



TIMBER NOTICE OF SALE

SALE NAME: BELLWETHER VRH RMZ WMZ

AGREEMENT NO: 30-95392

AUCTION: July 29, 2020 starting at 10:00 a.m., COUNTY: Whatcom
Northwest Region Office, Sedro Woolley, WA

SALE LOCATION: Sale located approximately 2 miles northeast of Deming, WA.

PRODUCTS SOLD AND SALE AREA:

All timber bounded by white timber sale boundary tags, property lines and adjacent young stand, 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, forest products tagged out by blue special management tags (WMZs/RMZs), and forest products tagged out by yellow leave tree area tags in Unit #1.

All timber as described for removal in Schedule B located in the RMZ/WMZ thinning areas (beyond the blue special management tags up to the white timber sale boundary tags) within Unit #1.

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 for removal in Schedule B.

The above described products

All forest products above located on part(s) of Sections 19 and 20 all in Township 39 North, Range 5 East, W.M., containing 144 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, and MBF by Grade (1P, 2P, 3P, SM, 1S, 2S, 3S, 4S, UT). Rows include Douglas fir, Hemlock, Red alder, Red cedar, Cottonwood, Birch, Maple, and Sale Total.

MINIMUM BID: \$967,000.00 BID METHOD: Sealed Bids

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

EXPIRATION DATE: March 31, 2022 ALLOCATION: Export Restricted

BID DEPOSIT: \$96,700.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.



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HARVEST METHOD: Cable OR tethered equipment (See H-141 for restrictions); shovel or feller-buncher on sustained slopes 35% or less. Falling and Yarding will not be permitted from November 1 to March 31 unless authorized in writing by the Contract Administrator (THIS PERTAINS TO GROUND-BASED EQUIPMENT ONLY) to reduce soil damage and erosion.

ROADS: 43.50 stations of required construction. 65.29 stations of optional construction. 121.06 stations of required prehaul maintenance.

Rock may be obtained from the following source on State land at no charge to the Purchaser: Bummer Pit at station 393+31 of the SU-ML Road.

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

An estimated total quantity of rock needed for this proposal: 343 cubic yards of riprap and 10,865 cubic yards of ballast rock.

Includes purchase and installation of 60" x 54' culvert.

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: \$88,111.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

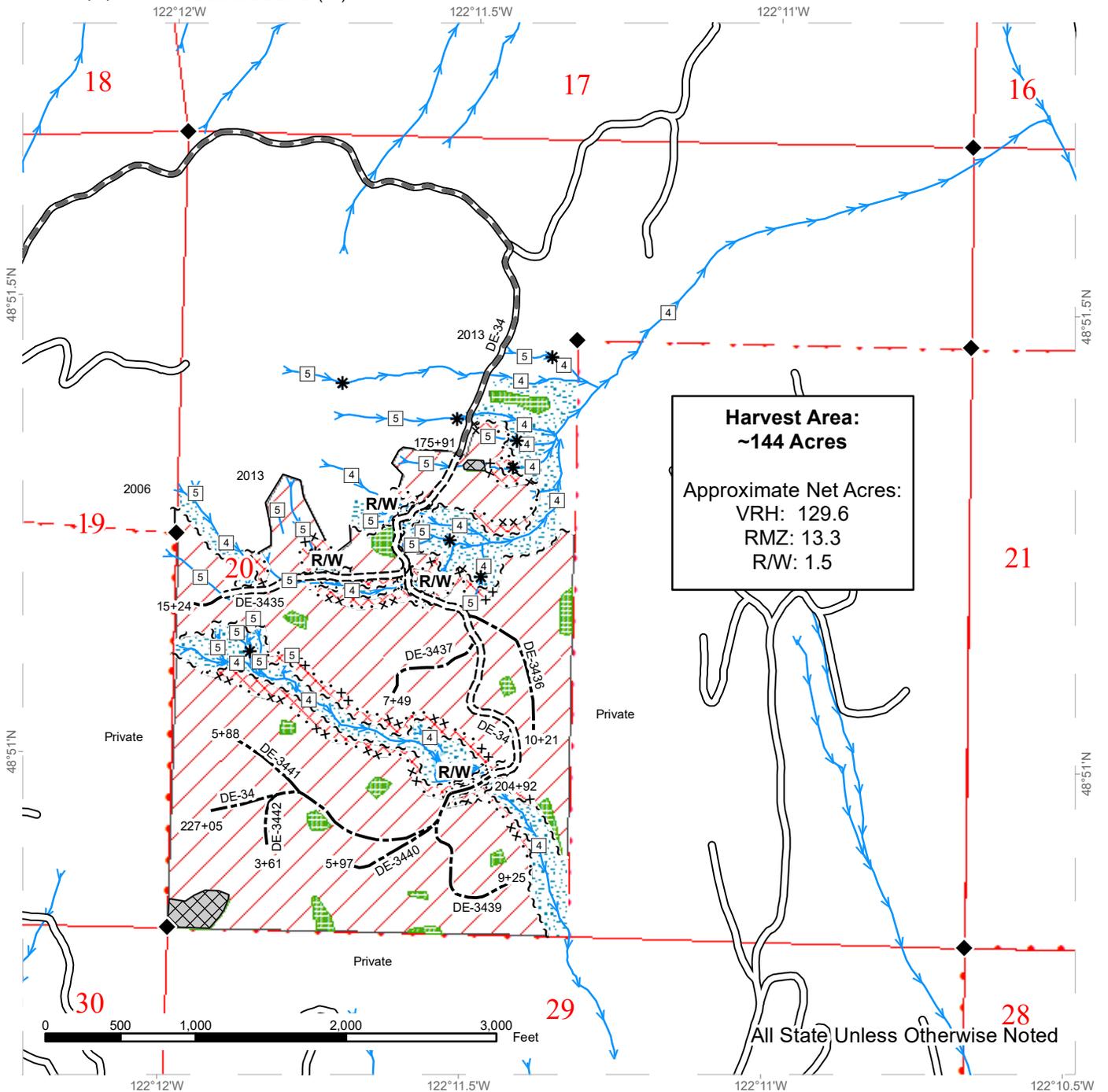
SPECIAL REMARKS:

1. Trees marked with a pink "X" represent the last take tree along property line boundaries.
2. HQ DF noted within the sale area. See cruise for further details (approximately 49 mbf of the above listed DF 2S is deemed high quality by the Department).
3. Redcedar poles were noted within the sale area.
4. Purchaser shall abate dust with Lignin Sulfonate on the DE-ML (0+00 to 22+50).
5. Installation of Crossing #8 on the DE-34 Road shall be completed between May 1 and September 30 of any given year prior to the expiration of the FPA.

TIMBER SALE MAP

SALE NAME: BELLWETHER
AGREEMENT #: 30-095392
TOWNSHIP(S): T39R5E
TRUST(S): Scientific School (10)

REGION: Northwest Region
COUNTY(S): Whatcom
ELEVATION RGE: 1960-2560



Harvest Area:
~144 Acres
 Approximate Net Acres:
 VRH: 129.6
 RMZ: 13.3
 R/W: 1.5

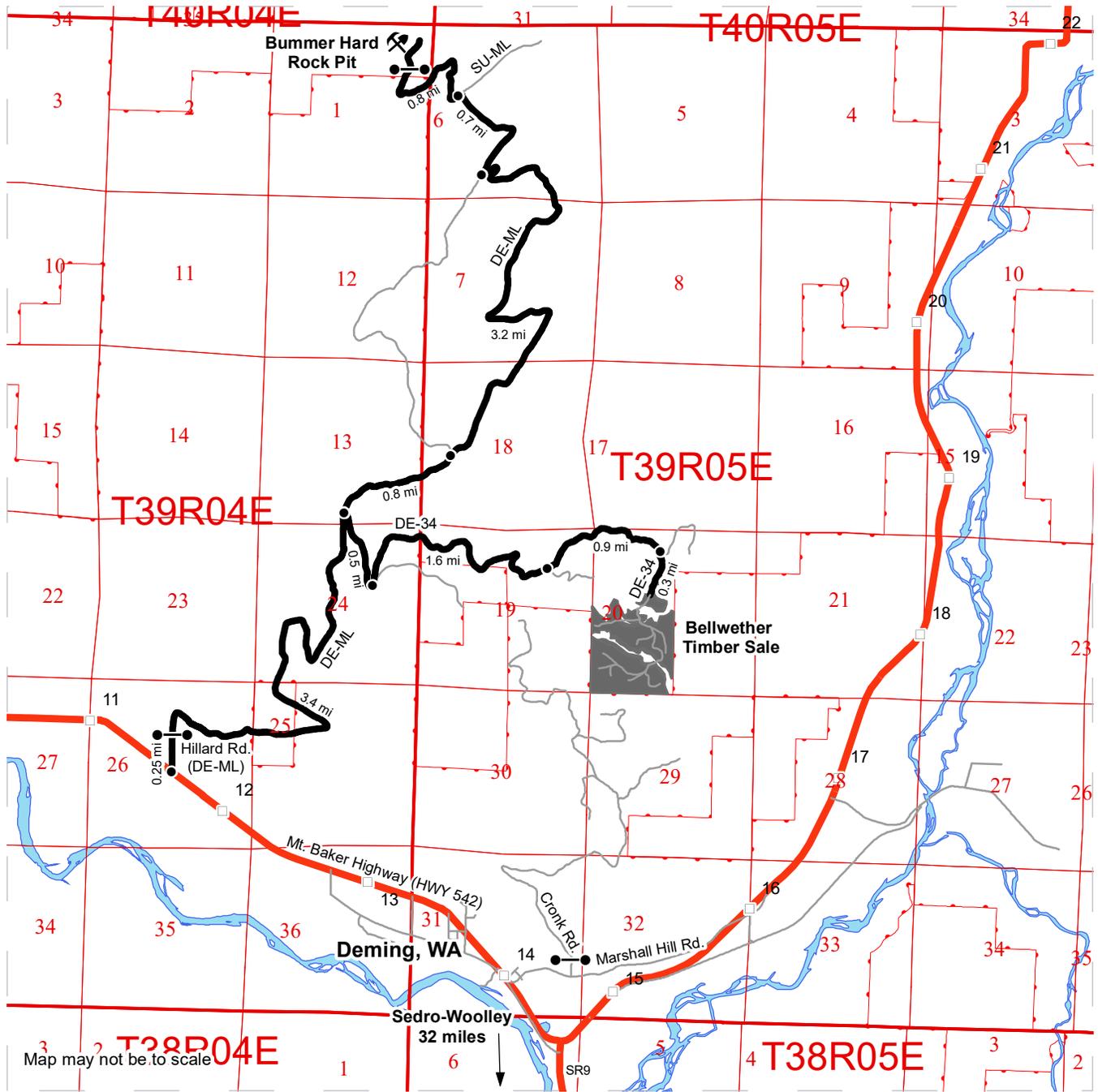
	Variable Retention Harvest		Sale Boundary Tags		Streams
	Riparian Restoration		Timber Type Change		Stream Type
	Leave Tree Area		Special Mgmt Area		Stream Type Break
	No-cut RMZ		Right of Way Tags		Survey Monument
	Forested Wetland		Existing Roads		
	Non-tradeable Leave Trees		Required Pre-Haul Maintenance		
	DNR Managed Lands		Required Construction		
			Optional Construction		



DRIVING MAP

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Map may not be to scale

	Timber Sale Unit
	HCP Lands
	Highway
	Haul Route
	Other Road
	Milepost Markers
	Gate

DRIVING DIRECTIONS:

To Harvest Area:
 From the intersection of Mount Baker Highway (542) and Hillard Rd., continue north on the Hillard Rd. for 0.25 miles and proceed through the gate where the Hillard Rd. becomes the DE-ML. Continue on the DE-ML 3.4 miles and turn right onto the DE-34. Continue on the DE-ML for 3 miles. Turn right onto a spur road to continue on the DE-34. Continue for 0.3 miles and arrive at the Bellwether timber sale and the beginning of new road construction.

To Rock Pit:
 From the intersection of the DE-ML and the DE-34, continue north on the DE-ML for 4.7 miles and turn left onto the SU-ML. Continue on the SU-ML for 0.8 miles, proceed through the gate and arrive at the Bummer Hard Rock Pit.



**STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES**

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

Export Restricted Lump Sum AGREEMENT NO. 30-095392

SALE NAME: BELLWETHER VRH 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-011 Right to Remove Forest Products and Contract Area

Purchaser was the successful bidder on July 29, 2020 and the sale was confirmed on _____. The State, as owner, agrees to sell to Purchaser, and Purchaser agrees to purchase as much of the following forest products as can be cut and removed during the term of this contract: All timber bounded by white timber sale boundary tags, property lines and adjacent young stand, 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, forest products tagged out by blue special management tags (WMZs/RMZs), and forest products tagged out by yellow leave tree area tags in Unit #1.

All timber as described for removal in Schedule B located in the RMZ/WMZ thinning areas (beyond the blue special management tags up to the white timber sale boundary tags) within Unit #1.

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 for removal in Schedule B.

The above described products

All forest products above located on approximately 144 acres on part(s) of Sections 19, and 20 all in Township 39 North, Range 5 East W.M. in Whatcom County(s) as designated on the sale area and as shown on the attached timber sale map.

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

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

G-020 Inspection By Purchaser

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

G-025 Schedules

The following attached schedules are hereby incorporated by reference:

Schedule	Title
B	Thinning Prescription

G-031 Contract Term

Purchaser shall 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-051 Contract Term Extension - Payment

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

- a. A written request for extension of the contract term must be received prior to the expiration date of the contract.

- b. Completion of all required roads and compliance with all contract and regulatory requirements.
- c. For the first extension, not to exceed 1 year, payment of at least 25 percent of the total contract price.

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

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

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

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

- e. Payment of \$958.00 per acre per annum for the acres on which an operating release has not been issued in the Variable Retention Harvest (VRH) areas. Payment of \$138.00 per acre per annum for the acres on which an operating release has not been issued in the 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-091 Sale Area Adjustment

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

G-101 Forest Products Not Designated

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

Contract Item	Appraised Price	Overbid Factor	Price	Fees	Contract Payment Rate
Birch	\$90.44	0	\$0.00	\$9.00	\$9.00
Cottonwood	\$64.09	0	\$0.00	\$9.00	\$9.00
Douglas fir	\$182.45	0	\$0.00	\$9.00	\$9.00
Hemlock	\$153.55	0	\$0.00	\$9.00	\$9.00
Maple	\$102.15	0	\$0.00	\$9.00	\$9.00
Red alder	\$147.43	0	\$0.00	\$9.00	\$9.00
Red cedar	\$354.15	0	\$0.00	\$9.00	\$9.00
Other	\$188.69	0	\$0.00	\$9.00	\$9.00

G-106 Adding Naturally Damaged Forest Products

Any forest products not designated for removal that are seriously damaged by disease, insects or wind, or that may contribute seriously to the spread of insect or disease damage may be added to this sale by the State's Contract Administrator. Additions must be in unlogged areas of the sale and added volume shall not exceed an amount equal to 10 percent of the original advertised volume. Added forest products become a part of this contract and shall be paid for at the rate set forth in clause G-101, G-102 or G-103.

G-111 Title and Risk of Loss

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

G-116 Sustainable Forestry Initiative® (SFI) Certification

Forest products purchased under this contract are certified as being in conformance with the Sustainable Forestry Initiative program Standard under certificate number: PwC-SFIFM-513.

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.

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.

Road is defined as the road bed, including but not limited to its component parts, such as cut and fill slopes, 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.

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; DE-ML, DE-34, DE-3435, DE-3436, DE-3437, DE-3439, DE-3440, DE-3441, DE-3442, and SU-ML. 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 DE-ML, SU-ML and DE-34 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:

Weyerhaeuser Company, 55-000954, dated November 2, 1972.

Georgia-Pacific Corporation, 55-001461, dated August 28, 1976.

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:

Assessment, including the terms and provisions thereof,

For: Flood Control

In Favor of: Whatcom County Flood Control District

Disclosed by Application No.: 79-000275

Granted: 4/14/1992

Expires: Indefinite

Withdrawal, including the terms and provisions thereof,

For: Communication Site

In Favor of: Washington State Department of Natural Resources

Disclosed by Application No.: 54-056072

Granted: 3/15/1963

Expires: Indefinite

Lease, including the terms and provisions thereof,

For: Land Use License

In Favor of: Washington Department of Fish & Wildlife

Disclosed by Application No.: 60-095576

Granted: 5/2/2017
Expires: 6/30/2022

Section P: Payments and Securities

P-011 Initial Deposit

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

P-020 Payment for Forest Products

Purchaser agrees to pay the total, lump sum contract price of \$134,758.00. The total contract price consists of a \$0.00 contract bid price plus \$134,758.00 in fees. Fees collected shall be retained by the state unless the contract is adjusted via the G-066 clause. Purchaser shall be liable for the entire purchase price, and will not be entitled to any refunds or offsets unless expressly stated in this contract.

