



TIMBER NOTICE OF SALE

SALE NAME: ELLIS CROSSING VDT VRH

AGREEMENT NO: 30-093925

AUCTION: October 26, 2016 starting at 10:00 a.m., Olympic Region Office, Forks, WA

COUNTY: Clallam

SALE LOCATION: Sale located approximately 19 miles north of Forks, WA

PRODUCTS SOLD AND SALE AREA:

All timber as described in Schedule C for Units 1,3,5,7,8,9 and 10, except those trees described in Schedule D; bounded by timber sale boundary tags and special management unit boundary tags in Unit 1; timber sale boundary tags and the E-1000 Road in Unit 3 and Unit 9; timber sale boundary tags, the E-1000 Road and a skip line in Unit 10; timber sale boundary tags, special management unit boundary tags and the E-1000 Road in Unit 5, Unit 7 and Unit 8.

All timber except trees marked with a band of blue paint or bounded out by leave tree area tags; bounded by timber sale boundary tags, special management unit boundary tags and the E-1000 Road in Unit 2; bounded by timber sale boundary tags, leave tree area tags, special management unit boundary tags and the E-1000 Road in Unit 4; bounded by timber sale boundary tags, special management unit boundary tags and leave tree area tags in Unit 6.

All timber that has been on the ground for five years or more shall be left undisturbed and not yarded (five years is defined by more than 1.5 inches of sap rot). Located on part(s) of Sections 26 and 35 all in Township 31 North, Range 13 West, W.M., containing 115 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:

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

MINIMUM BID: \$11.90/ton (est. value \$138,000.00)

BID METHOD: Sealed Bids

PERFORMANCE SECURITY:

\$27,600.00

SALE TYPE: Tonnage Scale

EXPIRATION DATE: October 15, 2018

ALLOCATION: Export Restricted

BIDDABLE SPECIES: Silver fir, Hemlock, Douglas fir combined

BID DEPOSIT: \$13,800.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.



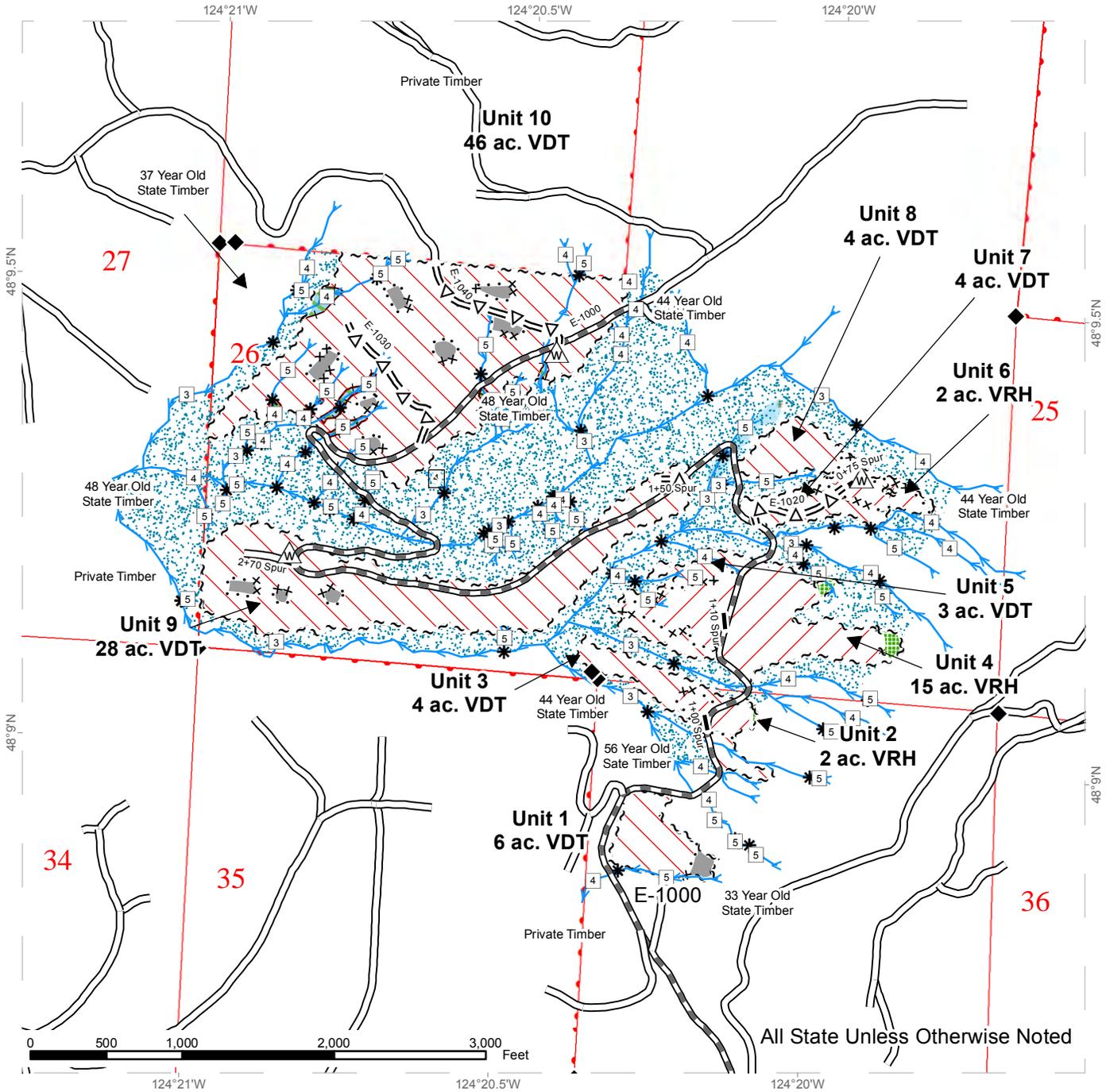
TIMBER NOTICE OF SALE

- HARVEST METHOD:** 100% ground based. Rubber tire skidders will only be allowed if rutting conditions can be met and a harvest plan is submitted and approved by the Contract Administrator. 30' Equipment Limitation Zones on all typed waters
- ROADS:** 2.85 stations of optional construction. 166.75 stations of required pre-haul maintenance. 290.30 stations of optional pre-haul maintenance. On the USFS 3100_100 Road (stations 86+00 - 116+30) and the E-2500 Road (stations 0+00 - 18+00) there will not be any road work or operation of heavy equipment allowed from one hour before to two hours after official sunrise and from one hour before to one hour after official sunset from April 1 through September 23 for marbled murrelet restrictions.
- ACREAGE DETERMINATION**
- CRUISE METHOD:** Sale acreage was 100% GPS'd. Sale units were cruised using a variable plot sample.
- FEES:** On day of sale, Purchaser shall provide the DNR with a cashier's check made payable to Rayonier Washington Timber Company in the amount of \$16,495.00 for a Road Use Permit. \$24,513.00 is due on day of sale. \$1.13 per ton is due upon removal. These are in addition to the bid price.
- SPECIAL REMARKS:** There are locked gates on the E-2000, E-2500, and RY-3900 Roads - contact the Olympic Region Dispatch Center at 360-374-2811 to obtain a AA-1 key.

TIMBER SALE MAP

SALE NAME: ELLIS CROSSING VDT VRH
AGREEMENT #: 30-093925
TOWNSHIP(S): T31N R13 W
TRUST(S): State Forest Transfer (01)

REGION: Olympic Region
COUNTY(S): CLALLAM
ELEVATION RGE: 634-1348



All State Unless Otherwise Noted

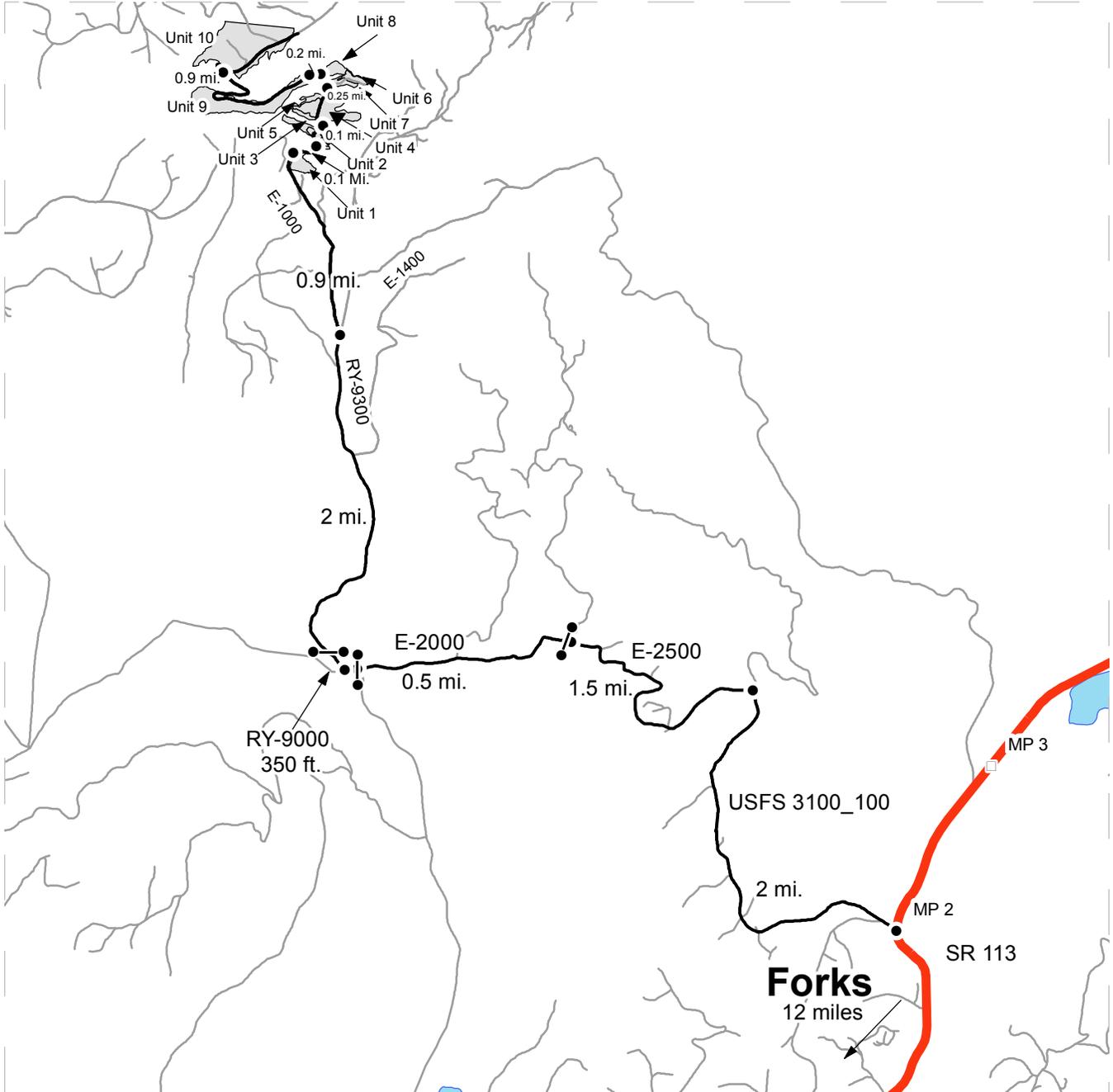
~ ~	Leave Tree Area Tags		RMZ/MMZ		Public Land Survey Sections
-+-	Skip Line		Gap		Monument
...x	Special Management Unit Tags		Leave Tree Area		Waste Area
~ ~ ~	Timber Sale Boundary Tags		Skip		Existing
	Stream		Ground-Based VDT		Optional Construction
	Forested Wetland		Ground-Based VRH		Optional Pre-haul Maintenance
			Stream Type		Required Pre-haul Maintenance
			Stream Type Break		



DRIVING MAP

SALE NAME: ELLIS CROSSING VDT VRH
AGREEMENT#: 30-093925
TOWNSHIP(S): T31N R13W
TRUST(S): State Forest Transfer(1)

REGION: Olympic Region
COUNTY(S): CLALLAM
ELEVATION RGE: 634-1348



	Timber Sale Unit
	Highways
	Haul Route
	Other Route
	Milepost Markers
	Distance Indicator
	Gate

Driving Directions

From Forks drive 10 miles north on US 101 and turn left onto SR-113 before milepost 204. Drive 2.0 miles on SR-113 then turn left onto USFS 3100. After approximately 2 miles take the fork to the left onto the E-2500. After approximately 1.5 miles the E-2500 will turn into the E-2000. After about a half mile the E-2000 turns into the RY-9000. Travel approximately 350 more feet and turn right onto the RY-9300.

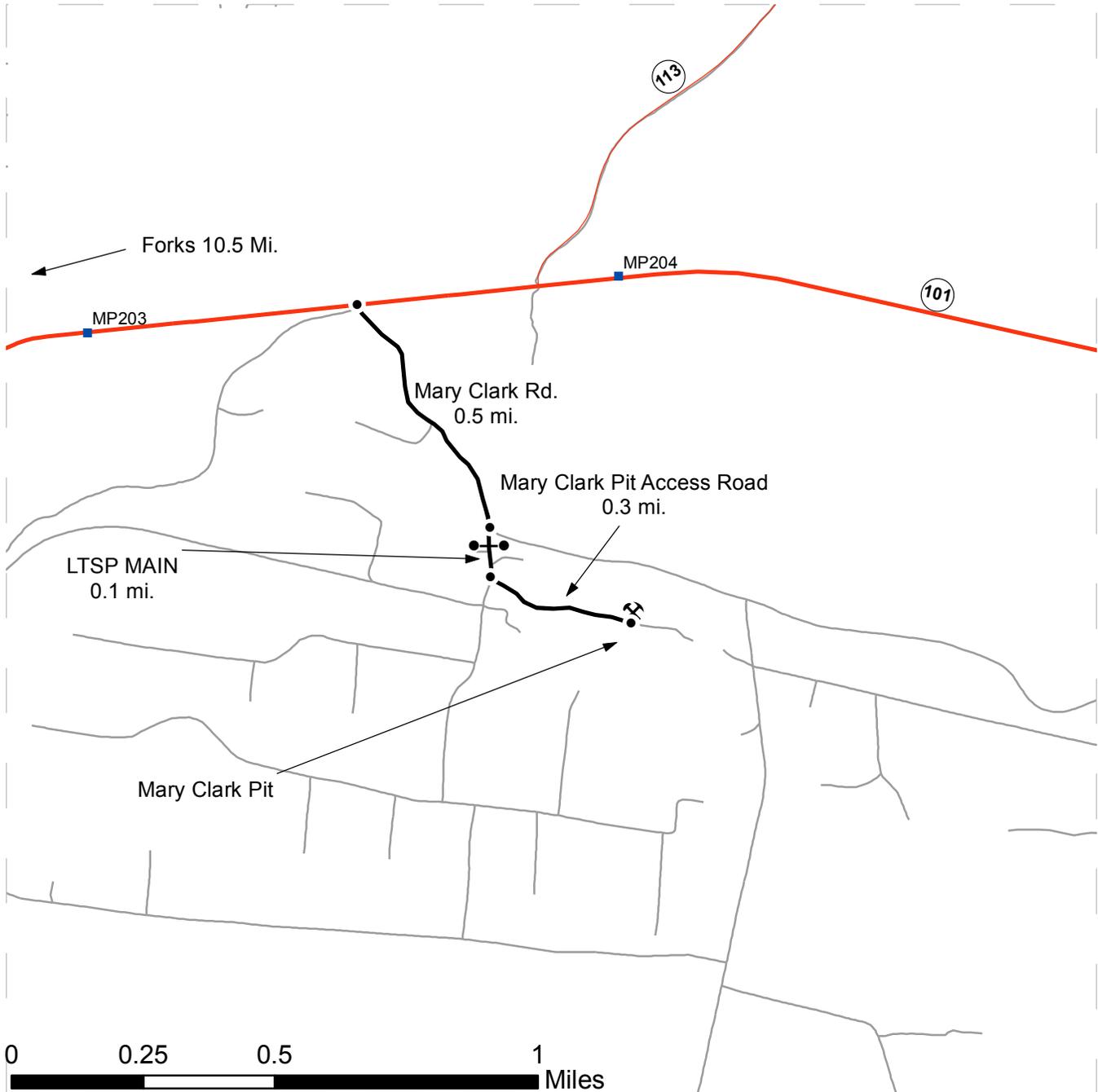
Continue on the RY-9300 for 2 miles to the E-1000. At the fork, keep left on the E-1000 and continue 0.9 miles on the E-1000 to Unit 1. Continue 0.1 miles to reach Units 2 and 3. Drive 0.1 mile to reach Unit 4 and Unit 5. Drive 0.25 miles to reach units 6, 7, and 8. Continue 0.2 miles to reach Unit 9 and another 0.9 miles to reach Unit 10.



DRIVING MAP

SALE NAME: Clallam Collective Sorts
AGREEMENT#: 30-094160
TOWNSHIP(S): T30R12W
TRUST(S): State Forest Transfer(1)

REGION: Olympic Region
COUNTY(S): CLALLAM



<ul style="list-style-type: none"> Haul Route Other Route Milepost Markers Existing Rock Pit Distance Indicator Gate 	<p>DRIVING DIRECTIONS: From Forks, WA, travel north on US 101 10.5 mi. to the Mary Clark Rd., on right. Continue for 0.5 mi., then turn right on LTSP Main road. After 0.1 mi., turn left on the Mary Clark Pit Access Road and continue for 0.3 mi. to the Mary Clark Pit.</p>
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**STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES**

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

Export Restricted Tonnage Scale AGREEMENT NO. 30-093925

SALE NAME: ELLIS CROSSING VDT VRH

**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-010 Products Sold and Sale Area

Purchaser was the successful bidder on October 26, 2016 and the sale was confirmed on _____. The State, as owner, agrees to sell to Purchaser, and Purchaser agrees to purchase, cut, and remove the following forest products: All timber as described in Schedule C for Units 1,3,5,7,8,9 and 10, except those trees described in Schedule D; bounded by timber sale boundary tags and special management unit boundary tags in Unit 1; timber sale boundary tags and the E-1000 Road in Unit 3 and Unit 9; timber sale boundary tags, the E-1000 Road and a skip line in Unit 10; timber sale boundary tags, special management unit boundary tags and the E-1000 Road in Unit 5, Unit 7 and Unit 8;

All timber except trees marked with a band of blue paint or bounded out by leave tree area tags; bounded by timber sale boundary tags, special management unit boundary tags and the E-1000 Road in Unit 2; bounded by timber sale boundary tags, leave tree area tags, special management unit boundary tags and the E-1000 Road in Unit 4; bounded by timber sale boundary tags, special management unit boundary tags and leave tree area tags in Unit 6

All timber that has been on the ground for five years or more shall be left undisturbed and not yarded (five years is defined by more than 1.5 inches of sap rot), located on approximately 115 acres on part(s) of Sections 26, and 35 all in Township 31 North, Range 13 West W.M. in Clallam County(s) as shown on the attached timber sale map and as designated on the sale area.

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

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

G-020 Inspection By Purchaser

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

G-025 Schedules

The following attached schedules are hereby incorporated by reference:

Schedule	Title
A	SLASH PILING SPECS
B	GREEN TREE RETENTION PLAN
C	CUT TREE SELECTION CRITERIA
D	LEAVE TREE SELECTION CRITERIA
E	UNIT TARGET TABLE

G-030 Contract Term

Purchaser shall remove the forest products conveyed and complete all work required by this contract prior to October 15, 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-050 Contract Term Extension - Payment

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

- a. A written request for extension of the contract term must be received prior to the expiration date of the contract.
- b. Completion of all required roads and compliance with all contract and regulatory requirements.
- c. For the first extension, not to exceed 1 year, payment of at least 25 percent of the contract value based on the contract payment rate and advertised volume.

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

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

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

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

- e. Payment of \$3.00 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-090 Sale Area Adjustment

The Parties may agree to adjustments in the sale area boundary. The cumulative changes to the sale area during the term of the contract shall not exceed more than four percent of the original sale area. If the sale area is increased, added forest products become a part of this contract and shall be paid for at the same rate and manner as other forest products under this contract.

G-100 Forest Products Not Designated

Any forest products not designated for removal, which must be removed in the course of operations authorized by the State, shall be approved and designated by the Contract Administrator. Added forest products become a part of this contract and shall be paid for at the same rate and manner as other forest products under this contract.

G-105 Adding Naturally Damaged Forest Products

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

G-110 Title and Risk of Loss

Title to the forest products conveyed passes at confirmation of the sale. Purchaser bears the risk of loss of or damage to and has an insurable interest in the forest products

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

G-116 Sustainable Forestry Initiative® (SFI) Certification

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

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

G-120 Responsibility for Work

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

G-121 Exceptions

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

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

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

1. Failure of (a) required improvements or roads designated in clause C-050, or (b) required or optional construction completed to the point that authorization to haul has been issued;
2. Caused by a single event from forces beyond the control of Purchaser, its employees, agents, or invitees, including independent contractors; and
3. Includes, but is not limited to natural disasters such as earthquakes, volcanic eruptions, landslides, and floods.

The repair work identified by the State shall be promptly completed by Purchaser at an agreed price. The State may elect to accomplish repairs by means of State-provided

resources. The State will bear the cost to repair damages caused by a third party. In all other cases, the Purchaser shall bear responsibility for the costs as described below.

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

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

G-140 Indemnity

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

G-150 Insurance

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

All insurance and surety bonds should be issued by companies admitted to do business within the State of Washington and have a rating of A-, Class VII or better in the most recently published edition of Best's Reports. If an insurer is not admitted, all insurance policies and procedures for issuing the insurance policies must comply with Chapter 48.15 RCW and 284-15 WAC.

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

1. Insurers subject to Chapter 48.18 RCW (admitted and regulated by the Insurance Commissioner): The insurer shall give the State 45 days advance notice of cancellation or non-renewal. If cancellation is due to non-payment of premium, the State shall be given 10 days advance notice of cancellation.
2. Insurers subject to Chapter 48.15 RCW (surplus lines): The State shall be given 20 days advance notice of cancellation. If cancellation is due to non-payment of premium, the State shall be given 10 days advance notice of cancellation.

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

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

The State of Washington, Department of Natural Resources, its elected and appointed officials, agents and employees shall be named as an additional insured 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; USFS 3100-100, RY-9000, RY-9300, E-1000, E-1020, E-1030, E-1040, E-2000, E-2500, 1+00 Spur, 1+10 Spur and 0+75 Spur. 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 USFS 3100-100, E-1000, E-2000, E-2500, RY-9000, and RY-9300 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:

Road Use Permit #55-094029 with Rayonier Washington Timber Company.

Easement #55-50 with Rayonier Operating Company LP

Easement #55-49 with Olympic National Forest

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-010 Initial Deposit**

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

P-024 Payment for Forest Products

Purchaser agrees to pay the following rate per ton for forest products conveyed plus \$24,513.00 on day of sale and \$1.13 per ton upon removal in fees. Fees collected shall be retained by the state unless the contract is adjusted via the G-066 clause.

DATA MISSING

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

P-027 Payment for Removal of Optional Forest Products

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

P-040 Weighing and Scaling Costs

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

P-045 Guarantee of Payment

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

P-052 Payment Procedure

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

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

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

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

Forest products included in this agreement which are destroyed, damaged, stolen, lost, or mismatched shall be paid for by Purchaser on demand of the State. The rates contained in clause P-024 shall apply.

P-080 Payment Account Refund

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

P-090 Performance Security

Purchaser agrees to furnish, within 30 days of the confirmation date, security acceptable to the State in the amount of \$27,600.00. The Security provided shall guarantee performance of all provisions of this contract and payment of any damages caused by operations under this contract or resulting from Purchaser's noncompliance with any rule or law. Acceptable performance security may be in the form of a performance bond, irrevocable letter of credit, cash, savings or certificate of deposit account assignments, and must name the State as the obligee or beneficiary. A letter of

credit must comply with Title 62A RCW, Article 5. Performance security must remain in full force over the duration of the contract length. Surety bonds issued shall conform to the issuance and rating requirements in clause G-150. The State shall retain the performance security pursuant to RCW 79.15.100. Purchaser shall not operate unless the performance security has been accepted by the State. If at any time the State decides that the security document or amount has become unsatisfactory, Purchaser agrees to suspend operations and, within 30 days of notification, to replace the security with one acceptable to the State or to supplement the amount of the existing security.

P-100 Performance Security Reduction

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

Section L: Log Definitions and Accountability

L-060 Load Tickets

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

Purchaser shall account for all load tickets issued by the Contract Administrator. The State may treat load tickets not accounted for as lost forest products. All costs associated with computing the billings for lost loads shall be borne by Purchaser.

L-071 Log and Load Reporting Service

This contract requires the use of a State approved third party Log and Load Reporting Service (LLRS). Purchaser shall ensure log volume measurement data and/or load and weight data is received by the LLRS within 1 business day of logs being measured or weighed. Purchaser agrees to pay the LLRS for log and load data supplied to the State.

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

L-110 State Approval of Log Scaling and Weighing Locations

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

Prior to forest products being hauled, the Contract Administrator must authorize in writing the use of State approved measurement and/or weighing facilities that are at or en-route to final destinations. Forest products from this sale shall be measured or weighed at facilities, which are currently approved for use by the State and are

currently authorized for this sale. The State reserves the right to verify load volume and weights with State employees or contractors at the State's own expense. The State reserves the right to revoke the authorization of previously approved measurement locations.

Section H: Harvesting Operations

H-010 Cutting and Yarding Schedule

Falling and yarding will not be permitted prior to 6:00am and after 8:00pm, or on weekends and State holidays unless authorized in writing by the Contract Administrator.

H-011 Certification of Fallers and Yarder Operators

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

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

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

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

H-012 Leave Tree Damage Definition

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

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

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

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

H-013 Reserve Tree Damage Definition

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

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

- a. A reserve tree has one or more scars on its trunk exposing the cambium layer, which in total exceeds 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-015 Skid Trail Requirements

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

Purchaser shall comply with the following during the yarding operation:

- a. Skid trails will not exceed 12 feet in width, including rub trees.
- b. Skid trails shall not cover more than 15 percent of the total acreage on one unit.
- c. Skid trail location will be pre-approved by the Contract Administrator.
- d. Except for rub trees, skid trails shall be felled and yarded prior to the felling of adjacent timber.
- e. Rub trees shall be left standing until all timber tributary to the skid trail has been removed.

- f. Excessive soil damage is not permitted. Excessive soil damage is described in clause H-017.
- g. Skid trails will be water barred at the time of completion of yarding, if required by the Contract Administrator.

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

H-017 Preventing Excessive Soil Disturbance

Operations may be suspended when soil rutting exceeds 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-030 Timber Falling

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

H-035 Fall Trees Into Sale Area

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

H-040 Purchaser Harvest Plan

Purchaser shall, as part of the plan of operations, prepare an acceptable harvest plan for utilizing rubber tire skidders. 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-050 Rub Trees

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

H-052 Branding and Painting

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

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

H-060 Skid Trail Locations

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

H-080 Snags Not to be Felled

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

H-110 Stump Height

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

H-120 Harvesting Equipment

Forest products sold under this contract shall be harvested by ground methods with rubber tire skidders only being allowed if conditions of Clauses H-015, 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-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

1. Purchaser must have utility lines located prior to digging next to the E-2000 Road between Stations 0+00 and 61+05.
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 E-2000 Road.
4. Yarding equipment shall not cross live streams without an HPA
5. 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-150 Required Removal of Forest Products

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

Species	Net bd ft	Log length (ft)	Log dib
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All

10

12

5

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

H-151 Required Harvesting Area

Unless otherwise authorized by the State, Purchaser is required to fall, yard and remove all forest products and other valuable materials conveyed and required to be removed under this contract within the percent slope and yarding distances listed below. The yarding distances are measured from all existing roads and those required roads constructed under this contract. Purchaser may yard beyond the required removal distances up to the designated sale boundaries. If Purchaser decides to yard beyond the required yarding distance, Purchaser must follow all requirements specified in this contract.

Yarding Method	Max Slope % Downhill	Slope Dist Downhill	Max Slope % Uphill	Slope Dist Uphill
Ground	40	1000	40	1000
Cable	N/A	1000	N/A	1000

Cable or aerial/helicopter equipment is permitted on all slopes. Cable or aerial/helicopter equipment may be used on any required harvest area of this sale where ground based equipment is not permitted or on designated ground based harvest areas where Purchaser does not choose to use ground based equipment.

H-157 Optional Removal of Forest Products Not Designated

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

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

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

H-160 Mismanufacture

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

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

H-180 Removal of Specialized Forest Products or Firewood

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

H-190 Completion of Settings

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

H-220 Protection of Residual or Adjacent Trees

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

H-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.

H-260 Fall Leaners

Trees > 6 inches dbh that have been pushed over in falling or skidding operations shall be felled.

Section C: Construction and Maintenance

C-040 Road Plan

Road construction and associated work provisions of the Road Plan for this sale, dated 7/29/2016 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 E-1020, E-1030, 0+75 Spur, 1+00 Spur and 1+10 Spur. 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 USFS 3100_100, E-1000, E-1040, E-2000, E-2500 and all 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-080 Landing Locations Approved Prior to Construction

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

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-035 Logging Debris Clean Up

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

S-050 Cessation of Operations for Low Humidity

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 water 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' of any typed water unless authority is granted in writing by the Contract Administrator.

S-120 Stream Protection

No timber shall be felled into, across, or yarded through any streams.

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-010 Liquidated Damages

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

D-021 Failure to Remove Forest Products

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

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

Where:

LD = Liquidated Damage value.

V = The unremoved value at the date of breach of contract. The value is determined by subtracting the removal tonnage to date from the cruised tonnage multiplied by the contract bid rates.

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

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

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

A = Administrative Fee = \$2,500.00.

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

Where:

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

LD = Liquidated damage value.

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

D-030 Inadequate Log Accountability

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

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

D-040 Leave Tree Excessive Damage

When Purchaser's operations exceed the damage limits set forth in clause H-012, Leave Tree Damage Definition, the trees damaged result in substantial injury to the State. The value of the damaged leave trees at the time of the breach is not readily ascertainable.

Therefore, Purchaser agrees to pay the State as liquidated damages at the rate of \$500.00 per tree for all damaged trees in Units 1, 3, 5, 7, 8, 9, and 10.

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 for Units 2, 4 and 6.

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

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Purchaser

Mona Griswold
Olympic Region Manager

Date: _____

Date: _____

Address:

CORPORATE ACKNOWLEDGEMENT

STATE OF _____)

COUNTY OF _____)

On this _____ day of _____, 20____, before me personally appeared _____

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

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

Notary Public in and for the State of

My appointment expires _____

Schedule A
SLASH PILING SPECS

Specifications for Slash Piling

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 shall be placed in skid roads or ahead of machinery. Slash which accumulates on landings and/or roads shall be lopped and scattered within the harvest area or as designated by the Contract Administrator.

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
2	0	1	18	18
4	4	2	127	131
6	0	1	21	21

Schedule C
CUT TREE SELECTION CRITERIA

1. Cut trees are defined as all trees in the sale area, as shown on the timber sale maps that meet the following criteria:
 - a. All trees less than 14 inches in diameter at a 12 inch stump height provided that enough evenly distributed trees per acre remain to achieve the relative densities shown in the Unit Target Table (Schedule E).
 - b. Those trees which are not defined as leave trees.
 - c. All trees which are severely deformed, as defined below in part 2, provided that the remaining stand is not reduced below the relative densities shown in the Unit Target Table (Schedule E); or unless designated by the Contract Administrator for snag recruitment.

2. Severely deformed trees are defined as trees with one or more of the following characteristics:
 - a. Trees with three (3) or more tops.
 - b. Trees with a broken top.
 - c. Trees with two (2) tops if they twist around each other or are otherwise badly deformed.
 - d. Trees with basal scars or scars on the lower stem if visible soft decay is evident. Trees with scars that have healed over are not to be considered severely deformed.

