



TIMBER NOTICE OF SALE

SALE NAME: RIDGE ENDER

AGREEMENT NO: 30-104444

AUCTION: June 12, 2024 starting at 10:00 a.m.,
Northwest Region Office, Sedro Woolley, WA

COUNTY: Snohomish

SALE LOCATION: Sale located approximately 10 miles northeast of Sultan, WA.

**PRODUCTS SOLD
AND SALE AREA:**

All timber bounded by white timber sale boundary tags, adjacent young stands (pink flag line), and the PT-14 and PT-ML roads, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar, and forest products tagged out by yellow leave tree area tags in Unit #1.

All timber bounded by white timber sale boundary tags, adjacent young stands (pink flag line), and the HK-ML roads, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar, and forest products tagged out by yellow leave tree area tags in Units #2 and #3.

All timber bounded by white timber sale boundary tags, adjacent young stands (pink flag line), and the HK-18 and HK-ML roads, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar, and forest products tagged out by yellow leave tree area tags in Unit #4.

All timber bounded by white timber sale boundary tags, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar, and forest products tagged out by yellow leave tree area tags in Unit #5 (collectively labeled 5A, 5B and 5C).

All timber bounded by orange right-of-way tags.

All forest products above located on part(s) of Sections 6 all in Township 28 North, Range 9 East, Sections 1, 2, 11 and 12 all in Township 28 North, Range 8 East, W.M., containing 146 acres, more or less.

CERTIFICATION: This sale is certified under the Sustainable Forestry Initiative® program Standard (cert no: BVC-SFIFM-018227)

ESTIMATED SALE VOLUMES AND QUALITY:

Species	Avg DBH	Ring Count	Total MBF	MBF by Grade								
				1P	2P	3P	SM	1S	2S	3S	4S	UT
Douglas fir	24.2	12	3,774				271		2,867	595	41	
Hemlock	18.5		2,531						1,500	900	75	56
Redcedar	21		218							206	12	
Maple	15.9		71							32	24	7
Cottonwood	29.3		8							8		
Sale Total			6,602									

MINIMUM BID: \$1,805,000.00

BID METHOD: Sealed Bids

**PERFORMANCE
SECURITY:**

\$100,000.00

SALE TYPE: Lump Sum



TIMBER NOTICE OF SALE

EXPIRATION DATE: March 31, 2027 **ALLOCATION:** Export Restricted

BID DEPOSIT: \$180,500.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Cable; shovel, 6-wheeled rubber-tired skidders with over-the-tire tracks spanning both sets of rear tires (See below for restrictions) on sustained slopes 35% or less; self-leveling harvester on sustained slopes 50% or less; tethered harvester and/or shovel (See below for restrictions); also, a feller-buncher may be utilized on sustained slopes 35% or less.

Purchaser must obtain prior written approval from the Contract Administrator for areas as to where to utilize tethered harvester and/or shovel equipment, as well as 6-wheeled rubber-tired skidders with over-the-tire tracks spanning both sets of rear tires, prior to use. Trees may be felled and pre-bunched by the equipment but must be yarded by cable (for tethered equipment), if authorized by the Contract Administrator. If ground disturbance is causing excessive damage, as determined by the Contract Administrator, the equipment will no longer be authorized. 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: 66.40 stations of required construction. 48.60 stations of optional construction. 218.20 stations of required prehaul maintenance. 45.20 stations of abandonment, if built. Installation of bridges: Two 50-foot span gravel deck log stringer bridges.

Rock may be obtained from the following source(s) on State land at no charge to the Purchaser: HK -1801 Hard Rock Pit (Proposed) at station 5+00 of the HK-18 Road. HK-27 Hard Rock Pit at Station 144+00 of the HK-ML Road.

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

An estimated total quantity of rock needed for this proposal: 346 cubic yards of riprap and 9,980 cubic yards of ballast rock.

In-stream road work on the HK-15 (stations 45+00 to 46+50 and stations 58+50 to 60+00) will not be permitted from September 30 to June 15; this shall not be waived. All remaining 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/GIS traverse for units and for right-of-way. Cruise was conducted via variable plot sample type. See Cruise Narrative for further details. Shapefiles of units are available upon request, and on the DNR website after the BNR meeting in which the sale is presented.

FEES: \$112,234.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.



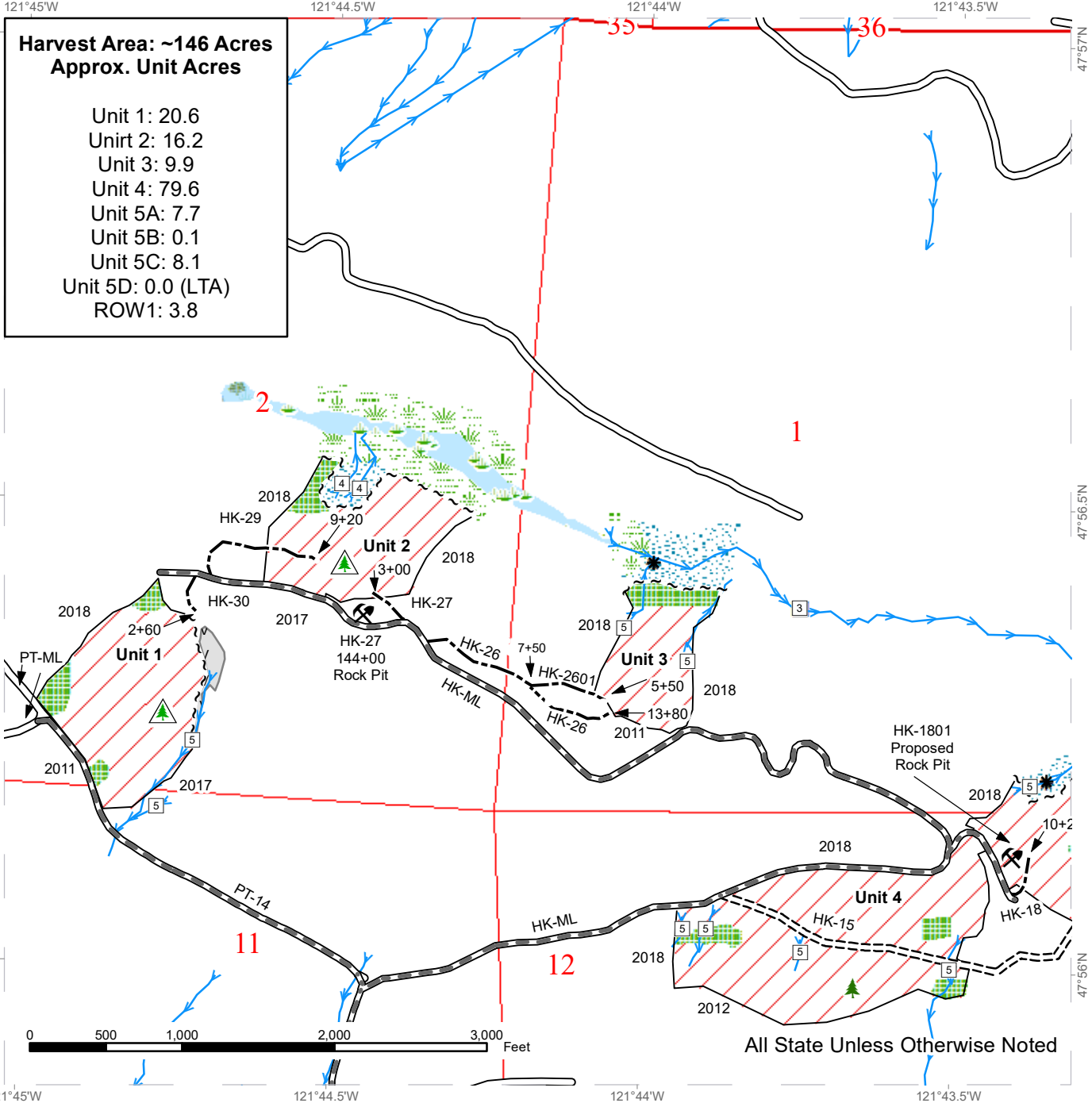
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- SPECIAL REMARKS:**
1. HQ Douglas-fir as well as Douglas-fir and redcedar poles noted within the sale area. See cruise for further details.
 2. "No Entry Area"(s) are located adjacent to Unit 1, Unit 4, Unit 5A, and ROW1 where no activity is allowed to occur.
 3. Intermediate supports may be necessary.
 4. Cedar salvage may be offered for sale separately from the timber sale and is NOT included in the products sold.

TIMBER SALE MAP

SALE NAME: RIDGE ENDER
AGREEMENT #: 30-104444
TOWNSHIP(S): T28R8E, T28R9E
TRUST(S): Capitol Grant (7), Charitable/Educational/Penal & Reformatory Instit. (6), Common School and Indemnity (3)

REGION: Northwest Region
COUNTY(S): Snohomish
ELEVATION RGE: 1040-2080



**Harvest Area: ~146 Acres
Approx. Unit Acres**

Unit 1:	20.6
Unit 2:	16.2
Unit 3:	9.9
Unit 4:	79.6
Unit 5A:	7.7
Unit 5B:	0.1
Unit 5C:	8.1
Unit 5D:	0.0 (LTA)
ROW1:	3.8

Variable Retention Harvest	Non-Tradeable Leave Trees	Wetland Mgt Zone
Existing Roads	Rock Pit	Stream Type 3
Required Pre-Haul Maintenance	No Entry Zone	Stream Type 4
Required Construction	Wetlands - Non-forested	Stream Type 5
Optional Construction	Leave Tree Area	Stream Break
Streams	Riparian Mgt Zone	
Leave Tree Area <1/4-acre	Forested Wetland	



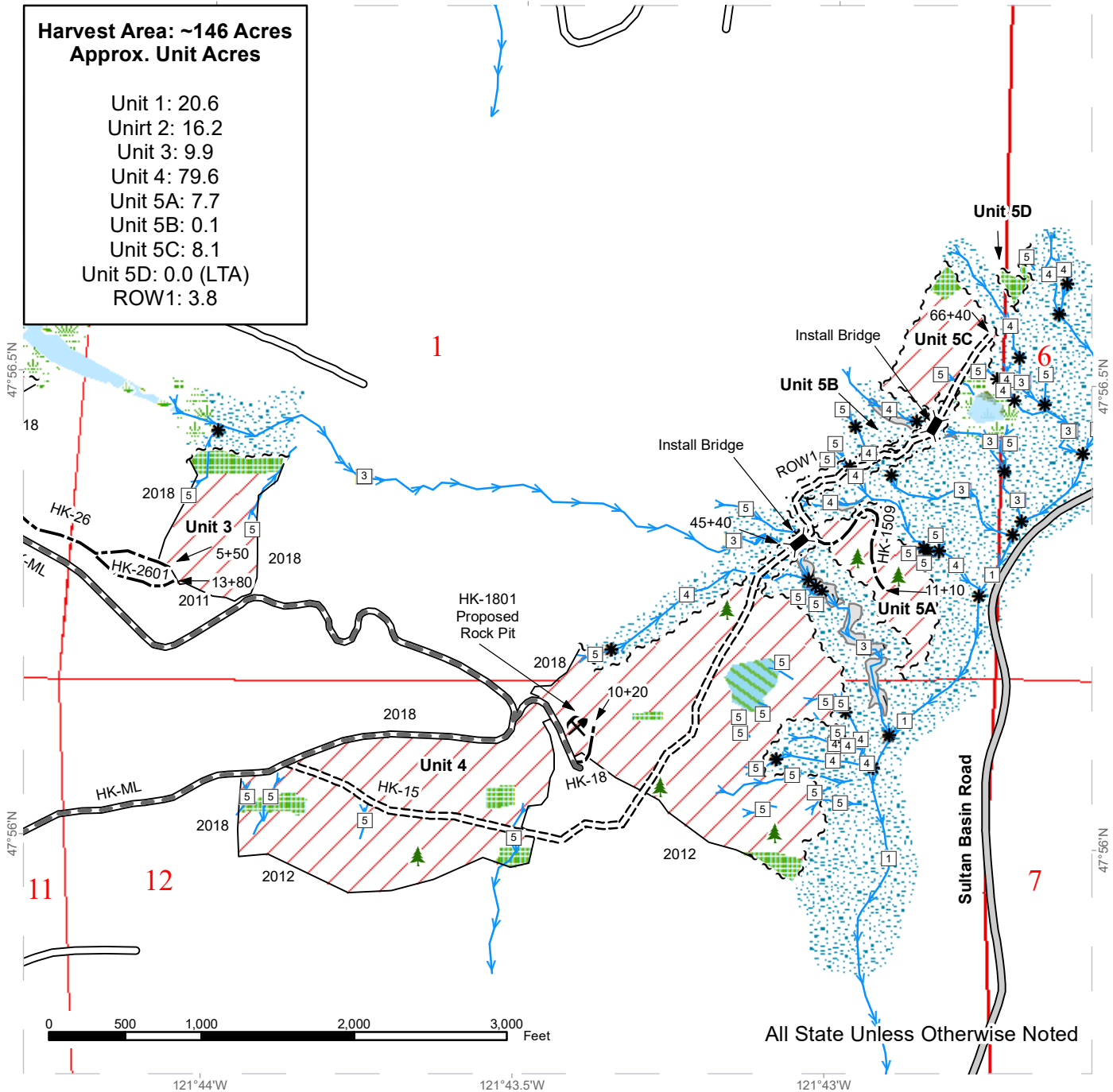
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- Unit 1: 20.6
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- Unit 5A: 7.7
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- Unit 5D: 0.0 (LTA)
- ROW1: 3.8



All State Unless Otherwise Noted

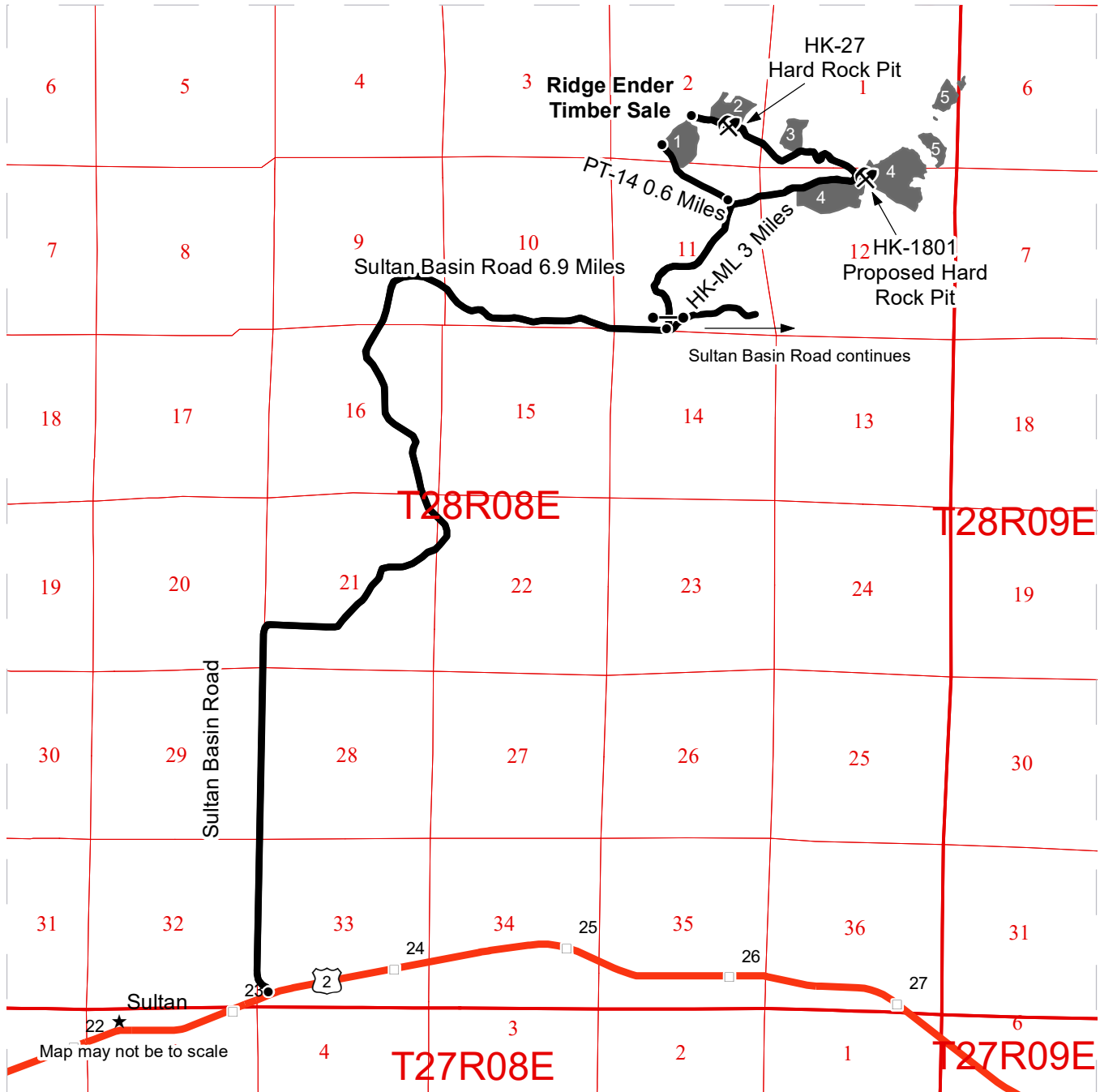
Variable Retention Harvest	Leave Tree Area <1/4-acre	Wetland Mgt Zone
County Road	Rock Pit	Stream Type 1
Existing Roads	No Entry Zone	Stream Type 3
Required Pre-Haul Maintenance	Wetlands - Non-forested	Stream Type 4
Required Construction	Non-Tradeable Leave Clump	Stream Type 5
Optional Construction	Leave Tree Area	Stream Break
Streams	Riparian Mgt Zone	
Bridge	Forested Wetland	



DRIVING MAP

SALE NAME: RIDGE ENDER
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TRUST(S): Capitol Grant (7), Charitable/Educational/Penal & Reformatory Instit. (6), Common School and Indemnity (3)

REGION: Northwest Region
COUNTY(S): Snohomish
ELEVATION RGE: 1040-2080



- Milepost Markers
- Haul Route
- Timber Sale Unit
- US Route 2
- Public Land Survey Townships
- Public Land Survey Sections
- Distance Indicator
- Gate (F1-3)
- ⛏ Rock Pit

DRIVING DIRECTIONS:

All Units
 Follow US Route 2 one mile east of Sultan to reach the intersection with Sultan Basin Road. Turn left at the traffic light onto Sultan Basin Road and continue for 6.9 miles. Turn left on to the HK-ML mainline; F1-3 key required. The HK-ML continues for 3 miles; all units are accessible from this road.

Unit 1
 Unit 1 can also be accessed from the bottom by following the PT-14 off of the HK-ML. At the second fork on the HK-ML, turn left. Continue for approximately 2100 feet; Unit 1 will be on the right flank of the road.



**STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES**

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

Export Restricted Lump Sum AGREEMENT NO. 30-0104444

SALE NAME: RIDGE ENDER

**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 June 12, 2024 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, adjacent young stands (pink flag line), and the PT-14 and PT-ML roads, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar, and forest products tagged out by yellow leave tree area tags in Unit #1.

All timber bounded by white timber sale boundary tags, adjacent young stands (pink flag line), and the HK-ML roads, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar, and forest products tagged out by yellow leave tree area tags in Units #2 and #3.

All timber bounded by white timber sale boundary tags, adjacent young stands (pink flag line), and the HK-18 and HK-ML roads, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar, and forest products tagged out by yellow leave tree area tags in Unit #4.