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

P-045 Guarantee of Payment

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

P-050 Billing Procedure

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

P-080 Payment Account Refund

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

P-090 Performance Security

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

P-100 Performance Security Reduction

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

Section H: Harvesting Operations

H-010 Cutting and Yarding Schedule

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

H-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 200 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 244 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 12 feet in width, including rub trees.
- b. Skid trails shall not cover more than 15 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-040 Purchaser Harvest Plan

Purchaser shall, as part of the plan of operations, prepare an acceptable harvest plan for RMZ VDT areas. The plan shall address the prescription and how it will be applied so that areas requiring downed wood and/or snag recruitment are not overlooked, 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-051 Branding and Painting

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

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

H-080 Snags Not to be Felled

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

H-090 Designated Trees Felled

All black cottonwood shall be felled concurrently with the falling operation and must be yarded to a landing or girdled and left standing.

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 or feller-buncher on sustained slopes 35% 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-127 Tailholds on Private Land

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

H-130 Hauling Schedule

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

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

A. 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.

- 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. Trees with double pink rings must be felled to preserve the integrity of the witness stumps and the corner monument.

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. Purchaser must obtain prior written approval from the Contract Administrator for areas as to where to utilize tethered harvester and/or shovel equipment prior to use.
- C. Installation of Crossing #8 on the DE-34 Road shall be completed between May 1 and September 30 of any given year prior to the expiration of the FPA.

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

H-190 Completion of Settings

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

H-220 Protection of Residual or Adjacent Trees

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

Section C: Construction and Maintenance

C-040 Road Plan

Road construction and associated work provisions of the Road Plan for this sale, dated 9/25/2019 are hereby made a part of this contract.

C-050 Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on the DE-34, DE-3435, DE-3436, DE-3437, DE-3439, DE-3440, DE-3441, and DE-3442. 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 DE-ML and SU-ML. Purchaser shall furnish a statement in a form satisfactory to the State showing the costs incurred while performing this work. Costs shall be based on the rates set forth in the equipment rate schedule on file at the Region office or Engineering Division in Olympia. The State shall reimburse Purchaser for said costs within 30 days of receipt and approval of the statement.

C-130 Dust Abatement

Purchaser shall abate dust on the DE-ML (0+00 to 22+50) from June 30 to September 30.

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-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 or other releases of hazardous material/waste during operations conducted under this contract.

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 (DOE). 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 covered in part a., the Purchaser is responsible for immediately notifying all the following:

- Department of Emergency Management (contact information below).
- National Response Center (contact information below).
- Appropriate Department of Ecology (DOE) regional office (contact information below).
- DNR Contract Administrator

DOE - Northwest Region: 1-425-649-7000
(Island, King, Kitsap, San Juan, Skagit, Snohomish, and Whatcom counties)

DOE - Southwest Region: 1-360-407-6300
(Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, and Wahkiakum counties)

DOE - Central Region: 1-509-575-2490
(Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, and Yakima counties)

DOE - Eastern Region: 1-509-329-3400
(Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, and Whitman counties)

Department of Emergency Management 24-hour Number: 1-800-258-5990

National Response Center: 1-800-424-8802

S-131 Refuse Disposal

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

Section D: Damages

D-013 Liquidated Damages or Failure to Perform

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

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

D-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 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.

SIGNATURES

This agreement may be executed in any number of counterparts (including by electronic mail in portable document format (.pdf), or by facsimile) each of which shall be deemed an original but all of which, when taken together, shall constitute one and the same Agreement binding on all parties.

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

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Purchaser

Jay Guthrie, Acting
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

Bellwether RMZ cutting prescription

This is a two-step prescription focused on harvesting all hardwood and ensuring adequate growing space to provide a response from the established conifer stems.

Step One: Harvest all hardwood that can be felled and yarded without causing damage to the stream or associated no-cut inner zone RMZ area.

Step Two: After completion of Step One, where there are still over 100 live conifer greater than 8 inches dbh per acre, harvest conifer trees of any species starting from the lowest diameter class to reach a relatively even 20 x 20 foot tree spacing. Only conifer greater than 8 inches dbh shall count towards the spacing target.

Additional requirements:

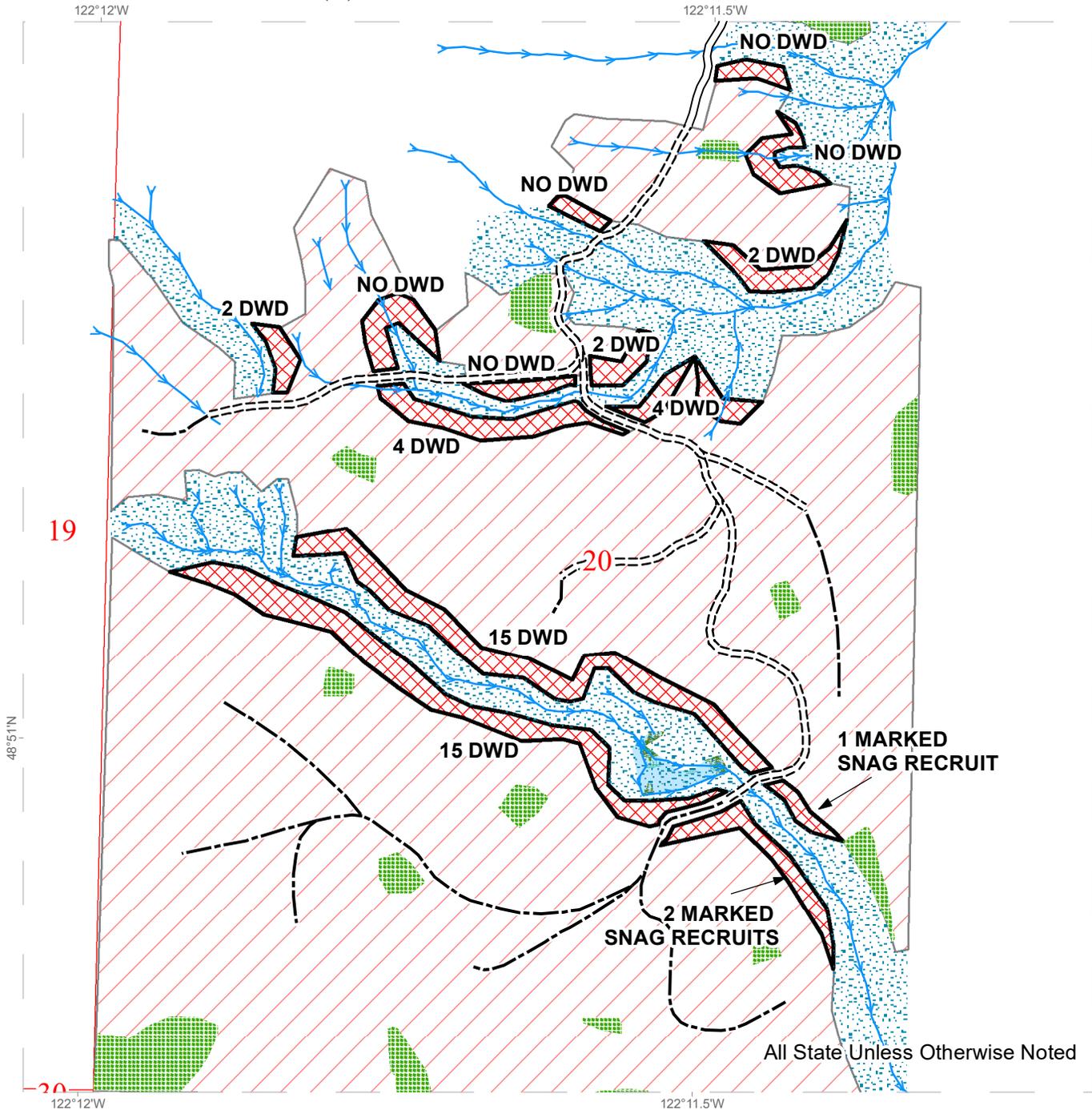
1. Downed wood recruitment is required as indicated on the “Schedule B Map”. The specific downed wood recruitment trees are to be selected by the operator but must be from the largest diameter class of the eligible take trees.
2. Two RMZ segments in the southeast corner have replaced the downed wood recruitment with snag creation. These trees have been pre-selected and are marked with double rings of blue paint. These tree must be topped or girdled and left standing. This area is indicated on the “Schedule B Map”.

ADD SCHEDULE B MAP

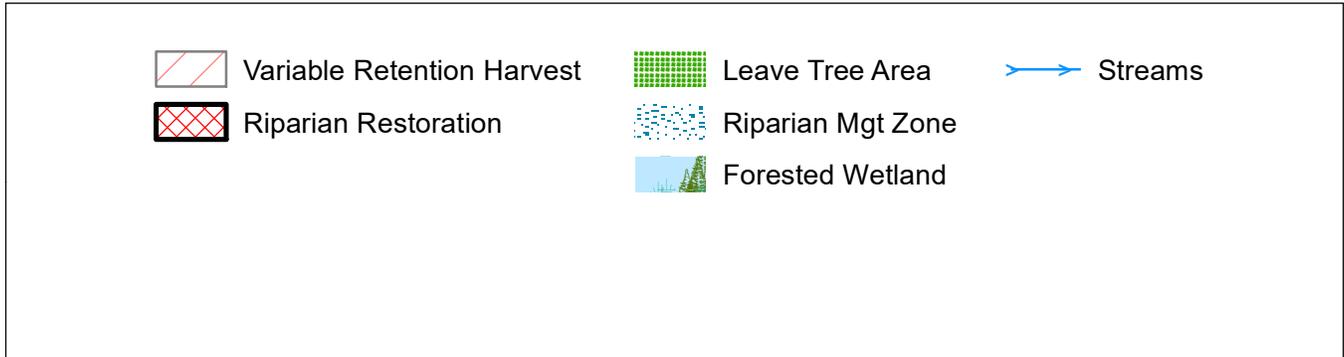
SCHEDULE B DWD MAP

SALE NAME: BELLWETHER
AGREEMENT #: 30-095392
TOWNSHIP(S): T39R5E
TRUST(S): Scientific School (10)

REGION: Northwest Region
COUNTY(S): Whatcom
ELEVATION RGE: 1960-2560



All State Unless Otherwise Noted





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: Bellwether	Region: Northwest
Agreement #: 30-095392	District: Baker
Contact Forester: Kyle Galloway Phone / Location: (360) 853-5100 / Deming	County(s): Whatcom, Choose a county
Alternate Contact: Chris Hankey Phone / Location: (360) 854-8310 / Sedro-Woolley	Other information: Click here to enter text.

Type of Sale: Lump Sum	Percentage of Sale Area
Harvest System: Ground based 80 acres	55%
Harvest System: Uphill Cable 54 acres	38%
Harvest System: Downhill Cable 10 acres	7%

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	Section 20 of T39N R05E	10	0.7	-	0.7	-	-	0	GPS (Garmin)
1B VRH	Section 20 of T39N R05E	10	7.6	-	0.2	-	-	7.4	GPS (Garmin)
1B RMZ	Section 20 of T39N R05E	10	1.9	-	-	-	-	1.9	GPS (Garmin)
1C VRH	Section 20 of T39N R05E	10	3.4	-	0.5	-	-	2.9	GPS (Garmin)
1C RMZ	Section 20 of T39N R05E	10	0.8	-	-	-	-	0.8	GPS (Garmin)
1D VRH	Section 20 of T39N R05E	10	55.8	-	1.4	-	-	54.4	GPS (Garmin)
1D RMZ	Section 20 of T39N R05E	10	6.4	-	-	-	-	6.4	GPS (Garmin)
1E VRH	Section 20 of T39N R05E	10	68.3	-	3.4	-	-	64.9	GPS (Garmin)
1E RMZ	Section 20 of T39N R05E	10	4.2	-	-	-	-	4.2	GPS (Garmin)
R/W	Section 20 of T39N R05E	10	1.5	-	-	-	-	1.5	Combination
TOTAL ACRES			150.6	-	6.2	-	-	144.4	

HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Leave, take, paint color, tags, flagging etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
VRH	Harvest all timber bounded by timber sale boundary tags, special management area tags, private property line, young plantation and the DE-34; except forest products bounded by leave tree tags or marked with blue paint.	See RMZ thinning below	1011 trees have been retained in 15 leave tree clumps. An additional 44 trees have been individually marked for retention.
RMZ	Harvest "take" timber as described by the attached prescription located on or beyond the special management boundary tags and bounded by timber sale boundary tags and plantation.	See attached cutting prescription.	Trees marked with double rings of blue paint are to be girdled for snag creation.
R/W	Harvest all timber bounded by right of way boundary tags.		

OTHER PRE-CRUISE INFORMATION:

Unit #	Primary,secondary Species / Estimated Volume (MBF)	Access information (Gates, locks, etc.)	Photos, traverse maps required
VRH B	Red alder, hemlock / 175 mbf	Located at the end of the existing DE-34	See attached traverse and driving maps
VRH C	Douglas fir, red alder / 75 mbf		
VRH D	Douglas fir, western hemlock / 1,650 mbf	Alternate walk-in access from Cronk Road.	
VRH E	Douglas fir, western hemlock / 1,950 mbf	Alternate walk-in access from Cronk Road.	
RMZ (all)	Red alder, western hemlock / 65 mbf		
R/W	Mixed / 35 mbf	All R/W is located on orphaned road grades.	
TOTAL MBF	3,950 mbf		

REMARKS:

Where the harvest area is adjacent to private property, the last take tree on state property is marked with a pink X facing towards the unit. Parts of the property line on the south and east sides were recently harvested against by the private land owner. Trees marked with double rings of pink paint must be high-stumped and felled in a way to preserve the corner monument.

Traverse points are marked with blue and red ribbon and an aluminum tag with the point label written on it. Segments of orphan grades that are being rebuilt are marked with orange ribbon at center line. Center line of new pioneered road construction is marked with orange ribbon and wooden stakes. R/W acres were calculated using length x 50' width.

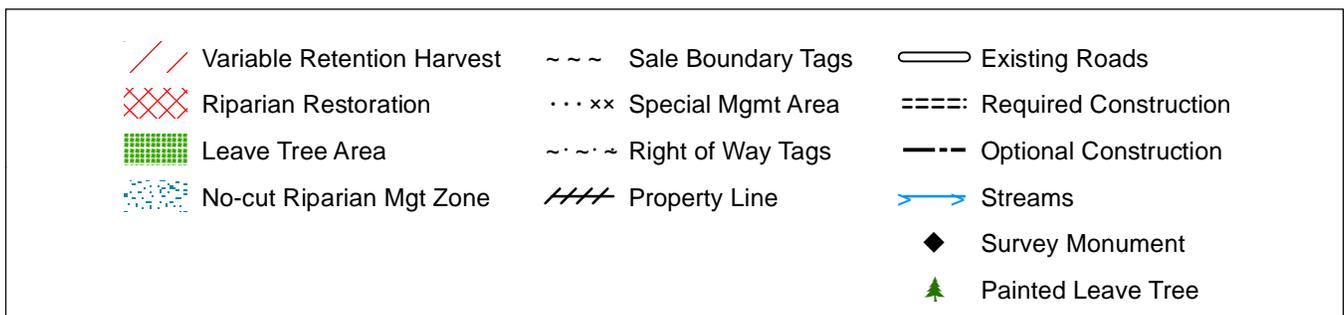
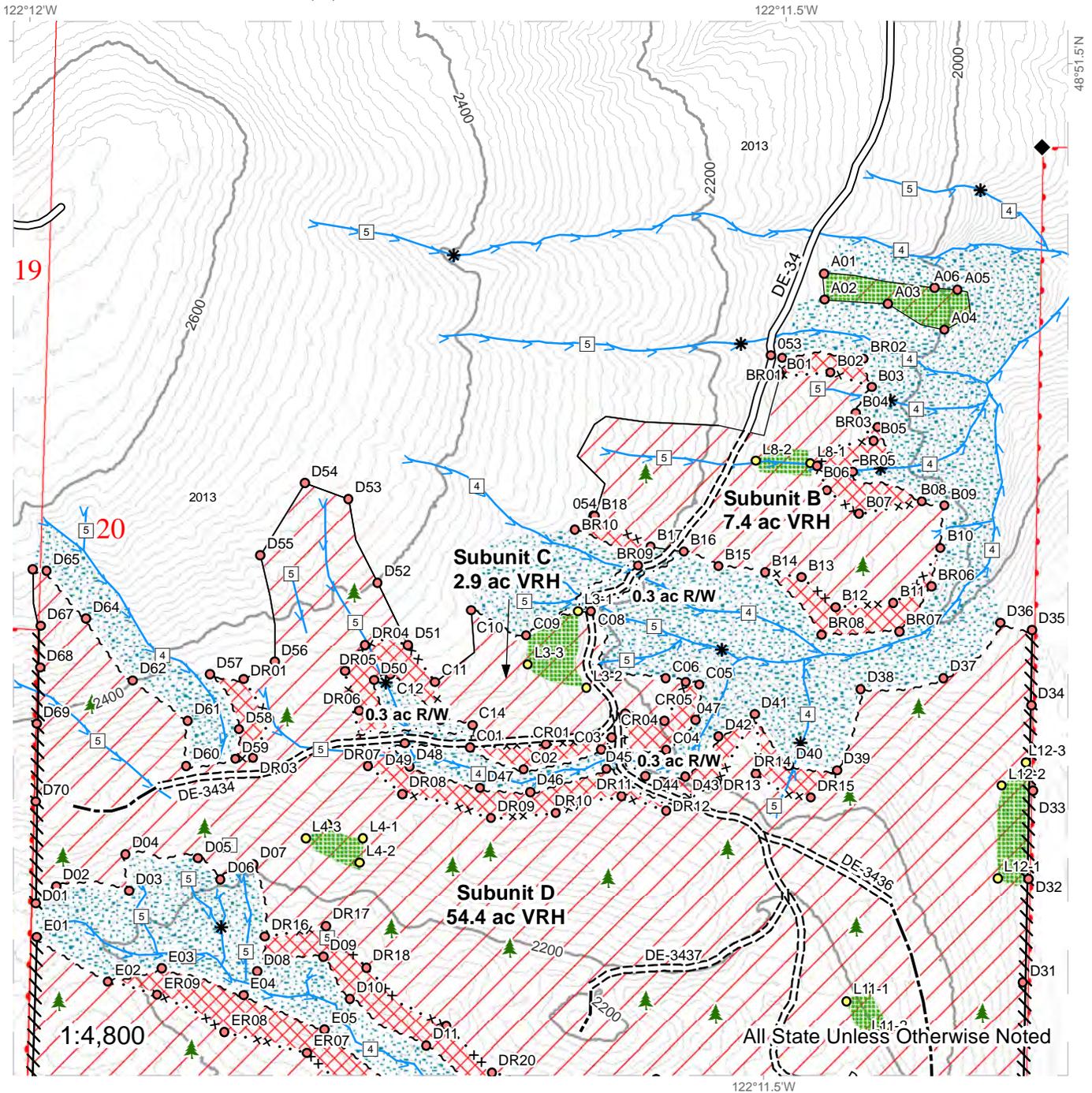
Non-tradeable leave tree areas are marked with timber sale boundary tags and pink & yellow ribbon.

