

Washington DNR Timber Sales Program

Updated information is being provided for Lower Swan #30-091587 timber sale documents as follows:

Documents amended:

Brief Description	DATE	Initials
Road Plan (<i>Clause 0-2, 9-22, Rock List, Culvert & Drainage List pg. 2</i>), Road View Map (<i>pg. 5</i>), Forest Excise Tax Form, Cost Estimate, Timber Sale Map (<i>pg. 1</i>), Logging Plan Map (<i>pg. 1</i>), and Notice of Sale. <ul style="list-style-type: none">• The KC-9700 Rd no longer needs Decommissioned from station 0+00 to 10+60.• Rock for the KC-9700 Rd has changed to required.• An 18" x 30' culvert was added at station 6+80 on the KC-9700 Rd.	2/9/2016	ckf

TIMBER NOTICE OF SALE

SALE NAME: LOWER SWAN

AGREEMENT NO: 30-091857

AUCTION: March 29, 2016 starting at 10:00 a.m., **COUNTY:** Grays Harbor, Thurston
South Puget Sound Region Office, Enumclaw, WA

SALE LOCATION: Sale located approximately 15 miles southwest of Olympia

PRODUCTS SOLD AND SALE AREA: All timber, except leave trees bounded out by yellow Leave Tree Area tags and down timber existing more than 5 years from the day of sale, bounded by the following: white timber sale boundary tags, B-4500 road and BPA ROW in Unit #1; white timber sale boundary tags, timber type change, B-4500, B-4520, and the B-4550 road in Unit #2; white timber sale boundary tags, timber type change, and the B-4520 road in Unit #3, on part(s) of Sections 28, 29, 32 and 33 all in Township 18 North, Range 4 West, W.M., containing 132 acres, more or less.

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

ESTIMATED SALE VOLUMES AND QUALITY:

Species	Avg DBH	Ring Count	Total MBF	MBF by Grade								
				1P	2P	3P	SM	1S	2S	3S	4S	UT
Douglas fir	18.3	7	3,243						1,977	909	357	
Hemlock	14.9	7	1,190						733	277	162	18
Red cedar	22.9		113							102	11	
Red alder	15.4		88						30	14	39	5
Spruce	40		14						13			1
Sale Total			4,648									

MINIMUM BID: \$1,241,000.00 **BID METHOD:** Sealed Bids

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

EXPIRATION DATE: October 31, 2017 **ALLOCATION:** Export Restricted

BID DEPOSIT: \$124,100.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Harvesting activities are estimated to be 76% ground-based and 24% cable. Forest products sold under this contract shall be harvested and removed using cable and tracked ground based equipment, with tracked ground based equipment limited to sustained slopes 45% and less. Self-leveling shovels are restricted to sustained slopes of 55% or less. Use of tracked skidders shall be allowed for pole yarding only, unless authority to use other equipment is granted in writing by the State. Yarding may be restricted during wet weather if rutting becomes excessive, per clause H-017.

Cutting and yarding will not be permitted from November 1st to April 30th, nor on weekends or state recognized holidays, unless authority to do so is granted in writing by the Contract Administrator. If permission is granted to operate from November 1st to April 30th, the purchaser shall be required to operate under a Winter Operating Plan to include further protection of water, soil, roads and other forest assets at the Purchaser's

TIMBER NOTICE OF SALE

expense. Preventive measures required in the Winter Operating Plan must be put in place prior to commencing any winter operations.

ROADS:

31.09 stations of optional construction. 6.80 stations of optional reconstruction. 499.80 stations of required pre-haul maintenance. 31.09 stations of required decommissioning if constructed. Purchaser maintenance on the B-4500, B-4520, B-4521, B-4550, B-4570, KC-9700 and KC-9710 roads. Designated maintenance on all other roads used.

Rock for the proposal may be obtained at no cost to the Purchaser from the State owned Too Thin Quarry, located in Section 4, Township 17 North, Range 04 West, W.M. or from any commercial source at the Purchaser's expense, as approved in writing by the Contract Administrator.

Road construction, rock haul and timber haul will not be permitted from November 1st to April 30th, nor on weekends or state recognized holidays, unless authority to do so is granted in writing by the Contract Administrator. If permission is granted to operate from November 1st to April 30th, the purchaser shall be required to operate under a Winter Operating Plan to include further protection of water, soil, roads and other forest assets at the Purchaser's expense. Preventive measures required in the Winter Operating Plan must be put in place prior to commencing any winter operations.

ACREAGE DETERMINATION

CRUISE METHOD:

Unit acreage was determined by traversing boundaries by GPS. Traverse GPS data files and cruise maps are available upon request by emailing Audrey Mainwaring at audrey.mainwaring@dnr.wa.gov or by calling (360) 802-7001. See cruise narrative for cruise method.

FEES:

\$82,502.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

SPECIAL REMARKS: This sale contains some high quality Douglas fir.

