WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

TIMBER NOTICE OF SALE

***SALE NAME**: COUGAR CREEK* ***AGREEMENT NO**: 30-092255*

AUCTION: September 28, 2016 starting at 10:00 a.m., Northwest Region Office, Sedro Woolley, WA **COUNTY:** Whatcom

SALE LOCATION: Sale located approximately 6 miles east of Deming, WA.

PRODUCTS SOLD AND SALE AREA: All timber bounded by white timber sale boundary tags adjacent young stands and the RH-ML Road, except trees marked with blue paint on the bole and root collar, forest products tagged out by yellow leave tree area tags and cedar snags, preexisting dead and down cedar trees and cedar logs in Unit #1 (collectively labeled 1A, 1B and 1C).

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

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

The above described products on part(s) of Sections 17 and 18 all in Township 39 North, Range 6 East, W.M., containing 109 acres, more or less.

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

ESTIMATED SALE VOLUMES AND QUALITY:

Species	Avg DBH	Ring Count	Total MBF	MBF by Grade 1P	2P	3P	SM	1S	2S	3S	4S	UT
Hemlock	13	8	2,299						469	1,213	537	80
Douglas fir	17	8	724						402	240	71	11
Silver fir	14		256						45	166	44	1
Red cedar	15		170							134	36	
Red alder	12		146							36	76	34
Cottonwood	19		16						10		5	1
Maple	24		6						5			1
Sale Total			3,617									

MINIMUM BID: $391,000.00 **BID METHOD:** Sealed Bids

PERFORMANCE SECURITY: $78,200.00 **SALE TYPE:** Lump Sum

EXPIRATION DATE: March 31, 2020 **ALLOCATION:** Export Restricted

BID DEPOSIT: $39,100.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

TIMBER NOTICE OF SALE

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

Additional restrictions apply, see Remarks section below.

ROADS: 88.76 stations of optional construction. 3.00 stations of existing road to be abandoned. 88.76 stations of road to be abandoned if built.

Rock may be obtained from the following source(s) on State land at no charge to the Purchaser: S1100 Pit at station 184+50 of the NF-ML Road. Red Mt. Pit at station 20+53 of the RM-23 Road.

Development of existing rock source(s) will involve drilling, shooting, and processing rock to generate riprap, shot rock, and gravel ballast.

An estimated total quantity of rock needed for this proposal: 824 cubic yards of riprap, 7,180 cubic yards of gravel ballast rock and 350 cubic yards of shot rock.

Additional restrictions apply, see Remarks section below.

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

ACREAGE DETERMINATION

CRUISE METHOD: Acres determined by GPS traverse. 113.1 acres gross. 3.9 acres deducted for green tree retention clumps and 0.2 acres deducted for existing roads. 109.0 acres net. Cruised using variable plot method. Expansion factor used is 40.00 and 54.4. Sighting height is 4.5 feet. A total of 76 plots were taken.

Shapefiles of units are available upon request.

FEES: $64,201.75 is due on day of sale. $9.00 per MBF is due upon removal. These are in addition to the bid price.

SPECIAL REMARKS: 1. Trees marked with an orange “B” represent the last take tree along harvest boundaries.

2. The road segment of the RH-53 from Station 47+12 to 88+76 shall be constructed and abandoned within ONE operational season as defined in the road plan.

3. The road segment of the RH-53 from Station 0+00 to 47+12 shall be constructed and abandoned within TWO operational seasons as defined in the road plan.

4. Within the S-1100 rock pit, no explosives may be used within the 0.5 miles of the Bear Creek, Maple Falls and Hatchery Creek Communal Eagle Roost sites from November 15 to March 15.

5. Operation of heavy machinery associated with road maintenance on portions of the RH-ML Road (Stations 14+29 to 114+00) shall not occur from November 15 to March 15.

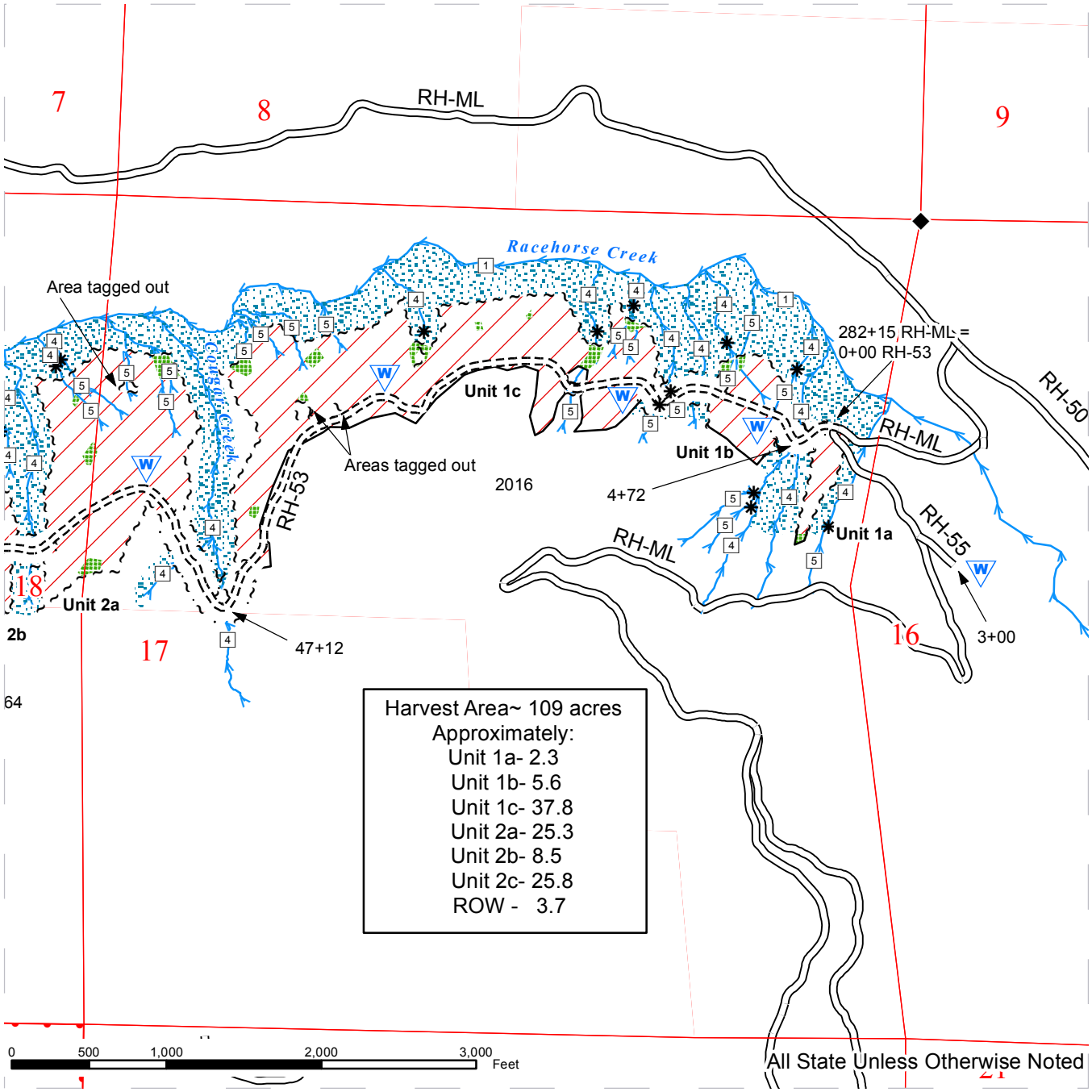
6. Wildlife timing restrictions are: Operation of heavy machinery associated with road maintenance on the RH-ML Road (Station 66+02 to 172+65) and S-1100 rock pit activities shall be prohibited from one hour before official sunrise to two hours after official sunrise and one hour before official sunset to one hour after official sunset from April 1 to August 31.

7. Intermediate supports will be required for cable yarding in Unit 2b. The unit was assessed for supports and suitable supports are present. Profiles are available upon request.

TIMBER SALE MAP

SALE NAME: COUGAR CREEK
AGREEMENT#: 92255
TOWNSHIP(S): T39R05E,T39R06E
TRUST(S): State Forest Transfer (1), Common School and Indemnity (3)

REGION: NORTHWEST
COUNTY(S): WHATCOM
ELEVATION RGE: 1400-2800



Sale Area
Leave Tree Area
Riparian Mgt Zone
DNR Managed Lands
Sale Boundary Tags
Sale Boundary (No Tags)
Right of Way Tags
Existing Road
Optional Construction
Streams
Stream Type
Stream Type Break
Survey Corner
Waste Area

N

Prepared By: zbas490
Creation Date: 10/21/2014
Modification Date/ By:4/4/2016
tkle490

TIMBER SALE MAP

SALE NAME: COUGAR CREEK
AGREEMENT#: 92255
TOWNSHIP(S): T39R05E,T39R06E
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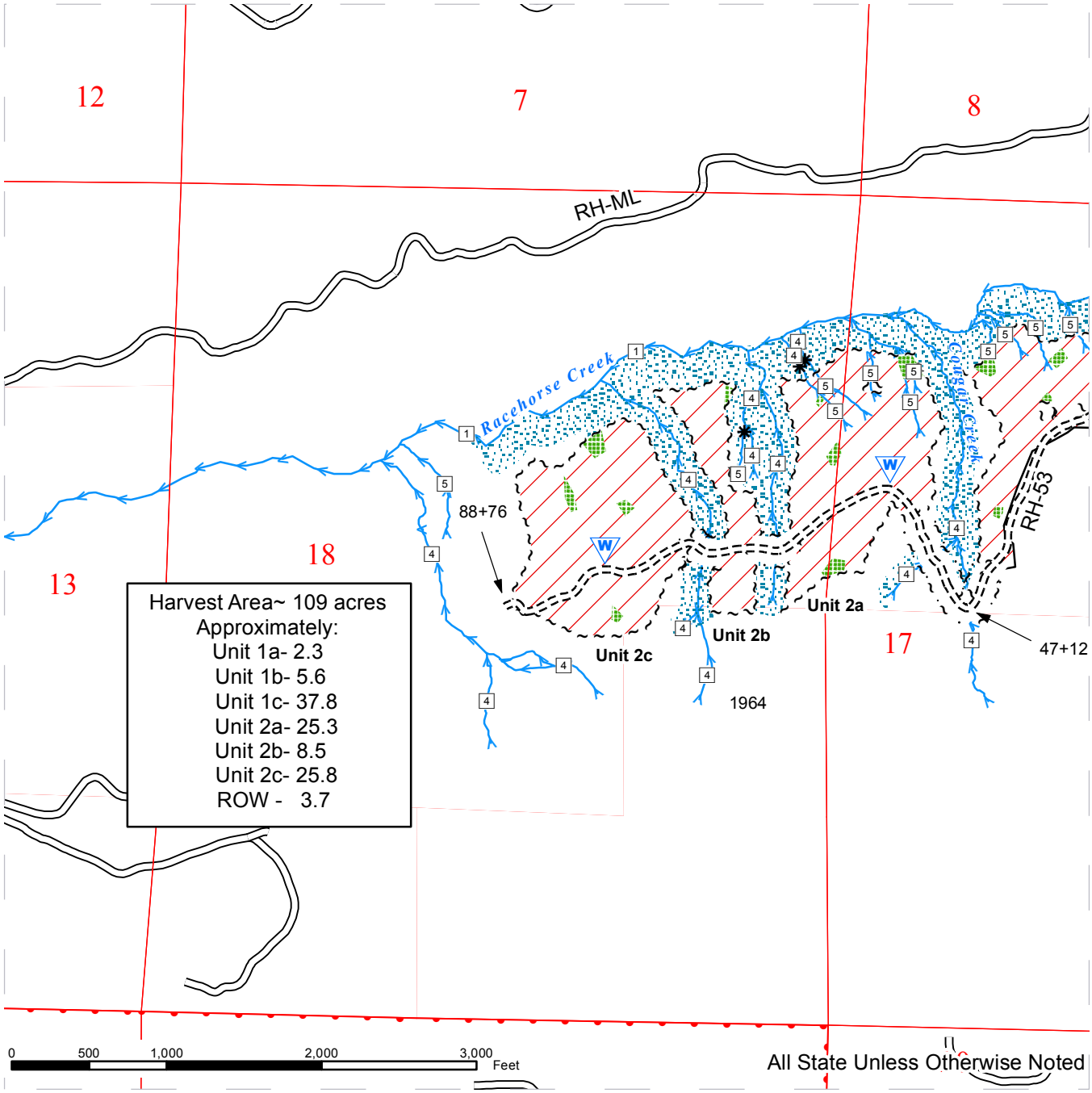

Sale Area
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Sale Boundary (No Tags)
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Streams
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Stream Type Break
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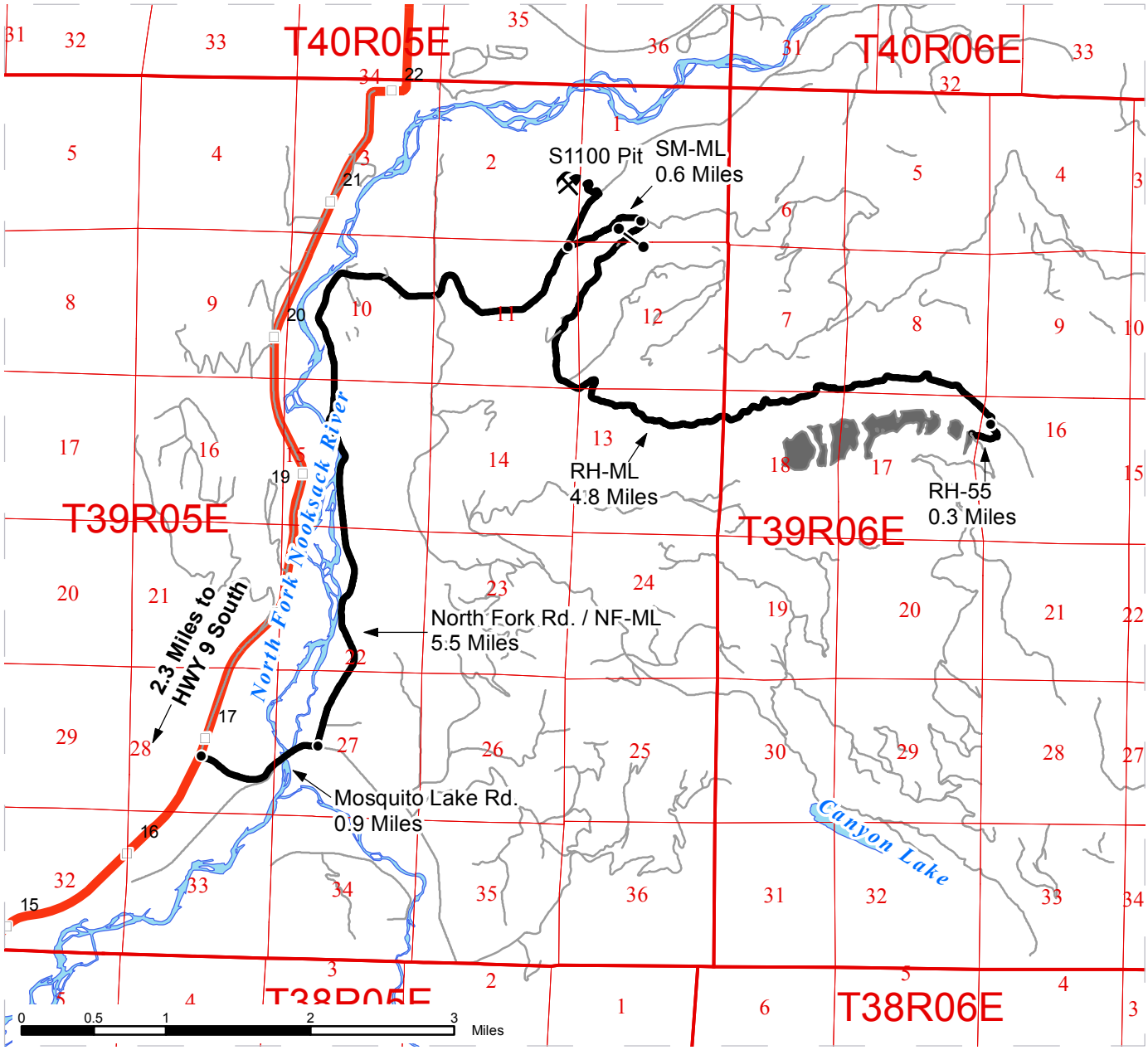
Prepared By: zbas490
Creation Date: 10/21/2014
Modification Date/ By:4/4/2016
tkle490

DRIVING MAP

SALE NAME: Cougar Creek
AGREEMENT#: 91631
TOWNSHIP(S): T39R05E, T39R06E
TRUST(S): State Forest Transfer(1), Common School and Indemnity(3)

REGION: Northwest Region
COUNTY(S): WHATCOM
ELEVATION RGE: 1491-3394



- Timber Sale Unit
- Highways
- Haul Route
- Other Route
- Milepost Markers
- Distance Indicator
- Existing Rock Pit
- Other_Map_Points

DRIVING DIRECTIONS:

UNIT 1a: From the junction of SR-542 and SR-9, travel 2.3 miles on SR-542. Turn right on Mosquito Lake Rd. and travel 0.9 miles. Turn left on North Fork Rd (which becomes the NF-ML at the end of the paved county road). Travel 4.2 miles, cross the bridge over Racehorse Creek and continue 1.3 miles on the NF-ML. Turn right onto the SM-ML and travel 0.6 miles. Turn right onto the RH-ML and travel 4.8 miles and turn right to stay on the RH-ML. Travel 0.1 miles to the upper bridge over Racehorse Creek, continue past bridge 0.2 miles to Unit 1.