Prepared By: Kyle Galloway Date: 10/29/2019	Title: Deming Unit Forester	CC:
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TRAVERSE MAP

SALE NAME: BELLWETHER
AGREEMENT #: 30-095392
TOWNSHIP(S): T39R5E
TRUST(S): Scientific School (10)

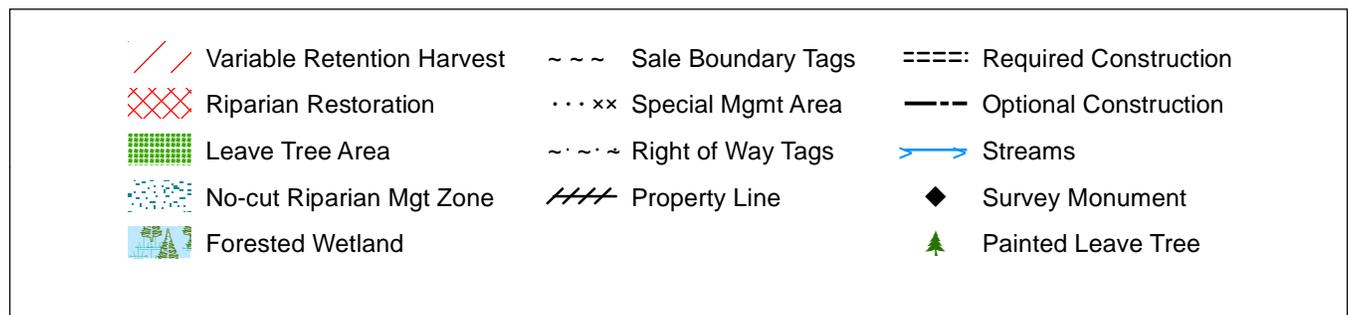
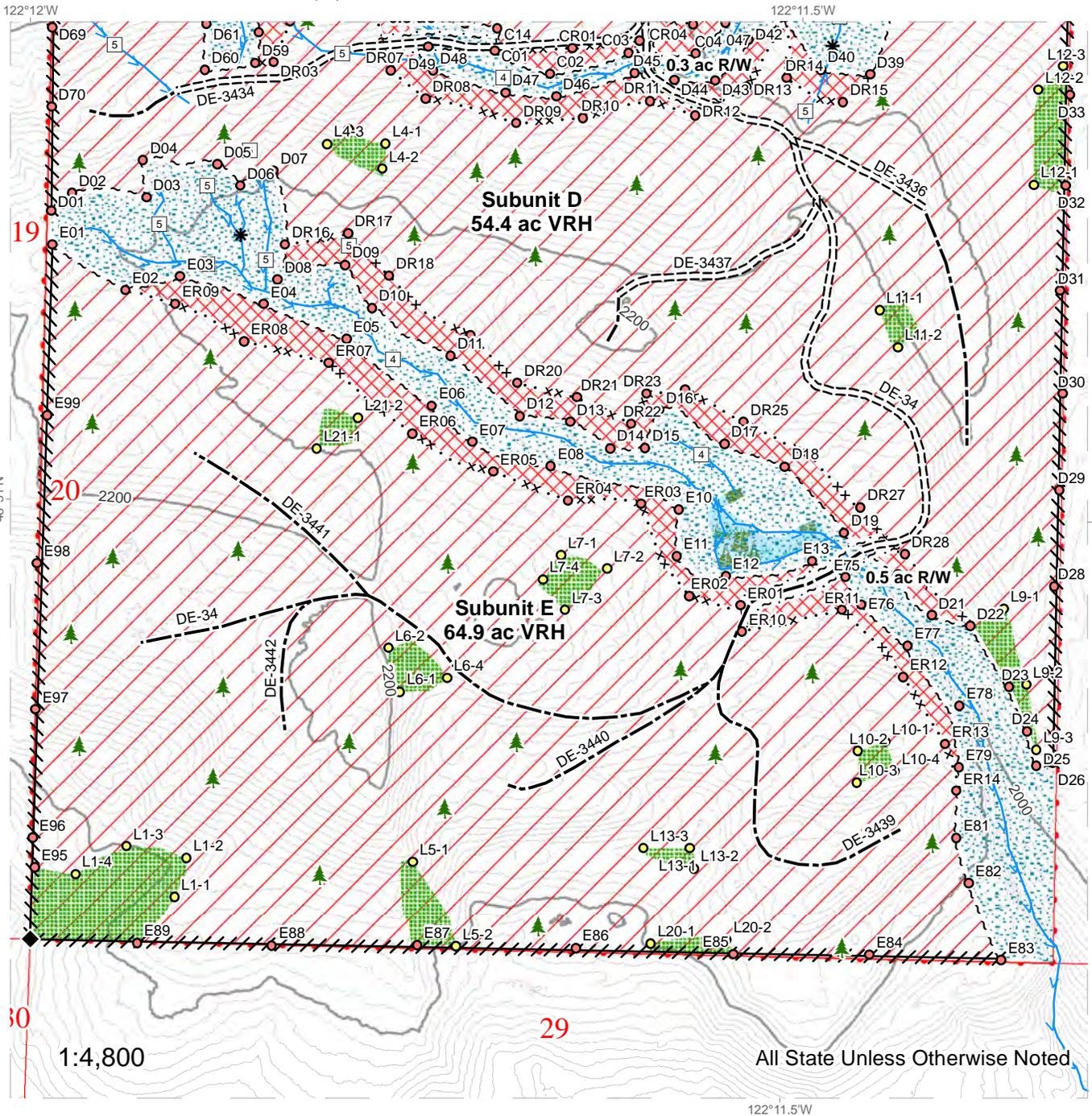
REGION: Northwest Region
COUNTY(S): Whatcom
ELEVATION RGE: 1960-2560



TRAVERSE MAP

SALE NAME: BELLWETHER
AGREEMENT #: 30-095392
TOWNSHIP(S): T39R5E
TRUST(S): Scientific School (10)

REGION: Northwest Region
COUNTY(S): Whatcom
ELEVATION RGE: 1960-2560



Cruise Narrative

Sale Name:	Bellwether	Region:	Northwest
Agree. #:	30-095393	District:	Baker
Lead cruiser:	Matt Llobet	Completion date:	9/29/2019
Other cruisers on sale:	AH		

Unit acreage specifications:

Unit #	Cruised acres	Cruised acres agree with sale acres? Yes/No	If acres do not agree explain why.
1B	10.3	No	combined unit 1B and 1C
1D	54.4	Yes	
1E	64.9	Yes	
RMZ	13.3	No	combined all RMZ units
RW	1.5	Yes	
Total	144.4		

Unit cruise specifications:

Unit #	Sample type (VP, FP, ITS,100%)	Expansion factor (BAF, full/half)	Sighting height (4.5 ft, 16 ft.)	Grid size (Plot spacing or % of area)	Plot ratio (cruise:count)	Total number of plots
1B	VP	54.4	4.5 ft	200' x 200'	Cruise All	13
1D	VP	54.44/40.00	4.5 ft	250' x 250'	2:1	35
1E	VP	54.44/40.00	4.5 ft	275' x 275'	1:1	39
RMZ	FP	.0333	4.5 ft	15pts/13.3ac	Cruise All	15
RW	FP	.05	4.5 ft	4pts/1.5ac	Cruise All	4

Sale/Cruise Description:

Minor species cruise intensity:	40 baf used to cruise minor species, cedar and hardwoods.			
Minimum cruise spec:	Minimum DBH 7 inches, 10 BF net, minimum top dib 5 inches or 40% of 16-ft. form point dob.			
Avg ring count by sp:	DF =	8	WH =	8
Leave/take tree description:	<p>VRH – Harvest all timber bounded by timber sale boundary tags, special management area tags, private property line, young plantaion and the DE-34; except forest products bounded by leave tree tags or marked with blue paint.</p> <p>RMZ- See cutting prescription</p> <p>ROW- Remove all timber bounded by orange right of way tags</p>			
Other conditions	RMZ- All timber cruised in the RMZ units, fell within the cutting prescription			

Field observations:

All timber was graded and cruised in variable log lengths using NW Official Log Scaling and Grading Rules. Utility volume was given board foot volume. The Bellwether timber sale is 55% ground based harvesting, 45% cable harvesting, and ranges in elevation from 1960'-2560'. Bellwether has predominantly south and southwest aspects, with gentle to rolling terrain. Predominant species throughout the sale is Douglas fir and Western Hemlock with a minor component of Western Red Cedar, and Red Alder. Unit 1B and 1C consists of a variable timber type, with good operator ground. Observed in the eastern portion of unit 1B, was a nice Douglas fir component, which carried higher volume/ac then the rest of the unit. The Red Alder and Western Red Cedar observed in these two units, had good form in the first segment. Units 1D and 1E consisted of a dominant conifer component with scattered hardwoods. These units consists of gentle to rolling terrain, making for good operator ground. Throughout units 1D and 1E, 100mbf of Western Red Cedar pole volume was cruised, predominantly in distribution lengths. Defect observed includes butt rot, forked or multiple tops, sweep and spike knots. Some frost checking was observed although only to a minor extent.

Prepared by: Matt Llobet
Title: Forest Check Cruiser, Timber Sales
Sedro Woolley, WA.

CC:

TC PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																			
T39N R05E S20 Ty001B THRU T39N R05E S20 TyRW			Project:		BWETHER										Page		1				
			Acres		144.40										Date		11/4/2019				
																Time		10:46:10AM			
Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf	
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99					
DF	HB	2S		1	3.2	350	339	49	100				100				38	14	265	1.72	1.3
DF	HB	3S		2		306	306	44	100				100				40	11	169	1.07	1.8
DF	D	2S		65	1.7	12,344	12,130	1,752		50	50		4	1	96	38	15	321	1.94	37.8	
DF	D	3S		25	.8	4,764	4,727	683	25	75		0	3	4	93	37	8	97	0.73	48.6	
DF	D	4S		6	.0	1,104	1,103	159	83	17		25	33	10	32	27	6	33	0.37	33.6	
DF	D	UT		1		135	135	19	89	11		11	89			24	5	24	0.22	5.6	
DF Totals				52	1.4	19,001	18,739	2,706	12	22	34	32	2	6	2	91	34	9	146	1.06	128.8
WH	D	2S		24	2.7	2,172	2,114	305			92	8			100	39	13	255	1.52	8.3	
WH	D	3S		58	1.0	5,104	5,051	729	25	75			0	2	97	38	8	101	0.68	50.2	
WH	D	4S		14	.0	1,160	1,160	167	100				3	39	20	38	30	5	33	0.31	34.9
WH	D	UT		4		329	329	48	88		12		60	16	12	12	20	5	22	0.27	15.0
WH Totals				24	1.3	8,765	8,654	1,250	31	44	23	2	3	6	5	87	33	7	80	0.61	108.3
RC	D	3S		74	1.7	2,825	2,776	401	14	58	25	2		5	95	37	9	117	1.16	23.7	
RC	D	4S		26	.1	960	959	139	100				19	57	15	9	25	5	28	0.40	34.1
RC Totals				10	1.3	3,785	3,735	539	36	43	19	2	5	19	4	73	30	7	65	0.78	57.7
RA	D	2S		17	7.4	737	683	99			94	6	39	61		25	13	142	1.37	4.8	
RA	D	3S		15	6.2	602	564	81		100			18	82		27	10	99	0.92	5.7	
RA	D	4S		43	3.5	1,704	1,644	237	46	54			8	86	3	3	29	7	48	0.50	33.9
RA	D	UT		25		919	919	133	82	16	2		30	34	9	27	23	6	30	0.39	31.0
RA Totals				11	3.8	3,962	3,810	550	40	42	17	1	21	68	4	8	26	7	50	0.54	75.5
BR	D	4S		60	12.5	29	26	4	21	79				100		30	7	47	0.46	.6	
BR	D	UT		40		17	17	2	22	78			100			14	8	30	0.64	.6	
BR Totals				0	8.0	46	42	6	22	78			39	61			22	8	38	0.52	1.1
CW	D	2S		64	3.8	597	574	83			86	14			100	40	13	263	1.69	2.2	
CW	D	4S		28	3.2	260	251	36	39	61				14	13	72	37	8	82	0.68	3.1
CW	D	UT		8		71	71	10	53	47			2	8	90	36	7	76	0.54	.9	
CW Totals				2	3.3	928	897	130	15	21	55	9	0	5	4	91	38	10	145	1.04	6.2
BM	D	2S		100	20.0	21	17	2			100		100			20	12	80	1.09	.2	
BM Totals				0	20.0	21	17	2			100		100				20	12	80	1.09	.2
Totals					1.7	36,509	35,894	5,183	22	31	29	18	4	14	3	79	32	8	95	0.80	377.8

TC PSTATS		PROJECT STATISTICS								PAGE	1
		PROJECT				BWETHER				DATE	11/4/2019
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt	
39N	05E	20	BWETHER	001B	THR	144.40	106	600	S	W	
39N	05E	20	BWETHER	001B	RW						
		PLOTS	TREES	TREES PER PLOT		ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		106	600	5.7							
CRUISE		76	406	5.3		30,045	1.4				
DBH COUNT											
REFOREST											
COUNT		30	194	6.5							
BLANKS											
100 %											
STAND SUMMARY											
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC	
DOUG FIR	128	60.3	19.3	78	27.9	122.7	19,001	18,739	4,665	4,665	
WHEMLOCK	103	62.7	13.6	62	17.2	63.7	8,765	8,654	2,198	2,198	
R ALDER	84	39.5	13.7	60	10.9	40.3	3,962	3,810	1,067	1,067	
WR CEDAR	75	41.7	14.9	47	13.0	50.3	3,762	3,711	1,341	1,341	
WR CEDAR-P	1	.1	21.6	61	0.1	.3	23	23	9	9	
COTWOOD	11	3.1	19.6	80	1.4	6.4	928	897	242	242	
BIRCH	3	.6	13.6	60	0.2	.6	46	42	13	13	
BL MAPLE	1	.2	16.0	47	0.1	.3	21	17	5	5	
TOTAL	406	208.1	15.8	64	71.5	284.6	36,509	35,894	9,540	9,540	
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		
DOUG FIR		60.3	5.3	429	453	477					
WHEMLOCK		66.0	6.5	170	182	194					
R ALDER		49.7	5.5	102	108	114					
WR CEDAR		74.5	8.6	115	125	136					
WR CEDAR-P											
COTWOOD		35.0	11.1	302	340	378					
BIRCH		37.7	26.1	57	77	97					
BL MAPLE											
TOTAL		92.4	4.6	234	245	257	341	174	85		
CL	68.1	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR		119.5	11.6	53	60	67					
WHEMLOCK		130.2	12.6	55	63	71					
R ALDER		169.6	16.5	33	39	46					
WR CEDAR		160.0	15.5	35	42	48					
WR CEDAR-P		1029.6	99.9	0	0	0					
COTWOOD		366.6	35.6	2	3	4					
BIRCH		1029.6	99.9	0	1	1					
BL MAPLE		1029.6	99.9	0	0	0					
TOTAL		59.7	5.8	196	208	220	142	73	36		
CL	68.1	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR		105.8	10.3	110	123	135					
WHEMLOCK		136.4	13.2	55	64	72					
R ALDER		153.8	14.9	34	40	46					
WR CEDAR		146.2	14.2	43	50	57					
WR CEDAR-P		1029.6	99.9	0	0	1					
COTWOOD		356.9	34.6	4	6	9					

