

**TIMBER NOTICE OF SALE**

**SALE NAME: RED AND BLUE**

**AGREEMENT NO: 30-093206**

**AUCTION:** May 25, 2016 starting at 10:00 a.m.,  
Olympic Region Office, Forks, WA

**COUNTY:** Clallam

**SALE LOCATION:** Sale located approximately 8 miles - 15 northwest of Forks, WA

**PRODUCTS SOLD  
AND SALE AREA:**

All timber, except trees marked with a band of blue paint or bounded out by leave tree area tags, bounded by the following; timber sale boundary tags, timber type change, the T-1000 Road and the T-1260 Road in Unit 1; timber sale boundary tags, timber type change and the RY-9000 Road in Unit 2; timber sale boundary tags and timber type change in Unit 3; timber sale boundary tags, property line and timber type change in Unit 4; timber sale boundary tags, the RY-9006.4 Road and the RY-9006 Road in Unit 5; timber sale boundary tags in Unit 6 and Unit 7; all timber bounded by right of way boundary tags on part(s) of Sections 17 all in Township 29 North, Range 14 West, Sections 25 all in Township 30 North, Range 14 West, Sections 19, 27, 28, 30, 33 and 34 all in Township 30 North, Range 13 West, W.M., containing 160 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	14.8	6	1,784						413	1,001	353	18
Douglas fir	18.4	6	1,382						619	592	168	2
Spruce	16.3	5	823						336	367	110	11
Red alder	12.6		136							48	47	41
Sale Total			4,125									

**MINIMUM BID:** \$684,000.00

**BID METHOD:** Sealed Bids

**PERFORMANCE  
SECURITY:**

\$100,000.00

**SALE TYPE:** Lump Sum

**EXPIRATION DATE:** June 30, 2018

**ALLOCATION:** Export Restricted

**BID DEPOSIT:** \$68,400.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

**HARVEST METHOD:** 60% Ground/40% Cable methods. Rubber tire skidders may be allowed when conditions of clauses H-016, H-017 and H-040 can be met. 30' Equipment Limitation Zones on all typed water. Ground Based Yarding will not be permitted from October 1 to June 30 unless authorized in writing by the Contract Administrator in Unit 6

**ROADS:** 16.15 stations of optional construction. 9.00 stations of required pre-haul maintenance. 95.03 stations of optional pre-haul maintenance. 26.55 stations of deactivation.

**ACREAGE DETERMINATION**

**CRUISE METHOD:** Sale area was 100% GPS'd. Sale units were cruised using a variable plot sample.



## TIMBER NOTICE OF SALE

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**FEES:** On day of sale, Purchaser must provide the DNR with a cashier's check in the amount of \$4,800.00, made payable to Rayonier Washington Timber Company, for a road use permit. \$73,219.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

**SPECIAL REMARKS:** There are locked gates on the RY-9000 and the Loop Pit - contact the Olympic Region Dispatch Center at 360-374-2811 to obtain a AA-1 key.

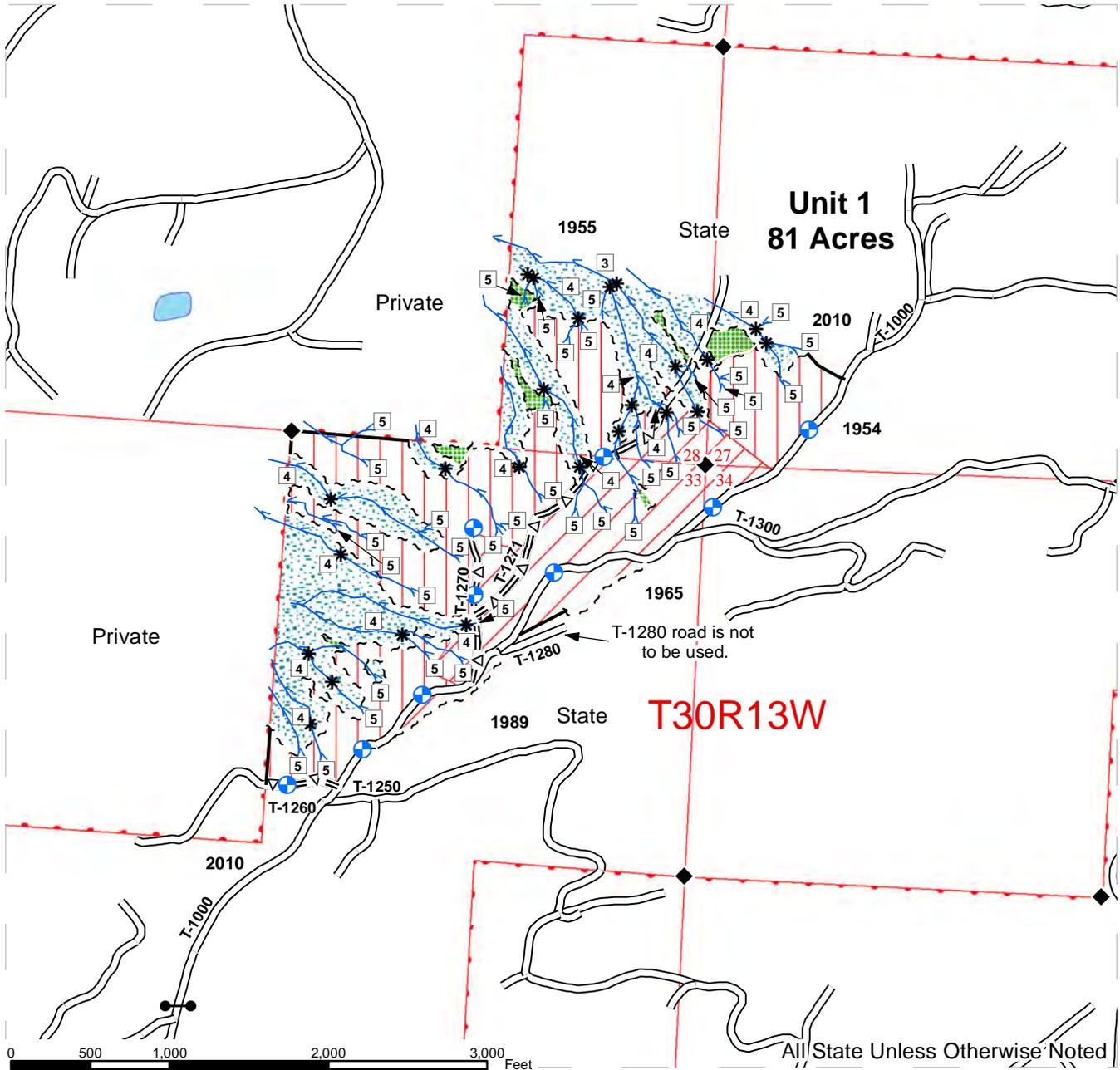
In Unit 4, the RY-9006.3 Road is not to be used beyond the timber sale boundary. RY-9006.2 and T-1280 Roads are not to be used for timber harvest activities.

Culvert and fill replacement work is currently scheduled to take place on the RY-9000 and D-2000 roads at 2 separate times during the hydraulic seasons of 2016 or 2017, which will result in those roads being closed for up to 3 weeks at 2 separate times. The State shall give at least 2 weeks' notice to Purchaser before the 2 separate closure periods begin.

# TIMBER SALE MAP

**SALE NAME:** RED & BLUE  
**AGREEMENT#:** 30-093206  
**TOWNSHIP(S):** T30R14W, T30R13W, T29R14W  
**TRUST(S):** State Forest Transfer(1), Capitol Grant(7)

**REGION:** Olympic Region  
**COUNTY(S):** CLALLAM  
**ELEVATION RGE:** 76-1328



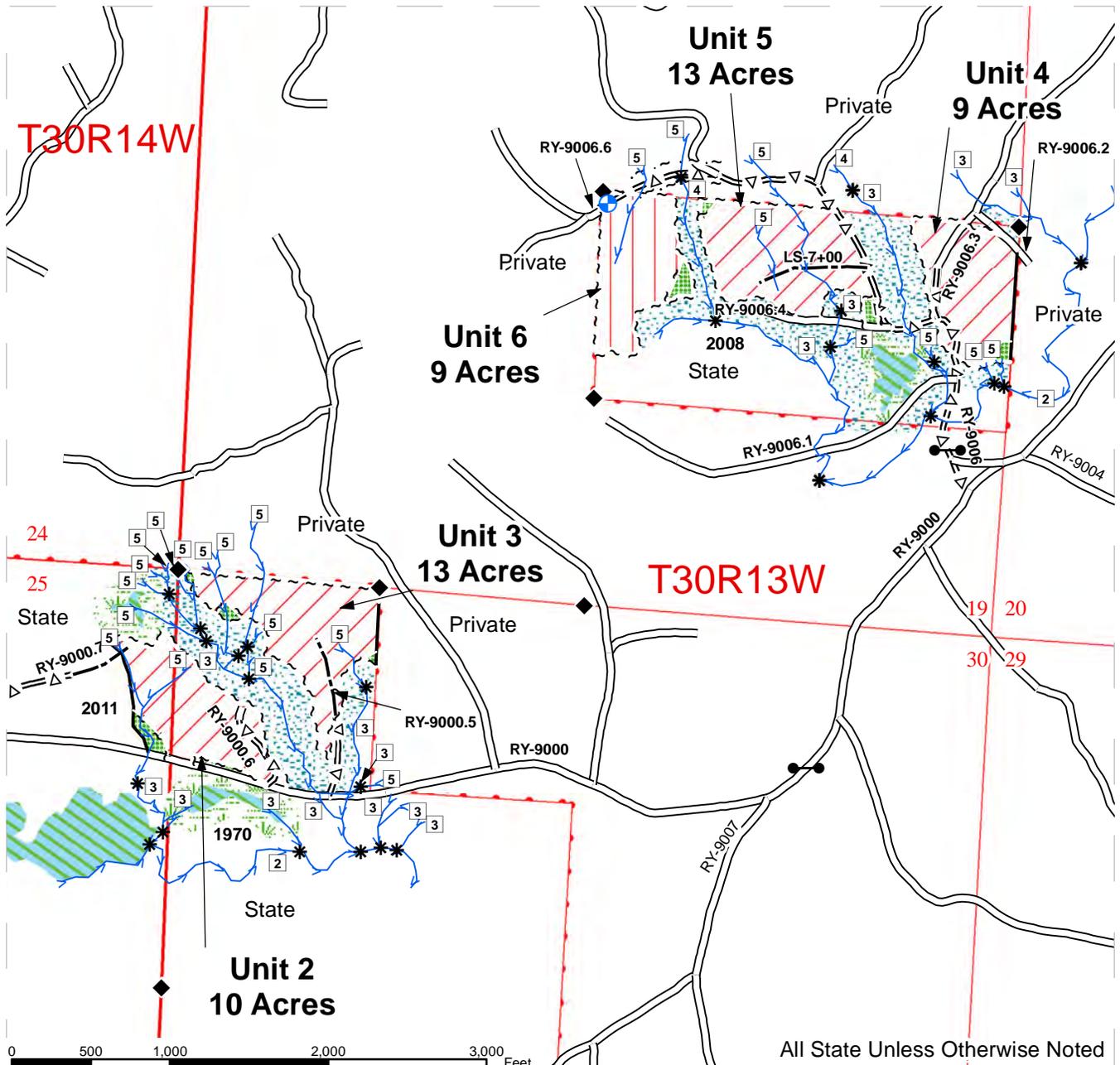
~ ~ ~ ~ Timber Sale Boundary Tags	Ground	Gate
~ ~ ~ ~ Leave Tree Area Tags	Cable	Landing
— Timber Type Change	Leave Tree Area	Public Land Survey Sections
~ ~ ~ ~ Right-of-Way Tags	RMZ	Public Land Survey Townships
=Δ= Optional Prehaul Maintenance	WMZ	DNR Managed Lands
== Required Prehaul Maintenance	Wetland	Open Water
--- Optional Construction	Streams	Monumented Corners
== Existing Roads	Stream Type	
	Stream Type Break	



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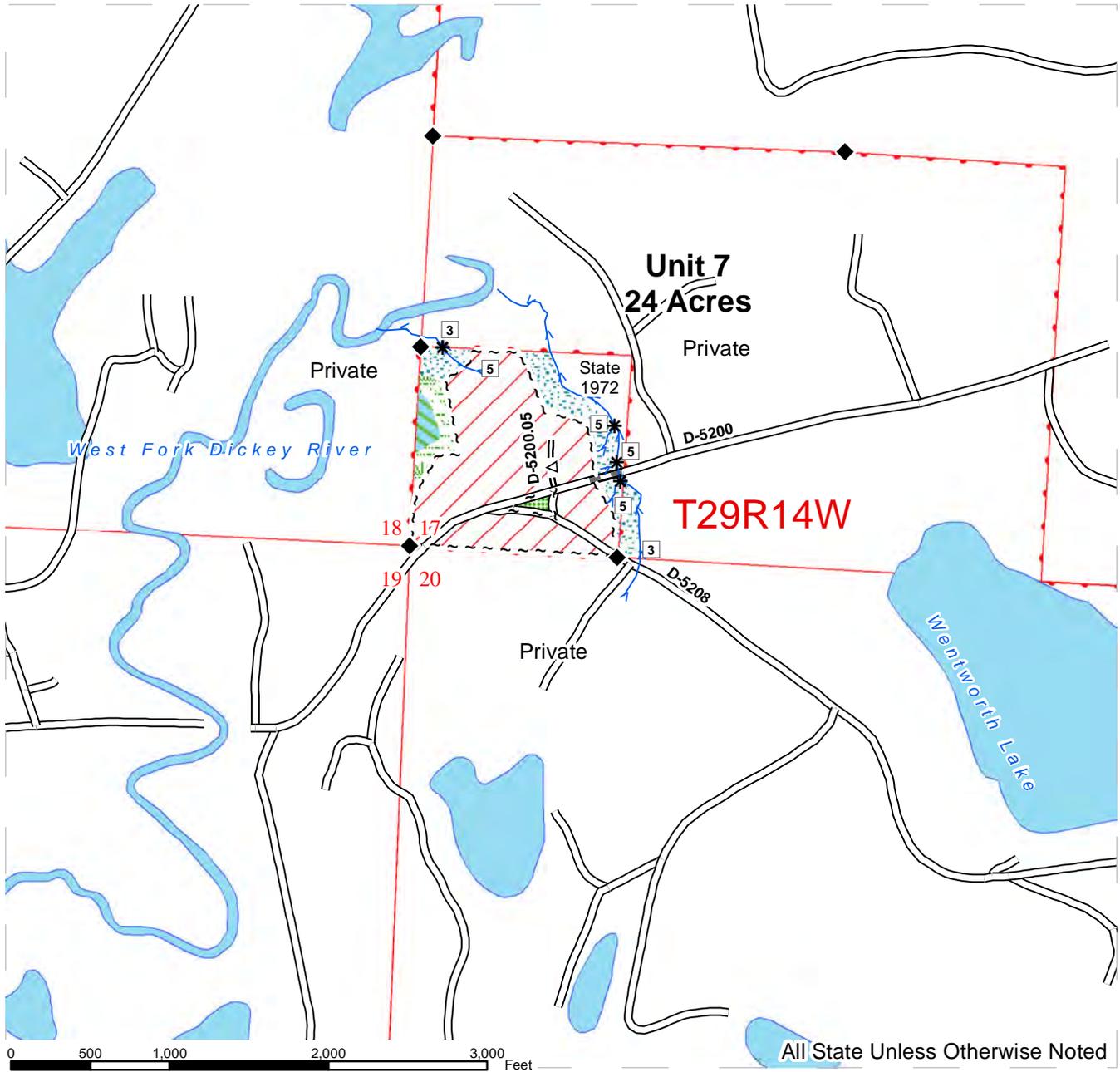
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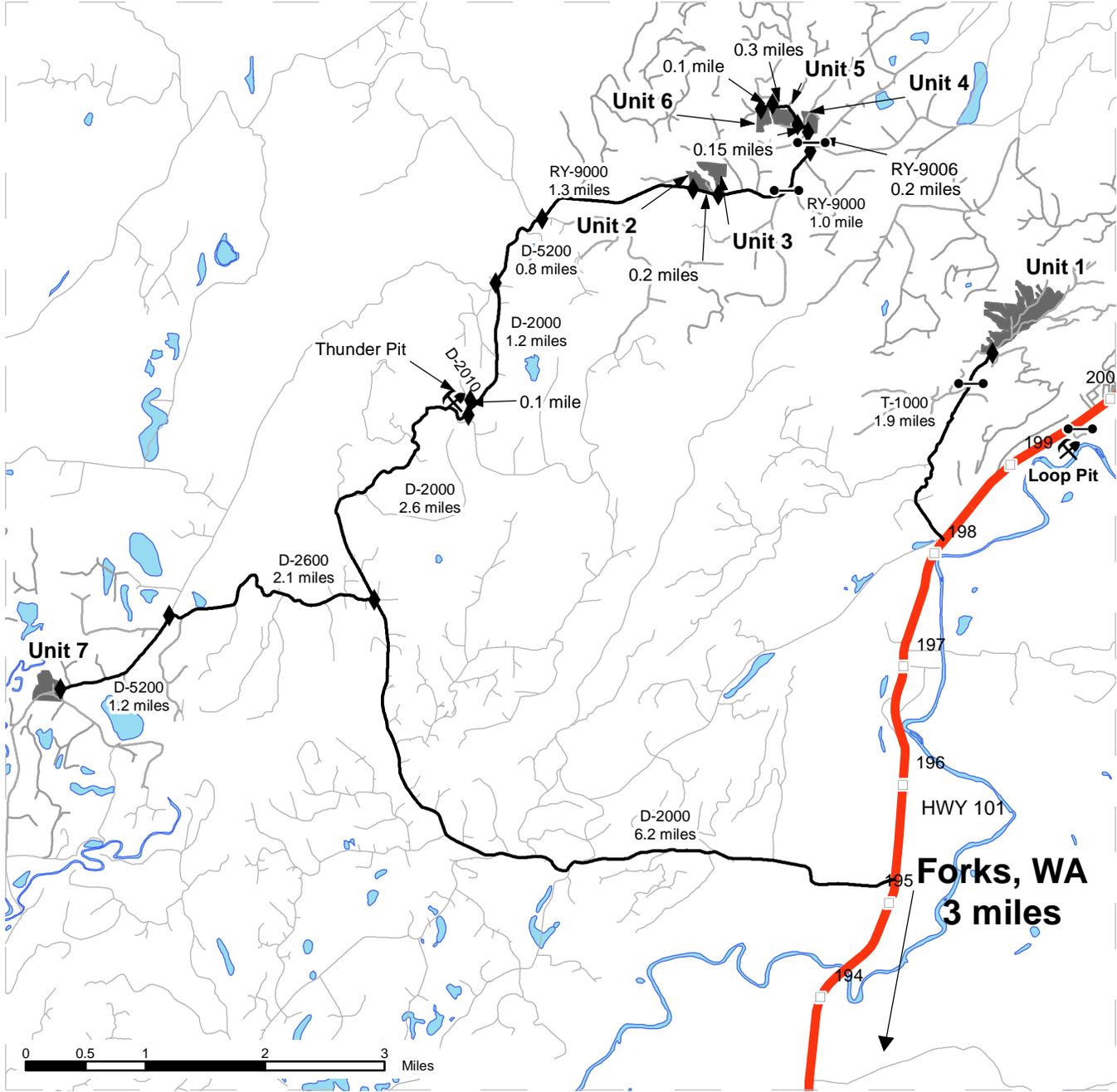
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# DRIVING MAP

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	Timber Sale Unit
	Highways
	Other Route
	Milepost Markers
	Distance Indicator
	Gate (AA-1)
	Rock Pit

**DRIVING DIRECTIONS:**  
**Unit 1:** From Forks, WA drive 6 miles north on Highway 101 and turn left on the T-1000 at MP 198; Continue on the T-1000 for 1.9 miles to Unit 1.  
**Units 2, 3, 4, 5, 6, 7**  
 From Forks, WA drive 3 miles north on Highway 101 and turn left on the D-2000 at MP 195. Continue for 10.0 miles to the D-5200. Continue straight on the D-5200 for 0.8 miles and turn right at the RY-9000. Drive east on the RY-9000 for 1.3 miles to Unit 2 on left. Continue east for 0.2 miles to Unit 3 on left. Continue east for 1 mile on the RY-9000 and turn left on the RY-9006. Continue through gate (AA-1) on the RY-9006, for 0.2 miles to Unit 4 on right. Continue for 0.15 miles to Unit 5 on left. Continue 0.3 miles and turn left on the RY-9006.6 and drive 0.1 miles to Unit 6 on left. Unit 7: Starting from the D-2000 entrance; drive 6.2 miles and turn left on the D-2600. Continue for 2.1 miles and turn left on the D-5200. Continue for 1.2 miles to Unit 7.  
**Thunder Pit:** Drive 8.8 miles on the D-2000 and turn left on the D-2010. Continue for 0.1 mile and turn left into the pit.  
**Loop Pit** is between MP 199 and MP 200 on the Loop Pit Access Rd on the south side of HYW 101



**STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES**

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

**Export Restricted Lump Sum AGREEMENT NO. 30-093206**

**SALE NAME: RED AND BLUE**

**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 May 25, 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, except trees marked with a band of blue paint or bounded out by leave tree area tags, bounded by the following; timber sale boundary tags, timber type change, the T-1000 Road and the T-1260 Road in Unit 1; timber sale boundary tags, timber type change and the RY-9000 Road in Unit 2; timber sale boundary tags and timber type change in Unit 3; timber sale boundary tags, property line and timber type change in Unit 4; timber sale boundary tags, the RY-9006.4 Road and the RY-9006 Road in Unit 5; timber sale boundary tags in Unit 6 and Unit 7; all timber bounded by right of way boundary tags, located on approximately 160 acres on part(s) of Section 17 in Township 29 North, Range 14 West, Section 25 in Township 30 North, Range 14 West, Sections 19, 27, 28, 30, 33, and 34 all in Township 30 North, Range 13 West W.M. in Clallam 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	SLASH PILING SPECS
B	GREEN TREE RETENTION PLAN

G-031 Contract Term

Purchaser shall complete all work required by this contract prior to June 30, 2018.

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 \$652.00 per acre per annum for the acres on which an operating release has not been issued.
- 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.

The pricing schedule has not been set for the sale.

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 Forks, 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; T-1000, T-1260, T-1270, T-1271, RY-9000, RY-9000.5, RY-9000.6, RY-9000.7, RY-9006, RY-9006.3, RY-9006.6, D-2000, D-2010, D-2600, D-5200, D-5200.05, D-5208, D-5208 Wye, Loop Pit access road and all spurs associated with the sale. 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 RY-9000, T-1280 or D-5200 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:

Easement #55-000050 with Washington Rayonier Timber Company dated January 8, 2016.

**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.

**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 \$110,344.00. The total contract price consists of a \$0.00 contract bid price plus \$110,344.00 in fees. Fees collected shall be retained by the state unless the contract is adjusted via the G-066 clause. Purchaser shall be liable for the entire purchase price, and will not be entitled to any refunds or offsets unless expressly stated in this contract.

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

**P-045 Guarantee of Payment**

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

**P-050 Billing Procedure**

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

**P-080 Payment Account Refund**

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

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

P-090 Performance Security

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

P-100 Performance Security Reduction

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

Section H: Harvesting Operations

H-001 Operations Outside the Sale Boundaries

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

H-010 Cutting and Yarding Schedule

Ground Based Yarding will not be permitted from October 1 to June 30 in Unit 6 unless authorized in writing by the Contract Administrator.

H-013 Reserve Tree Damage Definition

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

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

- a. A reserve tree has one or more scars on its trunk exposing the cambium layer, which in total exceeds 100 square inches.
- b. A reserve tree top is broken or the live crown ratio is reduced below 30 percent.

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

If the Contract Administrator determines that a reserve tree has been cut or damaged, the Purchaser shall provide a replacement reserve tree of like condition, size, and species within the sale 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 12 inches as measured from the natural ground line. To reduce soil damage, the Contract Administrator may require water bars to be constructed, grass seed to be placed on exposed soils, or other mitigation measures. Suspended operations shall not resume unless approval to do so has been given, in writing, by the Contract Administrator.

#### H-018 Temporary Stream Crossings

A temporary stream crossing is required to access DATA MISSING.

Purchaser shall comply with the following during the yarding operation:

- a. Adhere to the approved Hydraulic Permit Application (HPA) or Forest Practice Application (FPA) with approved hydraulic project work, if required, amend a current FPA or obtain a new FPA prior to commencing any new stream crossing construction.
- b. Location of the temporary stream crossing must be approved by the Contract Administrator.
- c. A temporary stream crossing shall not exceed 20 feet in width, including rub trees.
- d. Purchaser shall suspend operations during periods of wet weather when a high potential for sediment delivery into typed waters may occur.
- e. Temporary stream crossings shall be removed at the time of completion of yarding as required by the Contract Administrator.

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

**H-035 Fall Trees Into Sale Area**

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

**H-040 Purchaser Harvest Plan**

Purchaser shall, as part of the plan of operations, prepare an acceptable harvest plan for utilizing rubber tire skidders in the sale area. The plan shall address the timing and location of desired use, 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-120 Harvesting Equipment**

Forest products sold under this contract shall be harvested by cable and ground methods (rubber tired skidders may be allowed when conditions of H-017 and H-040 can be met) 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-126 Tailholds on State Land**

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

**H-127 Tailholds on Private Land**

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

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

1. Purchaser must have utility lines on the T-1000 located before beginning operations.
2. Purchaser shall immediately repair all gate damage resulting from operations to an equal or better condition than existed at the time of the sale.
3. While felling timber, two warning signs must be posted on the RY-9000, D-5200 and T-1000 Roads.
4. The Purchaser shall notify all employees and contractors working on this sale that any danger tree, marked or unmarked, may be felled. Any felled marked danger tree shall be replaced with a suitable tree of similar size and species as approved by the Contract Administrator.

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

H-190 Completion of Settings

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

H-220 Protection of Residual or Adjacent Trees

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

H-230 Tops and Limbs Outside the Sale Boundary

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

Section C: Construction and Maintenance

C-040 Road Plan

Road construction and associated work provisions of the Road Plan for this sale, dated 12/17/2015 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 T-1260, T-1270, T-1271, T-1271.1, RY-9006.3, RY-9006.6, RY-9000.5, RY-9000.6, RY-9000.7, D-5200, D-5200.5, and all spurs associated with the sale. 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 T-1000, D-2000, D-2600, RY-9000, Loop Pit Road and any other roads used and not covered in C-050. 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-140 Water Bars**

Purchaser shall, as directed by the Contract Administrator, construct water bars across haul roads, skid trails and fire trails as necessary to control soil erosion and water pollution.

**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-100 Stream Cleanout

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

S-110 Resource Protection

No equipment may operate within the 30' from any Type 5 stream unless authority is granted in writing by the Contract Administrator.

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 \$500.00 per tree for all damaged reserve trees that are not replaced in all units.

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

STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES

\_\_\_\_\_  
Purchaser

\_\_\_\_\_  
Susan K. Trettevik  
Olympic Region Manager

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

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

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**  
**SLASH PILING SPECS**

Specifications for Slash Piling

The areas shall be piled by creating circular piles of slash and brush conforming to the following specifications:

1. Piles shall be a minimum of 12 feet tall by 8 feet wide to a maximum of 30 feet tall and 16 feet wide. Piles shall be cone shaped and stable.
2. Piles shall be free of topsoil, large rotten logs and large stumps. No material larger than 8 inches in diameter shall be piled. Any burnable material shall be well scattered.
3. Piles shall not be placed on large stumps or logs.
4. Piles shall be stacked a minimum of 50 feet from all unit boundaries, Riparian Management Zones, leave tree areas and any standing timber; a minimum of 100 feet from any public roads and highways; and a minimum of 200 feet from any structures.
5. Piling shall be completed using an approved hydraulic shovel and grapples.
6. Slash and displaced soil shall be removed from swales and natural drainage channels concurrent with yarding.
7. Slash generated during cable yarding shall be stacked in dirt free piles and shall not block roads or interfere with functioning of drainage structures, ditches or stream channels.