UNITS 1b-2c : From Unit 1a, hike along the RH-53 to Units 1b-2c.

Quarry / Rock pit information, see pages 1 and 30 of the Cougar Creek Road Plan

N

Prepared By: zbas490 Creation Date: 10/27/2014 Modification Date: 12/10/2015

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

BILL OF SALE AND CONTRACT FOR FOREST PRODUCTS

Export Restricted Lump Sum AGREEMENT NO. 30-092255

SALE NAME: COUGAR CREEK

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

Section G: General Terms

G-001 Definitions

The following definitions apply throughout this contract;

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

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

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

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

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

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

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

G-011 Right to Remove Forest Products and Contract Area

Purchaser was the successful bidder on September 28, 2016 and the sale was confirmed on _____. The State, as owner, agrees to sell to Purchaser, and Purchaser agrees to purchase as much of the following forest products as can be cut and removed during the term of this contract: All timber bounded by white timber sale boundary tags adjacent young stands and the RH-ML Road, except trees marked with blue paint on the bole and root collar, forest products tagged out by yellow leave tree area tags and cedar snags, preexisting dead and down cedar trees and cedar logs in Unit #1 (collectively labeled 1A, 1B and 1C).

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

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

The above described products, located on approximately 109 acres on part(s) of Sections 17, and 18 all in Township 39 North, Range 6 East W.M. in Whatcom County(s) as designated on the sale area and as shown on the attached timber sale map.

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

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

G-020 Inspection By Purchaser

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

G-025 Schedules

The following attached schedules are hereby incorporated by reference:

Schedule	Title
A	NW Ground-Based Equip Specifications (Rev 2/11/16)

G-031 Contract Term

Purchaser shall complete all work required by this contract prior to March 31, 2020.

G-040 Contract Term Adjustment - No Payment

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

a. Road and bridge failures which deny access.

b. Access road closures imposed by road owner.

c. Excessive suspensions as provided in clause G-220.

d. Regulatory actions not arising from Purchaser's failure to comply with this contract which will prevent timber harvest for a period less than 6 months.

G-051 Contract Term Extension - Payment

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

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

b. Completion of all required roads and compliance with all contract and regulatory requirements.

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

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

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

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

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

e. Payment of $665.00 per acre per annum for the acres on which an operating release has not been issued in the sale area.

f. In no event will the extension charge be less than $200.00.

g. Extension payments are non-refundable.

G-053 Surveys - Sensitive, Threatened, Endangered Species

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

G-060 Exclusion of Warranties

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

a. The MERCHANTABILITY of the forest products. The use of the term "merchantable" in any document is not intended to vary the foregoing.

b. The CONDITION of the forest products. The forest products will be conveyed "AS IS."

c. The ACREAGE contained within any sale area. Any acreage descriptions appearing in the timber notice of sale, timber sale contract, or other documents

are estimates only, provided solely for administrative and identification purposes.

d. The VOLUME, QUALITY, OR GRADE of the forest products. The State neither warrants nor limits the amount of timber to be harvested. The descriptions of the forest products to be conveyed are estimates only, made solely for administrative and identification purposes.

e. The CORRECTNESS OF ANY SOIL OR SURFACE CONDITIONS, PRE-SALE CONSTRUCTION APPRAISALS, INVESTIGATIONS, AND ALL OTHER PRE-BID DOCUMENTS PREPARED BY OR FOR THE STATE. These documents have been prepared for the State's appraisal purposes only.

f. THAT THE SALE AREA IS FREE FROM THREATENED OR ENDANGERED SPECIES or their habitat. The State is not responsible for any interference with forestry operations that result from the presence of any threatened or endangered species, or the presence of their habitat, within the sale area.

g. THAT THE FORESTRY OPERATIONS to be performed under this contract WILL BE FREE FROM REGULATORY ACTIONS by governmental agencies. The State is not responsible for actions to enforce regulatory laws, such as the Washington Forest Practices Act (chapter 76.09 RCW), taken by the Department of Natural Resources or any other agency that may affect the operability of this timber sale.

h. Items contained in any other documents prepared for or by the State.

G-062 Habitat Conservation Plan

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

By signing this contract, Purchaser agrees to comply with the terms and conditions of the ITP, and the HCP, which shall become terms of this contract. The State agrees to authorize the lawful activities of the Purchaser carried out pursuant to this contract, PROVIDED the Purchaser remains in compliance with the terms and conditions of both the HCP and ITP. The requirements set forth in this contract are intended to comply with the terms and conditions of the HCP and ITP. Accordingly, non-compliance with the terms and conditions of the HCP and ITP will render the authorization provided in

this paragraph void, be deemed a breach of the contract and may subject Purchaser to liability for violation of the Endangered Species Act.

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

G-063 Incidental Take Permit Notification Requirements

a. Purchaser shall immediately notify the Contract Administrator of new locations of permit species covered by the Incidental Take Permits (ITP) that are discovered within the area covered by the State's Habitat Conservation Plan (HCP), including, but not limited to: locations of occupied murrelet habitat; spotted owl nest sites; wolves; grizzly bears; nests, communal roosts, or feeding concentrations of bald eagles; peregrine falcon nests; Columbian white-tailed deer; Aleutian Canada geese; Oregon silverspot butterflies; and additional stream reaches found to contain bull trout. Purchaser is required to notify the Contract Administrator upon discovery of any fish species found in streams or bodies of water classified as non-fish bearing. In all circumstances, notification must occur within a 24 hour time period.

b. Upon locating any live, dead, injured, or sick specimens of any permit species covered by the ITP, Purchaser shall immediately notify the Contract Administrator. Purchaser shall notify the Contract Administrator if there is any doubt as to the identification of a discovered permit species. Purchaser may be required to take certain actions to help the Contract Administrator safeguard the well-being of any live, injured or sick specimens of any permit species discovered, until the proper disposition of such specimens can be determined by the Contract Administrator. Any such requirements will be explained to Purchaser by the Contract Administrator during the Pre-Work Conference. In all circumstances, notification must occur within a 24 hour time period.

c. Purchaser shall refer to a specific ITP number, PRT-812521 or ITP 1168 (copies which are located in the region office) in all correspondence and reports concerning permit activities.

d. Provisions and requirements of the ITP shall be clearly presented and explained to Purchaser by Contract Administrator during the Pre-Work Conference as per contract clause G-330. All applicable provisions of the ITP and this schedule must be presented and clearly explained by Purchaser to all authorized officers, employees, contractors, or agents of Purchaser conducting authorized activities in the timber sale area. Any questions Purchaser may have about the ITP should be directed to the Contract Administrator.

G-064 Permits

Purchaser is responsible for obtaining any permits not already obtained by the State that relate to Purchaser's operation. Forest Practice Application / Hydraulic Project

Approval permits obtained by the State shall be transferred to Purchaser. Purchaser is responsible for all permits, amendments and renewals.

G-065 Regulatory Disclaimer

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

G-066 Governmental Regulatory Actions

a. Risk

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

b. Sale Area

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

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

c. Adjustment of Price

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

G-070 Limitation on Damage

In the event of a breach of any provision of this contract by the State, the exclusive remedy available to Purchaser will be limited to a return of the initial deposit,

unapplied payments, and credit for unamortized improvements made by Purchaser. The State shall not be liable for any damages, whether direct, incidental or consequential.

G-080 Scope of State Advice

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

G-091 Sale Area Adjustment

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

G-101 Forest Products Not Designated

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

Contract Item	Appraised Price	Overbid Factor	Price	Fees	Contract Payment Rate
Cottonwood	$35.24	0	$0.00	$9.00	$9.00
Douglas fir	$120.55	0	$0.00	$9.00	$9.00
Hemlock	$96.86	0	$0.00	$9.00	$9.00
Maple	$93.20	0	$0.00	$9.00	$9.00
Red alder	$112.50	0	$0.00	$9.00	$9.00
Red cedar	$224.39	0	$0.00	$9.00	$9.00
Silver fir	$99.01	0	$0.00	$9.00	$9.00
Other	$120.83	0	$0.00	$9.00	$9.00

G-106 Adding Naturally Damaged Forest Products

Any forest products not designated for removal that are seriously damaged by disease, insects or wind, or that may contribute seriously to the spread of insect or disease damage may be added to this sale by the State's Contract Administrator. Additions

must be in unlogged areas of the sale and added volume shall not exceed an amount equal to 10 percent of the original advertised volume. Added forest products become a part of this contract and shall be paid for at the rate set forth in clause G-101, G-102 or G-103.

G-111 Title and Risk of Loss

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

G-116 Sustainable Forestry Initiative® (SFI) Certification

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

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

G-120 Responsibility for Work

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

G-121 Exceptions

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

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

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

1. Failure of (a) required improvements or roads designated in clause C-050, or (b) required or optional construction completed to the point that authorization to haul has been issued;

2. Caused by a single event from forces beyond the control of Purchaser, its employees, agents, or invitees, including independent contractors; and

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

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

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

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

G-140 Indemnity

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

G-150 Insurance

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

All insurance and surety bonds should be issued by companies admitted to do business within the State of Washington and have a rating of A-, Class VII or better in the most

recently published edition of Best's Reports. If an insurer is not admitted, all insurance policies and procedures for issuing the insurance policies must comply with Chapter 48.15 RCW and 284-15 WAC.

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

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

2. Insurers subject to Chapter 48.15 RCW (surplus lines): The State shall be given 20 days advance notice of cancellation. If cancellation is due to non-payment of premium, the State shall be given 10 days advance notice of cancellation.

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

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

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

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

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

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

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

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

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

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

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

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

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

G-160 Agents

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

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

G-170 Assignment and Delegation

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

G-180 Modifications

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

G-190 Contract Complete

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

G-200 Notice

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

G-210 Violation of Contract
G-220 State Suspends Operations

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

G-210 Violation of Contract

a. If Purchaser violates any provision of this contract, the Contract Administrator, by written notice, may suspend those operations in violation. If the violation is capable of being remedied, Purchaser has 30 days after receipt of a suspension notice to remedy the violation. If the violation cannot be remedied (such as a violation of WAC 240-15-015) or Purchaser fails to remedy the violation within 30 days after receipt of a suspension notice, the State may terminate the rights of Purchaser under this contract and collect damages.

b. If the contract expires pursuant to clause G-030 or G-031 without Purchaser having performed all its duties under this contract, Purchaser's right to operate is terminated and Purchaser shall not have the right to remedy the breach. This provision shall not relieve Purchaser of any payment obligations.

c. The State has the right to remedy the breach in the absence of any indicated attempt by Purchaser or if Purchaser is unable, as determined by the State, to remedy the breach. Any expense incurred by the State shall be charged to Purchaser and shall be paid within 30 days of receipt of billing.

d. If Purchaser's violation is a result of a failure to make a payment when due, in addition to a. and b. above, interest shall accrue on the unpaid balance at 12 percent per annum, beginning the date payment was due.

G-220 State Suspends Operation

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

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

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

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

G-230 Unauthorized Activity

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

G-240 Dispute Resolution

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

a. In the event of a dispute, Purchaser must make a written request to the Region Manager for resolution prior to seeking other relief.

b. The Region Manager will issue a written decision on Purchaser's request within ten business days.

c. Within ten business days of receipt of the Region Manager's decision, Purchaser may make a written request for resolution to the Deputy Supervisor - Uplands of the Department of Natural Resources.

d. Unless otherwise agreed, a conference will be held by the Deputy Supervisor - Uplands within 30 calendar days of the receipt of Purchaser's request for review of the Region Manager's written decision. Purchaser and the Region Manager will have an opportunity to present their positions. The Deputy Supervisor - Uplands will issue a decision within a reasonable time of being presented with both Parties' positions.

G-250 Compliance with All Laws

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

G-260 Venue

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

G-270 Equipment Left on State Land

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

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

G-280 Operating Release

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

G-310 Road Use Authorization

Purchaser is authorized to use the following State roads and roads for which the State has acquired easements and road use permits; NF-ML, SM-ML, RH-ML, RH-53, RH-55, RM-ML, RM-23. The State may authorize in writing the use of other roads subject to fees, restrictions, and prior rights.

G-330 Pre-work Conference

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

G-340 Preservation of Markers

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

G-360 Road Use Reservation

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

G-370 Blocking Roads

Purchaser shall not block the SM-ML, RM-ML, RM-23, NF-ML, RH-ML, RH-53 and RH-55 roads, unless authority is granted in writing by the Contract Administrator.

G-380 Road Easement and Road Use Permit Requirements

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

Easements with:

Puget Sound Pulp & Timber Co., 55-000008, dated January 17, 1962.
Pope and Talbot, Incorporated; #55-000250; dated August 23, 1962.
Pope and Talbot, Incorporated; #55-000250; dated October 26, 1962.
Griffith S. and Laura Williams; #55-000250; dated January 24, 1963.

G-430 Open Fires

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

G-450 Encumbrances

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

Assessment, including the terms and provisions thereof,
For: Flood Control District
In Favor of: Whatcom County Flood Control District
Disclosed by Application No.: 79-000275
Granted: 4/14/1992
Expires: Indefinite

No pending applications of record.

No region encumbrances of record.

Special Notations

Property is located within the Mt. Baker – Snoqualmie Agreement Area (55-000035).

Section P: Payments and Securities

P-011 Initial Deposit

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

P-020 Payment for Forest Products

Purchaser agrees to pay the total, lump sum contract price of $96,754.75. The total contract price consists of a $0.00 contract bid price plus $96,754.75 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 $78,200.00. The Security provided shall guarantee performance of all provisions of this contract and payment of any damages caused by operations under this contract or resulting from Purchaser's noncompliance with any rule or law. Acceptable performance security may be in the form of a performance bond, irrevocable letter of credit, cash, savings or certificate of deposit account assignments, and must name the State as the obligee or beneficiary. A letter of credit must comply with Title 62A RCW, Article 5. Performance security must remain in full force over the duration of the contract length. Surety bonds issued shall conform to the issuance and rating requirements in clause G-150. The State shall retain the performance security pursuant to RCW 79.15.100. Purchaser shall not operate unless the performance security has been accepted by the State. If at any time the State decides that the security document or amount has become unsatisfactory, Purchaser

agrees to suspend operations and, within 30 days of notification, to replace the security with one acceptable to the State or to supplement the amount of the existing security.

P-100 Performance Security Reduction

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

Section H: Harvesting Operations

H-010 Cutting and Yarding Schedule

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

H-013 Reserve Tree Damage Definition

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

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

a. A reserve tree has one or more scars on its trunk exposing the cambium layer, which in total exceeds 200 square inches.

b. A reserve tree top is broken or the live crown ratio is reduced below 30 percent.

c. A reserve tree has more than 1/3 of the circumference of its root system injured such that the cambium layer is exposed.

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

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

H-017 Preventing Excessive Soil Disturbance

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

H-040 Purchaser Harvest Plan

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

H-051 Branding and Painting

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

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

H-080 Snags Not to be Felled

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

H-090 Designated Trees Felled

All cottonwood shall be felled concurrently with the falling operation.

H-120 Harvesting Equipment

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

H-125 Log Suspension Requirements

Lead-end suspension is required for all yarding activities.

H-131 Hauling Schedule

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

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

A. An on-site pre-work meeting shall be scheduled with the Contract Administrator, which shall include the operator and fallers, prior to commencement of any activities on site.

B. A copy of the timber sale map and contract shall be present on site during active operations.

C. Trees must be felled away from typed streams where possible.

D. Marked leave trees may be traded for trees of the same size and species with prior written approval from the Contract Administrator.

E. Exposed mineral soils created by falling or yarding operations with the potential to deliver sediment to any watercourse must be mulched, water-barred and/or grass seeded prior to October 1 or concurrent with operations between October 1 and March 31.

F. Temporary log crossings that protect stream bank integrity are required for typed water crossings during yarding or road construction operations and must be approved in writing by the Contract Administrator. Structures shall be limited to crossing points approved in writing by the Contract Administrator. Streambeds and banks shall be protected by the use of log puncheon or other approved structures at these crossing points and removed upon the completion of yarding activities.

G. Lift trees and intermediate support trees must be marked by the Purchaser and approved by the Contract Administrator in each unit prior to the commencement of felling operations.

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

H-141 Additional Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

A. The road segment of the RH-53 from Station 47+12 to 88+76 shall be constructed and abandoned within ONE operational season as defined in the road plan.