TC PSTATS		PROJECT STATISTICS							PAGE	2
		PROJECT		BWETHER			DATE		11/4/2019	
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
39N	05E	20	BWETHER	001B	THR	144.40	106	600	S	W
39N	05E	20	BWETHER	RW						
CL	68.1		COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.00		VAR.	S.E.%	LOW	AVG	HIGH	5	7	10
BIRCH			1029.6	99.9	0	1	1			
BL MAPLE			1029.6	99.9	0	0	1			
TOTAL			<i>54.1</i>	<i>5.3</i>	<i>270</i>	<i>285</i>	<i>300</i>	<i>117</i>	<i>60</i>	<i>29</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
DOUG FIR			106.8	10.4	16,797	18,739	20,681			
WHEMLOCK			147.0	14.3	7,420	8,654	9,888			
R ALDER			157.6	15.3	3,227	3,810	4,393			
WR CEDAR			157.5	15.3	3,144	3,711	4,279			
WR CEDAR-P			1029.6	99.9	0	23	47			
COTWOOD			345.6	33.5	596	897	1,198			
BIRCH			1029.6	99.9	0	42	85			
BL MAPLE			1029.6	99.9	0	17	34			
TOTAL			<i>59.6</i>	<i>5.8</i>	<i>33,818</i>	<i>35,894</i>	<i>37,971</i>	<i>142</i>	<i>72</i>	<i>35</i>

T TSPCSTGR	Species, Sort Grade - Board Foot Volumes (Type)										Page 1									
Project: BWETHER										Date 11/4/2019										
										Time 10:46:11AM										
T39N R05E S20 T001B										T39N R05E S20 T001B										
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt											
39N	05E	20	BWETHER	001B	10.30	13	72	S	W											
S Sp	So T	Gr rt	%	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
								5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf	
RA	DM	2S	9	854	854	9		100				100				30	12	164	1.21	5.2
RA	DM	3S	17	4.4	1,544	1,475	15	100				100				28	11	107	0.91	13.7
RA	DM	4S	44	4.5	4,079	3,896	40	41	59			7	88	5		29	7	51	0.54	76.3
RA	DM	UT	30		2,622	2,622	27	81	19			25	20		55	25	6	37	0.46	70.8
RA	Totals		25	2.8	9,099	8,848	91	42	48	10		10	71	2	16	27	7	53	0.56	166.1
WH	DM	2S	28	.8	2,487	2,466	25	100				100				40	14	281	1.71	8.8
WH	DM	3S	45	3.4	3,942	3,806	39	19	81				6	2	92	37	9	103	0.75	36.9
WH	DM	4S	20		1,647	1,647	17	100				9	46	12	33	28	5	33	0.33	49.7
WH	DM	UT	7		589	589	6	100				21		79		27	5	27	0.24	21.7
WH	Totals		24	1.8	8,665	8,509	88	35	36	29		3	12	9	76	31	7	73	0.60	117.1
DF	DM	2S	78	1.6	9,050	8,904	92	42 58					4		96	38	15	358	2.12	24.9
DF	DM	3S	20		2,279	2,279	23	20	80				13		87	37	8	96	0.77	23.7
DF	DM	4S	2		223	223	2	100				35		65		28	6	36	0.33	6.2
DF	Totals		32	1.3	11,552	11,405	117	6	16	33	45	1	6	1	93	37	11	208	1.37	54.8
RC	DM	3S	76	1.7	2,360	2,321	24	26	19	56			26		74	34	9	111	1.23	21.0
RC	DM	4S	24		702	702	7	100				9	78	13		27	6	30	0.53	23.3
RC	Totals		9	1.3	3,062	3,023	31	43	14	43		2	38	3	57	30	7	68	0.91	44.2
CW	DM	2S	53		1,635	1,635	17	32 68						100	40	16	386	2.15	4.2	
CW	DM	4S	29	4.3	930	890	9	17	83				18	17	65	35	8	95	0.82	9.4
CW	DM	UT	18		545	545	6	14	86				14		86	33	8	105	0.84	5.2
CW	Totals		9	1.3	3,110	3,070	32	7	39	17	36		8	5	87	36	10	163	1.16	18.8
BM	DM	2S	100	20.0	300	240	2	100				100				20	12	80	1.09	3.0
BM	Totals		1	20.0	300	240	2	100				100				20	12	80	1.09	3.0
Type Totals				1.9	35,787	35,094	361	25	31	26	18	4	26	4	65	30	8	87	0.78	404.0

T39N R05E S20 T001D
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt
 39N 05E 20 BWETHER 001D 54.40 35 152 S W

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft		CF/ Lf
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99					
DF		HB	2S	2	5.1	574	544	30	100				100				40	14	305	1.94	1.8
DF		HB	3S	5		811	811	44	100				100				40	11	169	1.07	4.8
DF		DM	2S	53	.7	10,134	10,065	548		66	34		5	2	93	39	14	300	1.85	33.6	
DF		DM	3S	30	1.2	5,608	5,539	301	22	78			2	7	91	37	8	99	0.75	55.7	
DF		DM	4S	9		1,701	1,701	93	87	13			17	29	16	38	29	6	33	0.36	50.8
DF		DM	UT	1		73	73	4	81	19			19	81			20	5	21	0.28	3.4
DF	Totals			50	.9	18,901	18,734	1,019	15	29	38	18	2	6	5	88	34	9	125	0.94	150.1
WH		DM	2S	24	3.3	2,451	2,370	129		81	19				100	40	13	252	1.48	9.4	
WH		DM	3S	59	.9	5,830	5,776	314	29	71				5	95	38	8	97	0.66	59.3	
WH		DM	4S	13		1,332	1,332	72	100				1	46	21	32	29	5	32	0.29	42.0
WH		DM	UT	4		311	311	17	65	35			85	15			16	6	22	0.27	14.2
WH	Totals			26	1.4	9,924	9,788	532	33	42	21	5	3	7	6	85	33	7	78	0.60	124.9
RC		DM	3S	75	1.7	3,958	3,892	212	14	51	30	5		2	98	37	9	128	1.22	30.5	
RC		DM	4S	25		1,260	1,260	69	100				18	53	14	15	26	5	29	0.41	43.7
RC	Totals			14	1.3	5,218	5,153	280	35	39	23	3	4	15	3	77	30	7	69	0.81	74.2
RA		DM	2S	23	13.0	839	729	40		85	15		44	56			24	13	129	1.40	5.6
RA		DM	3S	12	6.1	393	369	20		100			64	36			23	10	80	0.91	4.6
RA		DM	4S	27	4.6	841	802	44	46	54			28	56	16		27	8	48	0.55	16.6
RA		DM	UT	38		1,161	1,161	63	75	25			19	39	14	28	26	6	38	0.44	30.4
RA	Totals			8	5.3	3,234	3,062	167	41	36	20	4	33	47	5	15	26	7	53	0.59	57.3
CW		DM	2S	36		187	187	10		100					100	40	13	240	1.45	.8	
CW		DM	4S	48	.0	250	250	14		100				19	81	36	9	117	0.76	2.1	
CW		DM	UT	16		81	81	4	100						100	40	6	60	0.37	1.4	
CW	Totals			1	.0	519	519	28	16	48	36			9	91	38	9	121	0.76	4.3	
Type Totals					1.4	37,796	37,256	2,027	24	34	30	11	5	11	5	80	32	8	91	0.77	410.8

T39N R05E S20 TRMZ									T39N R05E S20 TRMZ					
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
39N	05E	20	BWETHER	RMZ	13.30	15	48	S	W					

S Spp	So T	Gr rt ad	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			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					
RA	DM	3S	16	10.3	580	520	7	100				23	77			27	10	87	0.99	6.0
RA	DM	4S	55	5.5	1,820	1,720	23	21	79			100			30	8	54	0.56	32.0	
RA	DM	UT	29		880	880	12	77	23		66	25	9		20	5	26	0.31	34.0	
RA	Totals		33	4.9	3,280	3,120	41	33	60	6	22	75	3		25	7	43	0.50	72.0	
WH	DM	3S	77	.6	3,460	3,440	46	20	80			4 96			38	8	96	0.61	36.0	
WH	DM	4S	18		780	780	10	100				5	31	54	10	31	5	33	0.27	24.0
WH	DM	UT	5		200	200	3	100				40	30	30		22	5	25	0.23	8.0
WH	Totals		47	.5	4,440	4,420	59	38	62		3	7	14	76	34	7	65	0.47	68.0	
RC	DM	3S	84		1,160	1,160	15	10	90			100			36	9	97	1.05	12.0	
RC	DM	4S	16		220	220	3	100				55	45		21	5	22	0.31	10.0	
RC	Totals		15		1,380	1,380	18	25	75		9	7	84		29	7	63	0.81	22.0	
BR	DM	4S	60	12.5	320	280	4	21	79			100			30	7	47	0.46	6.0	
BR	DM	UT	40		180	180	2	22	78			100			14	8	30	0.64	6.0	
BR	Totals		5	8.0	500	460	6	22	78		39	61		22	8	38	0.52	12.0		
Type Totals				2.3	9,600	9,380	125	33	64	2	12	32	7	48	29	7	54	0.53	174.0	

Species, Sort Grade - Board Foot Volumes (Type)										Page	1											
T TSPCSTGR										Date	11/4/2019											
Project: BWETHER										Time	10:46:11AM											
T39N R05E S20 TRW										T39N R05E S20 TRW												
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt													
39N	05E	20	BWETHER	RW	1.50	4	19	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		
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln	Dia	Bd		CF/Lf	
								5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf			
DF	DM	2S		87	2.1	9,600	9,400			23	77		15		85	35	16	376	2.35	25.0		
DF	DM	3S		8		900	900			100					100	40	11	180	1.03	5.0		
DF	DM	4S		5	9.1	550	500		60	40		60	40			21	7	33	0.56	15.0		
DF	Totals			53	2.3	11,050	10,800		16	3	10	20	67	3	15	82	31	13	240	1.76	45.0	
RA	DM	2S		20	16.7	900	750			100		100				20	15	150	1.70	5.0		
RA	DM	3S		8	25.0	400	300			100		100				20	11	60	0.94	5.0		
RA	DM	4S		35		1,300	1,300			100			100			30	9	65	0.64	20.0		
RA	DM	UT		37		1,350	1,350		2	78	22		74	11	15	30	6	39	0.43	35.0		
RA	Totals			18	6.3	3,950	3,700		6	28	51	20	28	62	4	5	28	8	57	0.60	65.0	
WH	DM	2S		74		2,450	2,450		4		100				100	40	13	245	1.52	10.0		
WH	DM	3S		16		550	550		1	100				45	55	37	6	55	0.55	10.0		
WH	DM	4S		10	14.3	350	300		0	100			100			24	7	30	0.45	10.0		
WH	Totals			16	1.5	3,350	3,300		5	26	74		9	8	83	34	9	110	0.91	30.0		
CW	DM	2S		65	13.9	1,800	1,550		2		100				100	40	15	310	1.93	5.0		
CW	DM	4S		28		650	650		1	100			100			30	11	130	0.94	5.0		
CW	DM	UT		7		150	150		0	100			100			17	7	30	0.46	5.0		
CW	Totals			12	9.6	2,600	2,350		4	6	28	66	6	28	66	29	11	157	1.30	15.0		
RC	DM	4S		100	33.3	300	200		0	100			50	50		20	5	13	0.33	15.0		
RC	Totals			1	33.3	300	200		0	100			50	50		20	5	13	0.33	15.0		
Type Totals					4.2	21,250	20,350		31	13	18	34	35	8	24	2	66	29	9	120	1.03	170.0

TC TSTATS		STATISTICS						PAGE	1	
		PROJECT BWETHER						DATE	11/4/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
39N	05E	20	BWETHER	001B	10.30	13	72	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		13	72	5.5						
CRUISE		13	72	5.5	2,429	3.0				
DBH COUNT										
REFOREST										
COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
R ALDER	22	91.9	13.6	56	25.0	92.1	9,099	8,848	2,576	2,576
WHEMLOCK	16	71.0	13.2	56	18.5	67.0	8,665	8,509	2,202	2,202
DOUG FIR	16	23.7	22.7	91	14.0	67.0	11,552	11,405	2,744	2,744
WR CEDAR	11	35.2	15.5	40	11.7	46.0	2,733	2,694	1,092	1,092
WR CEDAR-P	1	1.6	21.6	61	0.9	4.2	329	329	126	126
COTWOOD	5	9.4	20.2	76	4.7	20.9	3,110	3,070	779	779
BL MAPLE	1	3.0	16.0	47	1.0	4.2	300	240	65	65
TOTAL	72	235.8	15.3	58	77.0	301.3	35,787	35,094	9,584	9,584
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	
R ALDER	39.3	8.8		101	111	121				
WHEMLOCK	73.8	19.0		159	196	234				
DOUG FIR	57.3	14.8		510	599	687				
WR CEDAR	92.8	29.3		86	122	158				
WR CEDAR-P										
COTWOOD	40.2	20.0		293	366	439				
BL MAPLE										
TOTAL	102.6	12.2		229	261	292	420	214	105	
CL:	68.1 %	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
R ALDER	82.0	23.6		70	92	114				
WHEMLOCK	103.3	29.8		50	71	92				
DOUG FIR	124.4	35.9		15	24	32				
WR CEDAR	95.3	27.5		26	35	45				
WR CEDAR-P	360.6	103.9			2	3				
COTWOOD	217.7	62.7		3	9	15				
BL MAPLE	360.6	103.9			3	6				
TOTAL	43.3	12.5		206	236	265	81	41	20	
CL:	68.1 %	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
R ALDER	88.3	25.4		69	92	115				
WHEMLOCK	124.8	36.0		43	67	91				
DOUG FIR	115.6	33.3		45	67	89				
WR CEDAR	106.2	30.6		32	46	60				
WR CEDAR-P	360.6	103.9			4	9				
COTWOOD	199.7	57.6		9	21	33				
BL MAPLE	360.6	103.9			4	9				
TOTAL	33.5	9.6		272	301	330	48	25	12	

TC TSTATS				STATISTICS			PAGE	2		
				PROJECT	BWETHER		DATE	11/4/2019		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
39N	05E	20	BWETHER	001B	10.30	13	72	S	W	
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E. %	LOW	AVG	HIGH	5	7	10	
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	7	10	
R ALDER		93.8	27.0	6,456	8,848	11,239				
WHEMLOCK		147.3	42.5	4,896	8,509	12,121				
DOUG FIR		122.6	35.3	7,376	11,405	15,434				
WR CEDAR		141.5	40.8	1,595	2,694	3,792				
WR CEDAR-P		360.6	103.9		329	671				
COTWOOD		195.2	56.3	1,342	3,070	4,798				
BL MAPLE		360.6	103.9		240	489				
TOTAL		33.2	9.6	31,732	35,094	38,456	48	24	12	

TC TSTATS				STATISTICS				PAGE	1	
PROJECT				BWETHER				DATE	11/4/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
39N	05E	20	BWETHER	001D	54.40	35	227	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL	35	227	6.5							
CRUISE	24	152	6.3		13,180		1.2			
DBH COUNT										
REFOREST										
COUNT	11	75	6.8							
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
DOUG FIR	54	76.2	18.1	73	32.1	136.8	18,901	18,734	4,841	4,841
WHEMLOCK	41	74.4	13.4	60	19.9	73.1	9,924	9,788	2,462	2,462
WR CEDAR	37	58.6	14.8	44	18.1	69.7	5,218	5,153	1,830	1,830
R ALDER	18	30.9	14.0	55	8.9	33.1	3,234	3,062	884	884
COTWOOD	2	2.1	16.3	84	0.8	3.1	519	519	124	124
TOTAL	<i>152</i>	<i>242.3</i>	<i>15.5</i>	<i>60</i>	<i>80.3</i>	<i>315.8</i>	<i>37,796</i>	<i>37,256</i>	<i>10,141</i>	<i>10,141</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	
DOUG FIR	63.1	8.6		319	349	379				
WHEMLOCK	61.1	9.5		175	194	212				
WR CEDAR	70.7	11.6		127	144	160				
R ALDER	46.8	11.3		108	122	136				
COTWOOD	25.0	23.4		195	255	315				
TOTAL	<i>78.4</i>	<i>6.4</i>		<i>214</i>	<i>229</i>	<i>244</i>	<i>245</i>	<i>125</i>	<i>61</i>	
CL:	68.1 %	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	97.3	16.4		64	76	89				
WHEMLOCK	122.6	20.7		59	74	90				
WR CEDAR	138.9	23.5		45	59	72				
R ALDER	220.4	37.2		19	31	42				
COTWOOD	427.6	72.2		1	2	4				
TOTAL	<i>44.5</i>	<i>7.5</i>		<i>224</i>	<i>242</i>	<i>260</i>	<i>79</i>	<i>40</i>	<i>20</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	
DOUG FIR	82.1	13.9		118	137	156				
WHEMLOCK	127.6	21.6		57	73	89				
WR CEDAR	122.4	20.7		55	70	84				
R ALDER	188.5	31.8		23	33	44				
COTWOOD	412.1	69.6		1	3	5				
TOTAL	<i>32.9</i>	<i>5.6</i>		<i>298</i>	<i>316</i>	<i>333</i>	<i>43</i>	<i>22</i>	<i>11</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	
DOUG FIR	79.3	13.4		16,225	18,734	21,242				
WHEMLOCK	141.8	24.0		7,444	9,788	12,133				
WR CEDAR	131.9	22.3		4,005	5,153	6,300				
R ALDER	188.9	31.9		2,085	3,062	4,039				
COTWOOD	414.2	69.9		156	519	882				
TOTAL	<i>36.1</i>	<i>6.1</i>		<i>34,984</i>	<i>37,256</i>	<i>39,527</i>	<i>52</i>	<i>27</i>	<i>13</i>	