All timber bounded by white timber sale boundary tags, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar, and forest products tagged out by yellow leave tree area tags in Unit #5 (collectively labeled 5A, 5B and 5C).

All timber bounded by orange right-of-way tags.

All forest products described above located on approximately 146 acres on part(s) of Section 6 in Township 28 North, Range 9 East, Sections 1, 2, 11, and 12 all in Township 28 North, Range 8 East W.M. in Snohomish County(s) as designated on the sale area and as shown on the attached timber sale map.

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

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

G-020 Inspection By Purchaser

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

G-031 Contract Term

Purchaser shall complete all work required by this contract prior to March 31, 2027.

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 \$790.00 per acre per annum for the acres on which an operating release has not been issued in the sale area.
- f. In no event will the extension charge be less than \$200.00.
- g. Extension payments are non-refundable.

G-053 Surveys - Sensitive, Threatened, Endangered Species

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

G-060 Exclusion of Warranties

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

- a. The MERCHANTABILITY of the forest products. The use of the term "merchantable" in any document is not intended to vary the foregoing.
- b. The CONDITION of the forest products. The forest products will be conveyed "AS IS."

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

G-061 Inadvertent Discovery of Cultural Resources

Purchaser acknowledges that cultural resources as defined in WAC 222-16-010 may exist within the timber sale area and that the existence and location of such resources may be unknown at the time this contract is executed. Purchaser has a duty to exercise due care in its operations and in the event any human skeletal remains are discovered by the Purchaser or the State during the course of operations Purchaser shall immediately halt operations and notify local law enforcement in the most expeditious manner possible then notifying the Contract Administrator. In the event cultural resources are discovered by the Purchaser or the State during the course of operations Purchaser shall immediately halt operations and notify the Contract Administrator. Any potential resources shall not be removed or disturbed. Purchaser shall resume operations as directed in writing by the Contract Administrator.

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
Cottonwood	\$78.86	0	\$0.00	\$9.00	\$9.00
Douglas fir	\$302.60	0	\$0.00	\$9.00	\$9.00
Hemlock	\$212.82	0	\$0.00	\$9.00	\$9.00
Maple	\$156.14	0	\$0.00	\$9.00	\$9.00
Redcedar	\$516.56	0	\$0.00	\$9.00	\$9.00
Other	\$287.95	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 2022 Forest Management Standard under certificate number: BVC-SFIFM-018227.

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 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 Operations

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; HK-ML, PT-14, HK-15, HK-1509, HK-18, HK-26, HK-2601, HK-27, HK-29, HK-30. 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-430 Open Fires

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

G-450 Encumbrances

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

Easement, including the terms and provisions thereof,

For: Road

In Favor of: Public Utility District #1 of Snohomish County

Disclosed by Application No.: 50-052271

Granted: 7/26/1985

Expires: Indefinite

Easement, including the terms and provisions thereof,

For: Water Station

In Favor of: US Geological Survey

Disclosed by Application No.: 50-052296

Granted: 8/1/1946

Expires: Indefinite

Easement, including the terms and provisions thereof,

For: Tunnel

In Favor of: Public Utility District #1 of Snohomish County

Disclosed by Application No.: 50-052563

Granted: 11/17/1981

Expires: Indefinite

Easement, including the terms and provisions thereof,

For: County Road
In Favor of: Snohomish County
Disclosed by Application No.: 50-099014
Granted: 4/4/2019
Expires: Indefinite

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 \$171,652.00. The total contract price consists of a \$0.00 contract bid price plus \$171,652.00 in fees. Fees collected shall be retained by the state unless the contract is adjusted via the G-066 clause. Purchaser shall be liable for the entire purchase price, and will not be entitled to any refunds or offsets unless expressly stated in this contract.

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

P-045 Guarantee of Payment

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

P-050 Billing Procedure

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

P-080 Payment Account Refund

Advance payments made under P-045 or P-045.2 remaining on account above the value for the charges shall be returned to Purchaser within 30 days following the final report

of charges. Refunds not made within the 30 day period will accrue interest at the interest rate, as established by WAC 332-100-030, computed on a daily basis until paid.

P-090 Performance Security

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

P-100 Performance Security Reduction

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

Section H: Harvesting Operations

H-001 Operations Outside the Sale Boundaries

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

H-010 Cutting and Yarding Schedule

Felling 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 damage for reserve trees is defined in clause H-013.

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)
When reserve tree damage exceeds the limits set forth in clause H-013, Purchaser shall be subject to liquidated damages (clause D-041).

H-012 Leave Tree Damage Definition

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

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

- a. A leave tree has one or more scars on its trunk exposing the cambium layer, which in total exceeds 20 square inches.
- b. A leave tree top is broken or the live crown ratio is reduced below 30 percent.
- c. A leave tree has more than 1/3 of the circumference of its root system injured such that the cambium layer is exposed.

If the Contract Administrator determines that a leave tree has been cut or damaged, the Purchaser may be required to pay liquidated damages for Excessive Leave Tree Damage as detailed in clause D-040.

H-013 Reserve Tree Damage Definition

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

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

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

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

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

H-017 Preventing Excessive Soil Disturbance

Operations may be suspended when soil rutting exceeds 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-035 Fall Trees Into Sale Area

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

H-051 Branding and Painting

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

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

H-060 Skid Trail Locations

Locations of skid trails must be marked by Purchaser and approved by the Contract Administrator prior to the felling of timber.

H-120 Harvesting Equipment

Forest products sold under this contract shall be harvested and removed using cable; shovel, 6-wheeled rubber-tired skidders with over-the-tire tracks spanning both sets of rear tires (See H-141 for restrictions) on sustained slopes 35% or less; self-leveling harvester on sustained slopes 50% or less; tethered harvester and/or shovel (See H-141 for restrictions); also, a feller-buncher may be utilized 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-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.

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

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

B. All type 5 streams will have a 30-foot equipment limitation zone measured from each bank, except as necessary to cross at approved locations. The purchaser shall mark, and the Contract Administrator shall review for approval, all Type 5 stream crossings. The limited crossings shall be as close to perpendicular as possible.

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. An on-site pre-work meeting that includes the Contract Administrator and Purchaser will be required after operations have been disrupted (leading to a cessation of operations) or operations moved off site for a period of more than two weeks before any activities resume on site.

E. Falling and yarding shall occur away from all scattered leave trees, leave tree areas, and typed waters where possible. Avoid parallel cable yarding in, across, or adjacent to stream channels where possible.

F. Ground-based yarding shall not exceed 800 feet from any road unless authorized in writing by the Contract Administrator.

G. Purchaser is responsible for all notification signage relating to logging or road construction activity at the Purchaser's expense.

H. The HK-ML gate must be closed and locked at the end of each day.

I. Except for any non-tradeable leave trees, leave trees may be traded for trees of the same size, species, and similar location with prior approval from the Contract Administrator.

J. Purchaser shall be required to mark tail holds prior to operation and have them approved by the Contract Administrator prior to cable yarding operations.

K. Intermediate supports, if necessary for yarding, shall be marked by the Purchaser and approved by the Contract Administrator prior to felling unit timber.

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, contract, and the FPA shall be present on site during active operations.

B. There are “No Entry Area”(s) adjacent to Unit 1, Unit 4, Unit 5A, and ROW1 where no activity is allowed to occur. If any timber from the sale area accidentally falls into the “No Entry Area”(s), the tree must be left where it lands.

C. Purchaser must obtain prior written approval from the Contract Administrator for areas to utilize 6-wheeled rubber-tired skidders with over-the-tire tracks spanning both sets of rear tires prior to use. If ground disturbance is causing excessive damage, as determined by the Contract Administrator, the equipment will no longer be authorized.

D. 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. Trees may be felled and pre-bunched by the equipment but must be yarded by cable, if authorized by the Contract Administrator. If ground disturbance is causing excessive damage, as determined by the Contract Administrator, the equipment will no longer be authorized.

E. There are two non-tradeable leave tree clumps, one located in Unit 4 and one in Unit 1, as depicted on the timber sale map. These non-tradeable clumps are marked with two “Leave Tree Area” tags on each tree rather than one. Additionally, there is one individually marked non-tradeable cedar in Unit 2, marked with two rings of blue paint. The Purchaser shall not to fell, trade, or otherwise disturb said non-tradeable leave trees.

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

H-190 Completion of Settings

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

H-220 Protection of Residual or Adjacent Trees

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

H-230 Tops and Limbs Outside the Sale Boundary

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

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

Road construction and associated work provisions of the Road Plan for this sale, dated 8/4/2024 are hereby made a part of this contract.

C-050 Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on HK-ML, PT-14, HK-15, HK-1509, HK-18, HK-26, HK-2601, HK-27, HK-29, HK-30. All work shall be completed to the specifications detailed in the Road Plan.

Section S: Site Preparation and Protection**S-001 Emergency Response Plan**

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

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

S-010 Fire Hazardous Conditions

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

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

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

S-030 Landing Debris Clean Up

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

S-035 Logging Debris Clean Up

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

S-050 Cessation of Operations for Low Humidity

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

S-060 Pump Truck or Pump Trailer

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

S-100 Stream Cleanout

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

S-130 Hazardous Materials

a. Hazardous Materials and Waste - Regulatory Compliance

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

Purchaser shall be responsible for restoring the site in the event of a spill 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 (ECY). It is the responsibility of the Purchaser to have all emergency contact information readily available and a means of remote communication for purposes of quick notification. In the event of a spill covered in part a., the Purchaser is responsible for immediately notifying all the following:

- Department of Emergency Management at 1-800-258-5990
- National Response Center at 1-800-424-8802
- Appropriate Department of Ecology (ECY) at 1-800-645-7911
- DNR Contract Administrator

S-131 Refuse Disposal

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

Section D: Damages

D-013 Liquidated Damages or Failure to Perform

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

Clause P-020 governs Purchaser's liability in the event Purchaser fails to perform any of the contract requirements other than the below liquidated damage clauses without

written approval by the State. Purchaser’s failure to pay for all or part of the forest products sold in this contract prior to expiration of the contract term results in substantial injury to the State. Therefore, Purchaser agrees to pay the State the full lump sum contract price in P-020 in the event of failure to perform.

D-041 Reserve Tree Excessive Damage

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

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

Print Name

Date: _____

Address: _____

Jay Guthrie
Northwest Region Manager

Date: _____

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 _____



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: Ridge Ender	Region: Northwest
Agreement #: 30-104444	District: Cascade
Contact Forester: Hunter Billen Phone / Location: (360) 410-5458	County(s): Snohomish, Choose a county
Alternate Contact: John Moon Phone / Location: (360) 770-4436	Other information: Click here to enter text.

Type of Sale: Log Sort (Contract harvest)	See Logging Plan Map
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UNIT ACREAGES AND METHOD OF DETERMINATION:

Unit # Harvest R/W or RMZ WMZ	Legal Description <small>(Enter only one legal for each unit)</small> Sec/Twp/Rng	Grant or Trust	Gross Proposal Acres	Deductions from Gross Acres (No harvest acres)				Net Harvest Acres	Acreage Determination <small>(List method and error of closure if applicable)</small>
				RMZ/ WMZ Acres	Leave Tree Acres	Existing Road Acres	Other Acres <small>(describe)</small>		
1 VRH	02/T28/R08	03	22.7	-	2.1	-	-	20.6	GPS (Garmin)/GIS
2 VRH	02/T28/R08	03	17.4	-	1.2	-	-	16.2	GPS (Garmin)/GIS
3 VRH	01/T28/R08	07	11.7	-	1.8	-	-	9.9	GPS (Garmin)/GIS
4 VRH	12/T28/R08	06/07	85.9	-	6.2	0.1	-	79.6	GPS (Garmin)/GIS
5A VRH	01/T28/R08	7	8.1	-	0.4	-	-	7.7	GPS (Garmin)/GIS
5B VRH	01/T28/R08	07	0.1	-	0	-	-	0.1	GPS (Garmin)/GIS
5C VRH	01/T28/R08	07	8.7	-	0.6	-	-	8.1	GPS (Garmin)/GIS
5D VRH	06/T28/R09	07	0.8	-	0.8	-	-	0.0	GPS (Garmin)/GIS
ROW 1	01/T28/R09	07	3.8	-	-	-	-	3.8	GPS (Garmin)/GIS
TOTAL ACRES			159.2	-	13.1	0.1	-	146	

HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Leave, take, paint color, tags, flagging)	Special Management areas:	Other conditions (# leave trees, etc.)
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	etc.)		
Unit 1	Variable Retention Harvest (VRH). Take all trees bounded by white "Timber Sale Boundary" tags, the PT-14 road, and pink flagging along stand breaks. Leave tree areas are marked with yellow "Leave Tree Area" tags and individual leave trees are marked with a single band of blue paint.	N/A	Clumped: 151 Scattered: 31 Total: 182
Unit 2	Variable Retention Harvest (VRH). Take all trees bounded by white "Timber Sale Boundary" tags, the HK-ML mainline, and pink flagging along stand breaks. Leave tree areas are marked with yellow "Leave Tree Area" tags and individual leave trees are marked with a single band of blue paint.	N/A	Clumped: 129 Scattered: 24 Total: 153
Unit 3	Variable Retention Harvest (VRH). Take all trees bounded by white "Timber Sale Boundary" tags, the HK-ML mainline, and pink flagging along stand breaks. Leave tree areas are marked with yellow "Leave Tree Area" tags and individual leave trees are marked with a single band of blue paint.	N/A	Clumped: 77 Scattered: 21 Total: 98
Unit 4	Variable Retention Harvest (VRH). Take all trees bounded by white "Timber Sale Boundary" tags, the HK-ML mainline, and pink flagging along stand breaks. Leave tree areas are marked with yellow "Leave Tree Area" tags and individual leave trees are marked with a single band of blue paint.	N/A	Clumped: 548 Scattered: 140 Total: 688
Unit 5A	Variable Retention Harvest (VRH). Take all trees bounded by white "Timber Sale Boundary" tags. Leave tree areas are marked with yellow "Leave Tree Area" tags and individual leave trees are marked with a single band of blue paint.	N/A	Clumped: 55 Scattered: 9 Total: 64
Unit 5B	Variable Retention Harvest (VRH). Take all trees bounded by white "Timber Sale Boundary" tags. Leave tree areas are marked with yellow "Leave Tree Area" tags and individual leave trees are marked with a single band of blue paint.	N/A	Clumped: 0 Scattered: 1 Total: 1
Unit 5C	Variable Retention Harvest (VRH). Take	N/A	Clumped: 28

	all trees bounded by white "Timber Sale Boundary" tags. Leave tree areas are marked with yellow "Leave Tree Area" tags and individual leave trees are marked with a single band of blue paint.		Scattered: 19 Total: 47
Unit 5D	Leave tree clump; no trees shall be harvested	N/A	Clumped: 61 Scattered: 0 Total: 61
ROW1	Right of Way (ROW): Take all trees bounded by orange "Right of way" tags. 35 foot average from centerline.	N/A	N/A

OTHER PRE-CRUISE INFORMATION:

Unit #	Primary, secondary Species / Estimated Volume (MBF)	Access information (Gates, locks, etc.)	Photos, traverse maps required
Unit 1	WH, DF / 670 MBF	See Driving Directions	See driving and traverse maps
Unit 2	WH, DF / 520 MBF	See Driving Directions	See driving and traverse maps
Unit 3	WH, DF / 350 MBF	See Driving Directions	See driving and traverse maps
Unit 4	WH, DF / 2550 MBF	See Driving Directions	See driving and traverse maps
Unit 5A	WH, DF / 210 MBF	See Driving Directions	See driving and traverse maps
Unit 5B	WH, DF / 2 MBF	See Driving Directions	See driving and traverse maps
Unit 5C	WH, DF / 265 MBF	See Driving Directions	See driving and traverse maps
Unit 5D	WH, DF / 0 MBF	N/A	See driving and traverse maps
ROW1	WH, DF / 100 MBF	See Driving Directions	See driving and traverse maps
TOTAL MBF	4667 MBF		

REMARKS:

<ul style="list-style-type: none"> - Boundary traverse points are marked with green flagging. - Cedar and Douglas-fir poles present with the highest concentrations in Unit 4 and the bottom of Unit 1.

- Oversized Douglas-fir present in Unit 4.
- There is general consistency in stand characteristics throughout the sale with Hemlock dominance and sub-dominance of Douglas-fir with scattered western redcedar. The majority of the stand falls within the 70-90 age range. Some old-growth remnants exist in the western region of Unit 4; these have been excluded from the sale within a large non-tradeable leave tree area. There is a higher concentration of Douglas-fir in both the eastern and western sections of Unit 4 compared to the rest of the sale.
- There are three sites of noteworthy blowdown within the sale. Two are within Unit 3, and one is within unit 4. See attached traverse maps for exact locations.
- ROW1 is a multi-part polygon.
- Unit 5D is composed entirely of one large leave tree area; no timber will be harvested from said subunit.

Driving directions/access points

Follow US Route 2 east from Sultan for 1 mile to reach the intersection with Sultan Basin Road. Turn left at the traffic light onto Sultan Basin Road and follow north for 6.9 miles. On the left will be the HK-ML gate, which can be opened with an F1-3 key. All units are accessible from the HK-ML road. Additionally, Unit 1 can be accessed from the bottom by following the PT-14 off of the HK-ML. At the second fork on the HK-ML, turn left onto the PT-14. Continue for approximately 2100 feet; Unit 1 will be on the right flank of the road.

For easier access to Unit 5, continue down Sultan Basin Road past the HK-ML gate for an additional 2.6 miles. Directly after a curve to the right there will be a red reflective post on the left side of the road and a small place to park approximately 100 feet down the road on the left. There is an old log stringer across Olney creek that can be crossed by foot for faster access into Unit 5. The bridge is a single log that has no safety rails and is roughly 25 feet above Olney creek; proceed with caution.

Prepared By: Hunter Billen	Title: Pre-Sales Forester	CC: John Moon
Date:		

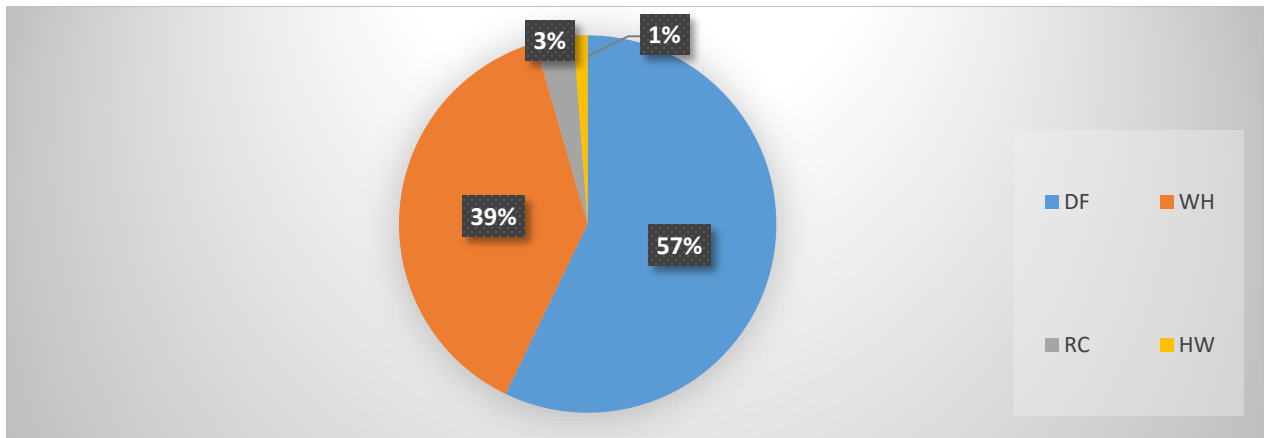
Project Name: Ridge Ender
Lead Cruiser: Matt Llobet

For this cruise different basal area factors were selected based on stoking levels, tree sizes, topography, and understory conditions. The smallest merchantable tree cruised throughout the sale had a DBH of 7.0 inches and 5.0 inches at 16 feet. My plots were generated in GIS and located in the field using Avenza Maps. Bole height was measured with a laser and taken to a 5" top or break point (40% of diameter at 16 feet). Trees were segmented into preferred west-side log lengths while taking into account location of defect within each tree cruised.