B. The road segment of the RH-53 from Station 0+00 to 47+12 shall be constructed and abandoned within TWO operational seasons as defined in the road plan.

C. Within the S-1100 rock pit, no explosives may be used within the 0.5 miles of the Bear Creek, Maple Falls and Hatchery Creek Communal Eagle Roost sites from November 15 to March 15.

D. Operation of heavy machinery associated with road maintenance on portions of the RH-ML Road (Stations 14+29 to 114+00) shall not occur from November 15 to March 15.

E. Wildlife timing restrictions are: Operation of heavy machinery associated with road maintenance on the RH-ML Road (Station 66+02 to 172+65) and S-1100 rock pit activities shall be prohibited from one hour before official sunrise to

two hours after official sunrise and one hour before official sunset to one hour after official sunset from April 1 to August 31.

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

H-190 Completion of Settings

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

H-220 Protection of Residual or Adjacent Trees

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

Section C: Construction and Maintenance

C-040 Road Plan

Road construction and associated work provisions of the Road Plan for this sale, dated 10/26/2015 are hereby made a part of this contract.

C-050 Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on the RH-ML, RH-53, and RH-55 roads. All work shall be completed to the specifications detailed in the Road Plan.

C-060 Designated Road Maintainer

If required by the State, Purchaser shall perform maintenance and replacement work as directed by the Contract Administrator on the NF-ML, SM-ML, RM-ML, RM-23 roads. Purchaser shall furnish a statement in a form satisfactory to the State showing the costs incurred while performing this work. Costs shall be based on the rates set forth in the State current Equipment Rate Schedule on file at the region and Olympia offices. The State shall reimburse Purchaser for said costs within 30 days of receipt and approval of the statement.

C-080 Landing Locations Approved Prior to Construction

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

Section S: Site Preparation and Protection

S-001 Emergency Response Plan

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

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

S-010 Fire Hazardous Conditions

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

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

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

S-030 Landing Debris Clean Up

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

S-050 Cessation of Operations for Low Humidity

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

S-060 Pump Truck or Pump Trailer

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

S-130 Hazardous Materials

a. Hazardous Materials and Waste - Regulatory Compliance

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

b. Hazardous Materials Spill Prevention

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

c. Hazardous Materials Spill Containment, Control and Cleanup

If safe to do so, Purchaser shall take immediate action to contain and control all hazardous material spills. Purchaser shall ensure that enough quick response spill kits capable of absorbing 4 to 6 gallons of oil, coolant, solvent or contaminated water are available on site to quickly address potential spills from any piece of equipment at all times throughout active operations. If large quantities of bulk fuel/other hazardous materials are stored on site, Purchaser must be able to effectively control a container leak and contain & recover a hazmat spill equal to the largest single on site storage container volume. (HAZWOPER reg. 29CFR 1910.120 (j) (1) (vii)).

d. Hazardous Material Release Reporting

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

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

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

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

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

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

S-131 Refuse Disposal

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

shall be covered/secured such that these waste materials are properly contained during transport.

Section D: Damages

D-013 Liquidated Damages or Failure to Perform

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

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

D-041 Reserve Tree Excessive Damage

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

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

	STATE OF WASHINGTON DEPARTMENT OF NATURAL RESOURCES
_____	_____
Purchaser	Jean Fike Northwest Region Manager
Date: _____	Date: _____
Address:	

CORPORATE ACKNOWLEDGEMENT

STATE OF _____)
)
COUNTY OF _____)

On this _____ day of _____, 20___, before me personally appeared _____
_____ to me known to be the _____ of the corporation that executed the within and foregoing instrument and acknowledged said instrument to be the free and voluntary act and deed of the corporation, for the uses and purposes therein mentioned, and on oath stated that (he/she was) (they were) authorized to execute said instrument.

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

_____
Notary Public in and for the State of

_____

My appointment expires _____

Schedule A
NW Ground-Based Equip Specifications (Rev 2/11/16)

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

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

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

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

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

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

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

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

FOR ALL YARDING:

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

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

WHEN SHOVEL YARDING IS AUTHORIZED:

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

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

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

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

1. No tops or limbs will be allowed to accumulate on any landings, and all tops and limbs will be re-distributed into the unit, to the satisfaction of the Contract Administrator, and will provide for plantable spots every 11 feet by 11 feet.

2. Harvester must provide a written slash treatment plan, acceptable to the Contract Administrator, to address the additional slash accumulation. The Slash Treatment Plan will be a part of the Plan of Operations.

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

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

FOREST EXCISE TAX ROAD SUMMARY SHEET

Region: Northwest

Timber Sale Name: COUGAR CREEK

Application Number: 30- 092255

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

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

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

EXCISE TAX EXEMPT ACTIVITIES

Temporary Optional Construction: 8876 **linear feet**
Optional roads to be constructed and then abandoned

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

New Abandonment: 8876 **linear feet**
Abandonment of roads constructed or reconstructed under the contract

All parties must make their own assessment of the taxable or non-taxable status of any work performed under the timber sale contact. The Department of Revenue bears responsibility for determining forest road excise taxes. The Department of Natural Resources developed this form to help estimate the impact of forest excise taxes. However, the information provided may not precisely calculate the actual amount of taxes due. The Department of Revenue is available for consultation by calling 1.800.548.8829.
(Revised 6/13)

PRE-CRUISE NARRATIVE

Sale Name: Cougar Creek	Region: Northwest
Agreement #: 30-092255	District: Deming
Contact Forester:Zachary Bastow Phone / Location: (541)760-1695	County(s): Whatcom
Alternate Contact:Kyle Galloway Phone / Location: (360)853-5100	Other information:

Type of Sale: Lump Sum	
Harvest System: Uphill Cable	85%
Harvest System: Downhill Cable	10%
Harvest System: Ground Based	5%

UNIT ACREAGES AND METHOD OF DETERMINATION:

Unit # Harvest R/W or RMZ WMZ	Legal Description (Enter only one legal for each unit) Sec/Twp/Rng	Grant or Trust	Gross Proposal Acres	Deductions from Gross Acres (No harvest acres)				Net Harvest Acres	Acreage Determination (List method and error of closure if applicable)
				RMZ/ WMZ Acres	Leave Tree Acres	Existing Road Acres	Other Acres (describe)		
1a	S17/ T39/ R06E	01	2.6		0.1	0.2		2.3	GPS (Garmin)
1b	S17/T39/R06E	01	5.9		0.2			5.6	GPS (Garmin)
1c	S17/T39/R06E	01	39.3		1.5			37.8	GPS (Garmin)
2a	S17/T39/R06E	01, 03	26.3		1.0			25.3	GPS (Garmin)
2b	S18/T39/R06E	03	8.6		0.1			8.5	GPS (Garmin)
2c	S18/T39/R06E	03	26.7		0.9			25.8	GPS (Garmin)
ROW	S17, 18/T39/R06E	01, 03	3.7					3.7	Length X Width
TOTAL ACRES			113.1		3.9	0.2		109.0	

Revised 03/15/2010 (FRCD)

HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Leave, take, paint color, tags, flagging etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
1a	Remove all timber bounded by white timber sale boundary tags. Remove all timber up to and including trees painted with orange 'B', this mark signifies the last tree to be harvested in the unit. Forest products bounded by yellow leave tree tags or trees marked with blue paint on the bole and root collar.	Riparian Management Zones are No Harvest Buffers. These areas are defined with white timber sale boundary tags.	22 trees have been retained in 1 leave tree area. The total number of leave trees is 22.
1b	Same as previous.	Same as previous.	31 trees have been retained in 2 leave tree areas. An additional 15 trees have been scattered across the unit. The total number of leave trees is 47.
1c	Same as previous.	Same as previous.	245 trees have been retained in 10 leave tree areas. An additional 69 trees have been scattered across the unit. The total number of leave trees is 314.
2a	Same as previous.	Same as previous.	203 trees have been retained in 4 leave tree areas. An additional 8 trees have been scattered across the unit. The total number of leave trees is 211.
2b	Same as previous.	Same as previous.	63 trees have been retained in 1 leave tree areas. An additional 6 trees have been scattered across the unit. The total number of leave

			trees is 69.
2c	Same as previous.	Same as previous.	252 trees have been retained in 4 leave tree areas. The total number of leave trees is 252.
R/W	Harvest all timber bounded by orange right-of-way tags.	Same as previous.	The calculated acres include only the tagged R/W for the RH-53

OTHER PRE-CRUISE INFORMATION:

Unit #	Primary,secondary Species / Estimated Volume (MBF)	Access information (Gates, locks, etc.)	Photos, traverse maps required
1a	Western hemlock, Douglas-fir, Western redcedar, Silver fir / 65 mbf	From the junction of SR-542 and SR-9, travel 2.3 miles on SR-542. Turn right on Mosquito Lake Rd. and travel 0.9 miles. Turn left on North Fork Rd (which becomes the NF-ML at the end of the paved county road). Travel 4.2 miles, cross the bridge over Racehorse Creek and continue 1.3 miles on the NF-ML. Turn right onto the SM-ML and travel 0.6 miles. Turn right onto the RH-ML and travel 4.8 miles and turn right to stay on the RH-ML. Travel 0.1 miles to the upper bridge over Racehorse Creek, continue past bridge 0.2 miles to a pullout adjacent to a switchback and Unit 1a.	See attached driving map and traverse maps.
1b	Western hemlock, Douglas-fir, Western redcedar, Silver fir / 169 mbf	From Unit 1a, hike 300 ft. along the RH-53 to Unit 1b.	See attached driving map and traverse maps.
1c	Western hemlock, Douglas-fir, Western redcedar, Silver fir / 1,209 mbf	From Unit 1b, continue 200 ft. along the RH-53 to Unit 1c.	See attached driving map and traverse maps.
2a	Western hemlock, Douglas-fir, Western redcedar, Silver fir / 809 mbf	From Unit 1c, continue hiking 950 ft. along the RH-53 to Unit 2a.	See attached driving map and traverse maps.
2b	Western hemlock, Douglas-fir, Western redcedar, Silver fir / 289 mbf	From Unit 2a, continue hiking 200 ft. along the RH-53 to Unit 2b.	See attached driving map and traverse maps.

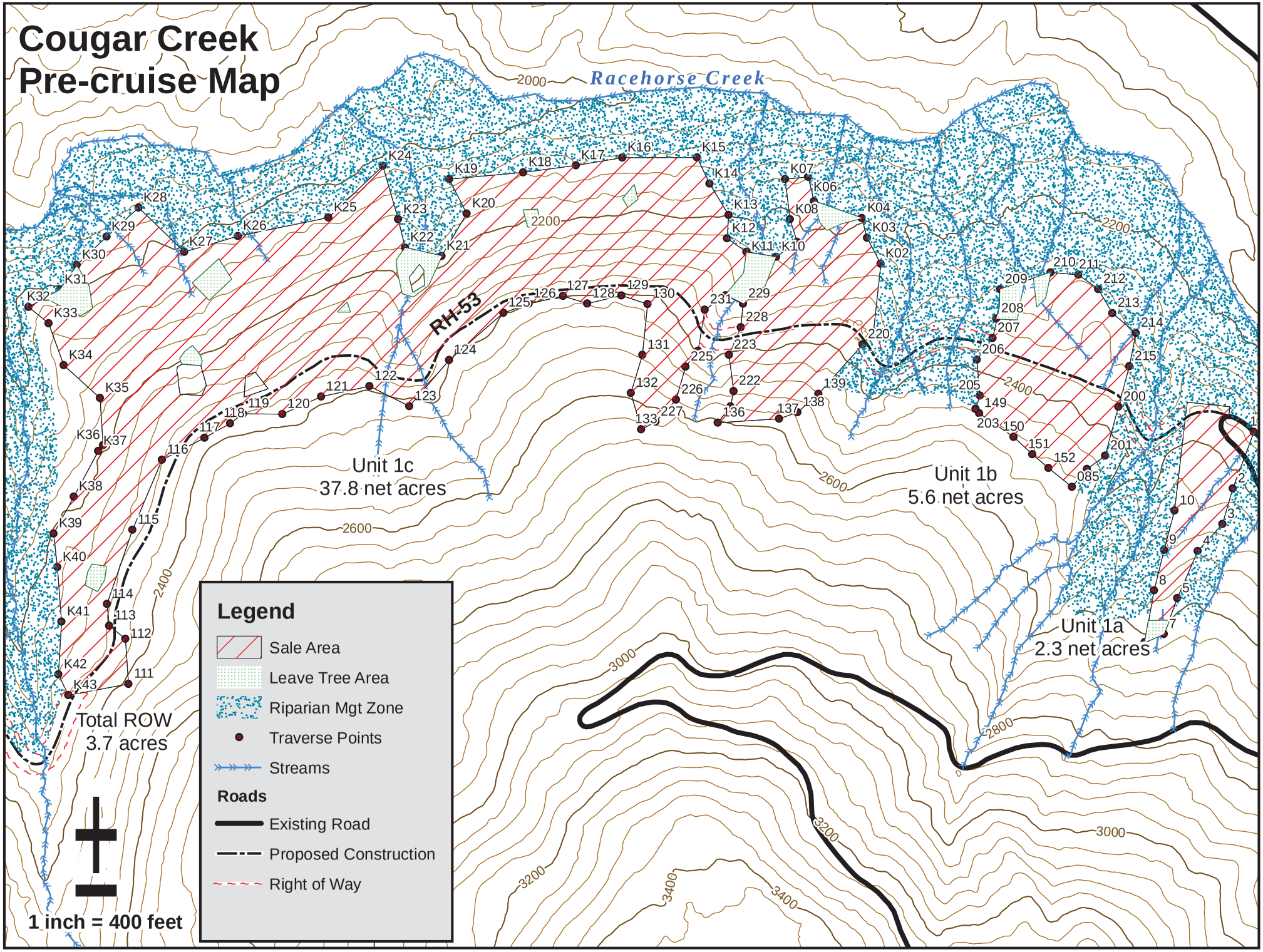
2c	Western hemlock, Douglas-fir, Western redcedar, Silver fir / 825 mbf	From Unit 2b, continue hiking 200 ft. along the RH-53 to unit 2c.	See attached driving map and traverse maps.
ROW	Red alder, Black cottonwood, Western hemlock, Douglas-fir, Western redcedar, Silver fir / 37 mbf	Right of way is located along the RH-57 where road construction is required through typed water crossings. ROW widths vary from 60 feet for standard road construction to 90 feet along those stations of road requiring full bench construction.	See attached driving map and traverse maps.
TOTAL MBF	3,472 MBF		

REMARKS:

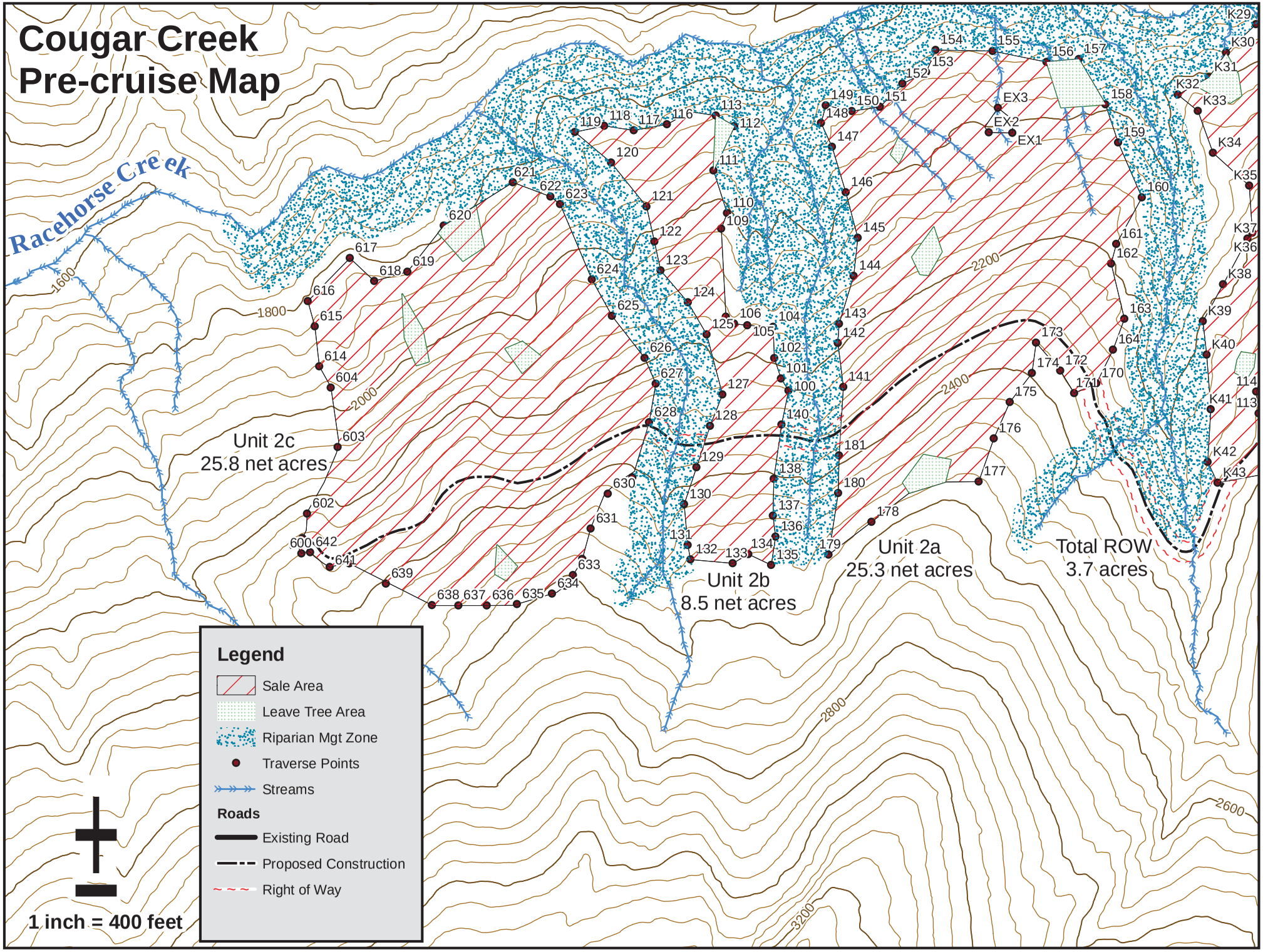
Unit 1 of this sale is adjacent to a recently sold timber sale. The boundary adjacent to this sale is marked with orange painted 'B's to signify the last take tree in the unit.