TC TSTATS				STATISTICS				PAGE	1	
PROJECT				BWETHER				DATE	11/4/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
39N	05E	20	BWETHER	001E	64.90	39	234	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL	39	234	6.0							
CRUISE	20	115	5.8		13,016		9			
DBH COUNT										
REFOREST										
COUNT	19	119	6.3							
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
DOUG FIR	55	66.1	20.2	83	32.6	146.5	24,345	23,931	5,830	5,830
WHEMLOCK	23	57.6	14.1	65	16.7	62.8	8,822	8,717	2,236	2,236
WR CEDAR	17	34.8	14.9	50	10.9	42.1	3,272	3,224	1,167	1,167
R ALDER	17	38.6	13.4	66	10.4	37.9	3,898	3,782	1,013	1,013
COTWOOD	3	3.4	20.7	80	1.8	8.0	1,075	1,019	298	298
TOTAL	<i>115</i>	<i>200.6</i>	<i>16.5</i>	<i>69</i>	<i>73.2</i>	<i>297.2</i>	<i>41,412</i>	<i>40,673</i>	<i>10,544</i>	<i>10,544</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	
DOUG FIR	52.6	7.1		463	498	534				
WHEMLOCK	59.5	12.7		182	209	235				
WR CEDAR	57.5	14.4		102	119	136				
R ALDER	58.8	14.7		106	124	142				
COTWOOD	26.4	18.3		253	310	367				
TOTAL	<i>79.7</i>	<i>7.4</i>		<i>300</i>	<i>324</i>	<i>348</i>	<i>253</i>	<i>129</i>	<i>63</i>	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	80.7	12.9		58	66	75				
WHEMLOCK	110.8	17.7		47	58	68				
WR CEDAR	129.2	20.7		28	35	42				
R ALDER	159.8	25.6		29	39	49				
COTWOOD	337.2	53.9		2	3	5				
TOTAL	<i>37.1</i>	<i>5.9</i>		<i>189</i>	<i>201</i>	<i>212</i>	<i>55</i>	<i>28</i>	<i>14</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	
DOUG FIR	73.9	11.8		129	146	164				
WHEMLOCK	115.1	18.4		51	63	74				
WR CEDAR	125.3	20.0		34	42	50				
R ALDER	147.0	23.5		29	38	47				
COTWOOD	325.3	52.0		4	8	12				
TOTAL	<i>27.6</i>	<i>4.4</i>		<i>284</i>	<i>297</i>	<i>310</i>	<i>30</i>	<i>16</i>	<i>8</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	
DOUG FIR	76.0	12.2		21,021	23,931	26,841				
WHEMLOCK	120.1	19.2		7,043	8,717	10,392				
WR CEDAR	131.4	21.0		2,546	3,224	3,901				
R ALDER	148.7	23.8		2,882	3,782	4,682				
COTWOOD	325.3	52.1		489	1,019	1,549				
TOTAL	<i>33.0</i>	<i>5.3</i>		<i>38,526</i>	<i>40,673</i>	<i>42,821</i>	<i>43</i>	<i>22</i>	<i>11</i>	

TC TSTATS				STATISTICS				PAGE	1	
PROJECT				BWETHER				DATE	11/4/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
39N	05E	20	BWETHER	RMZ	13.30	15	48	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL				15	48	3.2				
CRUISE				15	48	3.2	1,277	3.8		
DBH COUNT										
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
R ALDER	19	38.0	14.0	55	10.8	40.4	3,280	3,120	908	908
WHEMLOCK	19	38.0	12.3	64	8.9	31.1	4,440	4,420	1,080	1,080
WR CEDAR	7	14.0	15.9	50	4.8	19.3	1,380	1,380	519	519
BIRCH	3	6.0	13.6	60	1.6	6.1	500	460	137	137
TOTAL	48	96.0	13.6	58	26.3	97.0	9,600	9,380	2,644	2,644
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	
R ALDER		41.5	9.8	74	82	90				
WHEMLOCK		54.4	12.8	101	116	131				
WR CEDAR		52.5	21.4	78	99	120				
BIRCH		37.7	26.1	57	77	97				
TOTAL		52.4	7.6	90	98	105	110	56	27	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
R ALDER		128.2	34.2	25	38	51				
WHEMLOCK		144.5	38.6	23	38	53				
WR CEDAR		196.2	52.4	7	14	21				
BIRCH		387.3	103.4		6	12				
TOTAL		54.4	14.5	82	96	110	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	
R ALDER		131.7	35.2	26	40	55				
WHEMLOCK		151.9	40.6	18	31	44				
WR CEDAR		228.0	60.9	8	19	31				
BIRCH		387.3	103.4		6	12				
TOTAL		62.9	16.8	81	97	113	169	86	42	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
R ALDER		133.6	35.7	2,006	3,120	4,234				
WHEMLOCK		162.1	43.3	2,507	4,420	6,333				
WR CEDAR		250.3	66.8	457	1,380	2,303				
BIRCH		387.3	103.4		460	936				
TOTAL		67.2	17.9	7,697	9,380	11,063	193	99	48	

TC TSTATS				STATISTICS				PAGE	1	
PROJECT				BWETHER				DATE	11/4/2019	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
39N	05E	20	BWETHER	RW	1.50	4	19	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		4	19	4.8						
CRUISE		4	19	4.8	143	13.3				
DBH COUNT										
REFOREST COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	3	15.0	27.0	96	11.5	59.6	11,050	10,800	2,451	2,451
R ALDER	8	40.0	14.0	54	11.5	43.0	3,950	3,700	1,101	1,101
WHEMLOCK	4	20.0	16.0	58	7.0	27.9	3,350	3,300	917	917
COTWOOD	1	5.0	22.0	90	2.8	13.2	2,600	2,350	568	568
WR CEDAR	3	15.0	10.8	26	2.9	9.6	300	200	101	100
TOTAL	<i>19</i>	<i>95.0</i>	<i>17.2</i>	<i>59</i>	<i>37.0</i>	<i>153.3</i>	<i>21,250</i>	<i>20,350</i>	<i>5,137</i>	<i>5,137</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	
DOUG FIR		42.0	29.1	511	720	929				
R ALDER		45.4	17.1	77	93	108				
WHEMLOCK		96.7	55.2	74	165	256				
COTWOOD										
WR CEDAR		86.6	59.9	5	13	21				
TOTAL		<i>128.0</i>	<i>30.2</i>	<i>150</i>	<i>214</i>	<i>279</i>	<i>692</i>	<i>353</i>	<i>173</i>	
CL:	68.1 %	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		66.7	38.1	9	15	21				
R ALDER		40.8	23.3	31	40	49				
WHEMLOCK		141.4	80.8	4	20	36				
COTWOOD		200.0	114.3		5	11				
WR CEDAR		127.7	72.9	4	15	26				
TOTAL		<i>39.9</i>	<i>22.8</i>	<i>73</i>	<i>95</i>	<i>117</i>	<i>83</i>	<i>42</i>	<i>21</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	
DOUG FIR		72.7	41.5	35	60	84				
R ALDER		46.0	26.3	32	43	54				
WHEMLOCK		115.8	66.2	9	28	46				
COTWOOD		200.0	114.3		13	28				
WR CEDAR		115.8	66.2	3	10	16				
TOTAL		<i>34.8</i>	<i>19.9</i>	<i>123</i>	<i>153</i>	<i>184</i>	<i>63</i>	<i>32</i>	<i>16</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	
DOUG FIR		80.9	46.2	5,810	10,800	15,790				
R ALDER		51.8	29.6	2,606	3,700	4,794				
WHEMLOCK		115.6	66.0	1,121	3,300	5,479				
COTWOOD		200.0	114.3		2,350	5,035				
WR CEDAR		115.5	66.0	68	200	332				
TOTAL		<i>40.5</i>	<i>23.2</i>	<i>15,637</i>	<i>20,350</i>	<i>25,063</i>	<i>86</i>	<i>44</i>	<i>21</i>	

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

T39N R05E S20 Ty001B	10.3
T39N R05E S20 Ty001D	54.4
T39N R05E S20 TyRW	1.5

Project BWETHER
Acres 144.40

Page No 1
Date: 11/4/2019
Time 10:46:11AM

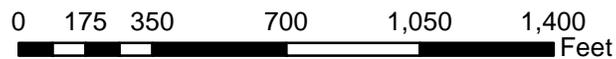
Species	Total	Total	Total	Net Cubic Ft/		CF/ LF	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log		Gross	Net	Gross	Net
DOUG FIR	8,701	18,593	19,200	77.43	36.23	1.08	6,737	6,737	2,744	2,706
WHEMLOCK	9,055	15,640	10,158	35.06	20.30	0.62	3,174	3,174	1,266	1,250
R ALDER	5,703	10,898	4,237	27.02	14.14	0.55	1,541	1,541	572	550
WR CEDAR	6,033	8,338	4,580	32.31	23.37	0.77	1,949	1,949	547	539
COTWOOD	443	893	856	78.96	39.15	1.04	350	350	134	130
BIRCH	80	160	50	22.81	11.41	0.52	18	18	7	6
BL MAPLE	31	31	18	21.82	21.82	1.09	7	7	3	2
Totals	30,045	54,553	39,100	45.85	25.25	0.80	13,776	13,776	5,272	5,183

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	23,789	42,572	33,939	49.86	27.86	0.85	11,860	11,860	4,556	4,495
H	6,256	11,981	5,162	30.61	15.99	0.60	1,915	1,915	716	688
Totals	30,045	54,553	39,100	45.85	25.25	0.80	13,776	13,776	5,272	5,183



bellwether

Layer:	harvest_units selection	Township:	T39R05E
Poly Id:	1	Total Sample Points:	11
Acres:	8	Spacing Between Points:	Width: 200 Height: 200
Imagery:	2017 Orthophoto (1-ft Color) [HXIP]	Point Rotation Degrees:	0



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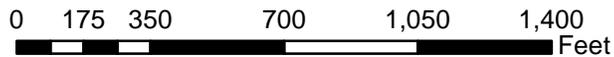
Legend

- Sample Points
- Unit
- Public Land Survey Sections
- Contours 40-foot



bellwether

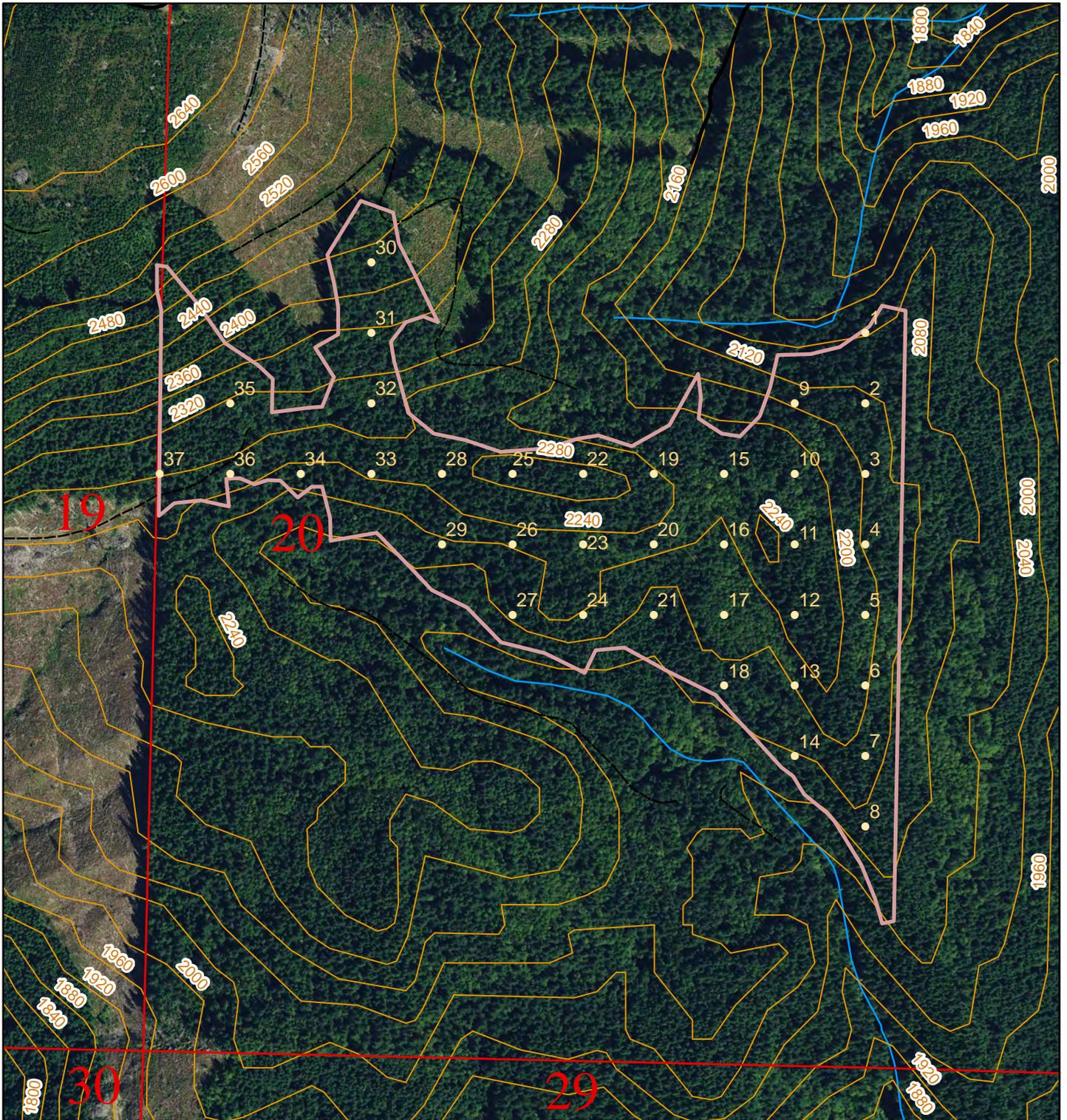
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Imagery:	2017 Orthophoto (1-ft Color) [HXIP]	Point Rotation Degrees:	0



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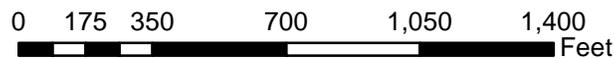
Legend

- Sample Points
- Unit
- Public Land Survey Sections
- Contours 40-foot



Bellwether Timber Sale

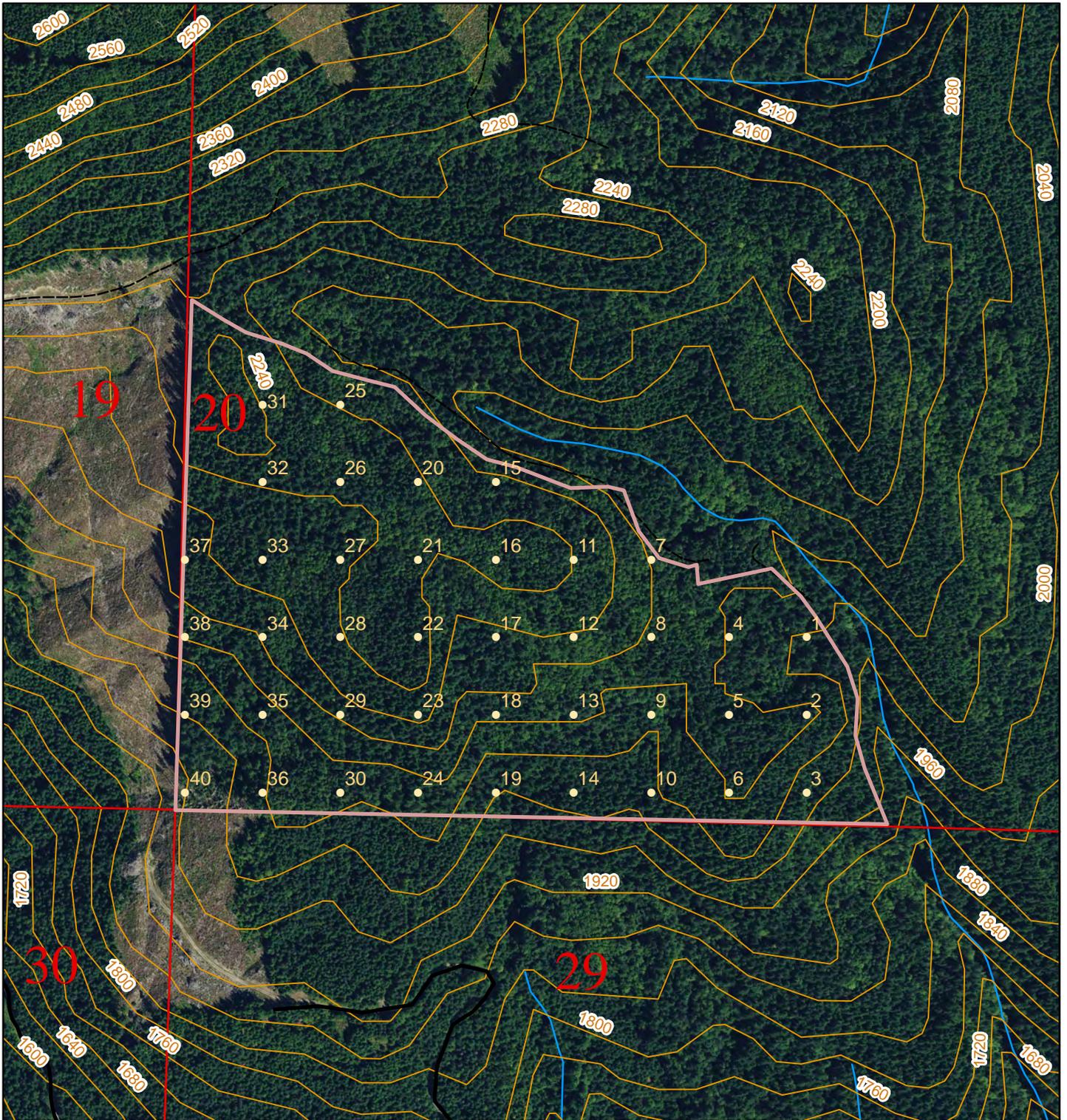
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Poly Id:	1	Total Sample Points:	37
Acres:	56	Spacing Between Points:	Width: 250 Height: 250
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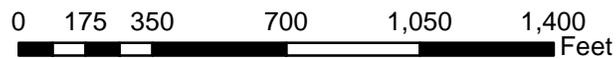
Legend