- Conifer log lengths were cruised in 2 foot multiples - maximizing 32-40 ft. lengths.
- Hardwood log lengths were cruised in 10 foot multiples - no longer than 30 feet long.

My total net cruise volume for the Ridge Ender TS is 6,602 MBF. Observed throughout all five units was a variable stocking with Douglas fir and Western Hemlock being the dominant species.

Species Composition



Unit 1:

The stand characteristics throughout unit 1 showed a variable species composition with minor vegetation throughout the understory. The terrain throughout unit 1 was steep in the central and northern portions, with mild topography in the south portion. Unit 1 cruised out at 28,155 bf per acre and all live timber showed good form. The species composition consists of Douglas fir, Western Hemlock, Western Red Cedar, and scattered hardwoods. The Douglas fir made up 82% of the unit volume amounting to 477 mbf.

Unit 2 & 3:

These stands consist of a variable timber type with mild brush throughout the understory. Western Hemlock was the dominant species - making up 70% of the volume. The operator

ground was steep with scattered rocky outcroppings in the central portion of both units. The species composition consists of Douglas fir, Western Hemlock, and scattered Western Red Cedar.

Unit 4:

The stand characteristics showed a variable stocking with Douglas fir and Western Hemlock being the dominant species. Unit 4 cruised out at 52,918 bf per acre and all live timber showed good form. Douglas fir makes up 63% of the unit volume, amounting to 2,645 mbf, while WH makes up 32%. High Quality Douglas fir logs were sampled, amounting to 690 mbf. Also sampled throughout unit 4 was pole quality logs in both the Douglas fir and Western Red Cedar. Most of the unit 4 consists of mild terrain, making for productive operator ground.

Unit 5:

Unit 5 showed a variable stocking with Douglas fir and Western Hemlock being the dominant species. Most of unit 5 consists of mild terrain, making for productive operator ground.

ROW:

The ROW volume associated with Ridge Ender was a combination of old road grade and new construction. The ROW units cruised out at 39,082 bf per acre and all timber showed excellent form.

Timber Sale Cruise Report Ridge Ender - NW

Sale Name: RIDGE ENDER

Sale Type: LUMP SUM

Region: NORTHWEST

District: CASCADE

Lead Cruiser: Matt Llobet

Timber Sale Notice Volume (MBF)

Sp	DBH	Rings/In	Age	MBF Volume by Grade					
				All	Spec Mill	2 Saw	3 Saw	4 Saw	Utility
DF	24.2	11.7		3,774	271	2,867	595	41	
WH	18.5			2,531		1,500	900	75	55
RC	21.0			218			206	12	
MA	15.9			71		32	24	7	8
BC	29.3			8		8			
ALL	21.1	11.8		6,602	271	4,407	1,725	135	64

Timber Sale Notice Weight (tons)

Sp	Tons by Grade					
	All	Spec Mill	2 Saw	3 Saw	4 Saw	Utility
DF	24,128	1,611	17,412	4,720	385	
WH	20,514		11,196	8,118	752	449
RC	1,766			1,673	93	
MA	459		194	149	57	59
BC	53		53			
ALL	46,921	1,611	28,855	14,661	1,286	508

Timber Sale Overall Cruise Statistics

BA (sq ft/acre)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR SE (%)	Net Vol (bf/acre)	Vol SE (%)
251.8	4.0	177.5	1.8	45,127	4.5

Timber Sale Unit Cruise Design

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
RIDGE ENDER U1	B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	20.6	22.8	18	18	0
RIDGE ENDER U2	B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	16.2	17.4	14	14	0
RIDGE ENDER U3	B2: VR, 2 BAF (62.5, 40 for some species) Measure All, Sighting Ht = 4.5 ft	9.9	11.7	8	8	0
RIDGE ENDER U4	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	79.6	85.9	46	24	1
RIDGE ENDER U5A	B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	7.7	8.3	4	4	0
RIDGE ENDER U5B	B1: VR, 1 BAF (54.44) Measure All, Sighting Ht = 4.5 ft	0.1	0.1	2	2	0
RIDGE ENDER U5C	B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	8.1	8.7	4	4	0
RIDGE ENDER ROW 1	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	4.1	4.1	7	7	0
All		146.3	159.0	103	81	1

Timber Sale Log Grade x Sort Summary

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
BC	LIVE	2 SAW	Domestic	15.7	30	57	57	0.0	53.5	8.4
DF	LIVE	2 SAW	Domestic	16.5	38	15,392	15,077	2.0	13,290.7	2,205.7
DF	LIVE	2 SAW	HQ-A	14.7	38	1,244	1,244	0.0	1,211.8	181.9
DF	LIVE	2 SAW	HQ-B	18.2	40	2,774	2,758	0.6	2,351.0	403.5
DF	LIVE	2 SAW	Pole	13.8	40	525	519	1.2	558.1	75.9
DF	LIVE	3 SAW	Domestic	9.5	34	3,820	3,772	1.3	4,390.0	551.9
DF	LIVE	3 SAW	Pole	9.7	34	293	293	0.0	330.3	42.8
DF	LIVE	4 SAW	Domestic	7.2	22	264	248	6.1	348.7	36.3
DF	LIVE	4 SAW	Pole	8.2	24	30	30	0.0	36.7	4.4
DF	LIVE	CULL	Cull	19.4	7	31	0	100.0	0.0	0.0
DF	LIVE	SPECIAL MILL	HQ-A	19.6	38	1,885	1,855	1.6	1,611.1	271.4
MA	LIVE	2 SAW	Domestic	13.6	23	224	215	3.7	194.0	31.5

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
MA	LIVE	3 SAW	Domestic	10.3	23	164	164	0.0	149.2	23.9
MA	LIVE	4 SAW	Domestic	9.2	20	46	46	0.0	56.8	6.7
MA	LIVE	UTILITY	Pulp	8.7	22	58	58	0.0	58.9	8.4
RC	LIVE	3 SAW	Domestic	10.6	34	865	842	2.6	1,070.6	123.2
RC	LIVE	3 SAW	Pole	11.0	37	564	564	0.0	602.4	82.6
RC	LIVE	4 SAW	Domestic	6.0	21	67	67	0.0	73.6	9.8
RC	LIVE	4 SAW	Pole	8.1	18	17	17	0.0	19.0	2.5
RC	LIVE	CULL	Cull	13.8	8	28	0	100.0	0.0	0.0
WH	LIVE	2 SAW	Domestic	14.6	38	10,371	10,255	1.1	11,195.6	1,500.4
WH	LIVE	3 SAW	Domestic	8.9	36	6,202	6,154	0.8	8,118.3	900.3
WH	LIVE	4 SAW	Domestic	6.3	25	514	513	0.3	751.6	75.0
WH	LIVE	CULL	Cull	23.3	6	115	0	100.0	0.0	0.0
WH	LIVE	UTILITY	Pulp	8.0	34	378	378	0.0	448.9	55.3

Timber Sale Log Sort x Diameter Bin Summary

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
BC	12 - 15	LIVE	Domestic	12.6	20	9	0.0	9.1	1.3
BC	16 - 19	LIVE	Domestic	18.7	40	48	0.0	44.3	7.1
DF	5 - 7	LIVE	Domestic	6.8	28	551	2.8	708.0	80.6
DF	8 - 11	LIVE	Pole	9.4	32	323	0.0	367.0	47.2
DF	8 - 11	LIVE	Domestic	9.9	33	3,469	1.4	4,030.7	507.6
DF	12 - 15	LIVE	Domestic	13.8	37	4,524	1.1	4,428.8	661.8
DF	12 - 15	LIVE	Pole	13.9	40	519	1.2	558.1	75.9
DF	12 - 15	LIVE	HQ-A	14.2	38	945	0.0	946.5	138.2
DF	12 - 15	LIVE	HQ-B	14.7	40	342	0.0	328.6	50.1
DF	16 - 19	LIVE	HQ-B	17.5	40	1,373	1.1	1,220.5	200.8
DF	16 - 19	LIVE	Domestic	17.6	39	5,033	1.9	4,381.0	736.3
DF	16 - 19	LIVE	HQ-A	17.6	39	1,290	1.4	1,156.2	188.7
DF	16 - 19	LIVE	Cull	18.8	7	0	100.0	0.0	0.0
DF	20+	LIVE	Cull	20.0	6	0	100.0	0.0	0.0
DF	20+	LIVE	HQ-A	21.3	39	864	1.3	720.1	126.5
DF	20+	LIVE	Domestic	22.4	39	5,520	2.9	4,480.9	807.6
DF	20+	LIVE	HQ-B	22.7	39	1,043	0.0	801.9	152.6
MA	5+	LIVE	Pulp	8.7	22	58	0.0	58.9	8.4
MA	5+	LIVE	Domestic	10.6	21	425	1.9	400.0	62.1
RC	5+	LIVE	Domestic	9.0	30	909	2.4	1,144.2	133.0
RC	5+	LIVE	Pole	11.0	34	582	0.0	621.4	85.1

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
RC	5+	LIVE	Cull	13.8	8	0	100.0	0.0	0.0
WH	5 - 7	LIVE	Pulp	5.9	27	133	0.0	176.1	19.5
WH	5 - 7	LIVE	Domestic	6.5	29	1,634	0.2	2,390.7	239.0
WH	8 - 11	LIVE	Domestic	9.8	35	5,033	0.9	6,479.2	736.3
WH	8 - 11	LIVE	Pulp	10.8	37	225	0.0	251.6	32.9
WH	12 - 15	LIVE	Pulp	12.2	26	20	0.0	21.2	2.9
WH	12 - 15	LIVE	Domestic	13.5	38	6,052	0.5	7,053.2	885.5
WH	16 - 19	LIVE	Cull	17.4	5	0	100.0	0.0	0.0
WH	16 - 19	LIVE	Domestic	17.6	39	3,122	1.3	3,155.5	456.8
WH	20+	LIVE	Domestic	23.5	40	1,081	3.8	986.8	158.1
WH	20+	LIVE	Cull	24.2	6	0	100.0	0.0	0.0

Cruise Unit Report RIDGE ENDER U1

Unit Sale Notice Volume (MBF): RIDGE ENDER U1

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	Spec Mill	2 Saw	3 Saw	4 Saw
DF	20.5	10.0		477	18	303	147	9
WH	15.4			57		15	37	4
MA	13.0			28		3	18	7
RC	28.9			10			10	0
BC	29.3			8		8		
ALL	18.6	10.0		580	18	330	211	20

Unit Cruise Design: RIDGE ENDER U1

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	20.6	22.8	18	18	0

Unit Cruise Summary: RIDGE ENDER U1

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	50	50	2.8	1
WH	7	7	0.4	0
MA	4	9	0.5	0
RC	2	2	0.1	0
BC	1	1	0.1	0
ALL	64	69	3.8	1

Unit Cruise Statistics: RIDGE ENDER U1

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	151.2	73.6	17.4	153.3	24.5	3.5	23,179	77.6	17.7
WH	21.2	156.3	36.8	129.7	28.1	10.6	2,745	158.8	38.3
MA	20.0	249.7	58.9	66.9	21.5	10.8	1,338	250.6	59.8
RC	4.4	424.3	100.0	109.1	11.5	8.1	485	424.4	100.3
BC	3.0	424.3	100.0	134.6	0.0	0.0	407	424.3	100.0
ALL	199.9	51.4	12.1	140.9	30.1	3.8	28,155	59.6	12.7

Unit Summary: RIDGE ENDER U1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
BC	LIVE	CUT	1	ALL	29.3	70	86	407	407	0.0	0.6	3.0	0.6	8.4
DF	LIVE	CUT	50	ALL	20.5	80	103	23,713	23,179	2.3	66.0	151.2	33.4	477.5
MA	LIVE	CUT	4	ALL	13.0	47	56	1,338	1,338	0.0	21.7	20.0	5.5	27.6
RC	LIVE	CUT	2	ALL	28.9	80	93	502	485	3.5	1.0	4.4	0.8	10.0
WH	LIVE	CUT	7	ALL	15.4	65	81	2,745	2,745	0.0	16.4	21.2	5.4	56.5
ALL	LIVE	CUT	64	ALL	18.6	71	90	28,706	28,155	1.9	105.7	199.9	45.7	580.0
ALL	ALL	ALL	64	ALL	18.6	71	90	28,706	28,155	1.9	105.7	199.9	45.7	580.0

Cruise Unit Report RIDGE ENDER U2

Unit Sale Notice Volume (MBF): RIDGE ENDER U2

Sp	DBH	Rings/In	Age	MBF Volume by Grade					
				All	Spec Mill	2 Saw	3 Saw	4 Saw	Utility
WH	16.2			449		184	235	28	2
DF	23.9			176	15	126	32	3	
RC	15.4			8			7	1	
ALL	17.2			632	15	310	274	31	2

Unit Cruise Design: RIDGE ENDER U2

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	16.2	17.4	14	14	0

Unit Cruise Summary: RIDGE ENDER U2

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	48	48	3.4	0
DF	14	14	1.0	0
RC	2	2	0.1	0
ALL	64	64	4.6	0

Unit Cruise Statistics: RIDGE ENDER U2

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	186.7	60.2	16.1	148.5	22.3	3.2	27,720	64.2	16.4
DF	54.4	156.9	41.9	199.4	20.2	5.4	10,854	158.2	42.3
RC	6.7	257.6	68.9	69.1	22.2	15.7	466	258.6	70.6
ALL	247.8	39.4	10.5	157.5	27.4	3.4	39,040	48.0	11.1

Unit Summary: RIDGE ENDER U2

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	14	ALL	23.9	97	124	10,877	10,854	0.2	17.5	54.4	11.1	175.8
RC	LIVE	CUT	2	ALL	15.4	55	69	466	466	0.0	5.2	6.7	1.7	7.5

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	48	ALL	16.2	72	91	27,948	27,720	0.8	130.4	186.7	46.4	449.1
ALL	LIVE	CUT	64	ALL	17.2	75	94	39,291	39,040	0.6	153.1	247.8	59.2	632.5
ALL	ALL	ALL	64	ALL	17.2	75	94	39,291	39,040	0.6	153.1	247.8	59.2	632.5

Cruise Unit Report RIDGE ENDER U3

Unit Sale Notice Volume (MBF): RIDGE ENDER U3

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	Spec Mill	2 Saw	3 Saw	4 Saw
WH	17.7			225		107	110	8
DF	19.7			108	10	59	38	
RC	27.3			5			5	
ALL	18.4			337	10	166	153	8

Unit Cruise Design: RIDGE ENDER U3

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2: VR, 2 BAF (62.5, 40 for some species) Measure All, Sighting Ht = 4.5 ft	9.9	11.7	8	8	0

Unit Cruise Summary: RIDGE ENDER U3

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	20	20	2.5	0
DF	8	9	1.1	0
RC	1	1	0.1	0
ALL	29	30	3.8	0

Unit Cruise Statistics: RIDGE ENDER U3

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	156.3	52.4	18.5	145.2	12.2	2.7	22,688	53.8	18.7
DF	70.3	129.6	45.8	154.5	29.1	10.3	10,862	132.8	47.0
RC	5.0	282.8	100.0	108.0	0.0	0.0	540	282.8	100.0
ALL	231.6	30.4	10.7	147.2	18.9	3.5	34,090	35.8	11.3

Unit Summary: RIDGE ENDER U3

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	8	ALL	19.7	76	98	10,960	10,862	0.9	33.2	70.3	15.8	107.5
RC	LIVE	CUT	1	ALL	27.3	80	102	589	540	8.4	1.2	5.0	1.0	5.3

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	20	ALL	17.7	78	97	23,095	22,688	1.8	91.4	156.3	37.1	224.6
ALL	LIVE	CUT	29	ALL	18.4	77	97	34,644	34,090	1.6	125.8	231.6	53.9	337.5
ALL	ALL	ALL	29	ALL	18.4	77	97	34,644	34,090	1.6	125.8	231.6	53.9	337.5

Cruise Unit Report RIDGE ENDER U4

Unit Sale Notice Volume (MBF): RIDGE ENDER U4

Sp	DBH	Rings/In	Age	MBF Volume by Grade					
				All	Spec Mill	2 Saw	3 Saw	4 Saw	Utility
DF	24.8	12.0		2,645	223	2,065	330	26	
WH	19.0			1,341		885	385	25	45
RC	20.3			184			173	10	
MA	17.8			43		28	6		8
ALL	22.0	12.0		4,212	223	2,978	895	62	54

Unit Cruise Design: RIDGE ENDER U4

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	79.6	85.9	46	24	1

Unit Cruise Summary: RIDGE ENDER U4

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	74	124	2.7	1
WH	36	85	1.8	0
RC	13	26	0.6	0
MA	5	6	0.1	0
ALL	128	241	5.2	1

Unit Cruise Statistics: RIDGE ENDER U4

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	146.8	81.6	12.0	226.4	20.9	2.4	33,223	84.2	12.3
WH	100.6	122.9	18.1	167.5	22.7	3.8	16,845	124.9	18.5
RC	22.6	222.7	32.8	102.2	34.1	9.5	2,310	225.3	34.2
MA	5.2	261.1	38.5	103.6	28.5	12.7	540	262.6	40.5
ALL	275.2	37.6	5.5	192.3	32.1	2.8	52,918	49.4	6.2

Unit Summary: RIDGE ENDER U4

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	74	ALL	24.8	103	134	33,837	33,223	1.8	43.7	146.8	29.5	2,644.6
MA	LIVE	CUT	5	ALL	17.8	65	79	556	540	2.7	3.0	5.2	1.2	43.0
RC	LIVE	CUT	13	ALL	20.3	73	93	2,393	2,310	3.5	10.1	22.6	5.0	183.9
WH	LIVE	CUT	36	ALL	19.0	82	104	17,177	16,845	1.9	51.1	100.6	23.1	1,340.8
ALL	LIVE	CUT	128	ALL	21.6	89	114	53,962	52,918	1.9	107.9	275.2	58.8	4,212.3
ALL	ALL	ALL	128	ALL	21.6	89	114	53,962	52,918	1.9	107.9	275.2	58.8	4,212.3

Cruise Unit Report RIDGE ENDER U5A

Unit Sale Notice Volume (MBF): RIDGE ENDER U5A

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WH	21.0			269	195	68	1	5
DF	30.0			94	88	4	1	
RC	27.2			10		10	1	
ALL	22.4			373	283	82	3	5

Unit Cruise Design: RIDGE ENDER U5A

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	7.7	8.3	4	4	0

Unit Cruise Summary: RIDGE ENDER U5A

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	14	14	3.5	0
DF	4	4	1.0	0
RC	1	1	0.3	0
ALL	19	19	4.8	0

Unit Cruise Statistics: RIDGE ENDER U5A

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	190.5	54.7	27.4	183.3	16.5	4.4	34,918	57.2	27.7
DF	54.4	81.6	40.8	223.8	11.0	5.5	12,185	82.4	41.2
RC	10.0	200.0	100.0	136.0	0.0	0.0	1,360	200.0	100.0
ALL	255.0	39.3	19.6	190.1	18.3	4.2	48,464	43.3	20.1