**Schedule B**  
**GREEN TREE RETENTION PLAN**

Leave the following as directed by the Contract Administrator:

1. All trees marked with a blue band of paint and all leave tree area clumps shall remain standing.

The perimeter of the leave tree clumps are designated by Leave Tree Area tags. The tags face outward from the leave tree clumps.

Unit #	# of Individually Marked Trees	# of Clumps	# of Trees Clumped	Total # of Leave Trees
1	198	7	458	656
2	12	1	76	88
3	51	3	61	112
4	25	1	55	80
5	36	2	76	112
6	25	1	55	80
7	145	1	95	240



## WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

### FOREST EXCISE TAX ROAD SUMMARY SHEET

**Region:**

**Timber Sale Name:**

**Application Number:** 093206

#### EXCISE TAX APPLICABLE ACTIVITIES

**Construction:** linear feet  
*Road to be constructed (optional and required) but not abandoned*

**Reconstruction:** linear feet  
*Road to be reconstructed (optional and required) but not abandoned*

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

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

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

#### EXCISE TAX EXEMPT ACTIVITIES

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

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

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

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

(Revised 4/09)

## Cruise Narrative

<b>Sale Name:</b> Red and Blue	<b>Region:</b> Olympic
<b>Agreement #:</b> 30-	<b>District:</b> Coast
<b>Lead Cruiser:</b> Kevin Peterson	<b>Completion Date:</b> 11/02/2015
<b>Other Cruisers:</b> None	

### Unit acreage specifications:

Unit #	Cruised Acres	Cruised acres agree with sale acres? Y/N	If acres do not agree explain why.
1	81.3	Y	
2	10.2	Y	
3	13.4	Y	
4	9.0	Y	
5	12.6	Y	
6	9.1	Y	
7	24.1	Y	
<b>Total</b>	159.7	Y	

### Unit cruise specifications:

Unit #	Sample Type (VP,FP,ITS,100%)	Expansion Factor (baf,full/half)	Sighting Height (4.5', 16')	Grid Size (plot spacing)	Plot Ratio (cruise/count)	Number of plots
1	VP	54.44/40	4.5'	300 X 300	1:2	40
2	VP	46.94/40	4.5'	300 X 300	5:1	6
3	VP	46.94/40	4.5'	300 X 300	1:1	8
4	VP	54.44/40	4.5'	300 X 300	4:1	5
5	VP	54.44/40	4.5'	300 X 300	5:2	7
6	VP	54.44/40	4.5'	300 X 300	4:1	5
7	VP	54.44/40	4.5'	300 X 300	1:1	12

### Sale/Cruise Description:

<b>Minor species cruise intensity</b>	Minor species sampled using same cruise plots.					
<b>Minimum cruise spec:</b>	40% of Form Factor at 16 ft. D.O.B or 5 inch top or merchantable top					
<b>Average ring count:</b>	<b>DF =</b>	6	<b>WH =</b>	6	<b>SS =</b>	5
<b>Leave/take tree description:</b>	Leave tree clumps are bounded out with yellow tags, pink flashers and blue paint. Individual leave trees are marked with blue bands and two blue butt marks.					
<b>Other conditions:</b>	Exterior boundaries are marked with white tags and pink flashers					

<p><b>Sort Description:</b></p>	<p><b>HA</b>– Logs meeting the following criteria: Surface characteristics for a high quality A sort will have sound tight knots not to exceed 1 ½” in diameter, numbering not more than an average of one per foot of log length. May include logs with not more than two larger knots. Knots and knot indicators ½” in diameter and smaller shall not be a determining factor. Logs will have a growth ring count of 6 or more rings per inch in the outer third top end of the log. (minimum diameter 8”.)</p> <p><b>HB</b> – Logs meeting the following criteria: Surface characteristics for a B sort will have sound tight knots not to exceed 1 ½” in diameter. May include logs with not more than two larger knots up to 2 ½” in diameter. Logs will have a growth ring count of 6 or more rings per inch in the outer third to end of the log. (minimum diameter 8”.)</p> <p><b>R</b> – Logs meeting the following criteria: Gross diameter of 12 inches or greater, excessive knots greater than 2 ½ inches with recovery less than 65% of the net scale.</p>
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**Field Observations:**

This sale consist of 7 units with a total of 159.7 acres. Unit 1 is located of the T-1000 which contains almost half the total volume, Units 2-6 are located on the RY-9000 behind gated access and Unit 7 is located on the D-5200. Access is good to all units. This sale is 65% ground based harvest.

The total net volume for the sale is 4,125 MBF and consist of 43% Western Hemlock, 33% Douglas-fir, 20% Sitka Spruce with some Red Alder on the old roads. Traces of Red Cedar were found, however did not fall in any plots. The average WH has a DBH of 14.8” and a bole height of 54’, common defects were crooks and bark seams. The average DF has a DBH of 18.4” and a bole height of 63’, common defects were sweeps, spike knots and forked tops. The average SS has a DBH of 16.3” and a bole height of 55’, the spruce was pretty clean with some occasional forks at the base.

**Grants:** 01 and 07

**Prepared By:** Kevin Peterson – Olympic Region Cruiser

T029 R014 S20 Ty00U7 THRU T030 R013 S33 Ty00U1	<b>Project: RB</b> <b>Acres 159.70</b>	<b>Page 1</b> <b>Date 11/2/2015</b> <b>Time 7:40:57AM</b>
------------------------------------------------------	-------------------------------------------	-----------------------------------------------------------------

S Spp	So T	Gr rt ad	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre	
								Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99						
WH	CU	CU														5			0.00	11.5	
WH	D	2S	23	5.0	2,721	2,584	413			100						40	13	237	1.76	10.9	
WH	D	3S	56	3.1	6,470	6,266	1,001		100				1	11	88	38	9	105	0.85	59.8	
WH	D	4S	20	3.0	2,279	2,209	353	76	24				23	55	4	18	23	5	25	0.34	87.7
WH	D	UT	1		110	110	18	100								100	11	5	10	0.19	11.0
<b>WH</b>	<b>Totals</b>		43	3.5	11,579	11,169	1,784	16	61	23			6	11	7	76	27	7	62	0.70	181.0
SS	CU	CU															5			0.00	6.5
SS	D	2S	40	2.1	2,149	2,105	336			64	36					100	40	15	335	2.28	6.3
SS	D	3S	45	1.7	2,339	2,300	367		100				2	13	85	38	8	97	0.86	23.7	
SS	D	4S	13	.9	692	686	110	92	8				20	39	4	36	25	5	27	0.44	25.4
SS	D	UT	2		66	66	11	81	19				100			100	11	5	10	0.22	6.6
<b>SS</b>	<b>Totals</b>		20	1.7	5,246	5,157	823	13	46	26	15		4	6	6	84	27	7	75	0.88	68.5
DF	CU	CU		100.0	3												0	7		0.00	7.6
DF	D	2S	44	5.4	4,098	3,878	619			97	3					100	40	13	250	1.92	15.5
DF	D	3S	43	4.0	3,861	3,708	592		100				2	8	90	38	9	108	0.94	34.3	
DF	D	4S	12	5.3	1,112	1,053	168	67	33				18	47	21	14	25	5	27	0.40	39.0
DF	D	UT	1		14	14	2	100					100			100	13	5	10	0.30	1.4
<b>DF</b>	<b>Totals</b>		33	4.8	9,088	8,653	1,382	8	47	43	1		2	7	6	85	30	8	88	0.96	97.8
RA	CU	CU															8			0.00	1.0
RA	D	3S	35	6.7	325	303	48		100				88	12			21	10	73	0.94	4.2
RA	D	4S	35	9.0	324	295	47		100				22	78			27	8	46	0.68	6.4
RA	D	UT	30	4.9	269	256	41	100					58	42			17	5	17	0.31	15.3
<b>RA</b>	<b>Totals</b>		3	7.0	918	854	136	30	70				56	44			19	7	32	0.54	26.9
<b>Totals</b>				3.7	26,831	25,833	4,125	13	53	30	3		6	10	6	78	27	7	69	0.80	374.2

TC PSTATS		<b>PROJECT STATISTICS</b>							PAGE	1	
		<b>PROJECT RB</b>							DATE	11/2/2015	
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt	
029	014	20	RB	00U7	THR	159.70	83	439	S	W	
030	013	33	RB	00U1							
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL			83	439	5.3						
CRUISE			50	259	5.2	32,380	.8				
DBH COUNT											
REFOREST											
COUNT			33	180	5.5						
BLANKS											
100 %											
<b>STAND SUMMARY</b>											
SAMPLE TREES		TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC	
DOUG FIR		90	49.8	18.4	63	21.5	92.3	9,088	8,653	2,813	
S SPRUCE		62	36.8	16.3	55	13.3	53.6	5,246	5,157	1,645	
WHEMLOCK		92	99.8	14.8	54	30.9	118.7	11,579	11,169	3,448	
R ALDER		15	16.3	12.6	37	4.0	14.2	918	854	280	
<b>TOTAL</b>		259	202.8	15.9	55	70.0	278.8	26,831	25,833	8,186	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL	68.1	COEFF	<b>TREES/ACRE</b>				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR		103.1	11.3	44	50	55					
S SPRUCE		166.3	18.3	30	37	44					
WHEMLOCK		97.6	10.7	89	100	111					
R ALDER		243.7	26.7	12	16	21					
<b>TOTAL</b>		47.7	5.2	192	203	213	91	47	23		
CL	68.1	COEFF	<b>BASAL AREA/ACRE</b>				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR		95.1	10.4	83	92	102					
S SPRUCE		142.0	15.6	45	54	62					
WHEMLOCK		88.2	9.7	107	119	130					
R ALDER		239.2	26.3	10	14	18					
<b>TOTAL</b>		31.2	3.4	269	279	288	39	20	10		
CL	68.1	COEFF	<b>NET BF/ACRE</b>				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR		102.0	11.2	7,685	8,653	9,622					
S SPRUCE		140.1	15.4	4,364	5,157	5,949					
WHEMLOCK		89.7	9.8	10,070	11,169	12,268					
R ALDER		250.4	27.5	619	854	1,088					
<b>TOTAL</b>		33.5	3.7	24,883	25,833	26,782	45	23	11		
CL	68.1	COEFF	<b>V_BAR/ACRE</b>				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR		64.8	7.1	83	94	104					
S SPRUCE		101.1	11.1	81	96	111					
WHEMLOCK				85	94	103					
R ALDER		162.8	17.9	44	60	77					
<b>TOTAL</b>		31.0	3.4	89	93	96	39	20	10		

T	TSPCSTGR	Species, Sort Grade - Board Foot Volumes (Type)										Page	1												
Project: RB												Date	11/2/2015												
												Time	7:30:44AM												
T030 R013 S33 T00U1										T030 R013 S33 T00U1															
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt																
030	013	33	RB	00U1	81.30	40	88	S	W																
Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre				
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/ Lf					
WH	CU	CU																							
WH	DM	2S		26	.7	3,849	3,824	311			100						100				40	13	239	1.73	16.0
WH	DM	3S		55	2.7	8,251	8,029	653			100				1	14	85				38	9	109	0.91	73.3
WH	DM	4S		18	4.7	2,784	2,653	216	79	21				31	45	5	20				23	5	24	0.36	109.7
WH	DM	UT		1		70	70	6	100					100							12	5	10	0.21	7.0
<b>WH</b>	<b>Totals</b>			59	2.5	14,954	14,576	1,185	15	59	26			6	9	9	77				26	7	65	0.76	225.7
DF	CU	CU																							
DF	DM	2S		41	3.6	3,239	3,122	254			100						100				40	13	230	1.90	13.6
DF	DM	3S		43	3.6	3,434	3,311	269			100					8	92				39	9	124	1.08	26.6
DF	DM	4S		15	8.2	1,244	1,142	93	54	46				17	53	30					25	6	27	0.44	41.7
DF	DM	UT		1		18	18	1	100					100							14	5	10	0.34	1.8
<b>DF</b>	<b>Totals</b>			31	4.3	7,935	7,592	617	8	51	41			3	8	8	81				29	8	85	0.99	89.5
SS	CU	CU																							
SS	DM	2S		39	3.1	587	569	46			60	40					100				40	13	260	2.07	2.2
SS	DM	3S		44	5.8	675	636	52			100						100				40	8	95	0.96	6.7
SS	DM	4S		12		173	173	14	79	21				21		79					31	6	33	0.73	5.2
SS	DM	UT		5		63	63	5	62	38				100							11	5	10	0.27	6.3
<b>SS</b>	<b>Totals</b>			6	3.8	1,498	1,441	117	12	48	24	16		7		93					25	7	60	0.98	23.8
RA	DM	3S		38	9.2	463	421	34			100			100							20	11	69	0.97	6.1
RA	DM	4S		33	9.5	389	353	29			100					100					30	7	48	0.69	7.4
RA	DM	UT		29	5.7	325	307	25	100					70	30						16	5	16	0.31	19.3
<b>RA</b>	<b>Totals</b>			4	8.3	1,178	1,080	88	28	72				59	41						20	7	33	0.56	32.8
<b>Type Totals</b>					3.4	25,564	24,689	2,007	13	56	30	1		7	9	8	76				26	7	66	0.82	371.8

TC TSTATS				STATISTICS				PAGE	1	
PROJECT				RB				DATE	11/2/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
030	013	33	RB	00U1	81.30	40	217	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		40	217	5.4						
CRUISE		16	88	5.5	16,374		.5			
DBH COUNT										
REFOREST										
COUNT		24	129	5.4						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
WHEMLOCK	50	120.9	15.4	54	39.9	156.5	14,954	14,576	4,526	4,526
DOUG FIR	26	49.3	18.6	57	21.5	92.5	7,935	7,592	2,603	2,603
S SPRUCE	5	11.9	17.9	52	4.9	20.9	1,498	1,441	574	574
R ALDER	7	19.3	13.1	38	5.0	18.0	1,178	1,080	364	364
<b>TOTAL</b>	88	201.4	16.2	53	71.6	288.0	25,564	24,689	8,067	8,067
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK	63.2	10.0		109	121	133				
DOUG FIR	86.1	13.6		43	49	56				
S SPRUCE	239.4	37.9		7	12	16				
R ALDER	195.5	30.9		13	19	25				
<b>TOTAL</b>	34.6	5.5		190	201	212	48	24	12	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK	59.6	9.4		142	157	171				
DOUG FIR	81.2	12.8		81	93	104				
S SPRUCE	240.0	37.9		13	21	29				
R ALDER	194.6	30.8		12	18	24				
<b>TOTAL</b>	27.8	4.4		275	288	301	31	16	8	
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	63.3	10.0		13,118	14,576	16,034				
DOUG FIR	82.1	13.0		6,607	7,592	8,578				
S SPRUCE	232.7	36.8		911	1,441	1,971				
R ALDER	199.5	31.5		739	1,080	1,421				
<b>TOTAL</b>	33.3	5.3		23,391	24,689	25,987	44	23	11	
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				84	93	102				
DOUG FIR				71	82	93				
S SPRUCE	45.0	7.1		43	69	94				
R ALDER	74.9	11.8		41	60	79				
<b>TOTAL</b>	241.3	38.2		81	86	90	2,329	1,188	582	



TC TSTATS				STATISTICS				PAGE	1	
				PROJECT		RB		DATE	11/2/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
030	013	30	RB	00U2	10.20	6	30	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		6	30	5.0						
CRUISE		5	25	5.0	1,255		2.0			
DBH COUNT										
REFOREST										
COUNT		1	5	5.0						
BLANKS										
100 %										
<b>STAND SUMMARY</b>										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR	14	60.6	18.8	68	27.0	117.3	12,547	11,583	3,816	3,815
WHEMLOCK	8	42.7	18.3	68	18.3	78.2	9,213	7,962	2,661	2,659
S SPRUCE	3	19.7	19.1	76	9.0	39.1	5,368	5,368	1,493	1,493
<b>TOTAL</b>	25	123.0	18.7	69	54.3	234.7	27,128	24,912	7,969	7,967
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	<b>TREES/ACRE</b>				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		107.3	47.8	32	61	90				
WHEMLOCK		122.5	54.6	19	43	66				
S SPRUCE		120.3	53.6	9	20	30				
<b>TOTAL</b>		25.4	11.3	109	123	137	31	16	8	
CL:	68.1 %	COEFF	<b>BASAL AREA/ACRE</b>				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		103.5	46.1	63	117	172				
WHEMLOCK		118.0	52.6	37	78	119				
S SPRUCE		118.0	52.6	19	39	60				
<b>TOTAL</b>		12.6	5.6	221	235	248	8	4	2	
CL:	68.1 %	COEFF	<b>NET BF/ACRE</b>				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		104.4	46.5	6,193	11,583	16,973				
WHEMLOCK		118.0	52.6	3,774	7,962	12,150				
S SPRUCE		118.8	52.9	2,526	5,368	8,209				
<b>TOTAL</b>		14.3	6.4	23,322	24,912	26,503	10	5	2	
CL:	68.1 %	COEFF	<b>V-BAR/ACRE</b>				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		102.9	45.8	53	99	145				
WHEMLOCK		105.1	46.9	48	102	155				
S SPRUCE		50.9	22.7	65	137	210				
<b>TOTAL</b>		78.7	35.1	99	106	113	296	151	74	



TC TSTATS				STATISTICS				PAGE	1	
				PROJECT		RB		DATE	11/2/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
030	013	30	RB	00U3	13.40	8	36	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		8	36	4.5						
CRUISE		8	36	4.5	2,349		1.5			
DBH COUNT										
REFOREST										
COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
S SPRUCE	13	42.6	18.1	64	17.9	76.3	8,684	8,514	2,593	2,593
DOUG FIR	11	50.5	15.3	60	16.5	64.5	5,800	5,701	1,774	1,774
WHEMLOCK	6	36.2	13.4	56	9.6	35.2	3,379	2,841	988	838
R ALDER	6	46.0	10.9	32	9.1	30.0	2,104	2,057	565	565
<b>TOTAL</b>	<b>36</b>	<b>175.3</b>	<b>14.7</b>	<b>53</b>	<b>53.8</b>	<b>206.0</b>	<b>19,967</b>	<b>19,113</b>	<b>5,920</b>	<b>5,770</b>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
S SPRUCE	128.7	48.6		22	43	63				
DOUG FIR	127.2	48.0		26	50	75				
WHEMLOCK	173.7	65.5		12	36	60				
R ALDER	186.8	70.5		14	46	78				
<b>TOTAL</b>	<b>69.1</b>	<b>26.1</b>		<b>130</b>	<b>175</b>	<b>221</b>	<b>217</b>	<b>111</b>	<b>54</b>	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
S SPRUCE	98.3	37.1		48	76	105				
DOUG FIR	109.5	41.3		38	65	91				
WHEMLOCK	155.3	58.6		15	35	56				
R ALDER	198.4	74.9		8	30	52				
<b>TOTAL</b>	<b>36.2</b>	<b>13.7</b>		<b>178</b>	<b>206</b>	<b>234</b>	<b>60</b>	<b>30</b>	<b>15</b>	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
S SPRUCE	91.8	34.6		5,566	8,514	11,462				
DOUG FIR	110.0	41.5		3,334	5,701	8,067				
WHEMLOCK	151.2	57.0		1,220	2,841	4,462				
R ALDER	214.0	80.7		396	2,057	3,719				
<b>TOTAL</b>	<b>35.4</b>	<b>13.4</b>		<b>16,560</b>	<b>19,113</b>	<b>21,665</b>	<b>57</b>	<b>29</b>	<b>14</b>	
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
S SPRUCE	91.8	34.6		73	112	150				
DOUG FIR	110.0	41.5		52	88	125				
WHEMLOCK	151.2	57.0		35	81	127				
R ALDER	214.0	80.7		13	69	124				
<b>TOTAL</b>	<b>35.4</b>	<b>13.4</b>		<b>80</b>	<b>93</b>	<b>105</b>	<b>57</b>	<b>29</b>	<b>14</b>	



TC TSTATS		STATISTICS							PAGE	1
		PROJECT			RB		DATE		11/2/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
030	013	19	RB	00U4	9.00	5	26	S	W	
				TREES	ESTIMATED	PERCENT				
		PLOTS	TREES	PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		5	26	5.2						
CRUISE		5	26	5.2	1,664	1.6				
DBH COUNT										
REFOREST										
COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR	11	57.3	19.6	73	27.1	119.8	14,970	14,085	4,189	4,189
S SPRUCE	8	62.3	16.0	51	21.8	87.1	10,917	10,710	3,013	3,013
WHEMLOCK	7	65.2	14.6	67	19.9	76.2	9,414	9,297	2,559	2,559
<b>TOTAL</b>	<b>26</b>	<b>184.9</b>	<b>16.8</b>	<b>64</b>	<b>69.2</b>	<b>283.1</b>	<b>35,301</b>	<b>34,092</b>	<b>9,760</b>	<b>9,760</b>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		55.0	27.4	42	57	73				
S SPRUCE		114.5	56.9	27	62	98				
WHEMLOCK		74.4	37.0	41	65	89				
<b>TOTAL</b>		<b>62.3</b>	<b>31.0</b>	<b>128</b>	<b>185</b>	<b>242</b>	<b>192</b>	<b>98</b>	<b>48</b>	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		38.0	18.9	97	120	142				
S SPRUCE		71.3	35.4	56	87	118				
WHEMLOCK		63.9	31.8	52	76	100				
<b>TOTAL</b>		<b>16.1</b>	<b>8.0</b>	<b>260</b>	<b>283</b>	<b>306</b>	<b>13</b>	<b>7</b>	<b>3</b>	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		46.9	23.3	10,800	14,085	17,370				
S SPRUCE		77.7	38.6	6,573	10,710	14,847				
WHEMLOCK		67.0	33.3	6,198	9,297	12,395				
<b>TOTAL</b>		<b>15.3</b>	<b>7.6</b>	<b>31,491</b>	<b>34,092</b>	<b>36,693</b>	<b>12</b>	<b>6</b>	<b>3</b>	
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		46.9	23.3	90	118	145				
S SPRUCE		77.7	38.6	75	123	170				
WHEMLOCK		67.0	33.3	81	122	163				
<b>TOTAL</b>		<b>15.3</b>	<b>7.6</b>	<b>111</b>	<b>120</b>	<b>130</b>	<b>12</b>	<b>6</b>	<b>3</b>	



TC TSTATS				STATISTICS				PAGE	1	
PROJECT				RB				DATE	11/2/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
030	013	19	RB	00U5	12.60	7	35	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		7	35	5.0						
CRUISE		5	26	5.2	1,732		1.5			
DBH COUNT										
REFOREST										
COUNT		2	9	4.5						
BLANKS										
100 %										
<b>STAND SUMMARY</b>										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR	13	80.0	19.3	79	37.1	163.3	20,614	19,625	5,924	5,913
S SPRUCE	8	26.2	20.9	70	13.6	62.2	7,621	7,384	2,181	2,181
WHEMLOCK	5	31.3	16.5	70	11.5	46.7	5,758	5,473	1,606	1,606
<b>TOTAL</b>	<b>26</b>	<b>137.5</b>	<b>19.1</b>	<b>75</b>	<b>62.4</b>	<b>272.2</b>	<b>33,993</b>	<b>32,482</b>	<b>9,710</b>	<b>9,700</b>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	<b>TREES/ACRE</b>				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		93.2	38.0	50	80	110				
S SPRUCE		177.4	72.3	7	26	45				
WHEMLOCK		187.0	76.2	7	31	55				
<b>TOTAL</b>		<b>31.8</b>	<b>12.9</b>	<b>120</b>	<b>137</b>	<b>155</b>	<b>47</b>	<b>24</b>	<b>12</b>	
CL:	68.1 %	COEFF	<b>BASAL AREA/ACRE</b>				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		90.3	36.8	103	163	223				
S SPRUCE		163.1	66.4	21	62	104				
WHEMLOCK		170.8	69.6	14	47	79				
<b>TOTAL</b>		<b>20.0</b>	<b>8.1</b>	<b>250</b>	<b>272</b>	<b>294</b>	<b>19</b>	<b>9</b>	<b>5</b>	
CL:	68.1 %	COEFF	<b>NET BF/ACRE</b>				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		90.0	36.6	12,433	19,625	26,817				
S SPRUCE		155.4	63.3	2,710	7,384	12,058				
WHEMLOCK		180.0	73.3	1,461	5,473	9,484				
<b>TOTAL</b>		<b>21.6</b>	<b>8.8</b>	<b>29,623</b>	<b>32,482</b>	<b>35,340</b>	<b>22</b>	<b>11</b>	<b>5</b>	
CL:	68.1 %	COEFF	<b>V-BAR/ACRE</b>				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		46.6	19.0	76	120	164				
S SPRUCE		155.4	63.3	44	119	194				
WHEMLOCK		173.5	70.7	31	117	203				
<b>TOTAL</b>		<b>101.9</b>	<b>41.5</b>	<b>109</b>	<b>119</b>	<b>130</b>	<b>482</b>	<b>246</b>	<b>121</b>	



TC TSTATS				STATISTICS				PAGE	1	
PROJECT				RB				DATE	11/2/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
030	013	19	RB	00U6	9.10	5	26	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		5	26	5.2						
CRUISE		4	20	5.0	1,809		1.1			
DBH COUNT										
REFOREST										
COUNT		1	6	6.0						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
S SPRUCE	12	161.6	14.9	58	50.8	196.0	18,101	18,101	5,863	5,863
DOUG FIR	5	17.5	23.9	74	11.1	54.4	6,498	6,052	1,879	1,879
WHEMLOCK	3	19.7	17.4	63	7.8	32.7	3,364	3,214	1,022	1,022
<b>TOTAL</b>	<b>20</b>	<b>198.8</b>	<b>16.2</b>	<b>60</b>	<b>70.4</b>	<b>283.1</b>	<b>27,962</b>	<b>27,367</b>	<b>8,764</b>	<b>8,764</b>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
S SPRUCE	88.1	43.8		91	162	232				
DOUG FIR	129.4	64.4		6	17	29				
WHEMLOCK	162.3	80.7		4	20	36				
<b>TOTAL</b>	<b>53.8</b>	<b>26.8</b>		<b>146</b>	<b>199</b>	<b>252</b>	<b>143</b>	<b>73</b>	<b>36</b>	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
S SPRUCE	69.7	34.7		128	196	264				
DOUG FIR	122.5	60.9		21	54	88				
WHEMLOCK	149.1	74.1		8	33	57				
<b>TOTAL</b>	<b>21.1</b>	<b>10.5</b>		<b>253</b>	<b>283</b>	<b>313</b>	<b>22</b>	<b>11</b>	<b>5</b>	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
S SPRUCE	62.6	31.2		12,462	18,101	23,740				
DOUG FIR	114.8	57.1		2,597	6,052	9,506				
WHEMLOCK	154.9	77.1		737	3,214	5,691				
<b>TOTAL</b>	<b>15.0</b>	<b>7.5</b>		<b>25,320</b>	<b>27,367</b>	<b>29,414</b>	<b>11</b>	<b>6</b>	<b>3</b>	
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
S SPRUCE				64	92	121				
DOUG FIR	114.8	57.1		48	111	175				
WHEMLOCK	154.9	77.1		23	98	174				
<b>TOTAL</b>	<b>91.9</b>	<b>45.7</b>		<b>89</b>	<b>97</b>	<b>104</b>	<b>418</b>	<b>213</b>	<b>104</b>	

