit 1a is a Variable Retention Harvest		This unit contains 810

VRH	(VRH). Take all trees bounded by blue "Special Management Unit" tags to the north and south, white "Timber Sale Boundary" tags to the north, east and west, and the Wallace Falls Mainline to the north. Leave tree areas are marked with yellow "Leave Tree Area" tags and/or individual trees marked with one or two bands of blue paint.		leave trees in clumps and scattered throughout the unit
1B VDT	Unit 1b is a Variable Density Thinning (VDT) in a Northern Spotted Owl Next Best Stand. Thin all timber bound by the white "Timber Sale Boundary" tags to the south, east and west, as well as those along the two type 4 streams, and blue "Special Management Unit" tags to the north which mark the edge shared with unit 1a following the prescription in Schedule B.	There are 17 acres of RMZ thinning included in the acreage of Unit 1B. There are 9.2 acres of skips and 6.1 acres of gaps.	See prescription below
1B GAP	Remove all timber within gaps. Gaps are marked at their perimeter (first take tree) by a band of pink paint.		
1C VDT	Unit 1c is a Variable Density Thinning (VDT) in a Northern Spotted Owl Next Best Stand. Thin all timber bound by the abandoned portion of the WF-87 road to the north, white "Timber Sale Boundary" tags to the east and west, and blue "Special Management Unit" tags which mark the edge shared with unit 1a following the prescription in Schedule B.		See prescription below
ROW	Take all trees bound by orange "Right of Way" tags.		

OTHER PRE-CRUISE INFORMATION:

Unit #	Primary,secondary Species / Estimated Volume (MBF)	Access information (Gates, locks, etc.)	Photos, traverse maps required
1A VRH	WH, DF 3,416MBF	Access Wallace Falls Mainline (WF-ML) from Kellogg Lake Road turn out approximately 950ft from U.S. Rte. 2. F1 Key is needed to open two gates along WF-ML.	
1B	WH, DF	Same as above	

VDT	444MBF		
1B GAP	WH, DF 244	Same as above	
1C VDT	WH, DF 51MBF	Same as above	
ROW	WH, DF 219MBF	Same as above	
TOTAL MBF	4,323MBF		

REMARKS:

Thinning Prescription: Unit 1B (Variable Density Thinning)

Remove all timber within “gaps.”

Gaps are marked at their perimeter (first take tree) by a band of pink paint.

Remove all timber bounded by orange “Right of Way” tags.

Thin to an average of 185 trees per acre (15.5’ X 15.5’ spacing) by removing trees in the following order:

- 1-Red alder of any size
- 2-Douglas-fir 8” to 18” DBH
- 3-Western hemlock 10” to 16” DBH
- Do not remove any other tree species except within right of way and gaps.
- Do not remove any timber within skips bound by yellow “Leave Tree” tags.

Thinning Prescription: Unit 1C (Variable Density Thinning)

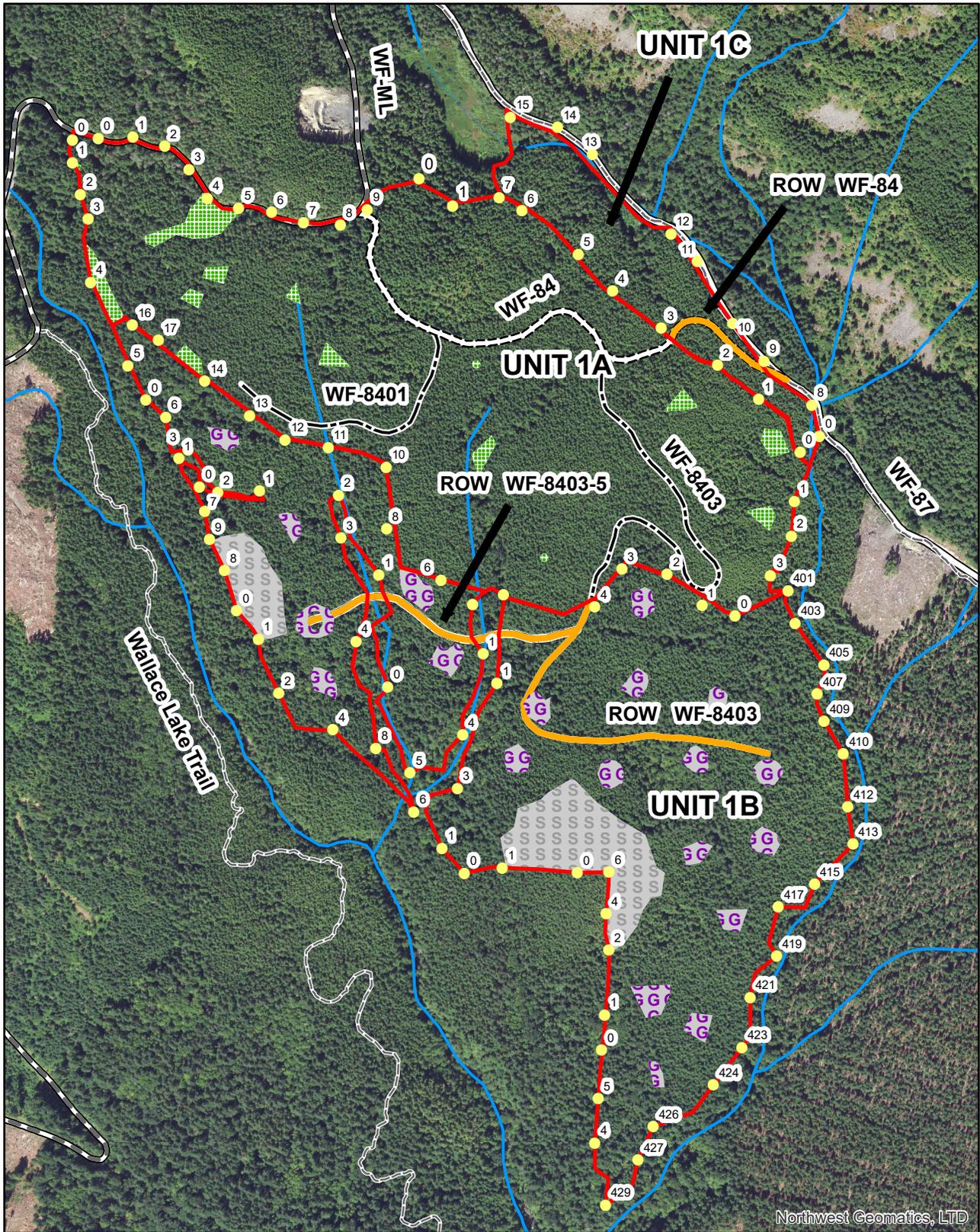
Remove all timber bounded by orange “Right of Way” tags.

Thin to an average of 140 trees per acre (17.5’ X 17.5’ spacing) by removing trees in the following order:

- 1-Red alder of any size
- 2-Silver Fir of any size
- 3-Western hemlock 8” to 14” DBH
- Do not remove any other tree species except within right of way.

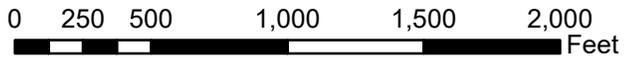
Prepared By: S. Woodson Date: 7/25/2019	Title: Natural Resource Specialist	CC:
---	---------------------------------------	-----

Brushcrasher Timber Sale



Legend

- Unit 1A
- Unit 1B
- Unit 1C
- ROWs
- Skips
- Leave tree areas
- Gaps



CRUISE NARRATIVE

Sale Name: Brushcrasher	Region: Northwest
Agree. #: 30-098288	District: Cascade
Lead cruiser: Matt Llobet	Completion date: 9-4-19
Other cruisers on sale: AH,SW	

Unit #	Cruised acres	Cruised acres agree with sale acres? Yes/No	If acres do not agree explain why.
1A	96.4	Yes	
1B	88.8	Yes	
1B Gap	6.1	Yes	
1C	12.6	Yes	
ROW1	4.5	Yes	
ROW2	0.9	Yes	
Total	209.3	Yes	

Unit #	Sample type (VP, FP, ITS, 100%)	Expansion factor (BAF, full/ half)	Sighting height (4.5 ft, 16 ft.)	Grid size (Plot spacing or % of area)	Plot ratio (cruise: count)	Total number of plots
1A	VP	62.5 BAF 40.0 BAF	4.5'	265' x 265'	1:1	57
1B	VP	62.5 BAF 40.0 BAF	4.5'	270' x 270'	1:1	51
1B Gap	VP	62.5 BAF 40.0 BAF	4.5'	4pts/6.1ac	1:1	4
1C	VP	54.4 BAF 40.0 BAF	4.5'	225' x 225'	Cruise All	11
ROW1	VP	62.5 BAF 40.0 BAF	4.5'	8pts/4.5ac	1:1	8
ROW2	FP	.05		1pt/ac	1:1	2
Total						133

Minimum cruise spec:	Minimum DBH 7 inches, 10 Net Board feet Minimum Top Diameter 5 inches, or 40% of 16-foot form point						
Avg ring count by sp:	<table border="1"> <tr> <td>DF=</td> <td>8</td> <td>WH =</td> <td>8</td> <td>SS =</td> <td></td> </tr> </table>	DF=	8	WH =	8	SS =	
DF=	8	WH =	8	SS =			
Leave/take tree description:	<p>Variable Retention Harvest- 1A- Take all trees bounded by blue "Special Management" tags to the north and south, white "Timber Sale Boundary" tags to the north, east and west, and the Wallace Falls Mainline to the north. Leave tree areas are marked with yellow "Leave Tree Area" tags and /or individual trees marked with one or two bands of blue paint</p> <p>Variable Density Thinning/Gap cuts- See Schedule B</p> <p>ROW- Remove all timber bounded by orange "Right of Way" tags</p>						
Other conditions:							
Sort Description:	<p>HA– 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>HB – 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>Poles- Logs meeting pole specifications</p>						

All timber was graded in variable log lengths with the Scaling Bureaus Westside/Northwest log rules. The utility wood was given a board ft. volume. Brushcrasher was cruised using both the Variable and fix plot sample method. Brushcrasher consists of 88% ground base harvesting and 12% cable harvesting. The terrain throughout Brushcrasher is gentle to rolling, making for good operator ground. Brushcrasher has a uniform timber type and ranges in elevation from 1080'-1960'. The species composition throughout the sale is Western Hemlock at 39%, Douglas fir at 22%, and Western Red Cedar at 5%. Observed throughout the sale was 104mbf of A sort Douglas fir and 227mbf of B sort Douglas fir. Also scattered throughout the sale was 256mbf of pole quality Douglas fir and 147mbf of pole quality of Western Red Cedar. The pole volume was a mix of distribution and transmission sizes, with a scattered component of naturals. Defect observed consisted of: forked, broken or multiple tops, spike knots, crooks, and frock crack. Sample points were dropped due to boundary edge and leave tree clumps.