Unit Summary: RIDGE ENDER U5A

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	4	ALL	30.0	112	144	12,664	12,185	3.8	11.1	54.4	9.9	93.8
RC	LIVE	CUT	1	ALL	27.2	80	102	1,360	1,360	0.0	2.5	10.0	1.9	10.5

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	14	ALL	21.0	88	111	35,790	34,918	2.4	79.2	190.5	41.6	268.9
ALL	LIVE	CUT	19	ALL	22.4	91	115	49,814	48,464	2.7	92.8	255.0	53.4	373.2
ALL	ALL	ALL	19	ALL	22.4	91	115	49,814	48,464	2.7	92.8	255.0	53.4	373.2

Cruise Unit Report RIDGE ENDER U5B

Unit Sale Notice Volume (MBF): RIDGE ENDER U5B

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
WH	22.6			2	2	1	0
ALL	22.6			2	2	1	0

Unit Cruise Design: RIDGE ENDER U5B

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (54.44) Measure All, Sighting Ht = 4.5 ft	0.1	0.1	2	2	0

Unit Cruise Summary: RIDGE ENDER U5B

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	5	5	2.5	0
ALL	5	5	2.5	0

Unit Cruise Statistics: RIDGE ENDER U5B

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	136.1	28.3	20.0	181.3	25.4	11.4	24,671	38.0	23.0
ALL	136.1	28.3	20.0	181.3	25.4	11.4	24,671	38.0	23.0

Unit Summary: RIDGE ENDER U5B

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	5	ALL	22.6	84	105	26,085	24,671	5.4	48.9	136.1	28.6	2.5
ALL	LIVE	CUT	5	ALL	22.6	84	105	26,085	24,671	5.4	48.9	136.1	28.6	2.5
ALL	ALL	ALL	5	ALL	22.6	84	105	26,085	24,671	5.4	48.9	136.1	28.6	2.5

Cruise Unit Report RIDGE ENDER U5C

Unit Sale Notice Volume (MBF): RIDGE ENDER U5C

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
DF	24.5			244	202	41	2
WH	21.8			60	49	10	1
ALL	23.9			304	250	50	4

Unit Cruise Design: RIDGE ENDER U5C

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	8.1	8.7	4	4	0

Unit Cruise Summary: RIDGE ENDER U5C

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	11	11	2.8	0
WH	3	3	0.8	0
ALL	14	14	3.5	0

Unit Cruise Statistics: RIDGE ENDER U5C

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	149.7	34.8	17.4	201.6	20.6	6.2	30,179	40.4	18.5
WH	40.8	66.7	33.3	179.9	18.9	10.9	7,347	69.3	35.1
ALL	190.5	36.9	18.4	196.9	20.2	5.4	37,527	42.1	19.2

Unit Summary: RIDGE ENDER U5C

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	11	ALL	24.5	99	126	30,416	30,179	0.8	45.7	149.7	30.2	244.5
WH	LIVE	CUT	3	ALL	21.8	91	115	7,347	7,347	0.0	15.8	40.8	8.7	59.5
ALL	LIVE	CUT	14	ALL	23.8	97	123	37,763	37,527	0.6	61.5	190.5	39.0	304.0
ALL	ALL	ALL	14	ALL	23.8	97	123	37,763	37,527	0.6	61.5	190.5	39.0	304.0

Cruise Unit Report RIDGE ENDER ROW 1

Unit Sale Notice Volume (MBF): RIDGE ENDER ROW 1

Sp	DBH	Rings/In	Age	MBF Volume by Grade					
				All	Spec Mill	2 Saw	3 Saw	4 Saw	Utility
WH	16.5			129		64	55	7	3
DF	28.4			30	4	24	2		
RC	20.2			1			1		
ALL	17.3			160	4	88	58	7	3

Unit Cruise Design: RIDGE ENDER ROW 1

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	4.1	4.1	7	7	0

Unit Cruise Summary: RIDGE ENDER ROW 1

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	26	26	3.7	0
DF	4	4	0.6	0
RC	1	1	0.1	0
ALL	31	31	4.4	0

Unit Cruise Statistics: RIDGE ENDER ROW 1

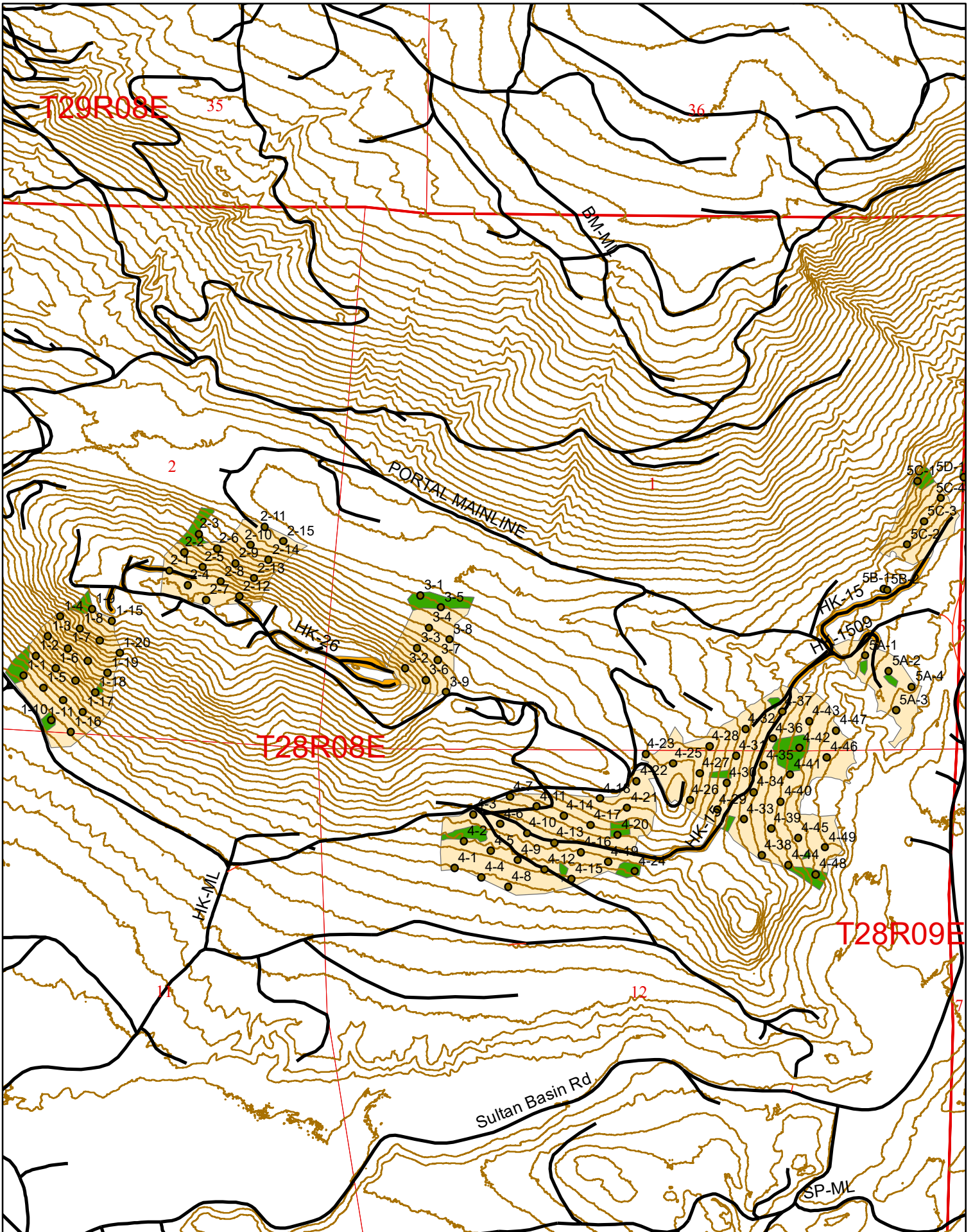
Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	202.2	53.2	20.1	155.7	18.9	3.7	31,493	56.5	20.4
DF	31.1	93.5	35.4	236.7	4.9	2.5	7,364	93.7	35.4
RC	5.7	264.6	100.0	39.5	0.0	0.0	226	264.6	100.0
ALL	239.0	42.1	15.9	163.5	27.5	4.9	39,082	50.3	16.7

Unit Summary: RIDGE ENDER ROW 1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	4	ALL	28.4	114	147	7,548	7,364	2.4	7.1	31.1	5.8	30.2
RC	LIVE	CUT	1	ALL	20.2	50	62	226	226	0.0	2.6	5.7	1.3	0.9

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	26	ALL	16.5	74	94	31,493	31,493	0.0	136.2	202.2	49.8	129.1
ALL	LIVE	CUT	31	ALL	17.3	76	96	39,266	39,082	0.5	145.9	239.0	56.9	160.2
ALL	ALL	ALL	31	ALL	17.3	76	96	39,266	39,082	0.5	145.9	239.0	56.9	160.2

Ridge Ender





Forest Practices Application/Notification
Notice of Decision

FPA/N No: 2819320
Effective Date: 4/9/2024
Expiration Date: 4/9/2027
Shut Down Zone: 658
EARR Tax Credit: [X] Eligible [] Non-eligible
Reference: Ridge Ender

Decision

- [] Notification Accepted Operations shall not begin before the effective date.
[X] Approved This Forest Practices Application is subject to the conditions listed below.
[] Disapproved This Forest Practices Application is disapproved for the reasons listed below.
[] Withdrawn Applicant has withdrawn the Forest Practices Application/Notification (FPA/N).
[] Closed All forest practices obligations are met.

FPA/N Classification

- [] Class II [] Class III [] Class IVG [X] Class IVS

Number of Years Granted on Multi-Year Request

- [] 4 years [] 5 years

Conditions on Approval/Reasons for Disapproval

Timing Limitations on Type S and F water(s):

No timing limitations apply.

Condition(s) required for approval/disapproval:

No additional conditions apply.

Issued By: Zachary Bastow

Region: Northwest Region

Title: Resource Protection Forester

Date: 4/9/2024

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

Issued in person: [X] LO [X] TO [X] OP By: [Signature] Date: 4/9/2024

Appeal Information

You have thirty (30) days to **file** (i.e., **actually deliver**) an appeal in writing of this Decision and any related State Environmental Policy Act (SEPA) determinations to the Pollution Control Hearings Board, the Attorney General’s Office, and the Department of Natural Resources’ region office. See RCW 76.09.205. The appeal period starts when the applicant receives this decision, which usually happens electronically on the date indicated below.

You must file your appeal at all three addresses below:

Pollution Control Hearings Board	Office of the Attorney General Natural Resources Division	Department Of Natural Resources Northwest Region
<u>Physical Address</u> 1111 Israel Road SW Suite 301 Tumwater, WA 98501 <u>Mailing address</u> Post Office Box 40903 Olympia, WA 98504-0903	<u>Physical Address</u> 1125 Washington Street, SE Olympia, WA 98504 <u>Mailing Address</u> Post Office Box 40100 Olympia, WA 98504-0100	<u>Physical Address</u> 919 North Township Street Sedro-Woolley, WA 98284 <u>Mailing Address</u> 919 North Township Street Sedro-Woolley, WA 98284

Information regarding the Pollution Control Hearings Board can be found at: <https://eluh0.wa.gov/>

Other Applicable Laws

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

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

Use the “Notice of Transfer of Approved Forest Practices Application/Notification” form. This form is available at region offices and on the Forest Practices website <https://www.dnr.wa.gov/programs-and-services/forest-practices/review-applications-fpars/forest-practices-forms-and>. Notify DNR of new Operators within 48 hours.

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

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

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

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

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

DNR Declaration of Mailing

I Choose an item, caused the Notice of Decision for FPA/N No. _____ To be placed in the United States mail at **Sedro-Woolley, WA**; postage paid. I declare under penalty of perjury of the laws of the State of Washington, that the foregoing is true and correct.

(Date)

(City & State where signed)

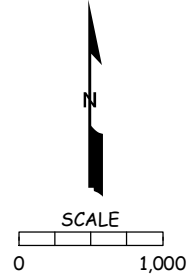
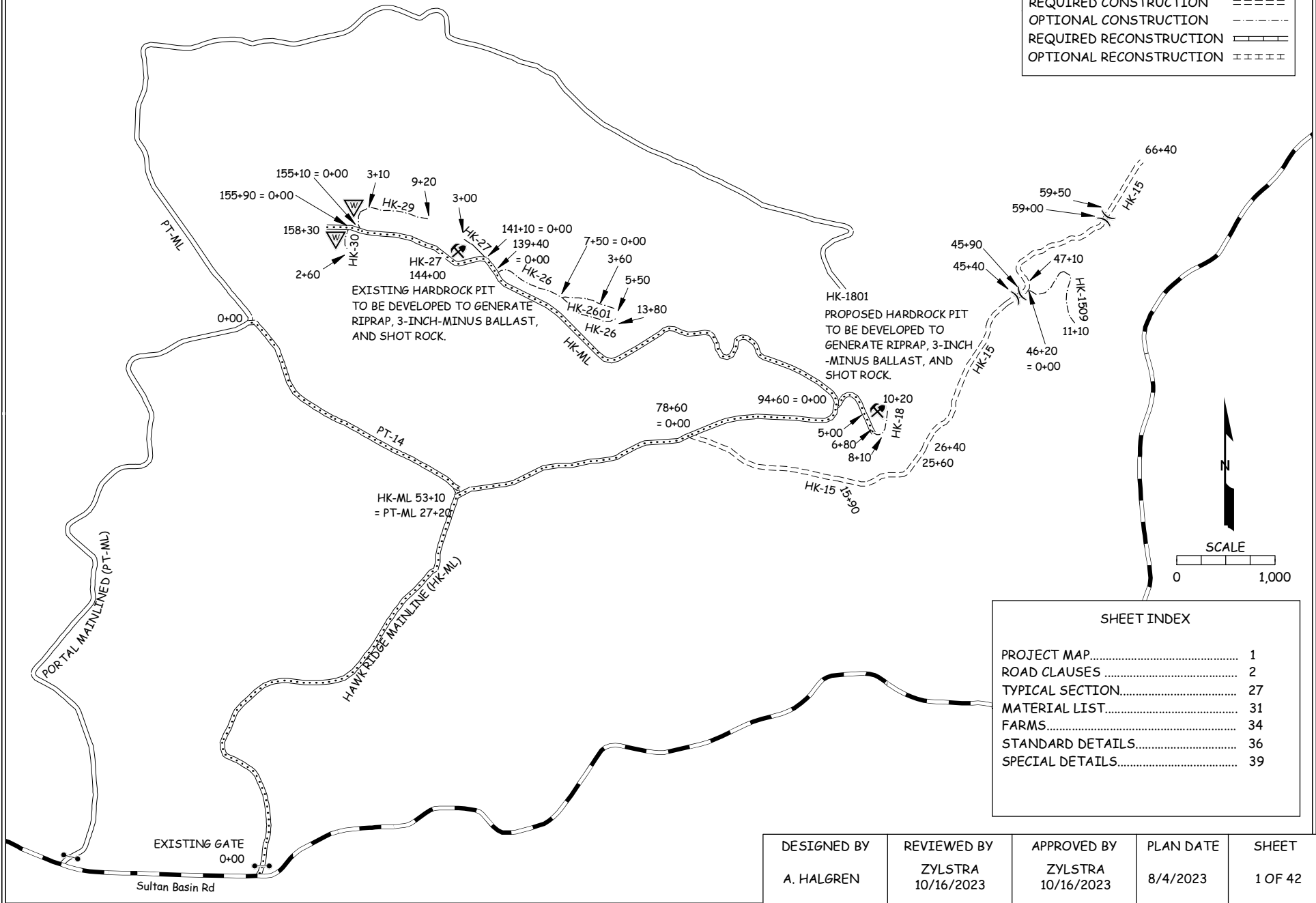
(Signature)



ROAD PLAN AND SPECIFICATIONS

#30-104444 RIDGE ENDER TIMBER SALE

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



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DESIGNED BY	REVIEWED BY	APPROVED BY	PLAN DATE	SHEET
A. HALGREN	ZYLSTRA 10/16/2023	ZYLSTRA 10/16/2023	8/4/2023	1 OF 42

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

RIDGE ENDER TIMBER SALE ROAD PLAN
SNOHOMISH COUNTY
CASCADE DISTRICT
NORTHWEST REGION

AGREEMENT NO.:30-104444

STAFF ENGINEER: A. HALGREN

DATE: AUGUST 4, 2023

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>
HK-ML	0+00 TO 158+30	MAINTENANCE
PT-14	0+00 TO 53+10	MAINTENANCE
HK-15	0+00 TO 66+40	CONSTRUCTION
HK-18	0+00 TO 6+80	MAINTENANCE

0-3 OPTIONAL ROADS

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

<u>Road</u>	<u>Stations</u>	<u>Type</u>
HK-1509	0+00 to 11+10	CONSTRUCTION
HK-18*	6+80 TO 10+20	CONSTRUCTION
HK-26	0+00 TO 13+80	CONSTRUCTION
HK-2601	0+00 TO 5+50	CONSTRUCTION
HK-27	0+00 TO 3+00	CONSTRUCTION
HK-29	0+00 TO 9+20	CONSTRUCTION
HK-30	0+00 to 2+60	CONSTRUCTION

*Not to be abandoned if built

0-4 CONSTRUCTION

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

0-5 RECONSTRUCTION

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

0-6 PRE-HAUL MAINTENANCE

Pre-haul maintenance includes, but is not limited to brushing.

0-7 POST-HAUL MAINTENANCE

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

0-10 ABANDONMENT

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

0-12 DEVELOP ROCK SOURCE

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

0-13 STRUCTURES

Contractor shall provide and install two bridges with minimum dimensions of 50 foot span and 14 foot width. Requirements for these structures are listed in Section 7 STRUCTURES.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

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

1-3 ROAD DIMENSIONS

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

1-4 ROAD TOLERANCES

Contractor 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
Bridge Elevation (feet)	±0.25		

1-5 DESIGN DATA

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

1-6 ORDER OF PRECEDENCE

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

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

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

1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS

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

1-9 DAMAGED METALLIC COATING

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

1-16 CONSTRUCTION STAKES SET BY STATE

Purchaser shall perform work on the following road(s) in accordance with the construction stakes and reference points set in the field for grade and alignment.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
HK-15	45+00 TO 46+50	BRIDGE STAKING
HK-15	58+50 TO 60+00	BRIDGE STAKING

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.

1-22 WORK NOTIFICATIONS

On the following road(s), Purchaser shall notify the Contract Administrator a minimum of 7 calendar days BUT NOT MORE THAN 30 DAYS before work begins.

<u>Road</u>	<u>Stations</u>
HK-15	45+00 TO 46+50
HK-15	58+50 TO 60+00

1-25 ACTIVITY TIMING RESTRICTION

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

<u>Road</u>	<u>Stations</u>	<u>Activity</u>	<u>Closure Period</u>
	ALL	Rock hauling, construction, reconstruction, or abandonment	November 1 to March 31
HK-15	45+00 TO 46+50 58+50 TO 60+00	In-streamwork	*September 30 to June 15

*Not waivable

1-26 OPERATING DURING CLOSURE PERIOD

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

1-29 SEDIMENT RESTRICTION

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

1-30 CLOSURE TO PREVENT DAMAGE

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

- Wheel track rutting exceeds 4 inches on crushed rock roads.
- Surface or base stability problems persist.
- Weather is such that satisfactory results cannot be obtained in an area of operations.
- When, in the opinion of the Contract Administrator excessive road damage or rutting may occur.

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

1-33 SNOW PLOWING RESTRICTION

Snowplowing will be allowed after the execution of a SNOW PLOWING AGREEMENT, which is available from the 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.

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

3-1 BRUSHING

On road(s) indicated in the Typical Section sheets, 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.

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.