T	TSPCSTGR	Species, Sort Grade - Board Foot Volumes (Type)										Page	1												
												Date	11/2/2015												
												Time	7:30:44AM												
T029 R014 S20 T00U7										T029 R014 S20 T00U7															
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt																
029	014	20	RB	00U7	24.10	12	38	S	W																
Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre				
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/ Lf					
WH	CU	CU																							
WH	DM	2S		6	20.7	999	792	19			100						100			6				0.00	10.1
WH	DM	3S		59	2.1	7,405	7,250	175			100						100			40	14	230	2.11	3.4	
WH	DM	4S		32		3,967	3,967	96	77	23				3	83		14			40	8	97	0.76	74.8	
WH	DM	UT		3		336	336	8	100					100						25	5	28	0.30	143.4	
<b>WH</b>	<b>Totals</b>			46	2.8	12,707	12,345	298	27	66	6			4	27		70			27	6	47	0.52	265.4	
SS	CU	CU																		5				0.00	15.6
SS	DM	2S		25	3.2	2,007	1,944	47			100						100			40	14	281	2.10	6.9	
SS	DM	3S		48		3,677	3,677	89			100				3	4	93			39	9	118	0.95	31.1	
SS	DM	4S		27	2.1	2,030	1,988	48	96	4				15	53		31			25	5	29	0.39	69.1	
<b>SS</b>	<b>Totals</b>			29	1.4	7,714	7,608	183	25	49	26			4	15	2	79			26	7	62	0.74	122.8	
DF	CU	CU																		5				0.00	11.6
DF	DM	2S		38	3.2	2,321	2,246	54			100						100			40	14	267	2.02	8.4	
DF	DM	3S		45	6.1	2,823	2,650	64			100				8	4	88			38	9	103	0.95	25.7	
DF	DM	4S		17		956	956	23	92	8				13	38		49			26	5	28	0.32	34.2	
<b>DF</b>	<b>Totals</b>			22	4.1	6,100	5,853	141	15	47	38			2	10	2	86			28	7	73	0.85	80.0	
RA	CU	CU																		8				0.00	6.8
RA	DM	4S		87	8.2	832	764	18			100			56	44					24	8	44	0.68	17.4	
RA	DM	UT		13		106	106	3	100					100						13	5	10	0.24	10.6	
<b>RA</b>	<b>Totals</b>			3	7.2	938	870	21	12	88				61	39					16	7	25	0.57	34.8	
<b>Type Totals</b>					2.8	27,459	26,676	643	24	58	19			5	20	1	74			26	6	53	0.64	503.0	

TC TSTATS				STATISTICS				PAGE	1	
PROJECT				RB				DATE	11/2/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
029	014	20	RB	00U7	24.10	12	69	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		12	69	5.8						
CRUISE		7	38	5.4	7,197		.5			
DBH COUNT										
REFOREST										
COUNT		5	31	6.2						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	13	167.3	12.4	50	39.9	140.6	12,707	12,345	3,721	3,721
S SPRUCE	13	73.9	14.6	48	22.5	86.2	7,714	7,608	2,412	2,412
DOUG FIR	10	40.0	17.1	61	15.4	63.5	6,100	5,853	1,886	1,886
R ALDER	2	17.4	13.3	39	4.6	16.7	938	870	314	314
<b>TOTAL</b>	<b>38</b>	<b>298.7</b>	<b>13.7</b>	<b>50</b>	<b>82.9</b>	<b>307.0</b>	<b>27,459</b>	<b>26,676</b>	<b>8,334</b>	<b>8,334</b>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		82.6	24.9	126	167	209				
S SPRUCE		74.9	22.6	57	74	91				
DOUG FIR		166.8	50.3	20	40	60				
R ALDER		217.2	65.5	6	17	29				
<b>TOTAL</b>		<b>32.8</b>	<b>9.9</b>	<b>269</b>	<b>299</b>	<b>328</b>	<b>47</b>	<b>24</b>	<b>12</b>	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		81.6	24.6	106	141	175				
S SPRUCE		68.4	20.6	68	86	104				
DOUG FIR		150.0	45.2	35	64	92				
R ALDER		216.1	65.1	6	17	28				
<b>TOTAL</b>		<b>31.3</b>	<b>9.4</b>	<b>278</b>	<b>307</b>	<b>336</b>	<b>43</b>	<b>22</b>	<b>11</b>	
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		83.4	25.1	9,243	12,345	15,448				
S SPRUCE		75.5	22.8	5,876	7,608	9,341				
DOUG FIR		150.7	45.4	3,195	5,853	8,511				
R ALDER		217.2	65.5	300	870	1,440				
<b>TOTAL</b>		<b>39.9</b>	<b>12.0</b>	<b>23,472</b>	<b>26,676</b>	<b>29,881</b>	<b>69</b>	<b>35</b>	<b>17</b>	
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				66	88	110				
S SPRUCE		25.1	7.6	68	88	108				
DOUG FIR		136.7	41.2	50	92	134				
R ALDER		8.3	2.5	18	52	86				
<b>TOTAL</b>		<b>170.8</b>	<b>51.5</b>	<b>76</b>	<b>87</b>	<b>97</b>	<b>1,272</b>	<b>649</b>	<b>318</b>	

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

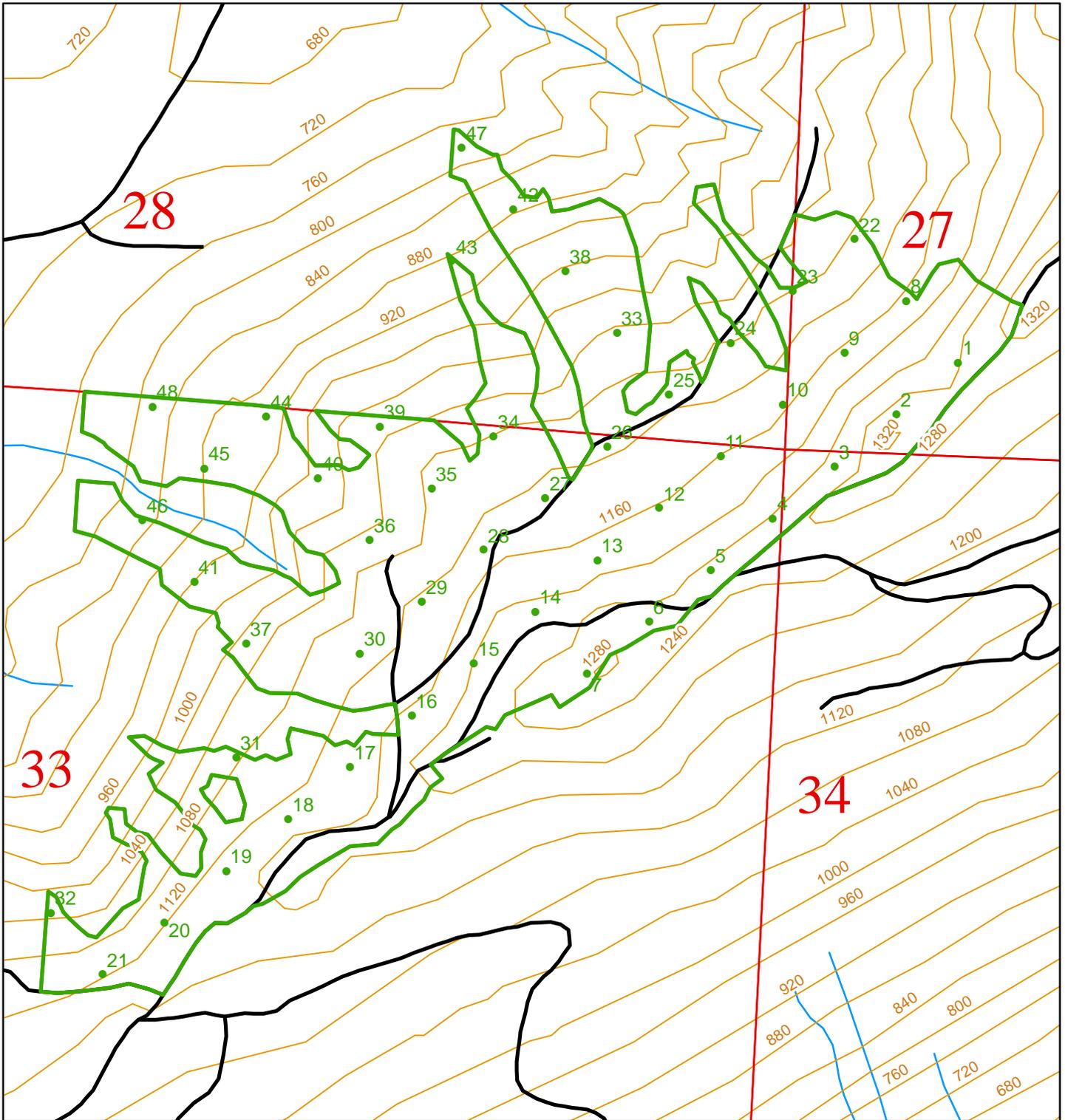
T029 R014 S20 Ty00U7	24.1
T030 R013 S19 Ty00U4	9.0
T030 R013 S33 Ty00U1	81.3

**Project RB**  
**Acres 159.70**

**Page No 1**  
**Date: 11/2/2015**  
**Time 7:40:58AM**

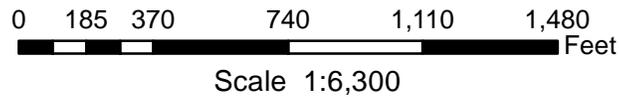
Species	Total	Total	Total	Net Cubic Ft/		CF/	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log	LF	Gross	Net	Gross	Net
WHEMLOCK	15,941	27,066	17,618	34.41	20.27	0.72	5,506	5,485	1,849	1,784
DOUG FIR	7,946	14,405	12,802	56.51	31.17	0.96	4,492	4,491	1,451	1,382
S SPRUCE	5,885	9,899	6,830	44.64	26.54	0.88	2,627	2,627	838	823
R ALDER	2,608	4,134	1,230	17.16	10.82	0.55	447	447	147	136
<b>Totals</b>	<b>32,380</b>	<b>55,504</b>	<b>38,482</b>	<b>40.30</b>	<b>23.51</b>	<b>0.81</b>	<b>13,072</b>	<b>13,051</b>	<b>4,285</b>	<b>4,125</b>

Wood Type Species	Total	Total	Total	Net Cubic Ft/		CF/	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log	LF	Gross	Net	Gross	Net
C	29,772	51,370	37,251	42.33	24.53	0.82	12,625	12,603	4,138	3,989
H	2,608	4,134	1,230	17.16	10.82	0.55	447	447	147	136
<b>Totals</b>	<b>32,380</b>	<b>55,504</b>	<b>38,482</b>	<b>40.30</b>	<b>23.51</b>	<b>0.81</b>	<b>13,072</b>	<b>13,051</b>	<b>4,285</b>	<b>4,125</b>



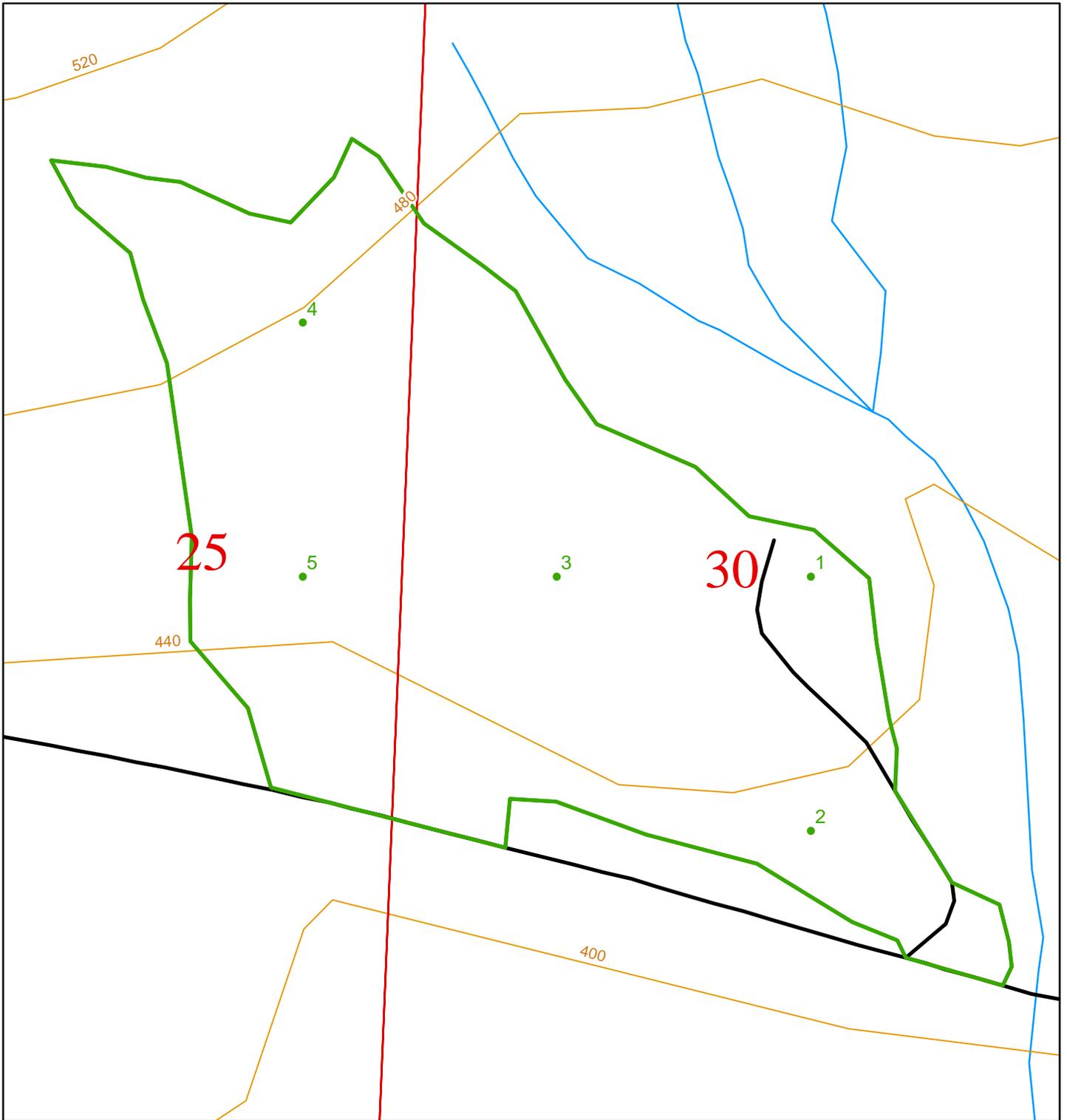
**Cruiser Sample Point Locations**

LAYER NAME:	blue_&_red_boundary	Township:	T30R13W
POLY ID:	1	Total Sample Points:	48
Acres:	90	Spacing Between Points:	Width: 300 Height: 300
		Point Rotation Degrees:	50



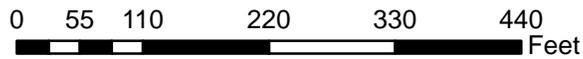
**Legend**

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



**Cruiser Sample Point Locations**

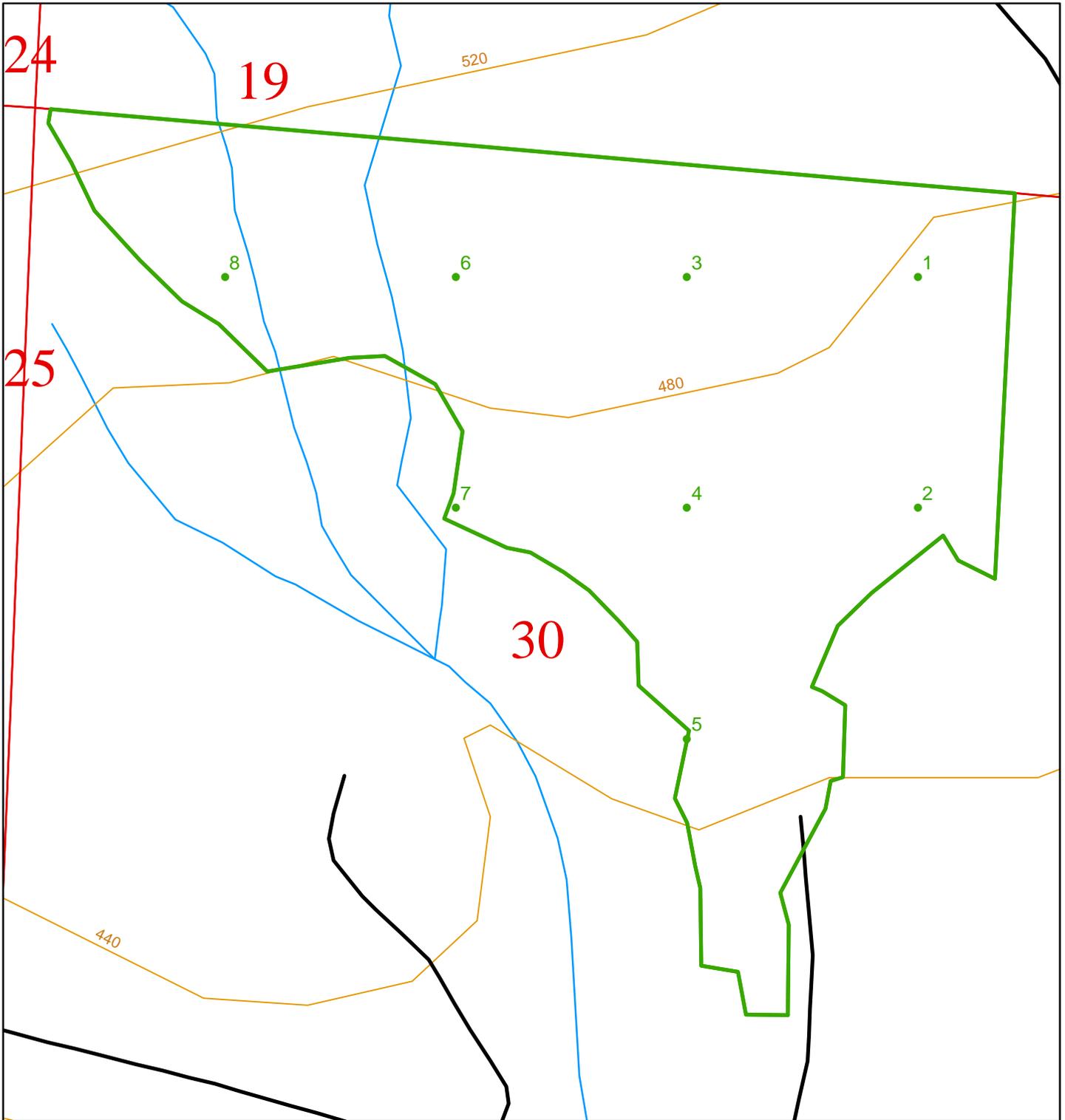
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POLY ID:	1	Total Sample Points:	5
Acres:	11	Spacing Between Points:	Width: 300 Height: 300
		Point Rotation Degrees:	0



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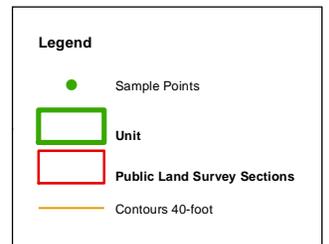
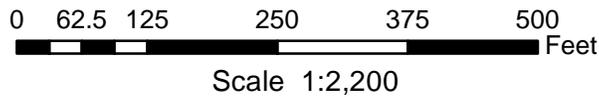
**Legend**

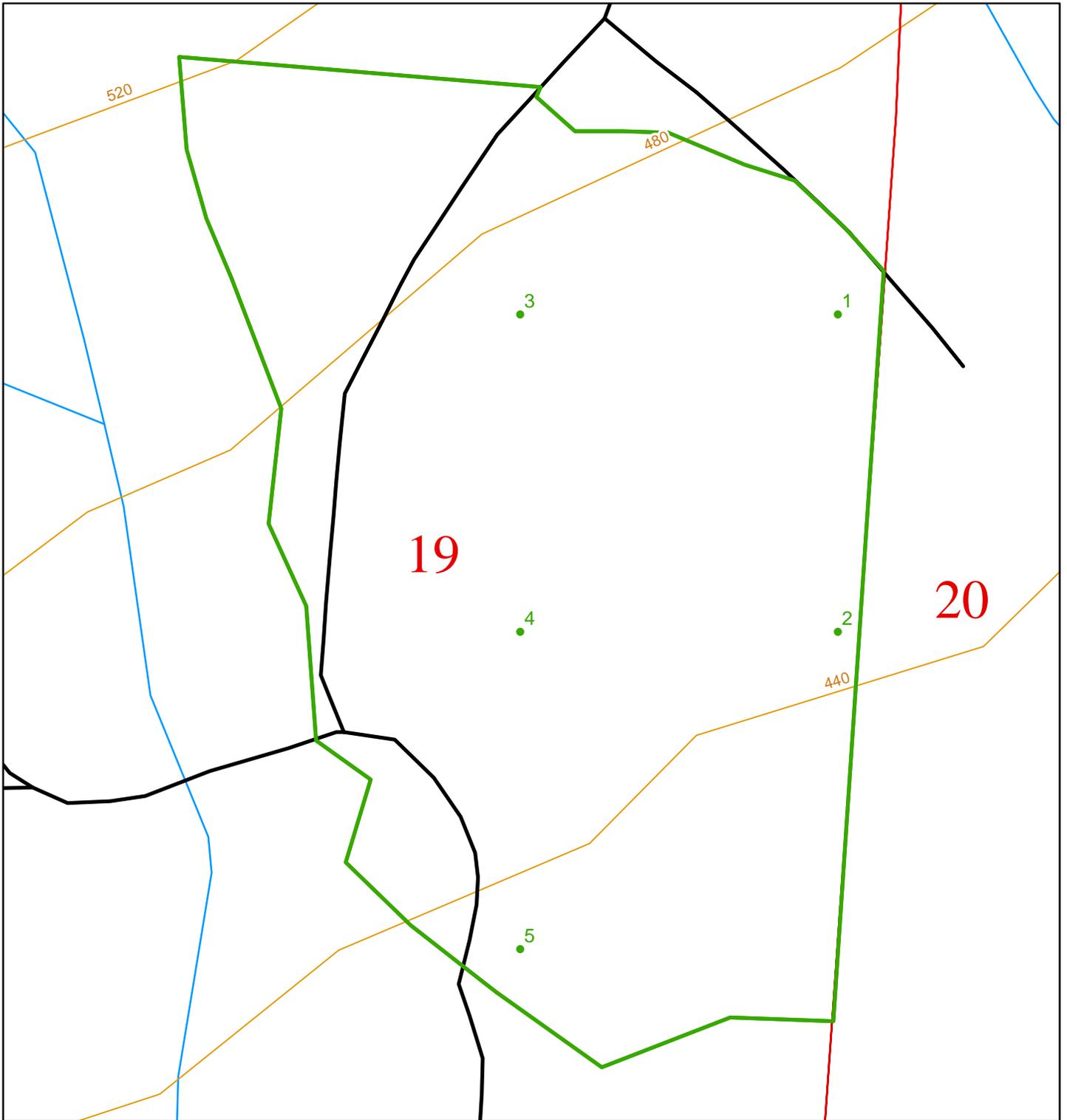
- Sample Points
- Unit
- Public Land Survey Sections
- Contours 40-foot



**Cruiser Sample Point Locations**

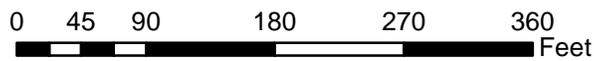
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POLY ID:	1	Total Sample Points:	8
Acres:	14	Spacing Between Points:	Width: 300 Height: 300
		Point Rotation Degrees:	0





**Cruiser Sample Point Locations**

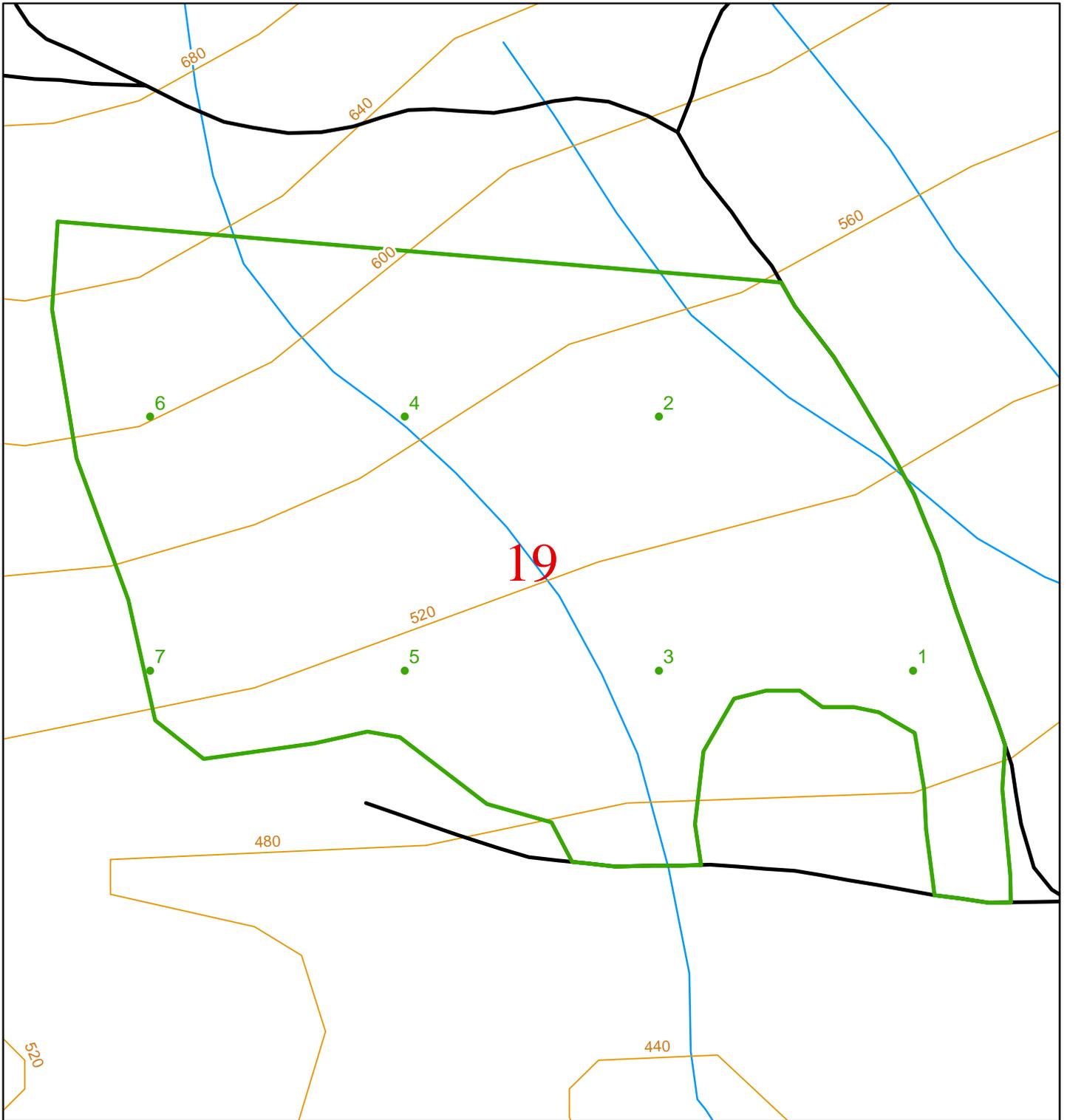
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POLY ID:	1	Total Sample Points:	5
Acres:	10	Spacing Between Points:	Width: 300 Height: 300
		Point Rotation Degrees:	0



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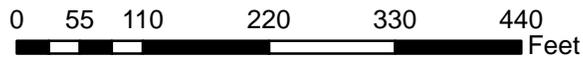
**Legend**