Prepared By: Matt Llobet

Title: Forest Check Cruiser

TC PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																					
T028 R028 S09 Ty001A THRU T28N R09E S28 TyRW2				Project: BRUSHCRA Acres 209.30										Page 1 Date 9/4/2019 Time 1:27:13PM									
S Spp	So T	Gr rt	Ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre		
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf			
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99							
WH	T	D	2S	7		1,136	1,136	238				85	15			100	40	13	244	1.51	4.6		
WH	T	D	3S	66	.1	9,422	9,417	1,971	28	72				2	3	96	37	8	89	0.62	105.8		
WH	T	D	4S	19	.5	2,666	2,653	555	100					7	47	19	27	29	5	31	0.28	85.8	
WH	T	D	UT	8		1,066	1,066	223	91	5			4	18	50	19	12	26	5	30	0.27	36.0	
WH Totals				39	.1	14,290	14,272	2,987	44	48	7	1		3	13	7	77	32	7	61	0.49	232.2	
WH	L	D	2S	28		1,875	1,875	392				83	17			100	38	13	239	1.49	7.8		
WH	L	D	3S	41	.3	2,786	2,778	581	60	40					1	99	38	7	77	0.52	36.3		
WH	L	D	4S	24		1,569	1,569	328	99	1				2	41	17	39	31	5	33	0.25	47.9	
WH	L	D	UT	7		468	468	98	97			3		37	13	25	25	24	5	28	0.25	17.0	
WH Totals				18	.1	6,698	6,690	1,400	55	17	23	5		3	11	6	80	33	6	61	0.46	109.1	
RC	T	D	3S	42	1.0	860	852	178	37	44	19				5	95	37	8	89	0.83	9.6		
RC	T	D	4S	22	1.4	435	429	90	99	1				13	23	9	56	29	5	33	0.36	12.9	
RC	T	PO	3S	36		703	703	147	77	23						100	48	7	151	0.94	4.7		
RC Totals				5	.7	1,998	1,984	415	65	27	8			3	7	2	88	35	6	73	0.66	27.1	
RC	L	D	3S	53	6.1	398	374	78	38	39	23				12	88	35	8	84	0.86	4.4		
RC	L	D	4S	21		147	147	31	100					34	41	7	18	24	5	27	0.34	5.5	
RC	L	PO	3S	26		180	180	38	65	35						100	54	7	234	1.26	.8		
RC Totals				2	3.3	725	701	147	58	30	12			7	15	1	76	31	6	65	0.70	10.7	
DF	T	HB	2S	10	1.3	857	846	177				57	43		6	7	86	37	14	290	1.79	2.9	
DF	T	HB	3S	3		241	241	50		100					20	80	35	10	127	0.94	1.9		
DF	T	D	2S	13	3.4	1,130	1,091	228				62	38			100	39	14	271	1.65	4.0		
DF	T	D	3S	40	.7	3,298	3,275	685	18	82				0	2	1	97	38	8	100	0.71	32.7	
DF	T	D	4S	10		789	789	165	98	2				14	36	34	16	27	5	31	0.30	25.2	
DF	T	D	UT	2		178	178	37	69	13	18			46	20	34		22	6	31	0.33	5.8	
DF	T	HASM		1		87	87	18					100			100	40	16	400	3.49	.2		
DF	T	HA	2S	5	1.8	419	411	86				100			43	57	32	14	215	1.51	1.9		
DF	T	PO	3S	16	.0	1,224	1,224	256	48	52						100	63	7	231	0.85	5.3		
DF Totals				22	1.0	8,224	8,143	1,704	26	44	20	11			2	8	5	84	35	8	102	0.73	79.9
DF	L	HB	2S	29	.4	1,189	1,184	248				59	41		7	93	38	15	323	1.88	3.7		
DF	L	D	2S	35	1.8	1,470	1,443	302				36	64			100	40	15	386	2.16	3.7		
DF	L	D	3S	23		923	923	193	6	94						9	91	38	9	123	0.81	7.5	
DF	L	D	4S	4		182	182	38	100					44	44		12	22	6	28	0.38	6.6	
DF	L	HASM		2		84	84	18					100			100	40	16	400	3.49	.2		
DF	L	HA	2S	7		245	245	51				100				100	40	14	323	1.77	.8		
DF Totals				11	.8	4,093	4,062	850	6	21	36	37			2	4	2	92	33	10	181	1.26	22.5
SF	T	D	2S	79	5.4	90	85	18				100				100	40	13	245	1.55	.3		
SF	T	D	3S	21		22	22	5	100							100	37	7	63	0.60	.3		
SF Totals				0	4.3	112	107	22	20			80					100	39	10	154	1.09	.7	
RA	T	D	2S	32	5.7	188	178	37				100		32	68		26	13	140	1.60	1.3		
RA	T	D	3S	26	6.6	152	142	30				100				100	30	10	110	0.98	1.3		
RA	T	D	4S	20		111	111	23	59	41						100	30	7	48	0.61	2.3		
RA	T	D	UT	22		119	119	25	100							5	62	33	34	5	36	0.38	3.3

TC PSPCSTGR **Species, Sort Grade - Board Foot Volumes (Project)**

T028 R028 S09 Ty001A THRU T28N R09E S28 TyRW2	Project: BRUSHCRA Acres 209.30	Page 2 Date 9/4/2019 Time 1:27:13PM
---	---	--

S Spp	So T	Gr rt	ad	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre
									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					
RA	Totals			1	3.7	570	549	115	34	34	32		11	69	13	7	31	8	68	0.69	8.1
CW	L	D	2S	84	5.8	193	182	38			40	60				100	38	17	415	2.10	.4
CW	L	D	4S	16	7.1	35	32	7		100					100		32	11	130	0.94	.2
CW	Totals			1	6.0	228	215	45		15	34	51			15	85	36	15	312	1.72	.7
Totals					0.6	36,939	36,722	7,686	39	36	17	8	3	11	6	81	33	7	75	0.58	491.0

Total Volume: 5,243mbf

TC PSTATS		PROJECT STATISTICS							PAGE	1	
		PROJECT BRUSHCRA							DATE	9/4/2019	
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt	
028 28N	028 09E	09 28	BRUSHCRA BRUSHCRA	001A RW2	THR	209.30	133	681	S	W	
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL			133	681	5.1						
CRUISE			82	416	5.1	61,822	.7				
DBH COUNT			1	18	18.0						
REFOREST COUNT			49	247	5.0						
BLANKS			1								
100 %											
STAND SUMMARY											
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC	
WHEMLOCK-L	56	71.9	11.4	56	15.1	51.1	6,698	6,690	1,648	1,648	
WHEMLOCK-T	168	137.9	12.4	59	32.7	115.0	14,290	14,272	3,678	3,678	
DOUG FIR-L	26	8.8	21.7	90	4.8	22.5	4,093	4,062	945	945	
DOUG FIR-T	74	40.7	16.0	73	14.2	57.0	8,224	8,143	2,038	2,038	
WR CEDAR-L	19	8.0	14.2	50	2.3	8.8	725	701	231	231	
WR CEDAR-T	52	22.4	13.7	50	6.2	22.9	1,998	1,984	633	633	
PS FIR-T	3	.3	20.4	83	0.2	.8	112	107	29	29	
R ALDER-T	16	4.9	15.2	56	1.6	6.2	570	549	175	175	
COTWOOD-L	2	.4	23.6	63	0.3	1.3	228	215	42	42	
TOTAL	416	295.4	13.3	60	78.3	285.7	36,939	36,722	9,420	9,420	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL	68.1	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-L		83.7	11.2	151	170	189					
WHEMLOCK-T		68.3	5.3	124	131	138					
DOUG FIR-L		72.4	14.5	465	544	623					
DOUG FIR-T		71.3	8.3	260	283	307					
WR CEDAR-L		80.8	19.0	93	115	137					
WR CEDAR-T		62.9	8.7	115	126	137					
PS FIR-T		31.6	21.9	247	317	386					
R ALDER-T		38.2	9.9	130	144	159					
COTWOOD-L		22.6	21.2	394	500	606					
TOTAL		99.2	4.9	183	192	202	393	200	98		
CL	68.1	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-L		166.5	14.4	62	72	82					
WHEMLOCK-T		96.7	8.4	126	138	149					
DOUG FIR-L		209.8	18.2	7	9	10					
DOUG FIR-T		143.5	12.4	36	41	46					
WR CEDAR-L		263.5	22.8	6	8	10					
WR CEDAR-T		247.0	21.4	18	22	27					
PS FIR-T		651.5	56.4	0	0	1					
R ALDER-T		385.9	33.4	3	5	7					
COTWOOD-L		572.8	49.6	0	0	1					
TOTAL		56.5	4.9	281	295	310	127	65	32		
CL	68.1	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-L		150.1	13.0	44	51	58					
WHEMLOCK-T		85.5	7.4	107	115	124					
DOUG FIR-L		210.9	18.3	18	23	27					

TC PSTATS		PROJECT STATISTICS							PAGE	2
		PROJECT		BRUSHCRA			DATE		9/4/2019	
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
028 28N	028 09E	09 28	BRUSHCRA BRUSHCRA	001A RW2	THR	209.30	133	681	S	W
CL	68.1	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR-T		137.6	11.9	50	57	64				
WR CEDAR-L		244.9	21.2	7	9	11				
WR CEDAR-T		201.0	17.4	19	23	27				
PS FIR-T		641.9	55.6	0	1	1				
R ALDER-T		392.4	34.0	4	6	8				
COTWOOD-L		570.0	49.4	1	1	2				
TOTAL		45.8	4.0	274	286	297	84	43	21	
CL	68.1	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK-L		151.4	13.1	5,813	6,690	7,568				
WHEMLOCK-T		86.2	7.5	13,205	14,272	15,338				
DOUG FIR-L		218.1	18.9	3,294	4,062	4,829				
DOUG FIR-T		150.3	13.0	7,082	8,143	9,203				
WR CEDAR-L		256.7	22.2	545	701	857				
WR CEDAR-T		209.5	18.1	1,624	1,984	2,344				
PS FIR-T		656.7	56.9	46	107	169				
R ALDER-T		407.7	35.3	355	549	743				
COTWOOD-L		570.1	49.4	109	215	321				
TOTAL		52.8	4.6	35,042	36,722	38,401	111	57	28	

T028 R028 S09 T001A		T028 R028 S09 T001A
Twp 028	Rge 028	BdFt W
Sec 09	Tract BRUSHCRA	
	Type 001A	
	Acres 96.40	
	Plots 57	
	Sample Trees 200	
		CuFt S

Spp	S	So	Gr	%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log			Logs Per /Acre						
									Net BdFt	Def%	Gross	Net	Net MBF	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
WH	T	DM	2S	10		1,980	1,980	191			82	18				100	40	13	256	1.56	7.7					
WH	T	DM	3S	62	.1	11,492	11,481	1,107	34	66				1	4	95	37	8	86	0.61	134.0					
WH	T	DM	4S	19		3,437	3,437	331	100					12	52	14	21	27	5	30	0.29	115.1				
WH	T	DM	UT	9		1,547	1,547	149	88	6	6			17	56	27		25	5	29	0.27	53.3				
WH	T	Totals		54	.1	18,456	18,446	1,778	47	42	9	3		4	15	8	74	31	6	59	0.49	310.2				
DF	T	HB	2S	14	1.5	1,689	1,664	160			63	37			7	8	85	37	14	281	1.76	5.9				
DF	T	HB	3S	5		524	524	50		100						20		80	35	10	127	0.94	4.1			
DF	T	DM	2S	16	2.7	1,884	1,834	177			59	41					100	39	14	295	1.77	6.2				
DF	T	DM	3S	25	1.7	3,001	2,950	284	18	82				1	5	2	93	37	8	91	0.66	32.5				
DF	T	DM	4S	8		895	895	86	97	3				22	37	33	8	26	5	29	0.31	30.4				
DF	T	DM	UT	3		341	341	33	65	15	20			39	23	38		24	7	33	0.35	10.2				
DF	T	HA	2S	8	1.8	910	893	86			100					43	57	32	14	215	1.51	4.2				
DF	T	PO	3S	21	.0	2,336	2,336	225	55	45							100	63	7	228	0.83	10.3				
DF	T	Totals		34	1.2	11,579	11,437	1,102	26	35	27	12		3	10	5	81	35	8	110	0.78	103.8				
RC	T	DM	3S	40	1.1	1,692	1,673	161	38	41	21				3		97	37	8	89	0.83	18.9				
RC	T	DM	4S	22	1.4	902	889	86	99	1				13	21	8	58	30	5	34	0.36	26.5				
RC	T	PO	3S	38		1,527	1,527	147	77	23							100	48	7	151	0.94	10.1				
RC	T	Totals		12	.8	4,121	4,089	394	66	26	8			3	6	2	89	35	6	74	0.67	55.6				
RA	T	DM	UT	100		85	85	8	100								100	40	5	40	0.40	2.1				
RA	T	Totals		0		85	85	8	100								100	40	5	40	0.40	2.1				
Type Totals					.5	34,241	34,057	3,283	42	38	15	5		3	12	6	78	33	7	72	0.58	471.7				

T028 R028 S09 T001C		T028 R028 S09 T001C
Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt		BdFt
028 028 09 BRUSHCRA 001C 12.60 11 51 S		W