Prepared By: Zachary Bastow Date: 8/14/2015	Title: Forester	CC:

Cougar Creek
Pre-cruise Map



Cougar Creek
Pre-cruise Map



Cruise Narrative

Sale Name: **Cougar Creek**	**Region: Northwest**
Agree. #: **30-092255**	**District:** **Deming**
Lead cruiser: **Matt Llobet**	**Completion date:** **1-27-16**
Other cruisers on sale: PK,JM	

Unit acreage specifications:

Unit #	Cruised acres	Cruised acres agree with sale acres? Yes/No	If acres do not agree explain why.
1	45.7	No	**Combined units: 1a,1b,1c**
2	59.6	No	**Combined units: 2a,2b,2c**
ROW	3.7	Yes	
Total	109.0	Yes	

Unit cruise specifications:

Unit #	Sample type (VP, FP, ITS,100%)	Expansion factor (BAF, full/ half)	Sighting height (4.5 ft, 16 ft.)	Grid size (Plot spacing or % of area)	Plot ratio (cruise:count)	Total number of plots
1	V.P.	54.4 BAF 40.0 BAF	4.5’	265’ x 265’	1:1	25
2	V.P.	54.4 BAF 40.0 BAF	4.5’	265’ x 265’	1:1	44
ROW	V.P.	40.0 BAF	4.5’	7plots/3/7ac	Cruise All	7

Sale/Cruise Description:

Minor species cruise intensity:	Used a 40 prism in units 1&2 to capture minors					
Minimum cruise spec:	Minimum DBH 8 inches, 10 Net Board feet, Minimum Top Diameter 5 inches or 40% of 16-foot form point					
Avg ring count by sp:	**DF** =	8	**WH** =	8	**SS** =	
Leave/take tree description:	**Variable Retention Harvest** – Remove all timber bounded by white timber sale boundary tags. Remove all timber up to and including trees painted with orange ‘B’, this mark signifies the last tree to be harvested in the unit. Forest products bounded by yellow leave tree tags or trees marked with blue paint on the bole and root collar. **ROW-** Harvest all timber bounded by orange right-of-way tags. Centerline is marked with stakes.					

Other conditions	

Field observations:

All timber was graded in variable log lengths with the Scaling Bureaus Westside/ Northwest log rules. The utility wood was given a board ft. volume. Cougar Creek timber sale was cruised using the variable plot sample method. Cougar Creek timber sale is 109 acres.

General Location

- Off North Fork Rd

Harvest Method

- Cable-95%, Ground Base- 5%

Plots dropped

- Sample points were dropped due to leave tree clumps and unit boundary

Prepared by: Matt Llobet

Title: Northwest Region Timber Cruiser

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T39N R06E S17 Ty00U1	45.70
T39N R06E S17 Ty00U2	59.60
T39N R06E S17 TyROW	3.70

Project: **COUGAR**

Acres **109.00**

Page **1**
Date **1/29/2016**
Time **9:51:32AM**

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
WH	D	2S		20	8.1	4,678	4,299	469			87	13			7	93	39	14	251	1.68	17.2
WH	D	3S		53	3.6	11,543	11,132	1,213		100					28	72	37	8	91	0.67	122.8
WH	D	4S		23	1.4	4,997	4,926	537	93	7			11	28	38	23	28	5	29	0.29	168.0
WH	D	UT		4		733	733	80	28	18	37	17	40	41		19	18	7	41	0.48	17.7
WH	**Totals**			64	3.9	21,951	21,091	2,299	23	55	19	3	4	8	25	63	32	7	65	0.55	325.6
RC	D	3S		78	11.5	1,388	1,229	134		49	13	38			6	94	36	10	150	1.54	8.2
RC	D	4S		22	32.6	487	328	36	96	4			25	23	5	47	26	5	20	0.36	16.5
RC	**Totals**			5	17.0	1,875	1,557	170	20	40	10	30	5	5	6	84	30	7	63	0.84	24.7
RA	D	3S		24	12.6	377	329	36		100				100			30	10	97	0.92	3.4
RA	D	4S		52	3.9	723	695	76	10	90			7	86	8		29	7	45	0.52	15.5
RA	D	UT		24		318	318	35	97	3			43	44	10	3	21	5	22	0.29	14.3
RA	**Totals**			4	5.3	1,419	1,343	146	28	72			14	79	6	1	26	6	40	0.49	33.2
SF	D	2S		17	8.7	452	413	45			100					100	40	12	193	1.42	2.1
SF	D	3S		65	.7	1,534	1,524	166		100					22	78	37	8	91	0.59	16.8
SF	D	4S		17		406	406	44	100				5	27		68	29	5	30	0.27	13.4
SF	D	UT		1		12	12	1	100				100				13	5	10	0.17	1.2
SF	**Totals**			7	2.1	2,405	2,355	257	18	65	18		1	5	14	80	33	7	70	0.54	33.6
DF	D	2S		55	4.5	3,864	3,691	402			75	25			4	96	40	15	312	1.89	11.8
DF	D	3S		33	.9	2,219	2,200	240		100					62	38	35	9	91	0.68	24.1
DF	D	4S		10	3.1	668	647	71	68	32			28	18	48	6	25	6	27	0.29	23.9
DF	D	UT		2		100	100	11		32		68	68			32	29	11	109	0.90	.9
DF	**Totals**			20	3.1	6,852	6,638	724	7	37	42	15	4	2	27	67	32	9	109	0.86	60.8
CW	D	2S		61	3.5	96	93	10			100					100	40	13	266	1.61	.3
CW	D	4S		32	8.8	53	48	5		100				15		85	39	9	99	0.77	.5
CW	D	UT		7		9	9	1	60	40			11	29	60		24	6	30	0.35	.3
CW	**Totals**			0	5.1	158	150	16	4	34	62		1	7	4	89	35	9	132	0.99	1.1
BM	D	2S		84	30.0	64	45	5			100			100			30	16	210	2.27	.2
BM	D	UT		16		9	9	1		100				100			26	7	40	0.83	.2
BM	**Totals**			0	26.5	73	53	6		16	84			100			28	12	125	1.60	.4
Totals					4.4	34,732	33,188	3,617	19	52	23	6	4	9	23	64	31	7	69	0.60	479.4

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: COUGAR

Date 1/29/2016

Time 9:51:32AM

T39N R06E S17 T00U1

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
39N	06E	17	COUGAR	00U1	45.70	25	66	S	W

T39N R06E S17 T00U1

Spp	ST	Sort	Grade	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
WH		DM	2S	12	7.0	2,965	2,758	126			100					100	40	13	252	1.60	10.9
WH		DM	3S	60	3.0	13,171	12,772	584		100					25	75	37	8	93	0.67	138.1
WH		DM	4S	27	1.3	5,828	5,752	263	93	7			8	33	45	14	29	5	31	0.29	187.5
WH		DM	UT	1		151	151	7	100				100				16	5	20	0.17	7.5
WH		**Totals**		69	3.1	22,114	21,432	979	26	61	13		3	9	27	62	33	7	62	0.52	344.1
SF		DM	2S	18		884	884	40			100					100	40	12	200	1.38	4.4
SF		DM	3S	64		3,098	3,098	142		100					26	74	37	8	94	0.61	32.8
SF		DM	4S	18		873	873	40	100					30		70	30	5	31	0.27	28.4
SF		**Totals**		16		4,855	4,855	222	18	64	18			5	16	78	34	7	74	0.54	65.7
DF		DM	3S	70		1,745	1,745	80		100					100		32	8	70	0.57	24.9
DF		DM	4S	30		748	748	34	100						100		31	5	30	0.24	24.9
DF		**Totals**		8		2,494	2,494	114	30	70					100		32	7	50	0.41	49.9
RA		DM	3S	31	14.9	478	407	19		100				100			30	10	94	0.94	4.3
RA		DM	4S	39	3.4	525	507	23	25	75			17	58	25		28	7	39	0.51	13.1
RA		DM	UT	30		383	383	17	100				35	49	16		23	5	24	0.33	15.8
RA		**Totals**		4	6.4	1,386	1,296	59	39	61			17	68	15		26	6	39	0.50	33.2
RC		DM	3S	82	12.7	806	704	32		43	33	23			23	77	36	12	169	1.74	4.2
RC		DM	4S	18	17.4	186	154	7	84	16			23	10	27	39	28	5	27	0.47	5.6
RC		**Totals**		3	13.5	992	858	39	15	38	27	19	4	2	24	70	31	8	88	1.09	9.8
BM		DM	2S	84	30.0	153	107	5			100			100			30	16	210	2.27	.5
BM		DM	UT	16		20	20	1		100				100			26	7	40	0.83	.5
BM		**Totals**		0	26.5	173	127	6		16	84			100			28	12	125	1.60	1.0
Type Totals					3.0	32,013	31,062	1,420	25	62	13	1	3	10	30	57	32	7	62	0.52	503.6

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: COUGAR

Date 1/29/2016

Time 9:51:32AM

T39N R06E S17 T00U2

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
39N	06E	17	COUGAR	00U2	59.60	44	130	S	W

T39N R06E S17 T00U2

Spp	ST	Sort	Grade	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
WH		DM	2S	25	8.5	6,282	5,748	343			82	18			9	91	39	14	250	1.71	23.0
WH		DM	3S	48	4.0	11,010	10,567	630		100					31	69	37	8	89	0.67	118.6
WH		DM	4S	21	1.5	4,670	4,599	274	94	6			14	23	32	31	27	5	28	0.28	163.4
WH		DM	UT	6		1,226	1,226	73	22	19	41	18	35	45		20	18	7	46	0.54	26.6
WH		**Totals**		62	4.5	23,188	22,139	1,319	21	50	24	6	5	7	24	64	31	7	67	0.58	331.6
DF		DM	2S	65	4.6	6,945	6,627	395			75	25			4	96	40	15	312	1.89	21.3
DF		DM	3S	27	1.3	2,678	2,642	157		100					43	57	37	9	108	0.76	24.5
DF		DM	4S	6	5.9	640	602	36	39	61			53	35		12	21	6	25	0.35	24.4
DF		DM	UT	2		183	183	11		32		68	68			32	29	11	109	0.90	1.7
DF		**Totals**		28	3.7	10,446	10,055	599	2	31	49	18	4	2	14	80	32	10	140	1.08	71.8
RC		DM	3S	78	11.1	1,921	1,708	102		51	7	42				100	37	10	144	1.49	11.8
RC		DM	4S	22	36.1	736	470	28	99	1			26	24		50	26	5	18	0.33	25.4
RC		**Totals**		6	18.0	2,657	2,178	130	21	40	5	33	6	5		89	29	6	58	0.79	37.3
RA		DM	3S	22	9.1	196	178	11		100				100			30	10	100	0.89	1.8
RA		DM	4S	64	5.2	534	506	30		100				100			30	7	49	0.57	10.3
RA		DM	UT	14		111	111	7	100				68	32			17	5	16	0.26	6.9
RA		**Totals**		2	5.4	840	795	47	14	86			9	91			25	7	42	0.53	19.0
SF		DM	2S	13	48.3	149	77	5			100					100	40	14	150	1.72	.5
SF		DM	3S	70	4.3	431	412	25		100						100	40	7	74	0.52	5.5
SF		DM	4S	13		73	73	4	100				51			49	24	5	26	0.28	2.8
SF		DM	UT	4		23	23	1	100				100				13	5	10	0.17	2.3
SF		**Totals**		2	13.4	675	585	35	16	70	13		10			90	30	6	53	0.51	11.1
Type Totals					5.4	37,807	35,752	2,131	15	45	29	11	5	7	19	69	31	7	76	0.67	470.8

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: COUGAR

Date 1/29/2016

Time 9:51:32AM

T39N R06E S17 TROW

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt	T39N R06E S17 TROW
39N	06E	17	COUGAR	ROW	3.70	7	30	S	W	

Spp	ST	Sort	Grade	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
RA		DM	3S	16	11.5	2,042	1,807	7		100				100			30	10	102	0.93	17.7
RA		DM	4S	57	2.6	6,230	6,071	22	8	92			5	95			29	7	47	0.46	129.6
RA		DM	UT	27		2,871	2,871	11	90	10			41	44	6	10	23	5	25	0.26	115.8
RA	**Totals**			59	3.5	11,143	10,748	40	29	71			14	82	1	3	26	6	41	0.42	263.0
CW		DM	2S	61	3.5	2,836	2,736	10			100					100	40	13	266	1.61	10.3
CW		DM	4S	32	8.8	1,554	1,417	5		100				15		85	39	9	99	0.77	14.4
CW		DM	UT	7		272	272	1	60	40			11	29	60		24	6	30	0.35	9.0
CW	**Totals**			24	5.1	4,661	4,425	16	4	34	62		1	7	4	89	35	9	132	0.99	33.6
DF		DM	2S	70		1,968	1,968	7			100					100	40	14	312	1.92	6.3
DF		DM	3S	25		692	692	3		100					72	28	35	9	110	0.79	6.3
DF		DM	4S	5		124	124	0		100			48	52			20	6	30	0.39	4.1
DF	**Totals**			15		2,785	2,785	10		29	71		2	2	18	78	33	10	166	1.24	16.8
RC		DM	4S	100		186	186	1	100					100			28	5	30	0.53	6.2
RC	**Totals**			1		186	186	1	100					100			28	5	30	0.53	6.2
Type Totals					3.4	18,775	18,145	67	19	55	26		9	52	5	35	28	7	57	0.55	319.6

TC PSTATS

PROJECT STATISTICS

PROJECT COUGAR

DATE 1/29/2016

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
39N	06E	17	COUGAR	00U1	109.00	76	398	S	W
39N	06E	17	COUGAR	00U2					
39N	06E	17	COUGAR	ROW					

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	76	398	5.2		
CRUISE	47	226	4.8	30,109	.8
DBH COUNT					
REFOREST COUNT	29	150	5.2		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	121	191.9	12.8	66	48.0	171.7	21,951	21,091	5,678	5,676
R ALDER	36	23.0	12.0	47	5.2	18.1	1,419	1,343	416	416
DOUG FIR	32	25.6	17.3	83	10.1	41.9	6,852	6,638	1,654	1,654
WR CEDAR	23	18.3	14.6	52	5.6	21.3	1,875	1,557	617	616
PS FIR	8	16.8	13.7	74	4.7	17.3	2,405	2,355	601	601
COTWOOD	5	.5	19.1	87	0.2	1.0	158	150	40	40
BL MAPLE	1	.2	24.0	58	0.1	.7	73	53	19	19
TOTAL	*226*	*276.2*	*13.4*	*65*	*74.2*	*272.0*	*34,732*	*33,188*	*9,025*	*9,021*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	**SAMPLE TREES - BF** LOW	AVG	HIGH	# OF TREES REQ. 5	7	INF. POP. 10
WHEMLOCK	83.9	7.8	175	190	205			
R ALDER	56.7	9.4	64	70	77			
DOUG FIR	35.2	6.5	450	481	512			
WR CEDAR	123.0	26.2	183	248	313			
PS FIR	45.6	17.2	128	155	182			
COTWOOD	33.3	16.6	279	334	389			
BL MAPLE								
TOTAL	*93.1*	*6.3*	*205*	*218*	*232*	*346*	*176*	*86*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	**TREES/ACRE** LOW	AVG	HIGH	# OF PLOTS REQ. 5	7	INF. POP. 10
WHEMLOCK	84.2	9.7	173	192	210			
R ALDER	235.2	27.0	17	23	29			
DOUG FIR	168.2	19.3	21	26	30			
WR CEDAR	185.9	21.3	14	18	22			
PS FIR	366.8	42.0	10	17	24			
COTWOOD	539.2	61.8	0	0	1			
BL MAPLE	871.8	99.9	0	0	0			
TOTAL	*55.8*	*6.4*	*259*	*276*	*294*	*124*	*63*	*31*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	**BASAL AREA/ACRE** LOW	AVG	HIGH	# OF PLOTS REQ. 5	7	INF. POP. 10
WHEMLOCK	75.8	8.7	157	172	187			
R ALDER	228.3	26.2	13	18	23			
DOUG FIR	144.4	16.6	35	42	49			
WR CEDAR	155.2	17.8	18	21	25			
PS FIR	371.8	42.6	10	17	25			
COTWOOD	516.8	59.2	0	1	2			
BL MAPLE	871.8	99.9	0	1	1			
TOTAL	*44.1*	*5.1*	*258*	*272*	*286*	*78*	*40*	*19*