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



**Cruiser Sample Point Locations**

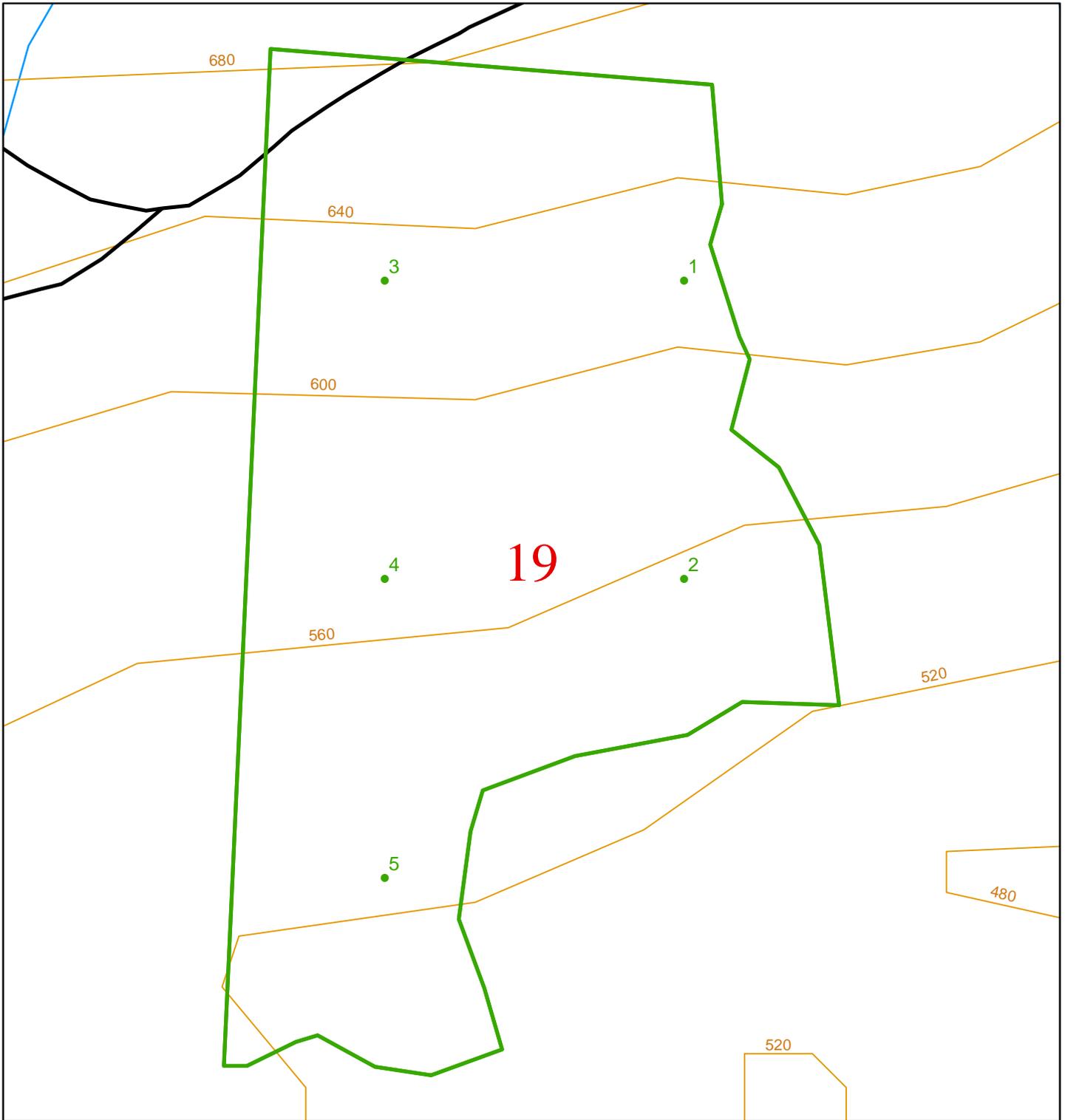
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POLY ID:	1	Total Sample Points:	7
Acres:	14	Spacing Between Points:	Width: 300 Height: 300
		Point Rotation Degrees:	0



Scale 1:2,000

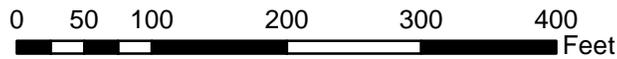
**Legend**

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



**Cruiser Sample Point Locations**

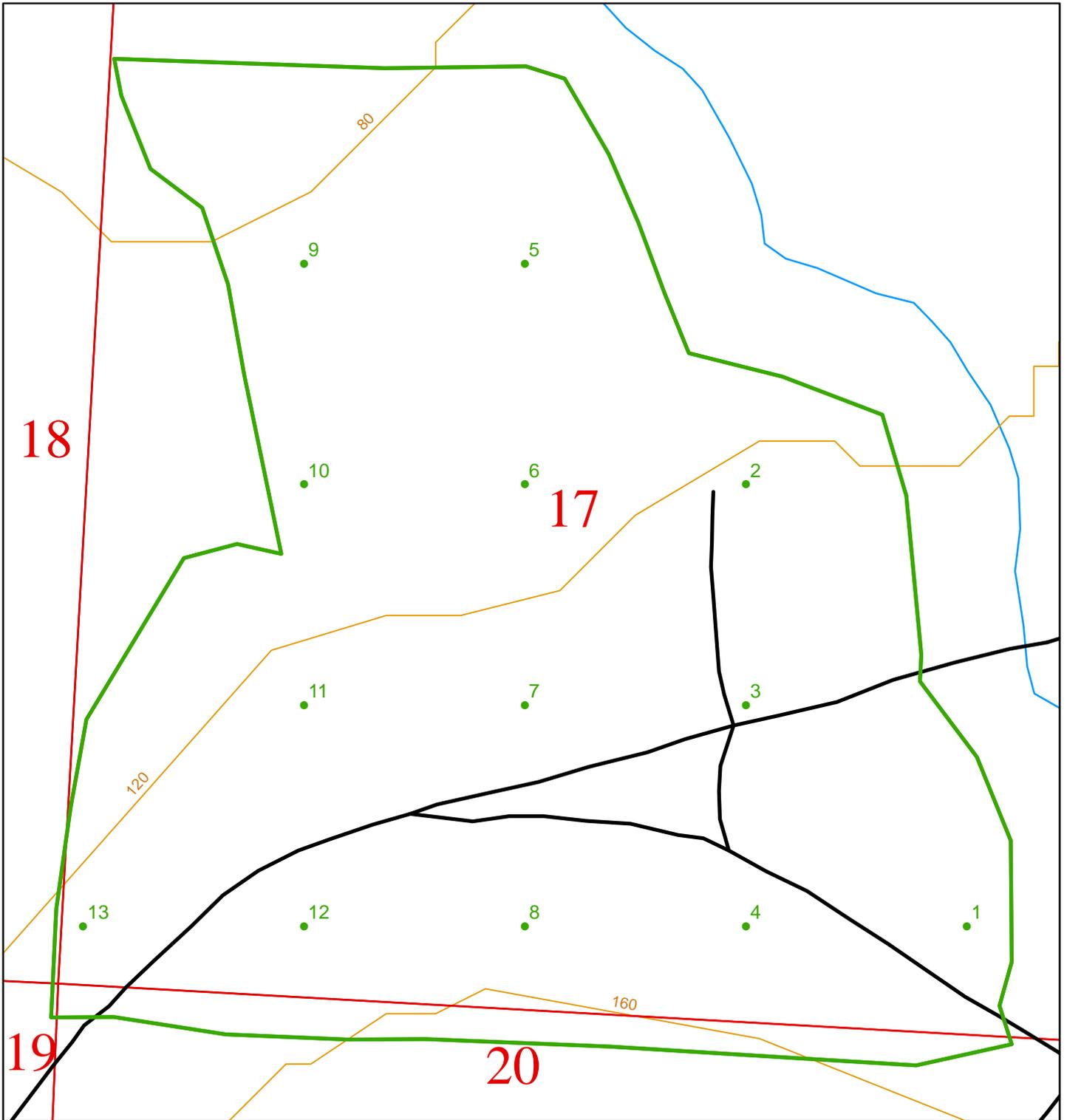
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POLY ID:	1	Total Sample Points:	5
Acres:	10	Spacing Between Points:	Width: 300 Height: 300
		Point Rotation Degrees:	0



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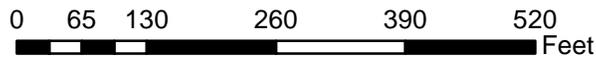
**Legend**

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



**Cruiser Sample Point Locations**

LAYER NAME:	unit_2	Township:	T29R14W
POLY ID:	1	Total Sample Points:	13
Acres:	29	Spacing Between Points:	Width: 300 Height: 300
		Point Rotation Degrees:	0



Scale 1:2,300

**Legend**

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



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

FPA/N No: 2614037  
 Effective Date: 2/25/2016  
 Expiration Date: 2/25/2019  
 Shut Down Zone: 650  
 EARR Tax Credit:  Eligible [ ] Non-eligible  
 Reference: DNR - Red and Blue

**Forest Practices Application/Notification  
 Notice of Decision**

**Decision**

- Notification Operations shall not begin before the effective date.
- Approved This Forest Practices Application is subject to the conditions listed below.
- Disapproved This Forest Practices Application is disapproved for the reasons listed below.
- Closed Applicant has withdrawn FPA/N.

**FPA/N Classification**

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

**Number of Years Granted on Multi-Year Request**

4 years [ ] 5 years

**Conditions on Approval / Reasons for Disapproval**

Issued By: Levi Puksta

Region: Olympic

Title: Forest Practice Forester

Date: 2/25/2016

Copies to:  Landowner, Timber Owner and Operator.

Issued in person:  Landowner [ ] Timber Owner [ ] Operator By: Connie L. Sallee

*Connie L. Sallee*  
 Connie L Sallee

**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.eho.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  
Olympic Region  
411 Tillicum Lane  
Forks, WA 98331

**Other Applicable Laws**

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

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

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

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

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

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

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

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

**DNR affidavit of mailing:**

On this day _____, I placed in the United States mail at _____, WA,
(date) <span style="margin-left: 200px;">(post office location)</span>
postage paid, a true and accurate copy of this document. Notice of Decision FPA # <u>2614037</u>
_____ (Printed name) <span style="margin-left: 150px;">_____ (Signature)</span>

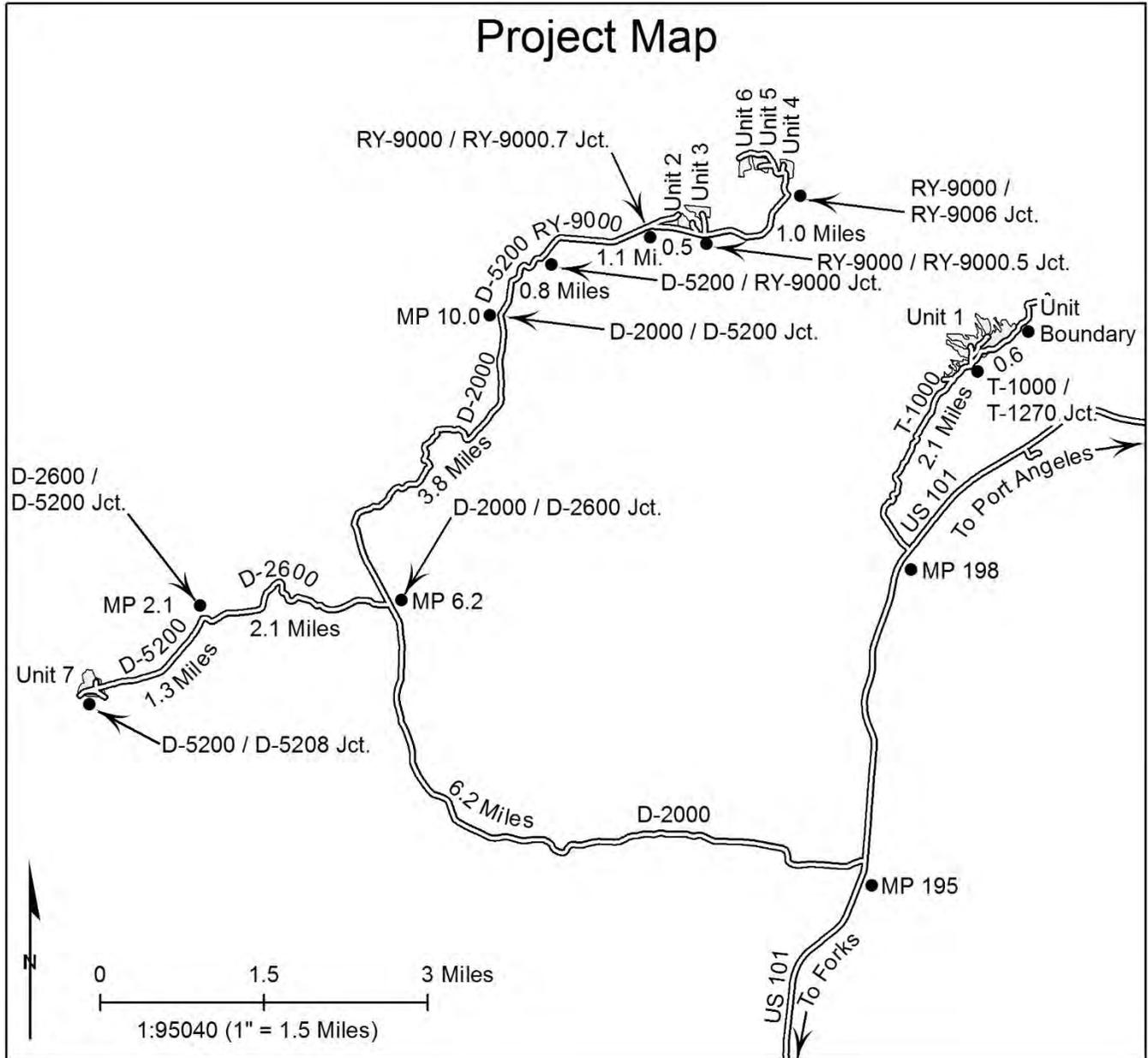
STATE OF WASHINGTON  
 DEPARTMENT OF NATURAL RESOURCES  
 RED AND BLUE TIMBER SALE ROAD PLAN  
 CLALLAM COUNTY  
 COAST DISTRICT