Schedule D
LEAVE TREE SELECTION CRITERIA

1. Leave trees are defined as follows:
 - a. All trees greater than or equal to 17 inches in diameter at a 12 inch stump height.
 - b. Trees greater than or equal to 14 inches in diameter at a 12 inch stump height, with good form, shall only be felled if leaving them results in a residual stand of higher relative density than shown in the Unit Target Table (Schedule E).
 - c. All trees less than 14 inches in diameter at a 12 inch stump height needed to achieve relative densities as shown in the Unit Target Table (Schedule E).
 - d. All trees within the non-operational areas, i.e., wetland and skip areas as shown on the timber sale map.

2. Leave trees shall be well distributed at the relative density and spacing shown in the Unit Target Table (Schedule E), and will consist of the largest diameter and best formed trees available.

Best form is defined as follows:

- a. Tallest Trees
 - b. Full Crowns
 - c. Straightest Boles
 - d. Smaller Diameter Limbs
-
3. Leave trees will be identified by comparing their characteristics with other trees in the stand. Spacing will be varied to ensure the best trees available are left as leave trees. Felling of trees shall not result in creating an opening in the stand greater than 30 feet in diameter. If openings in the stand approach this diameter, then sufficient trees shall be left on the perimeter of the opening to maintain the target density or spacing (Unit Target Table - Schedule D).

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Schedule E
UNIT TARGET TABLE

Unit	Acres	Approx. Stems/acre	Approx. Spacing	Approx. Basal Area	RD
1	6	220	14 x 14'	185	50
3	4	135	18 x 18'	185	45
5	4	130	18 x 18'	175	45
7	4	150	17 x 17'	195	50
8	4	150	17 x 17'	195	50
9	28	165	15 x 15'	165	45
10	46	170	16 x 16'	170	45



WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

FOREST EXCISE TAX ROAD SUMMARY SHEET

Region:

Timber Sale Name:

Application Number:

EXCISE TAX APPLICABLE ACTIVITIES

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

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

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

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

Pre-Haul Maintenance: **linear feet**
Existing road to receive maintenance work (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

Sale Name: Ellis Crossing	Region: Olympic
Agreement #: 30-	District: Coast
Lead Cruiser: Jason Michaud	Completion Date: 3/9/2016
Other Cruisers: None :C	

Unit acreage specifications:

Updated #	Unit #	Cruised Acres	Cruised acres agree with sale acres? Y/N	If acres do not agree explain why.
	1	5	Y	
Unit 1	1 gaps	.6	Y	
Unit 3	2	4.7	Y	
Unit 2	2 VRH	2	Y	
Unit 5	3	3.9	Y	
Unit 4	3 VRH	14.6	Y	
Unit 7&8	4	7.7	Y	
Unit 6	4 VRH	2.2	Y	
	5	26.6	Y	
Unit 9	5 gaps	1	Y	
	6	43.6	Y	
Unit 10	6 gaps	3	Y	
	Total	114.9	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/co unt)	Number of plots
1	VP	54.45, 40	4.5', 16'	200X200	1:1	5
2	VP	54.45, 40	4.5', 16'	200X200	1:1	7
3	VP	54.45, 40	4.5', 16'	225X225	1:1	13
4	VP	54.45, 40	4.5', 16'	250x250	1:1	9
5	VP	54.45, 40	4.5', 16'	275X275	1:1	20
6	VP	54.45, 40	4.5', 16'	325X325	1:1	18
All Gaps/VRH	VP	Plots From Units	4.5', 16'	N/A	Cruise	N/A

Sale/Cruise Description:

Minor species cruise intensity	Minor species sampled using same cruise plots.				
Minimum cruise spec:	40% of Form Factor at 16 ft. D.O.B or 5 inch top or merchantable top				
Average ring count:	DF =	4	WH =	4	SS =
Leave/take tree description:	Leave tree clumps are bounded out with yellow tags, red flashers and blue paint. Individual leave trees are marked with blue bands and two blue butt marks.				
Other conditions:	Exterior boundaries are marked with white tags and pink flashers				

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

Ellis Crossing is a 6 unit variable density thinning and variable retention harvest located north of Forks on the E-1000 road system. The major trees species are western hemlock, Douglas fir and silver fir. Minor species include red alder and red cedar. The average bole height for the hemlock is 57. The average bole height for the Douglas fir is 59 feet. The main defect present in this stand is sweep and double tops. This defect is associated with all major species. Defect present in the minor species consisted of sweep in the alder.

Grants: 01**Prepared By:** Jason Michaud

Forester / Timber Cruiser Edited By Jason Michaud

T031 R013 S26 TyU1 THRU T31 R13 S26 TyU6G	Project: BULLS Acres 114.90	Page 2 Date 4/5/2016 Time 7:41:37AM
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S Spp	So T	Gr rt	Ad 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		
									4-7	8-11	12-15	16+	12-20	21-30	31-35	36-99						
SS	D	4S		8	6	6	1	100					100				29	6	40	0.55	.1	
SS Totals				0	5.3	80	75	9	65	35			65	35			29	8	66	0.73	1.1	
SS	T	D	2S	82	13.6	9	8	1		100				100			36	13	190	2.17	.0	
SS	T	D	4S	18		2	2	0	100				100				29	6	40	0.55	.0	
SS Totals				0	11.5	10	9	1	17	83			17	83			33	10	115	1.45	.1	
RC	T	D	3S	87	12.5	22	20	2		100				100			36	8	70	0.86	.3	
RC	T	D	UT	13		3	3	0	100				100				11	5	10	0.24	.3	
RC Totals				0	11.1	25	22	3	13	87			13	87			24	7	40	0.72	.6	
RC		D	3S	87	12.5	6	5	1		100				100			36	8	70	0.86	.1	
RC		D	UT	13		1	1	0	100				100				11	5	10	0.24	.1	
RC Totals				0	11.1	7	6	1	13	87			13	87			24	7	40	0.72	.1	
Totals					5.5	25,820	24,387	2,802	52	44	4			15	12	14	60	25	6	42	0.49	576.4

Take Volume
 WH- 793mbf
 DF- 478mbf
 RA- 87mbf
 SF- 19mbf
 SS- 1mbf
 RC- 3mbf

Total Take Volume 1381mbf

TC PSTATS		PROJECT STATISTICS							PAGE	1	
		PROJECT			BULLS				DATE	3/8/2016	
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt	
031	013	26	BULLS	UI	THR	114.90	144	746	S	W	
31	13	26	BULLS	U6G							
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		144	746	5.2							
CRUISE		110	550	5.0	35,193	1.6					
DBH COUNT REFOREST COUNT		34	188	5.5							
BLANKS											
100 %											
STAND SUMMARY											
SAMPLE TREES		TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC	
WHEMLOCK	121	76.0	13.3	57	20.2	73.6	7,339	6,966	2,053	2,054	
WHEMLOCK-T	175	95.2	11.4	53	20.1	67.8	6,809	6,534	1,737	1,734	
DOUG FIR	72	46.2	14.7	59	14.1	54.2	5,056	4,698	1,467	1,468	
DOUG FIR-T	104	58.5	12.3	53	13.8	48.6	4,280	3,999	1,174	1,172	
R ALDER	26	13.1	13.2	46	3.4	12.5	1,115	1,033	280	280	
R ALDER-T	36	13.9	10.8	43	2.7	8.9	745	726	185	185	
PS FIR	5	1.0	16.6	67	0.4	1.5	181	166	48	48	
PS FIR-T	5	1.0	16.9	64	0.4	1.6	172	152	49	49	
S SPRUCE	4	1.0	14.4	45	0.3	1.2	90	85	28	28	
WR CEDAR	1	.1	16.0	50	0.0	.1	7	6	3	3	
WR CEDAR-T	1	.3	16.0	50	0.1	.4	25	22	10	9	
TOTAL	550	306.3	12.7	54	75.8	270.3	25,820	24,387	7,034	7,030	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL	68.1	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		46.6	4.3	115	120	125					
WHEMLOCK-T		50.7	3.8	85	88	92					
DOUG FIR		16.4	2.0	138	141	144					
DOUG FIR-T		45.2	4.5	96	100	105					
R ALDER				110	110	110					
R ALDER-T				89	89	89					
PS FIR		38.2	19.0	139	172	205					
PS FIR-T		38.2	19.0	139	172	205					
S SPRUCE		74.2	42.5	81	140	199					
WR CEDAR											
WR CEDAR-T											
TOTAL		44.6	2.0	105	107	109	79	20	9		
CL	68.1	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		47.0	4.3	34	36	37					
WHEMLOCK-T		58.7	4.4	24	26	27					
DOUG FIR		5.0	.6	45	45	45					
DOUG FIR-T		45.6	4.6	29	31	32					
R ALDER				30	30	30					
R ALDER-T				24	24	24					
PS FIR		44.1	21.9	42	54	66					
PS FIR-T		44.1	21.9	42	54	66					
S SPRUCE		87.4	50.0	27	54	80					
WR CEDAR											
WR CEDAR-T											
TOTAL		48.9	2.1	31	32	33	96	24	11		

TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
031	013	26	BULLS	UI	THR	114.90	144	746	S	W
31	13	26	BULLS	U6G						
CL	68.1	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		172.8	14.4	65	76	87				
WHEMLOCK-T		157.1	13.1	83	95	108				
DOUG FIR		248.0	20.7	37	46	56				
DOUG FIR-T		204.9	17.1	48	58	68				
R ALDER		321.3	26.8	10	13	17				
R ALDER-T		371.0	30.9	10	14	18				
PS FIR		678.3	56.5	0	1	2				
PS FIR-T		803.5	67.0	0	1	2				
S SPRUCE		969.5	80.8	0	1	2				
WR CEDAR		1200.0	100.0	0	0	0				
WR CEDAR-T		1200.0	100.0	0	0	1				
TOTAL		109.8	9.2	278	306	334	483	121	54	
CL	68.1	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		162.1	13.5	64	74	84				
WHEMLOCK-T		143.3	11.9	60	68	76				
DOUG FIR		232.0	19.3	44	54	65				
DOUG FIR-T		186.3	15.5	41	49	56				
R ALDER		346.1	28.8	9	13	16				
R ALDER-T		364.4	30.4	6	9	12				
PS FIR		669.9	55.8	1	2	2				
PS FIR-T		880.3	73.4	0	2	3				
S SPRUCE		770.9	64.2	0	1	2				
WR CEDAR		1200.0	100.0	0	0	0				
WR CEDAR-T		1200.0	100.0	0	0	1				
TOTAL		103.3	8.6	247	270	294	427	107	47	
CL	68.1	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		161.6	13.5	6,027	6,966	7,904				
WHEMLOCK-T		148.0	12.3	5,728	6,534	7,339				
DOUG FIR		240.9	20.1	3,755	4,698	5,641				
DOUG FIR-T		184.8	15.4	3,383	3,999	4,615				
R ALDER		357.4	29.8	725	1,033	1,341				
R ALDER-T		362.1	30.2	507	726	946				
PS FIR		693.5	57.8	70	166	261				
PS FIR-T		835.2	69.6	46	152	258				
S SPRUCE		753.7	62.8	31	85	138				
WR CEDAR		1200.0	100.0	0	6	12				
WR CEDAR-T		1200.0	100.0	0	22	45				
TOTAL		103.3	8.6	22,287	24,387	26,487	427	107	47	
CL	68.1	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		160.4	13.4	1,779	2,054	2,328				
WHEMLOCK-T		146.1	12.2	1,523	1,734	1,945				
DOUG FIR		230.7	19.2	1,186	1,468	1,750				
DOUG FIR-T		183.2	15.3	993	1,172	1,351				
R ALDER		352.3	29.4	198	280	362				
R ALDER-T		365.1	30.4	129	185	242				
PS FIR		677.9	56.5	21	48	75				
PS FIR-T		881.3	73.4	13	49	85				
S SPRUCE		739.9	61.7	11	28	46				
WR CEDAR		1200.0	100.0	0	3	5				
WR CEDAR-T		1200.0	100.0	0	9	19				
TOTAL		102.1	8.5	6,432	7,030	7,628	417	104	46	
CL	68.1	COEFF	V BAR/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		142.1	11.8	82	95	107				

TC PSTATS		<u>PROJECT STATISTICS</u>							PAGE	3	
		PROJECT			BULLS				DATE	3/8/2016	
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt	
031	013	26	BULLS	U1	THR	114.90	144	746	S	W	
31	13	26	BULLS	U6G							
CL	68.1	COEFF		V_BAR/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T		102.1	8.5	84	96	108					
DOUG FIR		207.9	17.3	69	87	104					
DOUG FIR-T		139.5	11.6	70	82	95					
R ALDER		336.6	28.1	58	82	107					
R ALDER-T		295.8	24.7	57	82	106					
PS FIR		693.5	57.8	46	110	174					
PS FIR-T		835.2	69.6	30	98	167					
S SPRUCE		753.7	62.8	27	72	117					
WR CEDAR		1200.0	100.0	0	57	115					
WR CEDAR-T		1200.0	100.0	0	57	115					
TOTAL		<i>102.1</i>	8.5	82	90	98		<i>417</i>	<i>104</i>	<i>46</i>	

TC		PSTNDSUM											Stand Table Summary			Page	1
															Date:	3/8/2016	
T031 R013 S26 TyU1 THRU T31 R13 S26 TyU6G					Project		BULLS					Time:	4:42:01PM				
					Acres		114.90					Grown Year:					
S Spc	T	DBH	Sample Trees	FF 16'	Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals			
									Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF	
WH		8	2	90	47	4.851	1.80	4.85	6.7	29.9	1.03	32	145	119	37	17	
WH		9	2	88	49	4.322	1.80	6.36	5.2	23.6	1.06	33	150	121	38	17	
WH		10	3	87	58	3.241	1.80	6.48	5.9	22.5	1.21	38	146	139	44	17	
WH		11	7	88	65	8.228	5.20	16.46	7.7	34.5	4.06	127	567	466	146	65	
WH		12	15	85	68	12.155	9.68	24.31	10.6	35.7	8.21	257	868	943	295	100	
WH		13	19	85	72	9.964	9.26	19.93	13.0	43.6	8.27	259	869	951	297	100	
WH		14	17	85	72	11.645	12.46	23.29	15.0	49.5	11.19	350	1,153	1,286	402	132	
WH		15	17	82	74	9.481	11.74	18.22	18.4	56.4	10.73	335	1,027	1,233	385	118	
WH		16	7	82	76	3.044	4.25	6.09	21.1	72.0	4.12	129	438	474	148	50	
WH		17	14	83	78	5.240	8.41	10.48	24.2	78.6	8.13	254	823	934	292	95	
WH		18	7	83	84	1.881	3.27	3.76	28.4	89.5	3.41	107	337	392	123	39	
WH		19	5	83	83	1.162	2.21	2.44	29.6	95.6	2.31	72	233	265	83	27	
WH		20	6	84	92	.769	1.70	1.92	31.9	109.2	1.96	61	210	226	71	24	
WH		Totals	121	85	69	75.986	73.58	144.59	14.2	48.2	65.69	2,054	6,966	7,548	2,360	800	
WHT		8	6	90	43	5.636	1.95	5.64	5.4	29.9	.97	30	168	111	35	19	
WHT		9	16	90	54	19.470	8.31	26.73	5.8	28.0	4.98	155	747	572	178	86	
WHT		10	17	87	63	16.293	8.85	30.90	6.3	28.4	6.29	195	879	723	224	101	
WHT		11	27	88	66	19.994	13.08	39.99	8.0	33.1	10.34	321	1,325	1,188	369	152	
WHT		12	23	85	67	9.164	6.95	18.33	9.7	35.0	5.70	178	642	655	205	74	
WHT		13	21	85	71	10.109	9.14	20.22	12.5	40.7	8.11	253	823	932	291	95	
WHT		14	21	85	73	6.210	6.43	12.42	15.0	47.7	5.92	186	593	680	214	68	
WHT		15	17	85	78	2.737	3.30	5.45	17.8	59.3	3.11	97	323	358	112	37	
WHT		16	5	83	79	.369	.51	.74	21.3	68.3	.50	16	50	58	18	6	
WHT		17	10	82	81	1.996	3.13	3.99	24.6	83.5	3.15	98	333	361	113	38	
WHT		18	7	81	83	1.889	3.31	3.78	28.2	90.4	3.42	107	342	392	122	39	
WHT		19	3	83	98	.573	1.11	1.59	24.9	82.4	1.26	40	131	145	46	15	
WHT		20	2	83	87	.787	1.74	1.96	29.3	90.1	1.84	57	177	212	66	20	
WHT		Totals	175	87	64	95.228	67.81	171.73	10.1	38.0	55.59	1,734	6,534	6,387	1,993	751	
DF		9	1	88	46	.362	.14	.36	6.8	30.0	.07	2	11	8	3	1	
DF		10	2	87	63	5.454	3.16	10.91	5.9	30.0	1.82	64	327	209	73	38	
DF		12	2	84	67	2.152	1.72	4.30	9.1	34.6	1.11	39	149	128	45	17	
DF		13	6	85	69	7.021	6.61	14.04	12.2	40.3	4.86	171	566	558	197	65	
DF		14	6	83	69	7.838	8.31	15.68	13.5	40.1	6.04	212	628	695	244	72	
DF		15	13	82	72	7.875	9.66	15.75	16.3	47.8	7.33	257	753	842	296	87	
DF		16	17	82	77	7.377	10.14	14.75	19.6	62.2	8.23	289	918	946	332	105	
DF		17	7	81	79	1.936	3.09	3.97	22.8	72.6	2.59	90	288	298	104	33	
DF		18	6	80	83	3.150	5.41	6.54	25.0	76.2	4.65	163	498	534	188	57	
DF		19	10	80	85	2.929	5.62	6.16	27.4	85.5	4.81	169	527	553	194	61	
DF		20	2	80	96	.137	.31	.34	29.5	94.0	.29	10	32	33	12	4	
DF		Totals	72	83	72	46.231	54.17	92.80	15.8	50.6	41.81	1,468	4,698	4,804	1,686	540	
DF T		9	7	87	55	12.519	5.34	18.34	5.4	23.7	2.81	98	434	323	113	50	
DF T		10	4	82	55	4.255	2.33	4.66	7.9	30.0	1.05	37	140	120	42	16	
DF T		11	6	85	59	7.263	4.80	14.53	6.7	26.2	2.83	98	381	325	113	44	
DF T		12	12	85	66	10.609	8.43	21.22	9.0	32.2	5.46	192	684	627	220	79	
DF T		13	20	84	68	10.455	9.68	20.91	11.3	35.8	6.76	236	749	777	271	86	
DF T		14	10	84	71	3.353	3.47	6.71	12.5	39.0	2.39	84	262	275	96	30	
DF T		15	17	82	77	4.093	5.02	8.19	17.2	52.4	4.00	141	429	460	162	49	
DF T		16	11	82	81	2.676	3.68	5.35	19.9	63.7	3.03	106	341	348	122	39	
DF T		17	5	79	81	1.439	2.27	3.28	20.8	63.3	1.95	68	208	224	79	24	
DF T		18	6	83	80	.667	1.14	1.44	23.0	75.4	.94	33	108	108	38	12	
DF T		19	4	83	96	.550	1.07	1.52	23.3	82.3	1.01	35	126	116	41	14	

TC		PSTNDSUM											Stand Table Summary			Page	2
															Date:	3/8/2016	
T031 R013 S26 TyU1 THRU T31 R13 S26 TyU6G					Project		BULLS			Time:	4:42:01PM						
					Acres		114.90			Grown Year:							
S Spc	T	DBH	Sample Trees	FF 16'	Tot Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals			
									Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF	
DF	T	20	2	80	96	.589	1.32	1.47	29.5	94.0	1.24	43	138	142	50	16	
DF	T	Totals	104	84	65	58.468	48.56	107.61	10.9	37.2	33.47	1,172	3,999	3,846	1,347	460	
RA		8	1	89	45	.244	.09	.24	6.0	30.0	.04	1	7	4	2	1	
RA		9	2	89	48	1.598	.75	3.02	5.0	20.6	.42	15	62	48	17	7	
RA		11	2	85	49	.311	.21	.62	6.9	25.0	.12	4	16	13	5	2	
RA		12	3	83	50	2.630	2.01	5.26	7.3	28.2	1.08	39	149	124	44	17	
RA		13	5	84	54	1.591	1.43	3.18	10.0	35.1	.88	32	112	101	37	13	
RA		14	3	82	58	2.087	2.18	4.17	12.1	46.2	1.39	51	193	160	58	22	
RA		15	8	85	60	4.071	4.92	8.14	14.4	52.3	3.21	117	426	369	134	49	
RA		16	1	84	65	.077	.10	.15	18.3	60.0	.08	3	9	9	3	1	
RA		18	1	85	52	.499	.84	1.00	18.5	60.0	.50	18	60	58	21	7	
RA		Totals	26	85	55	13.107	12.54	25.79	10.9	40.1	7.70	280	1,033	885	322	119	
RA	T	8	1	89	45	.853	.30	.85	6.0	30.0	.13	5	26	15	6	3	
RA	T	9	6	89	48	4.734	2.08	8.84	4.5	20.3	1.09	40	179	126	46	21	
RA	T	10	2	85	45	1.744	.88	3.49	4.6	20.0	.44	16	70	50	18	8	
RA	T	11	6	82	48	3.681	2.54	7.36	6.8	25.0	1.37	50	184	158	57	21	
RA	T	12	3	83	50	.110	.08	.22	7.3	28.2	.04	2	6	5	2	1	
RA	T	13	3	82	68	.999	.90	2.00	11.1	39.7	.61	22	79	70	25	9	
RA	T	14	5	84	65	.565	.61	1.13	13.2	49.0	.41	15	55	47	17	6	
RA	T	15	8	84	57	.866	1.07	1.73	14.1	51.1	.67	24	89	77	28	10	
RA	T	16	1	84	65	.287	.39	.57	18.3	60.0	.29	11	34	33	12	4	
RA	T	18	1	85	52	.034	.06	.07	18.5	60.0	.03	1	4	4	1	0	
RA	T	Totals	36	85	50	13.874	8.90	26.26	7.1	27.7	5.10	185	726	586	213	83	
SF		13	1	95	77	.130	.12	.26	14.2	55.0	.11	4	14	12	4	2	
SF		16	1	82	91	.463	.63	.93	23.1	85.0	.61	21	79	70	25	9	
SF		18	2	82	76	.358	.62	.72	25.1	80.7	.52	18	58	59	21	7	
SF		22	1	82	91	.053	.14	.11	46.5	140.0	.14	5	15	16	6	2	
SF		Totals	5	84	84	1.004	1.50	2.01	23.9	82.5	1.38	48	166	158	55	19	
SFT		13	1	95	77	.454	.41	.91	14.2	55.0	.37	13	50	42	15	6	
SFT		16	1	82	91	.017	.02	.03	23.1	85.0	.02	1	3	3	1	0	
SFT		18	2	78	74	.325	.59	.65	25.9	67.1	.49	17	44	56	19	5	
SFT		22	1	82	91	.200	.53	.40	46.5	140.0	.53	19	56	61	21	6	
SFT		Totals	5	87	79	.996	1.55	1.99	24.6	76.5	1.41	49	152	162	56	18	
SS		12	2	88	48	.861	.65	.86	13.0	50.0	.29	11	43	33	13	5	
SS		23	2	76	84	.181	.52	.36	47.0	115.0	.44	17	42	51	20	5	
SS		Totals	4	86	54	1.042	1.18	1.22	23.0	69.2	.73	28	85	84	32	10	
RC	T	16	1	81	61	.280	.39	.56	16.8	40.0	.22	9	22	26	11	3	
RC	T	Totals	1	81	61	.280	.39	.56	16.8	40.0	.22	9	22	26	11	3	
RC		16	1	81	61	.075	.10	.15	16.8	40.0	.06	3	6	7	3	1	
RC		Totals	1	81	61	.075	.10	.15	16.8	40.0	.06	3	6	7	3	1	
Totals			550	85	66	306.290	270.28	574.72	12.2	42.4	213.17	7,030	24,387	24,493	8,078	2,802	

T031 R013 S26 TU1 T031 R013 S26 TU1
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt
 031 013 26 BULLS U1 5.00 5 27 S W

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf	
									4-7	8-11	12-15	16+	12-20	21-30	31-35	36-99					
WH		DM	3S	85	5.2	13,868	13,152	66	72	28				31	69	35	7	60	0.52	217.5	
WH		DM	4S	7	21.9	1,352	1,055	5	100				35	65	18	5	16	0.26	64.4		
WH		DM	UT	8	20.1	1,531	1,224	6	100				100		9	5	8	0.18	153.1		
WH	T	Totals		62	7.9	16,750	15,431	77	76	24			10	4	26	59	23	6	35	0.44	435.0
WH	T	DM	CU														5		0.00	34.7	
WH	T	DM	3S	40		3,008	3,008	15	100					100		32	7	60	0.43	50.1	
WH	T	DM	4S	49	7.0	3,938	3,665	18	100					62	38	33	5	36	0.31	101.5	
WH	T	DM	UT	11		775	775	4	100				100		11	5	10	0.19	77.5		
WH	T	Totals		30	3.5	7,722	7,448	37	100				10	71	19	22	5	28	0.33	263.8	
DF	T	DM	3S	75		709	709	4	100					100		36	7	60	0.59	11.8	
DF	T	DM	4S	25		236	236	1	100				100		18	5	20	0.20	11.8		
DF	T	Totals		4		945	945	5	100				25	75	27	6	40	0.46	23.6		
SF		DM	3S	88	6.3	1,031	967	5	100					100		36	11	150	1.12	6.4	
SF		DM	4S	12	33.3	193	129	1	100				100		24	5	20	0.40	6.4		
SF	Totals			4	10.5	1,224	1,096	5	12	88			12	88	30	8	85	0.83	12.9		
Type Totals					6.5	26,641	24,920	125	81	19			10	3	37	49	23	6	34	0.41	735.3

TC TSTATS				STATISTICS							PAGE	1
				PROJECT	BULLS			DATE	3/8/2016			
TWP	RGE	SECT	TRACT	Unit 1	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
031	013	26	BULLS		U1	5.00	5	27	S	W		
		PLOTS	TREES	TREES	ESTIMATED	PERCENT						
				PER PLOT	TOTAL	SAMPLE						
					TREES	TREES						
TOTAL		5	27	5.4								
CRUISE		3	17	5.7	1,937	.9						
DBH COUNT												
REFOREST												
COUNT		2	10	5.0								
BLANKS												
100 %												
STAND SUMMARY												
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET		
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC		
WHEMLOCK	10	217.5	12.1	54	50.0	174.2	16,750	15,431	4,427	4,439		
WHEMLOCK-T	5	151.6	10.3	51	27.2	87.1	7,722	7,448	1,894	1,904		
DOUG FIR-T	1	11.8	13.0	61	3.0	10.9	945	945	296	296		
PS FIR	1	6.4	17.6	62	2.6	10.9	1,224	1,096	321	321		
TOTAL	17	387.3	11.6	53	83.2	283.1	26,641	24,920	6,938	6,960		
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.	INF. POP.				
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15				
WHEMLOCK	30.5	10.2	68	76	84							
WHEMLOCK-T	34.4	17.1	43	52	61							
DOUG FIR-T												
PS FIR												
TOTAL	44.7	11.2	66	75	83	85	21	9				
CL: 68.1 %	COEFF	SAMPLE TREES - CF					# OF TREES REQ.	INF. POP.				
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15				
WHEMLOCK	42.4	14.1	19	23	26							
WHEMLOCK-T	28.9	14.4	11	13	15							
DOUG FIR-T												
PS FIR												
TOTAL	52.5	13.1	19	22	24	117	29	13				
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.	INF. POP.				
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15				
WHEMLOCK	23.7	11.8	192	217	243							
WHEMLOCK-T	41.0	20.4	121	152	183							
DOUG FIR-T	223.6	111.2		12	25							
PS FIR	223.6	111.2		6	14							
TOTAL	23.9	11.9	341	387	433	28	7	3				
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.	INF. POP.				
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15				
WHEMLOCK	26.1	13.0	152	174	197							
WHEMLOCK-T	34.2	17.0	72	87	102							
DOUG FIR-T	223.6	111.2		11	23							
PS FIR	223.6	111.2		11	23							
TOTAL	25.1	12.5	248	283	318	31	8	3				
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.	INF. POP.				
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15				
WHEMLOCK	27.2	13.6	13,340	15,431	17,522							
WHEMLOCK-T	32.7	16.3	6,237	7,448	8,659							
DOUG FIR-T	223.6	111.2		945	1,996							
PS FIR	223.6	111.2		1,096	2,314							
TOTAL	26.2	13.0	21,673	24,920	28,166	34	8	4				

TC TSTATS				STATISTICS							PAGE	2
				PROJECT	BULLS			DATE	3/8/2016			
TWP	RGE	SECT	TRACT	Unit 1	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
031	013	26	BULLS		U1	5.00	5	27	S	W		
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15			
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15			
WHEMLOCK		28.8	14.3	3,803	4,439	5,076						
WHEMLOCK-T		32.5	16.2	1,596	1,904	2,211						
DOUG FIR-T		223.6	111.2		296	625						
PS FIR		223.6	111.2		321	678						
TOTAL		27.5	13.7	6,009	6,960	7,911		37	9	4		
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15			
WHEMLOCK				77	89	101						
WHEMLOCK-T				72	86	99						
DOUG FIR-T		223.6	111.2		87	183						
PS FIR		223.6	111.2		101	213						
TOTAL		134.8	67.0	77	88	99		899	225	100		

TC		TSTNDSUM		Stand Table Summary													
Project														BULLS			
T031 R013 S26 TU1					Unit 1					T031 R013 S26 TU1							
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees			Page:	1						
031	013	26	BULLS	U1	5.00	5	27			Date:	3/8/2016						
										Time:	4:37:54PM						
Spc	S T	Sample		Av	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals				
		DBH	Trees	FF 16'				Ht Tot	Net Cu.Ft.				Net Bd.Ft.	Tons	Cunits	MBF	
WH		10	1	87	60	30.700	17.42	61.40	6.7	25.0	12.97	409	1,535	65	20	8	
WH		11	2	87	62	55.368	34.84	110.74	7.0	32.4	24.95	780	3,586	125	39	18	
WH		12	4	85	63	88.102	69.68	176.20	9.8	32.5	55.00	1,729	5,727	275	86	29	
WH		14	1	83	67	15.840	17.42	31.68	14.6	45.0	14.78	462	1,426	74	23	7	
WH		15	2	81	79	27.469	34.84	54.94	19.3	57.5	33.96	1,060	3,158	170	53	16	
WH		Totals		10	85	65	217.480	174.21	434.96	10.2	35.5	141.65	4,439	15,431	708	222	77
WH	T	9	1	90	59	39.433	17.42	39.43	8.0	30.0	9.80	315	1,183	49	16	6	
WH	T	10	1	82	61	34.658	17.42	34.66	10.4	40.0	11.54	361	1,386	58	18	7	
WH	T	11	2	85	62	53.781	34.84	107.56	7.6	29.9	26.32	823	3,217	132	41	16	
WH	T	12	1	84	61	23.737	17.42	47.47	8.5	35.0	12.95	405	1,662	65	20	8	
WH		Totals		5	85	61	151.608	87.10	229.13	8.3	32.5	60.62	1,904	7,448	303	95	37
SF		18	1	84	77	6.445	10.89	12.89	24.9	85.0	9.20	321	1,096	46	16	5	
SF		Totals		1	84	77	6.445	10.89	12.89	24.9	85.0	9.20	321	1,096	46	16	5
DF	T	13	1	83	75	11.812	10.89	23.62	12.5	40.0	8.43	296	945	42	15	5	
DF		Totals		1	83	75	11.812	10.89	23.62	12.5	40.0	8.43	296	945	42	15	5
Totals				17	85	64	387.345	283.09	700.60	9.9	35.6	219.90	6960	24,920	1,099	348	125