Spp	S	So	Gr	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre				
									Log Scale Dia.				Log Length				Ln	Dia	Bd		CF/			
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99	Ft	In	Ft		Lf			
WH	L	DM	2S	20	2,272	2,272	29	100				100				40	13	266	1.63	8.5				
WH	L	DM	3S	64	7,244	7,244	91	29	71					5	95	37	8	96	0.67	75.3				
WH	L	DM	4S	12	1,339	1,339	17	100					12	22	66	28	5	29	0.31	45.7				
WH	L	DM	UT	4	355	355	4	32	68					68	32	20	10	56	0.73	6.3				
WH	L	Totals		44	11,211	11,211	141	31	46	22					4	3	12	81	33	7	83	0.64	135.9	
WH	T	DM	3S	59	5,078	5,078	64	43	57					7	93	36	7	72	0.52	70.1				
WH	T	DM	4S	33	2,854	2,854	36	100					21	30	49	33	5	33	0.28	85.7				
WH	T	DM	UT	8	625	625	8	66	34					34	66	30	7	40	0.40	15.6				
WH	T	Totals		33	.0	8,557	8,557	108	64	36					3	7	14	76	34	6	50	0.39	171.4	
RC	L	DM	3S	48	1,247	1,247	16	79	21					20	80	36	7	61	0.58	20.5				
RC	L	DM	4S	44	1,116	1,116	14	100					6	55	39	28	5	32	0.37	34.7				
RC	L	PO	3S	8	194	194	2	100					100				40	7	70	0.83	2.8			
RC	L	Totals		10	2,557	2,557	32	90	10					3	34	63	31	6	44	0.48	58.0			
DF	L	DM	2S	26	550	550	7	100				100				40	13	240	1.45	2.3				
DF	L	DM	3S	56	1,129	1,129	14	80	20					100				39	6	65	0.43	17.3		
DF	L	DM	4S	18	363	363	5	100					100				36	5	40	0.34	9.1			
DF	L	Totals		8	2,042	2,042	26	62	11	27					100				38	6	71	0.49	28.7	
SF	T	DM	2S	79	4.5	1,158	1,106	14	100				100				40	13	253	1.54	4.4			
SF	T	DM	3S	21	280	280	4	100					100				38	6	64	0.60	4.4			
SF	T	Totals		5	3.6	1,438	1,386	17	20	80					100				39	10	159	1.09	8.7	
Type	Totals				.2	25,805	25,753	324	50	34	16					3	7	10	80	34	7	64	0.51	402.7

Species, Sort Grade - Board Foot Volumes (Type)											Page	1									
T	TSPCSTGR										Date	9/4/2019									
Project: BRUSHCRA											Time	1:27:14PM									
T28N R09E S28 T001B											T28N R09E S28 T001B										
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
28N	09E	28	BRUSHCRA	001B	88.80	51	257	S	W												
S Sp	So T	Gr rt	%	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	Dia	Bd		CF/ Lf
WH	L	DM	2S	28		4,098	4,098	364		82	18				100	38	13	237	1.48	17.3	
WH	L	DM	3S	39	.3	5,538	5,520	490	65	35					100	38	7	74	0.50	74.9	
WH	L	DM	4S	25		3,507	3,507	311	99	1		2	42	15	41	32	5	33	0.25	106.4	
WH	L	DM	UT	8		1,053	1,053	94	100			35	14	24	27	24	5	27	0.24	39.2	
WH	L	Totals		35	.1	14,196	14,178	1,259	57	14	24	5	3	11	5	80	33	6	60	0.44	237.8
WH	T	DM	3S	78		7,280	7,280	646	11	89			3		97	38	8	101	0.68	72.0	
WH	T	DM	4S	17	1.1	1,665	1,647	146	100				32	30	38	32	5	34	0.28	48.6	
WH	T	DM	UT	5	.0	386	386	34	100			10	65		26	27	5	30	0.27	12.7	
WH	T	Totals		23	.2	9,331	9,313	827	31	69		0	11	5	84	35	7	70	0.51	133.3	
DF	L	HB	2S	30	.4	2,802	2,791	248		59	41		7		93	38	15	323	1.88	8.6	
DF	L	DM	2S	35	1.8	3,386	3,324	295		35	65				100	39	16	391	2.19	8.5	
DF	L	DM	3S	22		2,015	2,015	179		100				10	90	37	10	132	0.87	15.3	
DF	L	DM	4S	4		377	377	33	100			50	50			20	6	26	0.39	14.3	
DF	L	HA	SM	2		198	198	18			100				100	40	16	400	3.49	.5	
DF	L	HA	2S	7		578	578	51		100					100	40	14	323	1.77	1.8	
DF	L	Totals		23	.8	9,357	9,283	824	4	22	36	38	2	4	2	92	33	11	190	1.33	49.0
DF	T	DM	2S	6	10.0	374	337	30		100					100	40	12	180	1.18	1.9	
DF	T	DM	3S	77		4,035	4,035	358	18	82					100	39	8	107	0.74	37.6	
DF	T	DM	4S	16		793	793	70	100				37	35	28	31	5	35	0.29	22.6	
DF	T	DM	UT	1		49	49	4	100			100				17	5	20	0.20	2.5	
DF	T	Totals		13	.7	5,251	5,213	463	30	64	6		1	6	5	88	35	7	81	0.60	64.5
RC	L	DM	3S	54	7.5	762	705	63	28	43	29		10		90	35	8	94	0.98	7.5	
RC	L	DM	4S	15		188	188	17	100				58	29	13	22	5	23	0.31	8.1	
RC	L	PO	3S	31		396	396	35	62	38					100	57	8	280	1.35	1.4	
RC	L	Totals		3	4.2	1,346	1,289	114	49	35	16		8	10	2	80	31	7	76	0.80	17.0
RA	T	DM	2S	34	5.5	426	403	36		100		34	66			26	13	140	1.59	2.9	
RA	T	DM	3S	27	6.4	334	313	28		100			100			30	10	111	0.99	2.8	
RA	T	DM	4S	22		253	253	22	57	43			100			30	7	49	0.62	5.1	
RA	T	DM	UT	17		188	188	17	100				8	92		32	5	35	0.37	5.4	
RA	T	Totals		3	3.8	1,201	1,156	103	29	36	35		12	73	15	30	8	71	0.75	16.3	
CW	L	DM	2S	84	5.8	456	429	38		40	60				100	38	17	415	2.10	1.0	
CW	L	DM	4S	16	7.1	82	77	7		100					100	32	11	130	0.94	.6	
CW	L	Totals		1	6.0	538	506	45		15	34	51			15	85	36	15	312	1.72	1.6
Type Totals					.7	41,220	40,939	3,635	34	36	19	11	2	10	5	82	34	7	79	0.59	519.5

T28N R09E S28 TRW2		T28N R09E S28 TRW2
Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt		BdFt
28N 09E 28 BRUSHCRA RW2 .90 2 15 S		W

Spp	S	So	Gr	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre					
									Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf						
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99										
WH	T	DM	2S	19	3,400	3,400	3	100				100				40	12	200	1.38	17.0						
WH	T	DM	3S	51	1.9	9,180	9,010	8	43	57					100				38	8	88	0.62	102.0			
WH	T	DM	4S	10	9.1	1,870	1,700	2	100				20	40	40					31	5	33	0.31	51.0		
WH	T	DM	UT	20	3,400			3	100				20	80							28	5	33	0.23	102.0	
WH	T	Totals		50	1.9	17,850	17,510	16	51	29	19					4	2	19	75	33	6	64	0.49	272.0		
RC	T	DM	3S	85	6,000			5	100				100				36	7	60	0.58	100.0					
RC	T	DM	4S	15	1,000			1	100				100				20	5	20	0.20	50.0					
RC	T	Totals		20	7,000			6	100				14				86				31	6	47	0.50	150.0	
SF	T	DM	2S	78	8.3	4,800	4,400	4	100				100				40	13	220	1.55	20.0					
SF	T	DM	3S	22	1,200			1	100				100				36	7	60	0.59	20.0					
SF	T	Totals		16	6.7	6,000	5,600	5	21	79			100				38	10	140	1.10	40.0					
DF	T	DM	3S	75	3,600			3	33	67					100				38	8	90	0.66	40.0			
DF	T	DM	4S	25	1,200			1	100				33	67							26	5	30	0.25	40.0	
DF	T	Totals		14	4,800			4	50	50					8	17	75					32	6	60	0.49	80.0
Type	Totals				2.1	35,650	34,910	31	56	21	22	6	1	12	81	33	7	64	0.55	542.0						

TC TSTATS			STATISTICS					PAGE	1		
			PROJECT BRUSHCRA					DATE	9/4/2019		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
028	028	09	BRUSHCRA	001A	96.40	57	281	S	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
			PLOTS	TREES	TREES	TREES					
TOTAL	57		281	4.9							
CRUISE	39		200	5.1	28,364	.7					
DBH COUNT											
REFOREST											
COUNT	18		81	4.5							
BLANKS											
100 %											
STAND SUMMARY											
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
WHEMLOCK-T	98	190.3	12.2	55	44.0	153.5	18,456	18,446	4,744	4,744	
DOUG FIR-T	54	55.1	16.1	70	19.4	77.9	11,579	11,437	2,795	2,795	
WR CEDAR-T	47	46.6	13.6	50	12.8	47.0	4,121	4,089	1,310	1,310	
R ALDER-T	1	2.1	11.0	43	0.4	1.4	85	85	34	34	
TOTAL	200	294.2	13.2	57	77.0	279.8	34,241	34,057	8,883	8,883	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10			
WHEMLOCK-T	79.0	8.0	125	136	146						
DOUG FIR-T	71.6	9.7	271	300	329						
WR CEDAR-T	64.4	9.4	114	126	138						
R ALDER-T											
TOTAL	89.4	6.3	166	177	188	319	163	80			
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10			
WHEMLOCK-T	69.5	9.2	173	190	208						
DOUG FIR-T	114.6	15.2	47	55	64						
WR CEDAR-T	151.6	20.1	37	47	56						
R ALDER-T	529.1	70.0	1	2	4						
TOTAL	48.3	6.4	275	294	313	93	48	23			
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10			
WHEMLOCK-T	62.5	8.3	141	154	166						
DOUG FIR-T	112.8	14.9	66	78	89						
WR CEDAR-T	118.3	15.7	40	47	54						
R ALDER-T	529.1	70.0	0	1	2						
TOTAL	39.9	5.3	265	280	295	64	32	16			
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10			
WHEMLOCK-T	65.7	8.7	16,843	18,446	20,049						
DOUG FIR-T	126.8	16.8	9,517	11,437	13,356						
WR CEDAR-T	124.3	16.4	3,417	4,089	4,762						
R ALDER-T	529.1	70.0	26	85	145						
TOTAL	49.6	6.6	31,823	34,057	36,291	98	50	25			

TC TSTATS		STATISTICS						PAGE	1	
		PROJECT BRUSHCRA						DATE	9/4/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
028	028	09	BRUSHCRA	001C	12.60	11	51	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		11	51	4.6						
CRUISE		10	51	5.1	3,606	1.4				
DBH COUNT										
REFOREST										
COUNT										
BLANKS		1								
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK-L	18	76.8	14.6	63	23.3	89.0	11,211	11,211	2,901	2,901
WHEMLOCK-T	17	133.9	10.7	50	25.7	84.1	8,557	8,557	2,298	2,298
WR CEDAR-L	10	44.8	12.2	47	10.4	36.4	2,557	2,557	878	878
DOUG FIR-L	4	26.4	11.7	50	5.8	19.8	2,042	2,042	538	538
PS FIR-T	2	4.4	20.4	83	2.2	9.9	1,438	1,386	369	369
TOTAL	<i>51</i>	<i>286.2</i>	<i>12.4</i>	<i>53</i>	<i>68.0</i>	<i>239.1</i>	<i>25,805</i>	<i>25,753</i>	<i>6,983</i>	<i>6,983</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK-L	54.6	13.2		158	182	206				
WHEMLOCK-T	48.4	12.1		65	74	83				
WR CEDAR-L	33.3	11.1		53	60	67				
DOUG FIR-L	114.9	65.7		43	125	207				
PS FIR-T	40.1	37.6		209	335	461				
TOTAL	<i>81.3</i>	<i>11.4</i>		<i>109</i>	<i>124</i>	<i>138</i>	<i>264</i>	<i>135</i>	<i>66</i>	
CL:	68.1 %	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK-L	101.9	32.2		52	77	101				
WHEMLOCK-T	117.3	37.0		84	134	184				
WR CEDAR-L	111.7	35.3		29	45	61				
DOUG FIR-L	155.2	49.0		13	26	39				
PS FIR-T	227.2	71.8		1	4	8				
TOTAL	<i>58.3</i>	<i>18.4</i>		<i>234</i>	<i>286</i>	<i>339</i>	<i>149</i>	<i>76</i>	<i>37</i>	
CL:	68.1 %	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK-L	91.8	29.0		63	89	115				
WHEMLOCK-T	120.6	38.1		52	84	116				
WR CEDAR-L	91.4	28.9		26	36	47				
DOUG FIR-L	138.7	43.8		11	20	28				
PS FIR-T	222.5	70.3		3	10	17				
TOTAL	<i>52.4</i>	<i>16.5</i>		<i>200</i>	<i>239</i>	<i>279</i>	<i>120</i>	<i>61</i>	<i>30</i>	
CL:	68.1 %	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK-L	97.9	30.9		7,745	11,211	14,677				
WHEMLOCK-T	129.8	41.0		5,048	8,557	12,066				
WR CEDAR-L	110.2	34.8		1,667	2,557	3,448				
DOUG FIR-L	149.5	47.2		1,078	2,042	3,006				
PS FIR-T	223.9	70.7		406	1,386	2,366				
TOTAL	<i>57.5</i>	<i>18.2</i>		<i>21,073</i>	<i>25,753</i>	<i>30,432</i>	<i>145</i>	<i>74</i>	<i>36</i>	