- Sample Points
- Unit
- Public Land Survey Sections
- Contours 40-foot



Bellwether

Layer:	harvest_units selection	Township:	T39R05E
Poly Id:	1	Total Sample Points:	40
Acres:	68	Spacing Between Points:	275
Imagery:	2017 Orthophoto (1-ft Color) [HXIP]	Point Rotation Degrees:	0



Scale 1:6,000

Legend

- Sample Points
- Unit
- Public Land Survey Sections
- Contours 40-foot

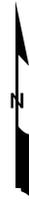


ROAD PLAN AND SPECIFICATIONS

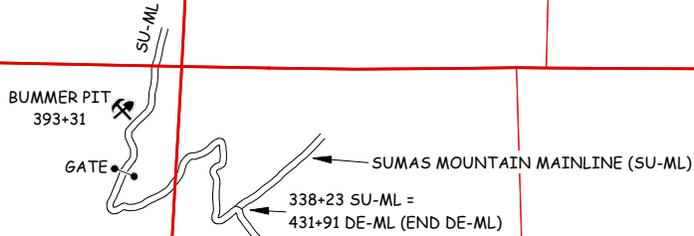
#30-095392 BELLWETHER

32

33



SCALE
0 1,000



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1

6

5

4

LEGEND	
PRE-HAUL MAINTENANCE	-----
REQUIRED CONSTRUCTION	=====
OPTIONAL CONSTRUCTION	-----
REQUIRED RECONSTRUCTION	=====
OPTIONAL RECONSTRUCTION	-----

SHEET INDEX	
PROJECT MAP.....	1-2
ROAD CLAUSES	3-22
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MATERIAL LIST.....	26-27
FARMS.....	28-29
SPECIAL DETAILS.....	30
STANDARD DETAILS.....	31

8

9

DEMING MOUNTAIN MAINLINE (DE-ML)

T39R04E

14

13

18

T39R05E

17

16

180+65 =
0+00 DE-34

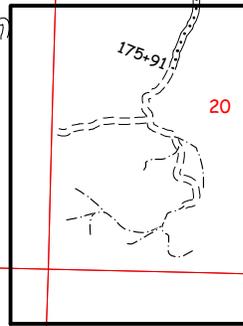
54+85 (PROPERTY LINE)

DE-34

23

24

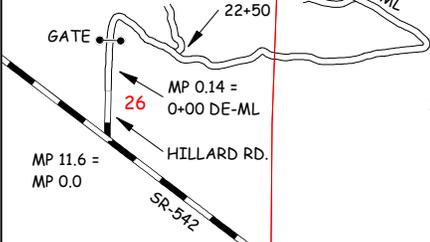
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21

SHEET 2



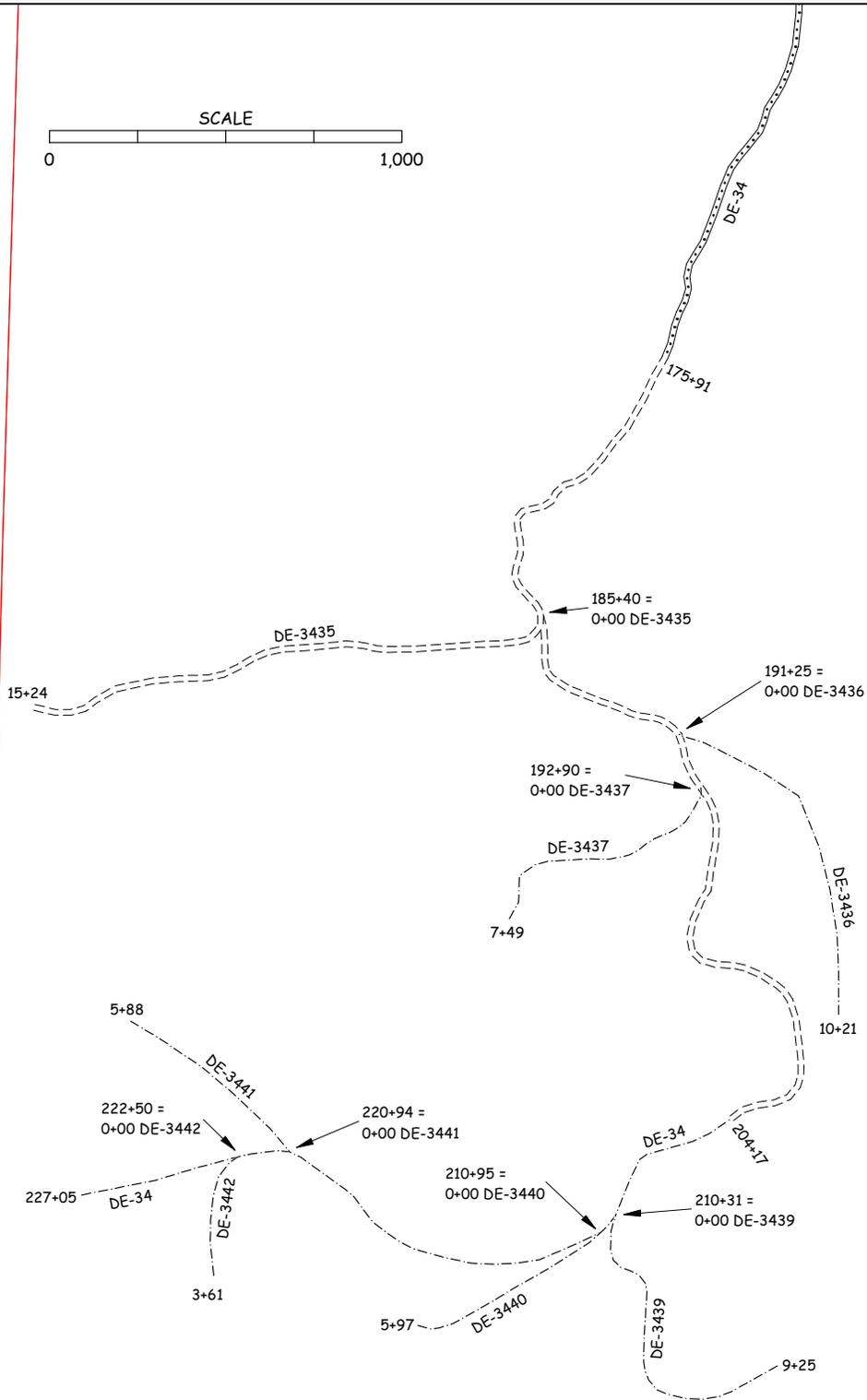
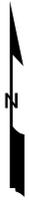
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29

28

DESIGNED BY	REVIEWED BY	APPROVED BY	PLAN DATE	SHEET
CARLSON	ZYLSTRA 1/6/2020	ZYLSTRA 1/6/2020	1/6/2020	1 OF 31



LEGEND

PRE-HAUL MAINTENANCE	=====
REQUIRED CONSTRUCTION	-----
OPTIONAL CONSTRUCTION	- - - - -
REQUIRED RECONSTRUCTION	
OPTIONAL RECONSTRUCTION	

CONTRACT #
30-095392

PROJECT
BELLWETHER

SHEET
2 OF 31

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

BELLWETHER TIMBER SALE ROAD PLAN
WHATCOM COUNTY
BAKER DISTRICT
NORTHWEST REGION

AGREEMENT NO.: 30-095353

STAFF ENGINEER: CARLSON

DATE: SEPTEMBER 25, 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>
DE-34	54+85 to 175+91	Pre-Haul Maintenance
DE-34*	175+91 to 204+17	Construction
DE-3435**	0+00 to 15+24	Construction

* Abandoned grade.

** Portions on abandoned grade.

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>
DE-34*	204+17 to 227+05	Construction
DE-3436**	0+00 to 10+21	Construction
DE-3437**	0+00 to 7+49	Construction
DE-3439*	0+00 to 9+25	Construction
DE-3440*	0+00 to 5+97	Construction
DE-3441	0+00 to 5+88	Construction
DE-3442*	0+00 to 3+61	Construction

* Abandoned grade.

** Portions on abandoned grade.

0-4 CONSTRUCTION

Construction includes, but is not limited to clearing, grubbing, excavation and embankment to sub-grade, landing and turnout construction, culvert installation, and application of 3-inch-minus ballast rock.

0-6 PRE-HAUL MAINTENANCE

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
DE-34	54+85 to 175+91	Brushing. Cleaning culverts, ditches, headwalls, and catch basins. Blading, shaping, and ditching the road prism. Spot patching 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.

0-12 DEVELOP ROCK SOURCE

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

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

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

1-3 ROAD DIMENSIONS

Purchaser shall perform road work in accordance with the dimensions shown on the TYPICAL SECTION SHEET and the specifications within this road plan.

1-4 ROAD TOLERANCES

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

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

1-6 ORDER OF PRECEDENCE

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

1. Addenda.
2. Road Plan Clauses.
3. Typical Section Sheet.
4. Standard Lists.
5. Standard Details.
6. Road Plan maps.

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

1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS

Purchaser shall repair or replace all materials, roadway infrastructure, and road components damaged during road work or operation activities. The Contract Administrator will direct repairs and replacements. Repairs to structural materials must be made in accordance with the manufacturer’s recommendation, and may not begin without written approval from the Contract Administrator.

1-9 DAMAGED METALLIC COATING

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

1-10 WSDOT STANDARD SPECIFICATION REFERENCE

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

1-18 REFERENCE POINT DAMAGE

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

1-21 HAUL APPROVAL

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

1-25 ACTIVITY TIMING RESTRICTION

The specified activities are not allowed during the listed closure periods unless authorized in writing by the Contract Administrator.

<u>Activity</u>	<u>Closure Period</u>
All Activities	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 6 inches on 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 Contract Administrator upon request. If damage occurs while plowing, further permission to plow may be revoked by the Contract Administrator.

1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS

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

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

SECTION 2 – MAINTENANCE

2-1 GENERAL ROAD MAINTENANCE

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

2-2 ROAD MAINTENANCE – PURCHASER MAINTENANCE

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

2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER

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

2-5 MAINTENANCE GRADING – EXISTING ROAD

On the following roads, Purchaser shall use a grader to shape the existing surface before any hauling. Purchaser shall accomplish all grading using a motor grader with a minimum of 175 horsepower.

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
DE-34	54+85 to 175+91	Pre-haul grading

2-6 CLEANING CULVERTS

On the following road, Purchaser shall clean the inlets and outlets of all culverts and shall obtain written approval from the Contract Administrator before any hauling.

<u>Road</u>	<u>Stations</u>
DE-34	54+85 to 175+91

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

On the following road, Purchaser shall clean ditches, headwalls, and catchbasins. Work must be completed before any hauling. Pulling ditch material across the road or mixing in with the road surface is not allowed.

<u>Road</u>	<u>Stations</u>
DE-34	54+85 to 175+91

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

3-1 BRUSHING

On the following road, 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>
DE-34	54+85 to 175+91

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 50%.
- Against standing trees.

3-10 GRUBBING

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

3-20 ORGANIC DEBRIS DEFINITION

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

3-21 DISPOSAL COMPLETION

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

3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

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

3-23 PROHIBITED DISPOSAL AREAS

Purchaser shall not place organic debris in the following areas:

- Within 50 feet of a cross drain culvert.
- Within 100 feet of a live stream, or wetland
- On road subgrades, or excavation and embankment slopes.
- On slopes greater than 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 except as designed:

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 18 percent favorable and 12 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.

4-5 CUT SLOPE RATIO

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

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

4-6 EMBANKMENT SLOPE RATIO

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

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

4-7 SHAPING CUT AND FILL SLOPE

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

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

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

4-9 EMBANKMENT WIDENING

The minimum embankment widening is:

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

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

4-21 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 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.

4-35 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 60%, all waste material must be end hauled or pushed to the designated embankment sites and waste areas identified in Clause 4-37 WASTE AREA LOCATION.

4-37 WASTE AREA LOCATION

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

4-38 PROHIBITED WASTE DISPOSAL AREAS

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

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

4-55 ROAD SHAPING

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

4-60 FILL COMPACTION

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

4-61 SUBGRADE COMPACTION

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

SECTION 5 – DRAINAGE

5-5 CULVERTS

Purchaser shall install culverts as part of this contract. Culverts must be installed concurrently with subgrade work and must be installed before subgrade compaction and rock application. Culvert locations and the minimum requirements for culvert length and diameter are designated on 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 and must meet the specifications in Clauses 10-15 through 10-24. Purchaser shall obtain approval from the Contract Administrator for the quality of used culverts before installation.

5-6 USED CULVERT MATERIAL

Purchaser may install used culverts on the following roads. All other roads must have new culverts installed.

<u>Road</u>	<u>Stations</u>
DE-34	204+17 to 227+05
DE-3439	0+00 to 9+25
DE-3440	0+00 to 5+97
DE-3441	0+00 to 5+88
DE-3442	0+00 to 3+61

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”.

5-16 APPROVAL FOR LARGER CULVERT INSTALLATION

Purchaser shall obtain written approval from the Contract Administrator for the installation of culverts 36 inches in diameter and over before backfilling.

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 at all cross drain culverts, Energy dissipater installation is subject to approval by the Contract Administrator.

Rock used for energy dissipaters must light/loose riprap. Energy dissipaters must extend a minimum of 1 foot to each side of the culvert at the outlet and a minimum of 2 feet beyond the outlet. Rock must be set in place by machine. Placement must be by zero-drop-height method only. No placement by end dumping or dropping of rock is allowed. Rock type shall meet the specifications in Clause 6-50 LIGHT LOOSE RIP RAP.

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. 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.

5-27 ARMORING FOR STREAM CROSSING CULVERTS

At stream crossing culverts, Purchaser shall place riprap in conjunction with construction of the embankment. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets as designated on the MATERIALS LIST or as directed by the Contract Administrator. Rock may not restrict the flow of water into culvert inlets or catch basins. Placement must be by zero-drop-height method only. No placement by end dumping or dropping of rock is allowed.

SECTION 6 – ROCK AND SURFACING

6-2 ROCK SOURCE ON STATE LAND

Rock used in accordance with the quantities on the TYPICAL SECTION and MATERIALS LIST may be obtained from the following source 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, a joint operating plan must be developed. All parties shall follow this plan.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
Bummer Pit	Sta. 393+31 of the SU-ML road.	Riprap, 3-inch-minus ballast 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 at the following sources, 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.

<u>Source</u>
Bummer Pit

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.

6-23 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.

6-50 LIGHT LOOSE RIP RAP

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

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

6-51 HEAVY LOOSE RIP RAP

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

<u>At Least/Not More Than</u>	<u>Weight Range</u>	<u>Size Range</u>
30% / 90%	1 ton to 3 ton	36" - 54"
70% / 90%	500 lbs. to 1 ½ ton	24" - 42"
10% / 30%	50 lbs. max	3" - 8"

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

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

6-70 APPROVAL BEFORE ROCK APPLICATION

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

6-71 ROCK APPLICATION

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

6-73 ROCK FOR WIDENED PORTIONS

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

6-81 CHEMICAL TREATMENT FOR DUST ABATEMENT

Contractor shall treat the following roads with Lignin Sulfonate for dust abatement. No other chemical may be used for dust abatement. The Lignin Sulfonate may not be used for any other purposes.

<u>Road</u>	<u>Stations</u>
DE-ML	0+00 to 22+50

6-82 CHEMICAL RESTRICTION

Purchaser shall not allow chemicals used for dust abatement to enter any streams.

6-83 LIGNIN SULFONATE APPLICATION RATE

The “as supplied” liquid Lignin Sulfonate must be diluted with an adequate amount of water to obtain a 25% solids content for application. Contractor shall apply Lignin Sulfonate to the surface at a rate not less than 0.5 gallons per square yard (approximately 77.8 gallons per station).

6-85 CHEMICAL DUST ABATEMENT EQUIPMENT

Application equipment used to spread dust abatement chemicals must be capable of uniform application. A tanker truck with a “slash pan” or “plate” is not acceptable. Field dilution must be accomplished within the application vehicle.