PROJECT STATISTICS

PROJECT COUGAR

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
39N	06E	17	COUGAR	00U1	109.00	76	398	S	W
39N	06E	17	COUGAR	00U2					
39N	06E	17	COUGAR	ROW					

CL 68.1	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	76.0	8.7	19,254	21,091	22,928			
R ALDER	225.8	25.9	995	1,343	1,690			
DOUG FIR	145.4	16.7	5,532	6,638	7,744			
WR CEDAR	166.2	19.0	1,260	1,557	1,854			
PS FIR	378.5	43.4	1,334	2,355	3,377			
COTWOOD	515.5	59.1	61	150	239			
BL MAPLE	871.8	99.9	0	53	107			
TOTAL	*51.6*	*5.9*	*31,226*	*33,188*	*35,149*	*106*	*54*	*27*

CL 68.1	COEFF		**V BAR/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK			112	123	134			
R ALDER	189.0	21.7	55	74	93			
DOUG FIR	88.4	10.1	132	158	185			
WR CEDAR	103.1	11.8	59	73	87			
PS FIR	113.6	13.0	77	136	195			
COTWOOD	515.5	59.1	63	155	246			
BL MAPLE	871.8	99.9	0	80	159			
TOTAL	*47.5*	*5.4*	*115*	*122*	*129*	*90*	*46*	*23*

TC TSTATS

STATISTICS

PROJECT COUGAR

DATE 1/29/2016

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
39N	06E	17	COUGAR	00U1	45.70	25	128	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	25	128	5.1		
CRUISE	14	66	4.7	13,592	.5
DBH COUNT					
REFOREST COUNT	11	59	5.4		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	44	208.9	12.6	65	50.9	180.6	22,114	21,432	5,785	5,782
PS FIR	4	32.8	13.9	75	9.3	34.8	4,855	4,855	1,206	1,206
DOUG FIR	1	24.9	12.0	75	5.7	19.6	2,494	2,494	640	640
R ALDER	10	24.3	12.0	43	5.5	19.2	1,386	1,296	425	425
WR CEDAR	6	5.9	18.6	55	2.6	11.2	992	858	335	334
BL MAPLE	1	.5	24.0	58	0.3	1.6	173	127	46	46
TOTAL	*66*	*297.4*	*12.8*	*65*	*74.5*	*267.0*	*32,013*	*31,062*	*8,436*	*8,432*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	**SAMPLE TREES - BF** LOW	AVG	HIGH	# OF TREES REQ. 5	7	INF. POP. 10
WHEMLOCK	69.2	10.4	129	144	159			
PS FIR	43.2	24.7	130	173	215			
DOUG FIR								
R ALDER	71.4	23.8	51	67	83			
WR CEDAR	98.3	43.8	141	250	359			
BL MAPLE								
TOTAL	*81.8*	*10.1*	*130*	*144*	*159*	*267*	*136*	*67*

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	**TREES/ACRE** LOW	AVG	HIGH	# OF PLOTS REQ. 5	7	INF. POP. 10
WHEMLOCK	65.2	13.3	181	209	237			
PS FIR	239.7	48.9	17	33	49			
DOUG FIR	194.4	39.7	15	25	35			
R ALDER	239.5	48.8	12	24	36			
WR CEDAR	231.3	47.2	3	6	9			
BL MAPLE	500.0	102.0		1	1			
TOTAL	*40.5*	*8.3*	*273*	*297*	*322*	*68*	*35*	*17*

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	**BASAL AREA/ACRE** LOW	AVG	HIGH	# OF PLOTS REQ. 5	7	INF. POP. 10
WHEMLOCK	65.5	13.4	156	181	205			
PS FIR	238.2	48.6	18	35	52			
DOUG FIR	194.4	39.7	12	20	27			
R ALDER	226.0	46.1	10	19	28			
WR CEDAR	193.4	39.4	7	11	16			
BL MAPLE	500.0	102.0		2	3			
TOTAL	*37.4*	*7.6*	*247*	*267*	*287*	*58*	*30*	*15*

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	**NET BF/ACRE** LOW	AVG	HIGH	# OF PLOTS REQ. 5	7	INF. POP. 10
WHEMLOCK	69.3	14.1	18,403	21,432	24,461			
PS FIR	238.2	48.6	2,497	4,855	7,213			
DOUG FIR	194.4	39.7	1,505	2,494	3,482			

TC TSTATS

STATISTICS

PROJECT **COUGAR**

DATE 1/29/2016

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
39N	06E	17	COUGAR	00U1	45.70	25	128	S	W

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10
R ALDER	235.8	48.1	673	1,296	1,920			
WR CEDAR	211.3	43.1	488	858	1,227			
BL MAPLE	500.0	102.0		127	257			
TOTAL	*50.1*	*10.2*	*27,889*	*31,062*	*34,235*	*104*	*53*	*26*

CL: 68.1 %	COEFF		**V-BAR/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK			102	119	135			
PS FIR			72	139	207			
DOUG FIR			77	127	178			
R ALDER	219.9	44.8	35	68	100			
WR CEDAR	198.3	40.4	44	77	110			
BL MAPLE	500.0	102.0		80	161			
TOTAL	*206.9*	*42.2*	*104*	*116*	*128*	*1,780*	*908*	*445*

TC TSTATS

STATISTICS

PROJECT COUGAR

DATE 1/29/2016

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
39N	06E	17	COUGAR	00U2	59.60	44	240	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	44	240	5.5		
CRUISE	26	130	5.0	15,745	.8
DBH COUNT					
REFOREST COUNT	18	91	5.1		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	77	190.8	13.0	66	48.7	175.6	23,188	22,139	5,949	5,948
DOUG FIR	28	27.2	20.2	89	13.5	60.6	10,446	10,055	2,491	2,491
WR CEDAR	16	28.5	13.9	51	8.1	30.0	2,657	2,178	867	864
R ALDER	5	12.1	12.9	51	3.0	10.9	840	795	254	254
PS FIR	4	5.5	12.8	73	1.4	4.9	675	585	174	174
TOTAL	*130*	*264.2*	*14.0*	*66*	*75.4*	*282.0*	*37,807*	*35,752*	*9,734*	*9,731*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	7	INF. POP. 10
SAMPLE TREES - BF								
WHEMLOCK	83.3	9.8	197	218	239			
DOUG FIR	32.6	6.5	467	500	533			
WR CEDAR	128.9	33.2	174	261	347			
R ALDER	45.2	22.4	54	70	86			
PS FIR	52.9	30.2	96	138	179			
TOTAL	*84.5*	*7.6*	*254*	*274*	*295*	*285*	*145*	*71*

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	7	INF. POP. 10
TREES/ACRE								
WHEMLOCK	77.4	11.7	169	191	213			
DOUG FIR	121.7	18.3	22	27	32			
WR CEDAR	151.0	22.7	22	29	35			
R ALDER	308.8	46.5	6	12	18			
PS FIR	407.7	61.4	2	6	9			
TOTAL	*48.6*	*7.3*	*245*	*264*	*284*	*95*	*48*	*24*

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	7	INF. POP. 10
BASAL AREA/ACRE								
WHEMLOCK	60.5	9.1	160	176	192			
DOUG FIR	116.5	17.6	50	61	71			
WR CEDAR	129.0	19.4	24	30	36			
R ALDER	310.0	46.7	6	11	16			
PS FIR	398.3	60.0	2	5	8			
TOTAL	*29.5*	*4.4*	*269*	*282*	*295*	*35*	*18*	*9*

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	7	INF. POP. 10
NET BF/ACRE								
WHEMLOCK	59.2	8.9	20,166	22,139	24,112			
DOUG FIR	115.4	17.4	8,307	10,055	11,803			
WR CEDAR	137.1	20.6	1,729	2,178	2,628			
R ALDER	315.7	47.6	417	795	1,173			
PS FIR	387.6	58.4	243	585	926			
TOTAL	*36.5*	*5.5*	*33,788*	*35,752*	*37,716*	*53*	*27*	*13*

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	7	INF. POP. 10
V-BAR/ACRE								
WHEMLOCK			115	126	137			

TC TSTATS

STATISTICS

PROJECT **COUGAR**

DATE 1/29/2016

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
39N	**06E**	**17**	**COUGAR**	**00U2**	59.60	44	240	S	W

CL: 68.1 %
SD: 1.0

	COEFF VAR.	S.E.%	V-BAR/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	7	INF. POP. 10
DOUG FIR	69.9	10.5	137	166	195			
WR CEDAR	51.6	7.8	58	73	88			
R ALDER	184.4	27.8	38	73	107			
PS FIR	387.6	58.4	49	118	187			
TOTAL	*165.7*	*25.0*	*120*	*127*	*134*	*1,096*	*559*	*274*

TC TSTATS

STATISTICS

PROJECT COUGAR

DATE 1/29/2016

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
39N	06E	17	COUGAR	ROW	3.70	7	30	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	7	30	4.3		
CRUISE	7	30	4.3	771	3.9
DBH COUNT					
REFOREST					
COUNT					
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
R ALDER	21	181.6	11.0	52	36.2	120.0	11,143	10,748	2,918	2,918
COTWOOD	5	14.4	19.1	87	6.5	28.6	4,661	4,425	1,164	1,165
DOUG FIR	3	6.3	22.3	93	3.6	17.1	2,785	2,785	690	690
WR CEDAR	1	6.2	13.0	32	1.6	5.7	186	186	92	92
TOTAL	*30*	*208.5*	*12.3*	*55*	*48.9*	*171.4*	*18,775*	*18,145*	*4,863*	*4,864*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL: 68.1 %	COEFF		**SAMPLE TREES - BF**			# OF TREES REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
R ALDER	54.5	12.2	63	72	81			
COTWOOD	33.3	16.6	279	334	389			
DOUG FIR	14.7	10.2	398	443	488			
WR CEDAR								
TOTAL	*99.6*	*18.5*	*123*	*151*	*179*	*410*	*209*	*103*

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
R ALDER	66.7	27.1	132	182	231			
COTWOOD	142.3	57.9	6	14	23			
DOUG FIR	182.2	74.1	2	6	11			
WR CEDAR	264.6	107.7		6	13			
TOTAL	*50.7*	*20.6*	*165*	*208*	*251*	*119*	*61*	*30*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
R ALDER	43.0	17.5	99	120	141			
COTWOOD	133.2	54.2	13	29	44			
DOUG FIR	183.6	74.7	4	17	30			
WR CEDAR	264.6	107.7		6	12			
TOTAL	*29.2*	*11.9*	*151*	*171*	*192*	*40*	*20*	*10*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
R ALDER	43.8	17.8	8,831	10,748	12,665			
COTWOOD	132.6	54.0	2,037	4,425	6,813			
DOUG FIR	189.8	77.2	635	2,785	4,936			
WR CEDAR	264.6	107.7		186	386			
TOTAL	*46.2*	*18.8*	*14,732*	*18,145*	*21,558*	*99*	*51*	*25*

CL: 68.1 %	COEFF		**V-BAR/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
R ALDER	43.8	17.8	74	90	106			
COTWOOD	132.6	54.0	71	155	238			
DOUG FIR	189.8	77.2	37	162	288			
WR CEDAR	264.6	107.7		33	68			
TOTAL	*46.2*	*18.8*	*86*	*106*	*126*	*99*	*51*	*25*

TC PSPCTLTCM

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

T39N R06E S17 Ty00U1	45.7
T39N R06E S17 Ty00U2	59.6
T39N R06E S17 TyRO	3.7

Project COUGAR
Acres 109.00

Page No 1
Date: 1/29/2016
Time 9:51:32AM

Species	S T	Total Trees	Total Logs	Total Tons	Net Cubic Ft/ Tree	Net Cubic Ft/ Log	CF/ LF	Total CCF Gross	Total CCF Net	Total MBF Gross	Total MBF Net
WHEMLOCK		20,918	35,487	19,804	29.58	17.44	0.56	6,189	6,187	2,393	2,299
DOUG FIR		2,786	6,623	5,138	64.70	27.22	0.83	1,803	1,803	747	724
PS FIR		1,831	3,662	1,876	35.75	17.88	0.53	655	655	262	257
WR CEDAR		1,993	2,692	1,582	33.66	24.93	0.85	673	671	204	170
R ALDER		2,503	3,623	1,247	18.11	12.51	0.49	453	453	155	146
COTWOOD		53	124	106	81.05	34.64	0.99	43	43	17	16
BL MAPLE		23	47	55	89.63	44.81	1.60	21	21	8	6
Totals		30,109	52,258	29,808	32.66	18.82	0.61	9,837	9,833	3,786	3,617

Wood Type Species	Total Trees	Total Logs	Total Tons	Net Cubic Ft/ Tree	Net Cubic Ft/ Log	CF/ LF	Total CCF Gross	Total CCF Net	Total MBF Gross	Total MBF Net
C	27,529	48,464	28,400	33.84	19.22	0.62	9,319	9,316	3,606	3,449
H	2,580	3,794	1,408	20.05	13.64	0.53	517	517	180	169
Totals	30,109	52,258	29,808	32.66	18.82	0.61	9,837	9,833	3,786	3,617

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

FPA/N No: 2815028
Effective Date: 3/24/2016
Expiration Date: 3/24/2019

Forest Practices Application/Notification
Notice of Decision

Shut Down Zone: 656, 658
EARR Tax Credit: [x] Eligible [] Non-eligible
Reference: Cougar Creek

DECISION:

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

FPA/N CLASSIFICATION

[] Class II [] Class III [] Class IVG [x] Class IVS

Number of Years Granted on Multi-Year Request

[ ] 4yrs [ ] 5 yrs

Conditions on Approval / Reasons for Disapproval

1-All of the RH-53 road shall be abandoned no later than 3/31/2019.

2- Areas of sliver fill present on slopes greater than 50%, with potential to deliver to typed waters shall have the sliver fill pulled back either prior to road construction, or during the road abandonment, on the RH-53.

3- Areas of sliver fill present on slopes greater than 70% shall be pulled back either prior to road construction or during the abandonment of the RH-53 road.

4-Prior to any road building or harvest activities commencing on this FPA, a pre-work shall be scheduled and attended by FPF Megan Penney, State lands Contract Administrator for Baker District, State lands Engineer Dave Carlson or his representative, the purchaser and the operator for the Cougar Creek Timber sale. (FPA 2815028)

5-Prior to any road abandonment commencing on this FPA, a pre-work shall be scheduled and attended by FPF Megan Penney, State lands Contract Administrator for Baker District, State lands Engineer Dave Carlson or his representative, the purchaser and the operator for the Cougar Creek Timber sale. (FPA 2815028)*

6-Crossing "F" shall not over-winter.

7- Failing sliver-fills shall be excavated, at or in the vicinity of crossings B, C, D, E, F and G, as the road is constructed as identified, on the map in the "Engineering Geologic Assessment" January 25, 2016 prepared by John McKenzie (LEG #861), Figure 2, Figure 3 and Figure 4. (Submitted with FPA 2815028 on 2/23/2016).

8- Failing sliver fills shall be excavated at and in the vicinity of R2, R3 and R4, as identified, on the map in the "Engineering Geologic Assessment" January 25, 2016 prepared by John McKenzie (LEG#861) Figure 2, Figure 3 and Figure 4. (Submitted with FPA 2815028 on 2/23/2016).

9- All activities shall be restricted on this FPA from November 1 to March 31.. (As stated in Road Plan clause 1-25 (Road Plan and Specifications #30-092255 Cougar Creek)

*A detailed abandonment plan, specific to the needs of this FPA may be submitted for review prior to the abandonment of the RH-53 on the Cougar Creek Timber sale.