TC TSTATS					STATISTICS					PAGE	1
					PROJECT	BULLS		DATE	3/8/2016		
TWP	RGE	SECT	TRACT	Unit 1	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
031	013	26	BULLS		UIG	0.60	5	27	S	W	
					TREES	ESTIMATED	PERCENT				
					PER PLOT	TOTAL	SAMPLE				
					PLOTS	TREES	TREES	TREES			
TOTAL					5	27	5.4				
CRUISE					3	17	5.7	239	7.1		
DBH COUNT											
REFOREST											
COUNT					2	10	5.0				
BLANKS											
100 %											
STAND SUMMARY											
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
WHEMLOCK-T		15	369.1	11.4	52	77.4	261.3	24,472	22,879	6,321	
DOUG FIR-T		1	23.6	13.0	61	6.0	21.8	1,890	1,890	591	
PS FIR-T		1	6.4	17.6	62	2.6	10.9	1,224	1,096	321	
TOTAL		17	399.2	11.6	53	86.2	294.0	27,586	25,865	7,233	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T		35.2	9.4	62	68	74					
DOUG FIR-T											
PS FIR-T											
TOTAL		44.7	11.2	66	75	83	85	21	9		
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T		47.2	12.6	17	20	22					
DOUG FIR-T											
PS FIR-T											
TOTAL		52.5	13.1	19	22	24	117	29	13		
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T		19.4	9.6	334	369	405					
DOUG FIR-T		136.9	68.1	8	24	40					
PS FIR-T		223.6	111.2	6	14	14					
TOTAL		21.6	10.7	356	399	442	23	6	3		
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T		17.4	8.7	239	261	284					
DOUG FIR-T		136.9	68.1	7	22	37					
PS FIR-T		223.6	111.2	11	23	23					
TOTAL		21.1	10.5	263	294	325	22	6	2		
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T		17.6	8.7	20,882	22,879	24,877					
DOUG FIR-T		136.9	68.1	603	1,890	3,177					
PS FIR-T		223.6	111.2	1,096	2,314	2,314					
TOTAL		22.2	11.0	23,009	25,865	28,721	24	6	3		
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T		19.0	9.5	5,743	6,343	6,943					
DOUG FIR-T		136.9	68.1	189	591	994					
PS FIR-T		223.6	111.2	321	678	678					

TC TSTATS				STATISTICS							PAGE	2
				PROJECT	BULLS			DATE	3/8/2016			
TWP	RGE	SECT	TRACT	Unit 1	TYPE	ACRES		PLOTS	TREES	CuFt	BdFt	
031	013	26	BULLS		UIG	0.60		5	27	S	W	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH		5	10	15		
TOTAL		22.9	11.4	6,429	7,255	8,082		26	6	3		
CL:	68.1 %	COEFF		V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH		5	10	15		
WHEMLOCK-T				80	88	95						
DOUG FIR-T		55.9	27.8	28	87	146						
PS FIR-T		223.6	111.2		101	213						
TOTAL		141.6	70.4	78	88	98		992	248	110		

T	TSPCSTGR	Species, Sort Grade - Board Foot Volumes (Type)										Page	1							
												Date		3/8/2016						
												Time		4:42:52PM						
T031 R013 S26 TU2												T031 R013 S26 TU2								
Twp	Rge	Sec	Tract	Unit 3	Type	Acres	Plots	Sample Trees	CuFt	BdFt										
031	013	26	BULLS		U2	4.70	7	37	S	W										
S Spp	So T	Gr rt 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	
								4-7	8-11	12-15	16+	12-20	21-30	31-35	36-99	Ft	In	Ft		
WH	DM	2S	16	8.3	2,218	2,034	10								100	36	12	165	1.33	12.3
WH	DM	3S	66	6.0	8,982	8,446	40			100					100	36	9	107	0.88	78.9
WH	DM	4S	18	7.1	2,407	2,236	11	100				11	54	35		26	5	25	0.34	91.2
WH	Totals		44	6.6	13,608	12,716	60	18	66	16		2	10	6	82	31	7	70	0.69	182.5
WH	T	DM	3S	81	3.4	3,323	3,212	15	34	66					100	36	8	79	0.62	40.4
WH	T	DM	4S	19	.0	742	742	3	100			24	76			18	5	18	0.26	40.4
WH	T	Totals	14	2.7	4,065	3,954	19	46	54			5	14		81	27	7	49	0.50	80.8
DF	DM	2S	13	11.1	1,000	889	4			100					100	36	12	160	1.28	5.6
DF	DM	3S	72	4.6	5,146	4,909	23	13	87					13	87	35	9	100	0.82	49.0
DF	DM	4S	13		848	848	4	100				25	52	24		27	5	27	0.30	31.8
DF	DM	UT	2		114	114	1	100				100				8	5	10	0.20	11.4
DF	Totals		23	4.9	7,109	6,760	32	24	63	13		5	6	12	76	29	7	69	0.68	97.8
DF	T	DM	3S	66	4.8	3,995	3,805	18	59	41					100	36	7	66	0.54	57.7
DF	T	DM	4S	29	7.3	1,786	1,656	8	100			43	57			21	5	20	0.24	81.1
DF	T	DM	UT	5		235	235	1	100			100				8	5	10	0.17	23.5
DF	T	Totals	20	5.3	6,015	5,696	27	73	27			16	17		67	24	6	35	0.40	162.3
Type Totals				5.4	30,797	29,125	137	34	56	10		6	11	6	78	28	7	56	0.58	523.4

TC TSTATS					STATISTICS				PAGE	1	
					PROJECT	BULLS			DATE	3/8/2016	
TWP	RGE	SECT	TRACT	Unit 3	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
031	013	26	BULLS		U2	4.70	7	37	S	W	
					TREES	ESTIMATED	PERCENT				
					PER PLOT	TOTAL	SAMPLE				
					PLOTS	TREES	TREES	TREES			
TOTAL					7	37	5.3				
CRUISE					5	26	5.2	1,203	2.2		
DBH COUNT											
REFOREST											
COUNT					2	11	5.5				
BLANKS											
100 %											
STAND SUMMARY											
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
WHEMLOCK	11	91.2	15.8	65	31.3	124.4	13,608	12,716	3,896	3,901	
WHEMLOCK-T	3	40.4	13.3	60	10.7	38.9	4,065	3,954	1,107	1,104	
DOUG FIR	6	43.2	16.3	70	15.4	62.2	7,109	6,760	1,934	1,934	
DOUG FIR-T	6	81.1	11.9	57	18.1	62.2	6,015	5,696	1,570	1,564	
TOTAL	26	256.0	14.4	63	75.9	287.8	30,797	29,125	8,507	8,502	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	28.9	9.1		135	148	162					
WHEMLOCK-T	29.6	20.5		82	103	124					
DOUG FIR	32.8	14.6		142	167	191					
DOUG FIR-T	35.6	15.9		66	78	91					
TOTAL	40.0	8.0		121	131	142	67	17	7		
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	28.9	9.1		41	46	50					
WHEMLOCK-T	29.5	20.4		23	29	35					
DOUG FIR	29.6	13.2		41	48	54					
DOUG FIR-T	42.3	18.9		18	22	26					
TOTAL	40.8	8.2		36	39	42	69	17	8		
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	68.1	27.7		66	91	117					
WHEMLOCK-T	108.4	44.1		23	40	58					
DOUG FIR	102.6	41.8		25	43	61					
DOUG FIR-T	101.2	41.2		48	81	115					
TOTAL	39.5	16.1		215	256	297	73	18	8		
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	54.8	22.3		97	124	152					
WHEMLOCK-T	105.8	43.1		22	39	56					
DOUG FIR	106.3	43.3		35	62	89					
DOUG FIR-T	106.3	43.3		35	62	89					
TOTAL	28.3	11.5		255	288	321	37	9	4		
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	53.8	21.9		9,929	12,716	15,503					
WHEMLOCK-T	106.1	43.2		2,244	3,954	5,663					
DOUG FIR	107.7	43.9		3,796	6,760	9,725					
DOUG FIR-T	108.9	44.4		3,169	5,696	8,222					
TOTAL	26.2	10.7		26,013	29,125	32,238	32	8	4		

TC TSTATS		STATISTICS							PAGE	2	
		PROJECT			BULLS				DATE	3/8/2016	
TWP	RGE	SECT	TRACT	Unit 3	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
031	013	26	BULLS		U2	4.70	7	37	S	W	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15		
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		52.4	21.4	3,068	3,901	4,734					
WHEMLOCK-T		105.9	43.1	628	1,104	1,581					
DOUG FIR		108.6	44.2	1,078	1,934	2,789					
DOUG FIR-T		109.0	44.4	869	1,564	2,258					
TOTAL		23.6	9.6	7,683	8,502	9,321	26	6	3		
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK				80	102	125					
WHEMLOCK-T				58	102	146					
DOUG FIR		80.5	32.8	61	109	156					
DOUG FIR-T		82.2	33.5	51	92	132					
TOTAL		115.7	47.1	90	101	112	621	155	69		

TC		TSTNDSUM											Stand Table Summary			
Project														BULLS		
T031 R013 S26 TU2					Unit 3					T031 R013 S26 TU2						
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page:	1							
031	013	26	BULLS	U2	4.70	7	37	Date:	3/8/2016							
								Time:	4:42:52PM							
S Spc	T	Sample		Av	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals			
		DBH	Trees	FF 16'				Ht Tot	Net Cu.Ft.				Net Bd.Ft.	Tons	Cunits	MBF
WH		13	1	83	73	12.273	11.31	24.55	13.6	45.0	10.70	334	1,105	50	16	5
WH		14	1	85	78	11.214	11.31	22.43	14.2	45.0	10.21	319	1,009	48	15	5
WH		15	2	86	76	18.329	22.62	36.66	17.7	60.0	20.74	648	2,199	97	30	10
WH		16	2	83	80	16.616	22.62	33.23	21.3	67.5	22.64	707	2,243	106	33	11
WH		17	1	84	80	7.011	11.31	14.02	25.5	95.0	11.44	358	1,332	54	17	6
WH		18	3	82	86	19.730	33.94	39.46	28.9	93.2	36.48	1,142	3,676	171	54	17
WH		19	1	83	86	6.060	11.31	12.12	32.4	95.0	12.47	392	1,151	59	18	5
WH		Totals	11	84	80	91.232	124.43	182.46	21.4	69.7	124.68	3,901	12,716	586	183	60
DF		14	1	90	75	10.432	10.37	20.86	12.6	45.0	7.51	264	939	35	12	4
DF		16	2	81	85	14.582	20.74	29.16	21.5	72.3	17.92	628	2,108	84	30	10
DF		17	1	82	87	6.736	10.37	13.47	24.5	85.0	9.43	331	1,145	44	16	5
DF		18	1	84	99	5.868	10.37	17.60	20.0	73.3	10.06	353	1,291	47	17	6
DF		19	1	83	99	5.555	10.37	16.67	21.5	76.7	10.20	358	1,278	48	17	6
DF		Totals	6	84	87	43.174	62.22	97.77	19.8	69.1	55.11	1,934	6,760	259	91	32
DF	T	9	1	89	61	23.472	10.37	46.94	4.5	20.0	6.00	210	939	28	10	4
DF	T	11	1	92	70	15.431	10.37	30.86	8.5	35.0	7.50	263	1,080	35	12	5
DF	T	12	1	89	74	12.986	10.37	25.97	10.1	35.0	7.45	261	909	35	12	4
DF	T	13	1	81	77	10.748	10.37	21.50	12.4	35.0	7.73	267	752	36	13	4
DF	T	14	1	90	74	10.279	10.37	20.56	12.5	50.0	7.33	257	1,028	34	12	5
DF	T	15	1	81	81	8.229	10.37	16.46	18.5	60.0	8.74	304	987	41	14	5
DF		Totals	6	88	71	81.144	62.22	162.29	9.6	35.1	44.75	1,564	5,696	210	73	27
WH	T	12	1	85	69	17.970	12.96	35.94	9.6	35.0	10.99	343	1,258	52	16	6
WH	T	15	2	86	77	22.452	25.92	44.90	16.9	60.0	24.42	761	2,696	115	36	13
WH		Totals	3	86	73	40.422	38.89	80.84	13.7	48.9	35.41	1,104	3,954	166	52	19
Totals			26	85	77	255.972	287.75	523.37	16.2	55.7	259.95	8502	29,125	1,222	400	137

T031 R013 S26 TU2V										T031 R013 S26 TU2V				
Twp	Rge	Sec	Tract	Unit 2	Type	Acres	Plots	Sample Trees	CuFt	BdFt				
031	013	26	BULLS		U2V	2.00	7	37	S	W				

Spp	So	Gr	ad	%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log				Logs Per /Acre						
									Net	BdFt	Def%	Gross	Net	Net MBF	Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/Lf	
															4-7	8-11	12-15	16+	12-20	21-30		31-35					36-99
WH	T	DM	2S	12	8.3	2,287	2,098	4	100				100				36	12	165	1.33	12.7						
WH	T	DM	3S	70	5.3	12,254	11,601	23	8	92					100				36	9	99	0.80	117.8				
WH	T	DM	4S	18	5.6	3,150	2,973	6	100					14	59	27					24	5	23	0.33	130.5		
WH T Totals				57	5.8	17,692	16,671	33	24	64	13					2	11	5	82	30	7	64	0.64	260.9			
DF	T	DM	2S	7	11.1	1,000	889	2	100				100				36	12	160	1.28	5.6						
DF	T	DM	3S	70	4.7	9,141	8,714	17	33	67					7 93				36	8	82	0.67	106.7				
DF	T	DM	4S	20	4.9	2,634	2,504	5	100					36	55	8					22	5	22	0.26	112.9		
DF	T	DM	UT	3		349	349	1	100					100				8	5	10	0.18	34.9					
DF T Totals				43	5.1	13,124	12,456	25	46	47	7					10	11	7	72	26	7	48	0.51	260.1			
Type Totals					5.5	30,816	29,127	58	33	57	10					6	11	6	78	28	7	56	0.58	521.0			

TC TSTATS					STATISTICS					PAGE	1
					PROJECT	BULLS		DATE	3/8/2016		
TWP	RGE	SECT	TRACT	Unit 2	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
031	013	26	BULLS		U2V	2.00	7	37	S	W	
					TREES	ESTIMATED	PERCENT				
					PER PLOT	TOTAL	SAMPLE				
					PLOTS	TREES	TREES	TREES			
TOTAL					7	37	5.3				
CRUISE					5	26	5.2	510	5.1		
DBH COUNT											
REFOREST											
COUNT					2	11	5.5				
BLANKS											
100 %											
STAND SUMMARY											
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
WHEMLOCK-T	14	130.5	15.2	64	42.0	163.3	17,692	16,671	5,014	5,017	
DOUG FIR-T	12	124.3	13.5	62	33.8	124.4	13,124	12,456	3,504	3,497	
TOTAL	26	254.8	14.4	63	75.9	287.8	30,816	29,127	8,518	8,514	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T	31.6	8.8		126	139	151					
DOUG FIR-T	50.6	15.2		104	123	141					
TOTAL	40.0	8.0		121	131	142	67	17	7		
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T	33.2	9.2		38	42	46					
DOUG FIR-T	50.1	15.1		30	35	40					
TOTAL	40.8	8.2		36	39	42	69	17	8		
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T	58.7	23.9		99	130	162					
DOUG FIR-T	95.2	38.8		76	124	173					
TOTAL	37.3	15.2		216	255	294	65	16	7		
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T	43.0	17.5		135	163	192					
DOUG FIR-T	96.9	39.5		75	124	174					
TOTAL	28.3	11.5		255	288	321	37	9	4		
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T	42.4	17.3		13,792	16,671	19,551					
DOUG FIR-T	95.4	38.8		7,618	12,456	17,294					
TOTAL	26.3	10.7		26,011	29,127	32,244	32	8	4		
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T	40.0	16.3		4,200	5,017	5,834					
DOUG FIR-T	97.6	39.8		2,107	3,497	4,887					
TOTAL	24.4	9.9		7,669	8,514	9,359	28	7	3		
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T				84	102	120					
DOUG FIR-T	63.2	25.7		61	100	139					
TOTAL	115.7	47.1		90	101	112	622	155	69		

T	TSPCSTGR	Species, Sort Grade - Board Foot Volumes (Type)										Page	1												
Project: BULLS												Date	3/8/2016												
												Time	4:49:53PM												
T031 R013 S26 TU3										T031 R013 S26 TU3															
Twp	Rge	Sec	Tract	Unit 5	Type	Acres	Plots	Sample Trees	CuFt	BdFt															
031	013	26	BULLS		U3	3.90	13	71	S	W															
S Sp	So T	Gr rt 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						
				4-7	8-11	12-15	16+	12-20	21-30	31-35	36-99	Ft	In	Ft											
WH	DM	2S	17	10.4	1,795	1,609	6	100				100				36	12	173	1.50	9.3					
WH	DM	3S	66	5.7	6,696	6,311	25	17	83					2	14	84	35	9	95	0.80	66.7				
WH	DM	4S	15	2.7	1,444	1,405	5	100				16	67	17					24	5	25	0.33	56.1		
WH	DM	UT	2	136			136	1	100				100				11	5	10	0.23	13.6				
WH	Totals		34	6.1	10,071	9,461	37	28	55	17					4	12	12	73	29	7	65	0.68	145.7		
WH	T	DM	3S	73	3.3	4,500	4,353	17	73	27					100				36	7	64	0.49	67.6		
WH	T	DM	4S	23	1,363			1,363	5	100				40	11	49					21	5	23	0.23	60.4
WH	T	DM	UT	4	238			238	1	100				100				9	5	10	0.13	23.8			
WH	T	Totals	21	2.4	6,101	5,953	23	80	20					13	2	11	73	26	6	39	0.39	151.8			
DF	DM	2S	20	6.7	1,209	1,128	4	100				100				36	12	180	1.46	6.3					
DF	DM	3S	64	7.1	3,809	3,539	14	8	92					4	7	89	35	9	89	0.83	39.9				
DF	DM	4S	14	782			782	3	100				29	60	10					22	5	24	0.30	32.2	
DF	DM	UT	2	70			70	0	100				100				9	5	10	0.23	7.0				
DF	Totals	20	6.0	5,870	5,519	22	20	59	20					5	11	6	77	28	7	65	0.72	85.4			
DF	T	DM	3S	81	4.7	3,691	3,515	14	48	52					10 90				35	8	71	0.63	49.8		
DF	T	DM	4S	19	19.7	1,025	823	3	100				45	55					19	5	17	0.24	49.8		
DF	T	Totals	16	8.0	4,716	4,338	17	58	42					8	10	8	73	27	6	44	0.50	99.5			
RA	DM	3S	50	3.5	644	622	2	100				64	36					23	11	86	0.95	7.2			
RA	DM	4S	35	17.9	510	419	2	34	66					66	34					21	7	26	0.44	16.4	
RA	DM	UT	15	183			183	1	100				100				15	5	20	0.24	9.2				
RA	Totals	4	8.5	1,338	1,224	5	27	73					70	30					20	7	37	0.53	32.7		
RA	T	DM	3S	70	199			199	1	100				100				20	10	70	0.81	2.8			
RA	T	DM	4S	30	85			85	0	100				100				32	5	30	0.34	2.8			
RA	T	Totals	1	.0	284	284	1	30	70					70	30					26	8	50	0.52	5.7	
SF	DM	2S	48	11.5	409	362	1	100				100				36	14	230	1.97	1.6					
SF	DM	3S	35	21.4	321	252	1	100				100				36	10	110	1.25	2.3					
SF	DM	4S	17	.0	124	124	0	100				37	63					27	5	32	0.49	3.9			
SF	Totals	3	13.6	854	738	3	17	34	49					6	11	83	31	9	96	1.09	7.7				
RC	DM	3S	87	12.5	176	154	1	100				100				36	8	70	0.86	2.2					
RC	DM	UT	13	22			22	0	100				100				11	5	10	0.24	2.2				
RC	Totals	1	11.1	198	176	1	13	87					13	87				24	7	40	0.72	4.4			
Type Totals			5.9	29,432	27,693	108	42	47	11					10	10	10	70	27	7	52	0.57	533.1			

TC TSTATS					STATISTICS				PAGE	1	
					PROJECT	BULLS		DATE	3/8/2016		
TWP	RGE	SECT	TRACT	Unit 5	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
031	013	26	BULLS		U3	3.90	13	71	S	W	
					TREES	ESTIMATED	PERCENT				
					PER PLOT	TOTAL	SAMPLE				
					PLOTS	TREES	TREES	TREES			
TOTAL					13	71	5.5				
CRUISE					10	52	5.2	1,046	5.0		
DBH COUNT											
REFOREST											
COUNT					3	19	6.3				
BLANKS											
100 %											
STAND SUMMARY											
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
WHEMLOCK	14	69.7	15.6	65	23.4	92.1	10,071	9,461	2,856	2,858	
WHEMLOCK-T	8	84.2	11.3	55	17.4	58.6	6,101	5,953	1,526	1,518	
DOUG FIR	13	39.2	16.6	65	14.4	58.6	5,870	5,519	1,728	1,728	
DOUG FIR-T	8	49.8	13.6	60	13.6	50.3	4,716	4,338	1,336	1,337	
R ALDER	5	16.4	13.1	45	4.2	15.4	1,338	1,224	347	346	
R ALDER-T	1	2.8	14.1	56	0.8	3.1	284	284	77	77	
PS FIR	2	3.9	19.9	65	1.9	8.4	854	738	267	265	
WR CEDAR	1	2.2	16.0	50	0.8	3.1	198	176	75	74	
TOTAL	52	268.2	14.1	59	77.2	289.6	29,432	27,693	8,211	8,205	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	37.6	10.4		139	156	172					
WHEMLOCK-T	25.7	9.7		68	75	82					
DOUG FIR	40.5	11.7		134	152	169					
DOUG FIR-T	28.4	10.7		81	91	101					
R ALDER				140	140	140					
R ALDER-T											
PS FIR	51.7	48.5		106	205	304					
WR CEDAR											
TOTAL	43.4	6.1		122	130	138	75	19	8		
CL:	68.1 %	COEFF	SAMPLE TREES - CF			# OF TREES REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	39.1	10.8		43	48	53					
WHEMLOCK-T	37.2	14.0		17	20	23					
DOUG FIR	33.5	9.7		43	47	52					
DOUG FIR-T	28.6	10.8		25	28	31					
R ALDER				40	40	40					
R ALDER-T											
PS FIR	40.0	37.5		45	73	100					
WR CEDAR											
TOTAL	45.2	6.4		37	40	42	82	20	9		
CL:	68.1 %	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	70.4	20.3		56	70	84					
WHEMLOCK-T	101.9	29.4		59	84	109					
DOUG FIR	114.9	33.1		26	39	52					
DOUG FIR-T	105.3	30.4		35	50	65					
R ALDER	310.6	89.6		2	16	31					
R ALDER-T	360.6	104.0			3	6					
PS FIR	360.6	104.0			4	8					

TC TSTATS				STATISTICS						PAGE	2
				PROJECT	BULLS				DATE	3/8/2016	
TWP	RGE	SECT	TRACT	TYPE	ACRES		PLOTS	TREES	CuFt	BdFt	
031	013	26	BULLS	Unit 5	U3	3.90	13	71	S	W	
CL:	68.1 %	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15		
WR CEDAR		360.6	104.0		2	4					
TOTAL		44.4	12.8	234	268	303	85	21	9		
CL:	68.1 %	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		65.6	18.9	75	92	110					
WHEMLOCK-T		96.4	27.8	42	59	75					
DOUG FIR		103.6	29.9	41	59	76					
DOUG FIR-T		103.4	29.8	35	50	65					
R ALDER		291.4	84.1	2	15	28					
R ALDER-T		360.6	104.0		3	6					
PS FIR		360.6	104.0		8	17					
WR CEDAR		360.6	104.0		3	6					
TOTAL		31.7	9.2	263	290	316	44	11	5		
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		66.3	19.1	7,650	9,461	11,271					
WHEMLOCK-T		96.9	28.0	4,289	5,953	7,618					
DOUG FIR		108.4	31.3	3,792	5,519	7,246					
DOUG FIR-T		107.1	30.9	2,998	4,338	5,678					
R ALDER		285.3	82.3	216	1,224	2,231					
R ALDER-T		360.6	104.0		284	579					
PS FIR		360.6	104.0		738	1,506					
WR CEDAR		360.6	104.0		176	360					
TOTAL		36.0	10.4	24,818	27,693	30,569	56	14	6		
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		67.2	19.4	2,304	2,858	3,413					
WHEMLOCK-T		93.6	27.0	1,108	1,518	1,929					
DOUG FIR		103.2	29.8	1,213	1,728	2,242					
DOUG FIR-T		105.5	30.4	930	1,337	1,744					
R ALDER		280.7	81.0	66	346	627					
R ALDER-T		360.6	104.0		77	157					
PS FIR		360.6	104.0		265	542					
WR CEDAR		360.6	104.0		74	151					
TOTAL		33.3	9.6	7,417	8,205	8,994	48	12	5		
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK				83	103	122					
WHEMLOCK-T				73	102	130					
DOUG FIR		105.1	30.3	65	94	124					
DOUG FIR-T		60.3	17.4	60	86	113					
R ALDER		285.3	82.3	14	80	145					
R ALDER-T		360.6	104.0		92	188					
PS FIR		360.6	104.0		88	180					
WR CEDAR		360.6	104.0		57	117					
TOTAL		108.9	31.4	86	96	106	513	128	57		

TC		TSTNDSUM											Stand Table Summary			
Project													BULLS			
T031 R013 S26 TU3										T031 R013 S26 TU3						
Twp	Rge	Sec	Tract	Unit 5	Type	Acres	Plots	Sample Trees	Page:	1						
031	013	26	BULLS		U3	3.90	13	71	Date:	3/8/2016						
									Time:	4:49:52PM						
S Spc	T	Sample		Av	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net	Net	T o t a l s			
		DBH	Trees	FF 16'				Ht Tot	Net Cu.Ft.		Net Bd.Ft.	Cu.Ft. Acre	Bd.Ft. Acre	Tons	Cunits	MBF
WH		11	1	89	73	10.944	6.58	21.89	8.6	40.0	6.04	189	875	24	7	3
WH		13	2	89	69	14.071	13.16	28.14	12.2	39.8	11.02	344	1,121	43	13	4
WH		14	1	82	80	6.245	6.58	12.49	16.0	45.0	6.22	200	562	24	8	2
WH		15	1	83	84	5.222	6.58	10.44	19.2	60.0	6.42	200	627	25	8	2
WH		17	3	82	82	12.676	19.74	25.35	24.5	83.3	19.97	622	2,112	78	24	8
WH		18	3	81	82	11.224	19.74	22.45	28.0	89.9	20.19	629	2,018	79	25	8
WH		19	1	83	102	3.378	6.58	10.13	23.6	80.0	7.62	239	811	30	9	3
WH		20	2	83	87	5.944	13.16	14.82	29.3	90.1	13.92	434	1,334	54	17	5
WH		Totals	14	85	79	69.704	92.13	145.71	19.6	64.9	91.39	2,858	9,461	356	111	37
WH	T	9	1	90	54	16.588	7.33	16.59	8.5	40.0	4.51	141	664	18	5	3
WH	T	10	1	86	69	12.915	7.33	25.83	7.2	35.0	6.14	185	904	24	7	4
WH	T	11	3	89	68	31.767	21.99	63.53	8.9	36.7	18.29	567	2,329	71	22	9
WH	T	13	1	84	69	8.201	7.33	16.40	12.2	40.0	6.41	200	656	25	8	3
WH	T	14	2	87	72	14.745	14.66	29.49	14.4	47.5	13.49	425	1,401	53	17	5
WH		Totals	8	88	66	84.216	58.63	151.84	10.0	39.2	48.83	1,518	5,953	190	59	23
DF		13	1	85	73	4.818	4.51	9.64	12.3	50.0	3.37	118	482	13	5	2
DF		15	2	83	74	7.257	9.02	14.51	16.6	49.9	6.84	242	724	27	9	3
DF		16	3	81	81	9.653	13.53	19.31	20.3	61.6	11.17	391	1,190	44	15	5
DF		17	3	78	80	8.553	13.53	19.87	20.4	61.3	11.57	406	1,217	45	16	5
DF		18	1	84	74	2.669	4.51	5.34	22.8	75.0	3.48	122	400	14	5	2
DF		19	1	83	99	2.243	4.51	6.73	22.7	83.3	4.35	153	561	17	6	2
DF		20	2	80	96	4.034	9.02	10.05	29.5	94.0	8.47	296	945	33	12	4
DF		Totals	13	81	81	39.227	58.63	85.45	20.2	64.6	49.25	1,728	5,519	192	67	22
DF	T	12	1	90	74	8.271	6.28	16.54	10.0	35.0	4.70	165	579	18	6	2
DF	T	13	3	85	70	21.107	18.84	42.21	10.7	35.1	12.85	451	1,482	50	18	6
DF	T	15	3	82	79	15.581	18.84	31.16	17.4	53.1	15.39	542	1,654	60	21	6
DF	T	16	1	85	81	4.794	6.28	9.59	18.8	65.0	5.13	180	623	20	7	2
DF		Totals	8	85	75	49.753	50.25	99.51	13.4	43.6	38.06	1,337	4,338	148	52	17
RA		11	2	85	49	9.157	6.15	18.31	6.9	25.0	3.46	126	458	13	5	2
RA		15	2	84	55	4.948	6.15	9.90	13.9	50.0	3.81	138	495	15	5	2
RA		16	1	84	65	2.260	3.08	4.52	18.3	60.0	2.28	83	271	9	3	1
RA		Totals	5	85	53	16.366	15.38	32.73	10.6	37.4	9.55	346	1,224	37	14	5
SF		18	1	77	74	2.293	4.19	4.59	26.0	65.0	3.47	119	298	14	5	1
SF		22	1	82	91	1.572	4.19	3.14	46.5	140.0	4.17	146	440	16	6	2
SF		Totals	2	79	81	3.865	8.38	7.73	34.3	95.5	7.64	265	738	30	10	3
RA	T	14	1	84	68	2.838	3.08	5.68	13.6	50.0	2.11	77	284	8	3	1
RA		Totals	1	84	68	2.838	3.08	5.68	13.6	50.0	2.11	77	284	8	3	1
RC		16	1	81	61	2.204	3.08	4.41	16.8	40.0	1.77	74	176	7	3	1
RC		Totals	1	81	61	2.204	3.08	4.41	16.8	40.0	1.77	74	176	7	3	1
Totals			52	85	73	268.172	289.55	533.05	15.4	52.0	248.60	8205	27,693	970	320	108

TC TSTATS					STATISTICS						PAGE	1
					PROJECT	BULLS				DATE	3/9/2016	
TWP	RGE	SECT	TRACT	Unit 4	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
031	013	26	BULLS		U3V	14.60	13	71	S	W		
					TREES	ESTIMATED	PERCENT					
					PER PLOT	TOTAL	SAMPLE					
					PLOTS	TREES	TREES	TREES				
TOTAL					13	71	5.5					
CRUISE					10	52	5.2	3,836	1.4			
DBH COUNT												
REFOREST												
COUNT					3	19	6.3					
BLANKS												
100 %												
STAND SUMMARY												
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET		
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC		
WHEMLOCK-T	22	151.3	13.5	59	41.0	150.8	16,192	15,418	4,401	4,396		
DOUG FIR-T	21	86.2	15.2	63	27.9	108.9	10,641	9,926	3,089	3,090		
R ALDER-T	6	19.2	13.3	47	5.1	18.5	1,622	1,508	424	423		
PS FIR-T	2	3.9	19.9	65	1.9	8.4	854	738	267	265		
WR CEDAR-T	1	2.2	16.0	50	0.8	3.1	198	176	75	74		
TOTAL	52	262.8	14.2	60	76.8	289.6	29,507	27,766	8,256	8,250		
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK-T	48.9	10.7		113	126	140						
DOUG FIR-T	45.3	10.1		116	129	142						
R ALDER-T				130	130	130						
PS FIR-T	51.7	48.5		106	205	304						
WR CEDAR-T												
TOTAL	43.4	6.1		122	130	138	75	19	8			
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK-T	54.8	11.9		33	38	42						
DOUG FIR-T	40.6	9.1		36	40	44						
R ALDER-T				37	37	37						
PS FIR-T	40.0	37.5		45	73	100						
WR CEDAR-T												
TOTAL	45.2	6.4		37	40	42	82	20	9			
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK-T	83.2	24.0		115	151	188						
DOUG FIR-T	91.2	26.3		63	86	109						
R ALDER-T	274.0	79.1		4	19	34						
PS FIR-T	360.6	104.0			4	8						
WR CEDAR-T	360.6	104.0			2	4						
TOTAL	43.0	12.4		230	263	295	80	20	9			
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK-T	69.4	20.0		121	151	181						
DOUG FIR-T	81.6	23.6		83	109	135						
R ALDER-T	259.6	74.9		5	18	32						
PS FIR-T	360.6	104.0			8	17						
WR CEDAR-T	360.6	104.0			3	6						
TOTAL	31.7	9.2		263	290	316	44	11	5			
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			