TC TSTATS				STATISTICS				PAGE	1	
PROJECT BRUSHCRA								DATE	9/4/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
28N	09E	28	BRUSHCRA	001B	88.80	51	257	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL	51	257	5.0							
CRUISE	26	124	4.8	26,403			.5			
DBH COUNT										
REFOREST										
COUNT	25	133	5.3							
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
WHEMLOCK-L	38	158.5	11.2	55	32.3	107.8	14,196	14,178	3,472	3,472
WHEMLOCK-T	28	68.2	13.6	74	18.6	68.6	9,331	9,313	2,406	2,406
DOUG FIR-L	22	17.0	23.3	99	10.4	50.2	9,357	9,283	2,150	2,150
DOUG FIR-T	12	31.0	15.2	78	10.1	39.2	5,251	5,213	1,369	1,369
WR CEDAR-L	9	12.6	15.1	51	4.0	15.7	1,346	1,289	420	421
R ALDER-T	13	9.0	16.0	59	3.1	12.5	1,201	1,156	362	361
COTWOOD-L	2	1.0	23.6	63	0.6	3.1	538	506	100	100
TOTAL	124	297.3	13.5	64	80.8	297.3	41,220	40,939	10,279	10,279
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-L	97.0	15.7	139	165	191					
WHEMLOCK-T	15.5	3.0	142	146	151					
DOUG FIR-L	60.8	13.2	538	620	703					
DOUG FIR-T	31.3	9.4	162	178	195					
WR CEDAR-L	59.7	21.1	139	176	213					
R ALDER-T	34.4	9.9	135	150	165					
COTWOOD-L	22.6	21.2	394	500	606					
TOTAL	103.6	9.3	225	248	271	428	219	107		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-L	78.3	11.0	141	159	176					
WHEMLOCK-T	94.5	13.2	59	68	77					
DOUG FIR-L	117.3	16.4	14	17	20					
DOUG FIR-T	154.6	21.6	24	31	38					
WR CEDAR-L	184.3	25.8	9	13	16					
R ALDER-T	273.7	38.3	6	9	12					
COTWOOD-L	348.0	48.7	1	1	2					
TOTAL	50.5	7.1	276	297	318	102	52	25		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-L	66.7	9.3	98	108	118					
WHEMLOCK-T	93.3	13.1	60	69	78					
DOUG FIR-L	114.1	16.0	42	50	58					
DOUG FIR-T	145.9	20.4	31	39	47					
WR CEDAR-L	169.7	23.7	12	16	19					
R ALDER-T	266.6	37.3	8	13	17					
COTWOOD-L	346.2	48.4	2	3	5					
TOTAL	36.0	5.0	282	297	312	52	26	13		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-L	67.3	9.4	12,842	14,178	15,513					

TC TSTATS				STATISTICS			PAGE	2		
				PROJECT	BRUSHCRA		DATE	9/4/2019		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
28N	09E	28	BRUSHCRA	001B	88.80	51	257	S	W	
CL:	68.1%	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK-T		95.2	13.3	8,073	9,313	10,553				
DOUG FIR-L		116.0	16.2	7,776	9,283	10,790				
DOUG FIR-T		146.0	20.4	4,149	5,213	6,278				
WR CEDAR-L		174.2	24.4	975	1,289	1,603				
R ALDER-T		270.4	37.8	719	1,156	1,594				
COTWOOD-L		346.2	48.4	261	506	751				
TOTAL		38.8	5.4	38,718	40,939	43,160	60	31	15	

TC TSTATS				STATISTICS				PAGE	1	
PROJECT BRUSHCRA								DATE	9/4/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
28N	09E	28	BRUSHCRA	GAP	6.10	4	20	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL	4	20	5.0							
CRUISE	3	15	5.0	2,189			.7			
DBH COUNT										
REFOREST										
COUNT	1	5	5.0							
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
WHEMLOCK-T	10	314.2	11.3	55	65.1	218.8	27,122	27,122	6,903	6,903
DOUG FIR-T	4	40.7	18.8	86	18.0	78.1	12,523	12,523	3,048	3,048
WR CEDAR-T	1	4.1	21.2	82	2.2	10.0	816	816	219	219
TOTAL	15	358.9	12.5	59	86.7	306.9	40,461	40,461	10,170	10,170
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-T	67.6	22.5	97	125	153					
DOUG FIR-T	63.1	36.0	250	390	530					
WR CEDAR-T										
TOTAL	89.0	23.8	153	201	248	339	173	85		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-T	77.0	44.0	176	314	452					
DOUG FIR-T	76.9	43.9	23	41	59					
WR CEDAR-T	200.0	114.3		4	9					
TOTAL	72.8	41.6	210	359	508	276	141	69		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-T	49.5	28.3	157	219	281					
DOUG FIR-T	76.6	43.8	44	78	112					
WR CEDAR-T	200.0	114.3		10	21					
TOTAL	47.4	27.1	224	307	390	117	60	29		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-T	47.0	26.8	19,842	27,122	34,403					
DOUG FIR-T	76.6	43.8	7,039	12,523	18,006					
WR CEDAR-T	200.0	114.3		816	1,748					
TOTAL	50.4	28.8	28,811	40,461	52,111	133	68	33		

TC TSTATS				STATISTICS				PAGE	1	
PROJECT BRUSHCRA								DATE	9/4/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
28N	09E	28	BRUSHCRA	RW1	4.50	8	39	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL	8	39	4.9							
CRUISE	3	11	3.7	962		1.1				
DBH COUNT										
REFOREST										
COUNT	5	28	5.6							
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
WHEMLOCK-T	5	155.5	13.2	71	40.8	148.4	20,854	20,636	5,282	5,282
DOUG FIR-T	2	36.7	21.6	84	20.1	93.8	12,908	12,908	3,528	3,528
WR CEDAR-T	2	15.6	18.8	67	6.9	30.0	2,154	2,154	637	637
R ALDER-T	2	6.1	17.3	63	2.4	10.0	991	910	294	294
TOTAL	11	213.9	15.6	73	71.6	282.2	36,906	36,607	9,742	9,742
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-T	44.2	22.0	120	154	188					
DOUG FIR-T	44.8	42.0	238	410	582					
WR CEDAR-T	43.9	41.1	85	145	205					
R ALDER-T	26.5	24.8	120	160	200					
TOTAL	64.5	20.4	159	200	241	182	93	46		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-T	70.1	26.4	114	156	197					
DOUG FIR-T	87.3	32.9	25	37	49					
WR CEDAR-T	118.2	44.6	9	16	23					
R ALDER-T	282.8	106.6	6	13	13					
TOTAL	45.1	17.0	178	214	250	92	47	23		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-T	70.9	26.7	109	148	188					
DOUG FIR-T	87.3	32.9	63	94	125					
WR CEDAR-T	118.2	44.6	17	30	43					
R ALDER-T	282.8	106.6	10	21	21					
TOTAL	35.3	13.3	245	282	320	57	29	14		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-T	70.4	26.5	15,160	20,636	26,111					
DOUG FIR-T	87.3	32.9	8,660	12,908	17,156					
WR CEDAR-T	118.2	44.6	1,194	2,154	3,113					
R ALDER-T	282.8	106.6	910	1,881	1,881					
TOTAL	39.2	14.8	31,191	36,607	42,023	70	36	18		

TC TSTATS				STATISTICS				PAGE	1	
PROJECT BRUSHCRA				DATE				9/4/2019		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
28N	09E	28	BRUSHCRA	RW2	0.90	2	33	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL	2	33	16.5							
CRUISE	1	15	15.0	297		5.1				
DBH COUNT	1	18	18.0							
REFOREST										
COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
WHEMLOCK-T	10	170.0	12.1	57	38.8	134.9	17,850	17,510	4,452	4,452
WR CEDAR-T	2	100.0	12.2	55	23.3	81.4	7,000	7,000	2,288	2,288
PS FIR-T	1	20.0	20.3	82	10.0	45.0	6,000	5,600	1,669	1,669
DOUG FIR-T	2	40.0	13.7	69	11.0	40.8	4,800	4,800	1,253	1,253
TOTAL	15	330.0	13.0	59	83.9	302.1	35,650	34,910	9,663	9,663
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-T	33.0	13.4	127	147	167					
WR CEDAR-T	20.2	18.9	57	70	83					
PS FIR-T										
DOUG FIR-T	47.1	44.1	67	120	173					
TOTAL	46.9	14.1	121	141	161	96	49	24		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-T	25.0	23.4	130	170	210					
WR CEDAR-T	84.9	79.5	21	100	179					
PS FIR-T			20	20	20					
DOUG FIR-T			40	40	40					
TOTAL	12.9	12.0	290	330	370	12	6	3		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-T	25.0	23.4	103	135	166					
WR CEDAR-T	84.9	79.5	17	81	146					
PS FIR-T	.0	.0	45	45	45					
DOUG FIR-T			41	41	41					
TOTAL	11.7	11.0	269	302	335	10	5	2		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK-T	25.0	23.4	13,418	17,510	21,602					
WR CEDAR-T	84.9	79.5	1,438	7,000	12,562					
PS FIR-T			5,600	5,600	5,600					
DOUG FIR-T			4,800	4,800	4,800					
TOTAL	4.5	4.2	33,440	34,910	36,380	1	1	0		

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

T028 R028 S09 Ty001A	96.4
T028 R028 S09 Ty001C	12.6
T28N R09E S28 TyRW	.9

Project BRUSHCRA
Acres 209.30

Page No 1
Date: 9/4/2019
Time 1:27:14PM

Species	s T	Total	Total	Total	Net Cubic Ft/		CF/ LF	Total CCF		Total MBF	
		Trees	Logs	Tons	Tree	Log		Gross	Net	Gross	Net
WHEMLOCK	T	28,856	48,606	24,634	26.68	15.84	0.49	7,698	7,698	2,991	2,987
DOUG FIR	T	8,522	16,716	12,158	50.06	25.52	0.74	4,266	4,266	1,721	1,704
WHEMLOCK	L	15,046	22,827	11,035	22.92	15.11	0.47	3,449	3,449	1,402	1,400
DOUG FIR	L	1,840	4,709	5,635	107.43	41.99	1.25	1,977	1,977	857	850
WR CEDAR	T	4,680	5,681	3,115	28.32	23.34	0.67	1,326	1,326	418	415
WR CEDAR	L	1,681	2,244	1,137	28.82	21.58	0.70	484	484	152	147
R ALDER	T	1,033	1,703	1,009	35.53	21.54	0.71	367	367	119	115
COTWOOD	L	92	144	217	96.27	61.35	1.70	88	88	48	45
PS FIR	T	73	146	176	84.15	42.07	1.09	61	61	24	22
Totals		61,822	102,776	59,116	31.89	19.18	0.59	19,716	19,717	7,731	7,686

Wood Type Species	Total	Total	Total	Net Cubic Ft/		CF/ LF	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log		Gross	Net	Gross	Net
C	60,698	100,929	57,890	31.73	19.08	0.58	19,261	19,261	7,564	7,526
H	1,124	1,847	1,226	40.50	24.65	0.80	455	455	167	160
Totals	61,822	102,776	59,116	31.89	19.18	0.59	19,716	19,717	7,731	7,686



Forest Practices Application/Notification
Notice of Decision

FPA/N No: 2817286
Effective Date: 12/11/2019
Expiration Date: 12/11/2022
Shut Down Zone: 658
EARR Tax Credit: [x] Eligible [] Non-eligible
Reference: Brushcrasher

Decision

- [] Notification Operations shall not begin before the effective date.
[x] 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 [x] Class III [] Class IVG [] Class IVS [] 4 years [] 5 years

Conditions on Approval / Reasons for Disapproval

No additional conditions.

FOR YOUR INFORMATION:

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

Issued By: Steven Huang Region: Northwest

Title: Skykomish Forest Practice Forester Date: 12/11/2019

Copies to: [x] Landowner, Timber Owner and Operator.