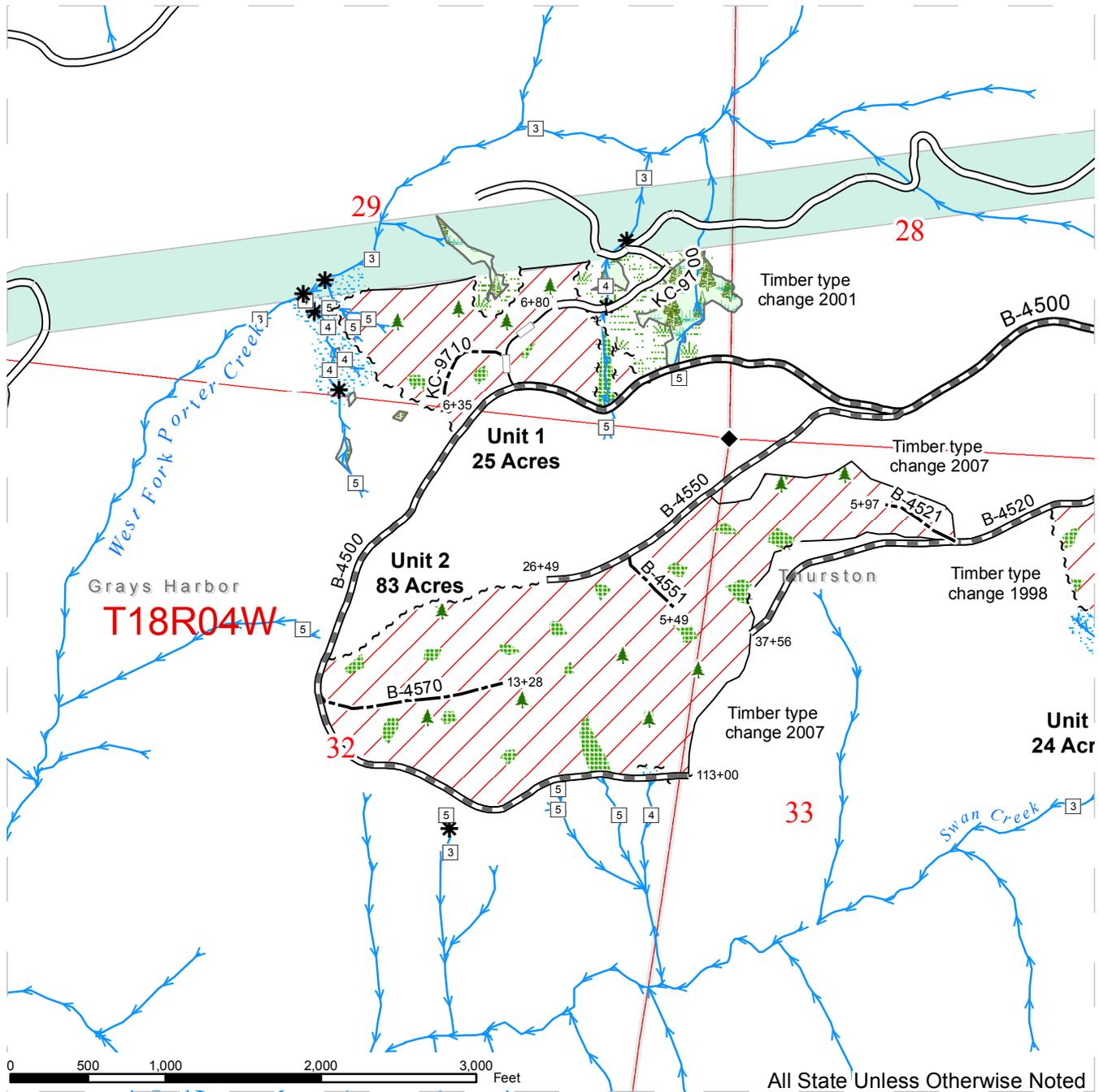
Any timber harvest within two tree lengths of the BPA power line Right-of-Way will require at least one week advanced notice to the local BPA Operation and Maintenance District. No activity may occur within the BPA right of way.

The northwestern portion of Unit 1 can be hot decked.

TIMBER SALE MAP

SALE NAME: Lower Swan
AGREEMENT#: 30-091587
TOWNSHIP(S): T18NR04W
TRUST(S): State Forest Transfer (01), State Forest Purchase (02), Forest Board Repayment (42)

REGION: South Puget Sound
COUNTY(S): Thurston & Grays Harbor
ELEVATION RGE: 911' - 1463'



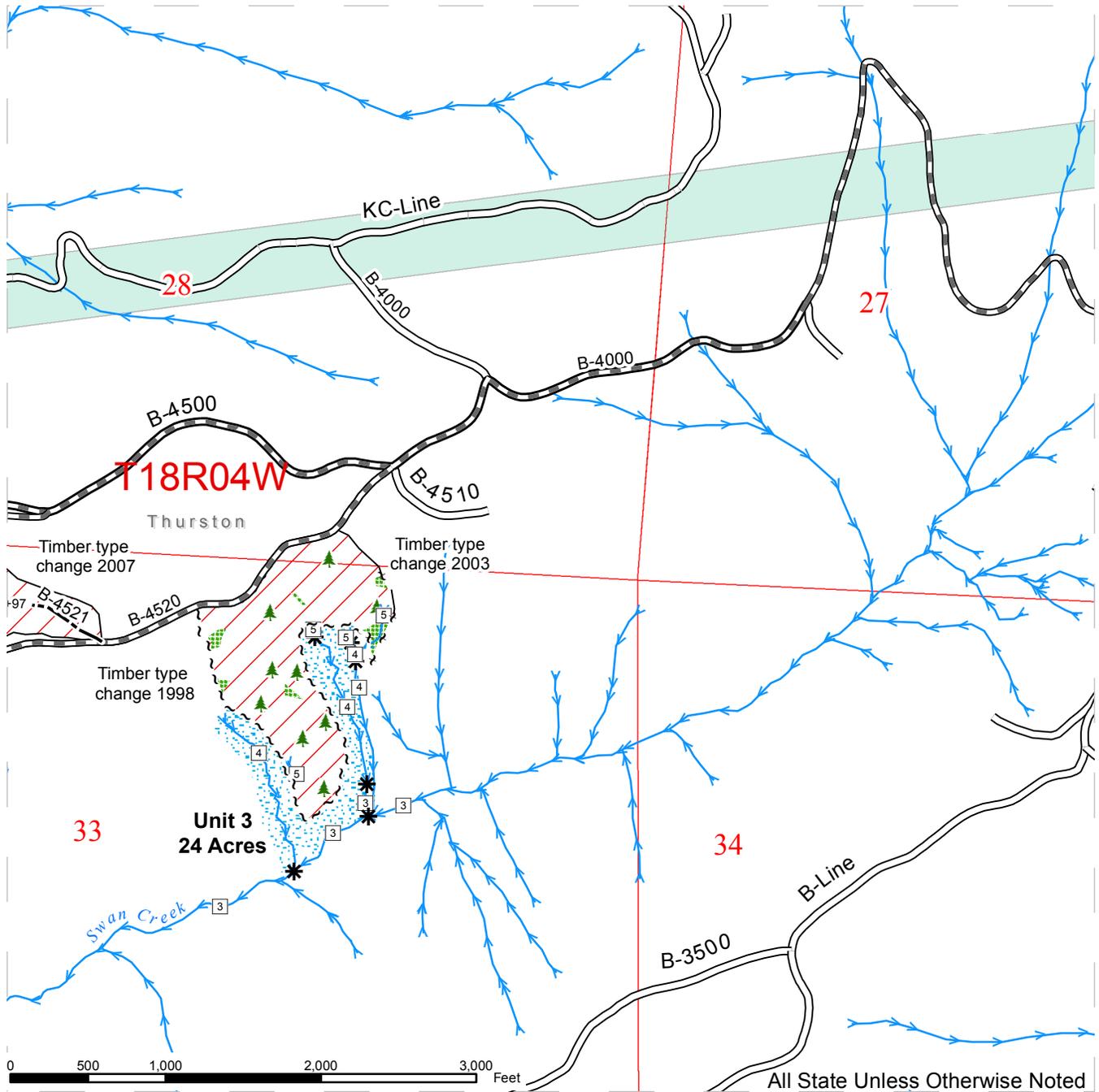
	Timber Sale Area		Existing Road		Streams
	Leave Tree Area - Marked w/ Yellow "Leave Tree Area" Tags		Required Pre-Haul Maintenance		Stream Type
	Riparian Mgt Zone		Optional Reconstruction		Stream Type Break
	Wetland Mgt Zone		Optional Construction		Existing Rock Pit
	Forested Wetlands		White "Timber Sale Boundary" Tags		Leave Trees
	Power Line ROW		Timber Type Change		Monumented Corners
			Yellow "Leave Tree Area" Tags		County Boundaries
					Public Land Survey Sections