TC TSTATS					STATISTICS				PAGE	2	
					PROJECT	BULLS			DATE	3/9/2016	
TWP	RGE	SECT	TRACT	Unit 4	TYPE	ACRES		PLOTS	TREES	CuFt	BdFt
031	013	26	BULLS		U3V	14.60		13	71	S	W
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T		69.8	20.1	12,316	15,418	18,521					
DOUG FIR-T		85.1	24.6	7,488	9,926	12,363					
R ALDER-T		253.9	73.3	403	1,508	2,612					
PS FIR-T		360.6	104.0		738	1,506					
WR CEDAR-T		360.6	104.0		176	360					
TOTAL		36.2	10.5	24,864	27,766	30,668	57	14	6		
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T		67.7	19.5	3,538	4,396	5,255					
DOUG FIR-T		81.7	23.6	2,362	3,090	3,819					
R ALDER-T		252.6	72.9	115	423	732					
PS FIR-T		360.6	104.0		265	542					
WR CEDAR-T		360.6	104.0		74	151					
TOTAL		33.8	9.7	7,446	8,250	9,053	49	12	5		
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T				82	102	123					
DOUG FIR-T		73.3	21.1	69	91	114					
R ALDER-T		253.9	73.3	22	82	141					
PS FIR-T		360.6	104.0		88	180					
WR CEDAR-T		360.6	104.0		57	117					
TOTAL		109.6	31.6	86	96	106	520	130	58		

TC TSTATS		STATISTICS									PAGE	1
		PROJECT			BULLS					DATE	3/9/2016	
TWP	RGE	SECT	TRACT	Unit 7&8	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
031	013	26	BULLS		U4	7.70	9	52	S	W		
		PLOTS	TREES	TREES	ESTIMATED	PERCENT						
				PER PLOT	TOTAL	SAMPLE						
					TREES	TREES						
TOTAL		9	52	5.8								
CRUISE		8	44	5.5	2,360	1.9						
DBH COUNT												
REFOREST												
COUNT		1	8	8.0								
BLANKS												
100 %												
STAND SUMMARY												
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET		
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC		
WHEMLOCK	15	92.8	14.7	63	28.4	108.9	12,492	11,736	3,388	3,388		
WHEMLOCK-T	10	85.7	12.5	59	20.6	72.6	7,723	7,340	2,013	2,009		
DOUG FIR	10	48.2	16.6	63	17.8	72.6	6,851	6,321	2,097	2,103		
DOUG FIR-T	3	39.4	10.6	48	7.4	24.2	2,031	1,932	554	554		
R ALDER	2	9.4	13.2	47	2.4	8.9	842	748	211	214		
R ALDER-T	2	22.2	8.6	39	3.0	8.9	665	665	156	161		
PS FIR-T	1	6.8	12.8	62	1.7	6.0	812	745	193	192		
S SPRUCE	1	2.1	23.0	67	1.3	6.0	545	482	197	197		
TOTAL	44	306.5	13.6	58	83.6	308.1	31,961	29,970	8,809	8,818		
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15				
WHEMLOCK	49.4	13.2	126	145	165							
WHEMLOCK-T	26.7	8.9	82	90	98							
DOUG FIR			171	171	171							
DOUG FIR-T	44.4	30.8	39	57	74							
R ALDER												
R ALDER-T			30	30	30							
PS FIR-T												
S SPRUCE												
TOTAL	42.0	6.6	118	126	135	71	18	8				
CL: 68.1 %	COEFF	SAMPLE TREES - CF					# OF TREES REQ.		INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15				
WHEMLOCK	47.3	12.7	37	42	47							
WHEMLOCK-T	28.9	9.6	23	25	27							
DOUG FIR			57	57	57							
DOUG FIR-T	51.7	35.8	11	17	23							
R ALDER												
R ALDER-T	28.3	26.5	6	8	9							
PS FIR-T												
S SPRUCE												
TOTAL	45.5	7.1	36	38	41	83	21	9				
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15				
WHEMLOCK	49.7	17.6	76	93	109							
WHEMLOCK-T	82.4	29.1	61	86	111							
DOUG FIR	89.9	31.8	33	48	63							
DOUG FIR-T	130.5	46.1	21	39	58							
R ALDER	300.0	106.0		9	19							
R ALDER-T	201.3	71.1	6	22	38							
PS FIR-T	300.0	106.0		7	14							

TC TSTATS		STATISTICS								PAGE	2
		PROJECT				BULLS				DATE	3/9/2016
TWP	RGE	SECT	TRACT	Unit 7&8	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
031	013	26	BULLS		U4	7.70	9	52	S	W	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15		
S SPRUCE		300.0	106.0		2	4					
TOTAL		39.9	14.1	263	306	350	71	18	8		
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		50.0	17.7	90	109	128					
WHEMLOCK-T		75.0	26.5	53	73	92					
DOUG FIR		91.9	32.4	49	73	96					
DOUG FIR-T		118.6	41.9	14	24	34					
R ALDER		300.0	106.0		9	18					
R ALDER-T		198.4	70.1	3	9	15					
PS FIR-T		300.0	106.0		6	12					
S SPRUCE		300.0	106.0		6	12					
TOTAL		26.9	9.5	279	308	337	33	8	4		
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		53.0	18.7	9,539	11,736	13,934					
WHEMLOCK-T		74.9	26.5	5,398	7,340	9,282					
DOUG FIR		86.9	30.7	4,382	6,321	8,261					
DOUG FIR-T		119.2	42.1	1,119	1,932	2,746					
R ALDER		300.0	106.0		748	1,541					
R ALDER-T		201.3	71.1	192	665	1,137					
PS FIR-T		300.0	106.0		745	1,534					
S SPRUCE		300.0	106.0		482	993					
TOTAL		28.9	10.2	26,906	29,970	33,034	38	9	4		
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		51.7	18.3	2,769	3,388	4,007					
WHEMLOCK-T		74.7	26.4	1,479	2,009	2,540					
DOUG FIR		92.1	32.5	1,419	2,103	2,787					
DOUG FIR-T		121.1	42.8	317	554	791					
R ALDER		300.0	106.0		214	440					
R ALDER-T		198.8	70.2	48	161	274					
PS FIR-T		300.0	106.0		192	395					
S SPRUCE		300.0	106.0		197	406					
TOTAL		27.4	9.7	7,964	8,818	9,673	34	8	4		
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK				88	108	128					
WHEMLOCK-T		52.9	18.7	74	101	128					
DOUG FIR		68.8	24.3	60	87	114					
DOUG FIR-T		88.7	31.3	46	80	113					
R ALDER		300.0	106.0		84	173					
R ALDER-T		201.3	71.1	22	75	128					
PS FIR-T		300.0	106.0		123	254					
S SPRUCE		300.0	106.0		80	164					
TOTAL		75.0	26.5	87	97	107	252	63	28		

TC		Stand Table Summary														
TSTNDSUM		Project BULLS														
T031 R013 S26 TU4					Unit 7&8					T031 R013 S26 TU4						
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees			Page:						
031	013	26	BULLS	U4	7.70	9	52			Date:	3/9/2016					
										Time:	6:25:13AM					
S Spc	T	Sample		Av		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
		DBH	Trees	FF 16'	Ht Tot				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
WH		12	2	89	68	18.519	14.52	37.04	10.2	35.0	12.14	379	1,296	93	29	10
WH		13	4	86	77	30.097	29.03	60.19	14.7	51.2	28.29	886	3,080	218	68	24
WH		14	1	86	78	6.790	7.26	13.58	17.1	65.0	7.42	232	883	57	18	7
WH		15	2	86	78	12.245	14.52	24.49	17.8	57.4	13.96	435	1,406	108	33	11
WH		16	1	85	77	5.539	7.26	11.08	20.2	80.0	7.17	224	886	55	17	7
WH		17	2	85	80	9.214	14.52	18.43	24.5	79.9	14.49	451	1,472	112	35	11
WH		19	1	85	80	3.806	7.26	7.61	31.4	105.0	7.65	239	799	59	18	6
WH		20	2	84	94	6.589	14.52	16.50	32.8	115.9	17.29	542	1,913	133	42	15
WH		Totals	15	86	77	92.798	108.88	188.92	17.9	62.1	108.42	3,388	11,736	835	261	90
WH	T	10	1	87	61	13.309	7.26	26.62	5.8	25.0	4.91	154	665	38	12	5
WH	T	11	1	91	67	10.609	7.26	21.22	8.5	35.0	5.79	181	743	45	14	6
WH	T	12	2	88	73	18.039	14.52	36.08	11.1	39.9	12.94	401	1,439	100	31	11
WH	T	13	3	86	76	23.413	21.78	46.83	13.5	51.4	20.30	634	2,405	156	49	19
WH	T	14	3	84	76	20.294	21.78	40.59	15.8	51.4	20.48	640	2,088	158	49	16
WH		Totals	10	87	72	85.664	72.59	171.33	11.7	42.8	64.42	2,009	7,340	496	155	57
DF		15	2	82	79	12.004	14.52	24.01	17.1	54.6	11.61	411	1,311	89	32	10
DF		16	4	81	76	20.736	29.03	41.47	20.3	56.0	23.90	842	2,322	184	65	18
DF		17	1	82	77	4.660	7.26	9.32	23.1	80.0	6.16	215	746	47	17	6
DF		19	3	80	83	10.793	21.78	21.59	29.4	90.0	18.11	635	1,943	139	49	15
DF		Totals	10	81	79	48.193	72.59	96.39	21.8	65.6	59.77	2,103	6,321	460	162	49
DF	T	9	1	88	46	20.467	8.07	20.47	6.8	30.0	3.96	139	614	31	11	5
DF	T	12	1	84	73	9.935	8.07	19.87	10.9	30.0	6.16	217	596	47	17	5
DF	T	13	1	88	70	9.025	8.07	18.05	11.0	40.0	5.65	198	722	44	15	6
DF		Totals	3	87	58	39.427	24.20	58.39	9.5	33.1	15.78	554	1,932	122	43	15
RA		13	2	86	56	9.353	8.89	18.71	11.4	40.0	5.79	214	748	45	16	6
RA		Totals	2	86	56	9.353	8.89	18.71	11.4	40.0	5.79	214	748	45	16	6
SF	T	13	1	95	77	6.769	6.05	13.54	14.2	55.0	5.52	192	745	42	15	6
SF		Totals	1	95	77	6.769	6.05	13.54	14.2	55.0	5.52	192	745	42	15	6
RA	T	8	1	89	45	12.732	4.44	12.73	6.0	30.0	1.98	76	382	15	6	3
RA	T	9	1	87	45	9.422	4.44	9.42	9.0	30.0	2.32	85	283	18	7	2
RA		Totals	2	88	45	22.154	8.89	22.15	7.3	30.0	4.30	161	665	33	12	5
SS		23	1	76	84	2.096	6.05	4.19	47.0	115.0	5.13	197	482	40	15	4
SS		Totals	1	76	84	2.096	6.05	4.19	47.0	115.0	5.13	197	482	40	15	4
Totals			44	86	71	306.456	308.12	573.62	15.4	52.2	269.13	8818	29,970	2,072	679	231

T031 R013 S26 TU4V **T031 R013 S26 TU4V**
 Twp Rge Sec Tract Unit 6 Type Acres Plots Sample Trees CuFt BdFt
 031 013 26 BULLS U4V 2.20 9 52 S W

Spp	So	Gr	ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre			
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/Lf				
									4-7	8-11	12-15	16+	12-20	21-30	31-35	36-99								
WH	T	DM	2S	11	5.8	2,268	2,135	5	100				100				36	13	205	1.55	10.4			
WH	T	DM	3S	68	4.7	13,683	13,038	29	21	79					2	98	36	8	82	0.66	158.1			
WH	T	DM	4S	20	8.8	4,098	3,737	8	100					31	51	18	21	5	21	0.29	175.1			
WH	T	DM	UT	1		166	166	0	100					100					9	5	10	0.21	16.6	
WH T Totals				64	5.6	20,215	19,077	42	35	54	11	7	10	5	78	28	7	53	0.54	360.3				
DF	T	DM	3S	74	9.3	6,819	6,184	14	15	85					100				36	9	92	0.87	66.9	
DF	T	DM	4S	26		2,083	2,083	5	100					18	82					23	5	24	0.29	85.8
DF T Totals				28	7.1	8,902	8,267	18	37	63	4	21	75	29	7	54	0.61	152.8						
RA	T	DM	3S	39	14.3	655	561	1	100				100				20	10	60	0.75	9.4			
RA	T	DM	4S	61		852	852	2	100					67	33	27	5	27	0.27	31.5				
RA T Totals				5	6.2	1,506	1,413	3	60	40	40	40	20	26	6	35	0.36	40.9						
SF	T	DM	3S	81	10.0	677	609	1	100				100				36	9	90	0.61	6.8			
SF	T	DM	4S	19		135	135	0	100					100				22	5	20	0.29	6.8		
SF T Totals				2	8.3	812	745	2	18	82	18	82	29	7	55	0.49	13.5							
SS	T	DM	2S	82	13.6	461	398	1	100				100				36	13	190	2.17	2.1			
SS	T	DM	4S	18		84	84	0	100					100				29	6	40	0.55	2.1		
SS T Totals				2	11.5	545	482	1	17	83	17	83	33	10	115	1.45	4.2							
Type Totals					6.2	31,981	29,983	66	36	55	8	8	15	4	74	28	7	52	0.56	571.6				

TC TSTATS					STATISTICS				PAGE	1	
					PROJECT	BULLS		DATE	3/9/2016		
TWP	RGE	SECT	TRACT	Unit 6	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
031	013	26	BULLS		U4V	2.20	9	52	S	W	
					TREES	ESTIMATED	PERCENT				
					PER PLOT	TOTAL	SAMPLE				
					PLOTS	TREES	TREES	TREES			
TOTAL					9	52	5.8				
CRUISE					8	44	5.5	670	6.6		
DBH COUNT											
REFOREST											
COUNT					1	8	8.0				
BLANKS											
100 %											
STAND SUMMARY											
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
WHEMLOCK	25	178.5	13.7	61	49.1	181.5	20,215	19,077	5,401	5,398	
DOUG FIR	13	85.8	14.4	57	25.5	96.8	8,902	8,267	2,662	2,668	
R ALDER	4	31.5	10.2	41	5.6	17.8	1,506	1,413	367	375	
PS FIR	1	6.8	12.8	62	1.7	6.0	812	745	193	192	
S SPRUCE	1	2.1	23.0	67	1.3	6.0	545	482	197	197	
TOTAL	44	304.7	13.6	58	83.5	308.1	31,981	29,983	8,820	8,830	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK	51.3	10.5	110	123	136						
DOUG FIR			140	140	140						
R ALDER			73	73	73						
PS FIR											
S SPRUCE											
TOTAL	42.0	6.6	118	126	135	71	18	8			
CL: 68.1 %	COEFF	SAMPLE TREES - CF					# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK	51.1	10.4	32	35	39						
DOUG FIR			46	46	46						
R ALDER			20	20	20						
PS FIR											
S SPRUCE											
TOTAL	45.5	7.1	36	38	41	83	21	9			
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK	59.2	20.9	141	178	216						
DOUG FIR	65.3	23.1	66	86	106						
R ALDER	203.1	71.7	9	32	54						
PS FIR	300.0	106.0		7	14						
S SPRUCE	300.0	106.0		2	4						
TOTAL	39.5	14.0	262	305	347	70	18	8			
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK	52.0	18.4	148	181	215						
DOUG FIR	67.6	23.9	74	97	120						
R ALDER	228.1	80.6	3	18	32						
PS FIR	300.0	106.0		6	12						
S SPRUCE	300.0	106.0		6	12						
TOTAL	26.9	9.5	279	308	337	33	8	4			
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			

TC TSTATS				STATISTICS							PAGE	2
				PROJECT	BULLS			DATE	3/9/2016			
TWP	RGE	SECT	TRACT	Unit 6	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
031	013	26	BULLS		U4V	2.20	9	52	S	W		
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK		53.7	19.0	15,457	19,077	22,696						
DOUG FIR		65.7	23.2	6,348	8,267	10,185						
R ALDER		223.7	79.0	296	1,413	2,530						
PS FIR		300.0	106.0		745	1,534						
S SPRUCE		300.0	106.0		482	993						
TOTAL		29.0	10.2	26,911	29,983	33,055	38	9	4			
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15			
WHEMLOCK		52.3	18.5	4,400	5,398	6,395						
DOUG FIR		70.8	25.0	2,001	2,668	3,336						
R ALDER		239.0	84.4	58	375	691						
PS FIR		300.0	106.0		192	395						
S SPRUCE		300.0	106.0		197	406						
TOTAL		27.6	9.8	7,968	8,830	9,691	34	9	4			
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15			
WHEMLOCK		8.6	3.0	85	105	125						
DOUG FIR		27.5	9.7	66	85	105						
R ALDER		223.7	79.0	17	79	142						
PS FIR		300.0	106.0		123	254						
S SPRUCE		300.0	106.0		80	164						
TOTAL		75.1	26.5	87	97	107	253	63	28			

T	TSPCSTGR	Species, Sort Grade - Board Foot Volumes (Type)										Page	1							
												Date		3/9/2016						
												Time		6:33:43AM						
T031 R013 S26 TU5										T031 R013 S26 TU5										
Twp	Rge	Sec	Tract	Unit 9	Type	Acres	Plots	Sample Trees	CuFt	BdFt										
031	013	26	BULLS		U5	26.60	20	97	S	W										
S Spp	So T	Gr rt 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	
								4-7	8-11	12-15	16+	12-20	21-30	31-35	36-99	Ft	In	Ft		
WH	DM	3S	69	6.2	7,181	6,739	179	26	74						100	36	8	84	0.74	80.0
WH	DM	4S	26	3.2	2,593	2,510	67	100				19	49	4	28	25	5	26	0.27	96.7
WH	DM	UT	5		463	463	12	100				54	46			11	5	11	0.19	42.8
WH	Totals		46	5.1	10,237	9,711	258	49	51			7	15	1	77	26	6	44	0.50	219.5
WH	T	DM	3S	55	5.5	3,201	3,026	80	81	19				12	88	36	7	60	0.50	50.7
WH	T	DM	4S	31	3.7	1,771	1,706	45	100			24	14	62		23	5	25	0.25	67.0
WH	T	DM	UT	14		742	742	20	100			100				14	5	14	0.20	53.5
WH	T Totals		26	4.2	5,714	5,474	146	90	10			21	4	26	49	24	6	32	0.35	171.1
RA	DM	3S	40	8.6	905	827	22		100			100				20	10	60	0.79	13.9
RA	DM	4S	57	9.6	1,278	1,155	31	64	36			74	16	10		21	6	27	0.37	42.8
RA	DM	UT	3		61	61	2	100				100				12	5	10	0.20	6.1
RA	Totals		10	9.0	2,244	2,043	54	39	61			86	9	6		20	7	33	0.45	62.8
RA	T	DM	3S	11		202	202	5		100		100				20	9	50	0.68	4.0
RA	T	DM	4S	71	.0	1,281	1,281	34	67	33		91	9			20	6	26	0.35	49.3
RA	T	DM	UT	18		318	318	8	100			100				11	5	13	0.19	24.2
RA	T Totals		8		1,801	1,801	48	65	35			93	7			17	6	23	0.34	77.6
DF	DM	3S	85	8.2	1,574	1,445	38		100					100		36	9	91	0.88	15.9
DF	DM	4S	15	21.9	318	248	7	100				83	17			19	5	16	0.28	15.9
DF	Totals		8	10.5	1,892	1,693	45	15	85			12	2	85		27	7	53	0.67	31.8
SS	DM	3S	100		179	179	5	100				100				28	7	50	0.46	3.6
SS	Totals		1		179	179	5	100				100				28	7	50	0.46	3.6
SF	DM	3S	76	7.1	280	260	7		100					100		36	10	130	0.97	2.0
SF	DM	4S	24		80	80	2	100						100		33	5	40	0.34	2.0
SF	Totals		2	5.6	360	340	9	24	76					24	76	35	8	85	0.67	4.0
Type Totals				5.3	22,427	21,241	565	57	43			26	10	8	56	24	6	37	0.45	570.3

TC TSTATS					STATISTICS						PAGE	1
					PROJECT	BULLS				DATE	3/9/2016	
TWP	RGE	SECT	TRACT	Unit 9	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
031	013	26	BULLS		U5	26.60	20	97	S	W		
					TREES	ESTIMATED	PERCENT					
					PER PLOT	TOTAL	SAMPLE					
					PLOTS	TREES	TREES	TREES				
TOTAL					20	97	4.8					
CRUISE					15	67	4.5	8,628	.8			
DBH COUNT												
REFOREST												
COUNT					5	26	5.2					
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	28	126.8	12.5	53	30.7	108.9	10,237	9,711	2,897	2,897		
WHEMLOCK-T	16	106.0	10.4	47	19.4	62.6	5,714	5,474	1,430	1,428		
R ALDER	9	31.4	12.3	46	7.4	26.0	2,244	2,043	564	561		
R ALDER-T	6	38.8	10.2	42	6.9	22.0	1,801	1,801	439	438		
DOUG FIR	6	15.9	15.9	58	5.5	21.8	1,892	1,693	583	584		
S SPRUCE	1	3.6	11.8	40	0.8	2.7	179	179	47	47		
PS FIR	1	2.0	15.8	72	0.7	2.7	360	340	92	92		
TOTAL	67	324.4	11.8	50	71.8	246.7	22,427	21,241	6,052	6,048		
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK	46.4	8.9		88	97	106						
WHEMLOCK-T	36.7	9.5		53	58	64						
R ALDER				79	79	79						
R ALDER-T				60	60	60						
DOUG FIR				132	132	132						
S SPRUCE												
PS FIR												
TOTAL	43.4	5.4		81	85	90	75	19	8			
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK	49.2	9.5		27	30	33						
WHEMLOCK-T	49.9	12.9		14	16	18						
R ALDER				22	22	22						
R ALDER-T				15	15	15						
DOUG FIR				46	46	46						
S SPRUCE												
PS FIR												
TOTAL	50.9	6.4		24	26	27	104	26	12			
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK	71.0	16.3		106	127	147						
WHEMLOCK-T	86.1	19.8		85	106	127						
R ALDER	133.6	30.7		22	31	41						
R ALDER-T	167.5	38.4		24	39	54						
DOUG FIR	215.5	49.4		8	16	24						
S SPRUCE	447.2	102.6			4	7						
PS FIR	447.2	102.6			2	4						
TOTAL	32.0	7.3		301	324	348	43	11	5			
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			

TC TSTATS				STATISTICS				PAGE	2		
				PROJECT	BULLS			DATE	3/9/2016		
TWP	RGE	SECT	TRACT	Unit 9	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
031	013	26	BULLS		U5	26.60	20	97	S	W	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		64.9	14.9	93	109	125					
WHEMLOCK-T		76.1	17.5	52	63	74					
R ALDER		134.6	30.9	18	26	34					
R ALDER-T		161.3	37.0	14	22	30					
DOUG FIR		220.6	50.6	11	22	33					
S SPRUCE		447.2	102.6		3	6					
PS FIR		447.2	102.6		3	6					
TOTAL		23.5	5.4	233	247	260	23	6	3		
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		70.2	16.1	8,147	9,711	11,276					
WHEMLOCK-T		77.9	17.9	4,496	5,474	6,452					
R ALDER		137.9	31.6	1,397	2,043	2,690					
R ALDER-T		161.3	37.0	1,134	1,801	2,468					
DOUG FIR		219.2	50.3	841	1,693	2,544					
S SPRUCE		447.2	102.6		179	363					
PS FIR		447.2	102.6		340	689					
TOTAL		30.3	7.0	19,764	21,241	22,718	39	10	4		
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		69.2	15.9	2,437	2,897	3,357					
WHEMLOCK-T		78.2	17.9	1,172	1,428	1,684					
R ALDER		136.9	31.4	385	561	738					
R ALDER-T		160.1	36.7	277	438	599					
DOUG FIR		220.3	50.5	289	584	879					
S SPRUCE		447.2	102.6		47	94					
PS FIR		447.2	102.6		92	187					
TOTAL		34.2	7.8	5,573	6,048	6,522	49	12	5		
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		21.4	4.9	75	89	104					
WHEMLOCK-T		29.8	6.8	72	87	103					
R ALDER		95.1	21.8	54	79	103					
R ALDER-T		83.0	19.0	52	82	112					
DOUG FIR		186.8	42.9	39	78	117					
S SPRUCE		447.2	102.6		66	133					
PS FIR		447.2	102.6		125	253					
TOTAL		112.4	25.8	80	86	92	532	133	59		

TC		Stand Table Summary														
TSTNDSUM		Project BULLS														
T031 R013 S26 TU5										T031 R013 S26 TU5						
Twp	Rge	Sec	Tract	Unit 9	Type	Acres	Plots	Sample Trees		Page:	1					
031	013	26	BULLS		U5	26.60	20	97		Date:	3/9/2016					
										Time:	6:33:41AM					
S SpC	T	Sample		Av	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals			
		DBH	Trees	FF 16'				Ht Tot	Net Cu.Ft.				Net Bd.Ft.	Tons	Cunits	MBF
WH		8	2	90	47	20.952	7.78	20.95	6.7	29.9	4.47	140	626	119	37	17
WH		9	2	88	49	18.670	7.78	27.47	5.2	23.6	4.57	143	648	121	38	17
WH		10	1	87	55	7.130	3.89	14.26	5.2	20.0	2.37	74	285	63	20	8
WH		11	1	89	68	6.467	3.89	12.93	7.5	35.0	3.11	97	453	83	26	12
WH		12	3	82	69	14.772	11.67	29.54	10.5	33.4	9.88	309	985	263	82	26
WH		13	2	82	74	8.782	7.78	17.56	12.4	40.0	6.95	217	703	185	58	19
WH		14	3	85	75	11.191	11.67	22.38	14.4	46.7	10.32	323	1,046	275	86	28
WH		15	6	81	75	19.031	23.33	34.85	19.2	58.0	21.45	670	2,023	571	178	54
WH		16	3	81	75	8.152	11.67	16.30	21.3	71.5	11.14	348	1,166	296	92	31
WH		17	4	82	76	9.584	15.55	19.17	23.9	72.5	14.64	458	1,389	389	122	37
WH		19	1	81	80	2.039	3.89	4.08	29.0	95.0	3.79	118	387	101	31	10
WH		Totals	28	85	65	126.769	108.88	219.51	13.2	44.2	92.69	2,897	9,711	2,466	771	258
WH	T	8	2	90	43	22.705	7.83	22.70	5.3	29.9	3.87	121	678	103	32	18
WH	T	9	2	88	38	18.121	7.83	18.12	6.1	29.8	3.70	111	540	98	30	14
WH	T	10	2	89	64	14.845	7.83	29.69	5.9	27.0	5.56	176	801	148	47	21
WH	T	11	2	88	60	12.436	7.83	24.87	7.1	29.8	5.63	176	740	150	47	20
WH	T	12	4	85	67	20.731	15.65	41.46	9.6	33.8	12.69	398	1,402	338	106	37
WH	T	13	3	82	71	13.355	11.74	26.71	12.6	36.5	10.80	336	974	287	89	26
WH	T	14	1	81	68	3.767	3.91	7.53	14.6	45.0	3.52	110	339	94	29	9
WH		Totals	16	87	56	105.961	62.61	171.10	8.3	32.0	45.77	1,428	5,474	1,218	380	146
RA		9	1	89	48	6.124	2.89	12.25	4.8	20.0	1.60	58	245	43	15	7
RA		12	3	83	50	11.362	8.67	22.72	7.3	28.2	4.65	166	642	124	44	17
RA		13	1	82	52	3.390	2.89	6.78	8.6	30.0	1.63	58	203	43	16	5
RA		14	2	81	69	5.609	5.78	11.22	13.3	50.0	4.12	149	561	110	40	15
RA		15	2	82	57	4.905	5.78	9.81	13.2	40.0	3.52	129	392	94	34	10
RA		Totals	9	84	54	31.389	26.00	62.78	8.9	32.5	15.52	561	2,043	413	149	54
RA	T	9	2	89	48	16.913	7.33	33.83	4.1	19.5	3.85	140	660	102	37	18
RA	T	10	1	85	45	7.295	3.67	14.59	4.6	20.0	1.83	66	292	49	18	8
RA	T	11	2	81	48	10.530	7.33	21.06	6.7	25.0	3.91	141	526	104	38	14
RA	T	13	1	82	69	4.040	3.67	8.08	11.2	40.0	2.48	90	323	66	24	9
RA		Totals	6	85	50	38.777	22.00	77.55	5.6	23.2	12.06	438	1,801	321	116	48
DF		15	4	82	72	11.768	14.52	23.54	16.3	47.5	10.91	383	1,117	290	102	30
DF		18	2	81	73	4.108	7.26	8.22	24.5	70.0	5.71	201	575	152	54	15
DF		Totals	6	82	72	15.875	21.78	31.75	18.4	53.3	16.62	584	1,693	442	155	45
SF		16	1	82	91	1.999	2.72	4.00	23.1	85.0	2.65	92	340	70	25	9
SF		Totals	1	82	91	1.999	2.72	4.00	23.1	85.0	2.65	92	340	70	25	9
SS		12	1	88	48	3.584	2.72	3.58	13.0	50.0	1.21	47	179	32	12	5
SS		Totals	1	88	48	3.584	2.72	3.58	13.0	50.0	1.21	47	179	32	12	5
Totals			67	85	59	324.355	246.71	570.27	10.6	37.2	186.52	6048	21,241	4,962	1,609	565

T031 R013 S26 TU5G										T031 R013 S26 TU5G				
Twp	Rge	Sec	Tract	Unit	Type	Acres	Plots	Sample Trees	CuFt	BdFt				
031	013	26	BULLS	9	USG	1.00	20	97	S	W				

Spp	So	Gr	ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/Lf	
									4-7	8-11	12-15	16+	12-20	21-30	31-35	36-99					
WH	T	DM	3S	64	5.9	10,386	9,768	10	43	57				4	96	36	8	75	0.65	130.7	
WH	T	DM	4S	28	3.4	4,363	4,215	4	100				21	35	27	17	24	5	26	0.26	163.6
WH	T	DM	UT	8		1,203	1,203	1	100				82	18			13	5	13	0.20	96.2
WH T Totals				72	4.8	15,952	15,186	15	63	37			12	11	10	67	25	6	39	0.44	390.4
RA	T	DM	3S	28	7.3	1,179	1,093	1	100				100				20	10	58	0.77	18.9
RA	T	DM	4S	63	5.4	2,533	2,397	2	66	34			82	13	5		20	6	27	0.36	90.4
RA	T	DM	UT	9		346	346	0	100				100				11	5	12	0.19	27.9
RA T Totals				18	5.5	4,058	3,835	4	50	50			89	8	3		18	6	28	0.40	137.2
DF	T	DM	3S	85	8.2	1,574	1,445	1	100						100		36	9	91	0.88	15.9
DF	T	DM	4S	15	21.9	318	248	0	100				83	17			19	5	16	0.28	15.9
DF T Totals				8	10.5	1,892	1,693	2	15	85			12	2	85		27	7	53	0.67	31.8
SS		DM	3S	100		179	179	0	100				100				28	7	50	0.46	3.6
SS Totals				1		179	179	0	100				100				28	7	50	0.46	3.6
SF	T	DM	3S	76	7.1	280	260	0	100						100		36	10	130	0.97	2.0
SF	T	DM	4S	24		80	80	0	100					100			33	5	40	0.34	2.0
SF T Totals				2	5.6	360	340	0	24	76			24	76		35	8	85	0.67	4.0	
Type Totals					5.4	22,440	21,233	21	57	43			26	10	8	56	24	6	37	0.45	567.0