Issued in person: [x] Landowner [] Timber Owner [] Operator By: [Signature]

Appeal Information

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

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

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

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

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

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

And

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

Other Applicable Laws

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

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 _____	Sedro-Woolley _____,	WA,
(date)		(post office location)	
postage paid, a true and accurate copy of this document. Notice of Decision FPA # _____			
_____		_____	
(Printed name)		(Signature)	

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

BRUSHCRASHER TIMBER SALE ROAD PLAN
SNOHOMISH COUNTY
CASCADE DISTRICT
NORTHWEST REGION

AGREEMENT NO.: 30-098288

STAFF ENGINEER: A. HALGREN

DATE: JULY 24, 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>
WF-ML	0+00 TO 455+50	MAINTENANCE
WF-84	0+00 to 27+68	CONSTRUCTION

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>
WF-8401	0+00 TO 14+95	CONSTRUCTION
WF-8403	0+00 TO 42+65	CONSTRUCTION
WF-8403-05	0+00 TO 14+30	RECONSTRUCTION
WF-87	0+00 TO 40+30	MAINTENANCE

0-4 CONSTRUCTION

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

0-5 RECONSTRUCTION

Reconstruction includes, but is not limited to blading, shaping, and ditching the road surface, brushing, clearing, grubbing, culvert installation, and application of 3-inch-minus ballast rock.

0-6 PRE-HAUL MAINTENANCE

Pre-haul maintenance includes, but is not limited to, brushing and application of 3-inch-minus ballast rock.

0-7 POST-HAUL MAINTENANCE

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

0-10 ABANDONMENT

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

0-12 DEVELOP ROCK SOURCE

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

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-5 DESIGN DATA

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

1-6 ORDER OF PRECEDENCE

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

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

1-18 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

On the following road(s), Purchaser shall complete road work by the specified date.

<u>Road</u>	<u>Stations</u>	<u>Date</u>
WF-84	0+00 to 27+68	November 1, 2020

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

On the following road(s), Purchaser shall notify the Contract Administrator a minimum of 14 calendar days before work begins.

<u>Road</u>	<u>Stations</u>	<u>Comments</u>
WF-ML	413+13 to 455+50	These road segments are commonly used by Wallace Falls State Park hikers.
WF-87	0+00 to 40+30	

1-25 ACTIVITY TIMING RESTRICTION

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

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

1-26 OPERATING DURING CLOSURE PERIOD

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

1-29 SEDIMENT RESTRICTION

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

1-30 CLOSURE TO PREVENT DAMAGE

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

- Wheel track rutting exceeds 4 inches on crushed rock 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.

1-33 SNOW PLOWING RESTRICTION

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

SECTION 2 – MAINTENANCE

2-1 GENERAL ROAD MAINTENANCE

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

2-2 ROAD MAINTENANCE – PURCHASER MAINTENANCE

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

2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER

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

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

3-1 BRUSHING

On the following road(s), Purchaser shall cut vegetative material up to 6 inches in diameter, including limbs, as shown on the BRUSHING DETAIL. Brushing must be achieved by mechanical 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>
WF-ML	0+00 TO 455+50
WF-87	0+00 TO 40+30

3-5 CLEARING

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

3-8 PROHIBITED DECKING AREAS

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

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

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. Grubbing must be completed before starting excavation and embankment.

3-20 ORGANIC DEBRIS DEFINITION

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

3-21 DISPOSAL COMPLETION

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

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 50%.
- Within the operational area for cable landings where debris may shift or roll.
- On locations where brush can fall into the ditch or onto the road surface.
- Against standing timber.

3-24 BURYING ORGANIC DEBRIS RESTRICTED

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

3-25 SCATTERING ORGANIC DEBRIS

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

SECTION 4 – EXCAVATION

4-2 PIONEERING

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

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

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

Purchaser shall follow these standards for road grade and alignment:

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

Grade limitations and alignment are modified as follows:

<u>Road</u>	<u>Stations</u>	<u>Minimum Curve Radius (ft)</u>	<u>Maximum Grade (%)</u>		<u>Comments</u>
			<u>Favorable</u>	<u>Adverse</u>	
WF-84	0+00 TO 20+50	70	15	12	Permanent road
WF-84	20+50 TO 25+04	70	-	8	Switchback
WF-84	25+04 TO 27+68	70	15	12	Permanent road
WF-8403	11+77 TO 15+31	70	-	8	Switchback
WF-8403	29+49 TO 32+13	70	-	8	Switchback

4-4 SWITCHBACK STANDARDS

A switchback is defined as a curved segment of road between a beginning and end of the same curve, where the change of traffic travel direction is greater than 90 degrees.

Purchaser shall follow these standards for switchbacks:

- Maximum adverse grades for switchbacks is 8%.
- Maximum favorable grades for switchbacks is 12%.
- Maximum transition grades entering and leaving switchbacks is a 5% grade change.

Transition grades required to meet switchback grade limitations must be constructed on the tangents preceding and departing from the switchbacks.

4-5 CUT SLOPE RATIO

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

<u>Material Type</u>	<u>Excavation Slope Ratio</u>	<u>Excavation Slope Percent</u>
Common Earth (on side slopes up to 55%)	1:1	100
Common Earth (56% to 70% side slopes)	¾:1	133
Common Earth (on slopes over 70%)	½:1	200
Fractured or loose rock	½:1	200
Hardpan or solid rock	¼:1	400

4-6 EMBANKMENT SLOPE RATIO

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

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

4-7 SHAPING CUT AND FILL SLOPE

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

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

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

4-9 EMBANKMENT WIDENING

The minimum embankment widening is:

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

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

4-12 FULL BENCH CONSTRUCTION

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

<u>Road</u>	<u>Full Bench Location</u>	<u>Comments</u>
WF-84	19+83 TO 20+20	Full bench is required to achieve grade.
WF-84	25+04 TO 27+00	Full bench is required to achieve grade approaching the WF-87 road.
WF-8403	6+82 TO 8+60	-

4-21 TURNOUTS

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

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

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

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

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

4-35 WASTE MATERIAL DEFINITION

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

4-36 DISPOSAL OF WASTE MATERIAL

Purchaser may sidecast waste material on side slopes up to 50% if the waste material is compacted and free of organic debris. On side slopes greater than 50%, all waste material must be end hauled or pushed to the designated embankment sites and waste areas identified in Clause 4-37 WASTE AREA LOCATION.

4-37 WASTE AREA LOCATION

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

<u>Road</u>	<u>Waste Area Location</u>	<u>Volume</u>
WF-84	7+98 to 11+15	1200
WF-8403	4+01 to 6+12	1000
WF-8403	18+72 to 19+81	500

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 50%.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Against standing timber.
- Outside the clearing limits.

4-55 ROAD SHAPING

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

4-60 FILL COMPACTION

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

4-61 SUBGRADE COMPACTION

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

4-70 SUBGRADE REINFORCEMENT

On the following road(s), Purchaser shall provide and install geotextile fabric. Subgrade reinforcement must be installed to a width that is 2 feet more than the subgrade width, including turnouts. Geotextile fabric must overlap by a minimum of 2 feet at all joints. The geotextile fabric must be covered with a minimum of 12 inches of compacted 3-inch-minus ballast rock/gravel ballast. Purchaser shall apply rock in one-foot lift(s) over the geotextile in accordance with the manufacturer’s specifications. Geotextile fabric must meet the specifications in Clause 10-3 GEOTEXTILE FOR STABILIZATION.

<u>Road</u>	<u>Stations</u>
WF-84	12+23 TO 15+77

SECTION 5 – DRAINAGE

5-5 CULVERTS

Purchaser shall install culverts as part of this contract. Culverts must be installed concurrently with subgrade work and must be installed before subgrade compaction and rock application. Culvert locations and the minimum requirements for culvert length and diameter are designated on the MATERIALS LIST. Culvert, downspout, and flume lengths may be adjusted to fit as-built conditions and may not terminate directly on unprotected soil. Culverts may be new or used material as otherwise specified in this plan and meet the specifications in Clauses 10-15 through 10-24.

5-7 USED CULVERT MATERIAL

On temporary roads, Purchaser may install used culverts. All other roads must have new culverts installed. Purchaser shall obtain approval from the Contract Administrator for the quality of the used culverts before installation. Culverts must meet the specifications in Clauses 10-15 through 10-24.

5-12 UNUSED MATERIALS STATE PROPERTY

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

5-15 CULVERT INSTALLATION

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

5-17 CROSS DRAIN SKEW AND SLOPE

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

5-18 CULVERT DEPTH OF COVER

Cross drain culverts must be installed with a depth of cover of not less than 1 foot of compacted subgrade over the top of the culvert at the shallowest point. Stream crossing culverts must be installed with a depth of cover recommended by the culvert manufacturer for the type and size of the pipe.

5-20 ENERGY DISSIPATERS

Purchaser shall install energy dissipaters in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL. 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 AND DRAINAGE SPECIFICATION DETAIL.

5-25 CATCH BASINS

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

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

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

SECTION 6 – ROCK AND SURFACING

6-2 ROCK SOURCE ON STATE LAND

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

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
WF-85 Pit	449+20 of the WF-ML	Hard Rock

6-5 ROCK FROM COMMERCIAL SOURCE

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

6-11 ROCK SOURCE DEVELOPMENT PLAN BY PURCHASER

Purchaser shall conduct rock source development and use in accordance with a written ROCK SOURCE DEVELOPMENT PLAN to be prepared by the Purchaser. The plan is subject to written approval by the Contract Administrator before any rock source operations. Upon completion of operations, the rock source must be left in the condition specified in the ROCK SOURCE DEVELOPMENT PLAN, and approved in writing by the Contract Administrator.

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

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

6-12 ROCK SOURCE SPECIFICATIONS

Rock sources must be in accordance with the following specifications:

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

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

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

6-21 IN-PLACE PROCESSING

On temporary roads Purchaser may use in-place processing, such as a grid roller or other method, if suitable crushing can be demonstrated to meet the surfacing size specified in Clause 6-38 4-INCH IN-PLACE ROCK. Purchaser shall remove any existing organic debris before the start of in-place crushing operations. The use of in-place processing methods is subject to written approval by the Contract Administrator.

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

6-34 3-INCH MINUS BALLAST ROCK

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

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

6-38 4-INCH IN-PLACE ROCK

4-inch in-place rock must have a minimum of 90 percent of the top 4 inches of the running surface pass a 4-inch square opening.

In-place rock may not contain more than 5 percent by weight of organic debris and trash. No more than 50 percent of rock may be larger than 6 inches in any dimension and no rock may be larger than 10 inches in any dimension.

6-50 LIGHT LOOSE RIP RAP

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

<u>Quantity</u>	<u>Approximate Size Range</u>
20% to 90%	500 lbs. to 1 ton (18" - 28")
15% to 80%	50 lbs. to 500 lbs. (8" - 18")
10% to 20%	3 inch to 50 lbs. (3" - 8")

6-51 HEAVY LOOSE RIP RAP

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

<u>Quantity</u>	<u>Size Range</u>
30% to 90%	1 ton to 2 ton (28" - 36")
30% to 70%	500 lbs. to 1 ton (18" - 28")
20% to 50%	50 lbs. to 500 lbs. (8" - 18")
10% to 20%	3 inch to 50 lbs. (3" - 8")

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

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

6-70 APPROVAL BEFORE ROCK APPLICATION

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

6-71 ROCK APPLICATION

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

6-73 ROCK FOR WIDENED PORTIONS

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

SECTION 7 – STRUCTURES

7-71 GATE CLOSURE DURING HAUL

On the following road(s), Purchaser shall keep gates closed 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>	<u>Comment</u>
WF-ML	16+00	Keep gate swung shut during haul; it is not necessary to lock the gate (except overnight) during active haul.

SECTION 8 – EROSION CONTROL

8-1 SEDIMENT CONTROL STRUCTURES

On the following road(s), Purchaser shall install silt fencing to be approved in writing by the Contract Administrator. Sediment control shall be accomplished using geotextile that meets the specifications in clause 10-6 GEOTEXTILE FOR TEMPORARY SILT FENCE.

<u>Road</u>	<u>Stations</u>
WF-87	21+60 to 32+30
WF-87	33+30 to 36+30

8-5 CHECK DAM

On the following road(s), Purchaser shall construct rock check dams every 4 vertical feet in the ditch. Check dams must be built with 3-inch minus crushed rock to a depth of 8 inches and a length of 4 feet.