Issued By: __Megan Penney_____ BMA

Region: _Northwest_____

Title: ___Nooksack Forest Practice Forester_____

Date: _3/24/2016_____

Copies to: [X] Landowner, Timber Owner and Operator
Issued in Person: [x] Landowner, [ ]Timber Owner [ ] Operator By:_____

Appeal Information

You have thirty (30) days to appeal this Decision and any related State Environmental Policy Act determinations to the Pollution Control Hearings Board in writing at the following addresses:
Physical address: 1111 Israel Rd. SW, Ste 301, Tumwater, WA 98501
Mailing address: P.O. BOX 40903, OLYMPIA, WA 98504-0903
Information regarding the Pollution Control Hearings Board can be found at: http://www.eluho.wa.gov/
At the same time you file an appeal with the Pollution Control Hearings Board, also send a copy of the appeal to the Department of Natural Resources' region office and the Office of the Attorney General at the following addresses:

Office of the Attorney General Natural Resources Division 1125 Washington Street SE PO Box 40100 Olympia, WA 98504-0100	And	Department Of Natural Resources Northwest Region 919 N Township Street Sedro-Woolley, WA 98284

Other Applicable Laws

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

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

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

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

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

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

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

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

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

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

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

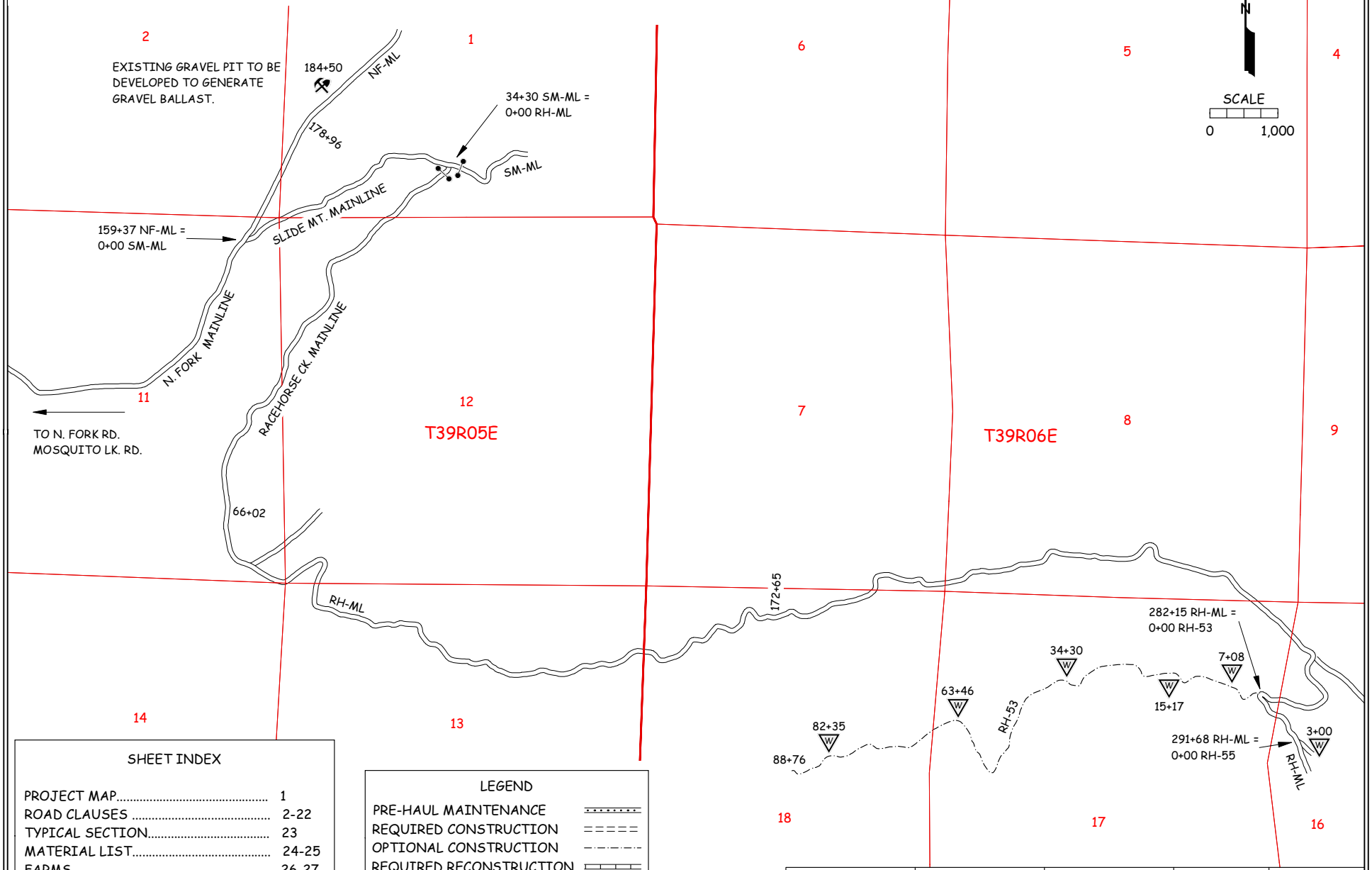
DNR affidavit of mailing:

On this day _____, I placed in the United States mail at Sedro-Woolley, WA, postage paid,
a true and accurate copy of the attached document. Notice of Decision FPA #_2815_____

__Braelyn Hamilton_____ _____
(Printed name) (Signature)

WASHINGTON STATE
DEPT. OF NATURAL RESOURCES
NORTHWEST REGION

ROAD PLAN AND SPECIFICATIONS
#30-092255 COUGAR CREEK



SHEET INDEX

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LEGEND

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

DESIGNED BY	REVIEWED BY	APPROVED BY	PLAN DATE	SHEET
CARLSON	ZYLSTRA 1/22/2016	FIKE 1/25/2016	10/26/2015	1 OF 29

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

COUGAR CREEK TIMBER SALE ROAD PLAN
WHATCOM COUNTY
DEMING UNIT BAKER DISTRICT

AGREEMENT NO.: 00-092255 STAFF ENGINEER: CARLSON

DATE: OCT 26, 2015

SECTION 0 – SCOPE OF PROJECT

0-1 ROAD PLAN SCOPE

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

0-3 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.

Road	Stations	Type
RH-53	0+00 to 88+76	Construction

0-4 CONSTRUCTION

Construction includes, but is not limited to clearing, grubbing, excavation and embankment to sub-grade, full bench end-haul, keyed embankment construction, shot rock fill construction, landing and turnout construction, culvert installation, geotextile installation, drill and shoot, and application of gravel pit run.

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 shall develop existing rock sources. Rock source development will involve drilling, shooting, and processing rock to generate riprap and processing rock to generate gravel ballast. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

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

1-3 ROAD DIMENSIONS

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

1-4 ROAD TOLERANCES

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

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

1-6 ORDER OF PRECEDENCE

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

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

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

1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS

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

1-9 DAMAGED METALLIC COATING

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

1-18 REFERENCE POINT DAMAGE

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

1-21 HAUL APPROVAL

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

1-25 ACTIVITY TIMING RESTRICTION

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

Activity	Closure Period
All activities	November 1 to March 31*

***This requirement shall not be waived.**

1-27 TIMING RESTRICTION FOR MARBLED MURRELET

On the following roads, any road work, rock pit operation, or heavy equipment operation is not allowed from one hour before official sunrise to two hours after official sunrise, and from one hour before official sunset to one hour after official sunset from April 1 through August 31. This restriction does not apply to hauling timber, rock, or equipment.

Road	Stations
NF-ML	178+96 to 184+50 (S1100 Pit)
RH-ML	66+02 to 172+65

1-29 SEDIMENT RESTRICTION

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

1-30 CLOSURE TO PREVENT DAMAGE

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

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

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

1-33 SNOW PLOWING RESTRICTION

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

SECTION 2 – MAINTENANCE

2-1 GENERAL ROAD MAINTENANCE

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

2-2 ROAD MAINTENANCE – PURCHASER MAINTENANCE

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

2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER

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

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

3-5 CLEARING

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

3-8 PROHIBITED DECKING AREAS

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

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

3-10 GRUBBING

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

3-20 ORGANIC DEBRIS DEFINITION

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

3-21 DISPOSAL COMPLETION

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

3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

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

Road	Disposal Location	Comments
RH-53	Sta. 7+08	Extent of organic debris disposal volume to be evaluated by Contract Administator.
RH-53	Sta. 34+30	Extent of organic debris disposal volume to be evaluated by Contract Administator.
RH-53	Sta. 63+46	Extent of organic debris disposal volume to be evaluated by Contract Administator.
RH-53	Sta. 82+35	Extent of organic debris disposal volume to be evaluated by Contract Administator.

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 embankments.
- On road subgrades, or excavation and embankment slopes.
- On slopes greater than 40%.
- Within the operational area for cable landings where debris may shift or roll.
- On locations where brush can fall into the ditch or onto the road surface.
- Against standing timber.

3-24 BURYING ORGANIC DEBRIS RESTRICTED

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

3-25 SCATTERING ORGANIC DEBRIS

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

3-32 END HAULING ORGANIC DEBRIS

On the following road, Purchaser shall end haul or push organic debris to the designated waste areas specified in Clause 3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS.

Road	Stations
RH-53	19+91 to 20+71
RH-53	22+41 to 27+75
RH-53	30+16 to 34+15
RH-53	40+78 to 44+57
RH-53	47+92 to 48+79
RH-53	54+00 to 55+48
RH-53	66+60 to 69+64
RH-53	76+17 to 78+49
RH-53	83+32 to 87+05

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 50 feet at centerline.
- Maximum grade change for sag vertical curves is 5% in 100 feet.
- Maximum grade change for crest vertical curves is 4% in 100 feet.

4-5 CUT SLOPE RATIO

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

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

4-6 EMBANKMENT SLOPE RATIO

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

Material Type	Embankment Slope Ratio	Embankment Slope Percent
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.

4-11 KEYED EMBANKMENT

On the following road, Purchaser shall key embankments into the native slope.

Road	Stations
RH-53	Culvert at 3+06 and approaches.
RH-53	Culvert at 12+56 and approaches.
RH-53	Culvert at 31+79 and approaches.

4-12 FULL BENCH CONSTRUCTION

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

Road	Full Bench Location
RH-53	19+91 to 20+71
RH-53	22+41 to 27+75
RH-53	30+16 to 34+15
RH-53	40+78 to 44+57
RH-53	47+92 to 48+79
RH-53	54+00 to 55+48
RH-53	66+60 to 69+64
RH-53	76+17 to 78+49
RH-53	83+32 to 87+05

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.

4-35 WASTE MATERIAL DEFINITION

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

4-36 DISPOSAL OF WASTE MATERIAL

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

4-37 WASTE AREA LOCATION

Purchaser shall deposit waste material in the listed designated areas:

Road	Waste Area Location	Comments
RH-53	Sta. 15+17	Waste to be placed against slope in previous borrow area. Extent of waste volume to be evaluated by Contract Administator.
RH-55	Sta. 3+00	

4-38 PROHIBITED WASTE DISPOSAL AREAS

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

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

4-55 ROAD SHAPING

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

4-60 FILL COMPACTION

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

4-61 SUBGRADE COMPACTION

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

4-70 SUBGRADE REINFORCEMENT

On the following road, 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 gravel ballast. Purchaser shall apply rock in lifts over the geotextile in accordance with the manufacturer's specifications. Geotextile fabric must meet the specifications in Clause 10-3 GEOTEXTILE FOR STABILIZATION.

Road	Stations
RH-53	Sta. 3+50 to 14+24
RH-53	Sta. 19+31 to 20+25
RH-53	Sta. 72+98 to 75+41

SECTION 5 – DRAINAGE

5-5 CULVERTS

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

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.

5-25 CATCH BASINS

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

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

Purchaser shall construct headwalls in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all cross drain culverts. Rock used for headwalls must weigh at least 50 pounds. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets. Rock may not restrict the flow of water into culvert inlets or catch basins. No placement by end dumping or dropping of rock is allowed.

5-27 ARMORING FOR STREAM CROSSING CULVERTS

At the following culverts, Purchaser shall place heavy loose riprap in conjunction with construction of the embankment. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets or as directed by the Contract Administrator. Rock may not restrict the flow of water into culvert inlets or catch basins. Placement must be by zero-drop-height method only. No placement by end dumping or dropping of rock is allowed. Heavy loose riprap must meet the specifications in Clause 6-51 HEAVY LOOSE RIP RAP.

Road	Station
RH-53	3+06
RH-53	5+97
RH-53	10+74
RH-53	12+56
RH-53	13+46
RH-53	19+91
RH-53	31+79
RH-53	32+28
RH-53	51+68
RH-53	52+13 (overflow protection channel)
RH-53	56+40
RH-53	69+93
RH-53	74+58

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 sources 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 sources, a joint operating plan must be developed. All parties shall follow this plan.

Source	Location	Rock Type
S1100 Pit	Sta. 184+50 of the NF-ML road	gravel pit run rock
Red Mt. Pit	Sta. 20+53 of the RM-23 road.	heavy loose riprap light loose riprap

6-5 ROCK FROM COMMERCIAL SOURCE

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

6-11 ROCK SOURCE DEVELOPMENT PLAN BY PURCHASER

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

Source
S1100 Pit
Red Mt. Pit

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

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

6-12 ROCK SOURCE SPECIFICATIONS

Rock sources must be in accordance with the following:

- 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.

6-41 PIT RUN ROCK

No more than 20 percent of the rock may be larger than 4 inches in any dimension and no rock may be larger than 8 inches in any dimension. Gravel Pit Run rock may not contain more than 5 percent by weight of organic debris, dirt, and trash. Rock may require processing to meet this specification.

6-42 CLEAN ROCK, SHOT BALLAST

No more than 50 percent of the rock by weight may exceed 12 inches in any dimension and no rock may be larger than 24 inches in any dimension. No more than 25 percent of the rock shall be less than 4 inches in any dimension. Shot ballast rock may not contain more than 5 percent by weight of organic debris, dirt, and trash.

6-50 LIGHT LOOSE RIP RAP

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

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

6-51 HEAVY LOOSE RIP RAP

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

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

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

Measurement of specified rock depths, are defined as the compacted depth 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, headwall construction, subgrade shaping, and compaction before rock application.

6-71 ROCK APPLICATION

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

6-73 ROCK FOR WIDENED PORTIONS

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

6-75 OPTIONAL ROCK EXCEPTION

On the RH-53 road, Purchaser may place less rock than shown on the TYPICAL SECTION, when approved in writing by the Contract Administrator.

If less rock is applied, Purchaser shall submit a written plan, for approval, describing how these roads will be constructed, used, and maintained.

SECTION 8 – EROSION CONTROL

8-2 PROTECTION FOR EXPOSED SOIL

Purchaser shall provide and evenly spread a 2-inch layer of straw to all exposed soils within 30 feet of a stream or wetland. Soils must be covered before the first anticipated storm event. Soils may not sit exposed during any rain event.

8-11 STABILIZE SLOPES – MATERIAL REMOVAL

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

Road	Stations
RH-53	12+81 to 13+21
RH-53	19+71 to 20+01
RH-53	22+41 to 24+95
RH-53	31+15 to 32+28
RH-53	40+78 to 44+57
RH-53	54+00 to 55+48
RH-53	56+00 to 56+79
RH-53	68+63 to 69+64
RH-53	76+17 to 78+49
RH-53	78+75 to 80+83*
RH-53	83+32 to 87+05

*See Clause 11-5 MATERIAL REMOVAL DURING ABANDONMENT

8-15 REVEGETATION

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

8-16 REVEGETATION SUPPLY

The Purchaser shall provide the required grass seed and fertilizer.

8-17 REVEGETATION TIMING

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

8-18 PROTECTION FOR SEED

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

8-19 ASSURANCE FOR SEEDED AREA

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

8-25 GRASS SEED

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

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

5. Seed must conform to the following mixture.

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

8-27 FERTILIZER

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

Chemical Component	% by Weight
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 and as specified below.

Road	Stations	Additional Requirements
NF-ML	0+00 to 184+50	Post-haul grading
SM-ML	0+00 to 34+30	Post-haul grading
RH-ML	0+00 to 291+68	Post-haul grading

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

9-12 LANDING EMBANKMENT REMOVAL

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

9-21 ROAD ABANDONMENT

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

Road	Stations
RH-53	0+00 to 88+76
RH-55	0+00 to 3+00

See Clauses in Section 11 SPECIAL NOTES for additional abandonment requirements.

9-22 ABANDONMENT

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

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.

	ASTM Test	Requirements
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 GAGE AND CORRUGATION

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

Diameter	Gage	Corrugation
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"

SECTION 11 SPECIAL NOTES

11-1 ONE SEASON ROAD

Purchaser shall construct the following road segment and complete abandonment during one operational season. One operational season is defined as the dates listed in Clause 1-25 ACTIVITY TIMING RESTRICTION.

Road	Segment
RH-53	47+12 to 88+76

11-2 TWO SEASON ROAD

Purchaser may construct the following road segment and complete abandonment during two operational seasons. One operational season is defined as the dates listed in Clause 1-25 ACTIVITY TIMING RESTRICTION.

Road	Segment
RH-53	0+00 to 47+12

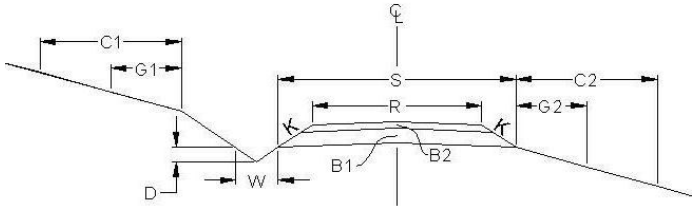
Purchaser may elect to construct and abandon this segment of the RH-53 road in one operational season. Under this scenario, the purchaser shall reduce the ditch width to one foot. One operational season is defined as the dates listed in Clause 1-25 ACTIVITY TIMING RESTRICTION.