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REGION: South Puget Sound
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All State Unless Otherwise Noted

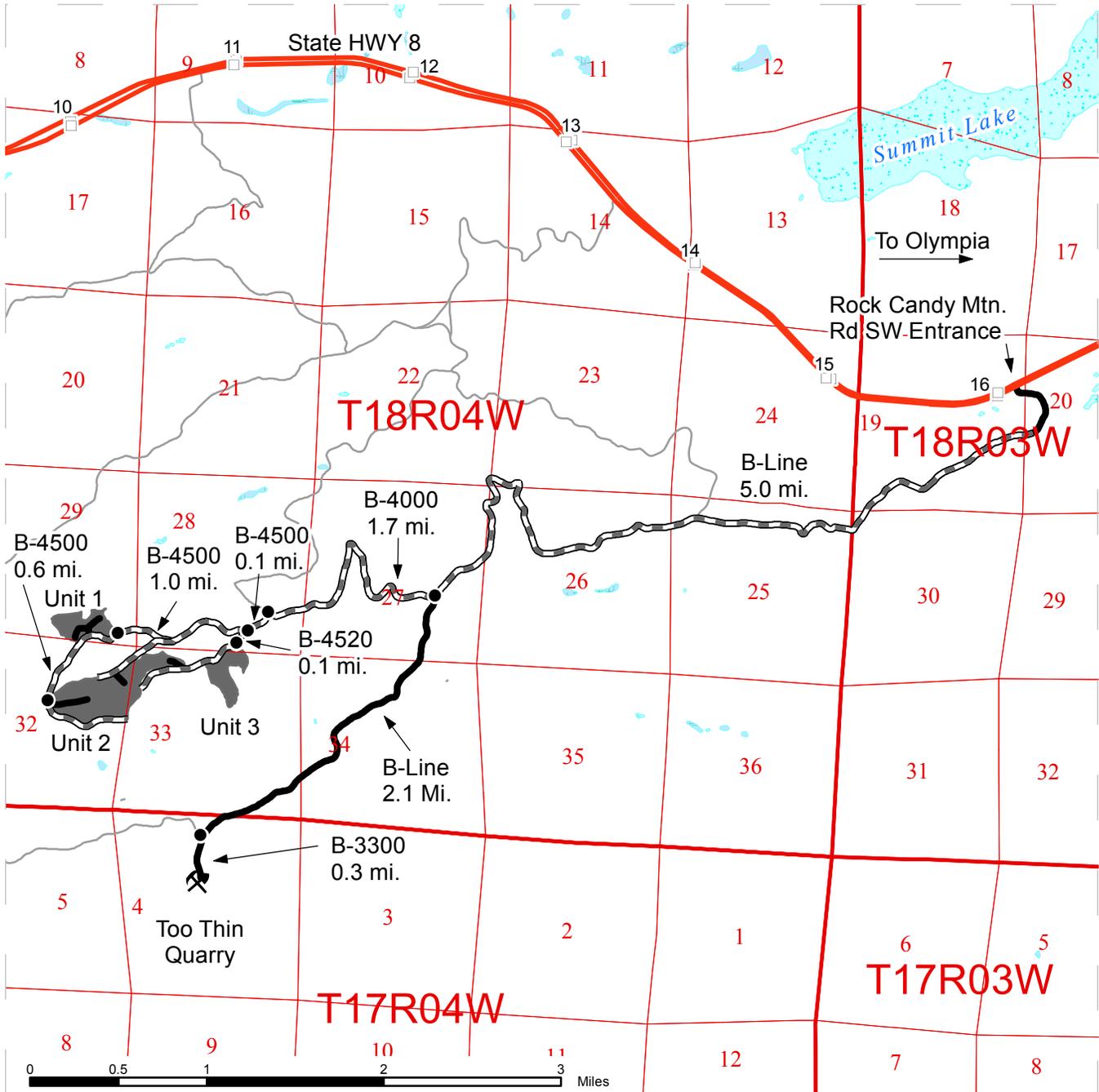
Timber Sale Area	Required Pre-Haul Maintenance	Streams
Leave Tree Area - Marked w/ Yellow "Leave Tree Area" Tags	Optional Reconstruction	Stream Type
Riparian Mgt Zone	Optional Construction	Stream Type Break
Wetland Mgt Zone	Required Decommissioning	Existing Rock Pit
Forested Wetlands	Existing Road	Leave Trees
Power Line ROW	White "Timber Sale Boundary" Tags	Monumented Corners
	Timber Type Change	County Boundaries
	Yellow "Leave Tree Area" Tags	Public Land Survey Sections



DRIVING MAP

SALE NAME: Lower Swan
AGREEMENT#: 30-091857
TOWNSHIP(S): T17NR04W & T18NR04W
TRUST(S): State Forest Transfer(1), State Forest Purchase(2), Forest Board Repayment(42)

REGION: South Puget Sound Region
COUNTY(S): GRAYS HARBOR, THURSTON
ELEVATION RGE: 911-1463



- Timber Sale Unit
- Highways
- Haul Route
- Required Pre-Haul Maintenance
- Other Route
- Distance Indicator
- Existing Rock Pit
- Milepost Markers

DRIVING DIRECTIONS:

From State Route 8 (milepost 16.1), turn south onto the B-Line (Rock Candy Mountain RD SW) and follow for 5.0 miles. Turn right (north) onto the B-4000 and follow for 1.7 miles.