TC TSTATS				STATISTICS							PAGE	1
				PROJECT	BULLS			DATE	3/9/2016			
TWP	RGE	SECT	TRACT	Unit 9	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
031	013	26	BULLS		U5G	1.00	20	97	S	W		
					TREES	ESTIMATED	PERCENT					
					PER PLOT	TOTAL	SAMPLE					
					PLOTS	TREES	TREES	TREES				
TOTAL		20	97	4.8								
CRUISE		15	67	4.5	323	20.8						
DBH COUNT												
REFOREST												
COUNT		5	26	5.2								
BLANKS												
100 %												
STAND SUMMARY												
SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET			
TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC			
WHEMLOCK-T	44	232.6	11.6	51	50.3	171.5	15,952	15,186	4,328	4,326		
R ALDER-T	15	68.6	11.3	44	14.3	48.0	4,058	3,835	1,008	1,004		
DOUG FIR-T	6	15.9	15.9	58	5.5	21.8	1,892	1,693	583	584		
S SPRUCE	1	3.6	11.8	40	0.8	2.7	179	179	47	47		
PS FIR-T	1	2.0	15.8	72	0.7	2.7	360	340	92	92		
TOTAL	67	322.7	11.8	50	71.7	246.7	22,440	21,233	6,058	6,053		
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.				
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15				
WHEMLOCK-T	51.1	7.7	77	83	89							
R ALDER-T			72	72	72							
DOUG FIR-T			132	132	132							
S SPRUCE												
PS FIR-T												
TOTAL	43.4	5.4	81	85	90	75	19	8				
CL: 68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.				
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15				
WHEMLOCK-T	57.5	8.7	23	25	27							
R ALDER-T	10.5	3.0	19	19	20							
DOUG FIR-T			46	46	46							
S SPRUCE												
PS FIR-T												
TOTAL	50.9	6.4	24	26	27	104	26	12				
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.				
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15				
WHEMLOCK-T	69.4	15.9	196	233	270							
R ALDER-T	140.7	32.3	46	69	91							
DOUG FIR-T	215.5	49.4	8	16	24							
S SPRUCE	447.2	102.6		4	7							
PS FIR-T	447.2	102.6		2	4							
TOTAL	32.0	7.3	299	323	346	43	11	5				
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.				
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15				
WHEMLOCK-T	56.7	13.0	149	171	194							
R ALDER-T	134.1	30.8	33	48	63							
DOUG FIR-T	220.6	50.6	11	22	33							
S SPRUCE	447.2	102.6		3	6							
PS FIR-T	447.2	102.6		3	6							
TOTAL	23.5	5.4	233	247	260	23	6	3				
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.				
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15				

TC TSTATS		STATISTICS							PAGE	2	
		PROJECT			BULLS				DATE	3/9/2016	
TWP	RGE	SECT	TRACT	Unit 9	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
031	013	26	BULLS		U5G	1.00	20	97	S	W	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T		61.5	14.1	13,045	15,186	17,327					
R ALDER-T		136.0	31.2	2,639	3,835	5,031					
DOUG FIR-T		219.2	50.3	841	1,693	2,544					
S SPRUCE		447.2	102.6		179	363					
PS FIR-T		447.2	102.6		340	689					
TOTAL		30.4	7.0	19,753	21,233	22,712	39	10	4		
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T		60.4	13.9	3,726	4,326	4,926					
R ALDER-T		134.4	30.8	694	1,004	1,313					
DOUG FIR-T		220.3	50.5	289	584	879					
S SPRUCE		447.2	102.6		47	94					
PS FIR-T		447.2	102.6		92	187					
TOTAL		34.3	7.9	5,577	6,053	6,529	49	12	5		
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T				76	89	101					
R ALDER-T		75.4	17.3	55	80	105					
DOUG FIR-T		186.8	42.9	39	78	117					
S SPRUCE		447.2	102.6		66	133					
PS FIR-T		447.2	102.6		125	253					
TOTAL		112.3	25.8	80	86	92	531	133	59		

T31 R13 S26 TU6
 Twp Rge Sec Tract Unit 10 Type Acres Plots Sample Trees CuFt BDFt
 31 13 26 BULLS U6 43.60 18 89 S W

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf	
									4-7	8-11	12-15	16+	12-20	21-30	31-35	36-99					
DF		DM	3S	81	7.4	7,597	7,033	307	30	70				18	82	35	8	77	0.70	91.1	
DF		DM	4S	15	4.7	1,359	1,296	56	100				58	24	11	7	20	5	20	0.29	64.8
DF		DM	UT	4		263	263	11	100				100				10	5	10	0.18	26.3
DF	Totals			37	6.8	9,220	8,592	375	43	57			12	4	16	68	26	6	47	0.56	182.3
DF	T	DM	3S	46	8.6	2,145	1,961	85	100						71	29	33	7	55	0.52	35.7
DF	T	DM	4S	46	6.2	2,093	1,964	86	100				16	84			22	6	24	0.29	81.1
DF	T	DM	UT	8		313	313	14	100				100				10	5	10	0.19	31.3
DF	T	Totals		18	6.9	4,551	4,238	185	100				15	39	33	14	22	6	29	0.36	148.1
WH		DM	3S	84	2.4	4,695	4,583	200	27	73					7	93	36	8	81	0.67	56.5
WH		DM	4S	15	7.1	833	774	34	100				60	40			17	5	15	0.26	51.3
WH		DM	UT	1		52	52	2	100				100				10	5	10	0.20	5.2
WH	Totals			24	3.1	5,581	5,410	236	38	62			10	6	6	79	26	6	48	0.54	113.0
WH	T	DM	3S	51	4.8	1,935	1,842	80	85	15					53	47	34	6	54	0.39	34.1
WH	T	DM	4S	35		1,229	1,229	54	100				8	59	33		25	6	29	0.28	41.7
WH	T	DM	UT	14		490	490	21	100				100				10	5	10	0.17	49.0
WH	T	Totals		16	2.5	3,655	3,562	155	92	8			16	20	39	25	21	6	29	0.31	124.8
RA		DM	2S	11	16.7	158	132	6		100			100				20	13	100	1.25	1.3
RA		DM	3S	69	4.4	839	802	35		100			54	46			24	10	86	0.83	9.4
RA		DM	4S	18	.0	208	208	9	100				35	65			24	5	24	0.40	8.6
RA		DM	UT	2	.0	21	21	1	100				100				12	5	10	0.34	2.1
RA	Totals			5	5.1	1,226	1,163	51	20	69	11		57	43			22	8	54	0.64	21.4
Type	Totals				5.2	24,232	22,965	1,001	59	41	1		15	15	19	51	24	6	39	0.46	589.6

TC TSTATS					STATISTICS					PAGE	1
					PROJECT	BULLS		DATE	3/9/2016		
TWP	RGE	SECT	TRACT	Unit 10	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
31	13	26	BULLS		U6	43.60	18	89	S	W	
					TREES	ESTIMATED	PERCENT				
					PER PLOT	TOTAL	SAMPLE				
					PLOTS	TREES	TREES	TREES			
TOTAL					18	89	4.9				
CRUISE					14	69	4.9	13,531	.5		
DBH COUNT											
REFOREST											
COUNT					4	20	5.0				
BLANKS											
100 %											
STAND SUMMARY											
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
DOUG FIR	24	91.1	14.2	58	26.5	99.8	9,220	8,592	2,642	2,642	
DOUG FIR-T	11	85.5	11.1	49	17.2	57.5	4,551	4,238	1,191	1,186	
WHEMLOCK	18	56.5	13.7	58	15.6	57.5	5,581	5,410	1,589	1,588	
WHEMLOCK-T	10	66.5	10.0	52	11.5	36.3	3,655	3,562	820	815	
R ALDER	6	10.7	15.1	47	3.4	13.3	1,226	1,163	307	308	
TOTAL	<i>69</i>	<i>310.3</i>	<i>12.5</i>	<i>54</i>	<i>74.8</i>	<i>264.4</i>	<i>24,232</i>	<i>22,965</i>	<i>6,549</i>	<i>6,539</i>	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR				119	119	119					
DOUG FIR-T	28.0	8.9		49	54	58					
WHEMLOCK	21.8	5.4		103	109	115					
WHEMLOCK-T	24.1	8.0		52	56	60					
R ALDER				165	165	165					
TOTAL	<i>27.1</i>	<i>3.4</i>		<i>94</i>	<i>98</i>	<i>101</i>	<i>29</i>	<i>7</i>	<i>3</i>		
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	6.9	1.5		37	38	38					
DOUG FIR-T	39.0	12.3		14	16	17					
WHEMLOCK	24.2	6.1		31	33	34					
WHEMLOCK-T	36.6	12.2		12	13	15					
R ALDER				44	44	44					
TOTAL	<i>35.1</i>	<i>4.4</i>		<i>28</i>	<i>29</i>	<i>30</i>	<i>49</i>	<i>12</i>	<i>5</i>		
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	71.2	17.3		75	91	107					
DOUG FIR-T	84.7	20.5		68	85	103					
WHEMLOCK	129.9	31.5		39	57	74					
WHEMLOCK-T	137.2	33.3		44	67	89					
R ALDER	230.2	55.8		5	11	17					
TOTAL	<i>37.2</i>	<i>9.0</i>		<i>282</i>	<i>310</i>	<i>338</i>	<i>59</i>	<i>15</i>	<i>7</i>		
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	68.1	16.5		83	100	116					
DOUG FIR-T	82.7	20.0		46	57	69					
WHEMLOCK	123.6	30.0		40	57	75					
WHEMLOCK-T	136.1	33.0		24	36	48					
R ALDER	230.1	55.8		6	13	21					
TOTAL	<i>38.2</i>	<i>9.3</i>		<i>240</i>	<i>264</i>	<i>289</i>	<i>62</i>	<i>15</i>	<i>7</i>		
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	BULLS			DATE	3/9/2016	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
31	13	26	BULLS	Unit 10 U6	43.60	18	89	S	W	
CL:	68.1 %	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		77.9	18.9	6,969	8,592	10,216				
DOUG FIR-T		83.3	20.2	3,382	4,238	5,094				
WHEMLOCK		125.2	30.4	3,767	5,410	7,052				
WHEMLOCK-T		138.5	33.6	2,366	3,562	4,758				
R ALDER		232.2	56.3	508	1,163	1,818				
TOTAL		<i>44.1</i>	<i>10.7</i>	<i>20,509</i>	<i>22,965</i>	<i>25,421</i>	82	21	9	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		70.8	17.2	2,189	2,642	3,096				
DOUG FIR-T		82.3	19.9	949	1,186	1,422				
WHEMLOCK		123.7	30.0	1,112	1,588	2,065				
WHEMLOCK-T		137.5	33.3	544	815	1,087				
R ALDER		231.1	56.0	135	308	480				
TOTAL		<i>43.0</i>	<i>10.4</i>	<i>5,858</i>	<i>6,539</i>	<i>7,221</i>	78	20	9	
CL:	68.1 %	COEFF	V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		48.9	11.9	70	86	102				
DOUG FIR-T				59	74	89				
WHEMLOCK		123.1	29.8	66	94	123				
WHEMLOCK-T		117.8	28.6	65	98	131				
R ALDER		232.2	56.3	38	87	136				
TOTAL		<i>98.3</i>	<i>23.8</i>	<i>78</i>	<i>87</i>	<i>96</i>	409	102	45	

TC		TSTNDSUM											Stand Table Summary			
Project													BULLS			
T31 R13 S26 TU6											T31 R13 S26 TU6					
Twp	Rge	Sec	Tract	Unit 10	Type	Acres	Plots	Sample Trees			Page:	1				
31	13	26	BULLS		U6	43.60	18	89			Date:	3/9/2016				
											Time:	6:39:40AM				
S Spc	T	Sample		Av	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net	Net	Totals			
		DBH	Trees	FF 16'				Ht Tot	Net Cu.Ft.		Net Bd.Ft.	Cu.Ft. Acre	Bd.Ft. Acre	Tons	Cunits	MBF
DF		10	2	87	63	14.374	8.32	28.75	5.9	30.0	4.80	168	862	209	73	38
DF		12	1	84	67	5.208	4.16	10.42	8.9	35.0	2.65	93	365	116	41	16
DF		13	4	85	69	17.650	16.63	35.30	12.2	40.1	12.24	431	1,415	534	188	62
DF		14	5	83	69	19.531	20.79	39.06	13.6	39.8	15.12	531	1,554	659	232	68
DF		15	3	83	69	10.184	12.48	20.37	16.2	46.1	9.39	329	939	409	143	41
DF		16	4	83	76	12.269	16.63	24.54	19.0	63.4	13.31	467	1,556	580	204	68
DF		17	1	82	77	2.548	4.16	5.10	23.0	70.0	3.37	117	357	147	51	16
DF		18	2	79	87	4.923	8.32	9.85	26.3	80.0	7.37	259	788	321	113	34
DF		19	2	80	84	4.456	8.32	8.91	27.7	85.0	7.06	247	757	308	108	33
DF		Totals	24	84	71	91.143	99.81	182.29	14.5	47.1	75.30	2,642	8,592	3,283	1,152	375
WH		11	2	87	66	9.876	6.38	19.75	8.1	35.0	5.10	159	691	223	70	30
WH		12	2	87	73	7.802	6.38	15.60	11.8	42.4	5.89	184	662	257	80	29
WH		13	3	85	68	10.305	9.58	20.61	12.1	39.8	7.98	249	821	348	109	36
WH		14	6	85	70	17.711	19.15	35.42	15.1	50.0	17.13	535	1,771	747	233	77
WH		15	2	83	65	5.002	6.38	10.00	16.5	49.9	5.32	165	499	232	72	22
WH		17	2	83	77	3.981	6.38	7.96	24.2	82.4	6.18	193	656	269	84	29
WH		18	1	84	84	1.827	3.19	3.65	28.0	85.0	3.25	102	311	142	45	14
WH		Totals	18	85	70	56.502	57.46	113.00	14.1	47.9	50.84	1,588	5,410	2,217	693	236
DF	T	9	2	86	55	24.331	10.45	35.41	5.4	23.7	5.46	191	841	238	83	37
DF	T	10	1	81	54	9.578	5.22	9.58	8.3	30.0	2.26	79	287	99	35	13
DF	T	11	2	84	58	15.832	10.45	31.66	6.5	25.0	5.95	205	792	259	90	35
DF	T	12	3	84	63	19.634	15.67	39.27	8.7	31.7	9.66	340	1,245	421	148	54
DF	T	13	2	82	63	11.082	10.45	22.16	11.2	32.6	7.11	247	722	310	108	31
DF	T	14	1	82	70	5.029	5.22	10.06	12.2	35.0	3.50	123	352	153	54	15
DF		Totals	11	84	59	85.486	57.46	148.14	8.0	28.6	33.94	1,186	4,238	1,480	517	185
WH	T	9	3	90	60	26.018	10.89	43.82	5.1	25.6	7.14	223	1,123	311	97	49
WH	T	10	3	88	62	19.704	10.89	39.41	5.9	26.8	7.53	233	1,054	328	101	46
WH	T	11	3	88	66	16.746	10.89	33.49	7.8	31.6	8.48	263	1,060	370	115	46
WH	T	13	1	88	67	4.061	3.63	8.12	11.9	40.0	3.10	97	325	135	42	14
WH		Totals	10	89	62	66.530	36.29	124.84	6.5	28.5	26.24	815	3,562	1,144	356	155
RA		14	1	83	40	2.079	2.22	4.16	10.1	40.0	1.16	42	166	50	18	7
RA		15	4	87	62	7.292	8.89	14.58	14.9	57.5	5.97	217	839	260	95	37
RA		18	1	85	52	1.315	2.22	2.63	18.5	60.0	1.32	49	158	58	21	7
RA		Totals	6	86	56	10.686	13.33	21.37	14.4	54.4	8.45	308	1,163	368	134	51
Totals			69	85	65	310.347	264.36	589.64	11.1	38.9	194.78	6539	22,965	8,492	2,851	1,001

T31 R13 S26 TU6G										T31 R13 S26 TU6G				
Twp	Rge	Sec	Tract	Unit 10	Type	Acres	Plots	Sample Trees	CuFt	BdFt				
31	13	26	BULLS		U6G	3.00	18	89	S	W				

Spp	Sp	T	So	Gr	%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log				Logs		
										Net	Def%	Gross	Net	Net MBF	Log Scale Dia.				Log Length				Ln	Dia
						4-7	8-11	12-15							16+	12-20	21-30	31-35	36-99	Ft	In			
DF	T	DM	3S		71	7.6	10,054	9,286	28	43	57				27	73	35	8	72	0.66	129.2			
DF	T	DM	4S		24	5.5	3,269	3,089	9	100				35	57	5	3	21	5	22	0.29	139.8		
DF	T	DM	UT		5		554	554	2	100				100				10	5	10	0.19	55.4		
DF T Totals					56	6.8	13,877	12,929	39	59	41			13	14	21	53	24	6	40	0.49	324.4		
WH	T	DM	3S		72	3.0	6,710	6,507	20	42	58				19	81	35	7	72	0.58	90.7			
WH	T	DM	4S		22	3.1	2,008	1,947	6	100				29	51	19		20	5	21	0.27	92.3		
WH	T	DM	UT		6		507	507	2	100				100				10	5	10	0.17	50.7		
WH T Totals					39	2.9	9,225	8,961	27	58	42			12	11	18	59	24	6	38	0.44	233.7		
RA	T	DM	2S		11	16.7	158	132	0		100			100				20	13	100	1.25	1.3		
RA	T	DM	3S		69	4.4	839	802	2		100			54	46			24	10	86	0.83	9.4		
RA	T	DM	4S		18		208	208	1	100				35	65			24	5	24	0.40	8.6		
RA	T	DM	UT		2		21	21	0	100				100				12	5	10	0.34	2.1		
RA T Totals					5	5.1	1,226	1,163	3	20	69	11		57	43			22	8	54	0.64	21.4		
Type Totals						5.2	24,328	23,053	69	57	43	1		15	14	19	53	24	6	40	0.47	579.5		

TC TSTATS				STATISTICS							PAGE	1
				PROJECT	BULLS			DATE	3/9/2016			
TWP	RGE	SECT	TRACT	Unit 10	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
31	13	26	BULLS		U6G	3.00	18	89	S	W		
		PLOTS	TREES	TREES	ESTIMATED	PERCENT						
				PER PLOT	TOTAL	SAMPLE						
					TREES	TREES						
TOTAL		18	89	4.9								
CRUISE		14	69	4.9	910	7.6						
DBH COUNT												
REFOREST												
COUNT		4	20	5.0								
BLANKS												
100 %												
STAND SUMMARY												
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET		
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC		
DOUG FIR-T	35	172.0	12.9	54	43.7	157.3	13,877	12,929	3,879	3,875		
WHEMLOCK-T	28	120.6	11.9	55	27.1	93.8	9,225	8,961	2,423	2,418		
R ALDER-T	6	10.7	15.1	47	3.4	13.3	1,226	1,163	307	308		
TOTAL	<i>69</i>	<i>303.3</i>	<i>12.6</i>	<i>54</i>	<i>74.4</i>	<i>264.4</i>	<i>24,328</i>	<i>23,053</i>	<i>6,610</i>	<i>6,601</i>		
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR-T	32.4	5.7		91	97	102						
WHEMLOCK-T	36.9	7.2		83	89	96						
R ALDER-T				165	165	165						
TOTAL	<i>27.1</i>	<i>3.4</i>		<i>94</i>	<i>98</i>	<i>101</i>	<i>29</i>	<i>7</i>	<i>3</i>			
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR-T	37.8	6.7		28	30	32						
WHEMLOCK-T	46.0	9.0		23	25	28						
R ALDER-T				44	44	44						
TOTAL	<i>35.1</i>	<i>4.4</i>		<i>28</i>	<i>29</i>	<i>30</i>	<i>49</i>	<i>12</i>	<i>5</i>			
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR-T	61.4	14.9		146	172	198						
WHEMLOCK-T	123.2	29.9		85	121	157						
R ALDER-T	230.2	55.8		5	11	17						
TOTAL	<i>37.5</i>	<i>9.1</i>		<i>276</i>	<i>303</i>	<i>331</i>	<i>59</i>	<i>15</i>	<i>7</i>			
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR-T	56.8	13.8		136	157	179						
WHEMLOCK-T	115.8	28.1		67	94	120						
R ALDER-T	230.1	55.8		6	13	21						
TOTAL	<i>38.2</i>	<i>9.3</i>		<i>240</i>	<i>264</i>	<i>289</i>	<i>62</i>	<i>15</i>	<i>7</i>			
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR-T	62.3	15.1		10,974	12,929	14,884						
WHEMLOCK-T	119.0	28.9		6,375	8,961	11,546						
R ALDER-T	232.2	56.3		508	1,163	1,818						
TOTAL	<i>43.9</i>	<i>10.7</i>		<i>20,598</i>	<i>23,053</i>	<i>25,508</i>	<i>82</i>	<i>20</i>	<i>9</i>			
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR-T	58.5	14.2		3,325	3,875	4,425						
WHEMLOCK-T	116.1	28.2		1,737	2,418	3,099						
R ALDER-T	231.1	56.0		135	308	480						

TC TSTATS				STATISTICS							PAGE	2
				PROJECT	BULLS			DATE	3/9/2016			
TWP	RGE	SECT	TRACT	Unit 10	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
31	13	26	BULLS		U6G	3.00	18	89	S	W		
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15			
TOTAL		42.6	10.3	5,919	6,601	7,283	77	19	9			
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR-T				70	82	95						
WHEMLOCK-T		114.7	27.8	68	96	123						
R ALDER-T		232.2	56.3	38	87	136						
TOTAL		98.9	24.0	78	87	96	414	104	46			

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

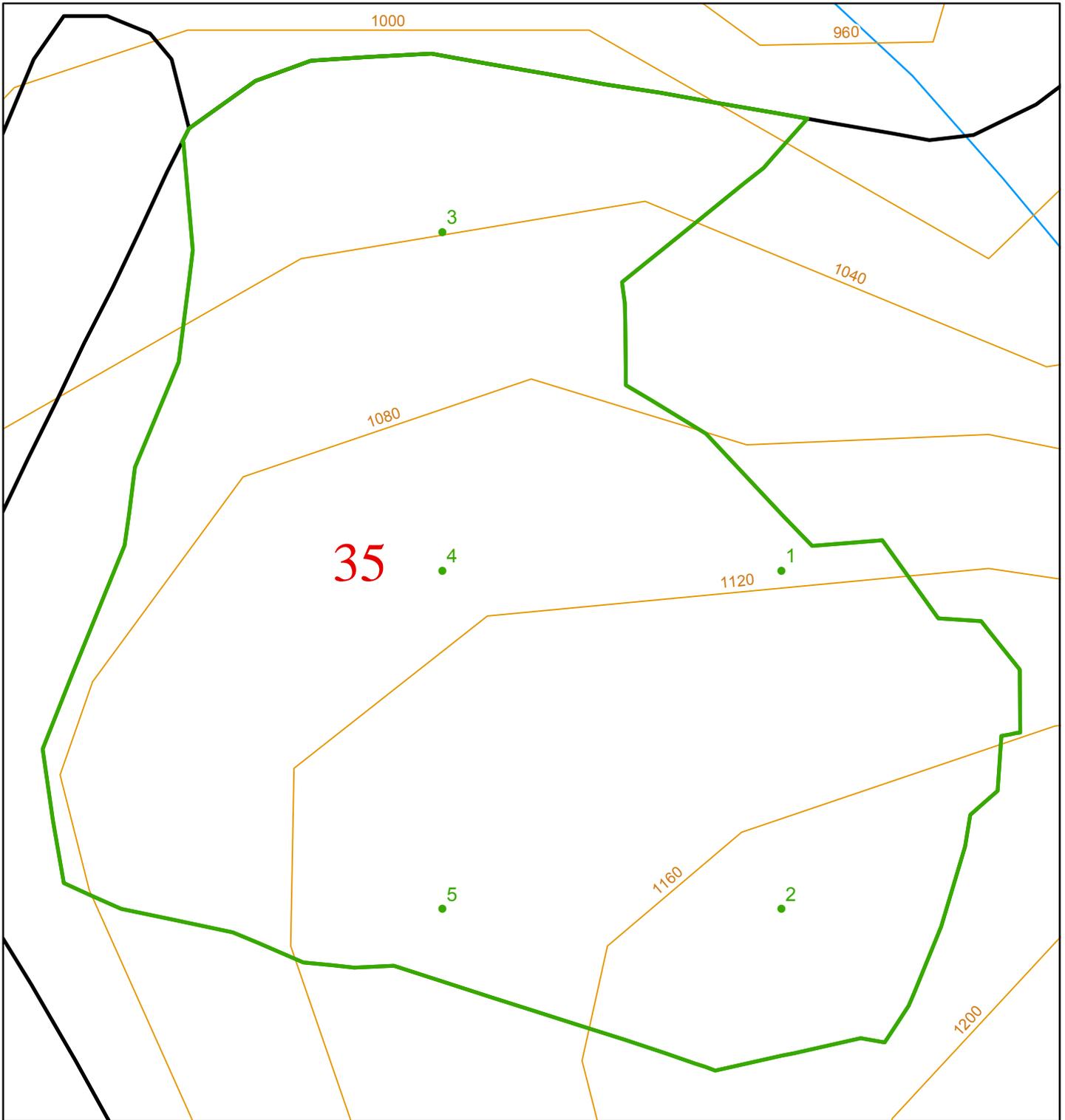
T031 R013 S26 TyU1	5.0
T031 R013 S26 TyU1G	.6
T31 R13 S26 TyU6G	3.0

Project BULLS
Acres 114.90

Page No 1
Date: 3/9/2016
Time 7:09:00AM

Species	s T	Total	Total	Total	Net Cubic Ft/		CF/	Total CCF		Total MBF	
		Trees	Logs	Tons	Tree	Log	LF	Gross	Net	Gross	Net
WHEMLOCK		8,731	16,614	7,548	27.03	14.20	0.54	2,359	2,360	843	800
WHEMLOCK	T	10,942	19,732	6,387	18.21	10.10	0.42	1,996	1,993	782	751
DOUG FIR		5,312	10,663	4,804	31.75	15.81	0.61	1,685	1,686	581	540
DOUG FIR	T	6,718	12,364	3,846	20.05	10.89	0.46	1,349	1,347	492	460
R ALDER		1,506	2,963	885	21.36	10.86	0.52	322	322	128	119
R ALDER	T	1,594	3,018	586	13.36	7.06	0.38	213	213	86	83
PS FIR		115	231	158	47.86	23.93	0.74	55	55	21	19
PS FIR	T	114	229	162	49.28	24.64	0.82	57	56	20	18
S SPRUCE		120	140	84	27.05	23.05	0.78	32	32	10	10
WR CEDAR	T	32	64	26	33.67	16.83	0.70	11	11	3	3
WR CEDAR		9	17	7	33.67	16.83	0.70	3	3	1	1
Totals		35,193	66,035	24,493	22.95	12.23	0.50	8,083	8,078	2,967	2,802

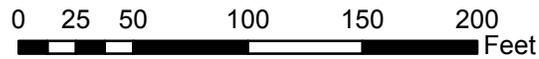
Wood Type Species	Total	Total	Total	Net Cubic Ft/		CF/	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log	LF	Gross	Net	Gross	Net
C	32,093	60,054	23,022	23.50	12.56	0.50	7,548	7,543	2,753	2,600
H	3,100	5,981	1,471	17.25	8.94	0.45	535	535	214	202
Totals	35,193	66,035	24,493	22.95	12.23	0.50	8,083	8,078	2,967	2,802



35

Cruiser Sample Point Locations

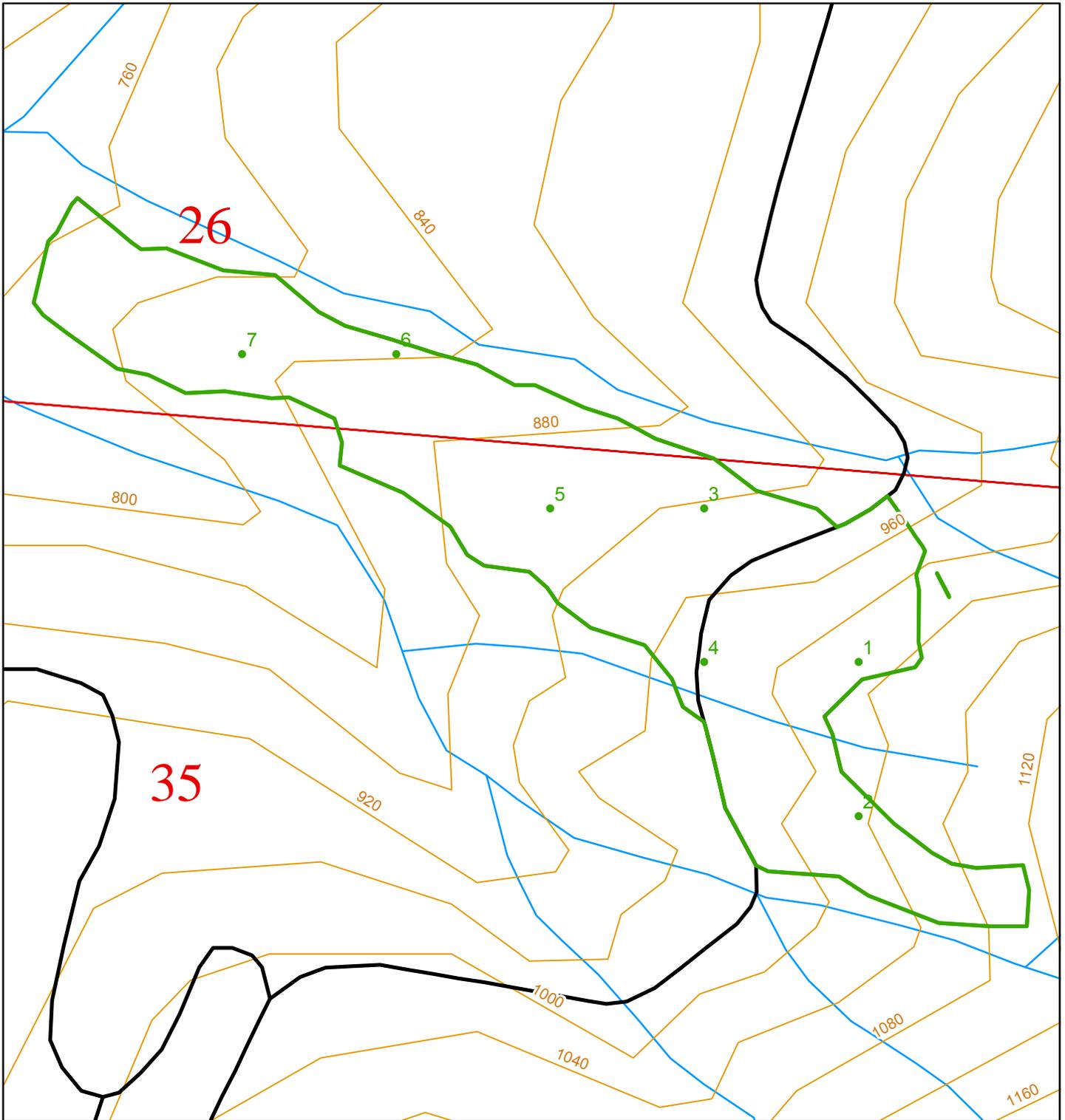
LAYER NAME:	unit_1	Township:	T31R13W
POLY ID:	1	Total Sample Points:	5
Acres:	acres	Spacing Between Points:	200
		Point Rotation Degrees:	0