11-3 MATERIAL REMOVAL DURING ABANDONMENT

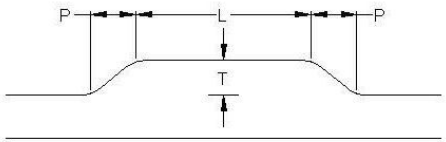
Purchaser shall stabilize embankment slopes by removing sidecast material during abandonment rather than drilling and shooting into the exising rock cutslope from station 78+75 to 80+83.

ROAD #		RH-53	RH-53		
REQUIRED / OPTIONAL		OPTIONAL	OPTIONAL		
CONSTRUCT / RECONSTRUCT		CONSTRUCT	CONSTRUCT		
TOLERANCE CLASS (A/B/C)		C	C		
STATION / MP TO		0+00	5+48		
STATION / MP		5+48	88+76		
ROAD WIDTH	**R**	12	12		
CROWN (INCHES @ C/L)		3	3		
DITCH WIDTH	**W**	2	2		
DITCH DEPTH	**D**	1	1		
TURNOUT LENGTH	**L**	25	25		
TURNOUT WIDTH	**T**	10	10		
TURNOUT TAPER	**P**	25	25		
GRUBBING	**G1**	2	2		
	G2	2	2		
CLEARING	**C1**	10	10		
	C2	10	10		
ROCK FILLSLOPE	**K:1**	1½	1½		
❖ **BALLAST DEPTH**	**B1**	18	12		
CUBIC YARDS / STATION		124	78		
➢ **TOTAL CY BALLAST**		680	6500		
❖ **SURFACING DEPTH**	**B2**	--	--		
CUBIC YARDS / STATION		--	--		
➢ **TOTAL CY SURFACING**		--	--		
➢ **TOTAL CUBIC YARDS**		680	6500		
SUBGRADE WIDTH	**S**	16.5	15.0		
BRUSHCUT (Y/N)		N	N		
BLADE, SHAPE, & DITCH (Y/N)		N	N		

TYPICAL SECTION



TURNOUT DETAIL (PLAN VIEW)



SYMBOL NOTES

❖ Specified Rock Depth is FINISHED COMPACTED DEPTH in inches.

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

TOTAL GRAVEL PIT RUN = 7180 CY
TOTAL RIPRAP = 824 CY
TOTAL SHOT ROCK = 350 CY

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			**Note:** Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:
												Diameter / Gage / Corrugation **18" / 16 / $2\,^2/_3$" x $^1/_2$"** **24" – 48" / 14 / $2\,^2/_3$" x $^1/_2$"** **54" – 96" / 14 / 3" x 1"**
RH-53	0+91	24	50	XX			3	5	H/L	NT	C	
RH-53	3+06	60	44	GM			60	125	H/L	NT	C	T4 stream, keyed embankment
RH-53	4+72	18	20	PD	50	PS	2	3	L	NT	C	
RH-53	5+97	24	30	XX			3	5	H/L	NT	C	T5 stream
RH-53	9+61	18	20	PD	20	PS	2	3	L	NT	C	
RH-53	10+74	24	40	XX			3	5	H/L	NT	C	T4 stream
RH-53	12+56	24	20	PD	30	PS	5	100	H/L	SR	C	T5 stream, keyed embankment, 120 CY shot rock fill
RH-53	13+46	48	40	GM			25	40	H/L	NT	C	T4 stream
RH-53	18+29	18	20	PD	20	PS	2	3	L	NT	C	
RH-53	19+91	24	40	XX			10	20	H/L	NT	C	T5 stream
RH-53	20+71	18	20	PD	50	PS	2	3	L	NT	C	
RH-53	29+63	18	20	PD	20	PS	2	3	L	NT	C	
RH-53	31+79	30	40	XX			5	100	H/L	SR	C	T5 stream, keyed embankment, 150 CY shot rock fill
RH-53	32+28	24	20	PD	50	PS	3	5	H/L	NT	C	T5 stream
RH-53	34+81	18	30	XX			2	3	L	NT	C	
RH-53	35+81	18	30	XX			2	3	L	NT	C	
RH-53	37+05	24	30	XX			3	5	H/L	NT	C	
RH-53	41+29	18	20	PD	20	PS	2	3	L	NT	C	
RH-53	45+59	18	36	XX			2	3	L	NT	C	
RH-53	48+35	18	20	PD	30	PS	2	3	L	NT	C	
RH-53	50+72	18	20	PD	50	PS	2	3	L	NT	C	

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

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			**Note:** Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:
												Diameter / Gage / Corrugation **18" / 16 / 2 2/3" x 1/2"** **24" – 48" / 14 / 2 2/3" x 1/2"** **54" – 96" / 14 / 3" x 1"**
RH-53	51+67	72	44	GM			25	50	H/L	SR	C	T4 stream, 80 CY shot rock fill
RH-53	52+13	30	40	XX			10	15	H/L	NT	C	overflow protection
RH-53	52+95	24	30	XX			3	5	H/L	NT	C	
RH-53	54+70	18	20	PD	50	PS	2	3	L	NT	C	
RH-53	56+40	30	30	XX			10	15	H/L	NT	C	T4 stream
RH-53	58+09	18	36	XX			2	3	L	NT	C	
RH-53	69+93	30	40	XX			10	15	H/L	NT	C	T4 stream
RH-53	72+23	24	30	XX			3	5	H/L	NT	C	
RH-53	74+58	48	40	GM			20	30	H/L	NT	C	T4 stream
RH-53	83+32	18	36	XX			2	3	L	NT	C	
RH-53	87+59	24	30	XX			3	5	H/L	NT	C	

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

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Cuts and Fills

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

Surface

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

Drainage

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

Preventative Maintenance

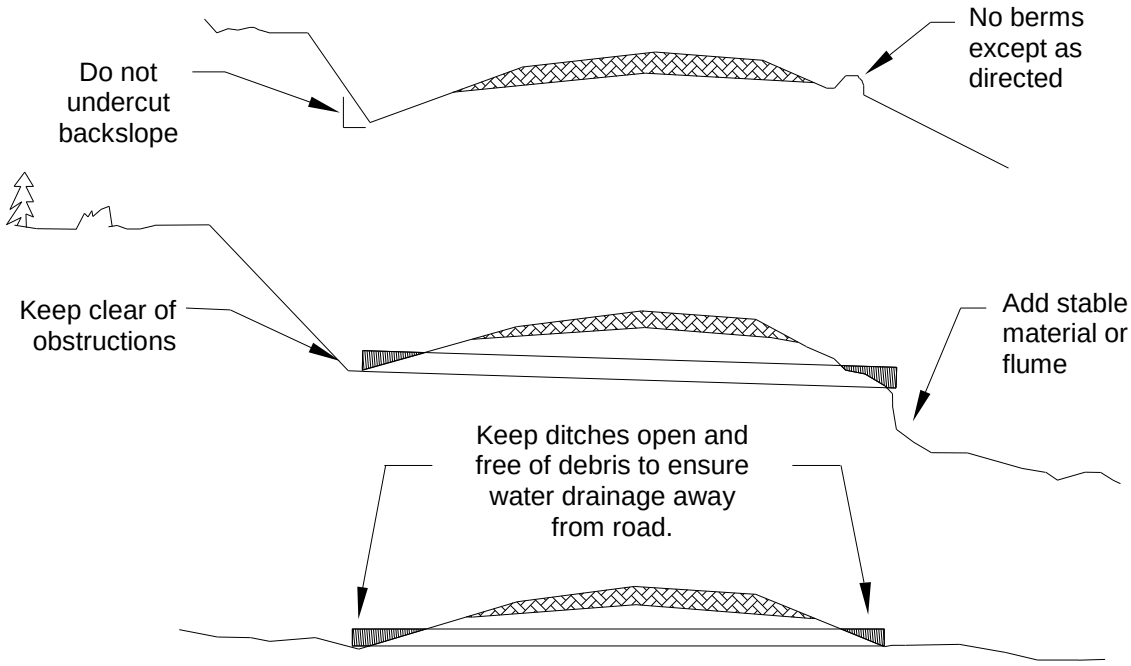
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

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

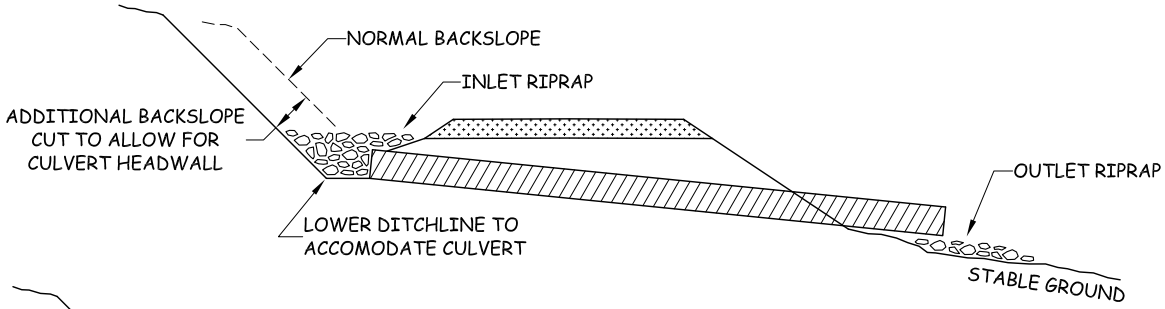
Debris

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

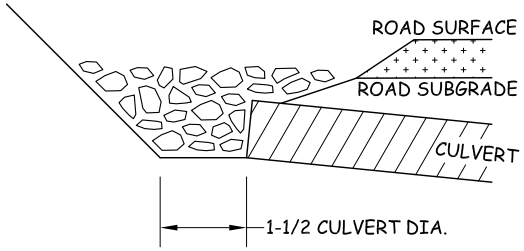


CULVERT AND DRAINAGE SPECIFICATIONS

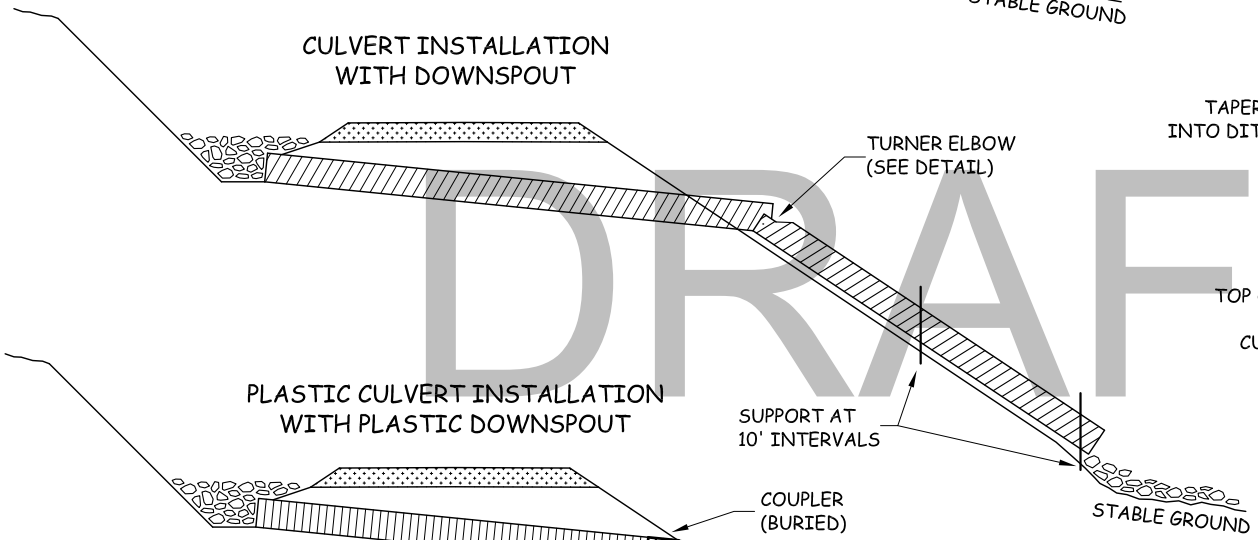
CULVERT INSTALLATION (TYPICAL)