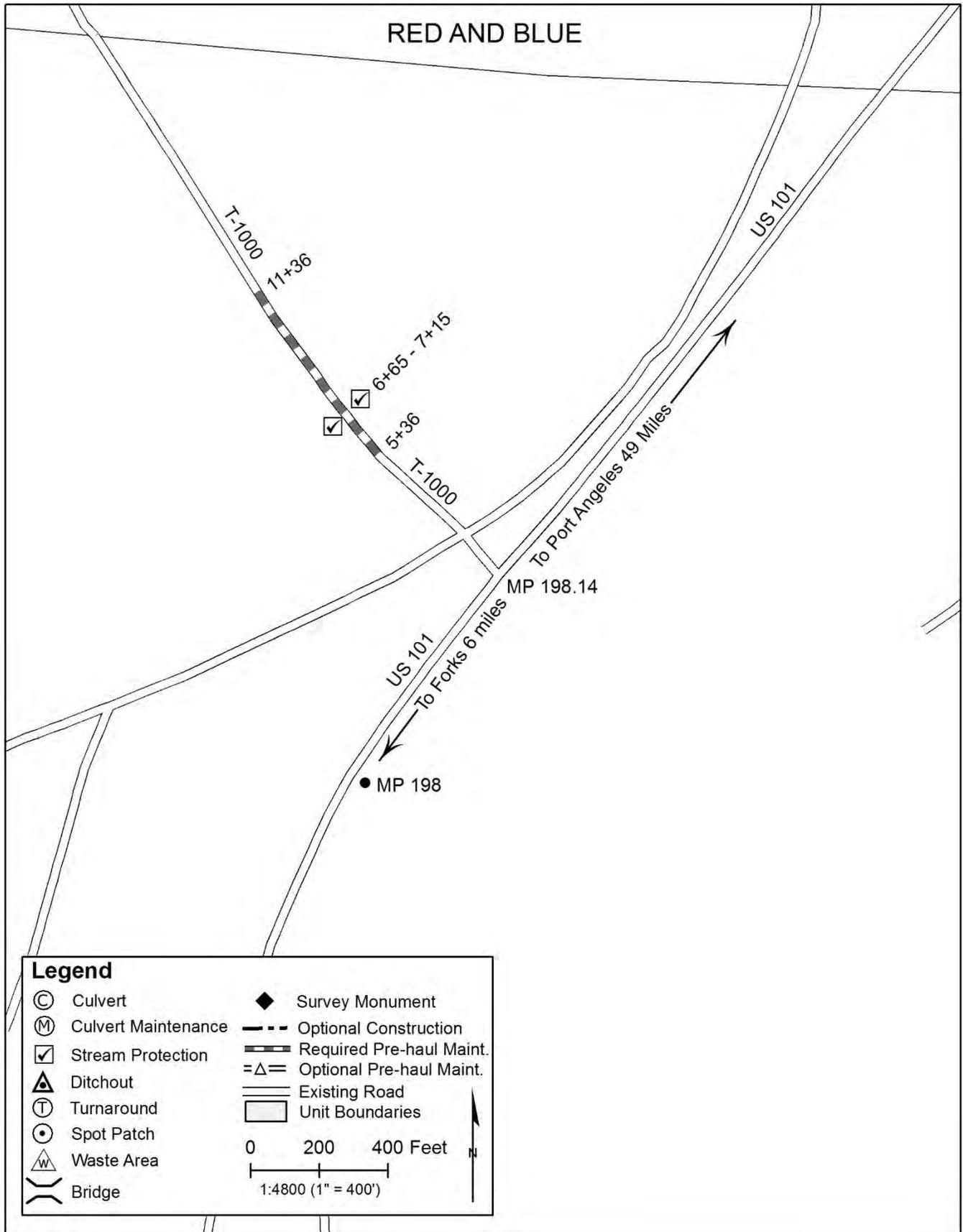
AGREEMENT NO.: 30-093206

DISTRICT ENGINEER: BILL MEHL

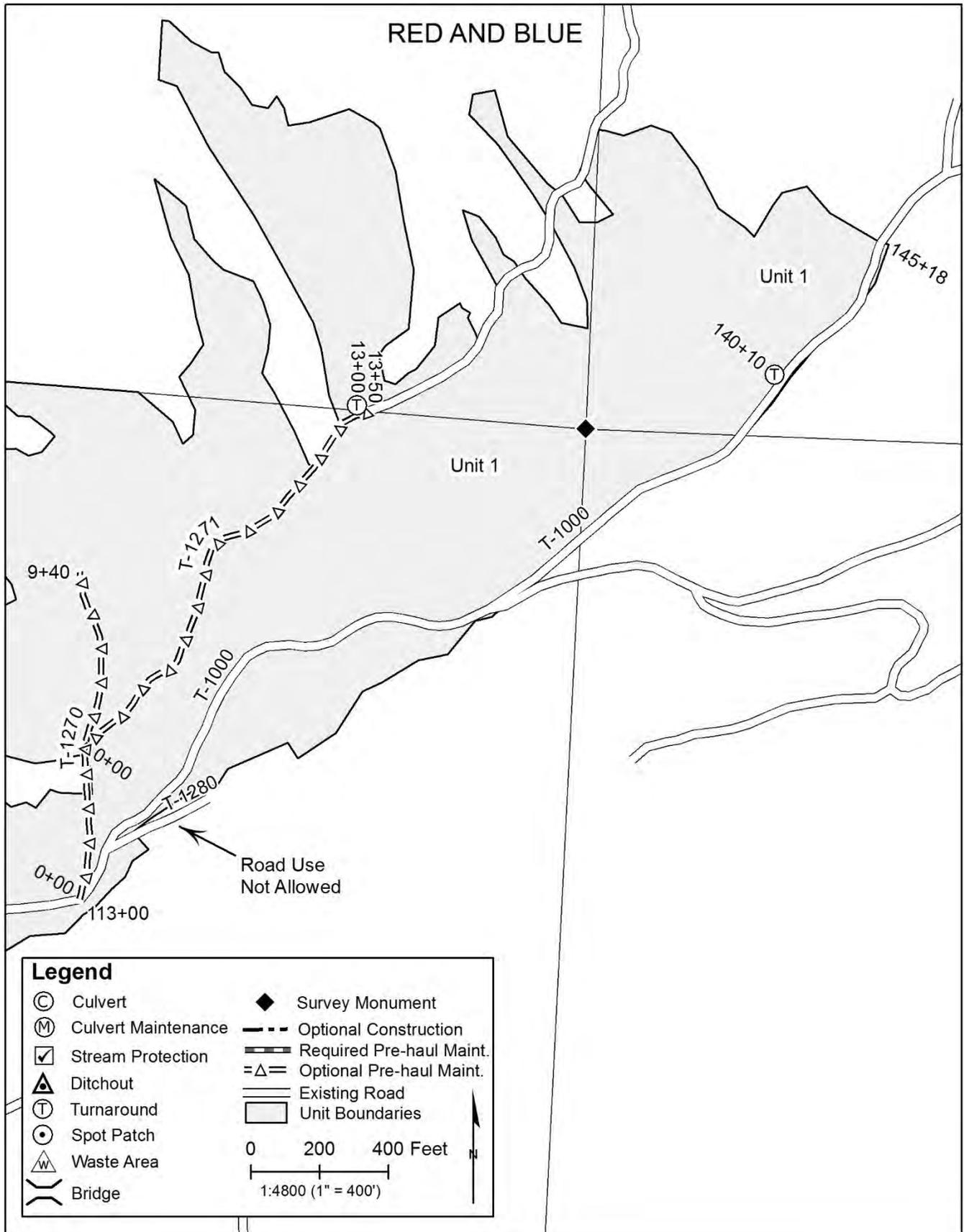
DATE: MARCH 4, 2016

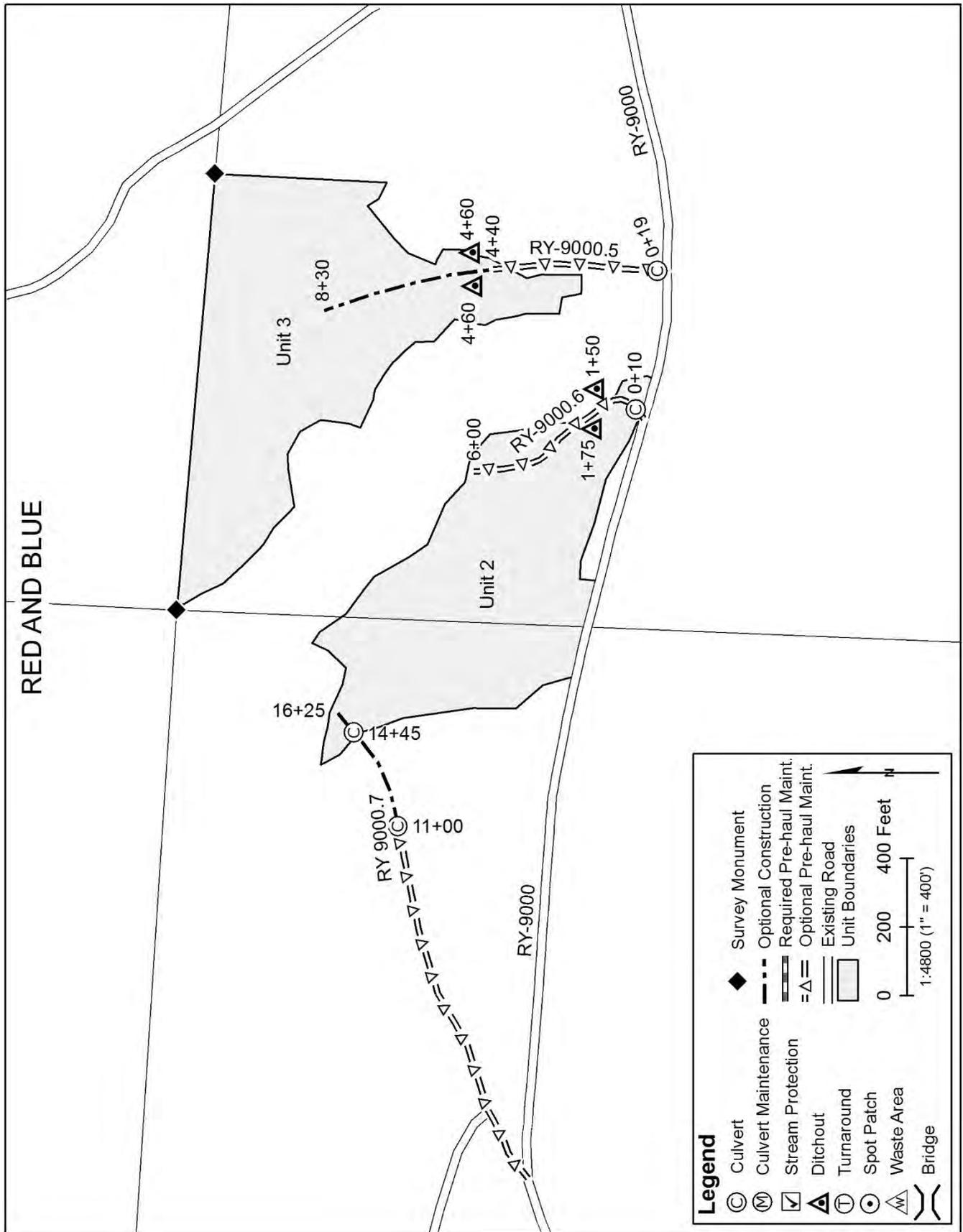
DRAWN & COMPILED BY: CRAIG MAGNUSON

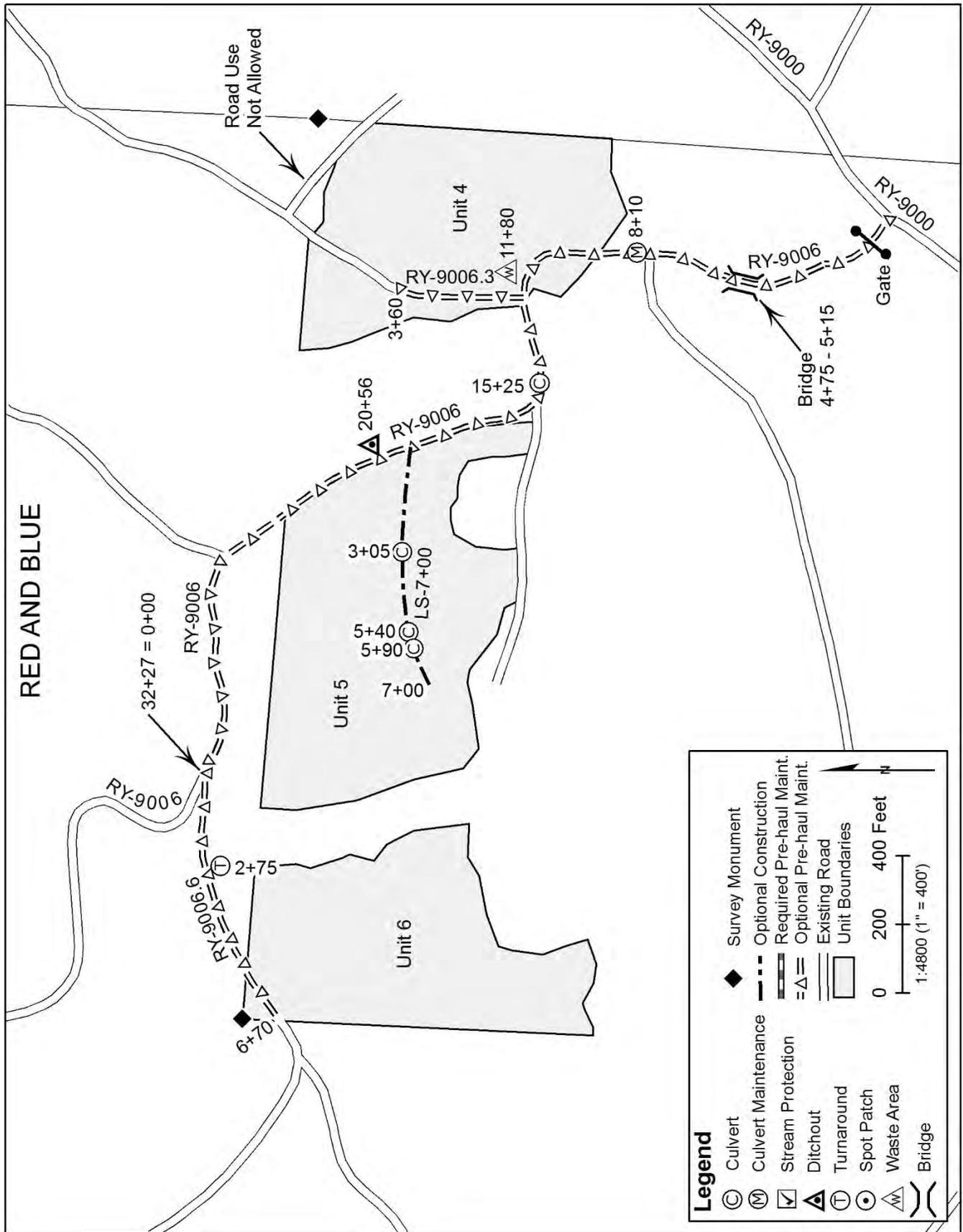


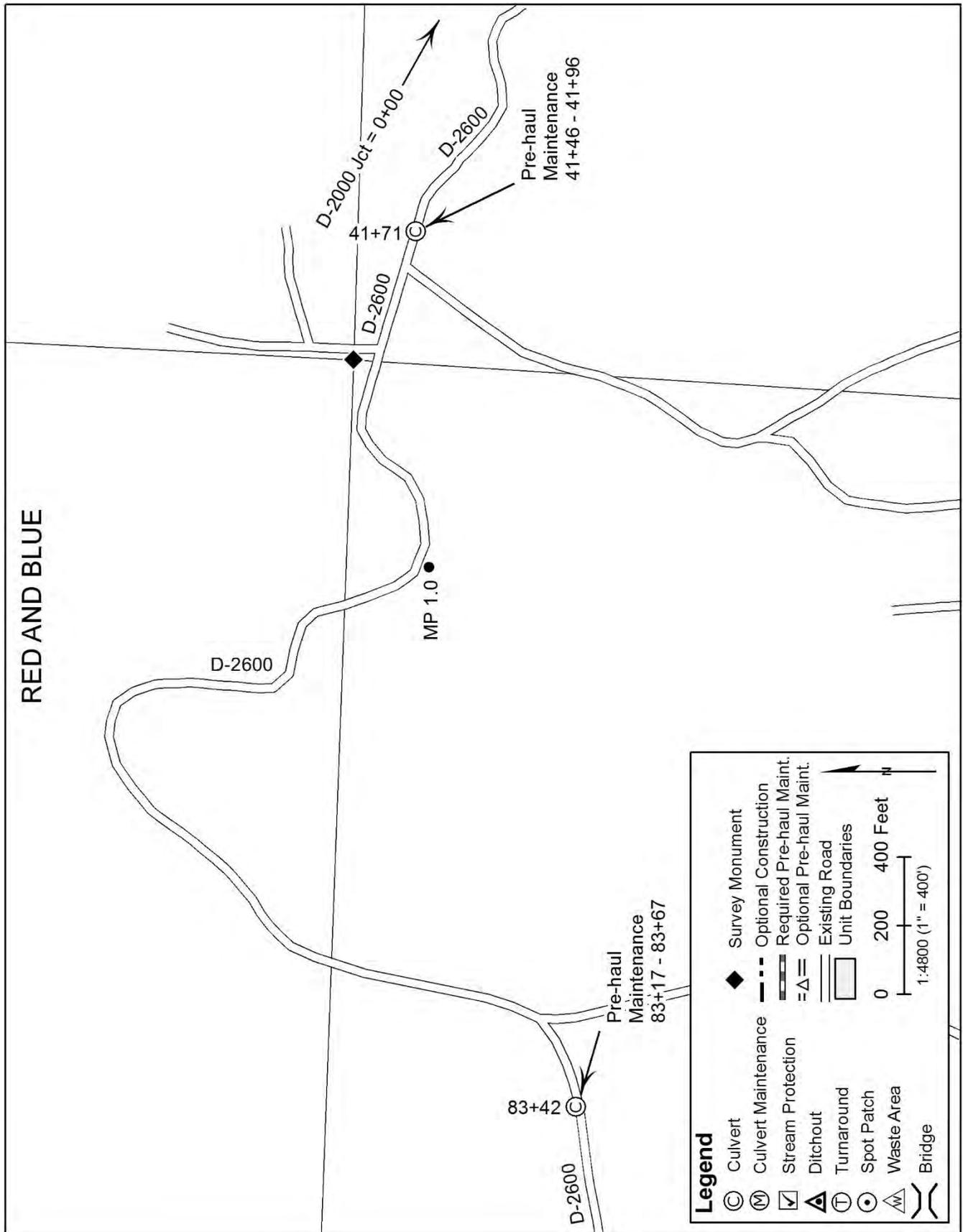


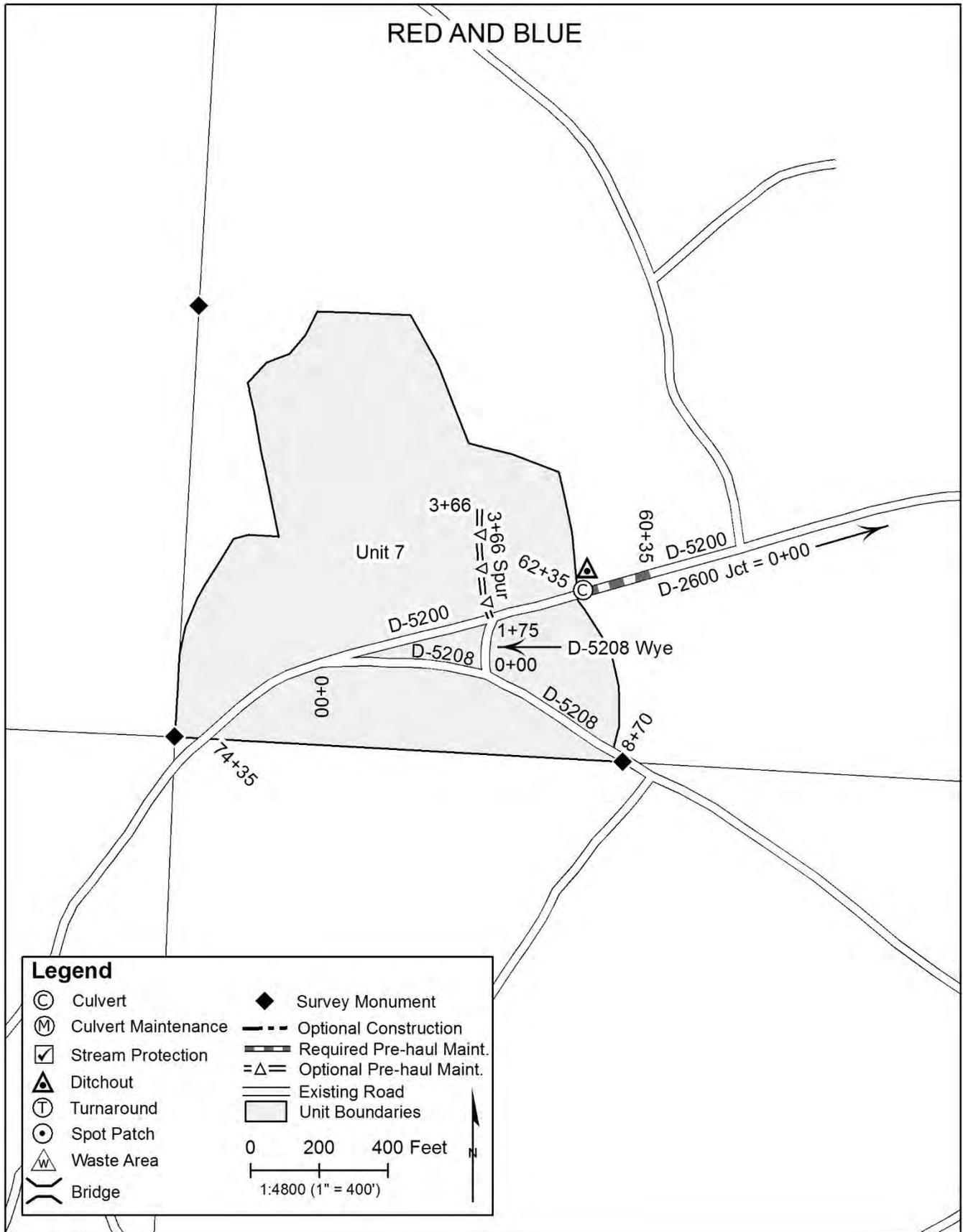












SECTION 0 – SCOPE OF PROJECT

**0-1 ROAD PLAN SCOPE**

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

**0-2 REQUIRED ROADS**

The specified work on the following roads is required.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
T-1000	6.00	Pre-haul Maintenance
D-5200	2.00	Pre-haul Maintenance
D-2600	1.00	Pre-haul Maintenance

**0-3 OPTIONAL ROADS**

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

<u>Road</u>	<u>Stations</u>	<u>Type</u>
3+66 Spur	3.66	Pre-haul Maintenance
T-1260	4.50	Pre-haul Maintenance
T-1270	9.40	Pre-haul Maintenance
T-1271	13.50	Pre-haul Maintenance
RY-9000.5	4.40	Pre-haul Maintenance
RY-9000.5	3.90	Construction
RY-9000.6	6.00	Pre-haul Maintenance
RY-9000.7	11.00	Pre-haul Maintenance
RY-9000.7	5.25	Construction
RY-9006	32.27	Pre-haul Maintenance
RY-9006.3	3.60	Pre-haul Maintenance
LS-7+00	7.00	Construction
RY-9006.6	6.70	Pre-haul Maintenance

**0-4 CONSTRUCTION**

This project includes, but is not limited to the following construction requirements:

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
RY-9000.5	4+40 – 8+30	See below.
RY-9000.7	11+00 – 16+25	See below. Installation of temporary culverts.
LS-7+00	0+00 – 7+00	See below. Installation of temporary culverts.

Construction includes, but is not limited to:

Clearing, grubbing, right-of-way debris disposal, excavation and/or embankment to subgrade, end hauling material for construction, constructing ditchlines, constructing ditchouts, constructing turnouts and turnarounds, curve widening, acquisition and installation of culverts and drainage structures, compaction of subgrade, application of rock, compaction of road surface, spreading grass seed and hay.

**0-6 PRE-HAUL MAINTENANCE**

This project includes, but is not limited to the following prehaul maintenance requirements:

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
T-1000	5+36 – 11+36	Install sediment control in accordance with Clause 8-1. Apply rock in accordance with Rock List. Grade and shape road. Compact road surface in accordance with Compaction List.
D-5200	60+35 – 62+35	Install culvert in accordance with Culvert List. Construct ditchout in accordance with Clause 4-29. Apply rock in accordance with Rock List. Grade and shape road. Compact road surface in accordance with Compaction List.
D-2600	41+46 – 41+96	Install culvert in accordance with Culvert List. Apply rock in accordance with Rock List. Grade and shape road. Compact road surface in accordance with Compaction List.
D-2600	83+17 – 83+67	Install culvert in accordance with Culvert List. Apply rock in accordance with Rock List. Grade and shape road. Compact road surface in accordance with Compaction List.
3+66 Spur	0+00 – 3+66	Brush road in accordance with Clause 3-1 and Brushing Detail. Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 3-23. Grade and shape road. Compact road surface in accordance with Compaction List.
T-1260	0+00 – 4+50	Brush road in accordance with Clause 3-1 and Brushing Detail. Grade and shape road.
T-1270	0+00 – 9+40	Brush road in accordance with Clause 3-1 and Brushing Detail. Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 3-23. Clean ditches in accordance with Clause 2-7. Apply rock in accordance with Rock List. Grade and shape road. Compact road surface in accordance with Compaction List.
T-1271	0+00 – 13+50	Brush road in accordance with Clause 3-1 and Brushing Detail. Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 3-23. Clean ditches in accordance with Clause 2-7. Apply rock in accordance with Rock List. Grade and shape road. Compact road surface in accordance with Compaction List.
RY-9000.5	0+00 – 4+40	Install temporary culvert in Type F water at STA 0+19 in accordance with Clause 1-11, RY-9000.5 Temporary Culvert Installation Detail and Fish Stream Work Provisions. Brush road in accordance with Clause 3-1

		and Brushing Detail. Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 3-23. Clean ditches in accordance with Clause 2-7. Construct ditchouts in accordance with Clause 4-29. Apply rock in accordance with Rock List. Grade and shape road. Compact road surface in accordance with Compaction List.
RY-9000.6	0+00 – 6+00	Install culvert in accordance with Culvert List. Brush road in accordance with Clause 3-1 and Brushing Detail. Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 3-23. Clean ditches in accordance with Clause 2-7. Construct ditchouts in accordance with Clause 4-29. Apply rock in accordance with Rock List. Grade and shape road. Compact road surface in accordance with Compaction List.
RY-9000.7	0+00 – 11+00	Brush road in accordance with Clause 3-1 and Brushing Detail. Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 3-23. Clean ditches in accordance with Clause 2-7. Grade and shape road. Compact road surface in accordance with Compaction List.
RY-9006	0+00 – 32+27	Brush road in accordance with Clause 3-1 and Brushing Detail. Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 3-23. Perform bridge maintenance in accordance with Clause 7-30, Clause 7-31 and Clause 7-32. End haul waste from STA 5+15 – STA 5+65 to waste area at STA 11+80. Clean out culvert in accordance with Clause 2-6. Construct ditchout in accordance with Clause 4-29. Apply rock in accordance with Rock List. Grade and shape road. Compact road surface in accordance with Compaction List.
RY-9006.3	0+00 – 3+60	Brush road in accordance with Clause 3-1 and Brushing Detail. Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 3-23. Clean ditches in accordance with Clause 2-7. Grade and shape road. Compact road surface in accordance with Compaction List.
RY-9006.6	0+00 – 6+70	Brush road in accordance with Clause 3-1 and Brushing Detail. Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 3-23. Clean ditches in accordance with Clause 2-7. Apply rock in accordance with Rock List.

	Grade and shape road. Compact road surface in accordance with Compaction List.
--	--------------------------------------------------------------------------------

Maintenance includes, but is not limited to:

Brushing right-of-way, right-of-way debris disposal, cleaning ditches, constructing ditches, installing additional culverts, widening road segments, constructing headwalls, cleaning culvert inlets and outlets, cross drain culvert replacement, installing erosion control materials and sediment removal structures, spot rocking, grading and shaping existing road surface and turnouts, constructing additional turnouts, compaction of road surface, application of rock, acquisition and application of grass seed and hay.

**0-7 POST-HAUL MAINTENANCE**

This project includes, but is not limited to post-haul road maintenance listed in Clause 9-5 Post Haul Maintenance.

**0-9 DEACTIVATION**

This project includes, but is not limited to deactivation listed in Clause 9-20 Road Deactivation.

**0-12 DEVELOP ROCK SOURCE**

The Purchaser shall develop a rock source called Thunder Pit. Development will involve drilling and shooting to obtain ballast material.

Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

**0-13 STRUCTURES**

The Purchaser shall acquire and install all structures. Requirements for these structures are listed in Section 7 Structures.

SECTION 1 – GENERAL

**1-1 ROAD PLAN CHANGES**

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

**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**

Unless controlled by construction stakes or design data (plan, profile, and cross-sections), road work shall be performed in accordance with the dimensions shown on the Typical Section Sheet and the specifications within this Road Plan.

**1-6 ORDER OF PRECEDENCE**

Any conflict or inconsistency in this Road Plan shall be resolved by giving the documents precedence in the following order:

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

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

**1-7 TEMPORARY ROAD CLOSURE**

The Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before the closure of any road. Road work shall not close any road for more than 3 consecutive days.

<u>Road</u>	<u>Number of Allowable Closed Days</u>	<u>Comments</u>
T-1000	0	Shall provide for hourly passage for communications site access, 24 hours a day, 7 days a week.
RY-9006	3	For bridge maintenance work and culvert replacement.
D-2600	1	For culvert installations.
D-5200	1	For culvert installation and rock application.

**1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS**

The Purchaser is responsible for the repair or replacement of all materials, roadway infrastructure, and road components damaged during roadwork or operation activities. Repairs and replacements shall be directed by the Contract Administrator. Repairs to structural materials will be made according to the manufacturer’s recommendation, and shall not begin without written approval from the Contract Administrator.

**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.

**1-10 WSDOT STANDARD SPECIFICATION REFERENCE**

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

**1-11 FPA/HPA REQUIREMENTS**

The following work is subject to requirements under a Forest Practice Hydraulics Project Approval issued by the State of Washington.

<u>Road</u>	<u>Stations</u>	<u>Work Type</u>
RY-9000.5	0+19	Temporary culvert installation in Type F water.
RY-9006	4+75 – 5+15	Bridge maintenance work.

**1-12 SURVEY MONUMENTS**

At no time during construction, reconstruction, or maintenance shall survey monuments, witness trees, or bearing trees be disturbed or damaged. If damaged or disturbed, Purchaser shall hire a licensed land surveyor to repair, replace, and/or reset them.

**1-13 LOG LOADING**

At no time shall the loading of logs occur on the RY-9000 road. In addition, no debris from harvesting operations shall be allowed on this road.

**1-14 NON-SALE ASSOCIATED CLOSURE**

Culvert and fill replacement work is currently scheduled to take place on the RY-9000 and D-2000 roads at 2 separate times during the hydraulic seasons of 2016 or 2017, which will result in those roads being closed at separate times for up to 3 weeks. The State shall give at least 2 weeks notice to Purchaser before the 2 separate closure periods begin.

SUBSECTION ROAD MARKING

**1-15 ROAD MARKING**

Road work must be in accordance with the State’s marked location. All road work is marked as follows:

- Orange ribbon and paint for construction centerlines.
- Construction stakes for everything else.

**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.

SUBSECTION TIMING

**1-20 COMPLETE BY DATE**

On all roads, required road work shall be completed before the start of timber haul.

**1-21 HAUL APPROVAL**

The Purchaser shall not use roads under this Road Plan without written approval from the Contract Administrator.

**1-22 WORK NOTIFICATIONS**

On all roads, the Purchaser shall notify the Contract Administrator a minimum of 3 calendar days before work begins.

**1-23 ROAD WORK PHASE APPROVAL**

Written approval by Contract Administrator needs to be given at these phases of road work:

- Subgrade approval
- Drainage installation
- Subgrade compaction
- Rock application
- Rock compaction

**SUBSECTION RESTRICTIONS**

**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 shall suspend road work or hauling of right-of-way timber, forest products, or rock under the following conditions:

- 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, the Purchaser will be required to cease operations, or perform corrective maintenance or repairs, subject to specifications within this Road Plan. Before and during any suspension, the Purchaser shall protect the work from damage or deterioration.

**1-32 BRIDGE AND ASPHALT SURFACE RESTRICTION**

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

If tracked equipment is used on bridge or asphalt surfaces, Purchaser shall immediately cease all road work and hauling operations. Any dirt, rock, or other material tracked or spilled on bridge or asphalt surface(s) shall be removed immediately. Any damage to the surface(s) shall be repaired at the Purchaser's expense as directed by the Contract Administrator.

**1-33 SNOW PLOWING RESTRICTION**

On all roads, snow plowing shall be permitted only after the execution of a Snow Plowing Agreement, which is available from the Contact Administrator upon request. Purchaser shall request a Snow Plowing Agreement each time plowing occurs. If damage occurs while plowing, further permission to plow may be revoked by the Contract Administrator.

**SUBSECTION OTHER INFRASTRUCTURE**

**1-42 UTILITY ACCESS ROAD**

The following road(s) intersect(s) existing utility access roads. Purchaser shall conduct road work on the intersecting roads so that the utility access roads are accessible at all times.

<u>Road</u>	<u>Stations</u>
T-1000	0+00 – 114+60 (US 101 – T-1280 Jct.)

### 1-43 ROAD WORK AROUND UTILITIES

Road work is in close proximity to a utility. Known utilities are listed, but it is the Purchaser's responsibility to identify any utilities not listed. The Purchaser shall work in accordance with all applicable laws or rules concerning utilities. The Purchaser is responsible for all notification, including "call before you dig", and liabilities associated with the utilities and their rights-of-way.

<u>Road</u>	<u>Stations</u>	<u>Utility</u>	<u>Utility Contact</u>
T-1000	0+00 – 129+10 (US 101 – T-1300)	Buried utilities servicing communications site on T-1280 road.	811

## SECTION 2 – MAINTENANCE

### 2-1 GENERAL ROAD MAINTENANCE

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

### 2-2 ROAD MAINTENANCE – PURCHASER MAINTENANCE

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

### 2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER

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

### 2-5 MAINTENANCE GRADING – EXISTING ROAD

On the following road(s), a grader shall be used to shape the existing surface.

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
T-1000	5+36 – 11+36	Grade and shape and compact road.
D-5200	60+35 – 62+35	Grade and shape and compact road.
D-2600	41+46 - 41+96	Grade and shape and compact road.
D-2600	83+17 – 83+67	Grade and shape and compact road.
3+66 Spur	0+00 – 3+66	Grade and shape and compact road.
T-1260	0+00 – 4+50	Grade and shape road.
T-1270	0+00 – 9+40	Grade and shape and compact road.
T-1271	0+00 – 13+50	Grade and shape and compact road.
RY-9006	0+00 – 32+27	Grade and shape and compact road.
RY-9000.5	0+00 – 4+40	Grade and shape and compact road.
RY-9000.6	0+00 – 6+00	Grade and shape and compact road.
RY-9000.7	0+00 – 11+00	Grade and shape and compact road.
RY-9006.3	0+00 – 3+60	Grade and shape and compact road.
RY-9006.6	0+00 – 6+70	Grade and shape and compact road.

## 2-6 CLEANING CULVERTS

On the following road(s), all inlets and outlets of culverts shall be cleaned before the start of timber haul and shall be subject to the written approval of the Contract Administrator.

<u>Road</u>	<u>Stations</u>
RY-9006	8+10

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

On the following road(s), Purchaser shall clean and/or construct the ditches, headwalls, and catch basins. Work shall be completed before the start of timber haul and shall be done in accordance with the Typical Section Sheet. Pulling ditch material across the road or mixing in with the road surface will not be allowed. Ditchlines, headwalls, and catch basins shall not encroach into the existing road.

<u>Road</u>	<u>Stations</u>	<u>L or R</u>
T-1270	0+00 – 9+40	R
T-1271	0+00 – 13+50	R
RY-9000.5	0+00 – 4+40	L & R
RY-9000.6	0+00 – 5+50	L & R
RY-9000.7	0+00 – 11+00	L
RY-9006.3	0+00 – 3+60	L & R
RY-9006.6	0+00 – 6+70	R

## 2-9 REMOVING VEGETATIVE MATERIAL

On the following road(s), Purchaser shall remove all vegetative material, dirt, mud, and other debris on the existing road surface with a minimum loss of rock. Material removed shall be disposed of in accordance with Clause 4-36 through Clause 4-38.

<u>Road</u>	<u>Stations</u>
3+66 Spur	0+00 – 3+66
T-1270	0+00 – 9+40
T-1271	0+00 – 13+50
RY-9000.5	0+00 – 4+40
RY-9000.6	0+00 – 6+00
RY-9000.7	0+00 – 11+00
RY-9006	0+00 – 32+27
RY-9006.3	0+00 – 3+60
RY-9006.6	0+00 – 6+70

## SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

### SUBSECTION BRUSHING

## 3-1 BRUSHING

On the following road(s), vegetative material up to 5 inches in diameter, including limbs, shall be cut as shown on the Brushing Detail. Brushing shall be achieved by mechanical cutting of brush, trees, and branches. Root systems and stumps of cut vegetation shall not be disturbed unless directed by the Contract Administrator.

<u>Road</u>	<u>Stations</u>
3+66 Spur	0+00 – 3+66
T-1260	0+00 – 4+50
T-1270	0+00 – 9+40
T-1271	0+00 – 13+50
RY-9000.5	0+00 – 4+40
RY-9000.6	0+00 – 6+00
RY-9000.7	0+00 – 11+00
RY-9006	0+00 – 32+27
RY-9006.3	0+00 – 3+60
RY-9006.6	0+00 – 6+70

**3-2 BRUSHING RESTRICTION**

Pulling, digging, pushing over, and other non-cutting methods used for vegetation removal shall not be used for brushing. Excavator buckets, log loaders and similar equipment shall not be used for brushing.

**3-3 BRUSH REMOVAL**

Remove brushing debris from the road surface, ditchlines, and culvert inlets and outlets. Brush should be disposed of so that it will not fall back onto the road prism.

SUBSECTION CLEARING

**3-5 CLEARING**

Purchaser shall fall all vegetative material larger than 5 inches DBH or over 15 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.

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

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

**3-8 PROHIBITED DECKING AREAS**

Right-of-way timber shall not be decked 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.

SUBSECTION GRUBBING

**3-10 GRUBBING**

Remove all stumps between the grubbing limits specified on the Typical Section Sheet. Those stumps outside the grubbing limits but with undercut roots shall also be removed. Stump removal shall be accomplished using a hydraulic mounted excavator unless authorized, in writing, by the Contract Administrator. Grubbing shall be completed before starting excavation and embankment.

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

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

## **SUBSECTION ORGANIC DEBRIS**

### **3-20 ORGANIC DEBRIS DEFINITION**

Organic debris is defined as all vegetative material not eligible for removal by Contract Clauses 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 grubbing Typical Section Sheet.

### **3-21 DISPOSAL COMPLETION**

All disposal of organic debris, shall be completed before the application of rock.

### **3-23 PROHIBITED DISPOSAL AREAS**

Organic debris shall not be deposited in the following areas:

- Within 5 feet of a cross drain culvert.
- Within 50 feet of a live stream, or wetland.
- On road subgrades road prism excavation and embankment slopes.
- On slopes greater than 45%.
- Within the operational area for cable landings where debris may shift or roll.
- On locations where brush will fall into the ditch or onto the road surface.
- Against standing timber.

### **3-24 BURYING ORGANIC DEBRIS RESTRICTED**

Organic debris shall not be buried unless otherwise stated in this Road Plan.

### **3-25 SCATTERING ORGANIC DEBRIS**

Organic debris shall be scattered outside of the grubbing limits in accordance with Clause 3-23 unless otherwise detailed in this Road Plan and as directed by the Contract Administrator.

## **SECTION 4 – EXCAVATION**

### **4-1 EXCAVATOR CONSTRUCTION**

All roads shall be constructed, reconstructed, and maintained using a track mounted hydraulic excavator unless stated otherwise within this Road Plan, or permission to do otherwise is granted in writing by the Contract Administrator.

### **4-2 PIONEERING**

Pioneering shall not extend past construction that will be completed during the current construction season. Pioneering shall not extend more than 1000 feet beyond completed construction unless approved in writing by the Contract Administrator. In addition, the following actions shall be taken as pioneering progresses:

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

#### 4-3 ROAD GRADE AND ALIGNMENT STANDARDS

The following road grade and alignment standards shall be followed:

- Grade and alignment shall have smooth continuity, without abrupt changes in direction.
- Maximum grade shall not exceed 18 percent favorable and 16 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Sag vertical curves shall not have a grade change greater than 5% in 100 feet.
- Crest vertical curves shall not have a grade change greater than 4% in 100 feet.

#### 4-5 CUT SLOPE RATIO

Unless construction staked or designed excavation slopes shall be constructed no steeper than shown on the following table:

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

#### 4-6 EMBANKMENT SLOPE RATIO

Unless construction staked or designed embankment slopes shall be constructed no steeper than shown on the following table:

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

#### 4-7 SHAPING CUT AND FILL SLOPE

Excavation and embankment slopes shall be constructed 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.

Embankment widening shall be applied equally to both sides of the road to achieve the required width.

## SUBSECTION INTERSECTIONS, TURNOUTS AND TURNAROUNDS

### 4-21 TURNOUTS

Turnouts shall be intervisible with maximum of 1,000 feet between turnouts unless shown otherwise on drawings. Locations shall be adjusted to fit the final subgrade alignment and sight distances. Turnout locations shall be subject to written approval by the Contract Administrator.

### 4-22 TURNAROUNDS

Turnarounds shall be no larger than 50 feet long and 30 feet wide. Locations shall be subject to written approval by the Contract Administrator.

### 4-23 SUBGRADE FLARE FOR INTERSECTIONS

The RY-9006/LS-7+00 intersection shall be constructed/reconstructed to include additional intersection flare.

## SUBSECTION DITCH CONSTRUCTION

### 4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

The Purchaser shall construct ditches into the subgrade as specified on the Typical Section Sheet. Excavated slopes shall be consistent with Clause 4-5 Cut Slope Ratio. Ditches shall be constructed concurrently with construction of the subgrade.