Scale 1:1,000

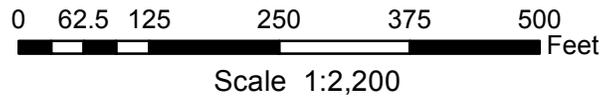
Legend

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



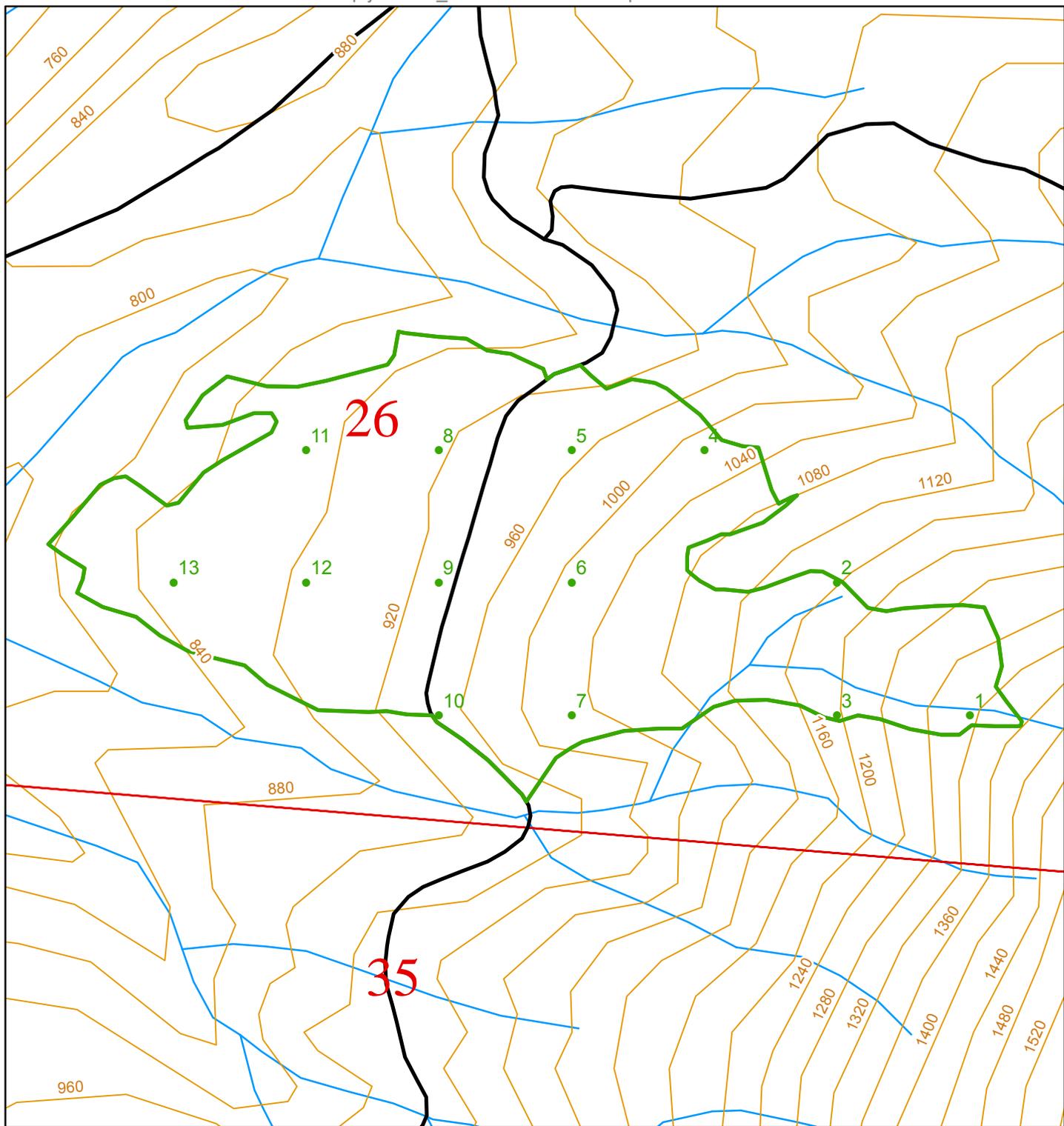
Cruiser Sample Point Locations

LAYER NAME:	unit_2	Township:	T31R13W
POLY ID:	1	Total Sample Points:	7
Acres:	acres	Spacing Between Points:	200
		Point Rotation Degrees:	0



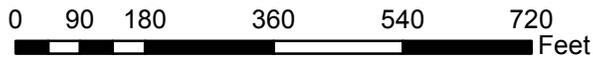
Legend

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



Cruiser Sample Point Locations

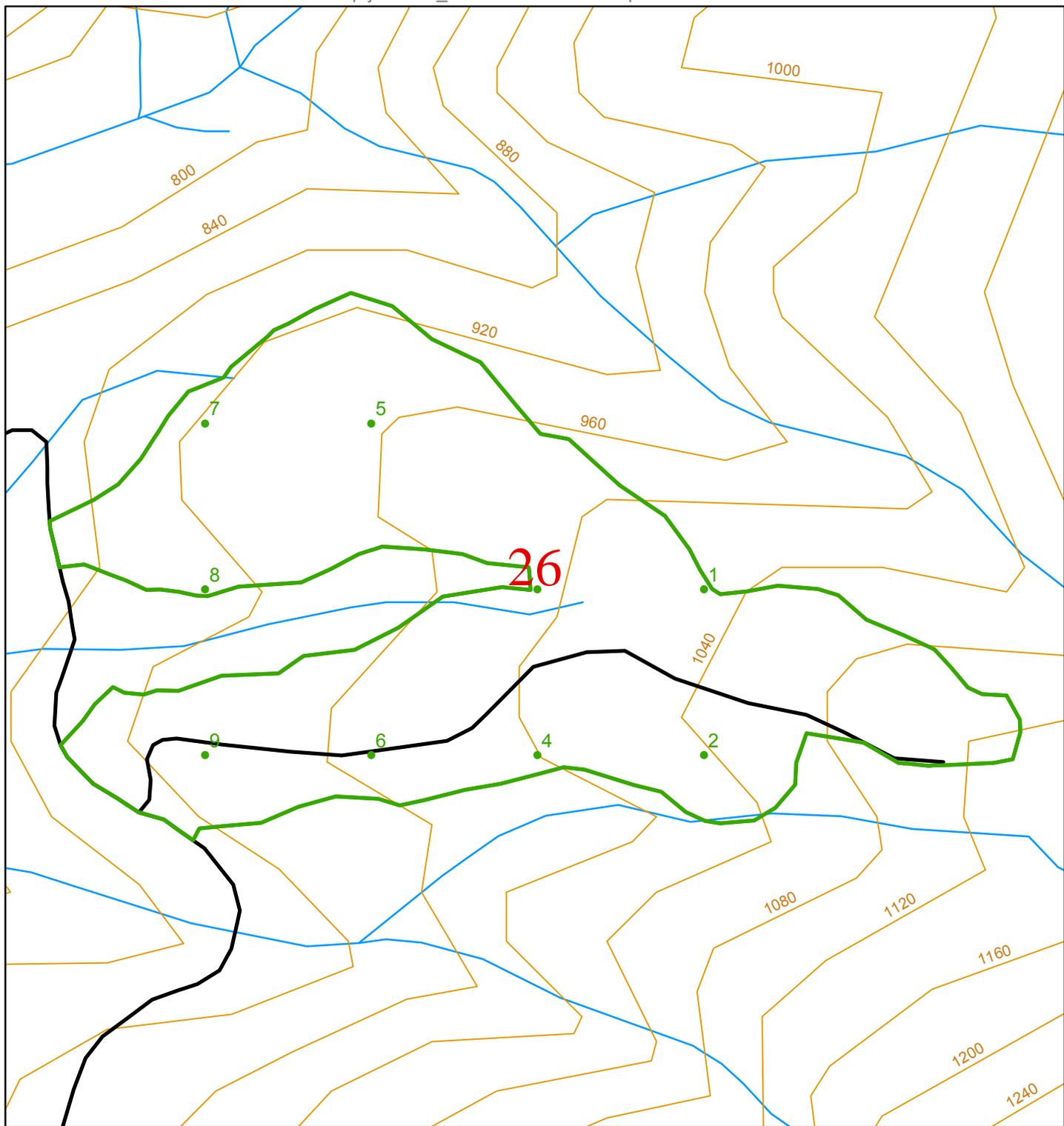
LAYER NAME:	unit_3	Township:	T31R13W
POLY ID:	1	Total Sample Points:	13
Acres:	19	Spacing Between Points:	250
		Point Rotation Degrees:	0



Scale 1:3,200

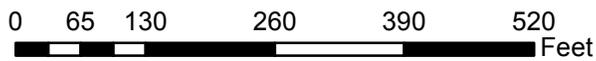
Legend

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



Cruiser Sample Point Locations

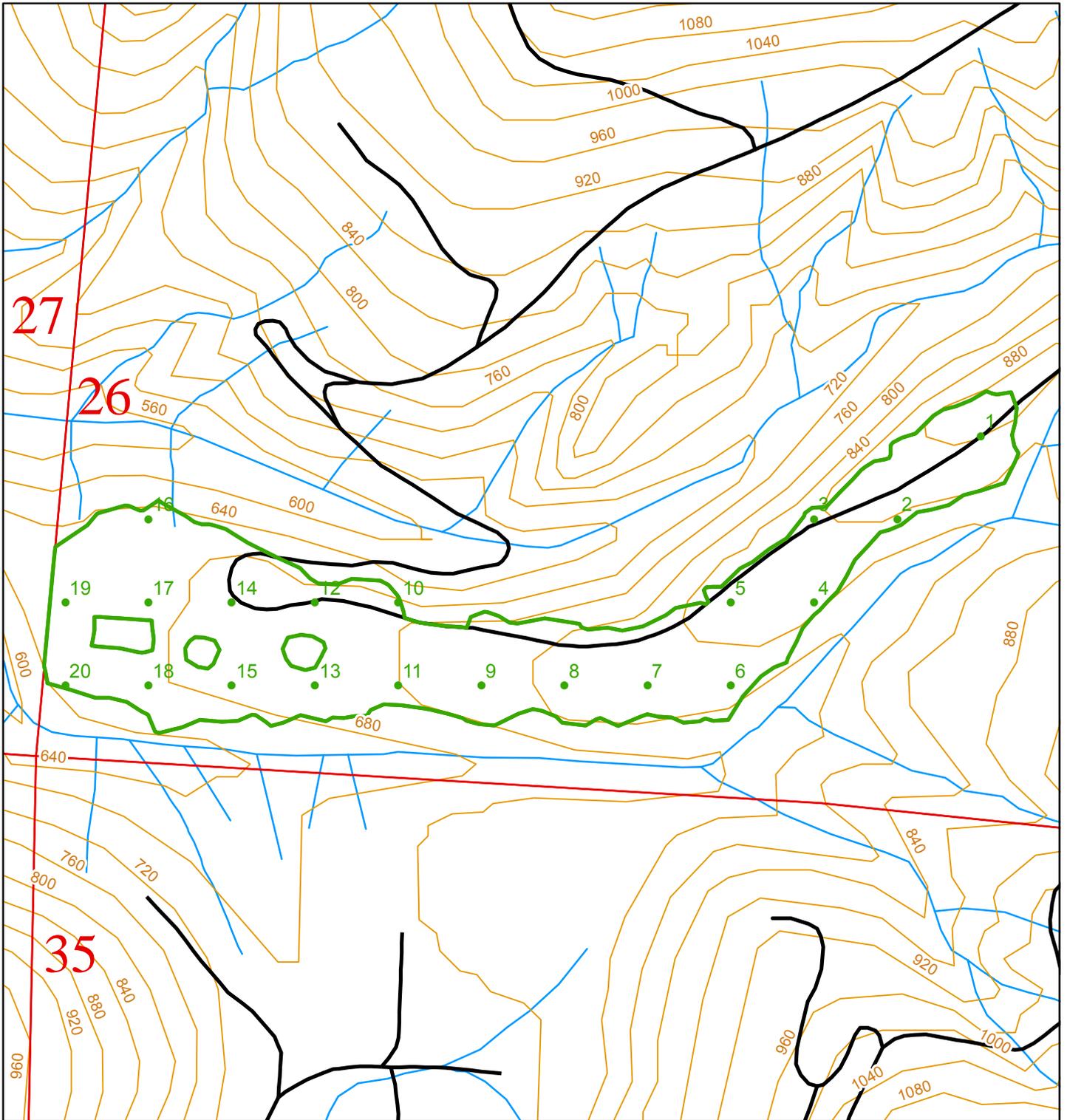
LAYER NAME:	unit_4	Township:	T31R13W
POLY ID:	1	Total Sample Points:	9
Acres:	11	Spacing Between Points:	225
		Point Rotation Degrees:	0



Scale 1:2,300

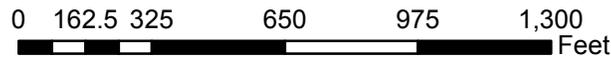
Legend

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



Cruiser Sample Point Locations

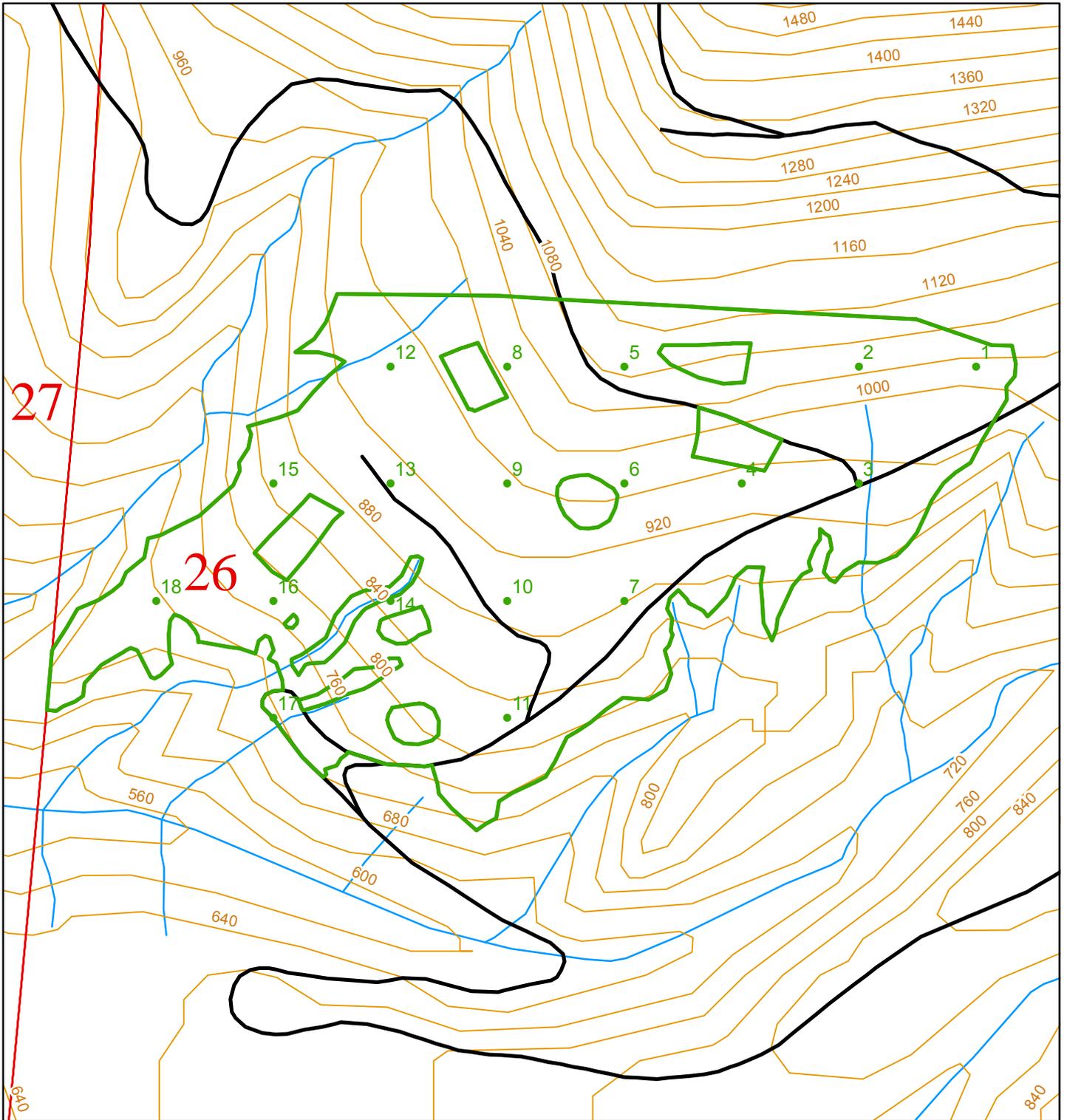
LAYER NAME:	unit_5	Township:	T31R13W
POLY ID:	1	Total Sample Points:	20
Acres:	29	Spacing Between Points:	275
		Point Rotation Degrees:	0



Scale 1:5,600

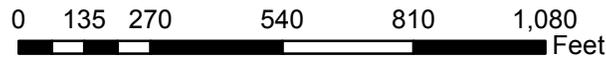
Legend

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



Cruiser Sample Point Locations

LAYER NAME:	unit_6	Township:	T31R13W
POLY ID:	1	Total Sample Points:	18
Acres:	46	Spacing Between Points:	325
		Point Rotation Degrees:	0



Scale 1:4,700

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: 2614294
 Effective Date: 7/7/2016
 Expiration Date: 7/7/2019
 Shut Down Zone: 650
 EARR Tax Credit: Eligible [] Non-eligible
 Reference: DNR, Ellis Crossing VDT VRH
 Michelle Helms

**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

Number of Years Granted on Multi-Year Request

- Class II Class III Class IVG Class IVS
- 4 years 5 years

Conditions on Approval / Reasons for Disapproval

Roads associated with haul shall be maintained to RMAP standards prior to wet weather haul. Of particular concern in the crossing of the E1000 road and creek 5r, located at approximately the 4.75 mile marker on the E1000. At this location ditchlines and road surface waters have the potential to deliver sediment to typed water during wet weather conditions.

Issued By: Erik Dukes Region: Olympic

Title: Forest Practice Forester Date: 7/7/2016

Copies to: Landowner, Timber Owner and Operator.

Issued in person: Landowner Timber Owner Operator By: 

Appeal Information

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

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

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

Information regarding the Pollution Control Hearings Board can be found at: <http://www.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 _____,	Forks	_____	WA,
(date)	(post office location)			
postage paid, a true and accurate copy of this document. Notice of Decision FPA # _____				
_____	_____			
(Printed name)	(Signature)			