<u>Road</u>	<u>Stations</u>	<u>Minimum Number</u>
WF-84	25+04 to 27+39	7
WF-8403	41+64 to 42+65	2

8-10 STABILIZE SLOPES – ROCK APPLICATION

On the following road(s), Purchaser shall stabilize embankment (fill) slopes by applying rock as specified below. Rock must be set in place immediately following construction of the embankment. Rock must be applied in quantities specified in the MATERIALS LIST to exposed soil on the entire embankment to a minimum depth specified below. 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. Rip rap must meet the specifications in Clause 6-50 LIGHT LOOSE RIP RAP and 6-51 HEAVY LOOSE RIP RAP.

<u>Road</u>	<u>Stations</u>	<u>Rock Type</u>	<u>Minimum Depth</u>
WF-84	27+39 to 27+68	LIGHT LOOSE AND HEAVY LOOSE RIP RAP	24" (10cy minimum)

8-15 REVEGETATION

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

8-16 REVEGETATION SUPPLY

The Purchaser shall provide the grass seed and fertilizer as directed in clauses 8-25 GRASS SEED and 8-27 FERTILIZER.

8-17 REVEGETATION TIMING

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

8-18 PROTECTION FOR SEED

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

8-19 ASSURANCE FOR SEEDED AREA

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

8-25 GRASS SEED

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

1. Weed seed may not exceed 0.5% by weight.
2. All seed species must have a minimum 90% germination rate, unless otherwise specified.
3. Seed must be certified.
4. Seed must be furnished in standard containers showing the following information:
 - a. Common name of seed
 - b. Net weight
 - c. Percent of purity
 - d. Percentage of germination
 - e. Percentage of weed seed and inert material
5. Seed must conform to the following mixture 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>
Creeping Red Fescue	50
Elf Perennial Rye Grass	25
Highland Colonial Bentgrass	15
White Clover	10
Inert and Other Crop	0.5

8-27 FERTILIZER

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

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

SECTION 9 – POST-HAUL ROAD WORK

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

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

9-5 POST-HAUL MAINTENANCE

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

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

9-21 ROAD ABANDONMENT

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

<u>Road</u>	<u>Stations</u>	<u>Type</u>
WF-8401	0+00 TO 14+95	ABANDONMENT
WF-8403	25+52 TO 42+65	ABANDONMENT
WF-8403-05	0+00 TO 14+30	ABANDONMENT
WF-87	0+00 TO 30+80	ABANDONMENT FOR TRAIL CONVERSION

9-22 ABANDONMENT

- Remove all ditch relief culverts. The resulting slopes must be 1:1 or flatter. Place and compact the removed fill material in a location that will not erode into any Type 1 through 5 waters or wetlands.
- Remove all culverts in natural drainages. The resulting slopes must be 1.5:1 or flatter. Strive to match the existing native stream bank gradient. The natural streambed width must be re-established. Place and compact the removed fill material in a location that will not erode into any Type 1 through 5 waters or wetlands.
- Transport all removed culverts off site. All removed culverts are the property of the Purchaser.
- Construct non-drivable waterbars at natural drainage points and at a spacing that will produce a vertical drop of no more than 20 feet between waterbars and with a maximum horizontal spacing of 400 feet.
- Skew waterbars at least 30 degrees from perpendicular to the road centerline on roads in excess of 3 percent grade.
- Key waterbars into the cut-slope to intercept the ditch. Waterbars must be outsloped to provide positive drainage. Outlets must be on stable locations.
- Inslope or outslope the road as appropriate.
- Remove bridges and other structures.
- Pull back unstable fill that has potential of failing and entering any Type 1 through 5 waters or wetlands. Place and compact removed material in a stable location.
- Remove berms except as designed.
- Block the road by constructing an aggressive barrier of dense interlocked large woody debris (logs, stumps, root wads, etc.) so that four wheel highway vehicles cannot pass the point of abandonment. Typical barrier dimensions are 10 feet high by 20 feet deep, spanning the entire road prism from top of cutslope to toe of fillslope. Long term effectiveness is the primary objective. If necessary construct a vehicular turn-around near the point of abandonment.
- Apply grass seed to all exposed soils resulting from the abandonment work and in accordance with Section 8 EROSION CONTROL.

9-23 ABANDONMENT FOR TRAIL CONVERSION

Complete all work as listed in clause 9-22 ABANDONMENT with the following modifications so that the abandoned road may be easily traversed by hikers, bicyclists, and horses:

- At all culvert removals and waterbars the resulting slopes must be 3:1 or flatter.
- Do NOT block the road with large woody debris. Roads shall be blocked with Riprap according to the RIPRAP BARRICADE DETAIL.

SECTION 10 MATERIALS

10-3 GEOTEXTILE FOR STABILIZATION

Geotextiles must meet the following minimum requirements for strength and property qualities, and must be designed by the manufacturer to be used for stabilization or reinforcement, and filtration. Material must be free of defects, cuts, and tears.

	<u>ASTM Test</u>	<u>Requirements</u>
Type	--	Woven
Apparent opening size	D 4751	No. 40 max
Water permittivity	D 4491	0.10 sec ⁻¹
Grab tensile strength	D 4632	315 lb
Grab tensile elongation	D 4632	50%
Puncture strength	D 6241	620 lb
Tear strength	D 4533	112 lb
Ultraviolet stability	D 4355	50% retained after 500 hours of exposure

10-6 GEOTEXTILE FOR TEMPORARY SILT FENCE

Geotextiles must meet the following minimum requirements for strength and property qualities, and must be designed by the manufacturer to be used for filtration. Woven slit-film geotextiles are not allowed. Material must be free of defects, cuts, and tears.

	<u>ASTM Test</u>	<u>Requirements</u>
Type	--	Unsupported between posts
Apparent opening size	D 4751	No. 30 max., No. 100 min.
Water permittivity	D 4491	0.02 sec ⁻¹
Grab tensile strength	D 4632	180 lb in machine direction, 100lb in cross-machine direction
Grab tensile elongation	D 4632	30% max. at 180 lb or more
Ultraviolet stability	D 4355	70% retained after 500 hours of exposure

10-15 CORRUGATED STEEL CULVERT

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

10-16 CORRUGATED ALUMINUM CULVERT

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

10-17 CORRUGATED PLASTIC CULVERT

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

10-21 METAL BAND

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

10-22 PLASTIC BAND

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

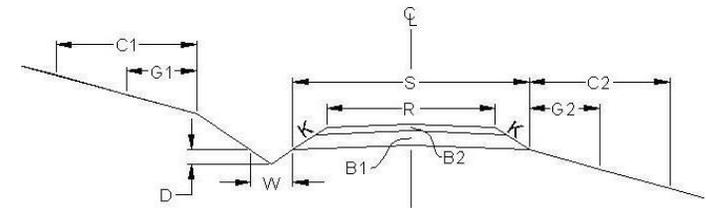
10-24 GAUGE AND CORRUGATION

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

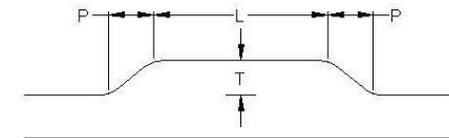
<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>
18"	16 (0.064")	2 2/3" X 1/2"
24" to 48"	14 (0.079")	2 2/3" X 1/2"
54" to 96"	14 (0.079")	3" X 1"

ROAD #		WF-ML	WF-84	WF-8401	WF-8403
REQUIRED / OPTIONAL		REQUIRED	REQUIRED	OPTIONAL	OPTIONAL
CONSTRUCT / RECONSTRUCT		MAINTENANCE	CONSTRUCT	CONSTRUCT	CONSTRUCT
TOLERANCE CLASS (A/B/C)		C	C	C	C
STATION / MP TO		0+00	0+00	0+00	0+00
STATION / MP		455+50	27+68	14+95	42+65
ROAD WIDTH	R	12	12	12	12
CROWN (INCHES @ C/L)		3	3	3	3
DITCH WIDTH	W	3	3	2	2
DITCH DEPTH	D	1	1	1	1
TURNOUT LENGTH	L	50	50	25	25
TURNOUT WIDTH	T	10	10	10	10
TURNOUT TAPER	P	25	25	25	25
GRUBBING	G1	5	5	5	5
	G2	5	5	5	5
CLEARING	C1	10	10	10	10
	C2	10	10	10	10
ROCK FILLSLOPE	K:1	1 ½	1 ½	1 ½	1 ½
❖ BALLAST DEPTH	B1	-	18	12	12
CUBIC YARDS / STATION		-	114	72	72
➤ TOTAL CY BALLAST		800*	3160	1080	3080
❖ SURFACING DEPTH	B2				
CUBIC YARDS / STATION					
➤ TOTAL CY SURFACING					
➤ TOTAL CUBIC YARDS		800*	3160	1080	3080
SUBGRADE WIDTH	S	-	16.5	15.0	15.0
BRUSHCUT (Y/N)		Y	N/A	N/A	N/A
BLADE, SHAPE, & DITCH (Y/N)			N/A	N/A	N/A

TYPICAL SECTION



TURNOUT DETAIL (PLAN VIEW)



SYMBOL NOTES

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

*Ballast rock for spot patching as directed by the contract administrator.

Rock Totals Summary

Type	Quantity (Cubic Yards)
Ballast	9550
Rip Rap	244

ROAD #		WF-8403-05	WF-87	WF-87	WF-87			
REQUIRED / OPTIONAL		OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL			
CONSTRUCT / RECONSTRUCT		RECONSTRUCT	MAINTENANCE	MAINTENANCE	MAINTENANCE			
TOLERANCE CLASS (A/B/C)		C	C	C	C			
STATION / MP TO		0+00	0+00	21+60	32+30			
STATION / MP		14+30	21+60	32+30	40+30			
ROAD WIDTH	R	12	-	12	-			
CROWN (INCHES @ C/L)		3	-	3	-			
DITCH WIDTH	W	2	-	2	-			
DITCH DEPTH	D	1	-	1	-			
TURNOUT LENGTH	L	25	-	25	-			
TURNOUT WIDTH	T	10	-	10	-			
TURNOUT TAPER	P	25	-	25	-			
GRUBBING	G1	5	-	5	-			
	G2	5	-	5	-			
CLEARING	C1	10	-	10	-			
	C2	10	-	10	-			
ROCK FILLSLOPE	K:1	1 ½	-	1 ½	-			
❖ BALLAST DEPTH	B1	12	-	-	-			
CUBIC YARDS / STATION		72	-	-	-			
➤ TOTAL CY BALLAST		1030	-	400*	-			
❖ SURFACING DEPTH	B2							
CUBIC YARDS / STATION								
➤ TOTAL CY SURFACING								
➤ TOTAL CUBIC YARDS		1030	-	400*	-			
SUBGRADE WIDTH	S	15.0	-	-	-			
BRUSHCUT (Y/N)		Y	Y	Y	Y			
BLADE, SHAPE, & DITCH (Y/N)		Y	N	Y	N			

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS		
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			Note: Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:		
												Diameter	Gage	Corrugation
												18" 16 2 2/3" x 1/2" 24" – 48" 14 2 2/3" x 1/2" 54" – 96" 14 3" x 1"		
WF-84	0+17	18	40	GM	/	/	3	5	L	NT	C			
	2+67	18	36	XX	/	/	2	3	L	NT	C			
	5+12	18	36	XX	/	/	2	3	L	NT	C			
	7+98	18	36	XX	/	/	2	3	L	NT	C			
	9+43	18	36	XX	/	/	2	3	L	NT	C			
	11+70	18	36	XX	/	/	2	3	L	NT	C			
	12+23	-	-	-	-	-	-	-	-	-	-	Start geotextile		
	13+27	24	36	GM	/	/	3	5	L/H	NT	C			
	13+99	24	36	GM	/	/	3	5	L/H	NT	C			
	14+68	18	30	XX	/	/	2	3	L	NT	C			
	15+77	-	-	-	-	-	-	-	-	-	-	End geotextile		
	17+29	18	40	XX	/	/	2	3	L	NT	C			
	19+83	-	-	-	-	-	-	-	-	-	-	Begin full bench construction, see 4-12		
	20+20	-	-	-	-	-	-	-	-	-	-	End full bench construction, see 4-12		
	21+10	18	36	XX	/	/	2	3	L	NT	C			
	22+11	24	36	GM	/	/	3	5	L	NT	C			
	24+35	18	36	XX	/	/	2	3	L	NT	C			
	25+04	-	-	-	-	-	-	-	-	-	-	Begin full bench construction and check dams (clause 8-5)		
	27+00	-	-	-	-	-	-	-	-	-	-	End full bench construction.		
	27+39	-	-	-	-	-	-	-	-	-	-	End check dams, ditchout to WF-87 ditchline.		
	27+39 to 27+68	-	-	-	-	-	10	-	L/H	SR	C	WF-87 may capture stream flow due to stream avulsion. Armor the embankment (fill) according to clause 8-10.		