3-6 CLEARING WITHIN RIPARIAN AREA AT TYPE 1-3 STREAM CROSSING

At the following stream crossing location(s), Purchaser shall place a log, with length equal to two (2) times the width of the ordinary high water, from the largest diameter class conifer tree cut from within the Inner Zone (25 feet either side of the stream) in the stream in accordance with the Riparian Forest Restoration Strategy. Additional logs shall be placed as described below:

<u>Road</u>	<u>Stations</u>	<u>Comments</u>
HK-15	45+00 TO 46+50	36.2' log segment minimum
HK-15	58+50 TO 60+00	Retain ALL trees cut from within the Inner Zone, up to 12 trees in total, and place downstream of the proposed bridge.

3-8 PROHIBITED DECKING AREAS

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

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

3-10 GRUBBING

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

3-11 GRUBBING WITHIN RIPARIAN AREA AT TYPE 1-3 STREAM CROSSING

At the following stream crossing location(s), Purchaser shall retain all grubbed stumps (root wads) within the Inner Zone (25 feet either side of the stream) for placement in accordance with the Riparian Forest Restoration Strategy. Three root wads must be placed in or adjacent to the stream channel. The remaining stumps grubbed from the Inner Zone must be placed at least 50 feet from the roadway in the Middle (25 feet to 100 feet from the stream) or the Outer Zones (remaining portion of RMZ).

<u>Road</u>	<u>Stations</u>
HK-15	45+00 TO 46+50
HK-15	58+50 TO 60+00

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 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:

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

4-4 SWITCHBACK STANDARDS

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

Purchaser shall follow these standards for switchbacks:

- Maximum adverse grades for switchbacks is 8%.
- Maximum favorable grades for switchbacks is 14% except as otherwise specified in clause 4-3 ROAD GRADE AND ALIGNMENT STANDARDS.
- Maximum transition grades entering and leaving switchbacks is a 6% grade change.
- Transition grades required to meet switchback grade limitations must be constructed on the tangents preceding and departing from the switchbacks.

4-5 CUT SLOPE RATIO

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

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

4-6 EMBANKMENT SLOPE RATIO

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

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

4-7 SHAPING CUT AND FILL SLOPE

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

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

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

4-9 EMBANKMENT WIDENING

The minimum embankment widening is:

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

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

4-12 FULL BENCH CONSTRUCTION

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

<u>Road</u>	<u>Full Bench Location</u>	<u>Comments</u>
HK-29	STA 4+90 TO 6+20, 7+00 TO 8+10	May require drill and shoot.

4-21 TURNOUTS

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

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

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

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

Purchaser shall construct ditchouts as identified on the MATERIALS LIST and as needed or as directed or approved by the Contract Administrator. Ditchouts must be constructed in a manner that diverts ditch water onto the forest floor and must have excavation backslopes no steeper than a 1:1 ratio. Locations may not be changed without written approval from the Contract Administrator.

4-35 WASTE MATERIAL DEFINITION

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

4-36 DISPOSAL OF WASTE MATERIAL

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

4-37 WASTE AREA LOCATION

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

<u>Road</u>	<u>Waste Area Location</u>	<u>Volume (CY)</u>
HK-29	0+70 to 1+40	400
HK-30	0+50 to 1+50	600

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.
- Within a riparian management zone.
- On side slopes steeper than 50%.except as otherwise specified in this plan
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Against standing timber.
- Outside the clearing limits.

4-55 ROAD SHAPING

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

4-60 FILL COMPACTION

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

4-61 SUBGRADE COMPACTION

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

4-70 SUBGRADE REINFORCEMENT

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

<u>Road</u>	<u>Stations</u>
HK-15	61+30 to 63+70

SECTION 5 – DRAINAGE

5-5 CULVERTS

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

5-7 USED CULVERT MATERIAL

Purchaser may install used culverts. Purchaser shall obtain approval from the Contract Administrator for the quality of the used culverts before installation. Culverts must meet the specifications in Clauses 10-15 through 10-24.

5-12 UNUSED MATERIALS STATE PROPERTY

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

5-13 CONTINGENCY CULVERTS

The following culverts will be supplied by the Purchaser and are available for installation as directed by the Contract Administrator.

<u>Road</u>	<u>Size</u>	<u>Quantity</u>
On any portion of road used for timber or rock haul.	18" culvert band	8
	18" x 32' culvert	2
	18" x 36' culvert	4
	18" x 40' culvert	2
	24" culvert band	1
	24" x 36' culvert	1

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. Energy dissipater installation is subject to approval by the Contract Administrator.

The type of energy dissipater and the amount of material must be consistent with the specifications listed on the CULVERT AND DRAINAGE SPECIFICATION DETAIL.

5-25 CATCH BASINS

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

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

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

5-27 ARMORING FOR STREAM CROSSING CULVERTS

At STREAM culverts (indicated in the REMARKS of the MATERIALS LIST), Purchaser shall place rip rap 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 and CULVERT AND DRAINAGE SPECIFICATIONS or as directed by the Contract Administrator. Rock may not restrict the flow of water into culvert inlets or catch basins. Rock must be set in place by machine. Placement must be with a zero-drop-height only. No placement by end dumping or dropping of rock is allowed. Rip rap must meet the specifications in Clause 6-50 LIGHT LOOSE RIP RAP and 6-50 HEAVY LOOSE RIP RAP

SECTION 6 – ROCK AND SURFACING

6-2 ROCK SOURCE ON STATE LAND

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

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
HK-1801 Hard Rock Pit (Proposed)	STA 5+00 HK-18	RIPRAP, 3-INCH-MINUS BALLAST, AND SHOT ROCK.
HK-27 Hard Rock Pit	STA 144+00 HK-ML	RIPRAP, 3-INCH-MINUS BALLAST, AND SHOT 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 sources listed in clause 6-2 ROCK SOURCE ON STATE LAND, 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 left in the condition specified in the ROCK SOURCE DEVELOPMENT PLAN, and approved in writing by the Contract Administrator.

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

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

6-12 ROCK SOURCE SPECIFICATIONS

Rock sources must be in accordance with the following specifications:

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

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

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

6-14 DRILL AND SHOOT

Rock drilling and shooting must meet the following specifications:

- Oversize material remaining in the rock source at the conclusion of the timber sale may not exceed 5% of the total volume mined in that source.
- Oversize material is defined as rock fragments too large to be converted by the Purchaser to a size that will meet specifications used for the roads in this sale.
- Oversized rock that exceeds the maximum allowable amount must be left in a stable condition in full contact with the ground so that it does not present a fall hazard.
- Purchaser shall notify the Contract Administrator 7-21 working days before blasting operations.
- All operations must be carried out in compliance with the Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration and the Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.
- Purchaser shall block access roads and trails before blasting operations.

6-21 IN-PLACE PROCESSING

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

6-22 FRACTURE REQUIREMENT FOR ROCK

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

6-23 ROCK GRADATION TYPES

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

6-34 3-INCH MINUS BALLAST ROCK

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

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

6-38 4-INCH IN-PLACE ROCK

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

In-place rock may not contain organic debris and trash. No more than 50 percent of rock may be larger than 8 inches in any dimension and no rock may be larger than 12 inches in any dimension.

6-50 LIGHT LOOSE RIP RAP

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

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

6-51 HEAVY LOOSE RIP RAP

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

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

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

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

6-70 APPROVAL BEFORE ROCK APPLICATION

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

6-71 ROCK APPLICATION

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

6-73 ROCK FOR WIDENED PORTIONS

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

SECTION 7 – STRUCTURES

7-6 STREAM CROSSING INSTALLATION

Purchaser shall install stream crossing structures in accordance with the manufacturer's requirements, and the bridge installation details.

7-18 INSTALLATION PRODUCTION SCHEDULE

Purchaser shall provide the Contract Administrator or their designee, with a production schedule showing projected completion dates for the following items before starting construction of the structure(s). Production schedule must include:

- excavation
- placement of sills/abutments/footings/structure
- backfill compaction, rock application and compaction

7-19 INSTALLATION STAGE ACCEPTANCE

Purchaser shall ensure that all materials and procedures used during construction comply with the design. Purchaser shall obtain written approval from the Contract Administrator or their designee, after verification by the Region Engineer or designee for each stage of construction, listed in Clause 7-18 INSTALLATION PRODUCTION SCHEDULE, before starting construction on the next stage. Purchaser shall notify the Contract Administrator in writing when each construction stage is complete.

7-20 INSTALLATION FINAL ACCEPTANCE

Purchaser shall notify the Contract Administrator in writing when each structure is complete.

7-45 PURCHASER SUPPLIED BRIDGE

Purchaser shall provide, and construct each bridge listed below. Refer to BRIDGE INSTALLATION DETAIL.

Road	Station	Length (ft.)	Vert. Clear ² (ft.)	W.B.S.R. ¹ (ft.)	Type	Running Surface
HK-15	45+40	50	5	14	LOG STRINGER ³	3-INCH-MINUS BALLAST
HK-15	59+00	50	7.5	14	LOG STRINGER ³	3-INCH-MINUS BALLAST

¹W.B.S.R. = Width between shear rails.

²Vertical clearance shall be measured from 100 year flood level.

³Construct in accordance with the LOG STRINGER BRIDGE DETAIL

7-47 PURCHASER SUPPLIED ABUTMENTS

PURCHASER shall provide abutment designs. Bridge abutments must be designed by an engineer licensed in the state or province of manufacture. The abutment design includes, but is not limited to endwalls, precast concrete spread footing, and steel tower assembly.

7-53 BRIDGE INSTALLATION

Purchaser shall install bridges ensuring there is a full width, continuous deck with no gaps that allow water and sediment to drain from the bridge to the stream.

SECTION 8 – EROSION CONTROL

8-2 PROTECTION FOR EXPOSED SOIL

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

8-5 CHECK DAM

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

<u>Road</u>	<u>Stations</u>	<u>Minimum Count</u>
HK-15	1+20 TO 2+20	2
HK-15	41+80 TO 42+50	2
HK-15	52+00 TO 55+80	10
HK-15	58+70 TO 60+00	8
HK-15	61+80 TO 64+20	6

8-15 REVEGETATION

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

8-16 REVEGETATION SUPPLY

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

8-17 REVEGETATION TIMING

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

8-18 PROTECTION FOR SEED

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

8-19 ASSURANCE FOR SEEDED AREA

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

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

Do not use seed sources that have the label “other seeds”- these can contain invasive species.

Mulch with straw to achieve no more than 70% cover, evenly distributed, at a rate of 1.5 to 2 tons per acre.

8-27 FERTILIZER

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

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

SECTION 9 – POST-HAUL ROAD WORK

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

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

9-5 POST-HAUL MAINTENANCE

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

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

9-21 ROAD ABANDONMENT

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

<u>Road</u>	<u>Stations</u>	<u>Type</u>
HK-1509	0+00 to 11+10	ABANDONMENT
HK-26	0+00 TO 13+80	ABANDONMENT
HK-2601	0+00 TO 5+50	ABANDONMENT
HK-27	0+00 TO 3+00	ABANDONMENT
HK-29	0+00 TO 9+20	ABANDONMENT
HK-30	0+00 to 2+60	ABANDONMENT

9-22 ABANDONMENT

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

SECTION 10 MATERIALS

10-3 GEOTEXTILE FOR STABILIZATION

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

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

10-15 CORRUGATED STEEL CULVERT

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

10-16 CORRUGATED ALUMINUM CULVERT

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

10-17 CORRUGATED PLASTIC CULVERT

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

10-21 METAL BAND

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

10-22 PLASTIC BAND

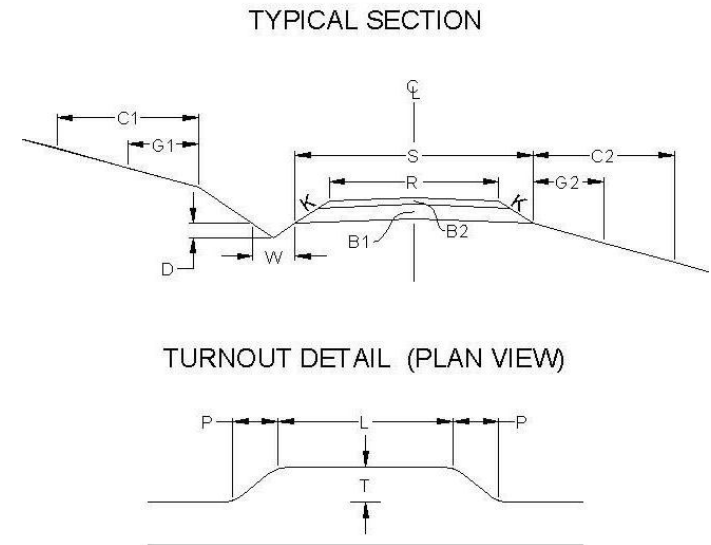
Plastic coupling and end bands must meet the AASHTO specification designated for the culvert. Only fittings supplied or recommended by the culvert manufacturer may be used.

10-24 GAUGE AND CORRUGATION

Unless otherwise stated, metal culverts must conform to the following specifications for gage and corrugation as a function of diameter.

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

ROAD #		HK-ML	PT-14	HK-15	HK-15
REQUIRED / OPTIONAL		REQUIRED	REQUIRED	REQUIRED	REQUIRED
CONSTRUCT / RECONSTRUCT		MAINTAIN	MAINTAIN	CONSTRUCT	CONSTRUCT
TOLERANCE CLASS (A/B/C)		C	C	C	C
STATION / MP TO		0+00	0+00	0+00	15+90
STATION / MP		158+30	27+20	15+90	26+40
ROAD WIDTH	R	12	12	12	12
CROWN (INCHES @ C/L)		3	3	3	3
DITCH WIDTH	W	2	2	2	2
DITCH DEPTH	D	1	1	1	1
TURNOUT LENGTH	L	50	50	50	50
TURNOUT WIDTH	T	10	10	10	10
TURNOUT TAPER	P	25	25	25	25
GRUBBING	G1	-	-	5	5
	G2	-	-	5	5
CLEARING	C1	-	-	10	10
	C2	-	-	10	10
ROCK FILLSLOPE	K:1	-	-	1 ½	1 ½
❖ BALLAST DEPTH	B1	-	-	18	12
CUBIC YARDS / STATION		-	-	114	72
➤ TOTAL CY BALLAST		-	-	1820	760
❖ SURFACING DEPTH	B2				
CUBIC YARDS / STATION					
➤ TOTAL CY SURFACING					
➤ TOTAL CUBIC YARDS		-	-	1820	760
SUBGRADE WIDTH	S	-	-	16.5	16.5
BRUSHCUT (Y/N)		Y	Y	N/A	N/A
BLADE, SHAPE, & DITCH (Y/N)		-	-	N/A	N/A



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.
- * Proposed road is located on an abandoned grade

Rock Totals Summary

Type	Quantity (Cubic Yards)
Ballast	9980
Rip Rap	346

ROAD #		HK-15	HK-15	HK-15	HK-15	HK-15	HK-15	HK-1509	HK-1509	HK-18	
REQUIRED / OPTIONAL		REQUIRED	REQUIRED	REQUIRED	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	
CONSTRUCT / RECONSTRUCT		CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT	
TOLERANCE CLASS (A/B/C)		C	C	C	C	C	C	C	C	C	
STATION / MP TO		26+40	45+40	45+90	47+10	59+00	59+50	0+00	6+50	0+00	
STATION / MP		45+40	45+90	47+10	59+00	59+50	66+40	6+50	11+10	6+80	
ROAD WIDTH	R	12	14	12	12	14	12	12	12	12	
CROWN (INCHES @ C/L)		3	50' FOOT SPAN, GRAVEL DECK, LOG STRINGER BRIDGE	3	3	50' FOOT SPAN, GRAVEL DECK, LOG STRINGER BRIDGE	3	3	3	3	
DITCH WIDTH	W	2		2	2		2	1	1	2	
DITCH DEPTH	D	1		1	1		1	1	1	1	
TURNOUT LENGTH	L	50		50	50		50	25	25	50	
TURNOUT WIDTH	T	10		10	10		10	10	10	10	
TURNOUT TAPER	P	25		25	25		25	25	25	25	
GRUBBING	G1	5		5	5		5	5	5	5	-
	G2	5		5	5		5	5	5	5	-
CLEARING	C1	10		10	10		10	10	10	10	-
	C2	10		10	10		10	10	10	10	-
ROCK FILLSLOPE	K:1	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½	-		
❖ BALLAST DEPTH	B1	18	6	12	18	6	18	12	18	-	
CUBIC YARDS / STATION		114	34	72	114	34	114	72	114	-	
➤ TOTAL CY BALLAST		2170	20	90	1360	20	790	470	530	-	
❖ SURFACING DEPTH	B2										
CUBIC YARDS / STATION											
➤ TOTAL CY SURFACING											
➤ TOTAL CUBIC YARDS		2170	20	90	1360	20	790	470	530	-	
SUBGRADE WIDTH	S	16.5	N/A	15.0	16.5	N/A	16.5	15.0	16.5	-	
BRUSHCUT (Y/N)		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Y	
BLADE, SHAPE, & DITCH (Y/N)		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	

ROAD #		HK-18	HK-26*	HK-2601*	HK-2601	HK-27	HK-29*	HK-29	HK-30	
REQUIRED / OPTIONAL		OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	
CONSTRUCT / RECONSTRUCT		CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT	
TOLERANCE CLASS (A/B/C)		C	C	C	C	C	C	C	C	
STATION / MP TO		6+80	0+00	0+00	3+60	0+00	0+00	3+20	0+00	
STATION / MP		10+20	13+80	3+60	5+50	3+00	3+20	9+20	2+60	
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	2	2	2	2	2	2	
DITCH DEPTH	D	1	1	1	1	1	1	1	1	
TURNOUT LENGTH	L	50	50	50	50	50	50	50	50	
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	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½	
❖ BALLAST DEPTH	B1	12	6	6	12	12	6	12	12	
CUBIC YARDS / STATION		72	34	34	72	72	34	72	72	
➤ TOTAL CY BALLAST		250	470	130	140	220	110	440	190	
❖ SURFACING DEPTH	B2									
CUBIC YARDS / STATION										
➤ TOTAL CY SURFACING										
➤ TOTAL CUBIC YARDS		250	470	130	140	220	110	440	190	
SUBGRADE WIDTH	S	15.0	13.5	13.5	15.0	15.0	13.5	15.0	15.0	
BRUSHCUT (Y/N)		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
BLADE, SHAPE, & DITCH (Y/N)		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS	
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE				<u>Note:</u> Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:
													<table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Diameter</u></td> <td style="text-align: center;"><u>Gage</u></td> <td style="text-align: center;"><u>Corrugation</u></td> </tr> <tr> <td style="text-align: center;">18"</td> <td style="text-align: center;">16</td> <td style="text-align: center;">2 2/3" x 1/2"</td> </tr> <tr> <td style="text-align: center;">24" – 48"</td> <td style="text-align: center;">14</td> <td style="text-align: center;">2 2/3" x 1/2"</td> </tr> <tr> <td style="text-align: center;">54" – 96"</td> <td style="text-align: center;">14</td> <td style="text-align: center;">3" x 1"</td> </tr> </table>
<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>											
18"	16	2 2/3" x 1/2"											
24" – 48"	14	2 2/3" x 1/2"											
54" – 96"	14	3" x 1"											
HK-15	1+20	-	-	-	-	-	-	-	-	-	-	Start checkdams (2). See clause 8-5 CHECK DAM	
	2+20	24	32	XX	-	-	3	5	L/H	NT	C	End checkdams	
	5+50	18	32	XX	-	-	2	3	L	NT	C		
	6+20	24	32	XX	-	-	2	3	L/H	NT	C		
	8+90	24	40	XX	-	-	3	5	L/H	NT	C		
	12+80	18	32	XX	-	-	2	3	L	NT	C		
	15+40	18	36	XX	-	-	2	3	L	NT	C		
	15+90	24	36	XX	-	-	3	5	L/H	NT	C	T5 STREAM	
	16+50	18	36	XX	-	-	3	5	L/H	NT	C		
	19+70	18	40	XX	-	-	3	5	L	NT	C		
	26+40	18	36	XX	-	-	2	3	L	NT	C		
	28+40	18	36	XX	-	-	2	3	L	NT	C		
	30+70	18	32	XX	-	-	2	3	L	NT	C		
	31+70	18	36	XX	-	-	2	3	L	NT	C		
	32+30	24	40	XX	-	-	3	5	L/H	NT	C	Above T5 stream	
	34+90	24	36	XX	-	-	3	5	L/H	NT	C		
	37+80	18	40	XX	-	-	2	3	L	NT	C		
	40+30	18	32	XX	-	-	2	3	L	NT	C		
	41+10	24	36	XX	-	-	3	5	L/H	NT	C	Intercept ditchline from orphaned grade	
	41+80	18	36	XX	-	-	2	3	L	NT	C	Start checkdams (2). See clause 8-5 CHECK DAM.	
	42+50	48	36	GM	-	-	8	12	L/H	NT	C	T4 STREAM. End checkdams	