6-86 TIMING FOR CHEMICAL APPLICATION

Contractor shall obtain prior written approval from the Contract Administrator for the timing of application for dust abatement chemicals. It is intended that dust abatement chemicals be applied during the summer season.

SECTION 8 – EROSION CONTROL

8-2 PROTECTION FOR EXPOSED SOIL

Purchaser shall provide and evenly spread a 4-inch layer of straw to all exposed soils within 25 feet of a stream or wetland. Soils must be covered before the first anticipated storm event.

8-10 STABILIZE SLOPES – ROCK APPLICATION

On the following road, Purchaser shall stabilize embankment slopes by applying rock as specified below. Rock must be set in place in conjunction with or immediately following construction of the embankment. Rock must be applied in quantities specified in the MATERIALS LIST to exposed soil on the excavated slopes. Rock must be set in place by machine. Placement must be by zero-drop-height method only. No placement by end dumping or dropping of rock is allowed. Heavy/Loose riprap must meet the specifications in Clause 6-51 HEAVY LOOSE RIP RAP.

<u>Road</u>	<u>Stations</u>	<u>Rock Type</u>
DE-34	182+00 – 182+40	Heavy/Loose riprap

8-11 STABILIZE SLOPES – MATERIAL REMOVAL

On the following road, Purchaser shall stabilize embankment slopes by removing approximately 50 cubic yards of sidecast material. End haul all material to a waste area designated in Clause 4-37 WASTE AREA LOCATION or by the Contract Administrator. All work is subject to approval by the Contract Administrator.

<u>Road</u>	<u>Stations</u>
DE-34	182+00 – 182+40

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 required grass seed and fertilizer.

8-17 REVEGETATION TIMING

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

8-18 PROTECTION FOR SEED

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

8-19 ASSURANCE FOR SEEDED AREA

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

8-25 GRASS SEED

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

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

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

8-27 FERTILIZER

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

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

SECTION 9 – POST-HAUL ROAD WORK

9-5 POST-HAUL MAINTENANCE

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

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

9-12 LANDING EMBANKMENT REMOVAL

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

SECTION 10 MATERIALS

10-15 CORRUGATED STEEL CULVERT

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

10-17 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.

10-23 RUBBER CULVERT GASKETS

Rubber gaskets must be continuous closed cell, synthetic expanded rubber gaskets conforming to the requirements of ASTM D 1056. Rubber gaskets must be used with all corrugated metal pipe coupling bands.

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 ¹ / ₂ "
24" to 48"	14 (0.079")	2 ² / ₃ " X 1 ¹ / ₂ "
54" to 96"	14 (0.079")	3" X 1"

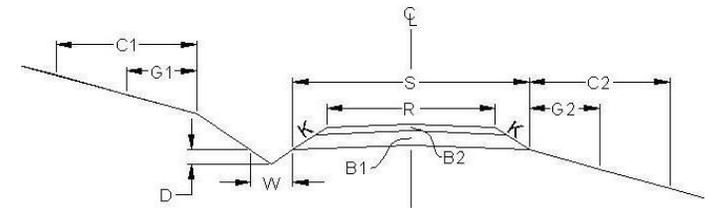
10-30 LIGNIN SULFONATE MATERIALS

Lignin Sulfonate is the chemical residue produced as a by-product of the acid sulfite pulping process, and supplied as a water solution. The base solution may be ammonia, calcium, or sodium and must be water soluble to allow field dilution. Percent solids must be 50% as supplied. When requested by the Contract Administrator, certification must be provided that shows:

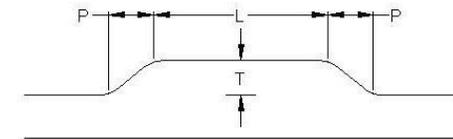
- Solids determination has been made in accordance with the modified Technical Association of the Pulp and Paper Industry Standard T629-M53 or by a specific gravity/percent solids verses temperature graph that correlates with the standard.
- The P_h of the delivered material is a 4.5 minimum as determined by AASHTO-T200.

ROAD #		DE-34	DE-34*	DE-34*	DE-34*
REQUIRED / OPTIONAL		REQUIRED	REQUIRED	OPTIONAL	OPTIONAL
CONSTRUCT / RECONSTRUCT		PRE-HAUL	CONSTRUCT	CONSTRUCT	CONSTRUCT
TOLERANCE CLASS (A/B/C)		C	C	C	C
STATION / MP TO		54+85	175+91	204+17	205+42
STATION / MP		175+91	204+17	205+42	205+92
ROAD WIDTH	R	12	12	12	14
CROWN (INCHES @ C/L)		3	3	3	3
DITCH WIDTH	W	3	3	2	3
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
	G2	--	5	5	5
CLEARING	C1	--	10	10	10
	C2	--	10	10	10
ROCK FILLSLOPE	K:1	--	1½	1½	1½
❖ BALLAST DEPTH	B1	--	18	24	24
CUBIC YARDS / STATION		--	114	160	180
➤ TOTAL CY BALLAST		--	3220	200	90
❖ SURFACING DEPTH	B2	--	--	--	--
CUBIC YARDS / STATION		--	--	--	--
➤ TOTAL CY SURFACING		--	--	--	--
➤ TOTAL CUBIC YARDS		100	3220	200	90
SUBGRADE WIDTH	S	--	16.5	18.0	20.0
BRUSHCUT (Y/N)		Y	N	N	N
BLADE, SHAPE, & DITCH (Y/N)		Y	N	N	N

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.

* ABANDONED GRADE

** PORTIONS ON ABANDONED GRADE

TOTAL 3-INCH-MINUS BALLAST ROCK = 10865 CY

TOTAL RIPRAP = 343 CY

ROAD #		DE-34*	DE-34*	DE-3435**	DE-3436**	DE-3437**	DE-3439*	DE-3440*	DE-3441
REQUIRED / OPTIONAL		OPTIONAL	OPTIONAL	REQUIRED	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
CONSTRUCT / RECONSTRUCT		CONSTRUCT							
TOLERANCE CLASS (A/B/C)		C	C	C	C	C	C	C	C
STATION / MP TO		205+92	207+17	0+00	0+00	0+00	0+00	0+00	0+00
STATION / MP		207+17	227+05	15+24	10+21	7+49	9+25	5+97	5+88
ROAD WIDTH	R	12	12	12	12	12	12	12	12
CROWN (INCHES @ C/L)		3	3	3	3	3	3	3	3
DITCH WIDTH	W	2	2	3	2	2	2	2	2
DITCH DEPTH	D	1	1	1	1	1	1	1	1
TURNOUT LENGTH	L	25	25	50	25	25	25	25	25
TURNOUT WIDTH	T	10	10	10	10	10	10	10	10
TURNOUT TAPER	P	25	25	25	25	25	25	25	25
GRUBBING	G1	5	5	5	5	5	5	5	5
	G2	5	5	5	5	5	5	5	5
CLEARING	C1	10	10	10	10	10	10	10	10
	C2	10	10	10	10	10	10	10	10
ROCK FILLSLOPE	K:1	1½	1½	1½	1½	1½	1½	1½	1½
❖ BALLAST DEPTH	B1	24	18	18	12	12	12	12	12
CUBIC YARDS / STATION		160	114	114	72	72	72	72	72
➤ TOTAL CY BALLAST		200	2265	1735	735	540	665	430	425
❖ SURFACING DEPTH	B2	--	--	--	--	--	--	--	--
CUBIC YARDS / STATION		--	--	--	--	--	--	--	--
➤ TOTAL CY SURFACING		--	--	--	--	--	--	--	--
➤ TOTAL CUBIC YARDS		200	2265	1735	735	540	665	430	425
SUBGRADE WIDTH	S	18.0	16.5	16.5	15.0	15.0	15.0	15.0	15.0
BRUSHCUT (Y/N)		N	N	N	N	N	N	N	N
BLADE, SHAPE, & DITCH (Y/N)		N	N	N	N	N	N	N	N

ROAD #		DE-3442*						
REQUIRED / OPTIONAL		OPTIONAL						
CONSTRUCT / RECONSTRUCT		CONSTRUCT						
TOLERANCE CLASS (A/B/C)		C						
STATION / MP TO		0+00						
STATION / MP		3+61						
ROAD WIDTH	R	12						
CROWN (INCHES @ C/L)		3						
DITCH WIDTH	W	2						
DITCH DEPTH	D	1						
TURNOUT LENGTH	L	25						
TURNOUT WIDTH	T	10						
TURNOUT TAPER	P	25						
GRUBBING	G1	5						
	G2	5						
CLEARING	C1	10						
	C2	10						
ROCK FILLSLOPE	K:1	1½						
❖ BALLAST DEPTH	B1	12						
CUBIC YARDS / STATION		72						
➤ TOTAL CY BALLAST		260						
❖ SURFACING DEPTH	B2	--						
CUBIC YARDS / STATION		--						
➤ TOTAL CY SURFACING		--						
➤ TOTAL CUBIC YARDS		260						
SUBGRADE WIDTH	S	15.0						
BRUSHCUT (Y/N)		N						
BLADE, SHAPE, & DITCH (Y/N)		N						

MATERIALS LIST

LOCATION		CULVERT			DWNST		RIPRAP			FILL TYPE	TOLERANCE	REMARKS	
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE				Note: Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:
													Diameter
												18" 16 2 2/3" x 1/2"	
												24" – 48" 14 2 2/3" x 1/2"	
												54" – 96" 14 3" x 1"	
DE-34	176+86	24	30	PD			3	5	H/L	NT	C	Type 5 stream. Construct sediment trap far uphill side.	
DE-34	178+52	18	30	PD			2	3	L	NT	C		
DE-34	180+77	24	36	PD			5	10	H/L	NT	C	Type 4 stream. Construct sediment trap far uphill side.	
DE-34	182+31	24	40	PD			3	40	H/L	NT	C	Type 5 stream. See Clauses 8-10 and 8-11.	
DE-34	184+05	24	40	PD			3	5	H/L	NT	C		
DE-34	185+40	18	30	PD			2	3	L	NT	C		
DE-34	186+72	30	50	XX			5	10	H/L	NT	C	Type 4 stream.	
DE-34	189+64	18	30	PD			2	3	L	NT	C		
DE-34	193+35	18	30	PD			2	3	L	NT	C		
DE-34	195+25	18	30	PD			2	3	L	NT	C		
DE-34	197+75	18	30	PD			2	3	L	NT	C		
DE-34	200+25	18	30	PD			2	3	L	NT	C		
DE-34	202+58	18	30	PD			2	3	L	NT	C		
DE-34	204+92	18	40	XX			2	3	L	NT	C		
DE-34	205+67	60	54	GM			35	50	H/L	NT	C	Type 4 stream. Construct sediment traps in all incoming ditchlines.	
DE-34	213+90	18	36	XX			2	3	L	NT	C		
DE-34	216+47	18	36	XX			2	3	L	NT	C		
DE-34	219+50	18	30	XX			2	3	L	NT	C		
DE-3435	1+72	18	30	PD			2	3	L	NT	C		
DE-3435	4+17	18	30	PD			2	3	L	NT	C		

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

MATERIALS LIST

LOCATION		CULVERT			DWNST		RIPRAP			FILL TYPE	TOLERANCE	REMARKS		
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			Note: Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:		
												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"		
DE-3435	5+80	30	30	XX			5	10	H/L	NT	C	Type 4 stream.		
DE-3435	8+40	24	40	PD			3	5	H/L	NT	C	Type 5 stream. Remove debris from stream outlet.		
DE-3435	12+10	24	30	PD			3	5	H/L	NT	C			
DE-3435	12+76	24	30	PD			3	5	H/L	NT	C	Type 5 stream. Construct sediment trap near uphill side.		
DE-3436	0+60	18	40	XX			2	3	L	NT	C			
DE-3436	2+10	18	30	XX			2	3	L	NT	C			
DE-3436	5+39	18	30	XX			2	3	L	NT	C			
DE-3436	9+13	18	30	XX			2	3	L	NT	C			
DE-3437	0+50	18	40	XX			2	3	L	NT	C			
DE-3437	2+10	18	30	XX			2	3	L	NT	C			
DE-3439	0+50	18	40	XX			2	3	L	NT	C			
DE-3439	5+80	18	30	XX			2	3	L	NT	C			
DE-3440	3+95	18	50	XX			2	3	L	NT	C			
DE-3441	0+86	18	30	XX			2	3	L	NT	C			
DE-3441	4+88	18	30	XX			2	3	L	NT	C			
DE-3442	0+50	18	30	XX			2	3	L	NT	C			

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

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

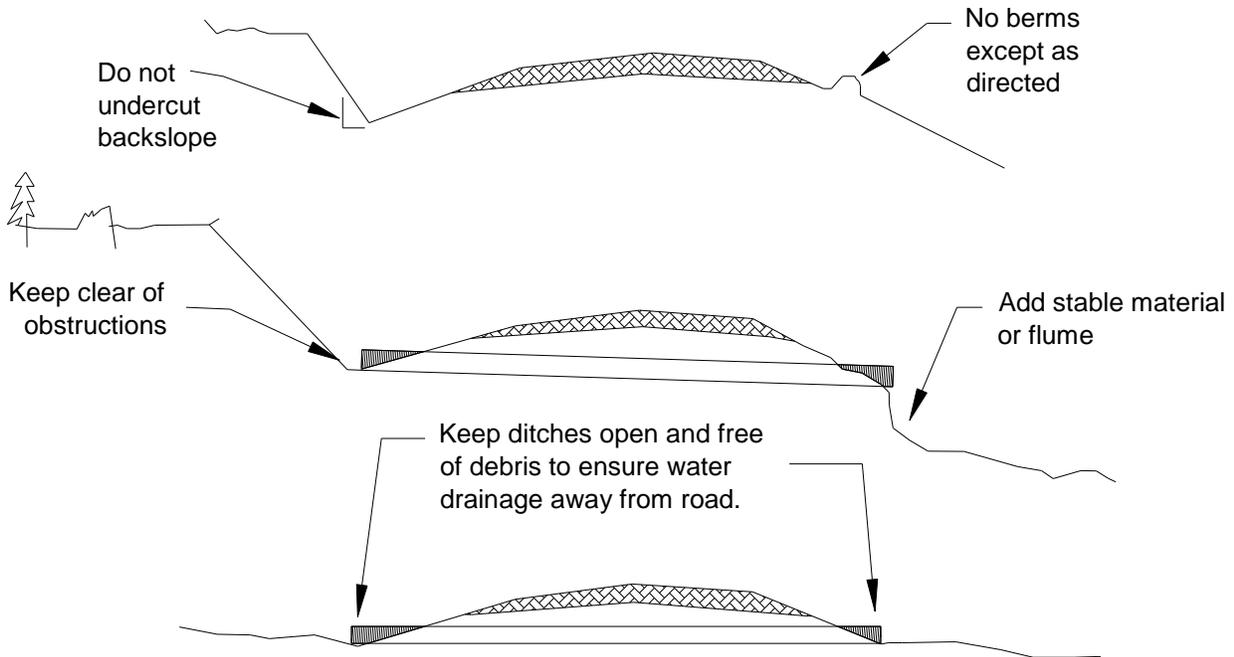
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

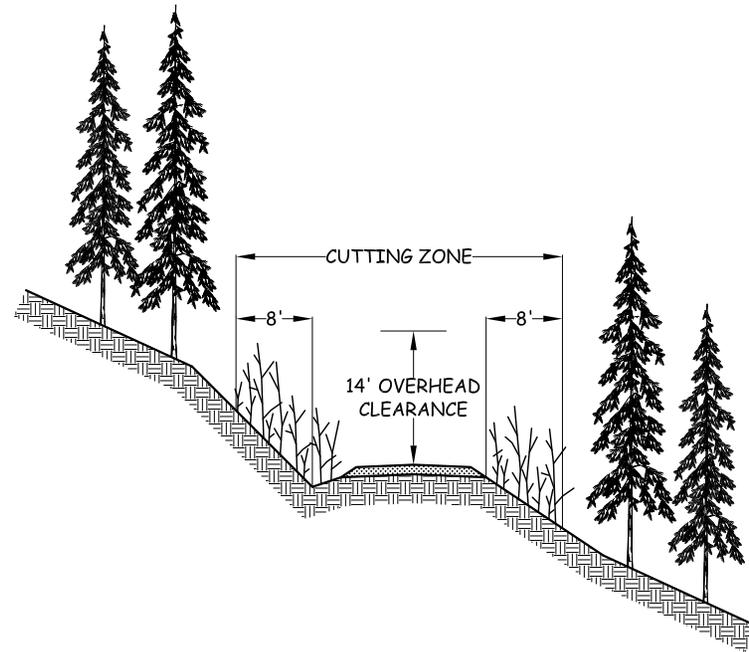
- At the conclusion of logging operations, ensure all conditions of these specifications have been met.

Debris

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



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.