Unit 1: Turn left (west) onto the B-4500 for 1.1 miles.

Unit 2: From Unit 1, continue along the B-4500 for another 0.6 miles.

Unit 3: From the B-4000 and B-4500 junction, turn left (west) onto the B-4500 for 0.1 miles. Turn west on the B-4520 and follow for 0.1 miles.

Too Thin Quarry: Continue on B-Line from Rock Candy Mountain entrance for 7.1 miles and turn left (south) onto the B-3300.



**STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES**

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

Export Restricted Lump Sum AGREEMENT NO. 30-091857

SALE NAME: LOWER SWAN

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

Section G: General Terms

G-001 Definitions

The following definitions apply throughout this contract;

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

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

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

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

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

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

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

G-011 Right to Remove Forest Products and Contract Area

Purchaser was the successful bidder on March 29, 2016 and the sale was confirmed on _____. The State, as owner, agrees to sell to Purchaser, and Purchaser agrees to purchase as much of the following forest products as can be cut and removed during the term of this contract: All timber, except leave trees bounded out by yellow Leave Tree Area tags and down timber existing more than 5 years from the day of sale, bounded by the following: white timber sale boundary tags, B-4500 road and BPA ROW in Unit #1; white timber sale boundary tags, timber type change, B-4500, B-4520, and the B-4550 road in Unit #2; white timber sale boundary tags, timber type change, and the B-4520 road in Unit #3., located on approximately 132 acres on part(s) of Sections 28, 29, 32, and 33 all in Township 18 North, Range 4 West W.M. in Grays Harbor, and Thurston County(s) as designated on the sale area and as shown on the attached timber sale map.

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

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

G-020 Inspection By Purchaser

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

G-031 Contract Term

Purchaser shall complete all work required by this contract prior to October 31, 2017.

G-040 Contract Term Adjustment - No Payment

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

- a. Road and bridge failures which deny access.
- b. Access road closures imposed by road owner.
- c. Excessive suspensions as provided in clause G-220.
- d. Regulatory actions not arising from Purchaser's failure to comply with this contract which will prevent timber harvest for a period less than 6 months.

G-051 Contract Term Extension - Payment

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

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

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

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

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

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

- e. Payment of \$873.00 per acre per annum for the acres on which an operating release has not been issued within the harvest area.
- f. In no event will the extension charge be less than \$200.00.
- g. Extension payments are non-refundable.

G-053 Surveys - Sensitive, Threatened, Endangered Species

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

G-060 Exclusion of Warranties

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

- a. The MERCHANTABILITY of the forest products. The use of the term "merchantable" in any document is not intended to vary the foregoing.
- b. The CONDITION of the forest products. The forest products will be conveyed "AS IS."
- c. The ACREAGE contained within any sale area. Any acreage descriptions appearing in the timber notice of sale, timber sale contract, or other documents are estimates only, provided solely for administrative and identification purposes.
- d. The VOLUME, QUALITY, OR GRADE of the forest products. The State neither warrants nor limits the amount of timber to be harvested. The descriptions of the forest products to be conveyed are estimates only, made solely for administrative and identification purposes.
- e. The CORRECTNESS OF ANY SOIL OR SURFACE CONDITIONS, PRE-SALE CONSTRUCTION APPRAISALS, INVESTIGATIONS, AND ALL OTHER PRE-BID DOCUMENTS PREPARED BY OR FOR THE STATE. These documents have been prepared for the State's appraisal purposes only.
- f. THAT THE SALE AREA IS FREE FROM THREATENED OR ENDANGERED SPECIES or their habitat. The State is not responsible for any interference with forestry operations that result from the presence of any

threatened or endangered species, or the presence of their habitat, within the sale area.

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

G-062 Habitat Conservation Plan

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

By signing this contract, Purchaser agrees to comply with the terms and conditions of the ITP, and the HCP, which shall become terms of this contract. The State agrees to authorize the lawful activities of the Purchaser carried out pursuant to this contract, PROVIDED the Purchaser remains in compliance with the terms and conditions of both the HCP and ITP. The requirements set forth in this contract are intended to comply with the terms and conditions of the HCP and ITP. Accordingly, non-compliance with the terms and conditions of the HCP and ITP will render the authorization provided in this paragraph void, be deemed a breach of the contract and may subject Purchaser to liability for violation of the Endangered Species Act.

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

G-063 Incidental Take Permit Notification Requirements

- a. Purchaser shall immediately notify the Contract Administrator of new locations of permit species covered by the Incidental Take Permits (ITP) that are discovered within the area covered by the State's Habitat Conservation Plan (HCP), including, but not limited to: locations of occupied murrelet habitat; spotted owl nest sites; wolves; grizzly bears; nests, communal roosts, or feeding concentrations of bald eagles; peregrine falcon nests; Columbian white-tailed deer; Aleutian Canada geese; Oregon silverspot butterflies; and additional stream reaches found to contain bull trout. Purchaser is required to

notify the Contract Administrator upon discovery of any fish species found in streams or bodies of water classified as non-fish bearing. In all circumstances, notification must occur within a 24 hour time period.

- b. Upon locating any live, dead, injured, or sick specimens of any permit species covered by the ITP, Purchaser shall immediately notify the Contract Administrator. Purchaser shall notify the Contract Administrator if there is any doubt as to the identification of a discovered permit species. Purchaser may be required to take certain actions to help the Contract Administrator safeguard the well-being of any live, injured or sick specimens of any permit species discovered, until the proper disposition of such specimens can be determined by the Contract Administrator. Any such requirements will be explained to Purchaser by the Contract Administrator during the Pre-Work Conference. In all circumstances, notification must occur within a 24 hour time period.
- c. Purchaser shall refer to a specific ITP number, PRT-812521 or ITP 1168 (copies which are located in the region office) in all correspondence and reports concerning permit activities.
- d. Provisions and requirements of the ITP shall be clearly presented and explained to Purchaser by Contract Administrator during the Pre-Work Conference as per contract clause G-330. All applicable provisions of the ITP and this schedule must be presented and clearly explained by Purchaser to all authorized officers, employees, contractors, or agents of Purchaser conducting authorized activities in the timber sale area. Any questions Purchaser may have about the ITP should be directed to the Contract Administrator.