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

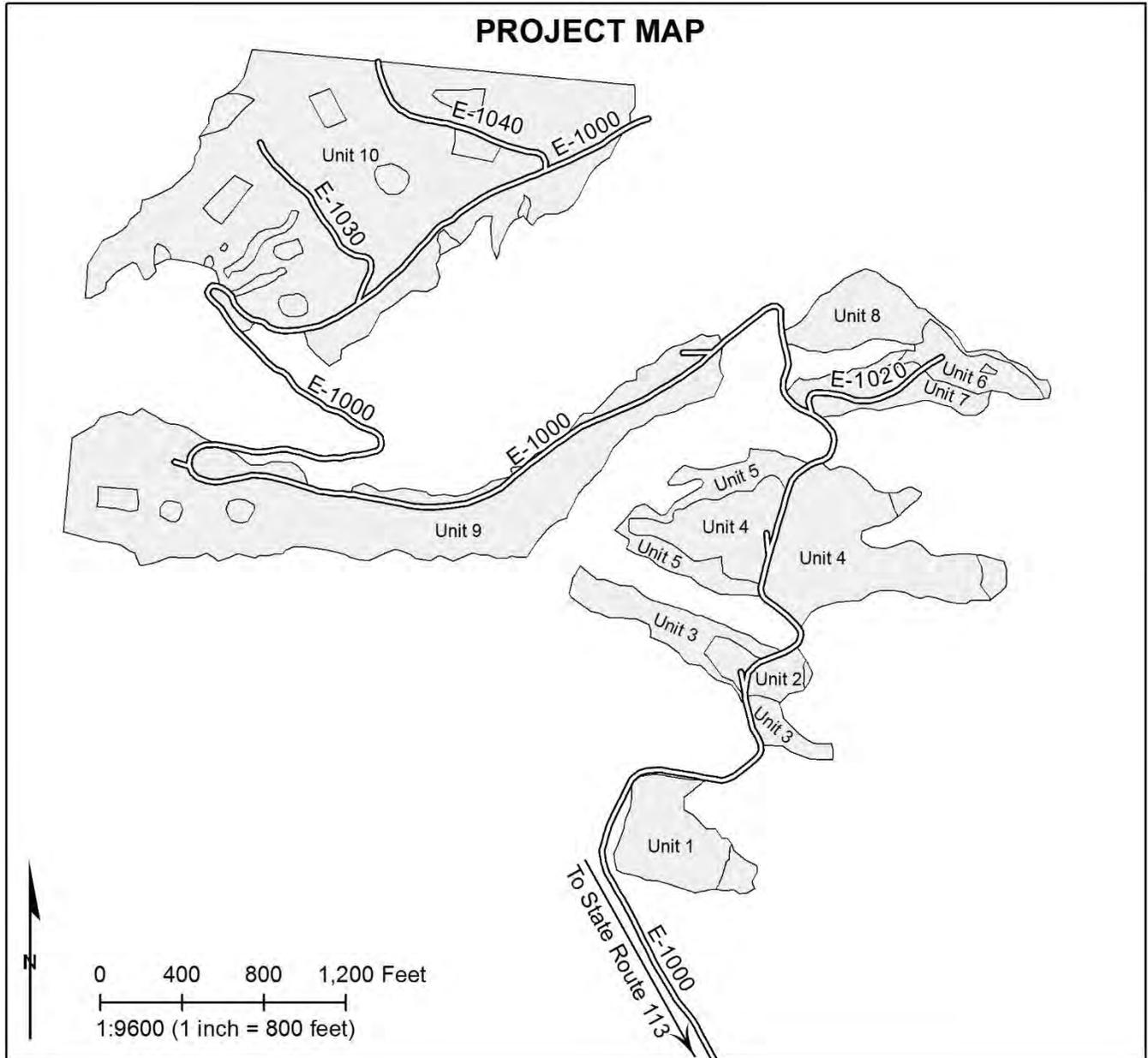
ELLIS CROSSING VDT VRH TIMBER SALE ROAD PLAN
CLALLAM COUNTY
COAST DISTRICT

AGREEMENT NO.: 30-093925

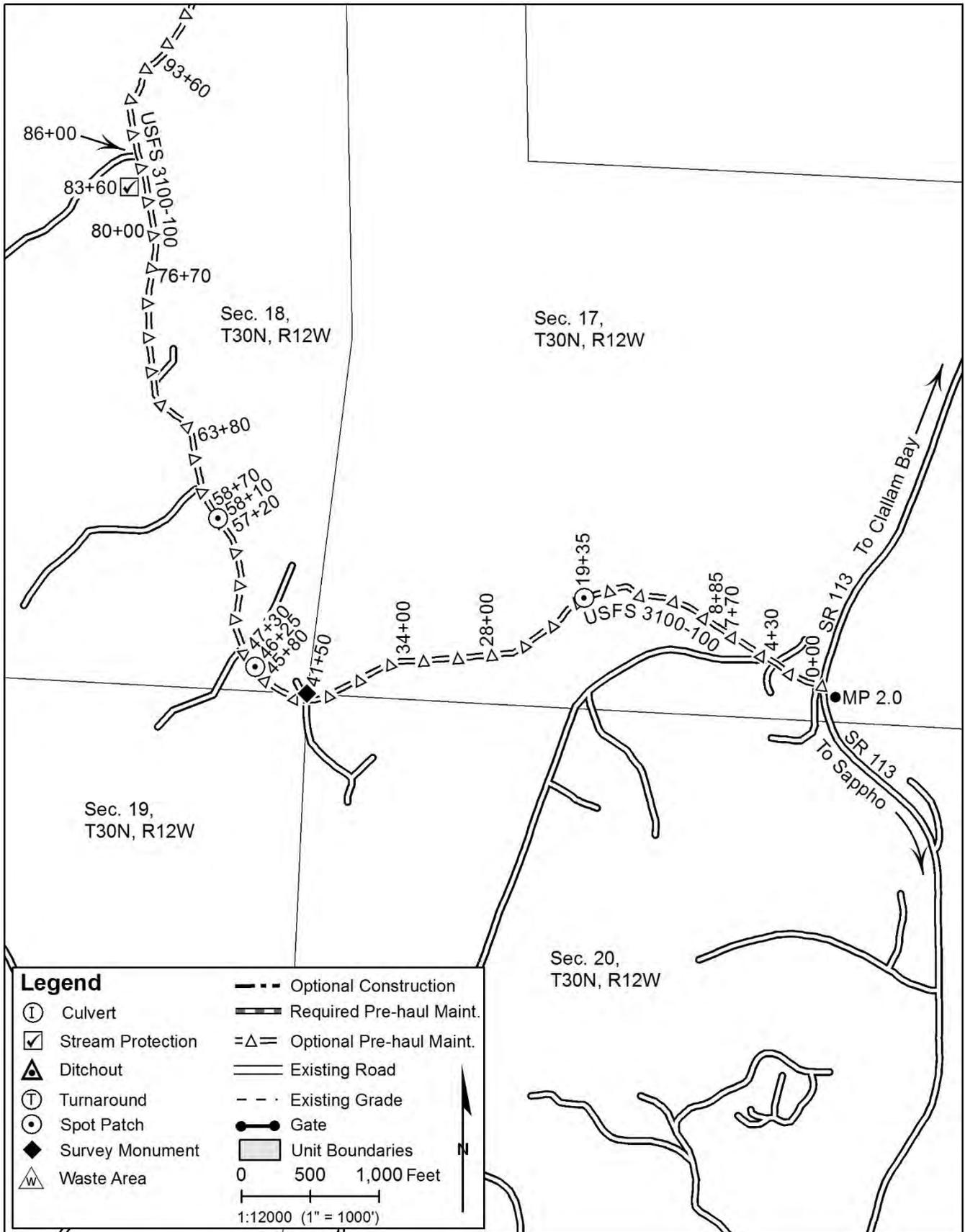
STAFF ENGINEER: BILL MEHL

DATE: JULY 29, 2016

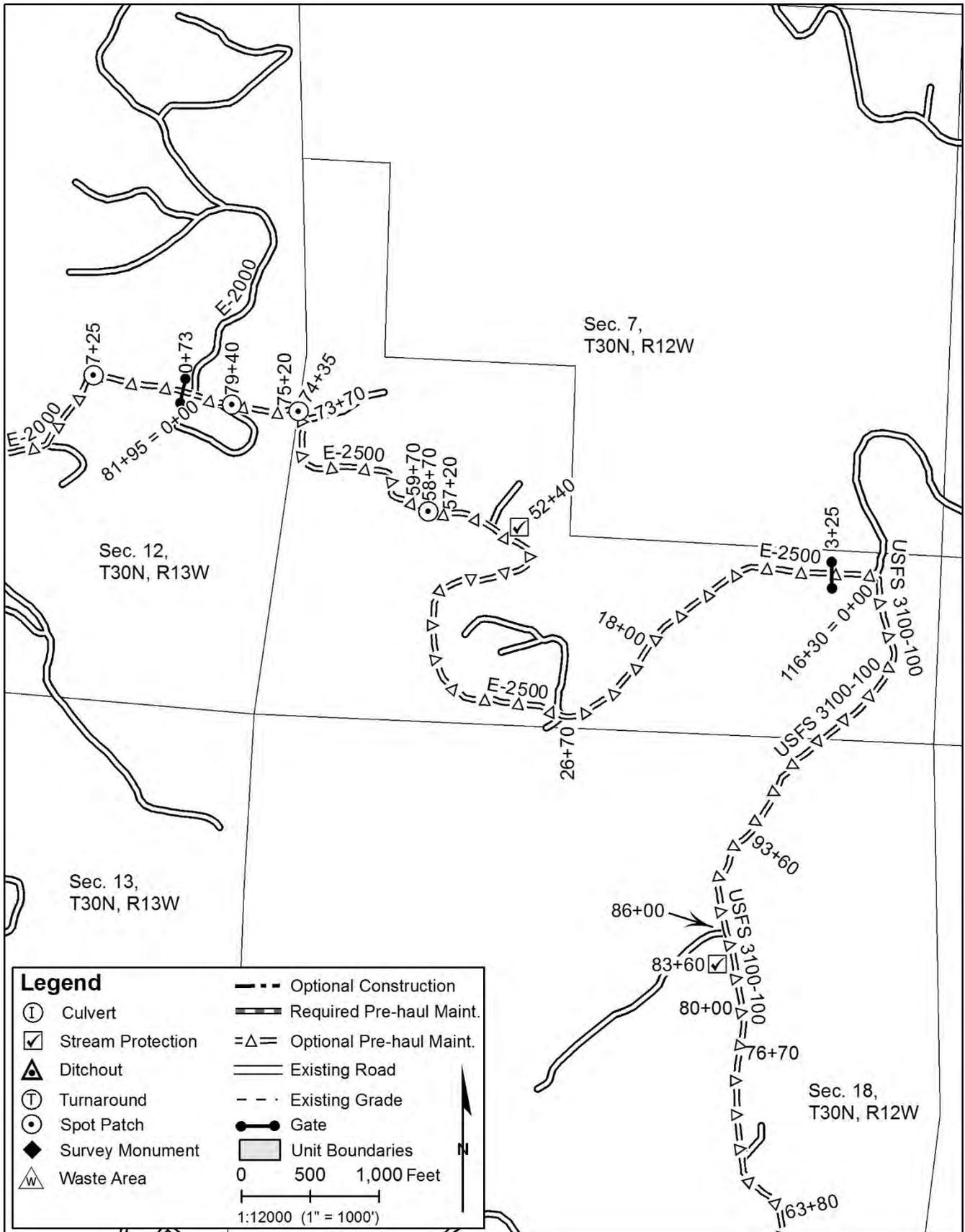
DRAWN & COMPILED BY: CRAIG MAGNUSON



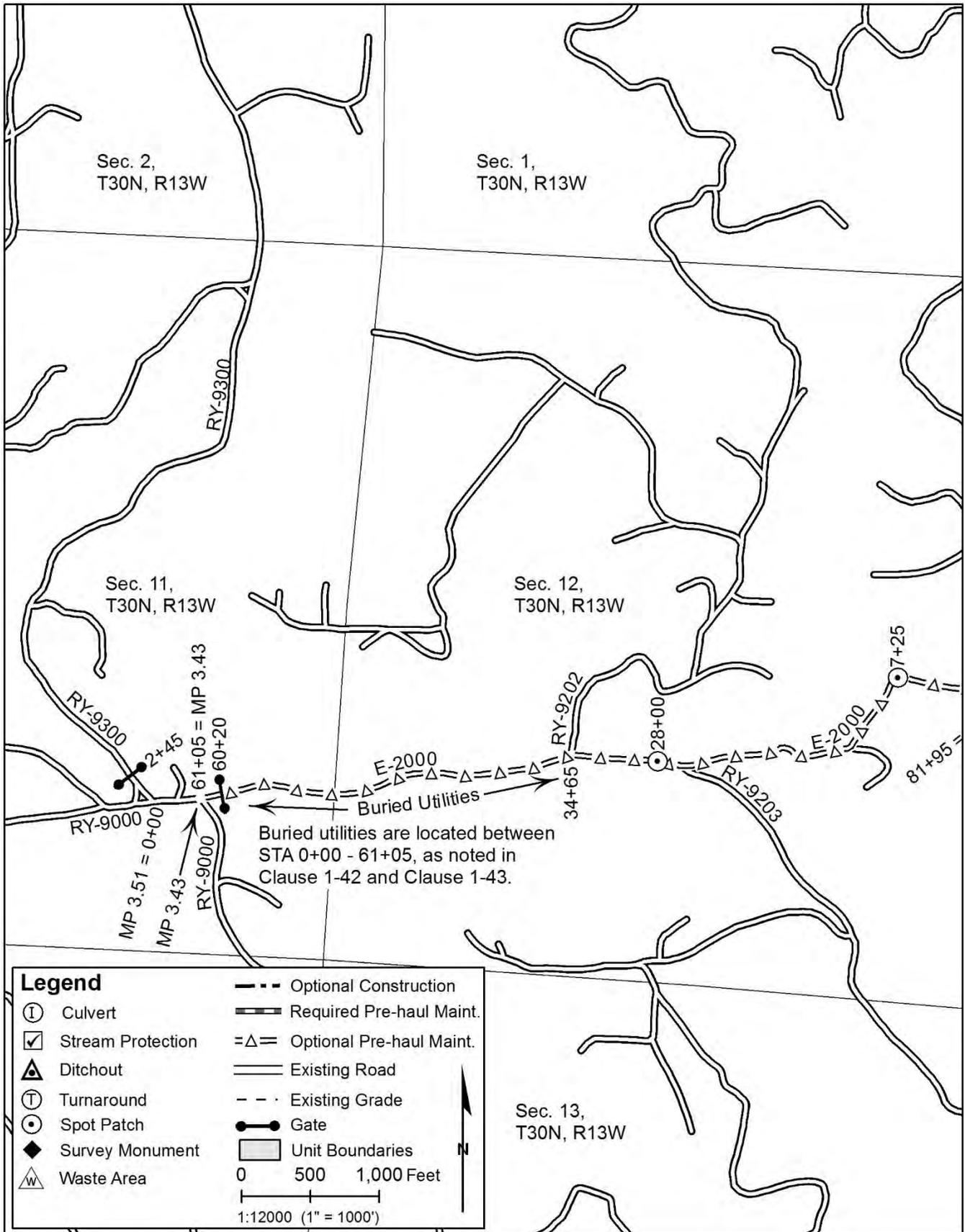
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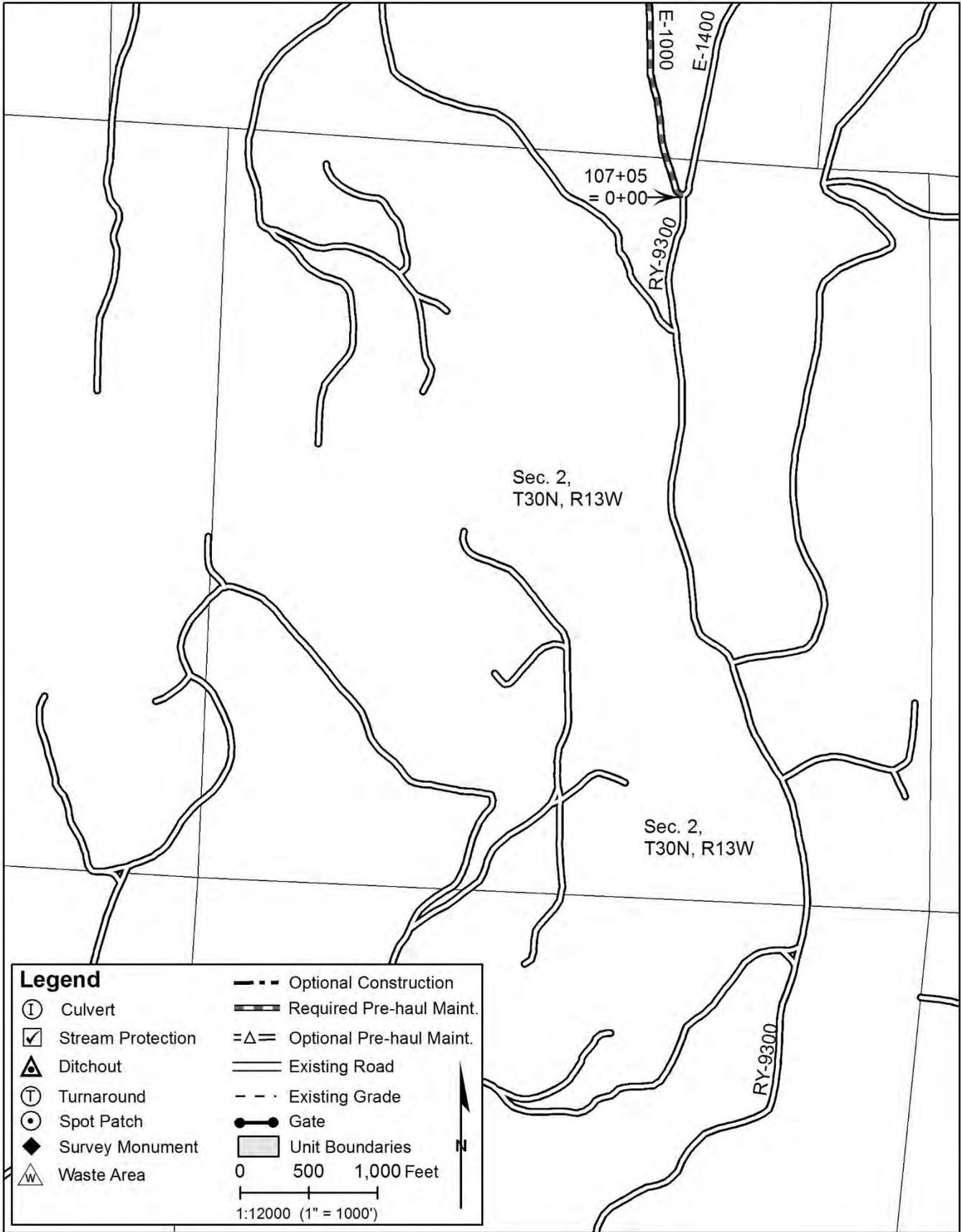
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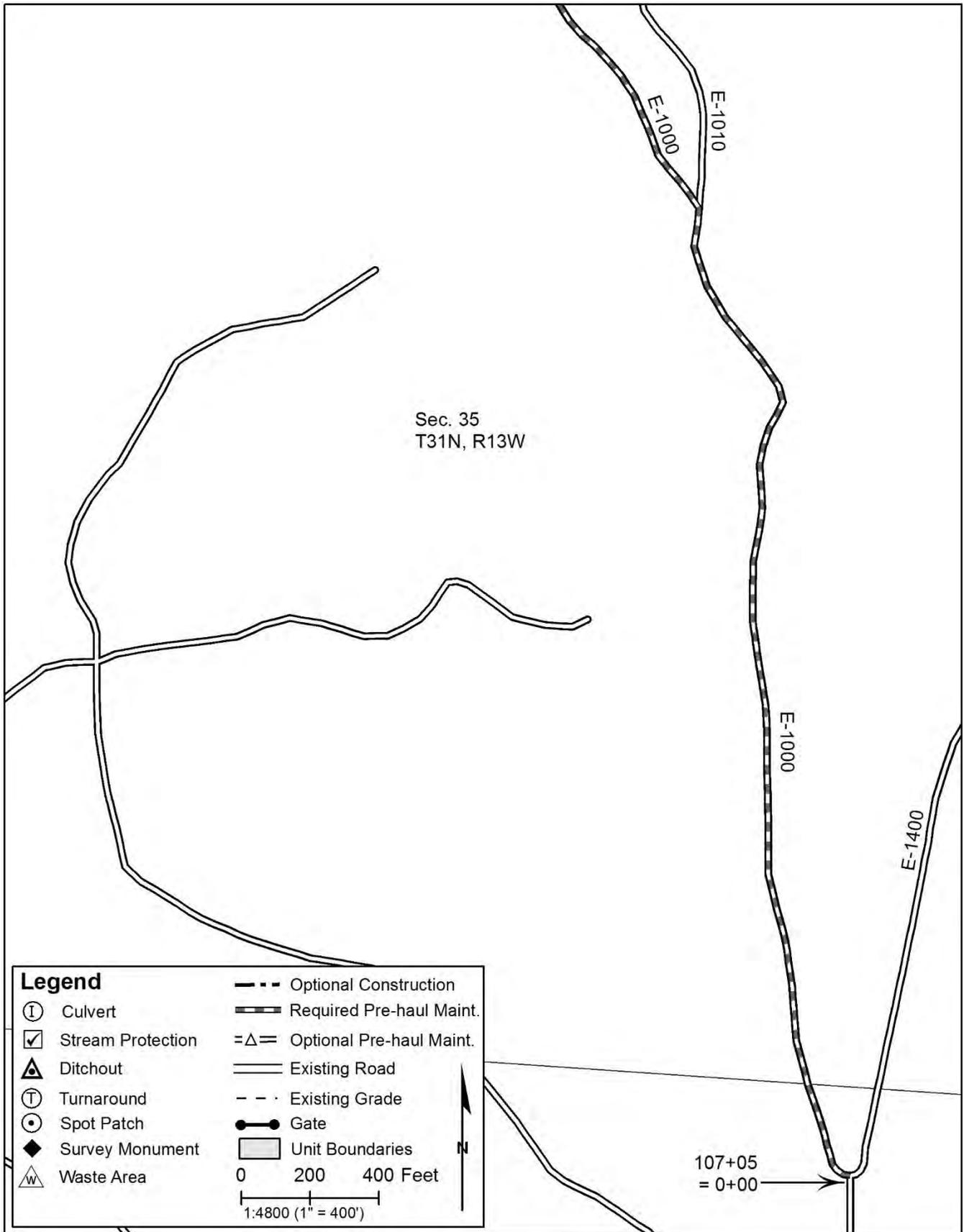
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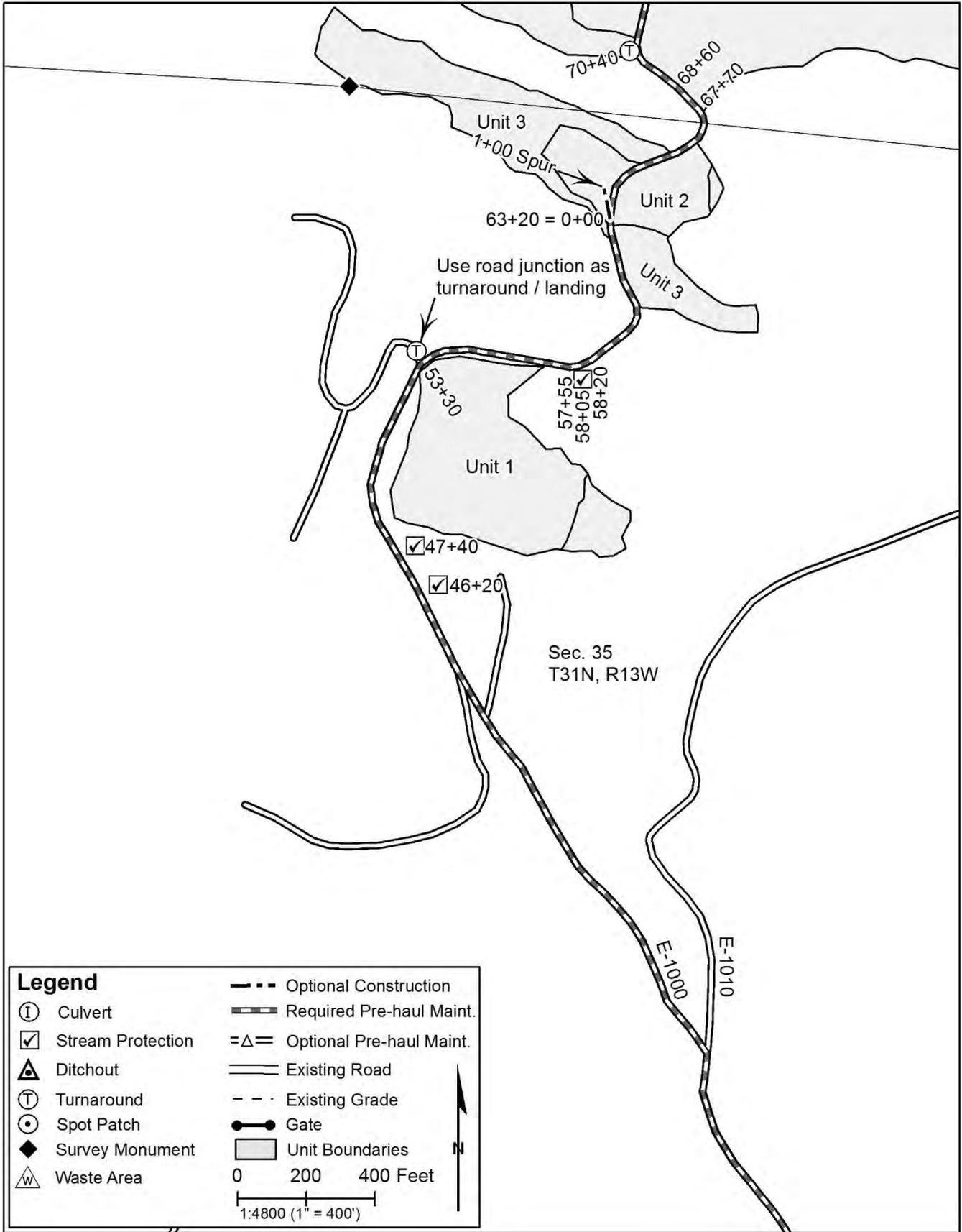
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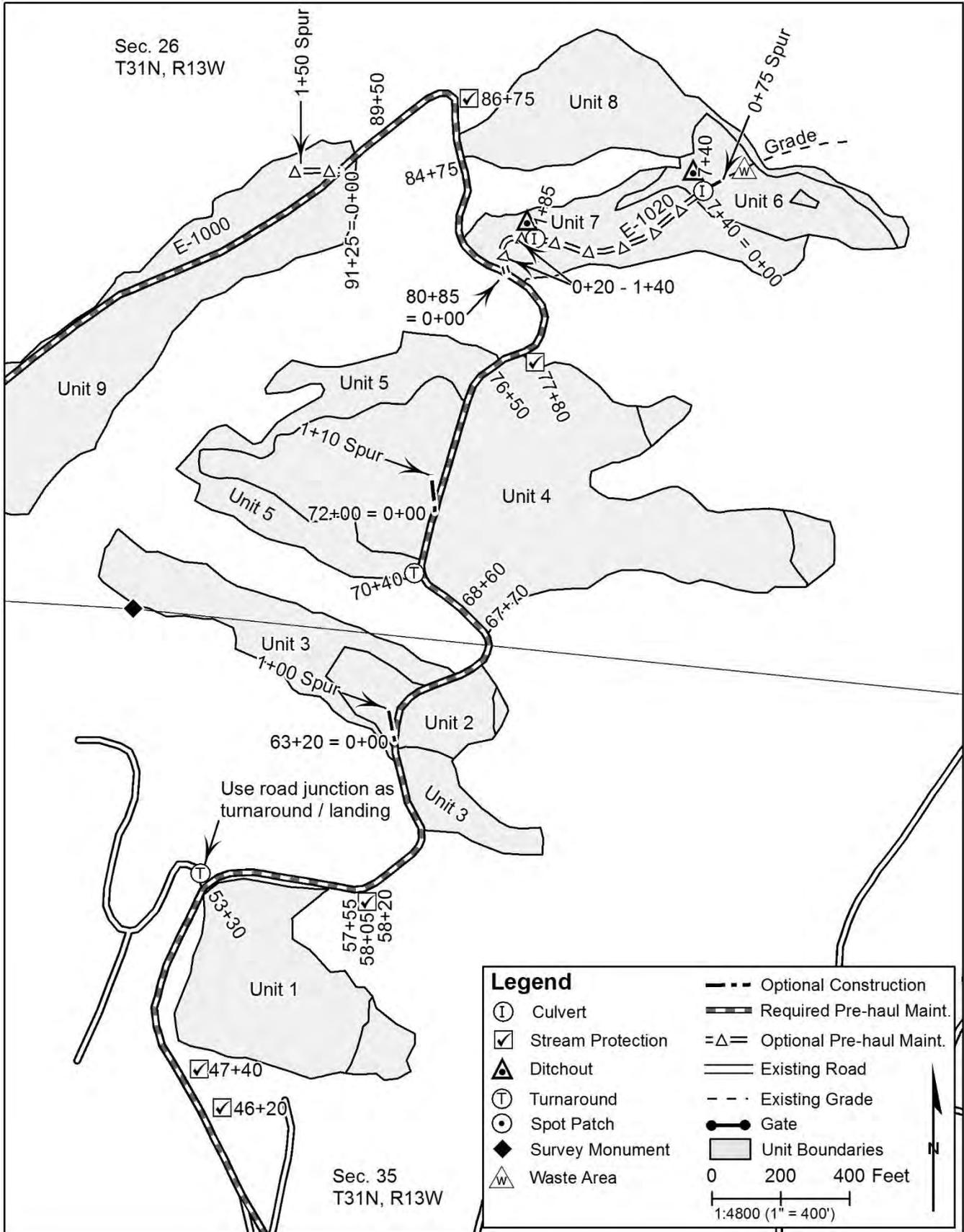
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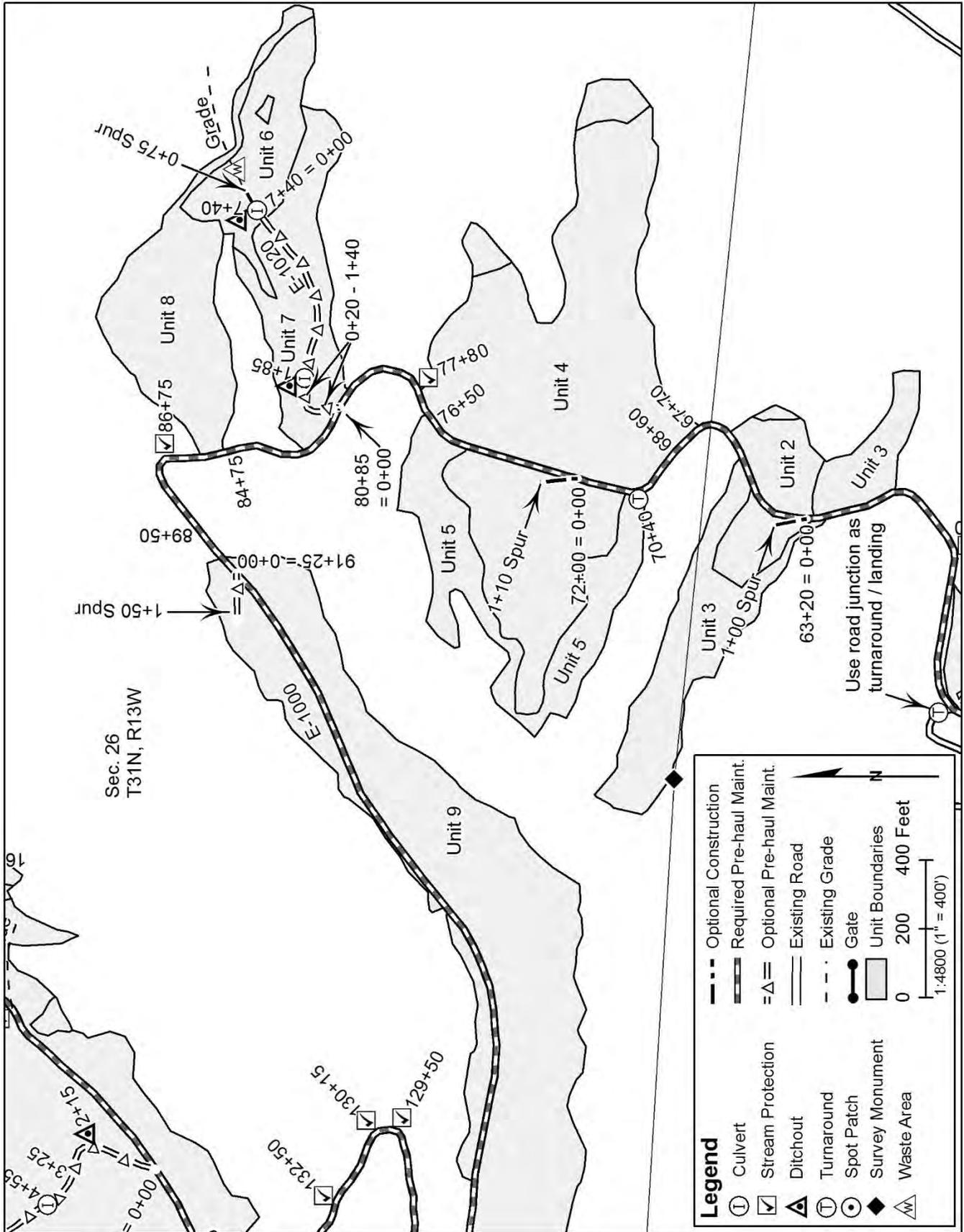
Legend

- | | | | |
|---|-------------------|--------------------|--------------------------|
| Ⓢ | Culvert | - - - | Optional Construction |
| ☑ | Stream Protection | ▬▬▬ | Required Pre-haul Maint. |
| ⚠ | Ditchout | =Δ= | Optional Pre-haul Maint. |
| Ⓢ | Turnaround | — | Existing Road |
| ⊙ | Spot Patch | - · - · | Existing Grade |
| ◆ | Survey Monument | ●—● | Gate |
| ⚠ | Waste Area | ▭ | Unit Boundaries |
| | | 0 200 400 Feet | |
| | | 1:4800 (1" = 400') | |

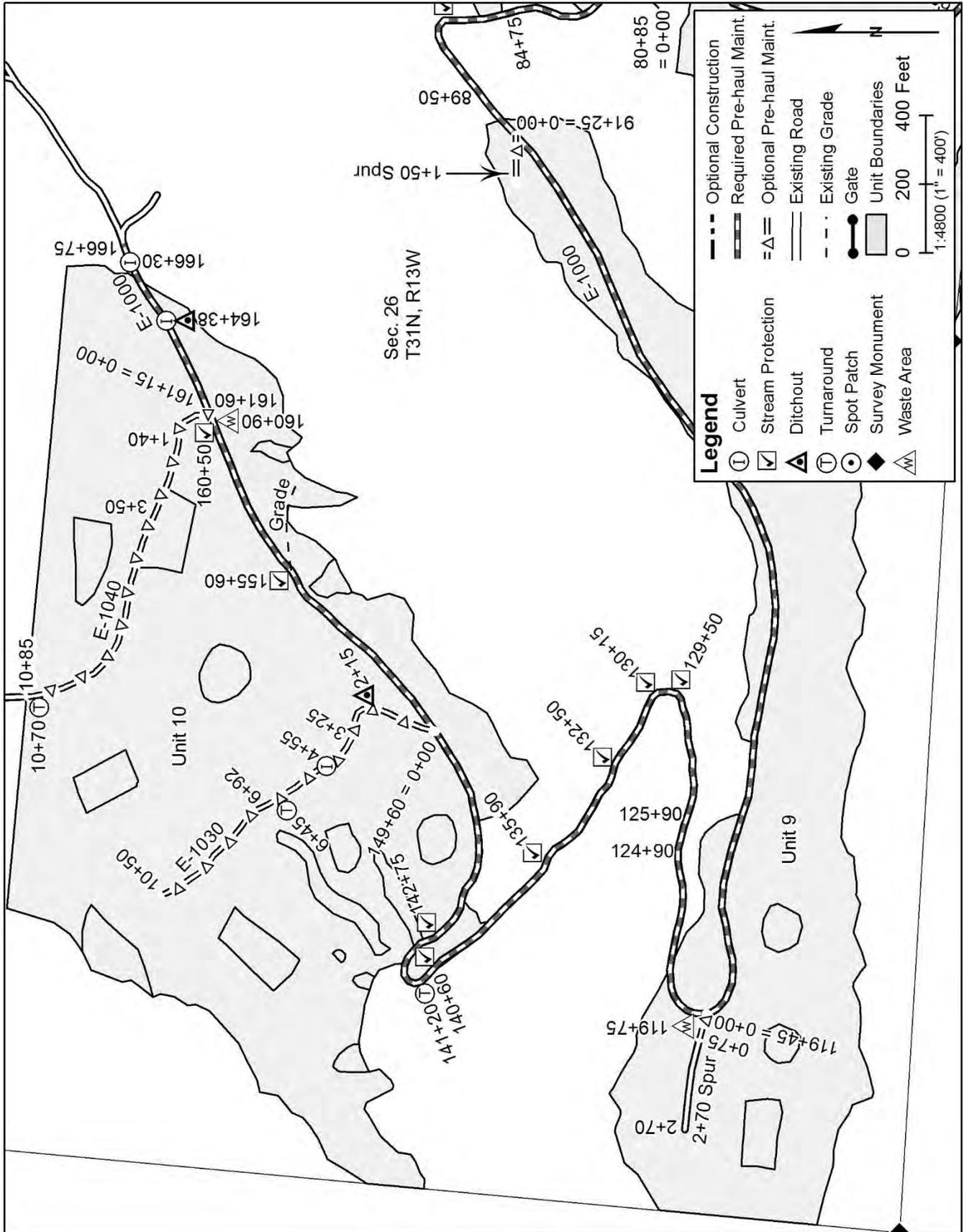
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SECTION 0 – SCOPE OF PROJECT

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>
E-1000	166.75	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>
USFS 3100-100	116.30	Pre-haul Maintenance
E-2500	81.95	Pre-haul Maintenance
E-2000	61.05	Pre-haul Maintenance
1+00 Spur	1.00	Construction
1+10 Spur	1.10	Construction
0+75 Spur	0.75	Construction
E-1020	7.40	Pre-haul Maintenance
1+50 Spur	1.50	Pre-haul Maintenance
2+70 Spur	0.75	Pre-haul Maintenance
E-1030	10.50	Pre-haul Maintenance
E-1040	10.85	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>
1+00 Spur	0+00 – 1+00	See Below
1+10 Spur	0+00 – 1+10	See Below
0+75 Spur	0+00 – 0+75	See Below

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, compacting road surfaces, constructing ditchlines, constructing ditchouts, constructing turnouts and turnarounds, curve widening, acquisition and installation of drainage structures, application of rock, 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>
USFS 3100-100	0+00 – 116+30	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1. Apply rock in accordance with Rock List. Grade and shape road in accordance with Clause 2-5. Install sediment control in accordance with Clause 8-1.
E-2500	0+00 – 81+95	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1. Apply rock in accordance with Rock List. Grade and shape road in accordance with Clause 2-5. Install sediment control in accordance with Clause 8-1. Perform gate maintenance in accordance with Clause 7-75.
E-2000	0+00 – 61+05	Perform all road work around utilities in accordance with Clause 1-43 and all applicable laws or rules concerning utilities. Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Apply rock in accordance with Rock List. Grade and shape road in accordance with Clause 2-5.
E-1000	0+00 – 161+15	Clean out and/or construct ditches in accordance with Clause 2-7. End haul waste material to designated waste areas in accordance with Clause 4-37. Apply rock in accordance with Rock List. Grade and shape road in accordance with Clause 2-5. Install sediment controls in accordance with Clause 8-1.
E-1000	161+15 – 166+75	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1. Clean out and/or construct ditches in accordance with Clause 2-7. End haul waste material to designated waste areas in accordance with Clause 4-37. Construct ditchout in accordance with Clause 4-29. Install culverts in accordance with Culvert List. Apply rock in accordance with Rock List. Grade, shape and compact road surface in accordance with Clause 2-5.
E-1020	0+00 – 7+40	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Clean out and/or construct ditches in accordance with Clause 2-7. Construct ditchouts in accordance with Clause 4-29. Install culverts in accordance with Culvert List. Brush road in accordance with Clause 3-1. Apply rock in accordance with Rock List. Grade, shape and compact road in accordance with Clause 2-5.
1+50 Spur	0+00 – 1+50	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Shape and compact existing road surface.
2+70 Spur	0+00 – 0+75	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1. Shape and compact existing road surface.
E-1030	0+00 – 10+50	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with

		Clause 3-23. Clean out and/or construct ditches in accordance with Clause 2-7. Construct ditchout in accordance with Clause 4-29. Install culvert in accordance with Culvert List. Brush road in accordance with Clause 3-1. Construct turnaround in accordance with Clause 4-22. Apply rock in accordance with Rock List. Grade, shape and compact road in accordance with Clause 2-5.
E-1040	0+00 – 10+85	Clean out and/or construct ditches in accordance with Clause 2-7. Construct turnaround in accordance with Clause 4-22. Apply rock in accordance with Rock List. Grade and shape road in accordance with Clause 2-5.

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 post-haul road maintenance listed in Clause 9-5.

0-12 DEVELOP ROCK SOURCE

The Purchaser shall develop an existing rock source at Mary Clark Pit. Development will involve clearing and piling of vegetation and woody debris and stripping approximately 1 acre to useable rock as determined by the Contract Administrator. 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.

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).

1-12 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.

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.

SUBSECTION TIMING

1-20 COMPLETE BY DATE

On all roads, Purchaser shall complete road work 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

1-27 TIMING RESTRICTION FOR MARBLED MURRELET

On the following road(s), any road work, right-of-way timber falling and yarding, 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. This restriction does not apply to the hauling of timber, rock, or equipment.

<u>Road</u>	<u>Stations</u>
USFS 3100-100	86+00 – 116+30
E-2500	0+00 – 18+00

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 SURFACE RESTRICTION

The use of metal tracked equipment is not allowed on bridge surfaces at any time. If Purchaser must run equipment on bridge 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 surfaces, Purchaser shall immediately cease all road work and hauling operations. Any dirt, rock, or other material tracked or spilled on bridge 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

1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS

At existing road approaches to county roads and state highways, any mud, dirt, rock or other material tracked or spilled on the asphalt surface shall be removed immediately by the Purchaser.

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

The following county roads and state highways are affected by this sale:

<u>Road Name</u>
SR 113
Mary Clark Road
US 101

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>
E-2000	0+00 – 61+05 (E-2500 – RY-9000)

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>
E-2000	0+00 – 61+05	PUD No. 1 of Clallam County	811 and 1-800-542-7859

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>
USFS 3100-100	4+30 – 116+30	Grade and shape road.
E-2500	0+00 – 81+95	Grade and shape road.
E-2000	0+00 – 61+05	Grade and shape road.
E-1000	0+00 – 161+15	Grade and shape road.
E-1000	161+15 – 166+75	Grade and shape and compact road.
E-1040	0+00 – 10+85	Grade and shape road.

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. A bucket no larger than one cubic yard shall be used for ditch cleaning and construction.

<u>Road</u>	<u>Stations</u>	<u>Left or Right</u>	<u>Comments</u>
E-1000	57+55 – 58+20	R	End haul waste in accordance with Clause 4-37.

	67+70 – 68+60	R	End haul waste in accordance with Clause 4-37.
	76+50 – 77+80	R	End haul waste in accordance with Clause 4-37.
	84+75 – 89+50	R	End haul waste in accordance with Clause 4-37.
	124+90 – 125+90	R	End haul waste in accordance with Clause 4-37.
	166+30 – 166+75	L	End haul waste in accordance with Clause 4-37.
E-1020	0+20 – 7+15	R	Scatter waste in accordance with Clause 4-38.
E-1030	0+00 – 2+15	L	Scatter waste in accordance with Clause 4-38.
	2+15 – 3+25	R	Scatter waste in accordance with Clause 4-38.
	4+55 – 6+45	R	Scatter waste in accordance with Clause 4-38.
	6+92 – 10+50	R	Scatter waste in accordance with Clause 4-38.
E-1040	3+50 – 10+70	R	Scatter waste in accordance with Clause 4-38.

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>
USFS 3100-100	4+30 – 116+30
E-2500	0+00 – 81+95
E-2000	0+00 – 61+05
E-1020	0+00 – 7+40
1+50 Spur	0+00 – 1+50
2+70 Spur	0+00 – 0+75
E-1030	0+00 – 10+50
E-1000	161+15 – 166+75

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>
USFS 3100-100	28+00 – 34+00, 45+80 – 47+30, 57+20 - 58+70, 63+80 – 76+70, 93+60 – 116+30.
E-2500	0+00 – 26+70, 57+20 – 59+70, 73+70 – 75+20
E-1020	0+00 – 7+40
2+70 Spur	0+00 – 0+75
E-1030	0+00 – 10+50
E-1000	161+15 – 166+75

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.

3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

Waste areas for organic debris at the following locations shall be located as listed below.

<u>Road</u>	<u>Stations</u>	<u>Waste Area Location</u>
E-1000	160+90 – 161+15	E-1000 STA 160+90

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.

3-32 END HAULING ORGANIC DEBRIS

On the following road(s), organic debris shall be end hauled to the designated waste areas specified in Clause 3-22 Designated Waste Area For Organic Debris, or to a waste area located by the Contract Administrator.