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

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS		
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			Note: Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:		
												Diameter	Gage	Corrugation
WF-8403	1+90	18	30	XX	/	/	2	3	L	NT	C			
	3+48	18	36	XX	/	/	2	3	L	NT	C			
	5+23	18	36	XX	/	/	2	3	L	NT	C			
	6+82 TO 8+60	-	-	-	-	-	-	-	-	-	-	-	Full bench construction, see clause 4-12	
	8+99	18	30	XX	/	/	2	3	L	NT	C			
	10+88	18	36	XX	/	/	2	3	L	NT	C			
	15+85	18	36	XX	/	/	2	3	L	NT	C			
	18+72	18	36	XX	/	/	2	3	L	NT	C			
	21+79	18	36	XX	/	/	2	3	L	NT	C			
	24+78	18	36	XX	/	/	2	3	L	NT	C			
	28+18	18	36	XX	/	/	2	3	L	NT	C			
	29+24	-	-	-	-	-	-	-	-	-	-	-	Ditchout	
	32+76	18	30	XX	/	/	2	3	L	NT	C			
	35+08	18	30	XX	/	/	2	3	L	NT	C			
	35+51	24	30	GM	/	/	3	5	L/H	NT	C			
	37+23	18	36	XX	/	/	2	3	L	NT	C			
	41+64	18	30	XX	/	/	2	3	L	NT	C	Start check dams, see clause 8-5		
	42+65	-	-	-	-	-	-	-	-	-	-	-	End check dams, ditchout	

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

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS		
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			Note: Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:		
												Diameter	Gage	Corrugation
WF-8403-05	1+50	18	30	XX	/	/	2	3	L	NT	C			
	4+10	24	40	GM	/	/	3	5	L/H	NT	C			
	5+17	18	30	XX	/	/	2	3	L	NT	C			
	6+12	18	30	XX	/	/	2	3	L	NT	C			
	10+29	18	30	XX	/	/	2	3	L	NT	C			
	10+92	24	40	GM	/	/	3	5	L/H	NT	C			
	11+72	18	30	XX	/	/	2	3	L	NT	C			
	14+30	-	-	-	-	-	-	-	-	-	-	Ditchout		
WF-87	27+68	-	-	-	-	-	-	-	-	-	-	Water bar prior to junction with WF-84		

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

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Cuts and Fills

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

Surface

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

Drainage

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

Preventative Maintenance

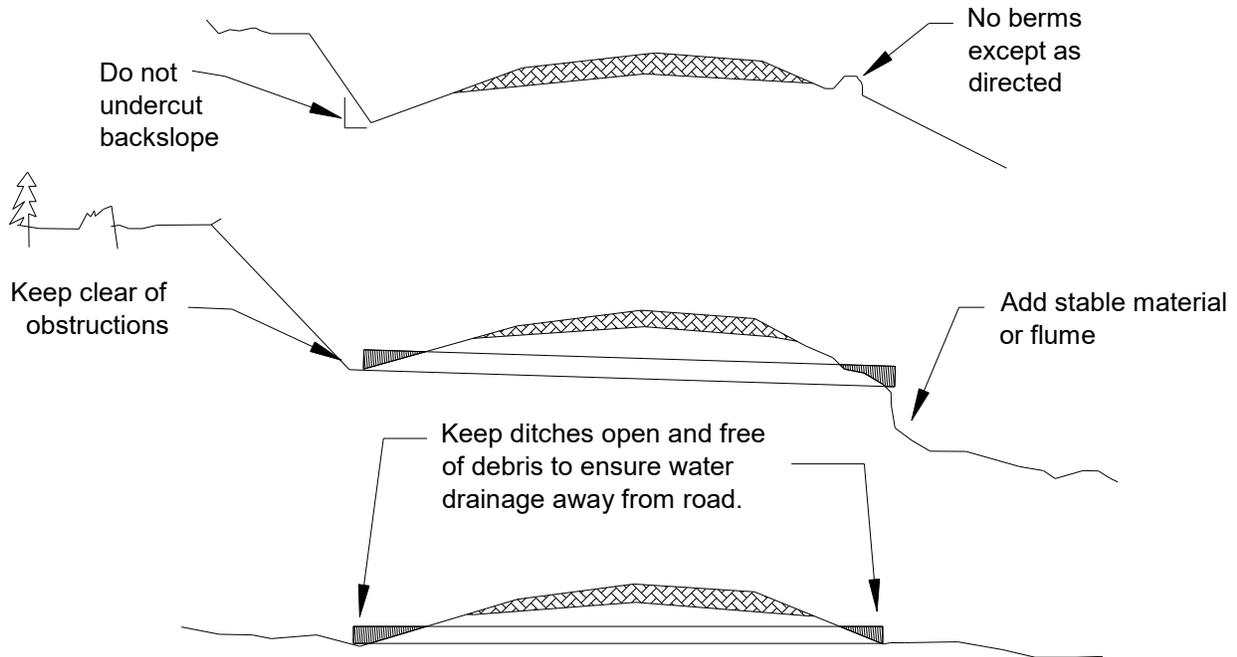
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

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

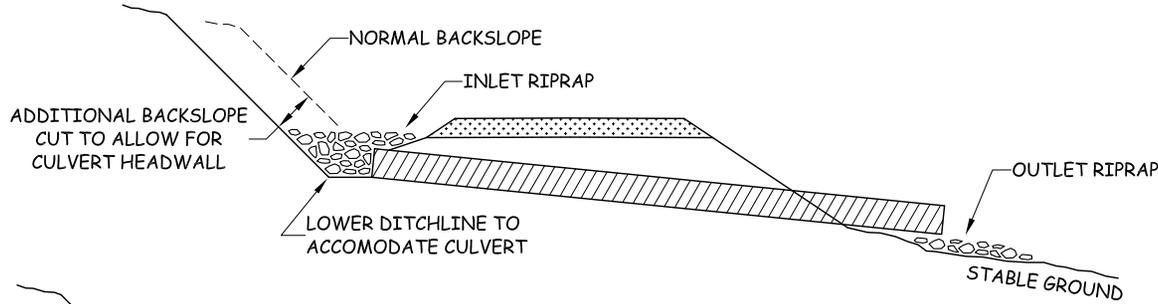
Debris

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

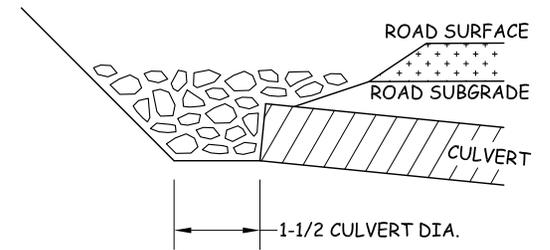


CULVERT AND DRAINAGE SPECIFICATIONS

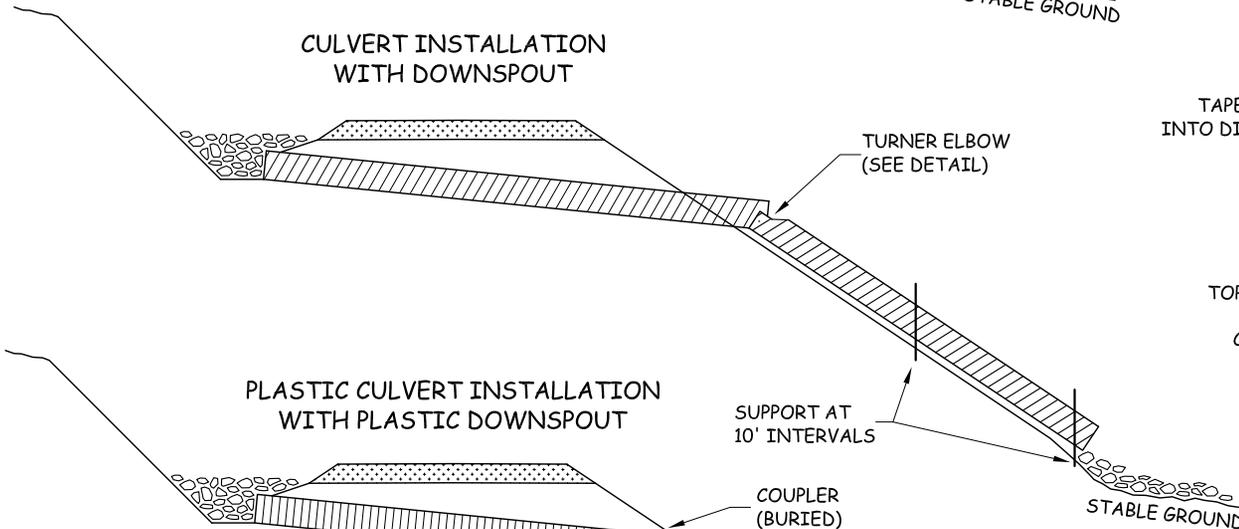
CULVERT INSTALLATION (TYPICAL)