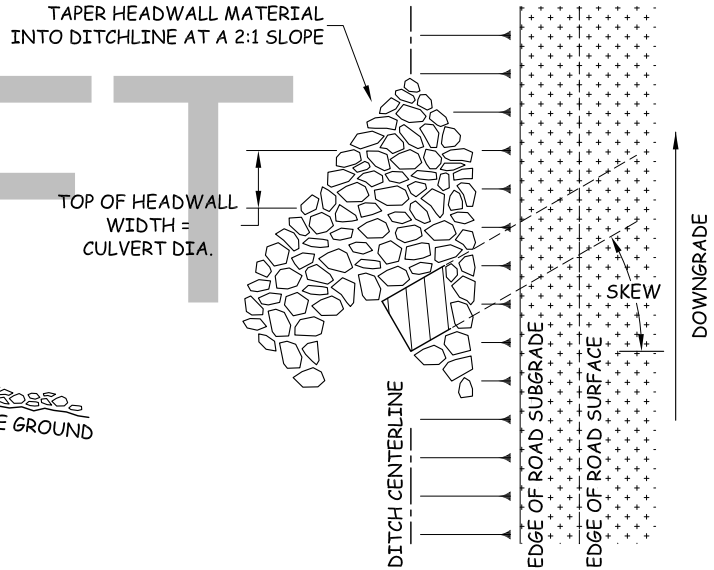
CULVERT HEADWALL - SECTION VIEW



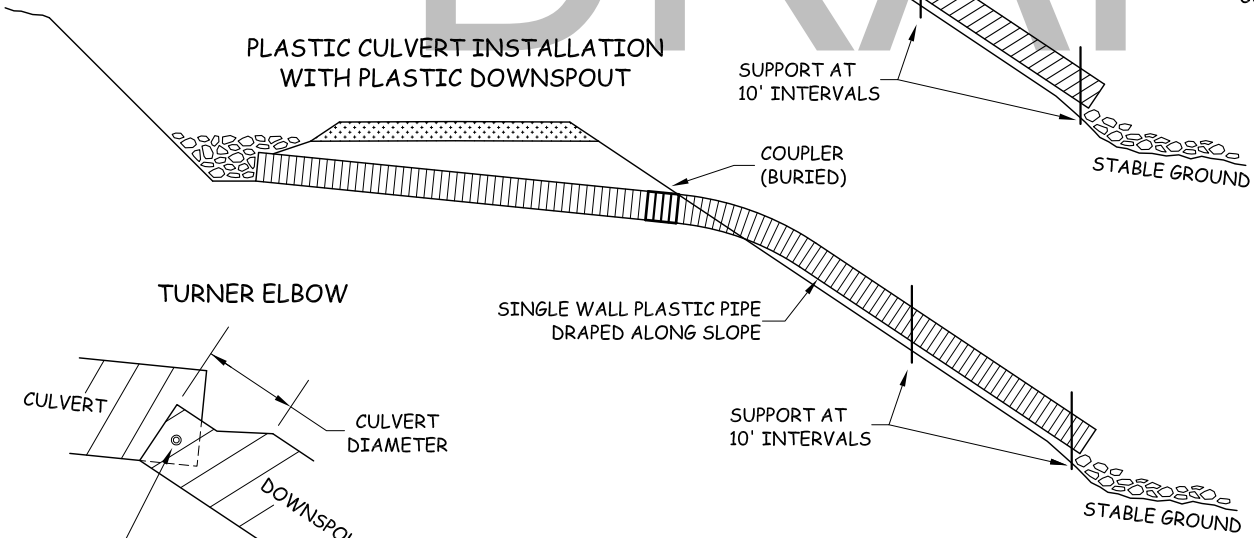
CULVERT INSTALLATION WITH DOWNSPOUT



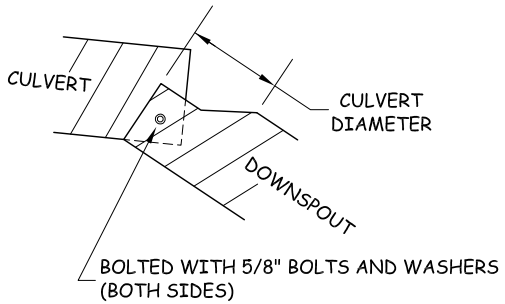
CULVERT HEADWALL - PLAN VIEW



PLASTIC CULVERT INSTALLATION WITH PLASTIC DOWNSPOUT



TURNER ELBOW



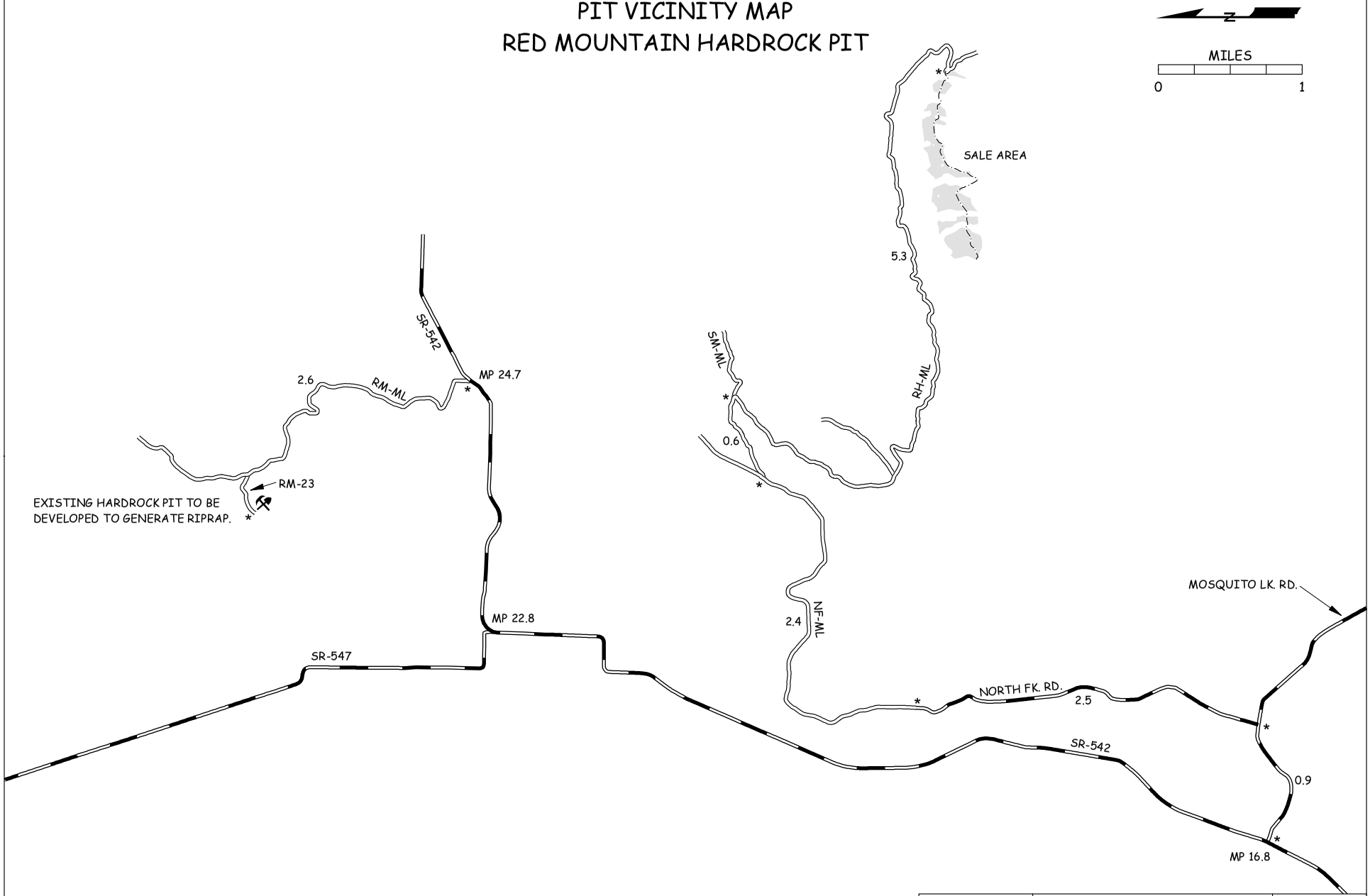
HEADWALL NOTE:

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

DRAFT

CONTRACT #	PROJECT	SHEET
00-92255	COUGAR CREEK	28 OF 29

PIT VICINITY MAP
RED MOUNTAIN HARDROCK PIT



CONTRACT #	PROJECT	SHEET
00-092255	COUGAR CREEK	29 OF 29

SUMMARY - Road Development Costs

REGION: NW

DISTRICT: Baker

SALE/PROJECT NAME: Cougar Creek CONTRACT #: 30-092255

ROAD NUMBERS:	RH-53	SM-ML. NF-ML, RH-ML	-
ROAD STANDARD:	Construction	Post-Haul Maintenance	
NUMBER OF STATIONS:	88.76	510.48	
CLEARING & GRUBBING:	-	-	
EXCAVATION AND FILL:	$89,383		All other costs
MISC. MAINTENANCE:		$4,791	
ROAD ROCK:	$147,494	$0	
ROCK STOCKPILE PROD:	-	-	
CULVERTS AND FLUMES:	$27,045	$0	
STRUCTURES:	-	-	
MOBILIZATION:	-	-	Amortized into other c
TOTAL COSTS:	$263,921	$4,791	
COST PER STATION:	$2,973	$9	
ROAD DEACTIVATION & ABANDONMENT COSTS:		$5,720	

TOTAL (All Roads) = $274,432

SALE VOLUME MBF = 3472

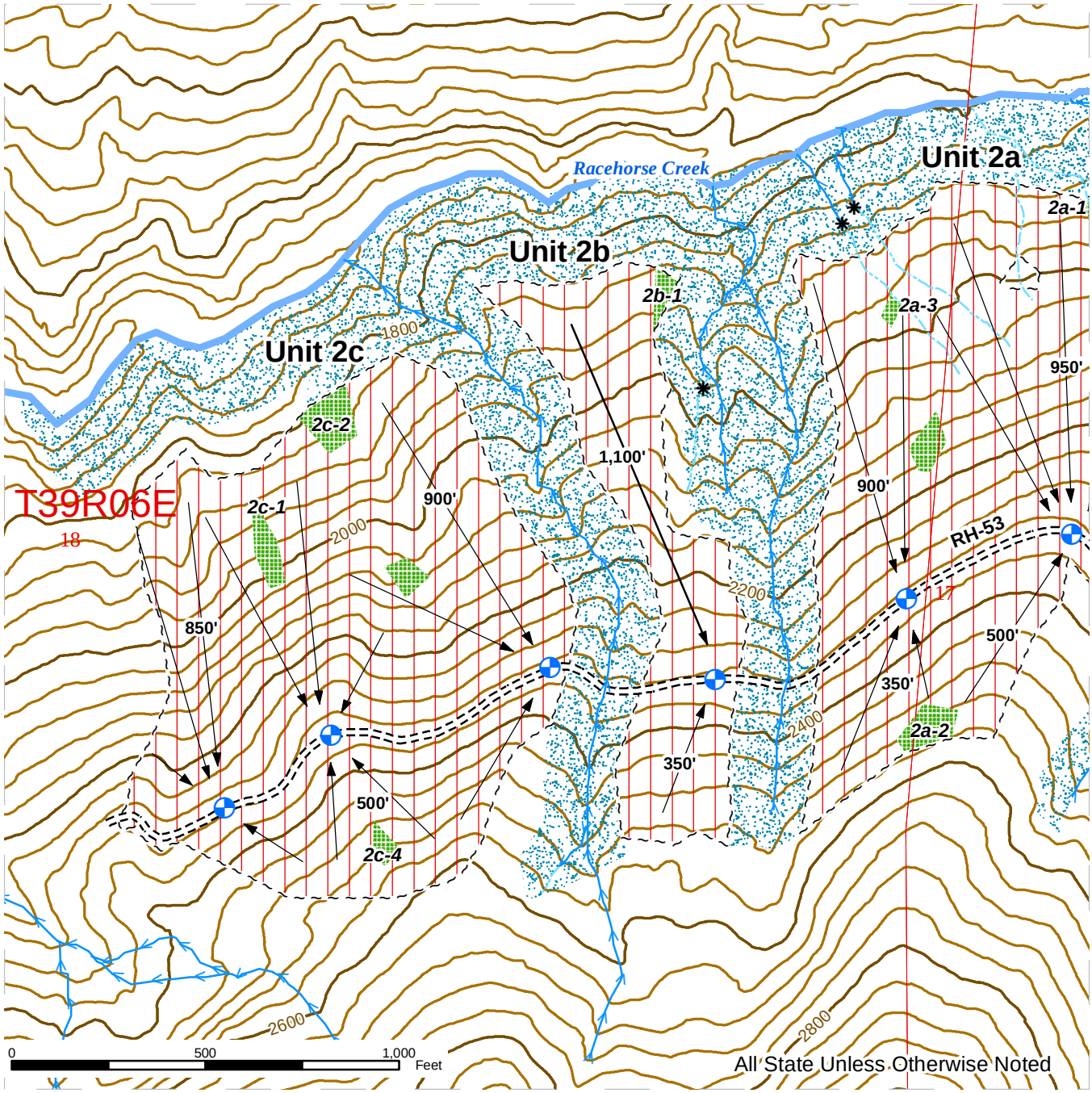
TOTAL $/MBF = $79

Compiled by: Carlson Date: 1/12/16

LOGGING PLAN MAP

SALE NAME: COUGAR CREEK
AGREEMENT#: 92255
TOWNSHIP(S): T39R05E, T39R06E
TRUST(S): State Forest Transfer(1), Common School and Indemnity(3)

REGION: Northwest Region
COUNTY(S): WHATCOM
ELEVATION RGE: 1400-2800



Ground	~ ~ ~ Sale Boundary Tags	**Streams**
Cable	Sale Boundary (No Tags)	Racehorse Creek (1)
Riparian Mgt Zone	Undefined Construction	4
Leave Tree Area	Required Construction	5
	Proposed Landing	Stream Type Break

N

Prepared By: ZBAS490 Creation Date: 8/19/2015 Modification Date: 12/23/2015

LOGGING PLAN MAP

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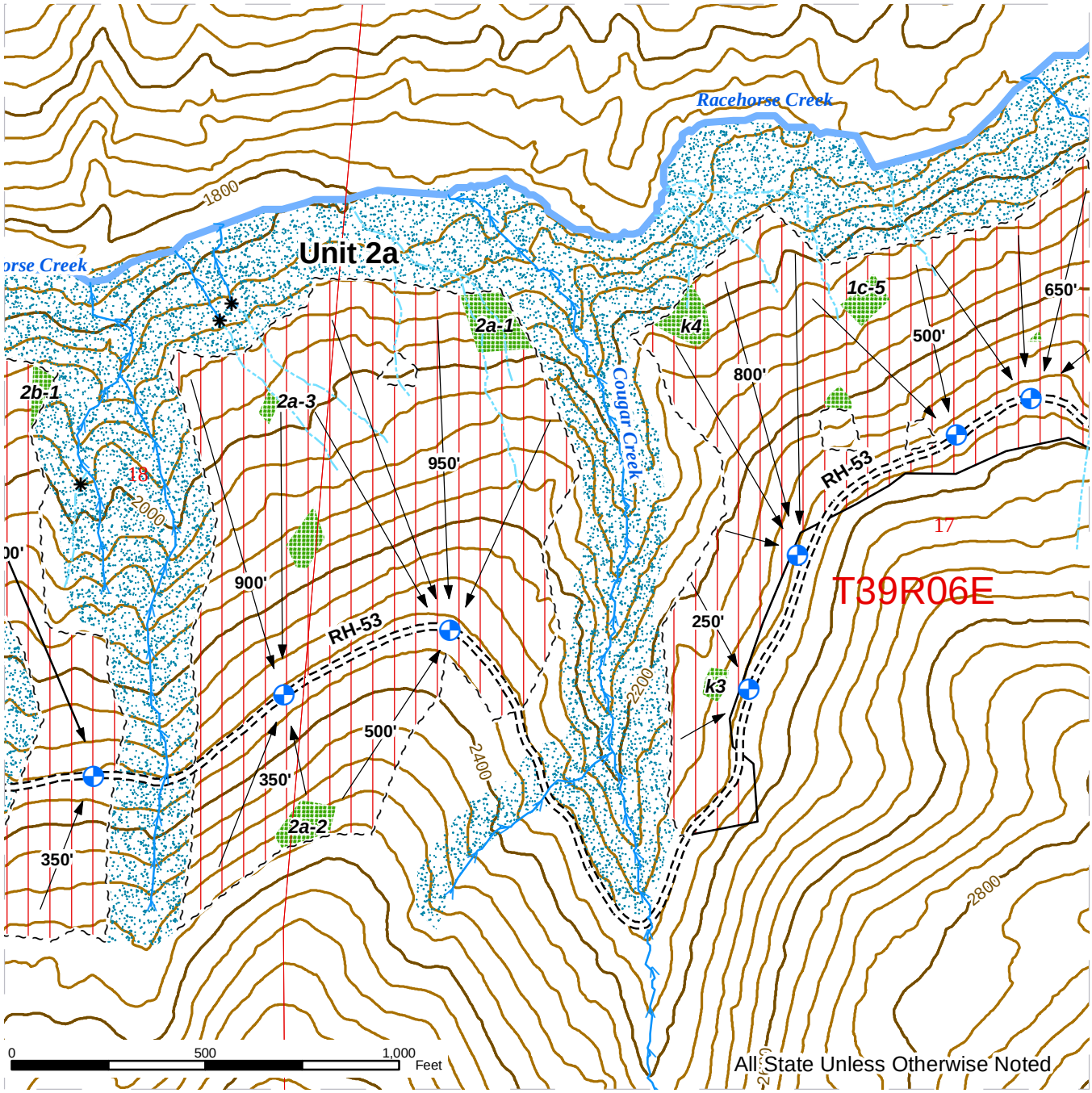

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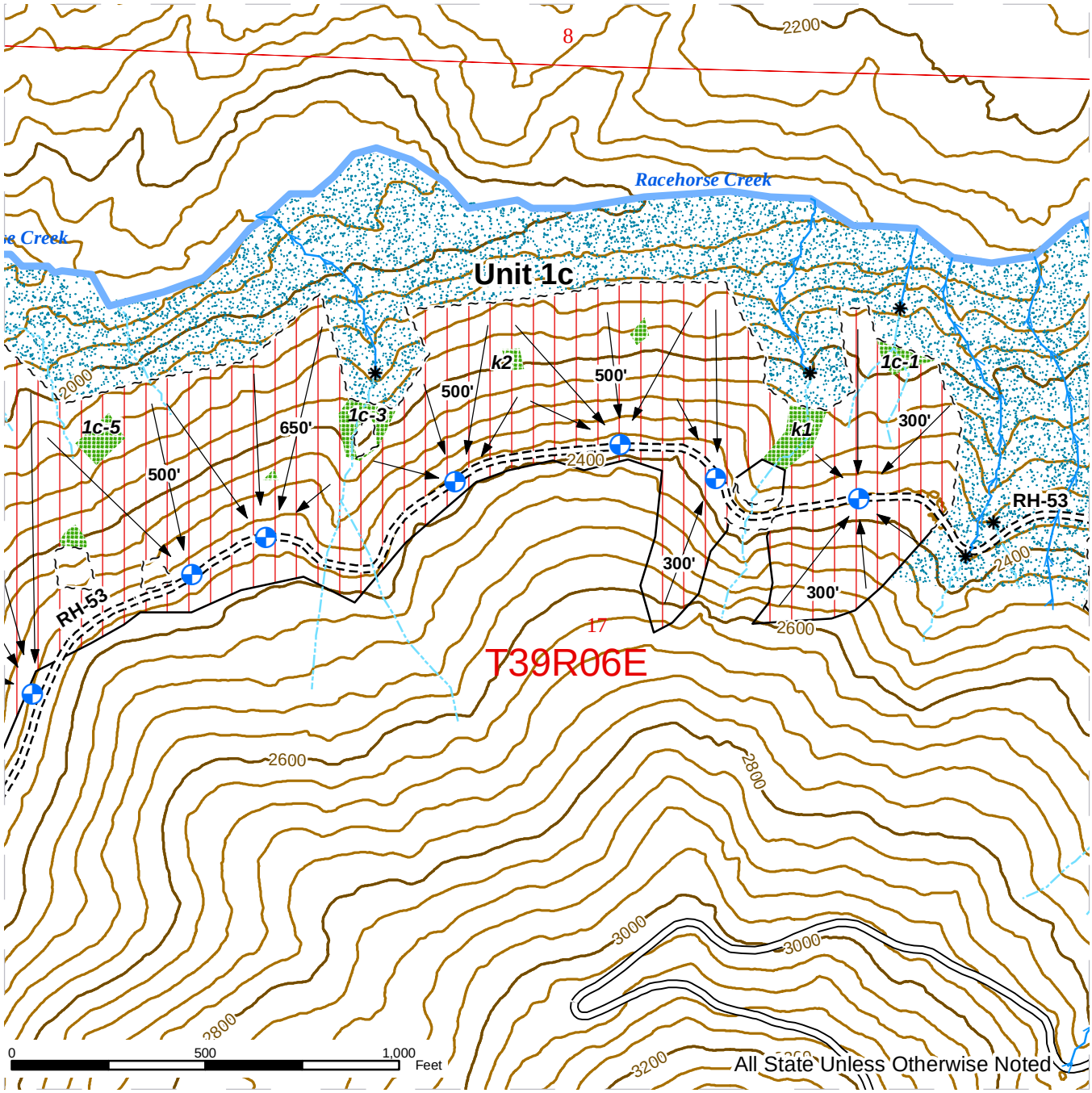

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