<u>Road</u>	<u>Stations</u>
E-1000	164+38 – 166+75

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.

4-4 SWITCHBACK STANDARDS

A switchback is defined as a curved segment of road between a beginning and end of the same curve, where the change of traffic travel direction is greater than 90 degrees. The following standards for switchbacks shall be followed:

- Adverse grades on switchbacks shall not exceed 10%.
- Favorable grades through switchbacks shall not exceed 12%.
- Transition grades entering and leaving switchbacks shall not exceed a 5% grade change.
- Transition grades required to meet switchback grade limitations shall be constructed on the tangents preceding and departing from the switchbacks.

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.

4-12 FULL BENCH CONSTRUCTION

On any roads, where side slopes exceed 45 percent, Purchaser shall use full bench construction for the entire subgrade 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.

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>
E-1020	1+85 L, 7+40L
E-1030	2+15R
E-1000	164+38R

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

Purchaser may sidecast waste material on side slopes up to 45% if the waste material is compacted and free of organic debris. On side slopes greater than 45%, all waste material must be end hauled to the designated embankment sites and waste areas identified in Clause 4-37 WASTE AREA LOCATION.

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>Waste Area Location</u>	<u>Waste Generated From Road</u>	<u>Waste Generated at Stations</u>	<u>Estimated Volume</u>
E-1000 STA 119+75	E-1000	57+55 – 58+20	10
		67+70 – 68+60	10
		76+50 - 77+80	20
		84+75 – 89+50	80
		124+90 – 125+90	20
		166+30 – 166+75	10
E-1000 STA 160+90	E-1000	166+30 – 166+75	50
0+75 Spur STA 0+75	E-1020	0+00 – 0+75	400

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.

4-48 BORROW MATERIAL

Borrow material shall contain no more than 5% clay, organic debris, or trash by volume.

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 existing roads 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 and meet the material specifications in Clauses 10-15 through 10-23.

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 $\frac{3}{4}$ 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 $\frac{1}{2}$ " X $\frac{3}{16}$ " angle iron, and fastened securely to the posts with No. 10 galvanized smooth wire, or bolted using minimum $\frac{5}{16}$ " 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>
E-1000	166+30	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>
Mary Clark Pit	T30N, R12W, Sec. 32	Pitrun
Mary Clark Pit	T30N, R12W, Sec. 32	1¼-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 440 cubic yards of 1¼-minus crushed rock.

<u>Source</u>	<u>Location</u>	<u>Quantity (yd³)</u>
Mary Clark Pit	T30N, R12W, Sec. 32	440 yd ³

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.

6-15 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>Location</u>	<u>Requirements</u>
Mary Clark Pit	T30N, R12W, Sec. 32	Clear vegetation and woody debris on 1.5 acres and pile in accordance with the Mary Clark Pit Development Plan and as directed by the Contract Administrator. Organic debris shall be piled free of rock and soil. Strip overburden on 1 acre and pile in accordance with Mary Clark Pit Development Plan and as directed by the Contract Administrator. Required rock source work shall be completed by December 31, 2017.

SUBSECTION ROCK GRADATIONS

6-28 1 ¼-INCH MINUS CRUSHED ROCK

% Passing 1 ¼" square sieve	100%
% Passing 5/8" square sieve	50 - 80%
% Passing U.S. #4 sieve	30 - 50%
% Passing U.S. #40 sieve	3 - 18%
% Passing U.S. #200 sieve	5%

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.

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

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 1¼" minus crushed rock in accordance with the quantities shown on the Rock List.

<u>Road</u>	<u>Stations</u>	<u>Amount</u>
USFS 3100-100	As directed by Contract Administrator	70 yd ³
E-2500	As directed by Contract Administrator	70 yd ³
E-2000	As directed by Contract Administrator	60 yd ³
E-1000	As directed by Contract Administrator	100 yd ³
E-1040	As directed by Contract Administrator	20 yd ³

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

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 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>Comment</u>
E-2500	3+25	DNR Gate
E-2000	0+73	Private Gate
E-2000	60+20	Private Gate
RY-9300	2+45	Private Gate

SUBSECTION GATES AND FENCES

7-75 GATE MAINTENANCE

On the following road(s), gate maintenance as listed is required. All old gate 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>
E-2500	3+25	Gate shall be painted Safety Yellow color using high gloss alkyd enamel paint. Prior to painting, surfaces shall be prepared by cleaning, sanding and removing all loose rust and paint. All surfaces shall be dry at the time of painting. Two coats of paint shall be applied, using the procedures described in the product instructions, with a minimum of eight hours drying time between coats.

SECTION 8 – EROSION CONTROL

8-1 SEDIMENT CONTROL STRUCTURES

On the following road(s), Purchaser shall install Silt Fences as listed below.

<u>Road</u>	<u>Stations</u>	<u>Comments</u>
USFS 3100-100	83+60	Install silt fence in ditch on left.
E-2500	52+40	Install silt fence in ditch on right.
E-1000	46+20	Install silt fence in ditch on right.
E-1000	47+40	Install silt fence in ditch on right.
E-1000	58+05	Install silt fence in ditch on right.
E-1000	77+80	Install silt fence in ditch on right.
E-1000	86+75	Install silt fence in ditch on right.
E-1000	129+50	Install silt fence in ditch on right.
E-1000	130+15	Install silt fence in ditch on right.
E-1000	132+50	Install silt fence in ditch on right.
E-1000	135+90	Install silt fence in ditch on right.
E-1000	140+60	Install silt fence in ditch on right.
E-1000	142+75	Install silt fence in ditch on left.
E-1000	155+60	Install silt fence in ditch on left.
E-1000	160+50	Install silt fence in ditch on left.

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 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 road shape and compact as directed by the Contract Administrator
USFS 3100-100	As directed by Contract Administrator.	Apply post haul rock as per Clause 6-72.
E-2500	As directed by Contract Administrator.	Apply post haul rock as per Clause 6-72.
E-2000	As directed by Contract Administrator.	Apply post haul rock as per Clause 6-72.
E-1000	As directed by Contract Administrator.	Apply post haul rock as per Clause 6-72.
E-1040	As directed by Contract Administrator.	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.

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.

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

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/yd² ±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/yd² 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/yd² ±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.

10-18 CORRUGATED STEEL STRUCTURAL PLATE

Structural plate culverts shall be galvanized steel meeting AASHTO M-167 (ASTM A-761) specifications.

10-19 CORRUGATED ALUMINUM STRUCTURAL PLATE

Structural plate culverts shall be aluminum alloy meeting AASHTO M-219 (ASTM A-746) specifications.

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

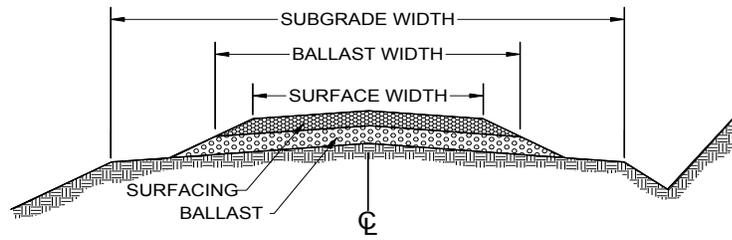
Rubber gaskets must be continuous closed cell, synthetic expanded rubber gaskets conforming to the requirements of ASTM D 1056. Rubber gaskets must be used with all corrugated metal pipe coupling bands.

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 2/3" X 1/2"
24" to 42"	14 (0.079")	2 2/3" X 1/2"
48" to 54"	12	3" X 1"
60" +	10	5" X 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: Mary Clark Pitrun, 2: Mary Clark 1 ¼" minus, 3: Mary Clark Pit Oversize.

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd ³ /sta)	Pitrun SUBTOTAL(yd ³)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd ³ /sta)	Crushed Subtotal(yd ³)	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd ³)
USFS 3100-100															
Lift	7+70	8+85							2	12	6	35	40		
Spot Patch	19+35								2				10		
Spot Patch	46+25								2				10		
Spot Patch	58+10								2				10		
Post-haul	As directed by CA								2				70		
E-2500															
Spot Patch	58+70								2				10		
Spot Patch	74+35								2				10		
Spot Patch	79+40								2				10		
Post-haul	As directed by CA								2				70		
E-2000															
Spot Patch	7+25								2				10		
Spot Patch	28+00								2				10		
Post-haul	As directed by CA								2				60		
E-1000															
Culvert	164+38			1				20						3	1
Culvert	166+30			1				20						3	2
Post-haul	As directed by CA								2				100		
1+00 Spur	0+00	1+00		1	12	18	110	110							
1+10 Spur	0+00	1+10		1	12	18	110	120							
E-1020															
Lift	0+00	7+40		1	12	6	35	260							
Curve widening	0+20	1+40		1	6	6	20	30							
Totals:								560					420		3

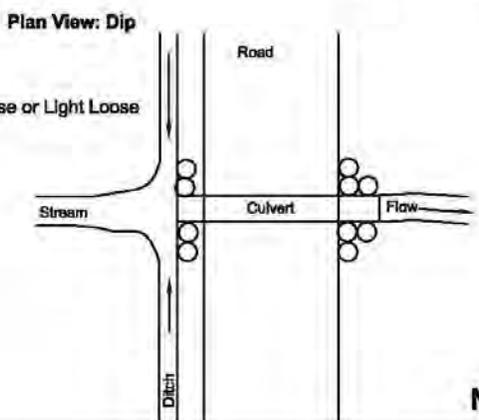
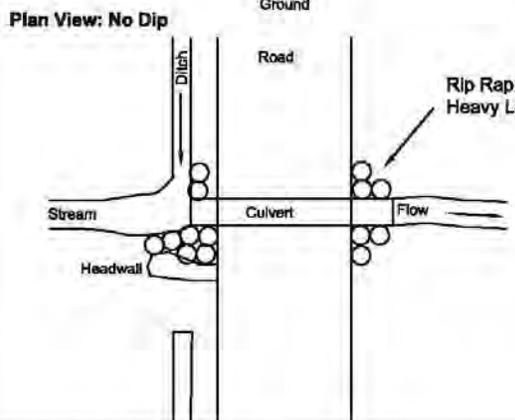
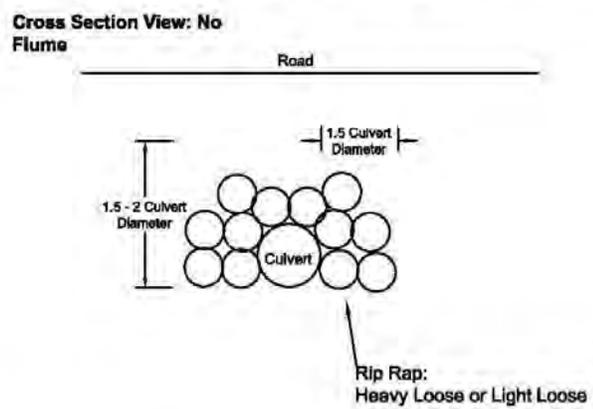
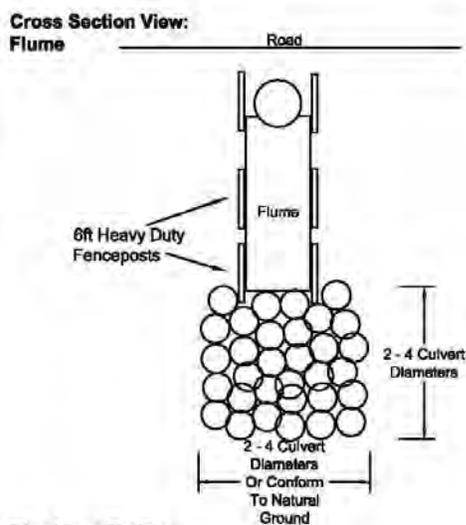
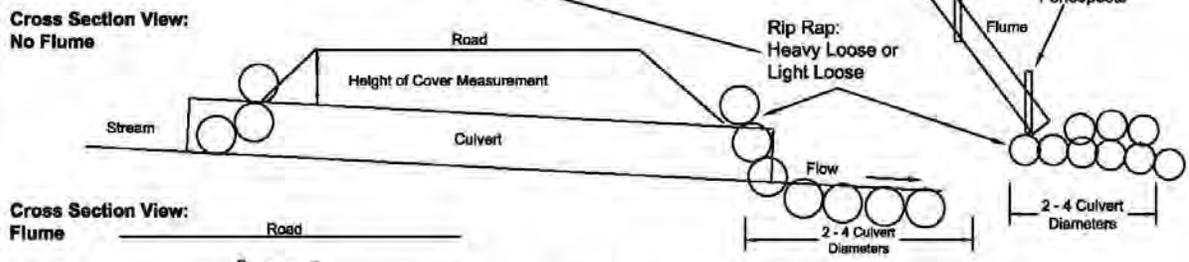
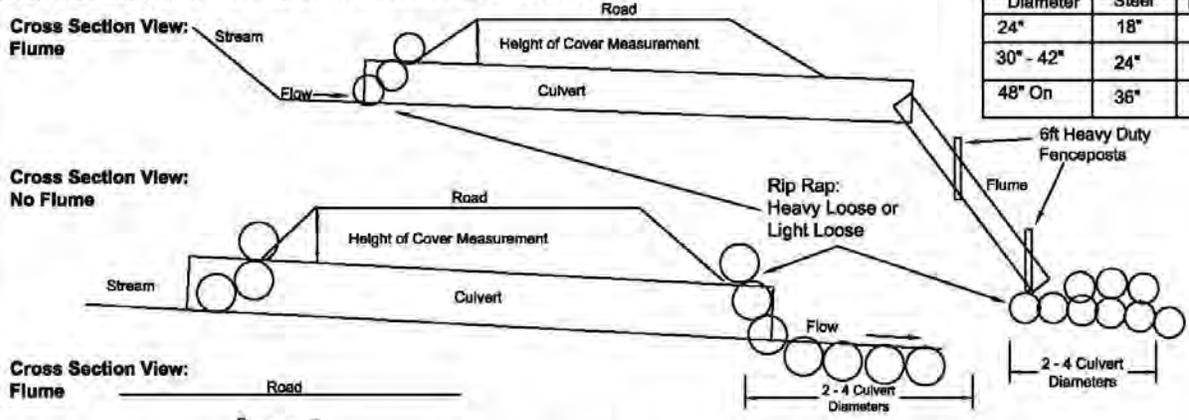
COMPACTION LIST

Road	Stations	Type	Max Depth per Lift (In)	Equipment Type	Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)
Construction	All	Subgrade, Embankment	6	Vibratory Smooth Drum Roller	6,000	3	3
Construction	All	Rock	6				
1+50 Spur	0+00 – 1+50	Existing Pre-haul Surface	6				
2+70 Spur	0+00 – 0+75	Existing Pre-haul Surface	6				
E-1000	161+15 – 166+75	Existing Pre-haul Surface	6				
Pre-haul Maintenance, Post-haul Maintenance	All	Rock Lifts	6				
Pre-haul Maintenance	All	Culvert Backfills	6	Jumping Jack	N/A	3	N/A

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.

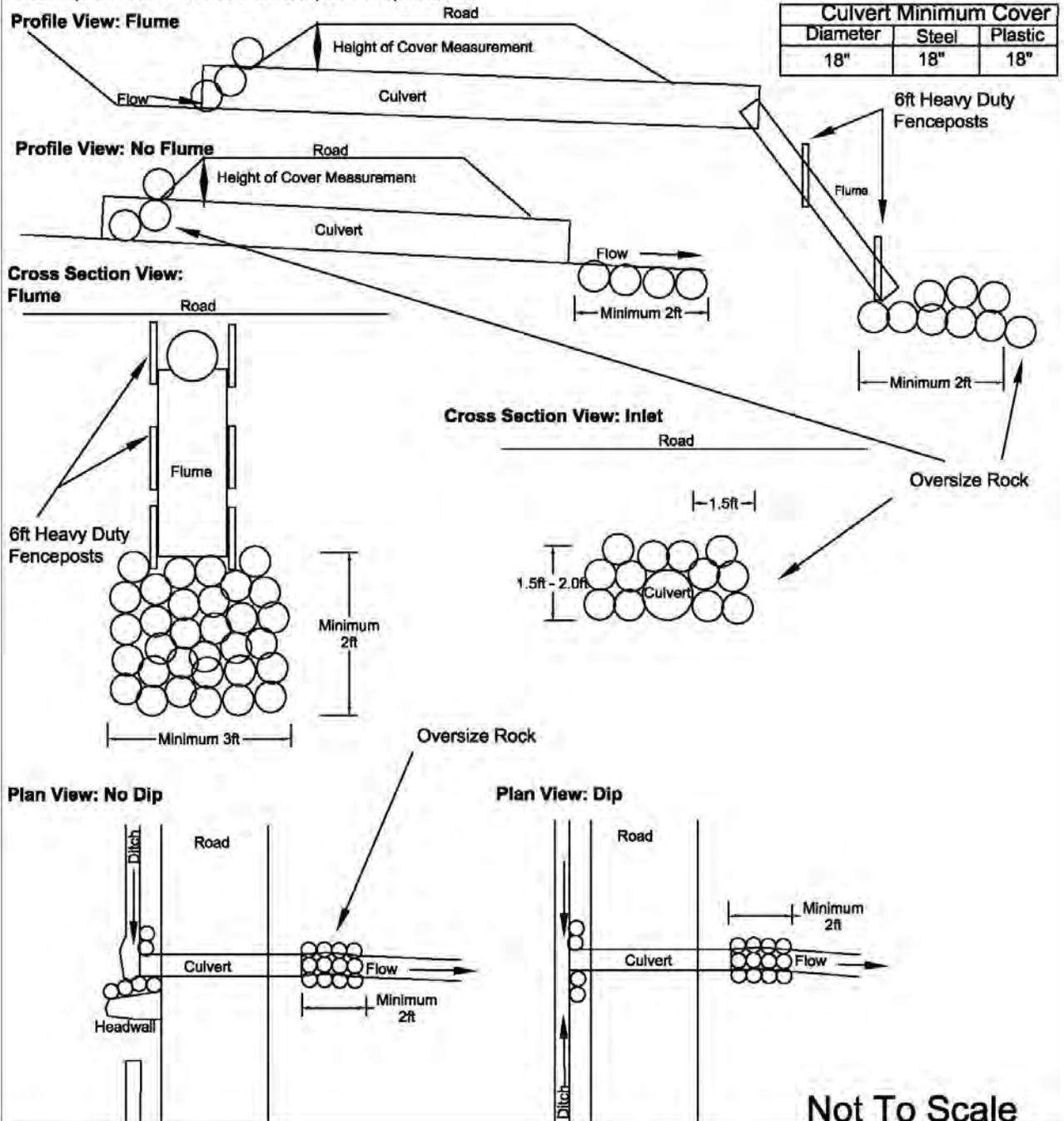
Culvert Minimum Cover		
Diameter	Steel	Plastic
24"	18"	24"
30" - 42"	24"	24"
48" On	36"	36"



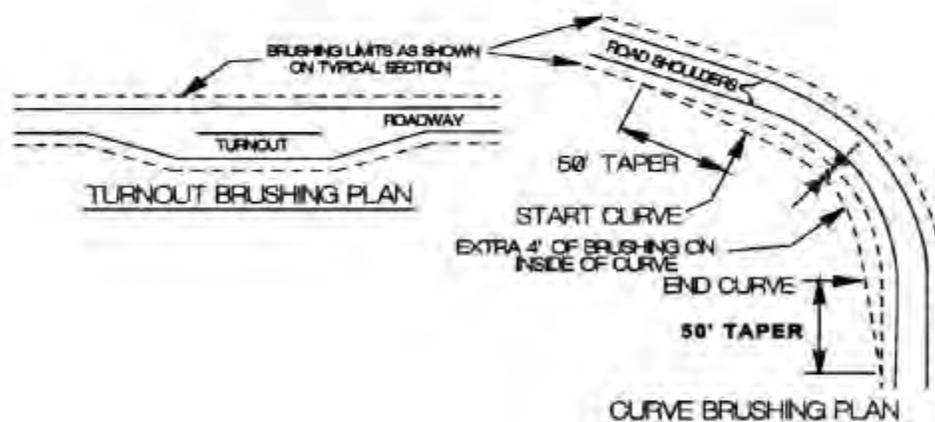
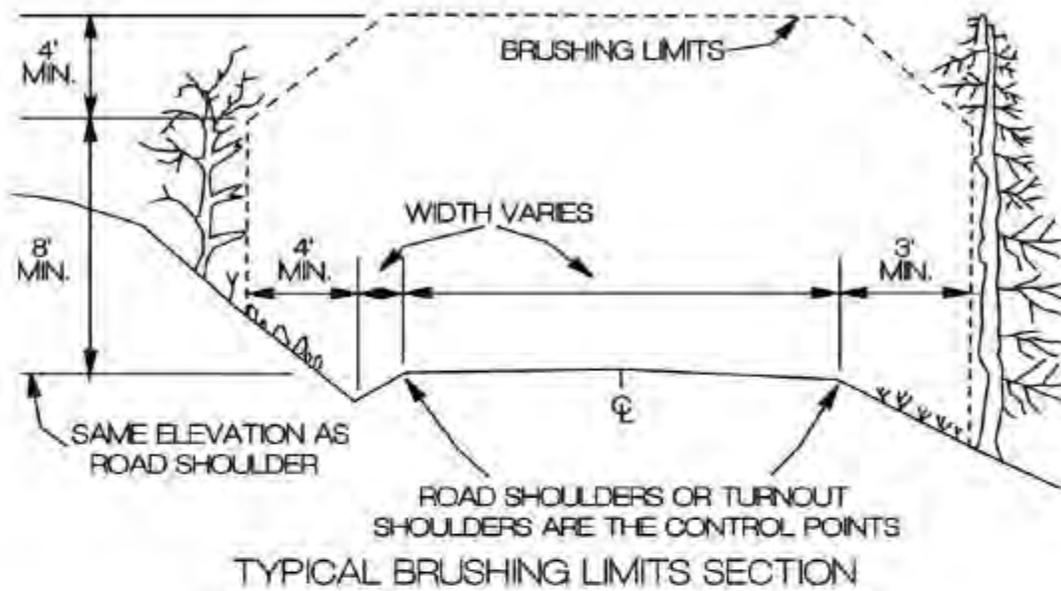
Not To Scale

Typical Cross Drain Culvert Installation Detail Sheet

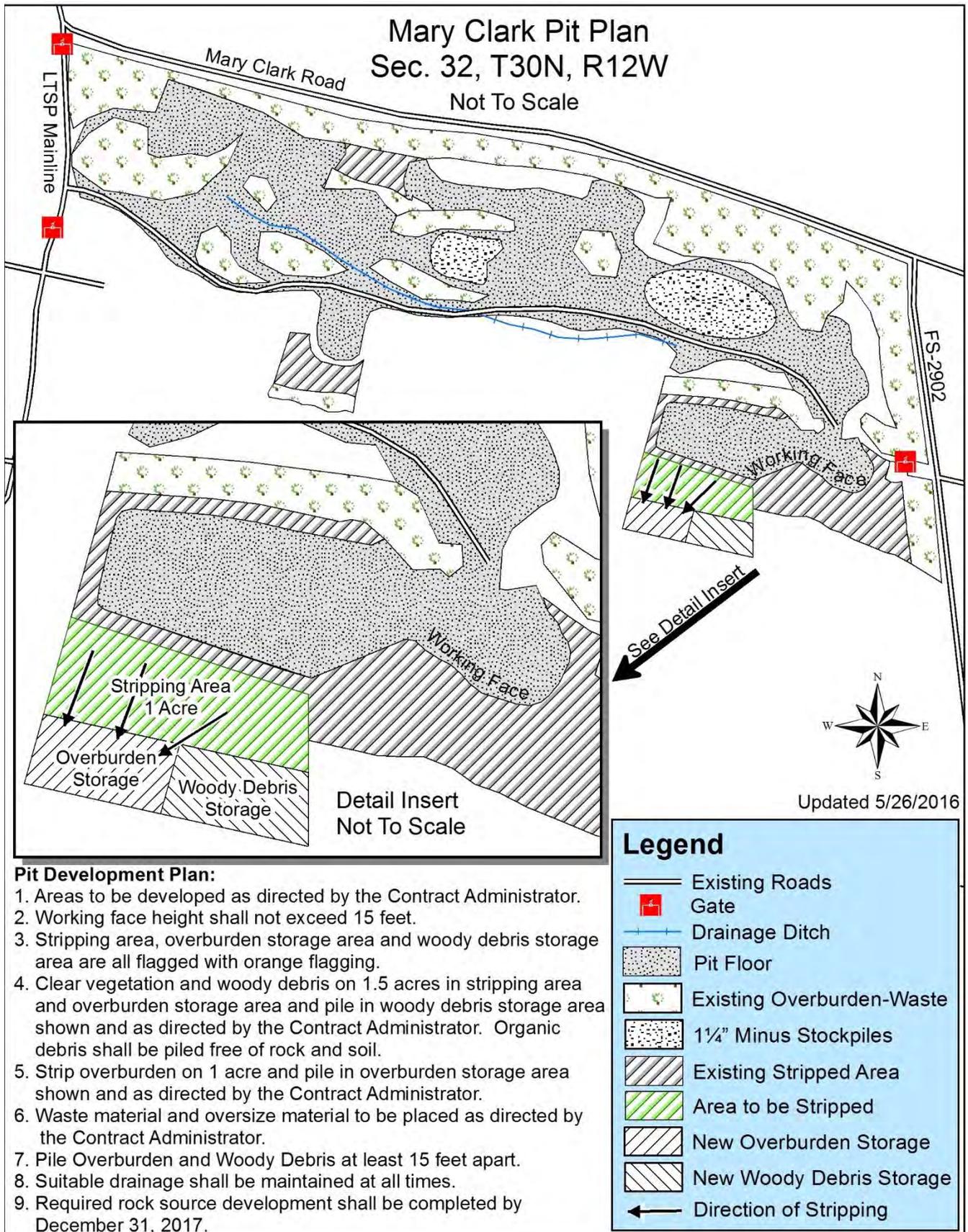
- Culvert lay shall not exceed 10%.
- Flumes longer than 10ft shall be staked on both sides at maximum intervals of 10ft with 6ft heavy duty steel fence posts, and fastened securely to the posts with No. 10 galvanized smooth wire or bolted to the fence posts.
- Oversize shall be placed using a "zero 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. 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..



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.



DEPARTMENT OF NATURAL RESOURCES

SUMMARY - Road Development Costs

SALE NAME: Ellis Crossing VDT VRH

CONTRACT#: 30-093925

REGION: Olymptic

DISTRICT: Coast

LEGAL DESCRIPTION: Sec. 7, 17, 18, T30N, R12W; Sec. 2, 11, 12, T30N, R13W; Sec. 26, 35, T31N, R13W

ROAD NAME: 1+00 Spur 1+10 Spur 0+75 Spur USFS 3100-100 E-2500 E-2000 E-1000 E-1020 1+50 Spur 2+70 Spur E-1030 TOTAL SHEET #2-4

ROAD TYPE:	Construction	Construction	Construction	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	TOTAL
NUMBER OF STATIONS:	1.00	1.10	0.75	116.30	81.95	61.05	166.75	7.40	1.50	0.75	10.50	449.05	447.75
SIDE SLOPE:	25%	25%	20%	0%	0%	0%	0%	0%	0%	0%	0%		
CLEARING AND GRUBBING:	\$127	\$139	\$104	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$370	\$0
ROAD BRUSHING:	\$0	\$0	\$0	\$803	\$553	\$0	\$101	\$133	\$0	\$14	\$189	\$1,792	\$0
EXCAVATION AND FILL:	\$234	\$280	\$170	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$703	\$0
ROAD GRADING:	\$0	\$0	\$0	\$728	\$533	\$297	\$1,084	\$0	\$0	\$0	\$0	\$2,741	\$2,882
DITCH CLEANING/CONSTRUCTION:	\$0	\$0	\$0	\$0	\$0	\$0	\$353	\$271	\$0	\$0	\$340	\$964	\$281
ROCK TOTALS (Cu. Yds./ROCK COSTS):													
Ballast:	1170	120	80	0	0	0	40	310	0	20	440	1,120	50
Cost:	\$1,381	\$1,486	\$1,066	\$0	\$0	\$0	\$552	\$3,959	\$0	\$266	\$6,032		
Surface:	440	0	0	70	30	20	0	0	0	0	0	120	320
Cost:	\$0	\$0	\$0	\$546	\$286	\$199	\$0	\$0	\$0	\$0	\$0		
Oversize:	6	0	0	0	0	0	3	2	0	0	1	6	0
Cost:	\$0	\$0	\$0	\$0	\$0	\$0	\$42	\$26	\$0	\$0	\$14	\$82	\$0
CULVERTS AND FLOWERS:	\$0	\$0	\$0	\$0	\$0	\$0	\$1,680	\$1,232	\$0	\$0	\$572	\$3,484	\$0
STRUCTURES:	\$0.00	\$0.00	\$0.00	\$0.00	\$725.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$725	\$0
MISC. EXPENSES:	\$5.85	\$6.44	\$1,824.39	\$13.25	\$13.25	\$0.00	\$2,633.01	\$262.00	\$53.78	\$26.89	\$335.00	\$5,174	\$0
OVERHEAD:	\$176.71	\$191.09	\$316.38	\$188.10	\$189.88	\$53.59	\$580.06	\$329.47	\$4.84	\$27.61	\$673.45	\$2,931	\$773
TOTAL COSTS:	\$1,944	\$2,102	\$3,480	\$2,278	\$2,300	\$649	\$7,025	\$6,412	\$59	\$334	\$8,156	\$34,740	\$7,995
COST PER STATION:	\$1,944	\$1,911	\$4,640	\$20	\$28	\$11	\$42	\$867	\$39	\$446	\$777	\$77	\$17.86
MOBILIZATION:			\$7,850										
ROAD DEACTIVATION AND ABANDONMENT COSTS:		\$5,600	\$0										
PH Work													

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

TOTAL (All Roads) =	\$56,184
SALE VOLUME MBF =	1,382
TOTAL COST PER MBF =	\$40.65
TOTAL COST PER STATION =	\$122.17
Compiled by: Craig Magnuson	Date: 05/04/2016
Ellis_Crossing_VDT_VRH_Road_Costs.xlsx	

SUMMARY - Road Development Costs

SALE NAME: Ellis Crossing VDT VRH CONTRACT#: 30-093925 REGION: Olympic DISTRICT: Coast
 LEGAL DESCRIPTION: Sec. 7, 17, 18, T30N, R12W; Sec. 2, 11, 12, T30N, R13W; Sec. 26, 35, T31N, R13W

ROAD NAME:	E-1040	SFS 3100-1	E-2500	E-2000	E-1000	E-1040	0	0	0
ROAD TYPE:	Prehaul	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul			
NUMBER OF STATIONS:	10.85	116.30	81.95	61.05	166.75	10.85	0.00	0.00	0.00
SIDESLOPE:	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0%	0%	0%
CLEARING AND GRUBBING:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
ROAD BRUSHING:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
EXCAVATION AND FILL:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
ROAD GRADING:	\$71	\$728	\$533	\$397	\$1,084	\$71	\$0	\$0	\$0
DITCH CLEANING/CONSTRUCTION:	\$281	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
ROCK TOTALS (Cu. Yds.)/ROCK COSTS:									
Ballast:	50	0	0	0	0	0	0	0	0
Cost:	\$706	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Surface:	0	70	70	60	100	20	0	0	0
Cost:	\$0	\$575	\$648	\$604	\$1,249	\$276	0	0	0
Oversize:	0	0	0	0	0	0	0	0	0
Cost:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
CULVERTS AND FLUMES:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
STRUCTURES:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
MISC. EXPENSES:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
OVERHEAD:	\$95	\$143	\$130	\$110	\$257	\$38	\$0	\$0	\$0
TOTAL COSTS:	\$1,152	\$1,447	\$1,311	\$1,111	\$2,589	\$385	\$0	\$0	\$0
COST PER STATION:	\$106	\$12	\$16	\$18	\$16	\$35	\$0.00	\$0.00	\$0.00

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.