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

On all roads, pulling ditch material across the road or mixing in with the road surface will not be allowed. Excavated material shall be disposed of as specified in Clause 4-36 through Clause 4-38.

### 4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

### 4-29 DITCHOUTS

Ditchouts shall be constructed at locations shown on the list below, and as needed to fit as built conditions. Ditchouts shall be constructed in a manner that diverts ditch water onto the forest floor and shall have excavation backslopes no steeper than a 1:1 ratio. L or R denotes ditchout left or ditchout right heading in.

<u>Road</u>	<u>Stations</u>	<u>L or R</u>
RY-9000.5	4+60 (approx. 30')	L & R
RY-9000.6	1+50 (approx. 20')	R
RY-9000.6	1+75 (approx. 20')	L
RY-9006	20+56 (approx. 30')	R
D-5200	62+35 (approx. 30')	R

## SUBSECTION WASTE MATERIAL (DIRT)

### 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**

Waste material may be sidecast on side slopes up to 45% if the waste material is compacted and free of organic debris. On side slopes greater than 45%, all excavation shall be end hauled or pushed to designated embankment sites and waste areas.

**4-37 WASTE AREA LOCATION**

Waste material shall be deposited in the listed designated areas. The amount of material to be contained in a waste area shall be at the discretion of the Contract Administrator. Note: All amount values are estimated bank yards.

<u>Road</u>	<u>Stations</u>	<u>Waste Area Location</u>	<u>Volume</u>
RY-9006	5+15 – 5+65	RY-9006 STA 11+80	30 yds <sup>3</sup>

**4-38 PROHIBITED WASTE DISPOSAL AREAS**

Waste material shall not be deposited in the following areas:

- Within 5 feet of a cross drain culvert.
- Within 50 feet of a live stream or wetland.
- Within a riparian management zone.
- On side slopes steeper than 45%.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Within the operational area for cable landings.
- Against standing timber.

**4-39 WASTE AREA COMPACTION**

Excavated material may be deposited adjacent to the road prism on side slopes up to 45% if the waste material is compacted and free of debris. On side slopes of 45% or more, all excavation shall be end hauled or pushed to designated waste areas. All waste material shall be compacted. The minimum acceptable compaction is achieved by placing embankments in 2 foot or shallower lifts and routing excavation equipment over the entire width of the lifts, with the exception of side hill embankments too narrow to accommodate excavation equipment which may be placed by end-dumping or sidecasting until sufficiently wide to support the equipment.

SUBSECTION BORROW

**4-47 NATIVE MATERIAL**

Native material shall be excavated material free of organic debris, trash, and rocks greater than 12" in any dimension.

SUBSECTION SHAPING

**4-55 ROAD SHAPING**

The road subgrade and surface shall be shaped as shown on the Typical Section Sheet. The subgrade and surface shape shall ensure runoff in an even, un-concentrated manner, and shall be uniform, firm, and rut-free.

**4-56 DRY WEATHER SHAPING**

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

**SUBSECTION COMPACTION**

**4-60 FILL COMPACTION**

Purchaser shall compact all embankment and waste material in accordance with the Compaction List by routing equipment over the entire width of each lift. A plate compactor must be used for areas specifically requiring keyed embankment construction, and embankment segments too narrow to accommodate equipment.

**4-61 SUBGRADE COMPACTION**

Purchaser shall compact constructed and reconstructed subgrades in accordance with the Compaction List by routing equipment over the entire width, except ditch. Purchaser shall obtain written approval from the Contract Administrator for subgrade compaction before placement of rock.

**4-62 DRY WEATHER COMPACTION**

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

**4-63 EXISTING SURFACE COMPACTION**

Purchaser shall compact maintained road surfaces in accordance with the Compaction List by routing equipment over the entire width.

**4-64 WASTE MATERIAL COMPACTION**

All waste material shall be compacted by running equipment over it or bucket tamping.

**4-65 CULVERT BACKFILL COMPACTION**

Culvert backfills on all pre-haul maintenance and reconstruction shall be accomplished by using a jumping jack compactor, performing at least 3 passes per lift, in lifts not to exceed 6 inches.

**4-66 COMPACTION BY METHOD**

Compaction shall consist of three complete passes over the entire width of each lift with a vibratory drum roller weighing a minimum of 6,000 pounds at a maximum operating speed of 3 mph. For embankment segments too narrow to accommodate a drum roller, a plate compactor shall be used.

**SECTION 5 – DRAINAGE**

**5-4 PUNCHEON RESTRICTED**

At no time shall puncheon be used in the subgrade, unless approved by the Contract Administrator.

## SUBSECTION CULVERTS

### 5-5 CULVERTS

Culverts shall be installed as part of this contract. Culverts shall be installed concurrently with subgrade work and shall be installed before subgrade compaction and rock application. Culvert locations and the minimum requirements for culvert length and diameter are designated on the Culvert List. Culvert, downspout, and flume lengths shall be adjusted to fit as-built conditions and shall not terminate directly on unprotected soil. Culverts shall be new, unless specified in Clause 5-6, and shall meet the material specifications in Clauses 10-15 through 10-23.

### 5-6 USED CULVERT MATERIAL

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

<u>Road</u>	<u>Stations</u>
RY-9000.5	0+19
RY-9000.6	0+10
LS-7+00	3+05
LS-7+00	5+40
LS-7+00	5+90
RY-9000.7	14+45

### 5-7 TEMPORARY STREAM CULVERT INSTALLATION

On the following roads, temporary stream culverts shall be located in the natural channel of the stream. Temporary culverts shall be installed as shown in the Type Ns Np Detail and Temporary Log Fill Stream Crossing Detail. Temporary culverts shall be removed as directed by the Contract Administrator. Geotextile fabric shall meet the specifications in Clause 10-2 Geotextile For Separation.

<u>Road</u>	<u>Stations</u>
RY-9000.5	0+19
LS-7+00	3+05
LS-7+00	5+40
RY-9000.7	14+45

### 5-11 UNUSED MATERIALS STATE PROPERTY

On required roads, any materials listed on the Culvert List and Rock List that are not installed shall become the property of the State. Purchaser shall stockpile materials as directed by the Contract Administrator.

## SUBSECTION CULVERT INSTALLATION

### 5-15 CULVERT INSTALLATION

Installation shall be in accordance with the Typical Cross Drain Culvert Installation Detail, Typical Type Ns Np Culvert Installation Detail, 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". Corrugated Polyethylene pipe shall be installed in a manner consistent with the manufacturer's recommendations.

**5-16 APPROVAL FOR LARGER CULVERT INSTALLATION**

Installation of culverts 30 inches in diameter and over shall be subject to written approval by the District Engineer or their designee before backfilling.

**5-17 CROSS DRAIN SKEW AND SLOPE**

Cross drains on road grades in excess of 3% shall 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. Where the cross drain is at the low point in the road, culverts shall not be skewed. Cross drain culverts shall 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 shall be installed with a depth of cover of not less than 18 inches of compacted depth over the top of the culvert at the shallowest point. Stream crossing culverts shall be installed with a depth of cover specified in the Engineer's design, Type Ns Np Typical Detail Sheet, or to the minimum depth recommended by the culvert manufacturer for the type of cover material over the pipe, whichever is greater.

SUBSECTION ENERGY DISSIPATERS

**5-20 ENERGY DISSIPATERS**

Energy dissipaters shall be installed to prevent erosion and are subject to approval by the Contract Administrator. Rock shall weigh at least 10 pounds and be placed by zero-drop-height method. Energy dissipater shall extend a minimum of ¾ foot to each side of the culvert at the outlet and a minimum of 2 feet beyond the outlet.

**5-21 DOWNSPOUTS AND FLUMES**

Downspouts and flumes longer than 10 feet shall be staked on both sides at maximum intervals of 10 feet with 6-foot heavy-duty steel posts or 1 ½" X 3/16" angle iron, and fastened securely to the posts with No. 10 galvanized smooth wire, or bolted using minimum 5/16" bolts and 2 washers per bolt, in accordance with the Culvert Installation Typical Details Page.

SUBSECTION CATCH BASINS, HEADWALLS, AND ARMORING

**5-25 CATCH BASINS**

Catch basins shall be constructed to resist erosion. Approximate dimensions are 1-2 feet deep, 1-2 feet wide, and 2-4 feet long.

**5-26 HEADWALLS FOR CROSS DRAIN CULVERTS**

Headwalls shall be constructed in accordance with the Typical Cross Drain Culvert Installation Detail at all cross drain culverts that specify the placement of rock. Rock used for headwalls shall consist of oversize or quarry spall material. Rock shall be placed on shoulders, slopes, and around culvert inlets and outlets. Rock shall not restrict the flow of water into culvert inlets or catch basins. No end dumping of rock is allowed.

**5-27 ARMORING FOR STREAM CROSSING CULVERTS**

At the following culvert(s), rip rap shall be set in place immediately following construction of the embankment. Rock shall be placed on shoulders, slopes, and around culvert inlets and outlets as designated on the Typical Type Ns Np Culvert Installation Detail as directed by the Contract Administrator. Rock shall not restrict the flow of water into culvert inlets or catch basins. Rock shall be

set in place by machine. Placement shall be by zero-drop-height method only. No placement by end dumping or dropping of rock shall be allowed.

<u>Road</u>	<u>Stations</u>	<u>Rock Type</u>
D-2600	41+71	Light Loose Rip Rap
D-2600	83+42	Oversize
D-5200	62+35	Oversize

## SECTION 6 – ROCK AND SURFACING

### SUBSECTION ROCK SOURCE

#### 6-2 ROCK SOURCE ON STATE LAND

Rock used in accordance with the quantities on the Rock List may be obtained from the following source(s) on state land at no charge to the Purchaser. Use of material from any other source must have prior written approval from the Contract Administrator. If other operators are using, or desire to use, the rock source(s), a joint operating plan shall be developed. All parties shall follow this plan. The Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before starting any operations in the listed locations.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
Thunder Pit	T29N R14W Sec. 2	Unsorted shot ballast
Loop Pit	T29N R13W Sec. 3	2¼-inch minus crushed

#### 6-3 ROCK SOURCE STATE LAND, EXISTING STOCKPILE

Rock used in accordance with the quantities on the Rock List may be obtained from the following existing stockpile(s) on state land at no charge to the Purchaser. Purchaser shall remove no more than 800 cubic yards of 2¼-inch minus crushed rock.

<u>Source</u>	<u>Location</u>	<u>Quantity (yd<sup>3</sup>)</u>
Loop Pit	T29N R13W Sec. 3	800 yd <sup>3</sup>

#### 6-5 ROCK FROM COMMERCIAL SOURCE

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

### SUBSECTION ROCK SOURCE DEVELOPMENT

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

All rock source development and use shall be in accordance with a written Rock Source Development and Reclamation Plan prepared by the State and included in this Road Plan. Rock source operations shall be conducted as directed by the Contract Administrator and in accordance with the plan. Upon completion of operations, the rock source shall be left in the condition specified in the Rock Source Development and Reclamation Plan, and approved in writing by the Contract Administrator. The Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before starting any operations in the rock source.

## 6-12 ROCK SOURCE SPECIFICATIONS

Rock sources shall be in accordance with the following unless otherwise specified in Rock Source Development and reclamation plan:

- Pit walls shall not be undermined or over-steepened. The maximum slope of the walls shall 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 shall be maintained in a condition to minimize the possibility of the walls sliding or failing.
- The width of pit benches shall be a minimum of 1.5 times the maximum length of the largest machine used.
- The surface of pit floors and benches shall be uniform and free-draining at a minimum 2% outslope gradient.
- All operations shall 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.
- Block all vehicle access to the top of the pit faces.

## 6-14 DRILL AND SHOOT

Rock drilling and shooting shall meet the following specifications:

- Oversize material remaining in the rock source at the conclusion of the timber sale shall not exceed 5% of the total volume mined in that source.
- Oversize material is defined as rock fragments larger than five feet in any dimension.
- Oversized rock that exceeds the maximum allowable amount shall be shot or broken up.
- The Purchaser shall notify the Contract Administrator a minimum of 3 working days before blasting operations.
- The Purchaser shall submit an informational drilling and shooting plan to the Contract Administrator 10 working days before any drilling (Form #M-126PAC).
- All operations shall 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.

**6-15 REQUIRED ROCK SOURCE WORK**

The following rock source work is required. Work is to be done according to the approved Rock Source Development And Reclamation Plan and as directed by the Contract Administrator.

<u>Site</u>	<u>Requirements</u>
Thunder Pit	Purchaser shall drill and shoot 2000 cubic yards of shot rock as shown on Pit Development Plan.

**6-16 TECHNICAL SPECIFICATIONS**

**DRILLING**

The Purchaser shall drill in accordance to an approved Shot Plan. Drill depth shall not extend more than 5 feet below existing pit floor. The State’s Engineer and Purchaser shall jointly measure and determine drill depths, hole spacing and pattern and must be approved prior to loading explosives. During drilling operation, drill operator shall keep a bore log which includes the depth and location of each hole drilled. The State’s Engineer may ask to see the bore log during and after the drilling process has completed.

**BLASTING**

The Purchaser shall furnish and load appropriate explosives, detonators, and ignition sources in accordance to all State and Federal laws and in accordance to an approved Shot Plan.

**DRILLING AND SHOOTING PLAN “SHOT PLAN”**

The Purchaser shall submit a written drilling and shooting plan, including drawings, to the State’s Engineer, which must meet the approval of the State’s Engineer prior to the start of the drilling operation. The plan and drawing(s) shall include the following proposals: drill hole diameter, drill hole spacing, drill hole pattern, drill hole depth, any stemming depths, type and depth of explosive including amount per drill hole, detonator and ignition type, and proposed delay pattern. Any adjustment or modifications to the proposals during operations must be noted and resubmitted prior to loading of explosives.

**WEATHER LIMITATIONS**

When, in the opinion of the State’s Engineer, the weather is such that satisfactory results cannot be obtained in any phase of operation, Purchaser shall suspend operations until the weather is favorable. Before and during any suspension, Purchaser shall protect the work from damage or deterioration.

**SUBSECTION ROCK GRADATIONS**

**6-30 2¼-INCH MINUS CRUSHED ROCK**

% Passing 2¼” square sieve	100%
% Passing 1” square sieve	50 - 85%
% Passing U.S. #4 sieve	30 - 50%
% Passing U.S. #40 sieve	16% maximum
% Passing U.S. #200 sieve	5% maximum

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

**6-42 CLEAN ROCK, SHOT BALLAST**

Shot Ballast rock shall contain no more than 5% by weight of organic debris, dirt, and trash. Shot Ballast will meet the following specifications for rock gradation when placed on the subgrade:

- No more than 25% of the rock by weight shall exceed 8 inches in any dimension, and no rock shall be larger than 24 inches in any dimension. Rock may require processing to meet these requirements.

**6-43 QUARRY SPALLS**

% Passing 12" square sieve	100%
% Passing 8" square sieve	10% maximum

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

**6-50 LIGHT LOOSE RIP RAP**

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

<u>At Least/Not More Than</u>	<u>Weight Range</u>	<u>Size Range</u>
20% / 90%	300 lbs. to 1 ton	12" - 36"

**6-52 OVERSIZE**

% Passing 8" square sieve	100%
% Passing 4" square sieve	0%

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

SUBSECTION ROCK MEASUREMENT

**6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH**

Measurement of specified rock depths are defined as the compacted depth(s) using the compaction methods required in this Road Plan. Estimated quantities specified in the Rock List are estimated truck 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.

SUBSECTION ROCK APPLICATION

**6-70 APPROVAL BEFORE ROCK APPLICATION**

Subgrade drainage installation including grading and compaction, shall be completed and approved in writing by the Contract Administrator, before rock application.

**6-71 ROCK APPLICATION**

Rock shall be applied in accordance with the specifications and quantities shown on the Rock List. Rock shall be spread, shaped, and compacted full-width concurrent with rock hauling operations. Rock shall be compacted in accordance with Compaction List, in lifts not to exceed 6 inches.

**6-72 ROCK APPLICATION AFTER HAULING**

On the following road(s), upon completion of all hauling operations, Purchaser shall apply 2" minus crushed rock in accordance with the quantities shown on the Rock List.

<u>Road</u>	<u>Stations</u>	<u>Amount</u>
RY-9006.3	0+00 – 3+60	50 yd <sup>3</sup>
D-5200	62+35 – 74+35	50 yd <sup>3</sup>
D-5208	0+00 – 8+70	30 yd <sup>3</sup>
D-5208 Wye	0+00 – 1+75	20 yd <sup>3</sup>

**6-73 ROCK FOR WIDENED PORTIONS**

Turnarounds, turnouts, and areas with curve widening shall have rock applied to the same depth and specifications as the traveled way.

**6-78 ROCK FOR SPOT PATCHING**

Rock for spot patching shall be applied before any grading is done and before any rock lifts are applied. Once applied, spot patches shall be graded into the existing running surface.

SECTION 7 – STRUCTURES

SUBSECTION STREAM CROSSING STRUCTURES GENERAL

**7-5 STRUCTURE DEBRIS**

The Purchaser shall ensure that debris from the installation or removal of structures does not enter any stream. Components removed from the existing structures(s) shall be placed at designated site(s), as directed in writing by the Contract Administrator. The Purchaser is responsible for maintaining a clean jobsite, with all materials stored away from any high water mark or other area presenting a risk of the materials entering a stream. Debris entering any stream shall be removed immediately and placed in the site(s) designated for stockpiling or disposal. The Purchaser is responsible for retrieving all material carried downstream from the jobsite by the stream current.

**7-6 STREAM CROSSING INSTALLATION**

Installation of stream crossing structures shall be in accordance with the manufacturer's requirements, and as directed by the District Engineer or their designee.

**7-7 BANK PROTECTION FOR STREAM CROSSING STRUCTURES**

Bank protection shall be designed and constructed to prevent the undermining of the structure.

SUBSECTION BRIDGE MAINTENANCE

**7-30 BRIDGE MAINTENANCE**

On the following road(s), bridge maintenance, as listed below, is required as part of this contract. All old bridge material shall be removed from state land by the Purchaser before the termination of the contract.

<u>Road</u>	<u>Station</u>	<u>Requirements</u>	<u>Detail Sheet</u>
RY-9006	4+75 – 5+65	Replace bridge deck planks in accordance with Clause 7-31, Clause 7-32 and Bridge Maintenance and Repair Provisions. Realign vertical approach to bridge from STA 5+15 – STA 5+65 in accordance with RY-9006 Bridge Repair Detail.	RY-9006 Bridge Repair Detail

**7-31 BRIDGE DECK REPAIR**

The new deck shall consist of 4"x12" pressure treated planks covering all exposed areas. All deck material shall be No. 2 or better Douglas fir. The planks shall be installed with a minimum of a 3 foot stagger. The deck planks exposed edge at each end of the bridge deck shall have the top 1/3 beveled at a 45 degree angle.

**7-32 BRIDGE DECK FASTENING (WOOD BRIDGE)**

The running planks shall be fastened to every second cross tie with 6 inch galvanized lag bolts. The heads of the lag bolts shall be countersunk flush with the surface. The existing holes in the cross ties shall be treated and plugged with treated dowels. Any untreated areas on the existing structure shall be treated as well.

SUBSECTION LARGE CULVERTS

**7-55 LARGE CULVERT INSTALLATION**

On the following road(s), Purchaser shall install large culverts as specified below. The installation of the culvert shall follow the appropriate detail sheet. Culvert designs shall meet or exceed the following specifications:

<u>Road</u>	RY-9000.5
<u>Station</u>	0+19
<u>Type</u>	Temporary Culvert
<u>Material and Coating Type*</u>	Corrugated Steel
<u>Span (in.)</u>	36"
<u>Rise (in.)</u>	36"
<u>Length (ft.)</u>	50'
<u>Depth of Cover Material (ft.)</u>	1' Minimum
<u>Corrugations</u>	Not specified
<u>Gauge</u>	14
<u>Detail Sheet</u>	RY-9000.5 STA 0+19

\* See Clause 10-15 Corrugated Steel Culvert or Clause 10-18 Corrugated Steel Structural Plate

**7-56 STEEL PIPE, PIPE ARCH, AND STRUCTURAL PLATE INSTALLATION**

Steel pipe, pipe arches, and structural plate culverts shall be installed according to the National Corrugated Pipe Association Installation Manual, and are subject to the inspection and approval of the Contract Administrator before placement and backfill. The latest edition of the NCSPA Installation Manual can be found at [www.ncspa.org](http://www.ncspa.org).

**7-57 CULVERT SHAPE CONTROL**

Purchaser shall monitor the culvert shape during backfill and compaction. Special attention shall be paid to maintaining the structure’s rise dimensions, concentricity and smooth, uniform curvature. If compaction methods are resulting in peaking and/or deflection of the culvert, Purchaser shall, in consultation with the District Engineer or their designee, modify their compaction method to achieve the appropriate end-result. The National Corrugated Steel Pipe Association “Installation Manual for Corrugated Steel Pipe, Pipe Arches, and Structural Plate” includes guidance on how to monitor culvert shape control and recommends corrective actions to take when shape control problems arise.

SUBSECTION GATE CLOSURE

**7-70 GATE CLOSURE**

On the following road(s), Purchaser shall keep gates closed and locked except during periods of haul. All gates that remain open during haul shall be locked or securely fastened in the open position. All gates shall be closed at termination of use.

<u>Road</u>	<u>Station</u>	<u>Gate No.</u>	<u>Comment</u>
RY-9000	MP 8.8	N/A	Rayonier Gate
RY-9006	STA 0+80	N/A	Rayonier Gate

SECTION 8 – EROSION CONTROL

**8-1 SEDIMENT CONTROL STRUCTURES**

On the following road(s), sediment control shall be accomplished as listed below. Sediment control structures shall be approved, in writing, by the Contract Administrator or their designee.

<u>Road</u>	<u>Stations</u>	<u>Comments</u>
T-1000	6+65 – 7+15	Install silt fence along both sides of road.

**8-2 PROTECTION FOR EXPOSED SOIL**

Purchaser shall furnish and evenly spread a 3-inch layer of straw to all exposed soils at stream culvert installations. Soils shall not be allowed to sit exposed during any rain event.

SUBSECTION REVEGETATION

**8-15 REVEGETATION**

Purchaser shall grass seed and hay mulch all exposed soils including, but not limited to, stream culverts, waste areas, sidecast pull back areas, stream crossing removals, bridge installations, and other areas directed by the Contract Administrator. Revegetation of exposed soils shall be accomplished by manual dispersal of grass seed unless otherwise detailed in this Road Plan. Other methods of revegetation must be approved in writing by the Contract Administrator.

**8-16 REVEGETATION SUPPLY**

All seed, mulch, hay, matting, etc. will be provided by the Purchaser.

**8-17 REVEGETATION TIMING**

Purchaser shall perform revegetation during the first available opportunity. Soils shall not be allowed to sit exposed for longer than one month without receiving revegetation treatment unless otherwise approved in writing by the Contract Administrator. Soils shall not be allowed to sit exposed during any rain event.

**8-18 PROTECTION FOR SEED**

Purchaser shall provide a protective cover over the revegetated area. The protective cover may consist of, but not be limited to, such items as dispersed hay mulch 3” thick or jute matting.

**8-19 ASSURANCE FOR SEEDED AREA**

The Purchaser shall be responsible to ensure a uniform and dense crop of grass. The Purchaser shall reapply the seed and/or mulch in areas that have been damaged through any cause, before approval from the Contract Administrator. The Purchaser shall restore eroded or disturbed areas, clean up and properly dispose of eroded materials, and reapply the seed and/or mulch at no additional cost to the state.

SUBSECTION SEED, FERTILIZER, AND MULCH

**8-25 GRASS SEED**

Purchaser shall evenly spread the seed mixture listed below on all exposed soils at a rate of 60 pounds per acre of exposed soil.

<u>Seed Species</u>	<u>% by Weight</u>
• Perennial Ryegrass	40.00
• Creeping Red Fescue	40.00
• White Dutch Clover	10.00
• Colonial Bentgrass	10.00

Grass seed shall 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

SECTION 9 – POST-HAUL ROAD WORK

SUBSECTION STRUCTURES

**9-2 CULVERT REMOVAL FROM LIVE STREAM**

On the following road(s), upon completion of road use, Purchaser shall remove existing culverts from live streams and leave the resulting channel open with excavation slope and excavated channel width as specified. Excavated material shall be end hauled to an approved waste area designated in Clause 4-37 Waste Area Location. Culverts removal from live streams shall be in accordance with the Detail Sheets listed in the following table.

<u>Road</u>	<u>Stations</u>	<u>Excavated Channel Width</u>	<u>Slope Ratio</u>	<u>Comments</u>
RY-9000.5	0+19	5	2:1 – 3:1	See Detail Sheet for RY-9000.6 STA 0+19.
LS-7+00	3+05	3	2:1 – 3:1	See Typical Culvert Removal Detail Sheet.
LS-7+00	5+40	3	2:1 – 3:1	See Typical Culvert Removal Detail Sheet.
RY-9000.7	14+45	3	2:1 – 3:1	See Typical Culvert Removal Detail Sheet.

**9-3 REMOVAL OF CULVERT MATERIAL FROM STATE LAND**

Culvert material removed from roads becomes the property of the Purchaser and must be removed from state land.

SUBSECTION POST-HAUL MAINTENANCE

**9-5 POST-HAUL MAINTENANCE**

Post-haul maintenance shall be performed in accordance with the Forest Access Road Maintenance Specifications and as specified below.

<u>Road</u>	<u>Stations</u>	<u>Additional Requirements</u>
All	All	Clean culverts, clean ditches, grade and shape road and compact as directed by the Contract Administrator.
RY-9006.3		Apply post haul rock as per Clause 6-72.
D-5200		Apply post haul rock as per Clause 6-72.
D-5208		Apply post haul rock as per Clause 6-72.
D-5208 Wye		Apply post haul rock as per Clause 6-72.

SUBSECTION POST-HAUL LANDING MAINTENANCE

**9-10 LANDING DRAINAGE**

On all roads, Purchaser shall provide for drainage of the landing surface as approved in writing by the Contract Administrator.

**9-11 LANDING EMBANKMENT**

On all roads, landing embankments shall be sloped to original construction specifications.

SUBSECTION DEACTIVATION AND ABANDONMENT

**9-20 ROAD DEACTIVATION**

The following road(s) shall be deactivated by the Purchaser before the termination of this contract.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
RY-9000.5	0+00 – 8+30	Light Deactivation
RY-9000.6	0+00 – 6+00	Light Deactivation
RY-9000.7	11+00 – 16+25	Light Deactivation
LS-7+00	0+00 – 7+00	Light Deactivation

**9-22 LIGHT DEACTIVATION**

Deactivation shall consist of:

1. Removing all culverts. Resulting back slopes shall be 1:1 or shallower, unless otherwise specified in Clause 9-2. Material removed shall be placed on the roadbed and compacted, with slopes of 2:1 or shallower. Culverts removed shall become the property of the Purchaser and removed from State land.
2. Construct non-drivable water bars as directed by the Contract Administrator. On grades in excess of 3%, non-drivable water bars shall be skewed 30 degrees from the perpendicular of the road centerline.
3. Restore all ditchouts to drain water.
4. Repair or construct ditchlines.
5. Remove any berms, except as directed.
6. Restoration of natural stream channels across road prism, as directed by the Contract Administrator.
7. Removing all fill material as approved by the Contract Administrator.
8. All material from fill removals, culvert removals, and bridge removals shall be placed on roadbed and compacted, except that material listed in Clause 4-37.
9. Purchaser shall furnish and apply grass seed to all areas of exposed soil, including but not limited to: water bars, waste piles, and culvert removal sites. Grass seed shall be applied at a rate of 60 pounds per acre.
10. Block road to vehicular traffic using logs, slash, and stumps, as directed by the Contract Administrator.

SECTION 10 MATERIALS

SUBSECTION GEOTEXTILES

**10-6 GEOTEXTILE FOR TEMPORARY SILT FENCE**

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

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

SUBSECTION EROSION CONTROL AND REVEGETATION

**10-10 JUTE EROSION CONTROL MATTING**

Jute mesh shall have a uniform open plain weave made from jute yarn that does not vary by more than half its nominal diameter. Erosion control matting shall conform to the specifications listed below, and shall be recommended by the manufacturer for use on embankments with a slope of 1½:1 (H:V) or steeper.