G-064 Permits

Purchaser is responsible for obtaining any permits not already obtained by the State that relate to Purchaser's operation. Forest Practice Application / Hydraulic Project Approval permits obtained by the State shall be transferred to Purchaser. Purchaser is responsible for all permits, amendments and renewals.

G-065 Regulatory Disclaimer

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

G-066 Governmental Regulatory Actions

a. Risk

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

Purchaser shall remain responsible for payment of the total contract price notwithstanding the impracticability or frustration.

b. Sale Area

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

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

c. Adjustment of Price

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

G-070 Limitation on Damage

In the event of a breach of any provision of this contract by the State, the exclusive remedy available to Purchaser will be limited to a return of the initial deposit, unapplied payments, and credit for unamortized improvements made by Purchaser. The State shall not be liable for any damages, whether direct, incidental or consequential.

G-080 Scope of State Advice

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

G-091 Sale Area Adjustment

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

G-101 Forest Products Not Designated

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

The pricing schedule has not been set for the sale.

G-106 Adding Naturally Damaged Forest Products

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

G-111 Title and Risk of Loss

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

G-116 Sustainable Forestry Initiative® (SFI) Certification

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

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

G-120 Responsibility for Work

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

G-121 Exceptions

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

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

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

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

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

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

Nothing contained in clauses G-120 and G-121 shall be construed as relieving Purchaser of responsibility for, or damage resulting from, Purchaser's operations or negligence, nor shall Purchaser be relieved from full responsibility for making good any defective work or materials. Authorization to haul does not warrant that Purchaser built roads are free from material defect and the State may require additional work, at Purchaser's 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 Enumclaw, 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; the B-Line, B-3300, B-4000, B-4500, B-4570, B-4520, B-4521, B-4550, B-4551, KC-9700 and KC-9710 roads. 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 B-Line, B-4000 and B-4500 roads, unless authority is granted in writing by the Contract Administrator.

G-380 Road Easement and Road Use Permit Requirements

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

Easement No.55-000215, entered into and between the State of Washington Department of Natural Resources and A.L. Parks and Lois Parks, dated October 30, 1967.

G-430 Open Fires

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

G-450 Encumbrances

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

To be determined approximately once month prior to the day of sale.

Section P: Payments and Securities

P-011 Initial Deposit

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

P-020 Payment for Forest Products

Purchaser agrees to pay the total, lump sum contract price of \$124,334.00. The total contract price consists of a \$0.00 contract bid price plus \$124,334.00 in fees. Fees collected shall be retained by the state unless the contract is adjusted via the G-066 clause. Purchaser shall be liable for the entire purchase price, and will not be entitled to any refunds or offsets unless expressly stated in this contract.

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

P-045 Guarantee of Payment

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

P-050 Billing Procedure

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

P-080 Payment Account Refund

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

P-090 Performance Security

Purchaser agrees to furnish, within 30 days of the confirmation date, security acceptable to the State in the amount of \$100,000.00. The Security provided shall

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

P-100 Performance Security Reduction

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

Section H: Harvesting Operations

H-013 Reserve Tree Damage Definition

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

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

- a. A reserve tree has one or more scars on its trunk exposing the cambium layer, which in total exceeds 100 square inches.
- b. A reserve tree top is broken or the live crown ratio is reduced below 30 percent.
- c. A reserve tree has more than 1/3 of the circumference of its root system injured such that the cambium layer is exposed.

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

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

H-017 Preventing Excessive Soil Disturbance

Operations may be suspended when soil rutting exceeds 12 inches as measured from the natural ground line. To reduce soil damage, the Contract Administrator may require water bars to be constructed, grass seed to be placed on exposed soils, or other mitigation measures. Suspended operations shall not resume unless approval to do so has been given, in writing, by the Contract Administrator.

H-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 Units 1, 2 and 3. The plan shall address the all activities within 200 feet of utility right of way, which are part(s) of this contract. The harvest plan shall be approved by the Contract Administrator prior to beginning the harvest operation. Purchaser shall not deviate from the harvest plan without prior written approval by the Contract Administrator.

H-051 Branding and Painting

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

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

H-080 Snags Not to be Felled

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

H-120 Harvesting Equipment

Forest products sold under this contract shall be harvested and removed using cable and ground based equipment. Ground based equipment shall be limited to tracked ground based equipment on sustained slopes of 45% and less. Self-leveling shovels are restricted to sustained slopes of 55% or less. Use of tracked skidders shall be allowed for pole yarding only, unless authority to use other equipment is granted in writing by the State.

H-125 Log Suspension Requirements

Lead-end suspension is required for all yarding activities.

H-126 Tailholds on State Land

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

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

- a. Timber haul will not be permitted from November 1 to April 30, nor on weekends or State recognized holidays, unless authority to do so is granted in writing by the Contract Administrator. If permission is granted to operate from November 1 to April 30, the Purchaser shall comply with a "Winter Operating Plan" to include further protection of water, soil, roads, and other forest assets at the Purchaser's expense. All preventative measures shall be in place prior to commencing any winter operations.
- b. Equipment limitation zones are required within 30 feet of Type 5 streams.
- c. Any and all operations associated with this sale may be temporarily suspended when, in the opinion of the Contract Administrator, there is the potential for delivery to typed water.
- d. No equipment shall operate, or trees felled or damaged, outside the timber sale boundary.
- e. The Purchaser shall notify all employees and contractors working on this sale that any danger tree marked or unmarked may be felled. Any marked danger tree will be replaced with a suitable tree of similar size and species as approved by the Contract Administrator.
- f. Within shovel logging areas, the shovel operator shall break up concentrations of logging debris greater than 10.5 feet by 10.5 feet to allow exposure of natural forest soils to ensure proper reforestation

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

H-141 Additional Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

- a. Purchaser shall leave 2 down logs per acre. A log is defined as having a minimum diameter of 12 inches on the small end of the log and a minimum length of 20 feet or at least 100 board feet.
- b. Any timber harvest within two tree lengths of the BPA power line Right-of-Way will require at least one week advanced notice to the local BPA Operation and

Maintenance District. The contact person is Jason Hunt, 360-570-4307 (office) or 253-4112 (cell).