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				<u>Note:</u> Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:
													<u>Diameter</u>
HK-15 (cont'd)	44+90	18	40	XX	-	-	2	3	L	NT	C		
	45+40 to 45+90	50' FOOT SPAN, GRAVEL DECK, LOG STRINGER BRIDGE					10	-	L/H	-	A	T3 STREAM, see also Bridge Installation Details and clauses 3-6 and 3-11 for RFRS requirements.	
						-	10						
	46+60	18	36	XX	-	-	3	5	L	NT	C		
	49+00	30	40	XX	-	-	5	7	L/H	NT	C	Above type 4 stream	
	49+60	18	32	XX	-	-	2	3	L	NT	C		
	51+30	24	40	XX	-	-	3	5	L/H	NT	C		
	52+00	24	36	XX	-	-	3	5	L/H	NT	C	Start checkdams (10). See clause 8-5 CHECK DAM	
	53+20	30	40	XX	-	-	5	7	L/H	NT	C	T4 STREAM	
	55+40	42	52	GM	-	-	8	12	L/H	SR	C	T4 STREAM	
	55+80	-	-	-	-	-	-	-	-	-	-	End checkdams	
	57+70	24	40	XX	-	-	2	3	L	NT	C		
	58+70	-	-	-	-	-	-	-	-	-	-	Start checkdams (8). See clause 8-5 CHECK DAM	
	59+00 TO 59+50	50' FOOT SPAN, GRAVEL DECK, LOG STRINGER BRIDGE					10	-	L/H	-	A	T3 STREAM, see also Bridge Installation Details and clauses 3-6 and 3-11 for RFRS requirements.	
						-	20						
	60+00	-	-	-	-	-	-	-	-	-	-	End checkdams	
	61+80	24	36	XX	-	-	3	5	L/H	NT	C	Start checkdams (6). See clause 8-5 CHECK DAM	
	62+80	24	36	XX	-	-	3	5	L/H	NT	C	T5 STREAM	
	63+70	24	40	XX	-	-	3	5	L/H	NT	C		
	64+20	-	-	-	-	-	-	-	-	-	-	End checkdams	
	65+30	18	36	XX	-	-	2	3	L	NT	C		

GM – Galvanized Metal XX – PD or GM H – Heavy Loose Riprap L – Light Loose Riprap SR – Shot Rock NT – Native (Bank Run)

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS		
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE					
												Note: Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:		
												<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>
												18"	16	2 2/3" x 1/2"
												24" – 48"	14	2 2/3" x 1/2"
												54" – 96"	14	3" x 1"
HK-1509	1+60	18	40	XX	-	-	2	3	L	NT	C			
	3+40	18	40	XX	-	-	2	3	L	NT	C			
	5+30	18	40	XX	-	-	2	3	L	NT	C			
	8+30	18	36	XX	-	-	2	3	L	NT	C			
	10+30	18	36	XX	-	-	2	3	L	NT	C			
HK-26	11+90	18	32	XX	-	-	2	3	L	NT	C			
HK-2601	3+60	18	32	XX	-	-	2	3	L	NT	C			
	5+50	-	-	-	-	-	-	-	-	-	-	Ditchout		
HK-29	4+90	18	40	XX	-	-	2	3	L	NT	C			
	8+10	18	40	XX	-	-	2	3	L	NT	C			

GM – Galvanized Metal XX – PD or GM H – Heavy Loose Riprap L – Light Loose Riprap SR – Shot Rock NT – Native (Bank Run)

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

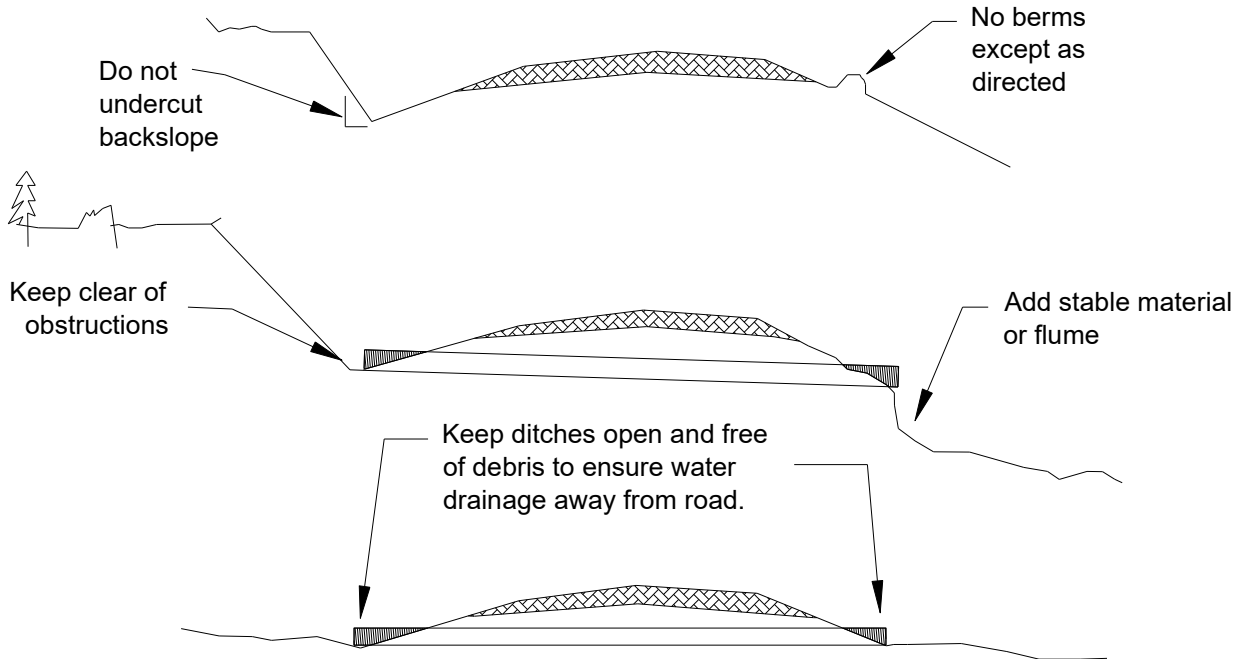
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

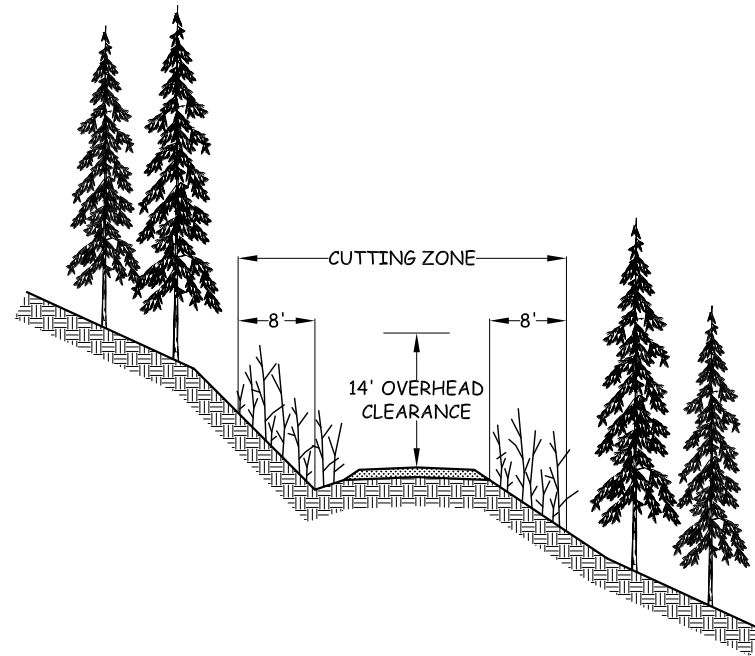
- At the conclusion of logging operations, ensure all conditions of these specifications have been met.

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.

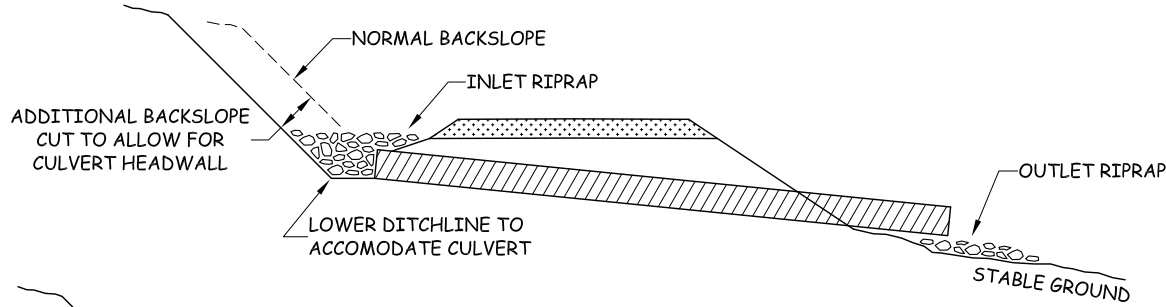
DITCHES SHALL BE CLEARED OF WOODY DEBRIS.

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

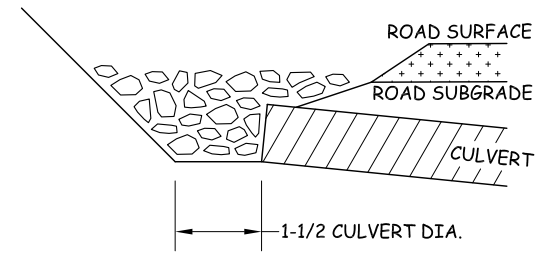
CONTRACT #	PROJECT	SHEET
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CULVERT AND DRAINAGE SPECIFICATIONS

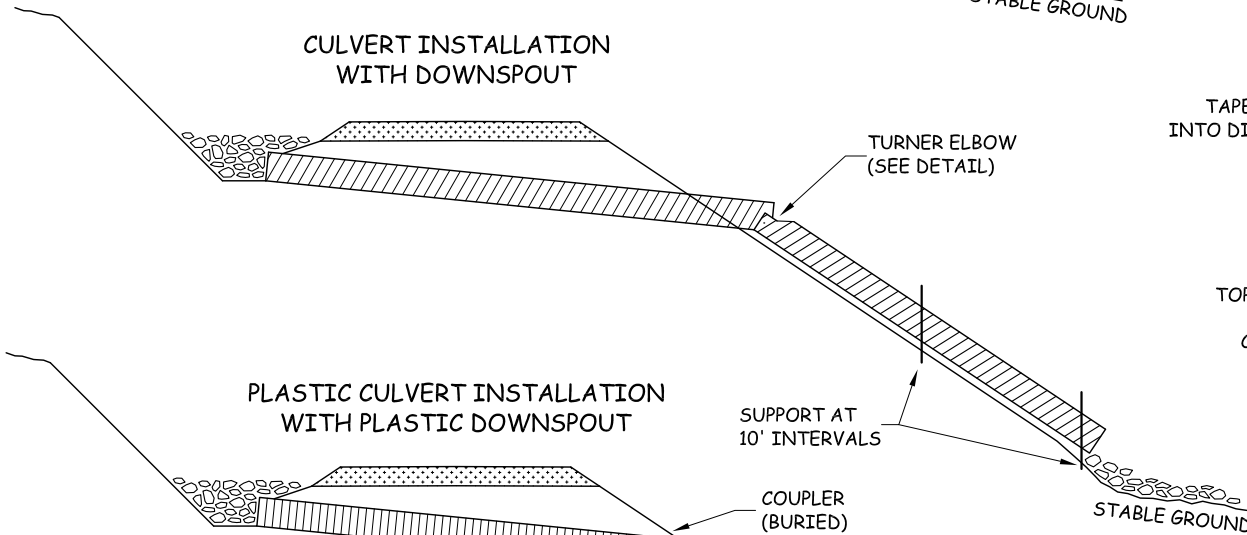
CULVERT INSTALLATION (TYPICAL)



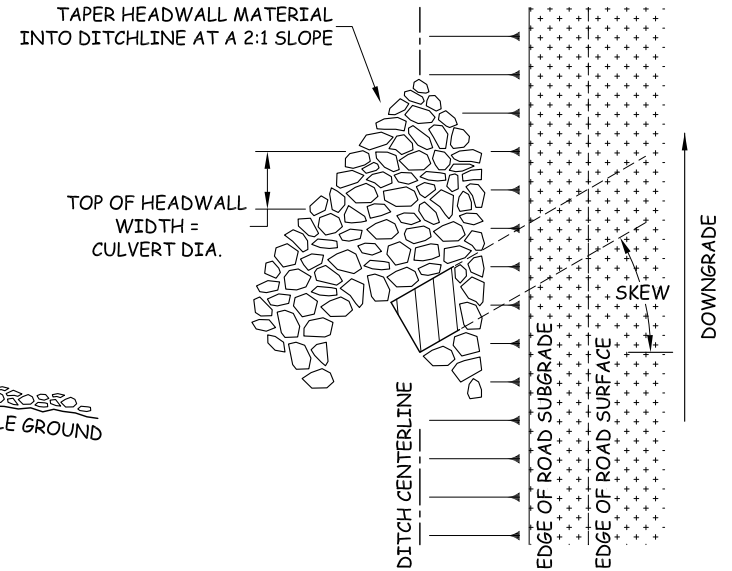
CULVERT HEADWALL - SECTION VIEW



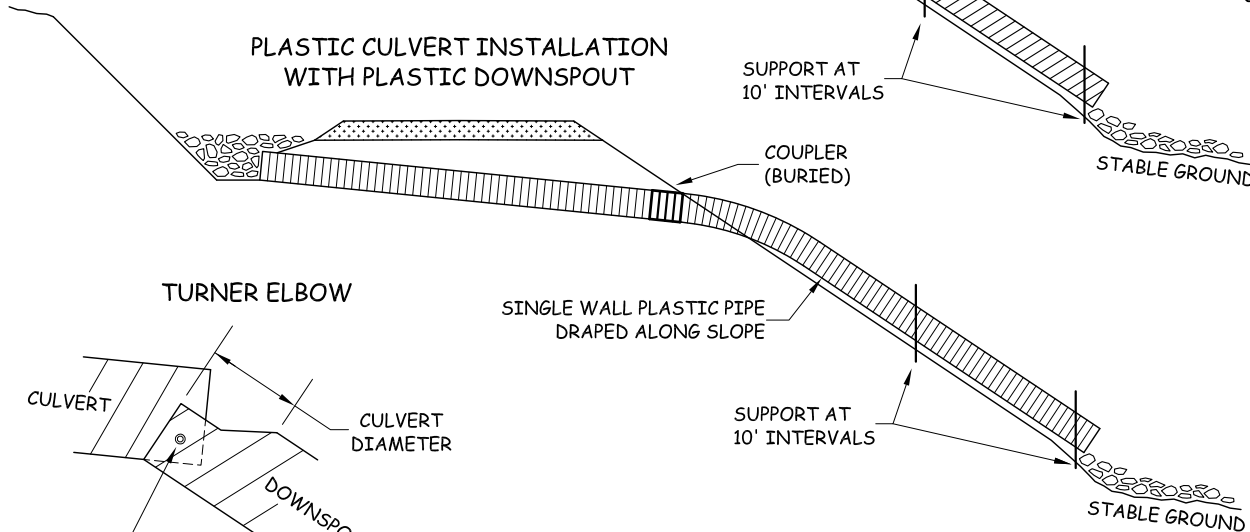
CULVERT INSTALLATION WITH DOWNSPOUT



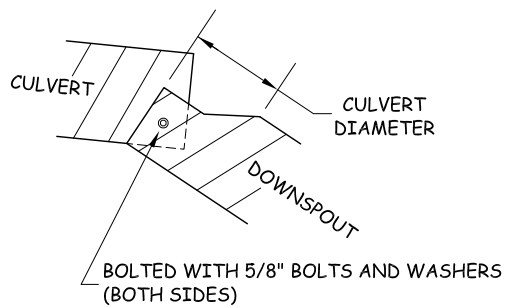
CULVERT HEADWALL - PLAN VIEW



PLASTIC CULVERT INSTALLATION WITH PLASTIC DOWNSPOUT



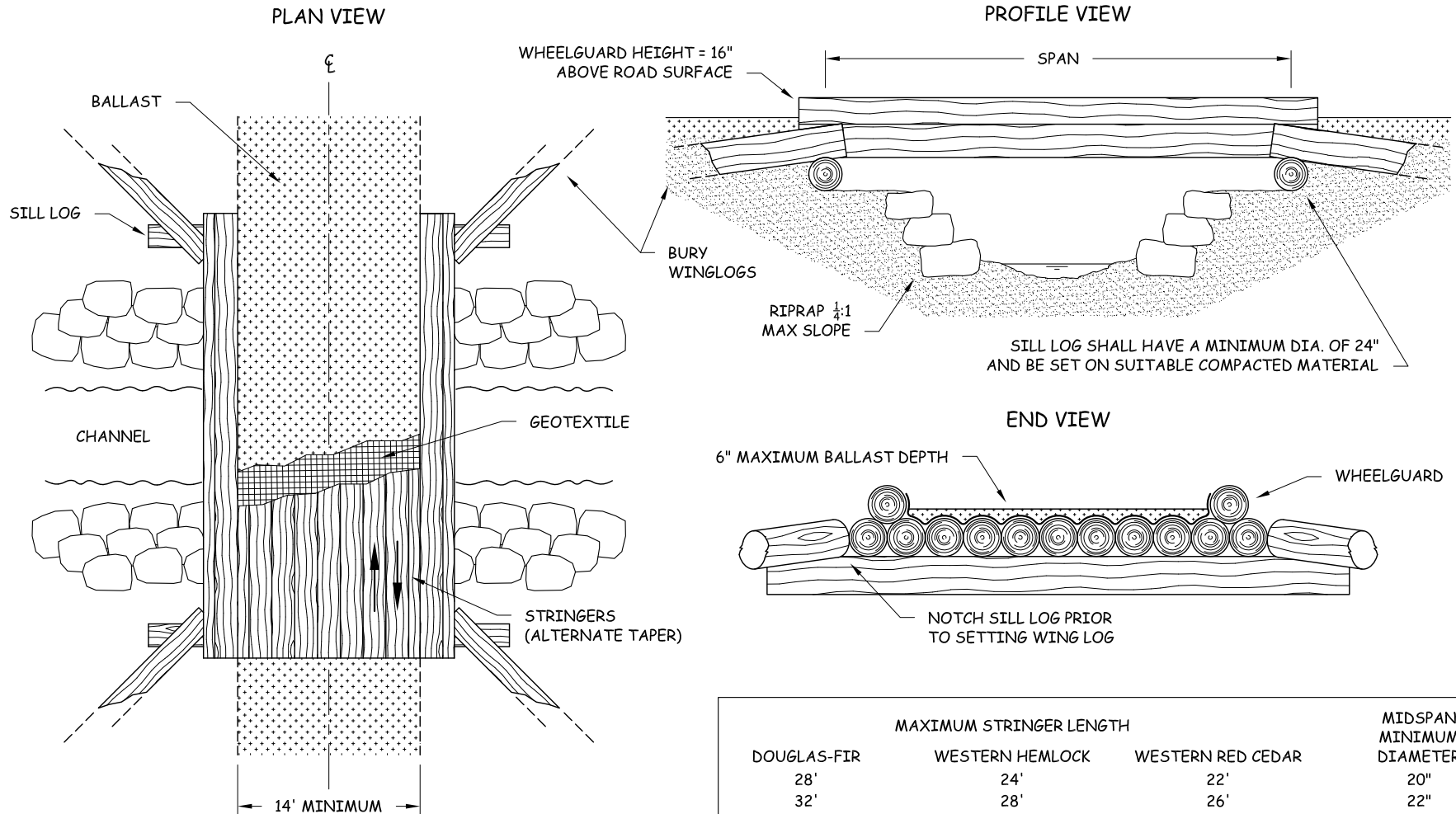
TURNER ELBOW



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
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LOG STRINGER BRIDGE INSTALLATION DETAILS



NOTES:

ALL MATERIALS SHALL BE APPROVED BY THE CONTRACT ADMINISTRATOR.
 ANY DESIGN CHANGES SHALL BE APPROVED BY THE CONTRACT ADMINISTRATOR.
 STRINGERS AND WHEELGUARDS SHALL BE LASHED TOGETHER WITH 7/8" WIRE ROPE NEAR EACH END OF THE STRUCTURE.
 WING LOGS SHALL BE LASHED TO SILL LOG AND STRINGERS WITH 7/8" WIRE ROPE AT EACH END OF STRUCTURE.
 ALL BARK SHALL BE PEELED FROM LOGS PRIOR TO CONSTRUCTION.