- Mesh size: 1 inch max.
- Mesh mass: 0.9 lb/yd<sup>2</sup> ±5%

**10-11 COCONUT EROSION CONTROL MATTING**

Coconut mat shall have a uniform open plain weave made from jute, coconut coir, synthetic polypropylene fibers, or other approved yarn. Erosion control matting shall conform to the specifications listed below, and shall be recommended by the manufacturer for use on embankments with a slope of 1½:1 (H:V) or steeper.

- Mesh size: 0.5 to 1 inch.
- Mesh mass: 0.4 lb/yd<sup>2</sup> min.
- Netting shall be photodegradable on one side.
- Moisture content shall not exceed 20%.

**10-12 WOOD EXCELSIOR EROSION CONTROL MATTING**

Excelsior blanket shall have a uniform thickness made of curled wood excelsior secured on the top side to a biodegradable, photodegradable extruded plastic mesh. Matting shall be smolder resistant without the use of additional chemical additives. Erosion control matting shall conform to the specifications listed below, and shall be recommended by the manufacturer for use on embankments with a slope of 1½:1 (H:V) or steeper.

- Mesh size: 1 to 2 inch.
- Blanket mass: 1 lb/yd<sup>2</sup> ±10%
- Excelsior fibers: 7.8 inch (200-mm) length 80% min.

## SUBSECTION CULVERTS

### 10-15 CORRUGATED STEEL CULVERT

Metallic coated steel culverts shall meet AASHTO M-36 (ASTM A-760) specifications. Culverts shall be aluminized (aluminum type 2 coated meeting AASHTO M-274).

### 10-16 CORRUGATED ALUMINUM CULVERT

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

### 10-17 CORRUGATED PLASTIC CULVERT

Polyethylene culverts shall meet AASHTO M-294 specifications. Culverts shall be Type S – double walled with a corrugated exterior and smooth interior.

### 10-20 FLUME AND DOWNSPOUT

Downspouts and flumes shall meet the AASHTO specification designated for the culvert. Plastic downspouts and flumes shall be Type S – double walled with a corrugated exterior and smooth interior.

### 10-21 METAL BAND

Metal coupling and end bands shall meet the AASHTO specification designated for the culvert and shall have matching corrugations. On culverts 24 inches and smaller, bands shall have a minimum width of 12 inches. On culverts over 24 inches, bands shall have a minimum width of 24 inches.

### 10-22 PLASTIC BAND

Plastic coupling and end bands shall meet the AASHTO specification designated for the culvert. Only fittings supplied or recommended by the culvert manufacturer shall be used. Couplings shall be split coupling band. Split coupling bands shall have a minimum of four corrugations, two on each side of the pipe joint.

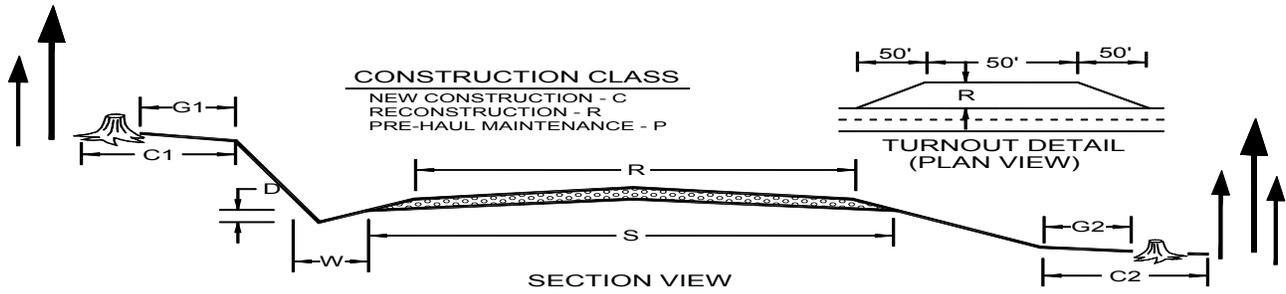
### 10-23 RUBBER CULVERT GASKETS

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

### 10-24 GAGE AND CORRUGATION

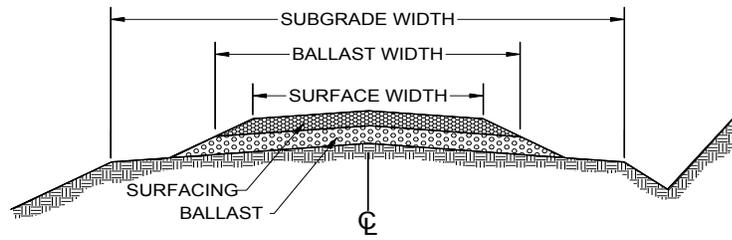
Metal culverts shall conform to the following specifications for gage and corrugation as a function of diameter.

<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>
18"	16 (0.064")	2 <sup>2</sup> / <sub>3</sub> " X 1/2"
24" to 42"	14 (0.079")	2 <sup>2</sup> / <sub>3</sub> " X 1/2"
48" to 54"	12	3" X 1"
60" +	10	5" X 1"



ROAD NAME	START STATION	END STATION	CONSTRUCTION CLASS	SUBGRADE WIDTH (S)	ROAD WIDTH (R)	CROWN AT CL (in)	DITCH WIDTH (W)	DITCH DEPTH (D)	GRUBBING CUT BANK (G1)	GRUBBING FILL TOE (G2)	ROAD CUT CLEARING (C1)	ROAD FILL CLEARING (C2)
T-1000	5+36	11+36	P		12'	3"						
T-1260	0+00	4+50	P		12'	3"	3'	1'				
T-1270	0+00	9+40	P		12'	3"	3'	1'				
T-1271	0+00	13+50	P		12'	3"	3'	1'				
RY-9000.5	0+00	4+40	P		12'	3"	3'	1'				
RY-9000.5	4+40	8+30	C	17'	12'	3"	3'	1'				
RY-9000.6	0+00	6+00	P		12'	3"	3'	1'				
RY-9000.7	0+00	11+00	P		12'	3"	3'	1'				
RY-9000.7	11+00	16+25	C	17'	12'	3"	3'	1'				
RY-9006	0+00	32+27	P		12'	3"	3'	1'				
RY-9006.3	0+00	3+60	P		12'	3"	3'	1'				
LS-7+00	0+00	7+00	C	17'	12'	3"	3'	1'				
RY-9006.6	0+00	6+70	P		12'	3"	3'	1'				
D-2600	41+46	41+96	P		12'	3"						
D-2600	83+17	83+67	P		12'	3"						
D-5200	60+35	62+35	P		12'	3"						
3+66 Spur	0+00	3+66	P		12'	3"	3'	1'				

# ROCK LIST SHEET



1. Rock quantities, subtotals and totals are "truck measure" estimates. Rock shall be applied to at least the depths listed.
2. All depths are compacted depths.
3. Rock slopes shall be 1½ (H) : 1 (V).
4. All rock sources are subject to approval by the Contract Administrator.
5. Pitrun is defined as pitrun or ballast per Line 6. Crushed is defined as any crushed rock from ¼" minus to 4" minus per Line 6. Oversize is defined as oversize, quarry spalls, light loose rip rap, or heavy loose rip rap per Line 6.
6. Rock sources= 1: Thunder Pit Shot Ballast, 2: Loop Pit Pitrun 3: Loop Pit 2¼" minus, 4: Thunder Pit Light Loose Rip Rap, 5: Thunder Pit Oversize

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd <sup>3</sup> /sta)	Pitrun SUBTOTAL(yd <sup>3</sup> )	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd <sup>3</sup> /sta)	Crushed Subtotal(yd <sup>3</sup> )	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd <sup>3</sup> )
<b>T-1000</b>	5+36	11+36							3	12'	6"	35	210		
<b>T-1270</b>	As Directed by CA								3				50		
<b>T-1271</b>	As Directed by CA								3				50		
Turnaround	13+00			2				20							
<b>RY-9000.5</b>															
Culvert	0+19			2				50							
Flared Approach	0+00	0+50							3				40		
Lift	0+50	4+40		2	12'	6"	35	140							
Lift	4+40	8+30		1	12'	18"	110	430							
<b>RY-9000.6</b>	0+00	6+00							3	12'	6"	35	210		
Culvert/Approach	0+10			2				50							
<b>RY-9000.7</b>															
Lift	11+00	13+15		2	12'	6"	35	80							
Lift	13+15	16+25		2	12'	12"	70	220							
<b>RY-9006</b>	5+15	5+65							3	12'	6"	35	20		
Culvert	15+25			2				20							
<b>RY-9006.3</b>															
Post Haul Maint.	0+00	3+60							3				50		
<b>LS-7+00</b>	0+00	7+00	17'	1	12'	18"	110	770							
Flared Approach	0+10			1				40							
<b>RY-9006.6</b>	0+00	6+70		2	12'	12"	70	470							
<b>D-2600</b>															
Culvert	41+71			2				30						4	2
Culvert	83+42			2				20						5	2
<b>Totals:</b>								2340					630		4





## FISH STREAM WORK PROVISIONS

1. TIMING LIMITATIONS: The fish culvert project may begin July 1 and shall be completed by September 30.
2. Work shall conform to plans and specifications in the road plan.
3. Prior to the commencement of in-stream work, the Purchaser shall isolate the work area in a manner that fish cannot enter the work area, capture and safely move fish and other fish life from the work area. The Purchaser shall have fish capture and transportation equipment ready and on the job site. Captured fish shall be immediately and safely transferred to free-flowing water downstream of the work area.

### TEMPORARY STREAM FLOW BYPASS

4. All in-stream work shall be conducted in the dry or in isolation from the stream flow by the installation of a bypass flume/pipe or by pumping the flow around the work area, back into the stream below the work area. Waste water pumped from within the work area shall terminate on the forest floor, sufficient distance from the stream to filter sediment prior to entering the stream.
5. The temporary bypass to divert flow around the work area shall be in place prior to initiation of other work in the wetted perimeter.
6. A sandbag revetment or similar device shall be installed at the bypass inlet to divert the entire flow through the bypass.
7. The bypass shall be of sufficient size to pass all flows and debris for the duration of the project.
8. If a pump is used for diverting water from the stream where fish are present, as per RCW 77.57.010 and 77.57.070, the pump intake shall be equipped with a fish guard to prevent passage of fish into the diversion pump. The pump intake shall be screened with 1/8 inch mesh to prevent fish from entering the pump. Velocity through the screened intake shall be less than 0.4 feet per second. Screens shall be maintained to prevent injury or entrapment of juvenile fish.

### WATER QUALITY

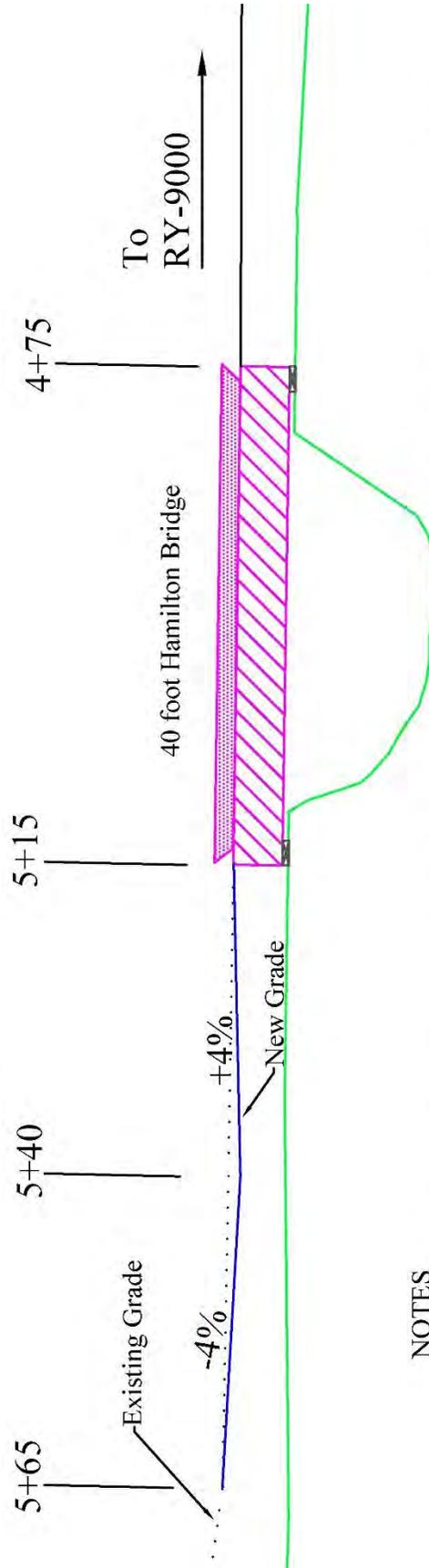
9. Extreme care shall be taken to ensure that no petroleum products, hydraulic fluid, chemicals, or any other toxic or deleterious materials are allowed to enter or leach into the stream.

## COMPACTION LIST

Road	Stations	Type	Max Depth per Lift (In)	Equipment Type	Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)
Construction	All	Subgrade, Rock, Embankment	6	Vibratory Smooth Drum Roller	14,000	2	3
T-1000	5+36 – 11+36	Pre-haul Surface	6				
T-1270	0+00 – 9+40	Pre-haul Surface	6				
T-1271	0+00 – 13+50	Pre-haul Surface	6				
RY-9000.5	0+00 – 4+40	Pre-haul Surface	6				
RY-9000.6	0+00 – 6+00	Pre-haul Surface	6				
RY-9000.7	0+00 – 11+00	Pre-haul Surface	6				
RY-9006.3	0+00 – 3+60	Pre-haul Surface	6				
RY-9006.6	0+00 – 6+70	Pre-haul Surface	6				
D-5200	60+35 – 62+35	Pre-haul Surface	6				
D-2600	41+46 – 41+96	Pre-haul Surface	6				
D-2600	83+17 – 83+67	Pre-haul Surface	6				
Pre-haul Maintenance, Reconstruction	All	Rock Lifts	6				
Pre-haul Maintenance, Reconstruction	All	Culvert Backfills	6	Jumping Jack	N/A	3	N/A

# RY-9006 Bridge Repair

Sec. 19, T. 30 N . R. 13 W 48.08379172, -124.41256202



## NOTES

1. Excavate Down about 6" at sta 4+75, then ending approximately 18" at sta 5+40, then daylighting at sta 5+65.
2. Add 6 inches of 2" crushed rock between sta 5+15 and 5+65.
3. Clean mud off bridge.
4. Replace running planks with 4x12 pressure treated timbers.
5. Tarps shall be hung and tied under the bridge to catch any falling debris, while working on the bridge.

Drawn By: Bill Mehl  
 Date: 11/19/2015  
 NOT TO SCALE

## **BRIDGE MAINTENANCE AND REPAIR PROVISIONS**

### **TIMING LIMITATIONS:**

In-stream work below the ordinary high water line of Type 1-3 STREAMS SHALL ONLY OCCUR BETWEEN July 1<sup>st</sup> through September 30<sup>th</sup>. General fish stream work provisions shall apply.

### **WORK PROVISIONS OUTSIDE OHWL:**

1. For all work to be conducted outside the ordinary high water line for the inspection/removal/replacement of log stringer structures, steel bridge structures and associated gravel and wood decking material and bridge abutment structures provided, all work is conducted outside the ordinary high water line (OHWL) with no impacts to the stream channel or banks.
2. Abutment and sill replacement shall only be accomplished when the activity does not result in disturbance to the stream channel.
3. No riparian trees shall be damaged or removed as a result of these activities.
4. All waste material such as construction debris, bridge surfacing, silt, dirt or overburden resulting from these activities shall be prevented from entering waters of the state by disposing this material in appropriate upland locations.
5. Riprap or other containment structures shall only be installed to confine road fill material and shall not modify or disturb the stream channel.
6. Bridge wheel guards and curbs shall be repaired and maintained to prevent this material from falling off the bridge and into the stream.
7. Where aggregate or earth type material is used for the running surface, a semi-permeable fabric shall be placed on the top surface of the log stringers and below the material surfacing to contain fine sediments.

### **EQUIPMENT LIMITATIONS:**

8. Equipment used for a project shall be clean and free of external petroleum-based products while working around or over a channel. Equipment shall be checked daily for leaks and any necessary repairs shall be completed prior to commencing work activities near the channel.
10. Equipment shall not enter or operate within the ordinary high water line.
11. Equipment shall only operate from the existing road prism or bridge deck.

### **WATER QUALITY PROVISIONS:**

12. Best Management Practices in the DNR Forest Practice Roads Board Manual shall be implemented during all phases of the project to ensure that silt, road and bridge surface gravel and sediment-laden water do not enter waters of the state. If sediment delivery occurs to the stream as the result of bridge repair activities, operations shall cease and the source of sedimentation shall be controlled. When the sedimentation source has been eliminated, the bridge repair activities may resume.
13. Gravel surfacing material on the bridges shall be carefully removed to the maximum extent practicable using equipment, hand methods or a combination of both before conducting any log stringer removal and/or replacement.
14. No petroleum products, hydraulic fluid, fresh cement, grout, chemicals, or any toxic or deleterious materials are allowed to enter or leach into waters of the state as a result of these activities.
15. All disturbed or exposed areas resulting from this project with the potential to deliver fine sediment to any stream, pond, or wetland shall be protected from erosion using straw blankets hydro-mulch, vegetation or other means immediately upon completion of the project.
16. Tarps shall be hung and tied under the bridge to catch any falling debris, while working on the bridge.

**SITUATION RESPONSE AND CONTACTS:**

If at any time, as a result of project activities, the following conditions are observed, immediate notification shall be made to the appropriate person or agency listed below:

- Water quality, sedimentation delivery, notify DNR Forest Practices Forester
- Fish are observed in distress or a fish kill occurs, notify WDFW Area Habitat Biologist.
- Equipment leaks, or spills of oil, fuel or chemicals, the spiller is responsible for notifying:

Dept. of Ecology-Southwest Region, (360) 407-6300;  
National Response Center, 1-800-424-8802; and  
Washington Emergency Management Division, 1-800-258-5990.

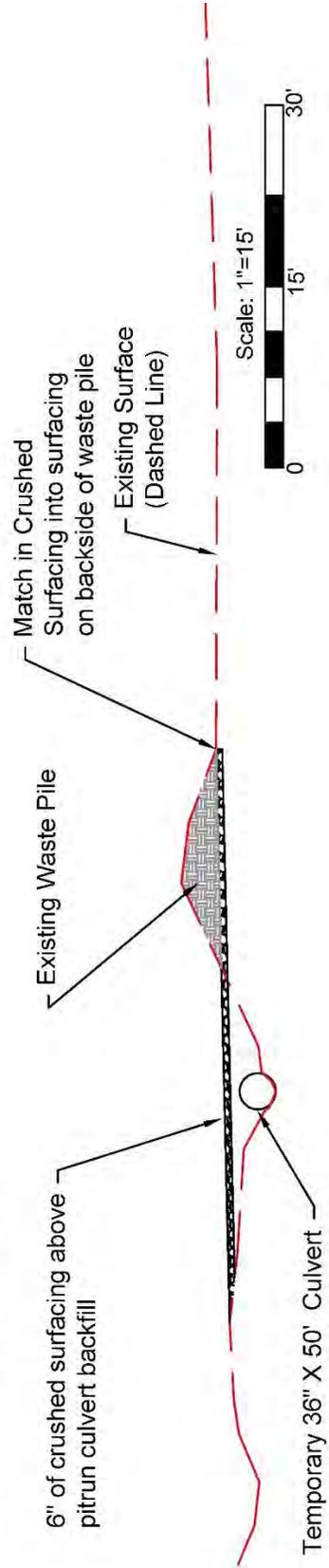


**RY-9000.5 Temporary Culvert Installation**  
**STA 0+19 48.07688068,-124.42781316**

**Sheet 2 of 3**

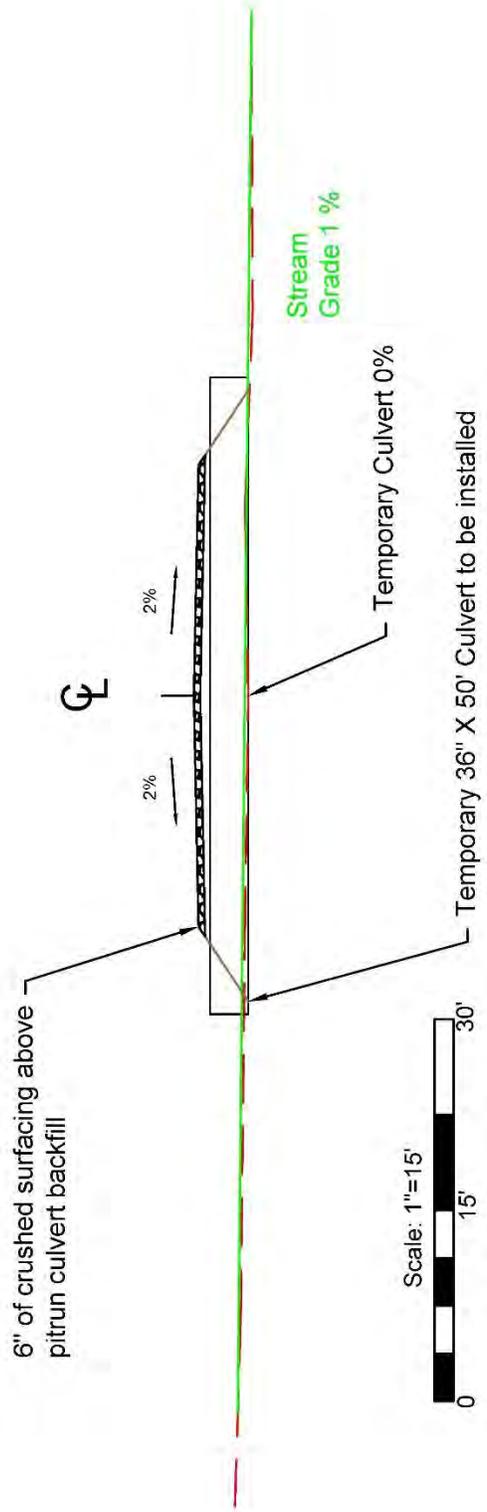
**Existing waste pile on RY-9000.5 road shall be scattered in accordance with Clause 4-38.**

**Future removal of temporary culvert and placement of future waste shall be done to present preinstallation conditions to block road access.**



**RY-9000.5 Temporary Culvert Installation**  
**STA 0+19 48.07688068,-124.42781316**

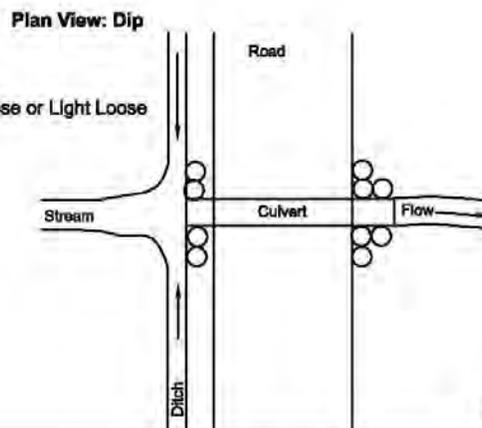
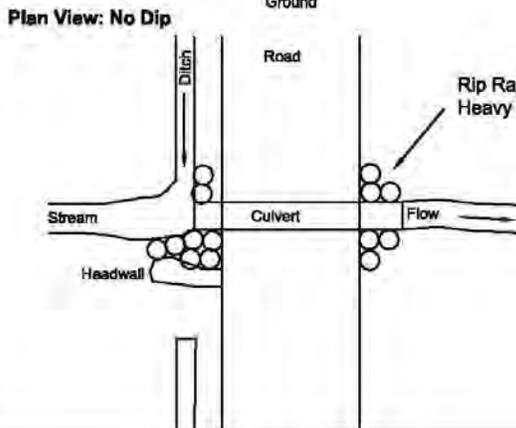
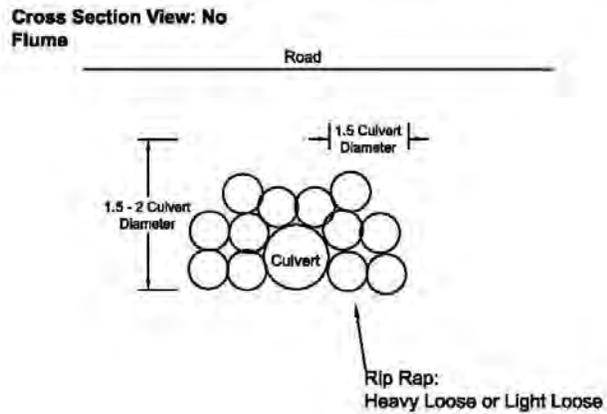
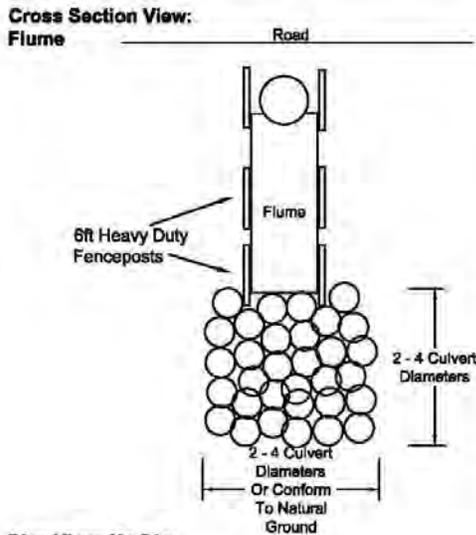
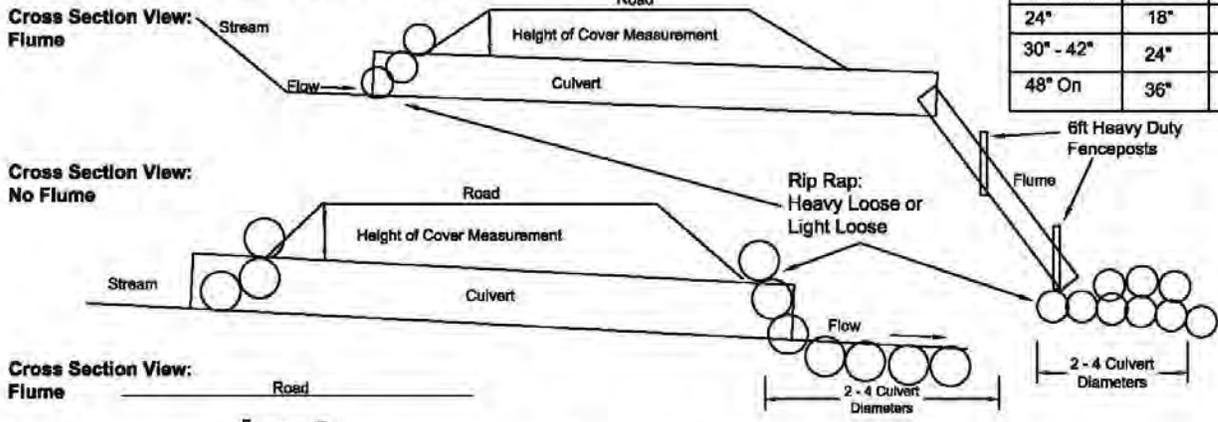
**Sheet 3 of 3**



## Typical Type Ns, Np Culvert Installation Detail Sheet.

- Water shall be diverted away from the work site before any "in stream" work begins, and shall continue until culvert installation is complete.
- Culvert lay shall match stream gradient up to 5%.
- Flumes longer than 10ft shall be staked on both sides at maximum intervals of 10ft with 6ft heavy duty steel fence posts, and fastened securely to the posts with No. 10 galvanized smooth wire or bolted to the fence posts.
- Rip rap shall be placed using a "zero height drop method", and shall be set in conjunction with the culvert installation.
- Rip rap shall be placed at headwalls, along the fill at the inlet, and at the end off flumes in accordance with this Detail. On culverts with no flume rip rap shall be placed along the fill at the outlet, unless there is stream drop or it is called for in the Road Plan, at which point it will be installed as an energy dissipater at the end of the culvert as specified in this Detail. All rip rap distance to be determined by the Contract Administrator or the District Engineer.
- Backfill compaction shall be achieved using a jumping jack, walk behind vibratory roller, or plate compactor on lifts not to exceed 8in. 3 complete passes per lift is required for compaction. Backfill shall be placed and compacted evenly on both sides of the culvert. Care shall be taken to ensure adequate compaction of backfill material under the haunches of the pipe. Excavation trench width shall be at least culvert diameter plus 3 times the width of the compactor footprint used.