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

H-190 Completion of Settings

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

H-220 Protection of Residual or Adjacent Trees

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

H-230 Tops and Limbs Outside the Sale Boundary

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

H-250 Additional Falling Requirements

Within the harvest area, all live stems over 2" in diameter, except for leave trees, shall be felled. Trees shall be severed at a stump height not to exceed 12 inches and cut completely free of the stump. Areas of young or immature timber may be excluded from this requirement by the Contract Administrator.

Section C: Construction and Maintenance

C-040 Road Plan

Road construction and associated work provisions of the Road Plan for this sale, dated 8/12/2015 are hereby made a part of this contract.

C-050 Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on the B-4500, B-4570, B-4520, B-4521, B-4550, B-4551, KC-9700 and KC-9710 roads. All work shall be completed to the specifications detailed in the Road Plan.

C-060 Designated Road Maintainer

If required by the State, Purchaser shall perform maintenance and replacement work as directed by the Contract Administrator on all other roads used not covered in Clause 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-130 Dust Abatement

Purchaser shall abate dust on the B-Line Road from station 22+97 to 55+97, which is located on private property.

C-140 Water Bars

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

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

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

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

S-010 Fire Hazardous Conditions

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

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

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

S-030 Landing Debris Clean Up

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

S-050 Cessation of Operations for Low Humidity

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

S-060 Pump Truck or Pump Trailer

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

S-100 Stream Cleanout

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

S-110 Resource Protection

No yarding equipment may operate within the Riparian or Wetland Management Zones unless authority is granted in writing by the Contract Administrator.

S-130 Hazardous Materials

a. Hazardous Materials and Waste - Regulatory Compliance

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

b. Hazardous Materials Spill Prevention

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

c. Hazardous Materials Spill Containment, Control and Cleanup

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

d. Hazardous Material Release Reporting

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

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

DNR Contract Administrator

ECY - Northwest Region:

1-425-649-7000

(Island, King, Kitsap, San Juan, Skagit, Snohomish, and Whatcom counties)

ECY - Southwest Region:

1-360-407-6300

(Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, and Wahkiakum counties)

ECY - Central Region:

1-509-575-2490

(Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, and Yakima counties)

ECY - Eastern Region:

1-509-329-3400

(Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, and Whitman counties)

S-131 Refuse Disposal

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

Section D: Damages

D-013 Liquidated Damages or Failure to Perform

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

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

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

D-041 Reserve Tree Excessive Damage

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

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

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Purchaser

Art Tasker
South Puget Sound Region Manager

Date: _____
Address: _____

Date: _____

CORPORATE ACKNOWLEDGEMENT

STATE OF _____)

COUNTY OF _____)

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

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

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

Notary Public in and for the State of

My appointment expires _____

FOREST EXCISE TAX -- ROAD SUMMARY SHEET

Region: South Puget Sound

Timber Sale Name: Lower Swan

Application Number: 30-091587

Excise Tax Applicable Activities

Construction: 3109 linear feet
Road to be constructed (optional and required) but not abandoned

Reconstruction: 680 linear feet
Road to be reconstructed (optional and required) but not abandoned

Abandonment: 0 linear feet
Abandonment of existing roads not reconstructed under the contract

Deactivation: 3109 linear feet
Road to be made undriveable but not officially abandoned.

Pre-Haul Maintenance: 49980 linear feet
Existing road to receive maintenance work (specifically required by the contract) prior to haul

Excise Tax Exempt Activities

Temporary Optional Construction: 0 linear feet
Optional roads to be constructed and then abandoned

Temporary Optional Reconstruction: 0 linear feet
Optional roads to be reconstructed and then abandoned

New Abandonment: 0 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 7/04)

PRE-CRUISE NARRATIVE

Sale Name: Lower Swan VRH	Region: South Puget Sound
Agreement #: 30-091857	District: Black Hills
Contact Forester: Dave Dalzotto	Phone/ Location: (360)-480-7921 Ext: /
Alternate Contact: Andy Ritter	Phone/ Location: (360)-791-5180 Ext: /

Type of Sale (lump sum, mbf scale, tonnage scale or contract harvest): Lump Sum
 Required or Optional removal of utility as pulp: No
 Evaluated for RFRS Implementation?: None of the units were considered, due to protection of geological features within RMZs and windthrow potential.
 Percentage cable (specify downhill vs uphill): 24% uphill
 Percentage ground based: 76%
 Species Onsite: RC, DF, WH, RA, BC, BLM, NF, SF, SS, Other:
 Cottonwood

UNIT ACREAGES AND METHOD OF DETERMINATION:

Unit #	Harvest R/W or RMZ WMZ	Legal Description Sec/Twp/Rng	Grant	Gross Traversed Acres	Deductions from Gross Acres (No harvest acres)			Net Harvest Acres	Acreage Determination <small>(List method and error of closure if applicable)</small>	
					RMZ/ WMZ Acres	Leave Tree Acres	Existing Road Acres			Other Acres (describe)
1		Sec 29,32/ T 18N/ R 4W	42, 02	27.4	0	2	0.5	0	24.9	GPS
2		Sec 32,33/ T 18N/ R 4W	01, 02	86.8	0	4	0	0	82.8	GPS
3		Sec 28,33/ T 18N/ R 4W	42, 02	25.2	0	1	0	0	24.2	GPS
TOTAL ACRES				139.5	0	7	0.5	0	131.9	

HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Mark leave, take, etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
1	Variable Retention Harvest: Boundaries are marked with white "Timber Sale Boundary" tags and pink flagging and/or flashers, and B-4500 road. Clumped leave trees are marked with yellow "Leave Tree Area" tags and pink flagging and/or flashers.	BPA ROW 30 feet to the north of the unit. Some of the leave tree clumps were left in order to protect sensitive areas.	8 leave trees per acre. All leave trees are clumped with yellow "Leave Tree Area" tags with pink flagging and/or flashers.
2	Variable Retention Harvest: Boundaries are marked with white "Timber Sale Boundary" tags and pink flagging and/or flashers, B-4500, B-4520, and B-4550 roads. Clumped leave trees are marked with yellow "Leave Tree Area" tags and pink flagging and/or flashers.	Some of the leave tree clumps are grouped around a research tree with blue tags labeled 'DNR Research Tree Do Not Cut'.	8 leave trees per acre. All leave trees are clumped with yellow "Leave Tree Area" tags with pink flagging and/or flashers.
3	Variable Retention Harvest: Boundaries are marked with white "Timber Sale Boundary" tags and pink flagging and/or flashers, and B-4520 road. Clumped leave trees are marked with yellow "Leave Tree Area" tags and pink flagging and/or flashers.	Some of the leave tree clumps were left in order to protect sensitive areas.	8 leave trees per acre. All leave trees are clumped with yellow "Leave Tree Area" tags with pink flagging and/or flashers.