DRAWINGS NOT TO SCALE

DOUGLAS-FIR	MAXIMUM STRINGER LENGTH		MIDSPAN MINIMUM DIAMETER
	WESTERN HEMLOCK	WESTERN RED CEDAR	
28'	24'	22'	20"
32'	28'	26'	22"
36'	32'	28'	24"
38'	34'	32'	26"
42'	38'	34'	27"
46'	40'	38'	29"
48'	44'	40'	31"
52'	46'	42'	33"
56'	50'	46'	35"
60'	52'	48'	37"

CONTRACT #	PROJECT	SHEET
30-104444	RIDGE ENDER	38 OF 42



WASHINGTON STATE
DEPT. OF NATURAL RESOURCES
NORTHWEST REGION

STA 45+40 HK-15 ROAD 50' LOG STRINGER BRIDGE

PLAN VIEW

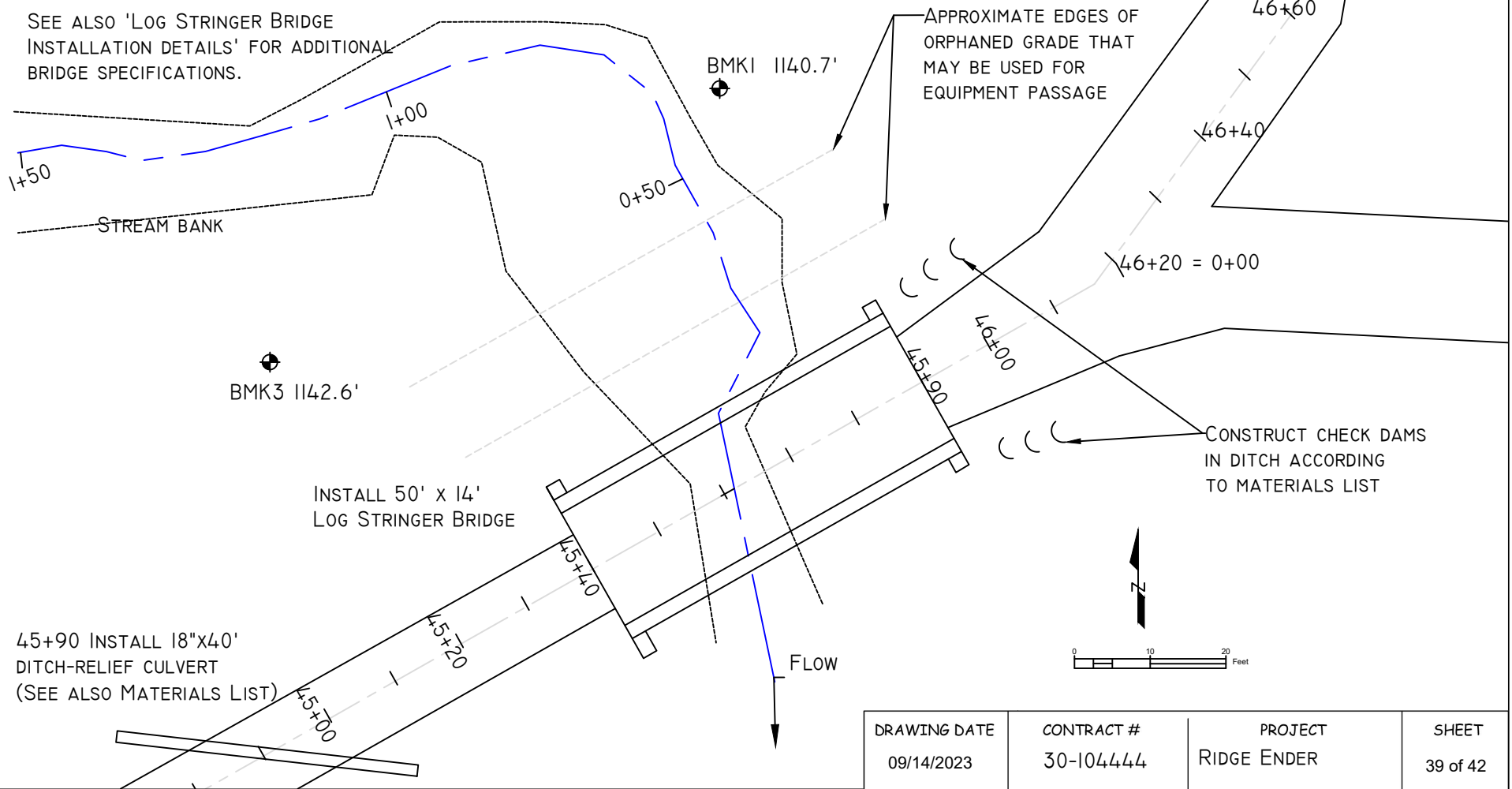
BMK2 1143.9'

FPA NOTES

LANDOWNER: WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

1. AVERAGE CBW = 18.1' BASED ON SIX MEASUREMENTS
2. 5.4% AVERAGE CHANNEL GRADIENT WITHIN SURVEYED REACH
3. NO CHANNEL REGRADE EXPECTED.
4. DOWNSTREAM SURVEY LIMITED FOR SAFETY DUE TO PRESENCE OF WATERFALL

SEE ALSO 'LOG STRINGER BRIDGE INSTALLATION DETAILS' FOR ADDITIONAL BRIDGE SPECIFICATIONS.



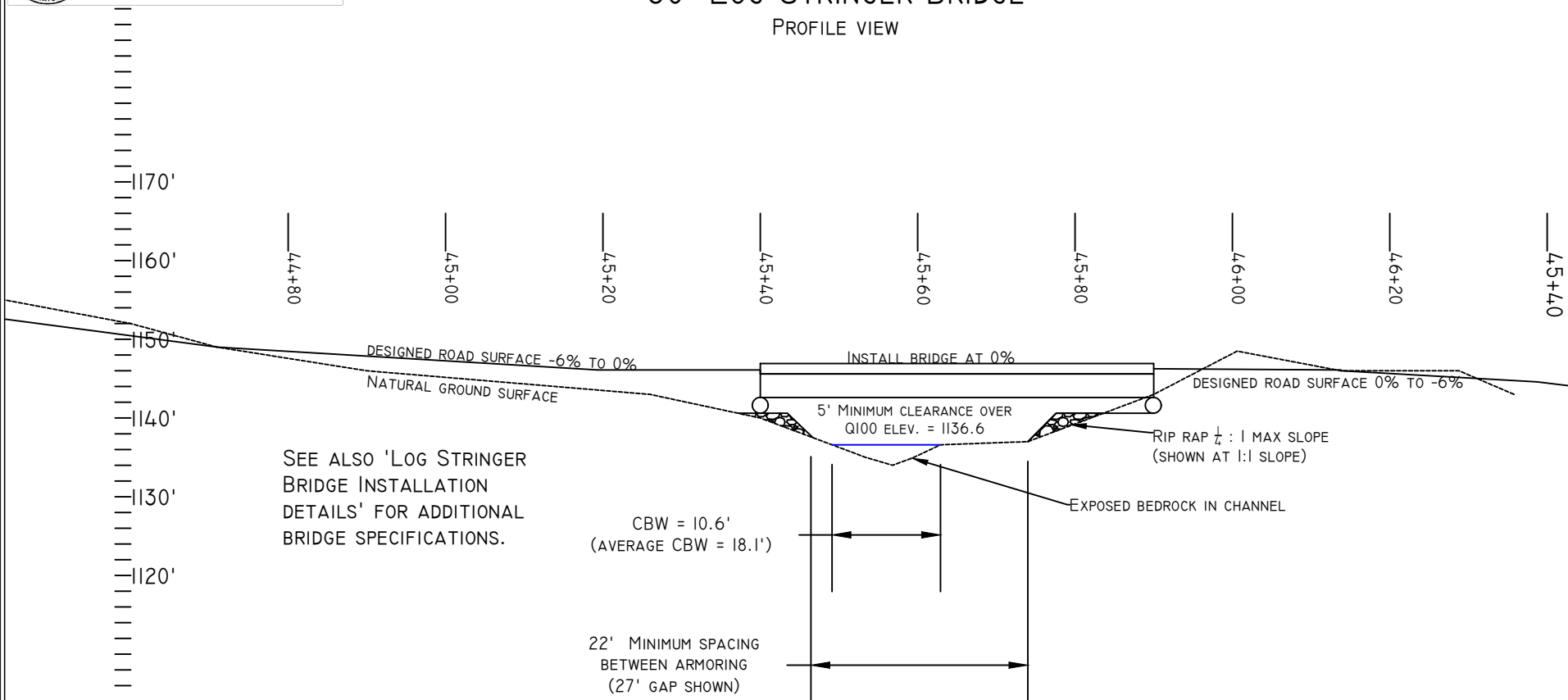
DRAWING DATE	CONTRACT #	PROJECT	SHEET
09/14/2023	30-104444	RIDGE ENDER	39 of 42



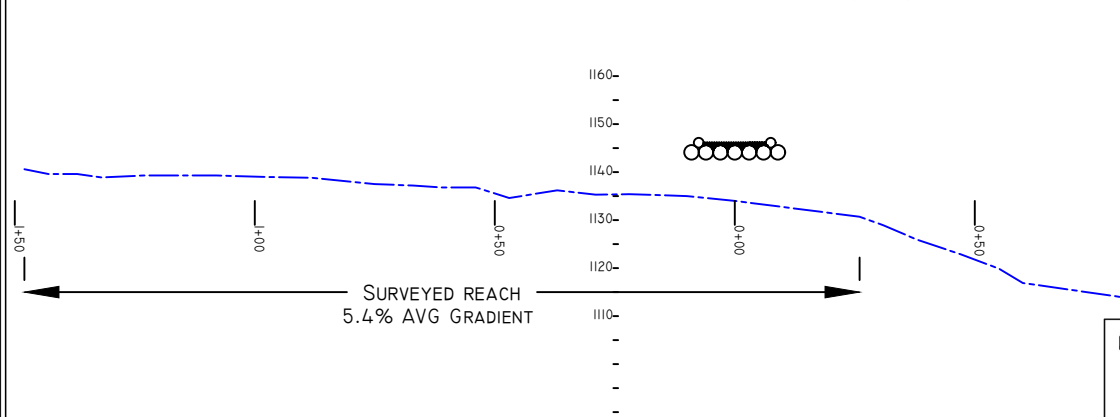
WASHINGTON STATE
DEPT. OF NATURAL RESOURCES
NORTHWEST REGION

STA 45+40 HK-15 ROAD 50' LOG STRINGER BRIDGE

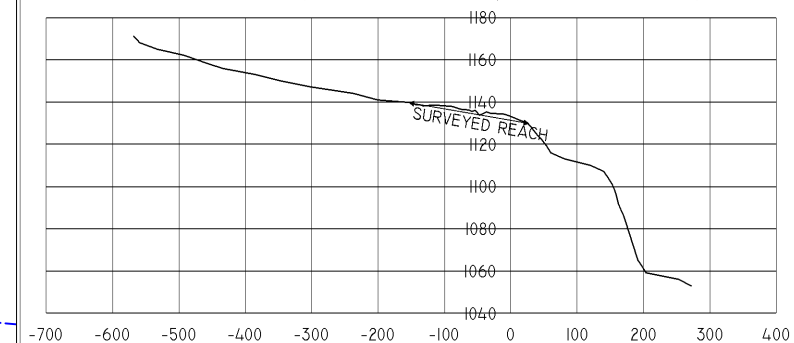
PROFILE VIEW



STREAM PROFILE AND BRIDGE CROSS SECTION (1:40)



STREAM PROFILE (LIDAR GENERATED, EXCEPT AS NOTED)



DRAWING DATE	CONTRACT #	PROJECT	SHEET
09/14/2023	30-104444	RIDGE ENDER	40 of 42



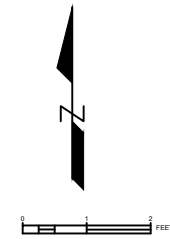
WASHINGTON STATE
DEPT. OF NATURAL RESOURCES
NORTHWEST REGION

STA 59+00 HK-15 ROAD 50' LOG STRINGER BRIDGE PLAN VIEW

BMK2 1072.6'

BMK1 1060.0'

CONSTRUCT CHECK DAMS
IN DITCH ACCORDING
TO MATERIALS LIST



FPA NOTES

LANDOWNER: WASHINGTON STATE DEPARTMENT OF
NATURAL RESOURCES

1. CBW 8' BASED ON NINE MEASUREMENTS
2. 19% AVERAGE CHANNEL GRADIENT WITHIN SURVEYED REACH
3. NO CHANNEL REGRADE EXPECTED.

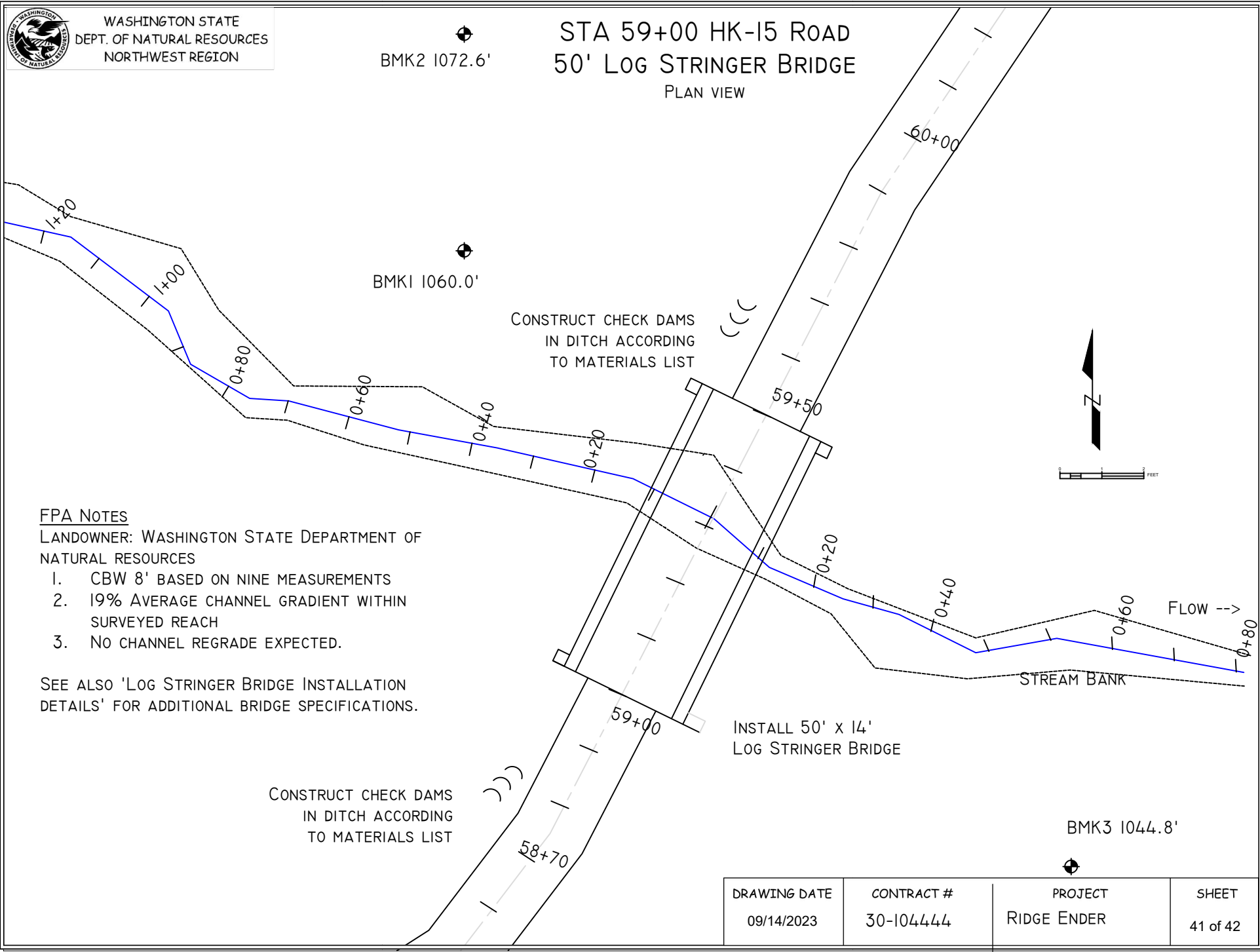
SEE ALSO 'LOG STRINGER BRIDGE INSTALLATION
DETAILS' FOR ADDITIONAL BRIDGE SPECIFICATIONS.