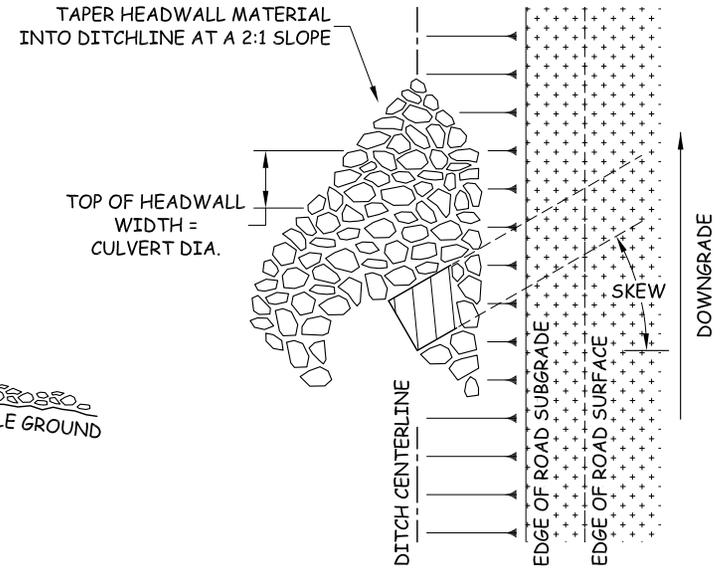
CULVERT HEADWALL - SECTION VIEW



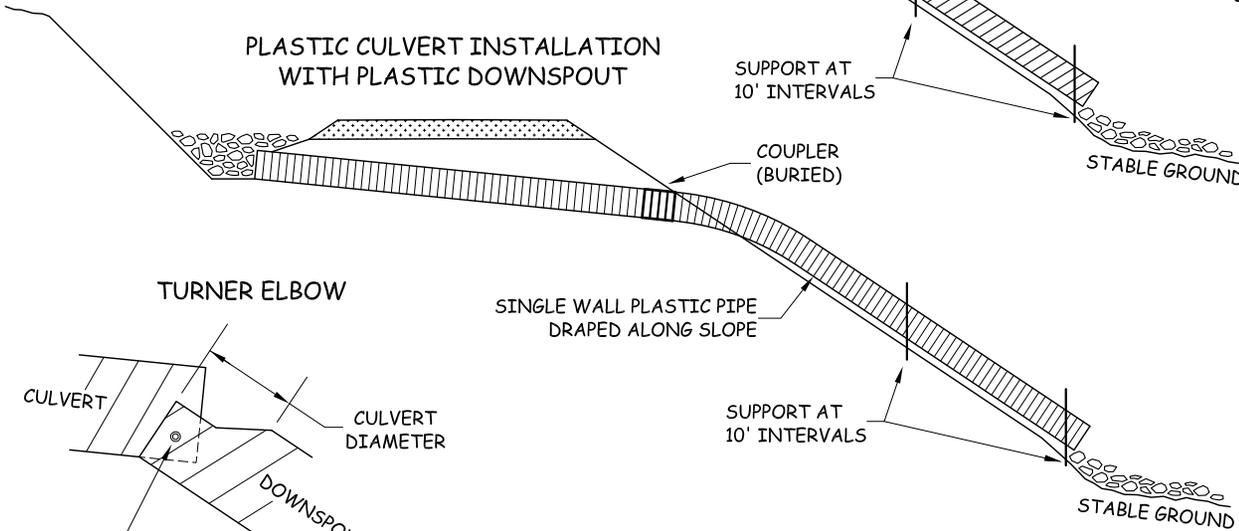
CULVERT INSTALLATION WITH DOWNSPOUT



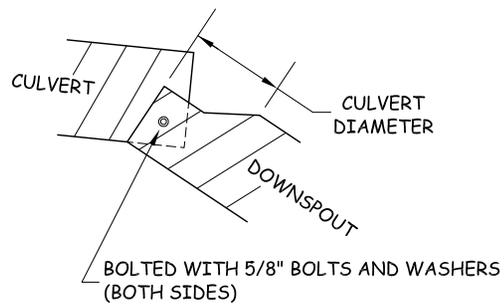
CULVERT HEADWALL - PLAN VIEW



PLASTIC CULVERT INSTALLATION WITH PLASTIC DOWNSPOUT



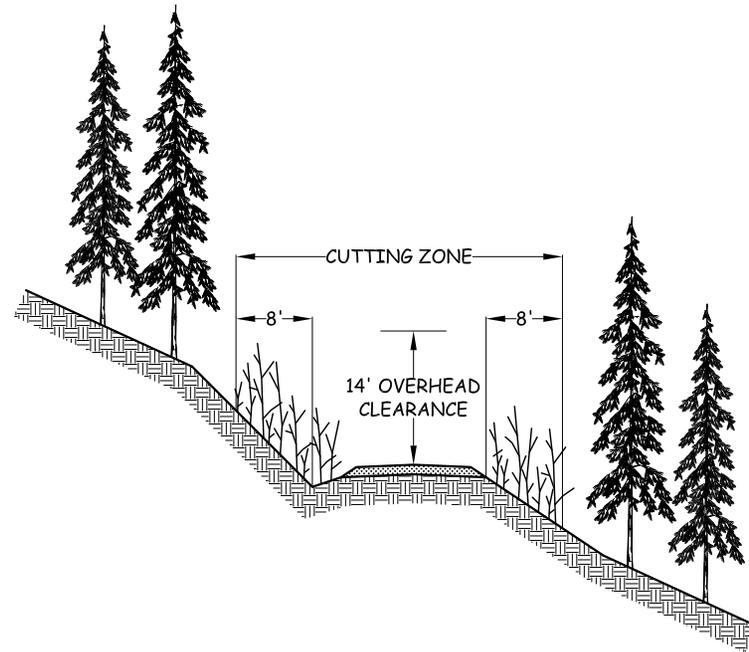
TURNER ELBOW



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

CONTRACT # 30-098288	PROJECT BRUSHCRASHER	SHEET 34 OF 36
-------------------------	-------------------------	-------------------

ROAD BRUSHING DETAILS



SPECIFICATIONS

BRUSH SHALL BE CUT ON THE ROAD SURFACE AND 8 ft. BACK FROM ROAD DITCH AND OUTSIDE EDGE OF RUNNING SURFACE.

ON THE INSIDE OF SWITCHBACKS AND TIGHT CURVES, BRUSH SHALL BE CUT BACK 16 ft. FOR VISIBILITY.

ON TRUCK TURNOUTS, BRUSH SHALL BE CUT 8 ft. BACK FROM OUTSIDE EDGE.

BRUSH SHALL BE CUT TO PROVIDE AN OVERHEAD CLEARANCE OF 14 ft. ABOVE THE ROAD RUNNING SURFACE.

BRUSH SHALL BE CUT TO WITHIN 6 in. OF THE GROUND.

SLASH SHALL BE REMOVED FROM CUT SLOPES ABOVE THE ROAD AND SCATTERED ON EMBANKMENT SLOPES.

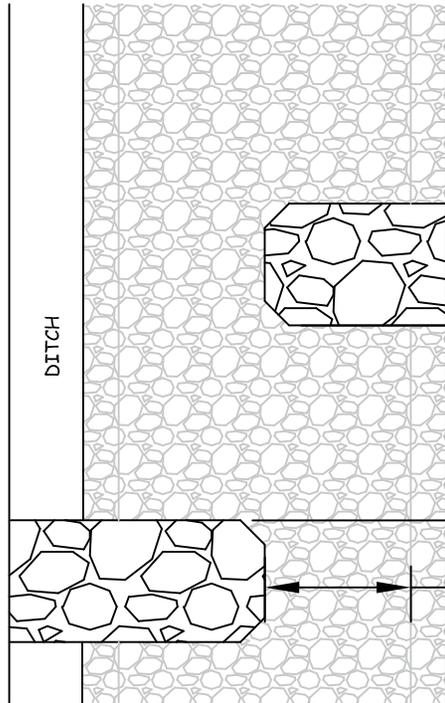
DITCHES SHALL BE CLEARED OF WOODY DEBRIS.

CULVERT INLETS AND OUTLETS SHALL BE CLEANED A MINIMUM DISTANCE OF TWO PIPE DIAMETERS AWAY.

CONTRACT # 30-098288	PROJECT BRUSHCRASHER	SHEET 35 OF 36
-------------------------	-------------------------	-------------------

RIPRAP BARRICADE DETAIL

SPEED CONTROL BARRICADE

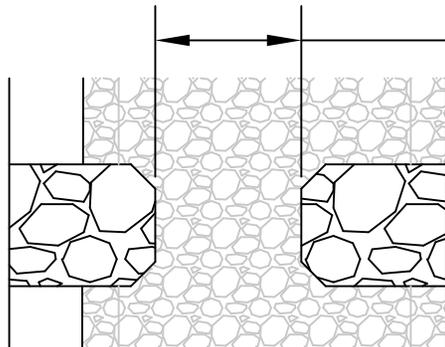


DITCH

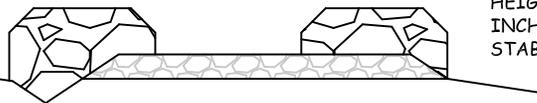
SPACING BETWEEN SPEED CONTROL BARRICADES
MUST BE A MINIMUM OF EIGHT FEET

GAP BETWEEN RIP RAP BARRICADE AND SHOULDER
MUST BE AT LEAST 4.5 FEET BUT NOT MORE THAN 6
FEET

TRAILHEAD BARRICADE



GAP BETWEEN TRAILHEAD BARRICADES MUST BE AT
LEAST 4.5 FEET BUT NOT MORE THAN 6 FEET



HEIGHT OF BARRICADE SHALL BE AT LEAST 24
INCHES. RIPRAP SHALL BE PLACED SO THAT IT IS
STABLE.

CONSTRUCTION NOTES:

RIPRAP BARRICADES FOR ABANDONMENT SHALL CONSIST OF HEAVY LOOSE RIPRAP. ABANDONMENT SHALL CONSIST OF A TRAILHEAD BARRICADE AND A SPEED CONTROL BARRICADE, TOTALING A MINIMUM OF 20CY HEAVY LOOSE RIPRAP.

CONTRACT #
30-098288

PROJECT
BRUSHCRASHER

SHEET
36 OF 36

SUMMARY - Road Development Costs

REGION: NW
DISTRICT: Cascade

SALE/PROJECT NAME: BRUSHCRASHER

CONTRACT #: 30-098288

ROAD NUMBERS:	WF-84, WF-8401, WF-8403	WF-8403-05	WF-ML, WF-87
ROAD STANDARD:	Construction	Reconstruction	Maintenance
NUMBER OF STATIONS:	85.28	14.30	6,446.51
CLEARING & GRUBBING:	\$16,824.04	\$686.40	\$6,446.51
EXCAVATION AND FILL:	\$30,227.40	\$1,101.10	-
MISC. MAINTENANCE:			-
ROAD ROCK:	\$76,004.28	\$11,333.67	\$8,984.00
ROCK STOCKPILE PROD:	-	-	-
CULVERTS AND FLUMES:	\$21,957	\$4,769	-
STRUCTURES:	\$0	\$0	\$0
MOBILIZATION:	\$4,675	-	\$2,325
TOTAL COSTS:	\$149,688	\$17,890	\$17,756
COST PER STATION:	\$1,755	\$1,251	\$3
ROAD DEACTIVATION & ABANDONMENT COSTS:		\$9,491	

TOTAL (All Roads) = \$194,824
SALE VOLUME MBF = 4323
TOTAL \$/MBF = \$45

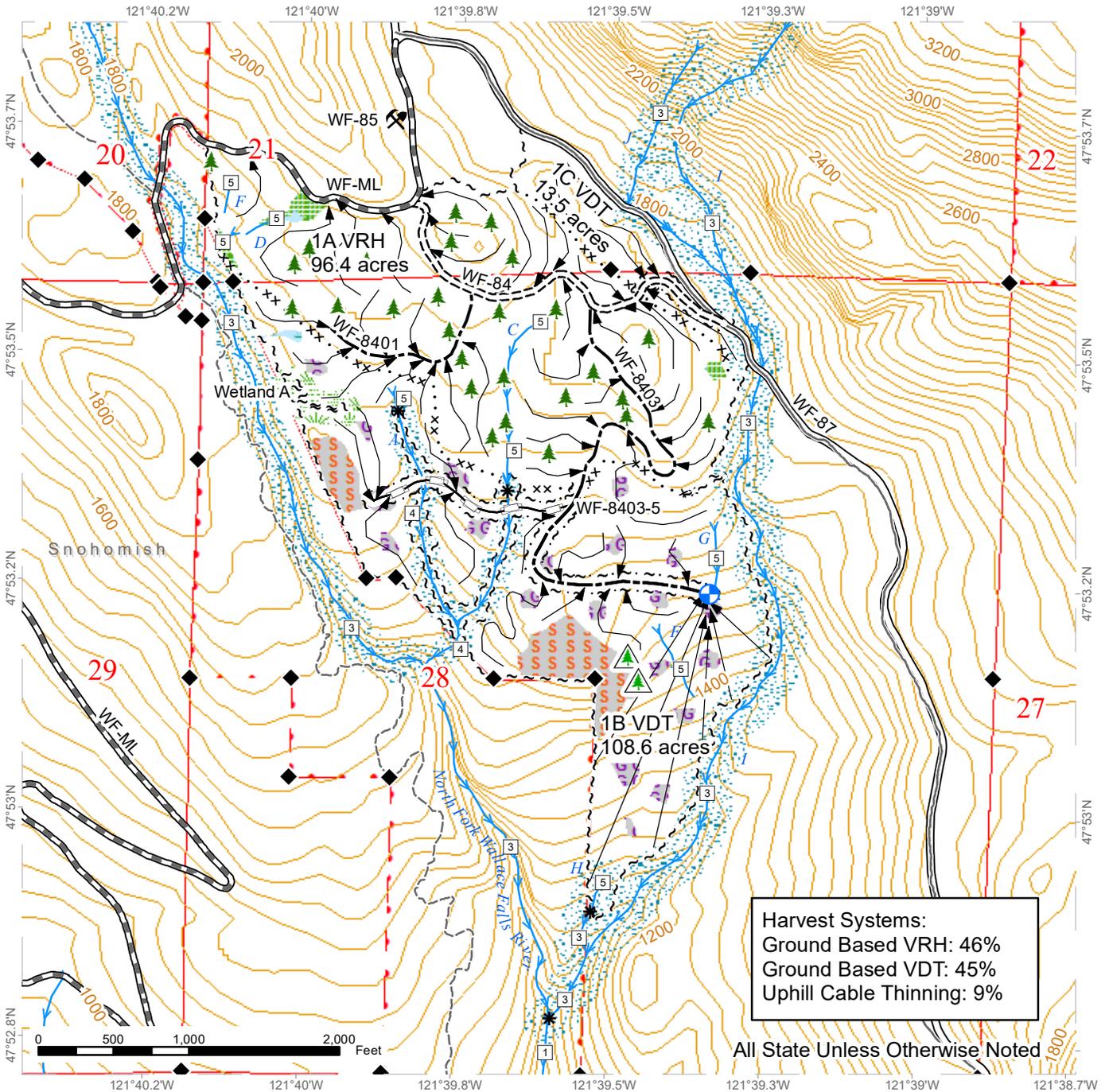
Compiled by: A. Halgren

Date: 8/6/2019

LOGGING PLAN MAP

SALE NAME: BRUSHCRASHER VRH VDT
AGREEMENT#: 30-098288
TOWNSHIP(S): T28R9E
TRUST(S): State Forest Transfer (1)

REGION: Northwest Region
COUNTY(S): Snohomish
ELEVATION RGE: 1080-1960



Harvest Systems:
 Ground Based VRH: 46%
 Ground Based VDT: 45%
 Uphill Cable Thinning: 9%

All State Unless Otherwise Noted