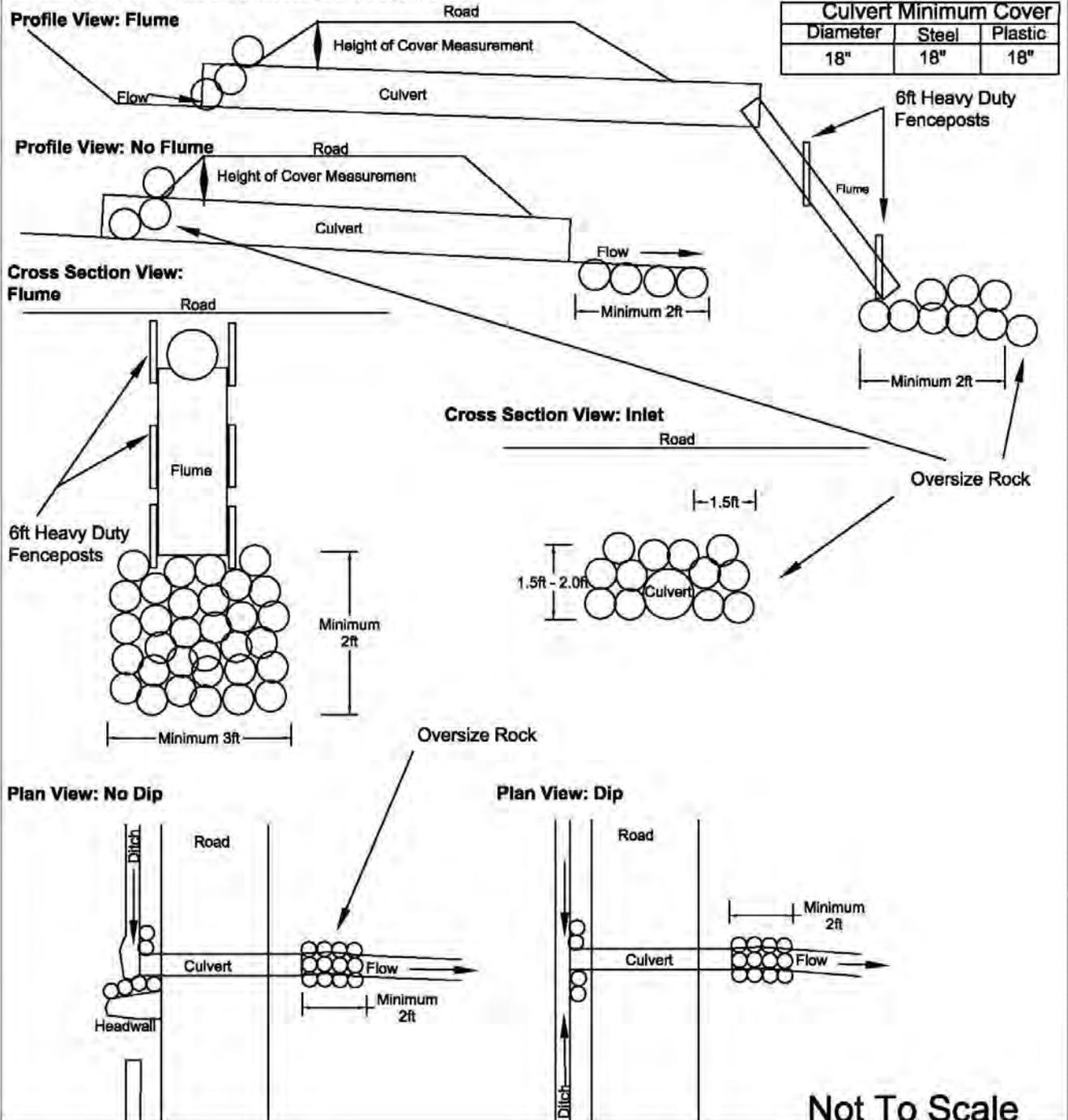
Culvert Minimum Cover		
Diameter	Steel	Plastic
24"	18"	24"
30" - 42"	24"	24"
48" On	36"	36"



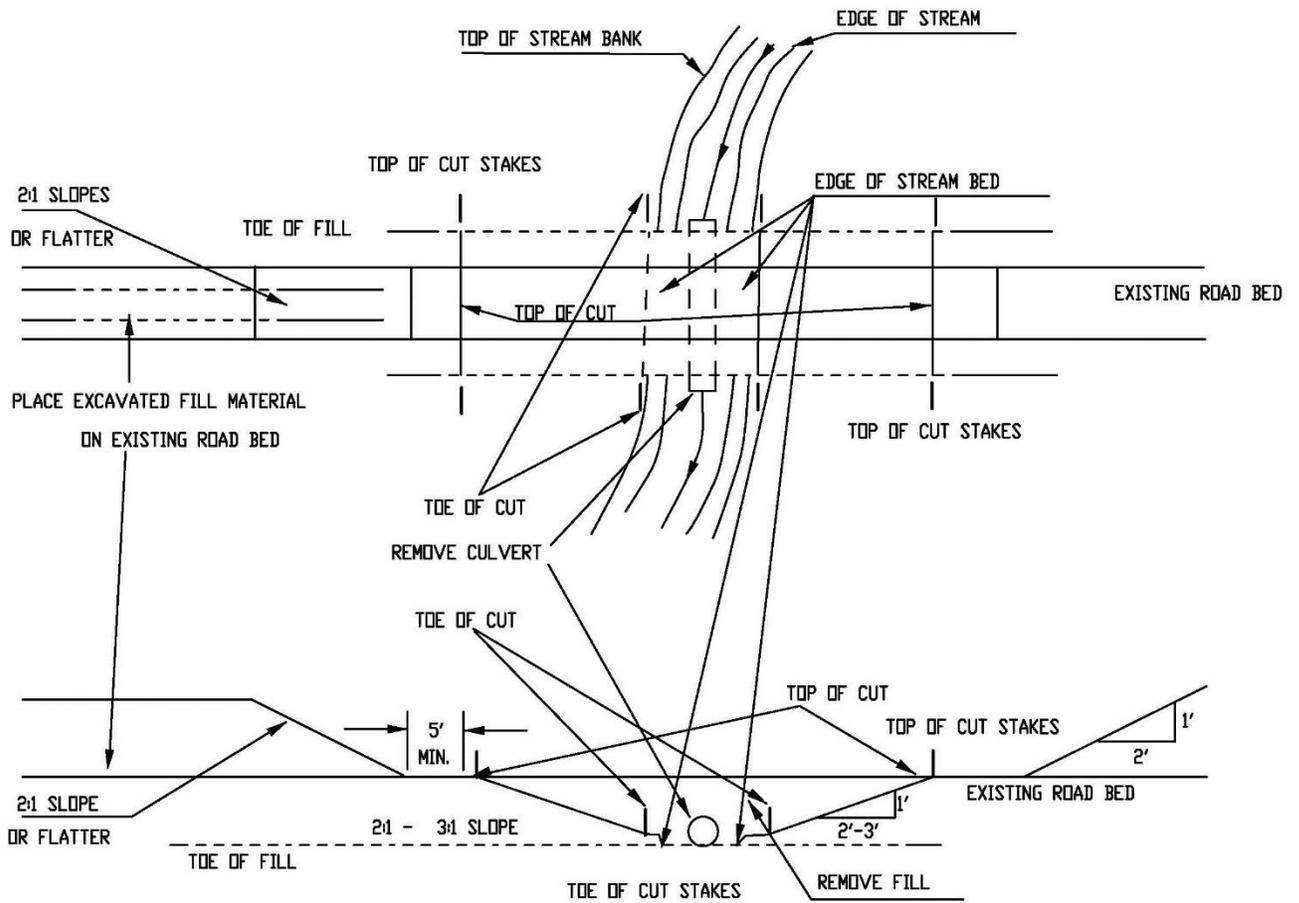
**Not To Scale**

# Typical Cross Drain Culvert Installation Detail Sheet

- Culvert lay shall not exceed 10%.
- Flumes longer than 10ft shall be staked on both sides at maximum intervals of 10ft with 6ft heavy duty steel fence posts, and fastened securely to the posts with No. 10 galvanized smooth wire or bolted to the fence posts.
- Oversize shall be placed using a "zero height drop method", and shall be set in conjunction with the culvert installation.
- Oversize shall be placed at headwalls, along the fill at the inlet, and at the end off flumes in accordance with this Detail. On culverts with no flume oversize shall be placed at the outlet as an energy dissipater as specified in this Detail. All oversize distance to be determined by the Contract Administrator.
- Backfill compaction for installations on existing roads shall be achieved using a jumping jack, or plate compactor on lifts not to exceed 8in. 3 complete passes per lift is required for compaction. Backfill shall be placed and compacted evenly on both sides of the culvert. Care shall be taken to ensure adequate compaction of backfill material under the haunches of the pipe. Excavation trench width shall be at least culvert diameter plus at least the width of the compactor footprint used..



# TYPICAL CULVERT REMOVAL DETAIL SHEET

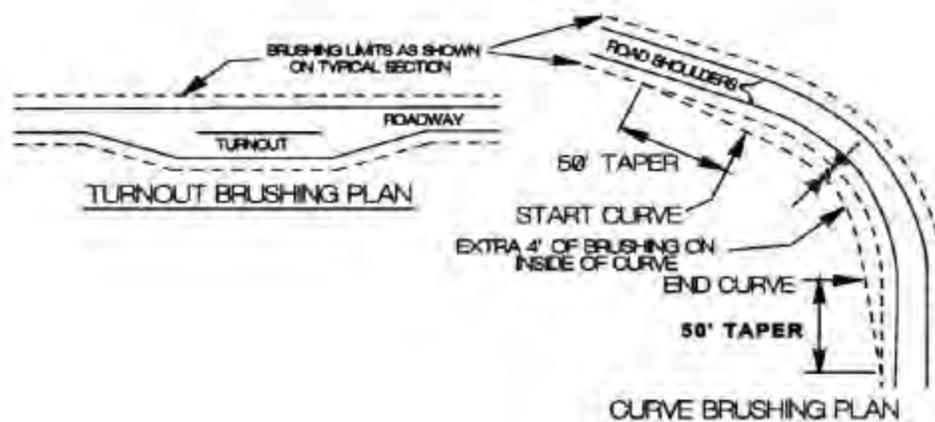
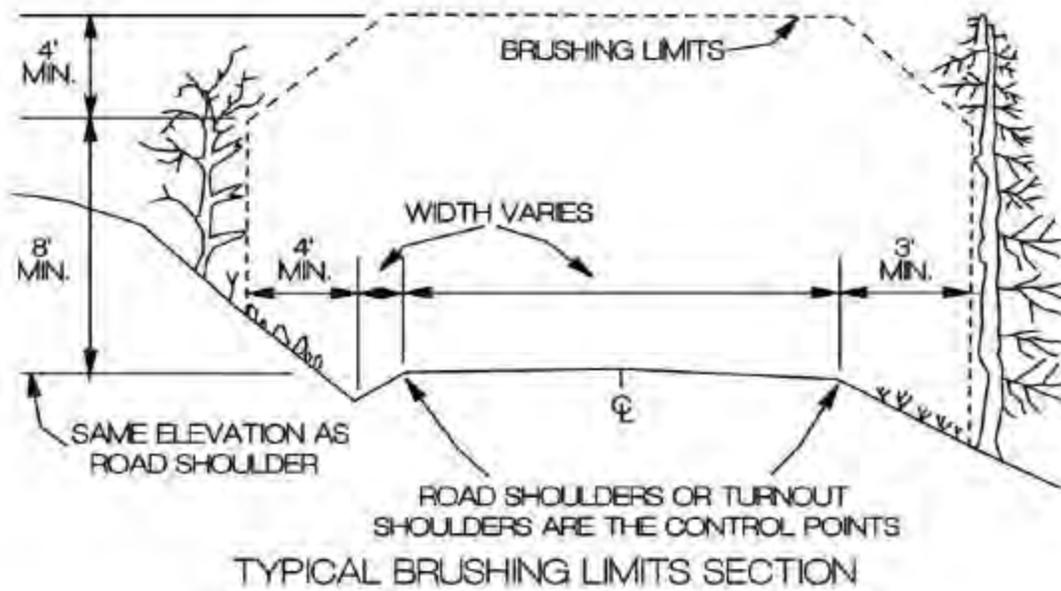


PLACE HAY MULCH ON CUT SLOPES, WASTE AREAS AND OTHER AREAS OF EXPOSED SOIL, 3" DEEP, OVER GRASS SEED

EXCAVATE FILL MATERIAL AS STAKED OR TO NATURAL GROUND AS STAKED. EXCAVATION IS TO BE TO ORIGINAL CREEK BED.

Road	Station	Min Stream Bed Width	N	W
LS-7+00	3+05	1.5'	48.086395	124.415988
LS-7+00	5+40	1.5'	48.086314	124.416938
RY-9000.7	14+45	1.5'	48.079117	124.433487

# BRUSHING DETAIL

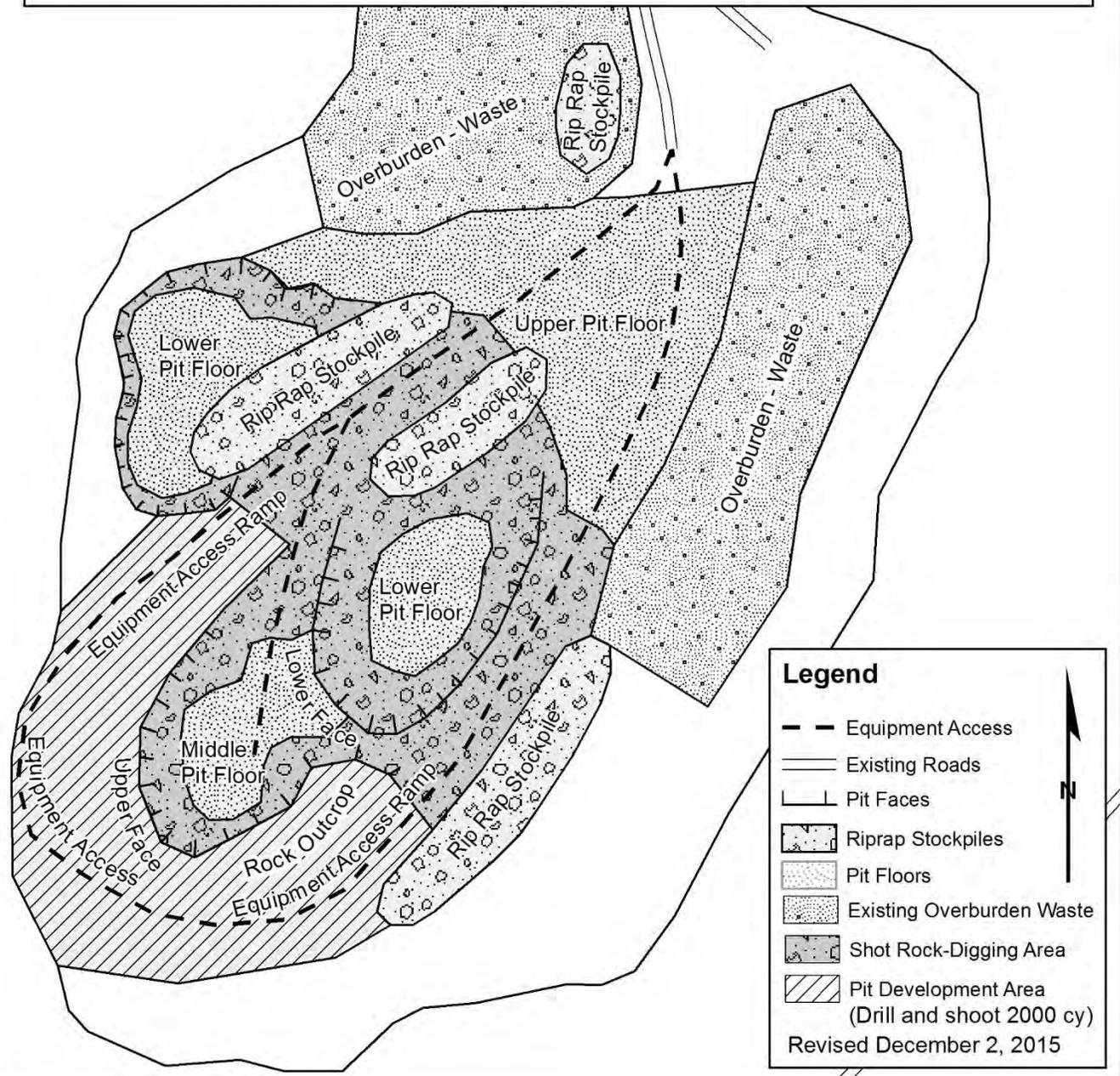


- 1) ALL VEGETATION WITHIN THE BRUSHING LIMITS SHALL BE CUT TO WITHIN 8" OF THE GROUND, UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR.
- 2) ALL BRUSH, TREES, LIMBS, ETC. SHALL BE REMOVED FROM THE ROAD SURFACE.
- 3) ALL BRUSH, TREES, LIMBS, ETC. THAT MAY RESTRICT THE FLOW OF WATER SHALL BE REMOVED FROM THE DITCH LINE.
- 4) ALL DEBRIS THAT MAY ROLL OR MIGRATE INTO THE DITCH-LINE SHALL BE REMOVED.

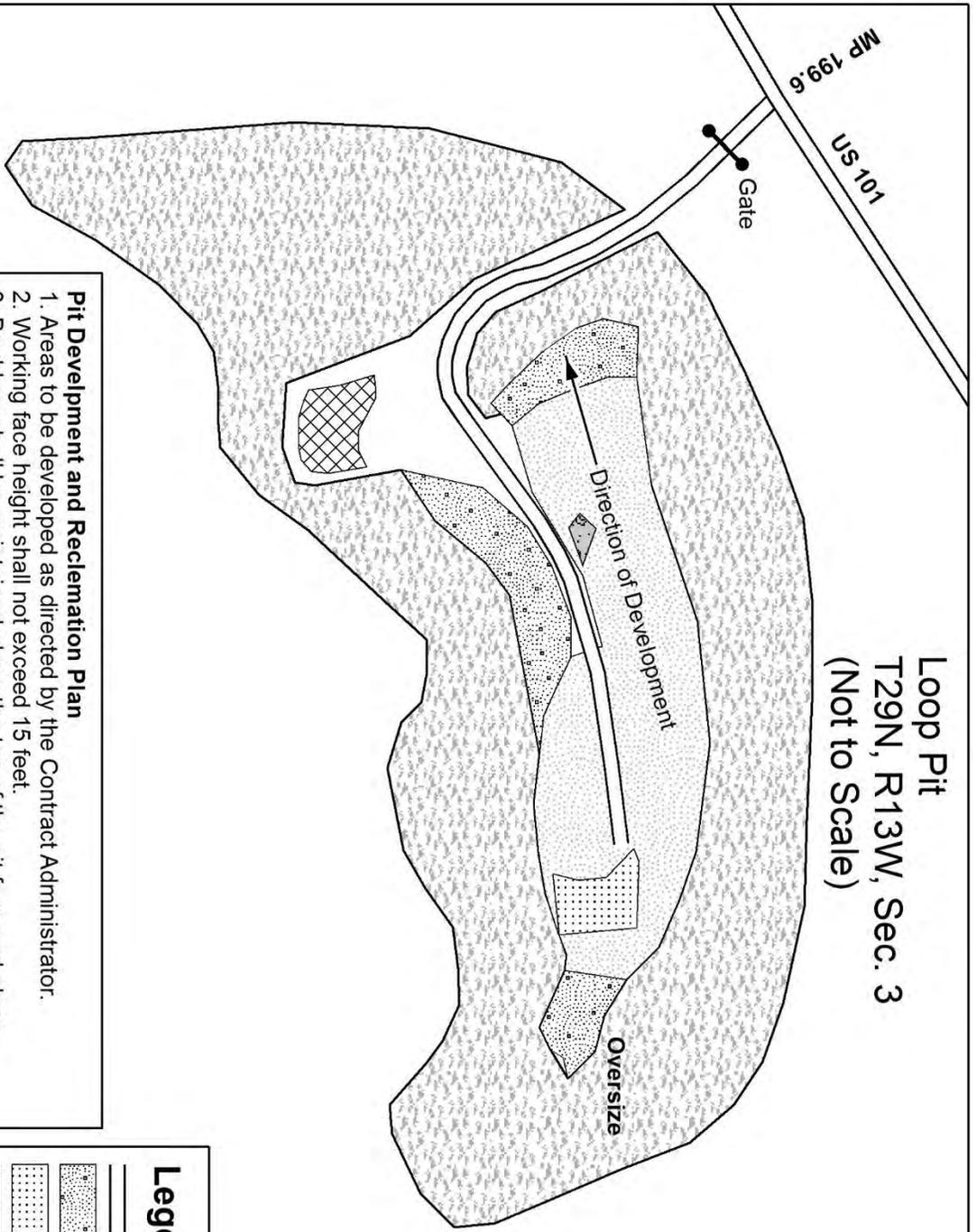
**Thunder Pit**  
**T29N, R14W, Sec. 2**  
**(Not to Scale)**

**Pit Development and Reclamation Plan**

1. Areas to be developed as directed by the Contract Administrator.
2. Waste, Oversize and Riprap shall be placed as directed by the Contract Administrator.
3. Working face height shall not exceed 15 feet.
4. Purchaser shall drill, shoot and sort 2,000 cubic yards within the pit development area as directed by the Contract Administrator.
5. Blasting shall not be permitted from April 1 through September 23.



Loop Pit  
T29N, R13W, Sec. 3  
(Not to Scale)



Map Drawn by  
Matthew Wolford  
Updated 11/19/15

- Pit Development and Reclamation Plan**
1. Areas to be developed as directed by the Contract Administrator.
  2. Working face height shall not exceed 15 feet.
  3. Boulders shall be maintained along the top of the pit face and along the haul road in the pit at all times as directed by the Contract Administrator.
  4. Suitable drainage shall be maintained at all times.
  5. Rock pit operations, or operation of heavy equipment is not permitted 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 September 23.

**Legend**

- Access Roads
- Stripped Area
- 1 1/2" Minus Crushed
- 2 1/4" Minus Crushed
- Rip Rap Piles
- Pit Floor
- Overburden

DEPARTMENT OF NATURAL RESOURCES

FORM 9-87Rev. 01-08

SUMMARY - Road Development Costs

SALE NAME: RED AND BLUE CONTRACT#: 30-093206

REGION: Olympic

DISTRICT: Coast

LEGAL DESCRIPTION: 0

ROAD NAME:	RY-9000.5	RY-9000.7	7-00 Spur	3+66 Spur	T-1000	T-1260	T-1270	T-1270.1	RY-9000.5	RY-9000.6	RY-9000.7	TOTAL:	SHEET #2-4
ROAD TYPE:	Construction	Construction	Construction	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	TOTAL:	
NUMBER OF STATIONS:	3.90	5.25	7.00	3.66	6.00	4.50	9.40	13.50	4.40	6.00	11.00	74.61	71.62
SIDESLOPE:	10%	20%	20%	0%	0%	0%	0%	0%	0%	0%	0%		
CLEARING AND GRUBBING:	\$390	\$524	\$699	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,613	\$0
ROAD BRUSHING:	\$0	\$0	\$0	\$66	\$0	\$81	\$169	\$243	\$79	\$108	\$198	\$944	\$766
EXCAVATION AND FILL:	\$527	\$945	\$1,260	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,732	\$0
ROAD GRADING:	\$0	\$0	\$0	\$10	\$39	\$29	\$61	\$88	\$29	\$39	\$72	\$366	\$296
DITCH CLEANING/CONSTRUCTION:	\$0	\$0	\$0	\$0	\$0	\$0	\$367	\$527	\$343	\$429	\$429	\$2,094	\$442
ROCK TOTALS (Cu Yds.):													
Ballast:	2360	2,360	\$3,724	\$4,392	\$6,966	\$0	\$0	\$161	\$2,803	\$737	\$0	\$18,783	\$4,088
Surface:	800	800	\$0	\$0	\$0	\$1,371	\$0	\$381	\$581	\$3,049	\$0	\$5,770	\$3,208
Oversize:	6	6	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$51
CULVERTS AND FLEETS:	\$0	\$1,440	\$2,029	\$0	\$0	\$0	\$0	\$0	\$1,950	\$1,100	\$0	\$6,519	\$2,932
STRUCTURES:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,090
MISC. EXPENSES:	\$47	\$10	\$13	\$117	\$51	\$0	\$299	\$430	\$160	\$231	\$350	\$1,708	\$1,705
OVERHEAD:	\$422	\$658	\$987	\$17	\$132	\$10	\$115	\$165	\$535	\$512	\$94	\$3,648	\$1,771
TOTAL COSTS:	\$5,109	\$7,969	\$11,954	\$210	\$1,593	\$120	\$1,392	\$2,001	\$6,479	\$6,206	\$1,143	\$44,176	\$21,450
COST PER STATION:	\$1,310	\$1,518	\$1,708	\$57	\$265	\$27	\$148	\$148	\$1,473	\$1,034	\$104	\$592	\$299

MOBILIZATION: \$13,050  
 ROAD DEACTIVATION AND ABANDONMENT COSTS: \$3,622  
 Pit Work: \$16,112

NOTE: This appraisal has no allowance for profit and risk.  
 Sheet 1 of 2  
 Plans to be furnished by: Craig Magnuson

TOTAL (All Road) =	\$98,409
SALE VOLUME MBF =	4.125
TOTAL COST PER MBF =	\$23.86
TOTAL COST PER STATION =	\$672.98
Compiled by: Craig Magnuson	Date: 12/17/2015

**SUMMARY - Road Development Costs**  
 SALE NAME: RED AND BLUE CONTRACT#: 30-093206 REGION: Olympic DISTRICT: Coast  
 LEGAL DESCRIPTION: 0

ROAD NAME:	RY-9006	RY-9006.3	RY-9006.6	D-5200	D-2600	Post-haul
ROAD TYPE:	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Post-haul
NUMBER OF STATIONS:	32.27	3.60	6.70	2.00	1.00	26.05
SIDE SLOPE:	0	0	0	0	0	0
CLEARING AND GRUBBING:	\$0	\$0	\$0	\$0	\$0	\$0
ROAD BRUSHING:	\$581	\$65	\$121	\$0	\$0	\$0
EXCAVATION AND FILL:	\$0	\$0	\$0	\$0	\$0	\$0
ROAD GRADING:	\$210	\$23	\$44	\$13	\$7	\$0
DITCH CLEANING/CONSTRUCTION:	\$0	\$281	\$261	\$0	\$0	\$0
ROCK TOTALS (Cu. Yds.):	0	0	0	0	0	0
Ballast:	\$303	\$0	\$2,970	\$222	\$592	\$0
Surface:	\$294	\$0	\$0	\$881	\$0	\$2,033
Oversize:	\$0	\$0	\$0	\$18	\$33	\$0
CULVERTS AND FLUMES:	\$572	\$0	\$0	\$660	\$1,700	\$0
STRUCTURES:	\$6,090	\$0	\$0	\$0	\$0	\$0
MISC. EXPENSES:	\$1,351	\$115	\$213	\$24	\$2	\$0
OVERHEAD:	\$846	\$44	\$325	\$164	\$210	\$183
TOTAL COSTS:	\$10,247	\$527	\$3,934	\$1,982	\$2,544	\$2,215
COST PER STATION:	\$318	\$146	\$587	\$991	\$2,544	\$85

**Total**  
 Costs \$21,450  
 Stations 71.62  
 Cost/station \$299.49

## FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

### Cuts and Fills

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

### Surface

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

### Drainage

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

### 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.