CONSTRUCT CHECK DAMS
IN DITCH ACCORDING
TO MATERIALS LIST

INSTALL 50' x 14'
LOG STRINGER BRIDGE

BMK3 1044.8'

DRAWING DATE	CONTRACT #	PROJECT	SHEET
09/14/2023	30-104444	RIDGE ENDER	41 of 42

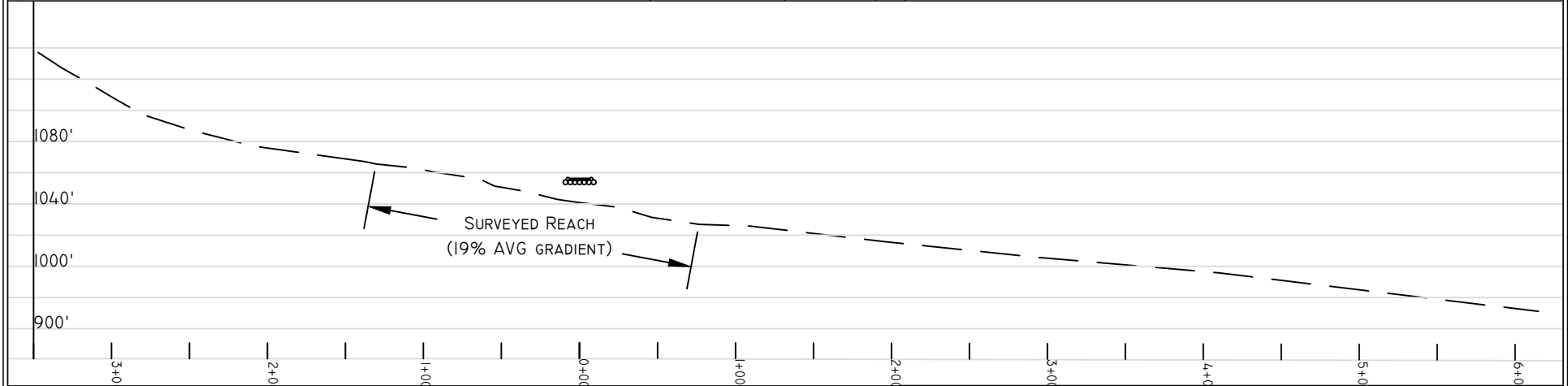
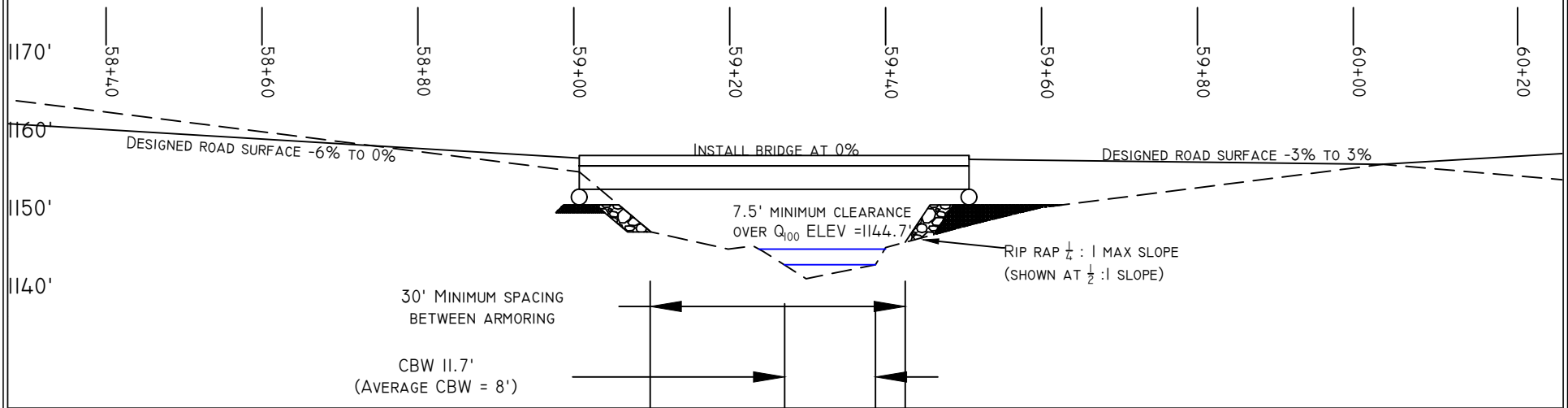




STA 59+00 HK-I5 ROAD 50' LOG STRINGER BRIDGE

PROFILE VIEW

SEE ALSO 'LOG STRINGER
BRIDGE INSTALLATION
DETAILS' FOR ADDITIONAL
BRIDGE SPECIFICATIONS.



DRAWING DATE	CONTRACT #	PROJECT	SHEET
09/14/2023	30-104444	RIDGE ENDER	42 of 42

SUMMARY - Road Development Costs

REGION: Northwest

DISTRICT: Cascade

SALE/PROJECT NAME: RIDGE ENDER

CONTRACT #: 30-104444

ROAD NUMBERS:	HK-15, HK-1509, HK-18, HK-26, HK-2601, HK-27,	-	HK-ML, PT-14, HK-18,
ROAD STANDARD:	Construction	Reconstruction	Maintenance
NUMBER OF STATIONS:	121.80	0.00	185.50
CLEARING & GRUBBING:	\$16,884	\$0	\$0
EXCAVATION AND FILL:	\$29,034	\$0	\$0
MISC. MAINTENANCE:	\$240	-	\$7,115
ROAD ROCK:	\$114,903	\$0	\$0
ROCK STOCKPILE PROD:	-	-	-
CULVERTS AND FLUMES:	\$37,435	\$0	\$0
STRUCTURES:	\$43,248	\$0	\$0
MOBILIZATION:	\$8,100	\$0	\$275
TOTAL COSTS:	\$249,843	\$0	\$7,390
COST PER STATION:	\$2,051	N/A	\$40
ROAD DEACTIVATION & ABANDONMENT COSTS:		\$2,544	

TOTAL (All Roads) = \$259,778
ESTIMATED SALE VOLUME MBF = 4667
ESTIMATED TOTAL \$/MBF = \$56

Compiled by: A. HALGREN Date: 9/25/2023

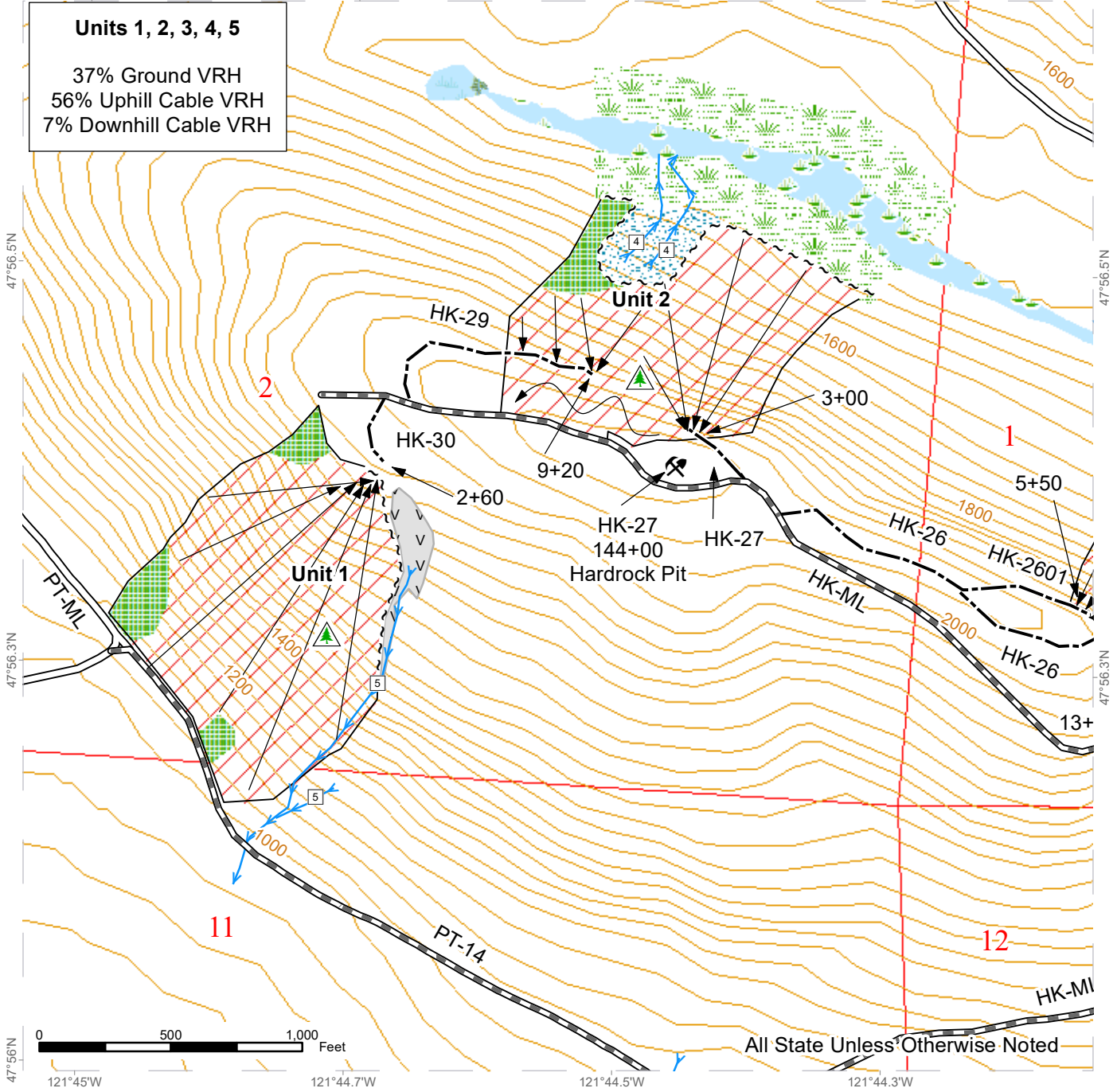
LOGGING PLAN MAP

SALE NAME: RIDGE ENDER
 AGREEMENT#: 30-104444
 TOWNSHIP(S): T28R8E, T28R9E
 TRUST(S): Capitol Grant (7), Charitable/Educational/Penal & Reformatory Instit. (6), Common School and Indemnity (3)

REGION: Northwest Region
 COUNTY(S): Snohomish
 ELEVATION RGE: 1040-2080

121°45'W 121°44.7'W 121°44.5'W 121°44.3'W

Units 1, 2, 3, 4, 5
 37% Ground VRH
 56% Uphill Cable VRH
 7% Downhill Cable VRH



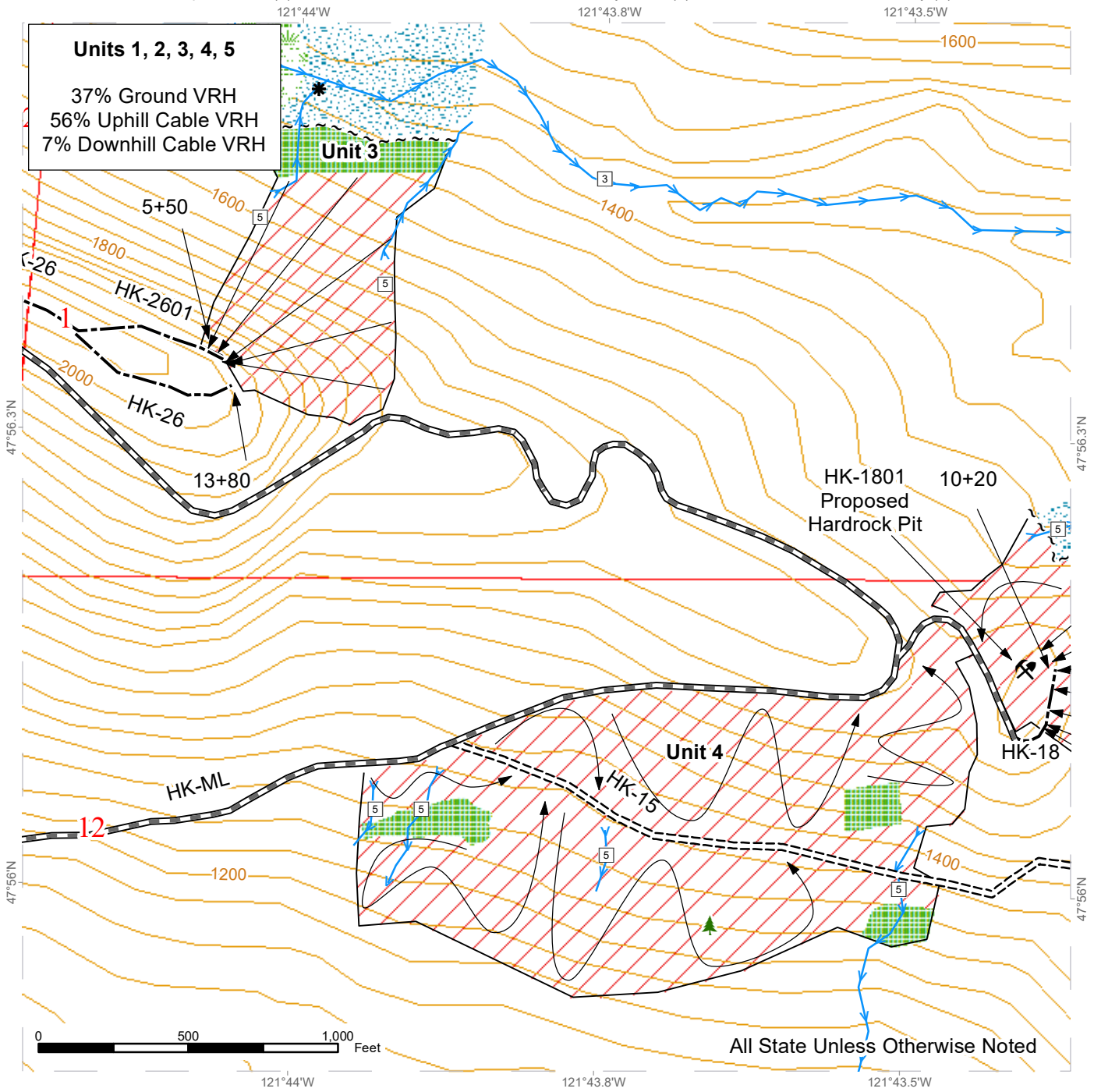
All State Unless Otherwise Noted

Ground Harvest	Optional Construction	Wetland Mgt Zone
Cable Harvest	Streams	No Entry Zone
Sale Boundary Tags	Wetlands - Non-forested	Non-Tradeable Leave Trees
Timber Type Change	Forested Wetland	Stream Type 4
Existing Roads	Leave Tree Area	Stream Type 5
Required Pre-Haul Maintenance	Riparian Mgt Zone	Rock Pit

LOGGING PLAN MAP

SALE NAME: RIDGE ENDER
 AGREEMENT#: 30-104444
 TOWNSHIP(S): T28R8E, T28R9E
 TRUST(S): Capitol Grant (7), Charitable/Educational/Penal & Reformatory Instit. (6), Common School and Indemnity (3)

REGION: Northwest Region
 COUNTY(S): Snohomish
 ELEVATION RGE: 1040-2080



All State Unless Otherwise Noted

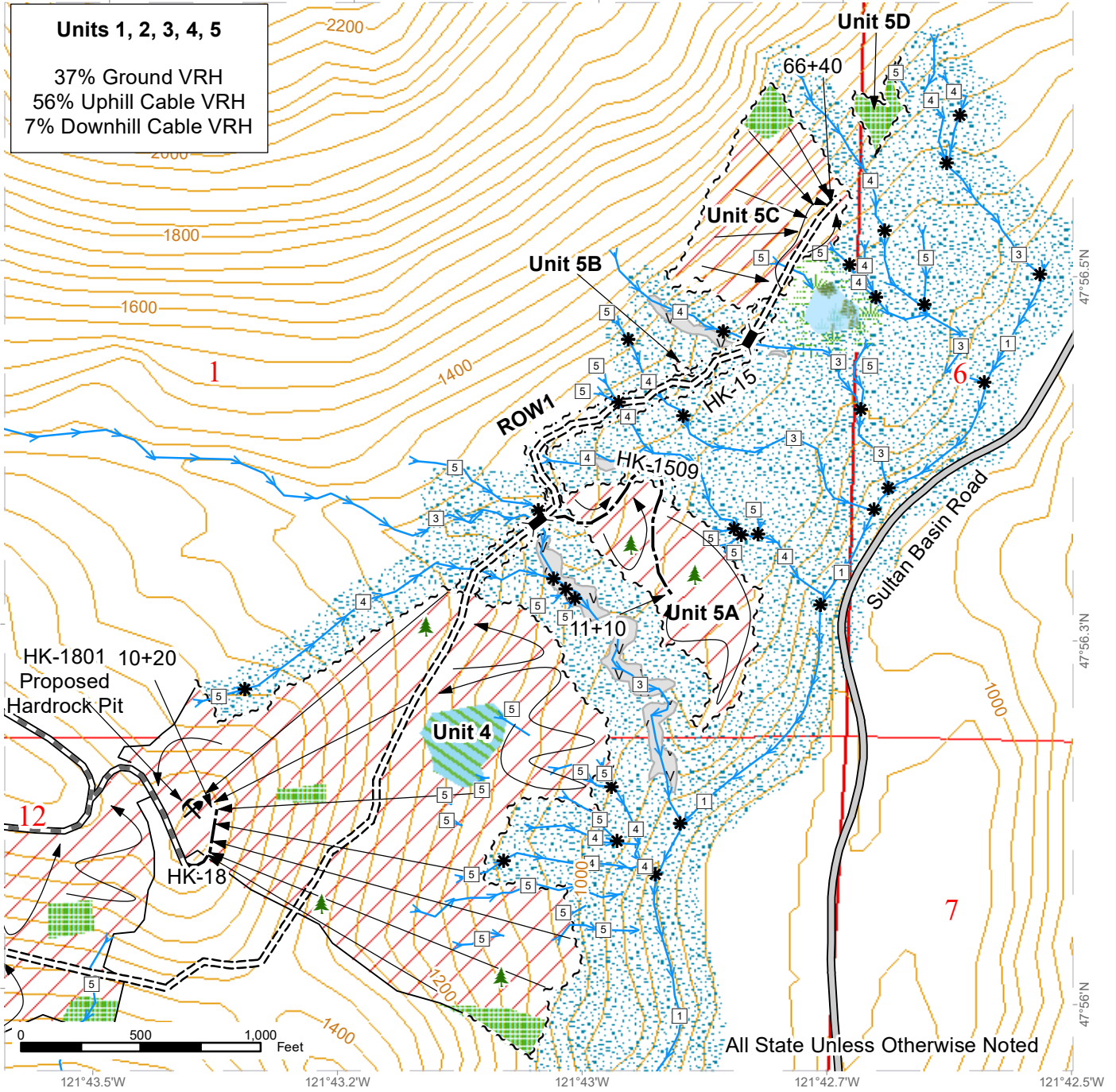
Ground Harvest	Optional Construction	Leave Tree Area < 1/4-acre
Cable Harvest	Streams	Stream Type 3
Sale Boundary Tags	Wetlands - Non-forested	Stream Type 5
Timber Type Change	Leave Tree Area	Stream Type Break
Required Pre-Haul Maintenance	Riparian Mgt Zone	Rock Pit
Required Construction	Wetland Mgt Zone	

LOGGING PLAN MAP

SALE NAME: RIDGE ENDER
 AGREEMENT#: 30-104444
 TOWNSHIP(S): T28R8E, T28R9E
 TRUST(S): Capitol Grant (7), Charitable/Educational/Penal & Reformatory Instit. (6), Common School and Indemnity (3)

REGION: Northwest Region
 COUNTY(S): Snohomish
 ELEVATION RGE: 1040-2080

121°43.5'W 121°43.2'W 121°43'W 121°42.7'W



Units 1, 2, 3, 4, 5
 37% Ground VRH
 56% Uphill Cable VRH
 7% Downhill Cable VRH

All State Unless Otherwise Noted

Ground Harvest	Optional Construction	Bridge
Cable Harvest	Streams	Leave Tree Area <1/4-acre
Sale Boundary Tags	Forested Wetland	Stream Type 1
Timber Type Change	Non-Tradeable Leave Clump	Stream Type 3
Right of Way Tags	Leave Tree Area	Stream Type 4
County Road	Riparian Mgt Zone	Stream Type 5
Required Pre-Haul Maintenance	Wetland Mgt Zone	Stream Type Break
Required Construction	No Entry Zone	Rock Pit