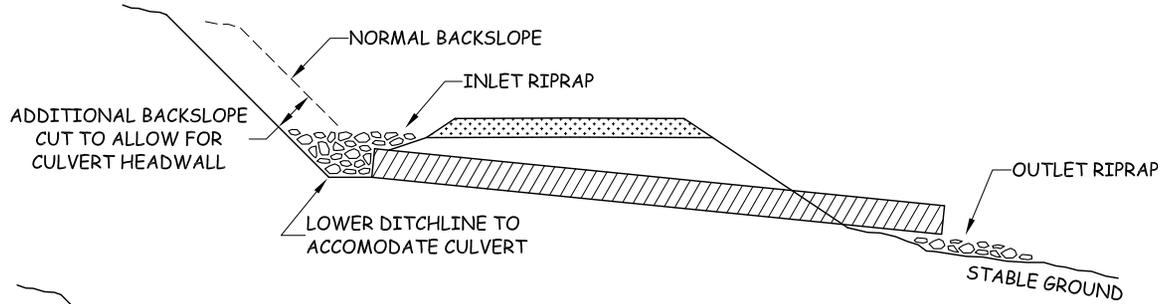
DITCHES SHALL BE CLEARED OF WOODY DEBRIS.

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

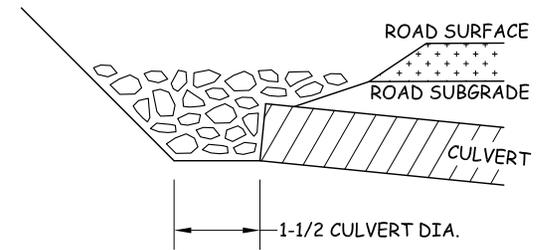
CONTRACT #	PROJECT	SHEET
30-095392	BELLWETHER	30 OF 31

CULVERT AND DRAINAGE SPECIFICATIONS

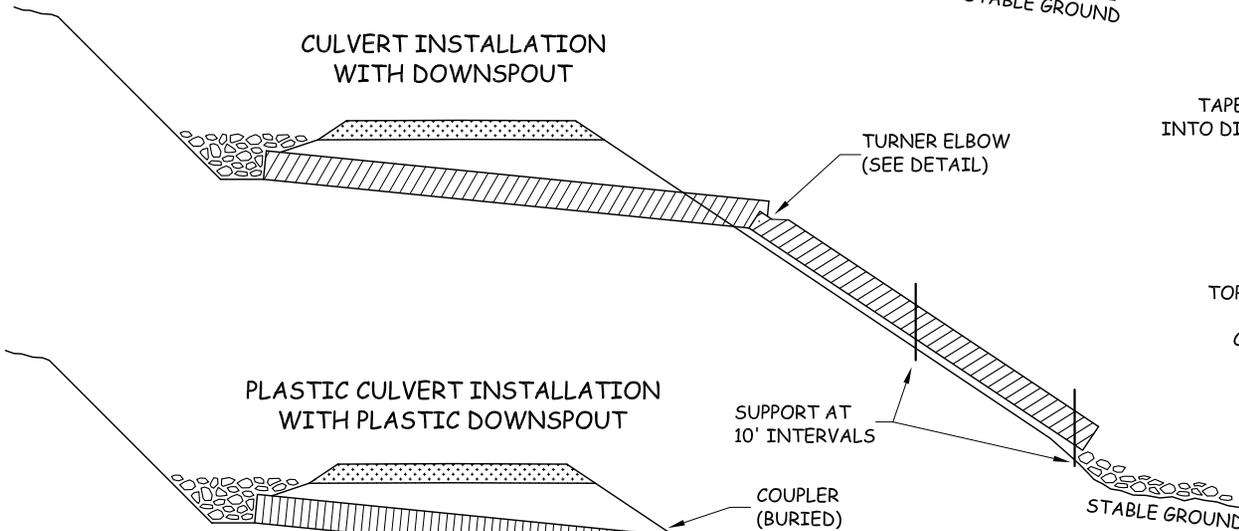
CULVERT INSTALLATION (TYPICAL)



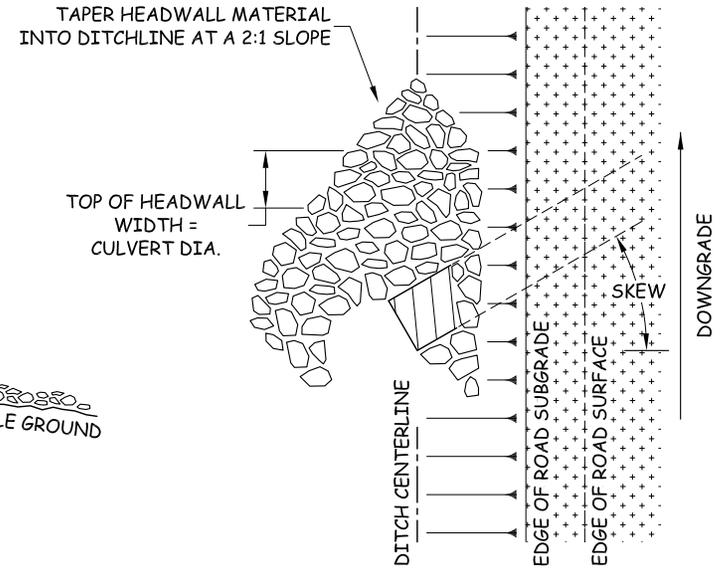
CULVERT HEADWALL - SECTION VIEW



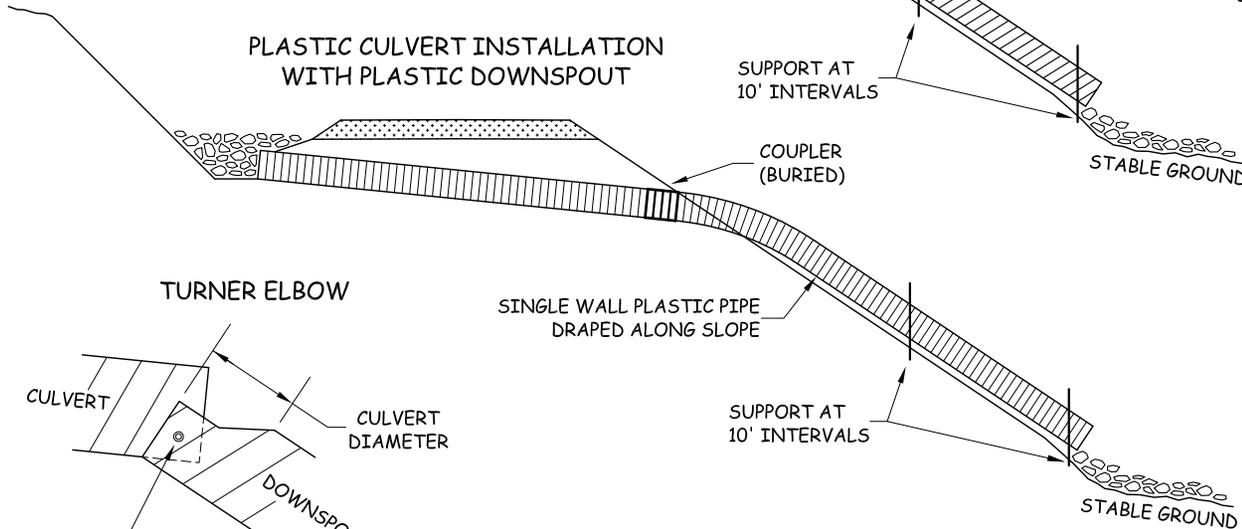
CULVERT INSTALLATION WITH DOWNSPOUT



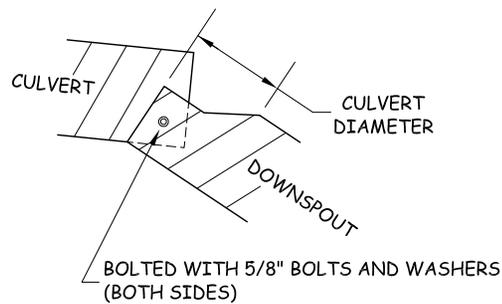
CULVERT HEADWALL - PLAN VIEW



PLASTIC CULVERT INSTALLATION WITH PLASTIC DOWNSPOUT



TURNER ELBOW



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

CONTRACT #	PROJECT	SHEET
30-095392	BELLWETHER	31 OF 31

ROAD COST SUMMARY

BELLWETHER Timber Sale #30-095392

CONSTRUCTION SUMMARY

ROAD #	STATIONING	TOTAL STATIONS	ROCK PRODUCTION COST	ROCK LOADING COST	ROCK HAUL COST	ROCK SPREADING COST	CONSTRUCTION COST	CULVERT COST	OTHER COST	TOTAL COST	COST/STA
DE-34	175+91 204+17	28.26	\$22,540	\$10,346	\$64,971	\$9,425	\$10,248	\$6,412	\$1,098	\$125,039	\$4,425
DE-34	204+17 to 227+05	22.88	\$19,285	\$8,835	\$55,484	\$8,049	\$8,850	\$5,015	\$732	\$106,251	\$4,644
DE-3435	0+00 to 15+24	15.24	\$12,145	\$5,511	\$34,610	\$5,021	\$5,590	\$3,182	\$488	\$66,546	\$4,367
DE-3436	0+00 to 10+21	10.21	\$5,145	\$2,332	\$14,647	\$2,125	\$3,261	\$1,377	\$327	\$29,214	\$2,861
DE-3437	0+00 to 7+49	7.49	\$3,780	\$1,699	\$10,670	\$1,548	\$2,329	\$739	\$240	\$21,004	\$2,804
DE-3439	0+00 to 9+25	9.25	\$4,655	\$2,085	\$13,095	\$1,900	\$3,028	\$739	\$296	\$25,797	\$2,789
DE-3440	0+00 to 5+97	5.97	\$3,010	\$1,344	\$8,439	\$1,224	\$1,863	\$520	\$191	\$16,591	\$2,779
DE-3441	0+00 to 5+88	5.88	\$2,975	\$1,344	\$8,439	\$1,224	\$1,863	\$638	\$188	\$16,672	\$2,835
DE-3442	0+00 to 3+61	3.61	\$1,820	\$819	\$5,141	\$746	\$1,165	\$319	\$116	\$10,125	\$2,805
									TOTAL	\$417,238	

CONSTRUCTION COSTS include, clearing and grubbing, excavation and embankment, drilling and shooting on grade, and endhaul.

OTHER COSTS include erosion control, grass seeding and fertilizer, and miscellaneous other requirements detailed in the road plan.

PRE-HAUL MAINTENANCE SUMMARY

ROAD #	STATIONING	TOTAL STATIONS	ROCK PRODUCTION COST	ROCK LOADING COST	ROCK HAUL COST	ROCK SPREADING COST	CULVERT COST	OTHER COST	PRE-HAUL GRADING AND BRUSHING	TOTAL COST	COST/STA
DE-34	54+85 to 175+91	121.06	\$700	\$309	\$1,940	\$281	\$0	\$1,863	\$4,586	\$9,679	\$80
									TOTAL	\$9,679	

OTHER COSTS include cleaning culverts, ditches, headwalls, catch basins, culvert installation, and miscellaneous other requirements detailed in the road plan.

ROAD COST SUMMARY

BELLWETHER Timber Sale #30-095392

POST-HAUL MAINTENANCE SUMMARY

ROAD #	STATIONING	TOTAL STATIONS	POST-HAUL GRADING COST	OTHER COST	TOTAL COST	COST/STA
SU-ML	338+23 to 393+31	55.08	\$626	\$0	\$626	\$11
DE-ML	0+00 to 431+91	431.91	\$4,908	\$0	\$4,908	\$11
DE-34	0+00 to 54+85	54.85	\$623	\$0	\$623	\$11
DE-34	54+85 to 175+91	121.06	\$1,376	\$0	\$1,376	\$11
DE-34	175+91 204+17	28.26	\$321	\$0	\$321	\$11
DE-34	204+17 to 227+05	22.88	\$260	\$0	\$260	\$11
DE-3435	0+00 to 15+24	15.24	\$173	\$0	\$173	\$11
DE-3436	0+00 to 10+21	10.21	\$116	\$0	\$116	\$11
DE-3437	0+00 to 7+49	7.49	\$85	\$0	\$85	\$11
DE-3439	0+00 to 9+25	9.25	\$105	\$0	\$105	\$11
DE-3440	0+00 to 5+97	5.97	\$68	\$0	\$68	\$11
DE-3441	0+00 to 5+88	5.88	\$67	\$0	\$67	\$11
DE-3442	0+00 to 3+61	3.61	\$41	\$0	\$41	\$11
				TOTAL	\$8,769	

OTHER COSTS include miscellaneous other requirements detailed in the road plan.

NOTE: ALL MOBILIZATION COSTS HAVE BEEN AMORTIZED IN WITH OTHER COSTS.

TOTAL ROAD COST	\$435,687	
SALE VOLUME (MBF)	3950	PRE-CRUISE ESTIMATED VOLUME
ROAD COST/MBF	\$110	

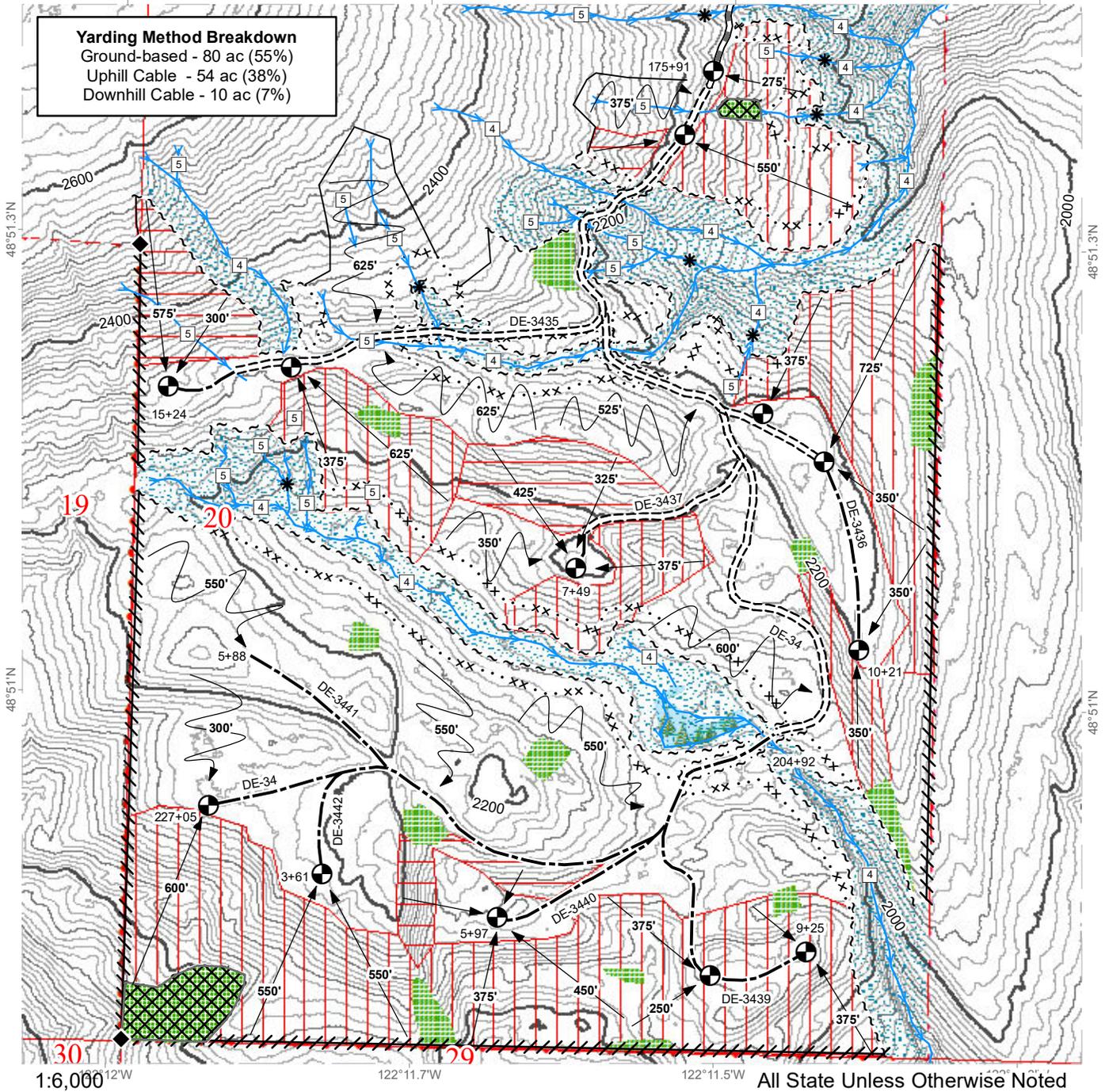
LOGGING PLAN MAP

SALE NAME: BELLWETHER
AGREEMENT#: 30-095392
TOWNSHIP(S): T39R5E
TRUST(S): Scientific School (10)

REGION: Northwest Region
COUNTY(S): Whatcom
ELEVATION RGE: 1960-2560

122°12'W 122°11.7'W 122°11.5'W 122°11.3'W

Yarding Method Breakdown
 Ground-based - 80 ac (55%)
 Uphill Cable - 54 ac (38%)
 Downhill Cable - 10 ac (7%)



1:6,000

All State Unless Otherwise Noted

- | | | |
|------------------------|-------------------------------|-------------------|
| Downhill Cable Yarding | Sale Boundary Tags | Streams |
| Uphill Cable Yarding | Special Mgmt Area | Stream Type |
| Leave Tree Area | Right of Way Tags | Stream Type Break |
| No-cut RMZ/WMZ | Property Line | Survey Monument |
| Forested Wetland | Required Pre-Haul Maintenance | |
| Non-tradeable LTA | Required Construction | |
| | Optional Construction | |