OTHER PRE-CRUISE INFORMATION:

Unit #	Estimated Volume	Access information (Gates, locks, etc.)	Photos, traverse maps required
1	See cruise	From State Route 8 (milepost 16.1), turn south onto the B-Line (Rock Candy Mountain RD SW) and follow for 5.1 miles. Turn right (north) onto the B-4000 and follow for 1.5 miles. Then turn left (west) onto the B-4500 for 1 mile.	

2	See cruise	From State Route 8 (milepost 16.1), turn south onto the B-Line (Rock Candy Mountain RD SW) and follow for 5.1 miles. Turn right (north) onto the B-4000 and follow for 1.5 miles. Then turn left (west) onto the B-4500. There is also access from the B-4520 and B-4550.	
3	See cruise	From State Route 8 (milepost 16.1), turn south onto the B-Line (Rock Candy Mountain RD SW) and follow for 5.1 miles. Turn right (north) onto the B-4000 and follow for 1.5 miles. Then turn left (west) onto the B-4500 for 0.1 miles, and continue straight (west) onto the B-4520 for 0.1 miles.	

REMARKS:

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Prepared By: Dave Dalzotto Date: 09/02/2015	Title: Forester 1	CC:
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Revised 2/23/2007 (PSLD)

Cruise Narrative

Sale Name: Lower Swan	Region: South Puget Sound
Agree. #: 30-091857	District: Black Hills
Lead cruiser: John Piety	Completion date: 9-24-2015
Other cruisers on sale: none	

Unit acreage specifications:

Unit #	Cruised acres	Cruised acres agree with sale acres? Yes/No	If acres do not agree explain why.
1	24.9	Yes	
2	82.8	Yes	
3	24.2	Yes	
Total	131.9		

Unit cruise specifications:

Unit #	Sample type (VP, FP, ITS,100%)	Expansion factor (BAF, full/half)	Sighting height (4.5 ft, 16 ft.)	Grid size (Plot spacing or % of area)	Plot ratio (cruise:count)	Total number of plots
1	VP	40 BAF	4.5	290' X 290'	1:1	15
2	VP	40 BAF	4.5	290' X 290'	1:1	39
3	VP	54.4 BAF	4.5	290' X 290'	1:1	10

Sale/Cruise Description:

Minor species cruise intensity:	100% up to 5 trees per species
Minimum cruise spec:	<p>HA - Logs meeting the following criteria: Surface characteristics for a high quality A sort will have sound tight knots not to exceed 1 1/2" 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 1/2" 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. (High Quality sort. Grades SM, 2S, 12"+ TDIB lengths 16-40ft. Max butt 27" Grade 3S lengths 34ft, 26ft, 17ft. TDIB 8-11".)</p> <p>HB - Logs meeting the following criteria: Surface characteristics for an Intermediate B sort will have sound tight knots not to exceed 1 1/2" in diameter. May include logs with not more than two larger knots up to 2 1/2" 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. (Intermediate sort. Grade 2S, 12"+TDIB lengths 16-40ft. Max butt 27" Grade 3S lengths 34ft, 26ft, 17ft min TDIB 8-</p>

	<p>11").</p> <p>D - Domestic quality logs that do not meet high quality or intermediate definitions. (Domestic sort. Grades 2S, 3S, 4S and utility. Lengths 16ft-40ft, min TDIB 2in.)</p> <p>O- Logs exceeding 27" on the large end. (Oversize sort. Grade 2S. Lengths 16ft-40ft, 2ft multiples butt diameter min dia. 27 in. +)</p> <p>R - Logs meeting the following criteria: Surface characteristics for a rough log sort will not meet the requirements for a domestic 2S, but still be in limitations for a domestic 3S. Meaning logs will contain excessive knots in excess of 2 1/2" and not exceeding 3" with a recovery of less than 65% of the net scale and greater than 33% of the gross scale. (Rough oversize sort. Grade 3S. Lengths 16ft-40ft, 2ft multiples TDIB 12"+)</p>					
Avg ring count by sp:	DF =	7	WH =	7		
Leave/take tree description:	Leave trees are tagged out with yellow leave tree tags.					
Other conditions						

Field observations:

Unit #1 has had previous harvest activity in the south central portion of the unit which is mostly DF with some RA. The rest is older mix of DF, WH, and RC. Unit # 2 has had previous harvest activity with the exception of the north east corner which is a mix of older trees, DF, WH, and RC. This unit is mostly DF with some WH, RA. Unit # 2 is older DF, WH, RC and some RA.

Grants: 01, 02, 42

Prepared by:

John Piety

Title:

Cruiser

CC:

TC PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																									
T18N R04W S29 Ty0001		24.90		Project: LOWERSWA										Page 1													
T18N R04W S32 Ty0002		82.80		Acres 131.90										Date 9/24/2015													
T18N R04W S33 Ty0003		24.20												Time 11:46:33AM													
Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre						
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf							
									2-4	5-7	8-11	12+	12-20	21-30	31-35	36-99											
DF	HA	2S	1		261	261	34							100		44	56	37	12	203	1.33	1.3					
DF	HA	3S			130	130	17							100		100		34	10	130	0.73	1.0					
DF	HB	2S	7		1,796	1,796	237							100		27	73	38	13	246	1.45	7.3					
DF	HB	3S	2		293	293	39							100		100		34	10	139	0.91	2.1					
DF	D	2S	34	2.6	8,678	8,450	1,115							100	1		99	40	14	293	1.70	28.9					
DF	D	3S	26	2.2	6,612	6,467	853							100	0	2	11	38	9	113	0.79	57.4					
DF	D	4S	11	.2	2,711	2,706	357								99	1		31	5	37	0.36	72.6					
DF	D	UT																23	2		0.14	18.7					
DF	OS	2S	18	3.8	4,506	4,335	572									3	3	39	21	704	3.66	6.2					
DF	RO	2S	1	15.5	174	147	19										100	40	17	389	2.36	.4					
DF Totals			70	2.3	25,162	24,585	3,243								11	28	61	2	3	9	87	34	8	126	0.90	195.8	
SS	D	UT	5		5	5	1							100		100		16	11	70	1.12	.1					
SS	OS	2S	95	27.3	135	98	13										100	40	22	665	4.79	.1					
SS Totals			0	26.3	140	103	14								5	95	5	32	18	467	4.18	.2					
WH	D	2S	41	2.8	3,822	3,717	490									2	98	40	15	327	1.84	11.4					
WH	D	3S	23	2.4	2,154	2,102	277											39	10	131	0.87	16.1					
WH	D	4S	14		1,225	1,225	162											29	6	37	0.38	33.5					
WH	D	UT	1		140	140	18								35	12	53	53	12		35	31	3	7	0.14	20.7	
WH	OS	2S	21	5.7	1,950	1,839	243										100	5			95	38	20	597	3.24	3.1	
WH Totals			26	2.9	9,292	9,023	1,190								1	12	26	62	4	3	2	91	33	7	106	0.79	84.7
RC	D	3S	45		385	385	51											37	11	175	1.42	2.2					
RC	D	4S	9		82	82	11											29	5	36	0.56	2.3					
RC	OS	3S	46	13.1	445	387	51										100	35	22	644	5.53	.6					
RC Totals			2	6.4	911	853	113								9	12	78	6	1	13	80	33	10	168	1.59	5.1	
RA	D	2S	34	.0	230	230	30											36	13	216	1.43	1.1					
RA	D	3S	16		104	104	14											32	10	119	0.98	.9					
RA	D	4S	44	1.4	301	296	39											32	6	51	0.54	5.8					
RA	D	UT	6		34	34	5										100	16	5	22	0.43	1.5					
RA Totals			2	.6	669	665	88								35	25	40	10	8	9	73	30	7	72	0.70	9.3	
Totals				2.6	36,175	35,230	4,647								0	12	27	61	3	3	7	87	34	8	119	0.88	295.1

TC PSTATS					PROJECT STATISTICS					PAGE	1
					PROJECT LOWERSW					DATE	9/24/2015
TWP	RGE	SC	TRACT	TYPE	ACRES		PLOTS	TREES	CuFt	BdFt	
18N	04	29	LOWER SWAN	0001	131.90		64	348	S	W	
18N	04W	32	LOWER SWAN	0002							
18N	04W	33	LOWER SWAN	0003							
					TREES	ESTIMATED	PERCENT				
					PER PLOT	TOTAL	SAMPLE				
					PLOTS	TREES	TREES	TREES			
TOTAL					64	348	5.4				
CRUISE					33	177	5.4	18,591	1.0		
DBH COUNT											
REFOREST											
COUNT					31	171	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
DOUG FIR		105	83.9	18.3	79	36.0	154.0	25,162	24,585	6,033	6,033
WHEMLOCK		52	49.1	14.9	59	15.4	59.3	9,292	9,023	2,224	2,224
WR CEDAR		11	2.7	22.9	64	1.6	7.8	911	853	266	266
R ALDER		8	5.1	15.4	55	1.7	6.6	669	665	193	193
S SPRUCE		1	.1	40.0	95	0.1	.6	140	103	30	30
TOTAL		<i>177</i>	<i>140.9</i>	<i>17.2</i>	<i>71</i>	<i>55.0</i>	<i>228.4</i>	<i>36,175</i>	<i>35,230</i>	<i>8,745</i>	<i>8,745</i>
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL	68.1	COEFF		SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR		82.3	8.0	421	458	495					
WHEMLOCK		75.4	10.5	393	439	485					
WR CEDAR		70.7	22.3	478	615	753					
R ALDER		58.7	22.1	114	146	179					
S SPRUCE											
TOTAL		<i>81.9</i>	<i>6.2</i>	<i>425</i>	<i>453</i>	<i>481</i>	<i>268</i>	<i>137</i>	<i>67</i>		
CL	68.1	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR		69.8	8.7	77	84	91					
WHEMLOCK		194.2	24.3	37	49	61					
WR CEDAR		390.7	48.8	1	3	4					
R ALDER		354.2	44.2	3	5	7					
S SPRUCE		800.0	99.9	0	0	0					
TOTAL		<i>66.8</i>	<i>8.3</i>	<i>129</i>	<i>141</i>	<i>153</i>	<i>178</i>	<i>91</i>	<i>44</i>		
CL	68.1	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR		56.3	7.0	143	154	165					
WHEMLOCK		170.5	21.3	47	59	72					
WR CEDAR		441.6	55.1	4	8	12					
R ALDER		349.6	43.7	4	7	9					
S SPRUCE		800.0	99.9	0	1	1					
TOTAL		<i>49.7</i>	<i>6.2</i>	<i>214</i>	<i>228</i>	<i>243</i>	<i>98</i>	<i>50</i>	<i>25</i>		
CL	68.1	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR		60.8	7.6	22,720	24,585	26,451					
WHEMLOCK		180.2	22.5	6,992	9,023	11,053					
WR CEDAR		501.5	62.6	319	853	1,388					
R ALDER		351.3	43.9	373	665	957					
S SPRUCE		800.0	99.9	0	103	206					

T18N R04W S29 T0001										T18N R04W S29 T0001				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
18N	04W	29	LOWER SWAN	0001	24.90	15	52	S	W					

S Twp	So Rge	Gr Sec	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
								Log Scale Dia.				Log Length				Ln	Dia	Bd		CF/ Lf
				Def%	Gross	Net		2-4	5-7	8-11	12+	12-20	21-30	31-35	36-99	Ft	In	Ft		Lf
WH	DM	2S	59	.9	10,898	10,802	269	100				4 96				39	15	330	1.82	32.7
WH	DM	3S	16	3.1	2,972	2,880	72	100				3 7 90				39	9	125	0.90	23.1
WH	DM	4S	9		1,775	1,775	44	70 30		11 36 18 34				27	6	42	0.51	42.2		
WH	DM	UT	1		88	88	2	100				100				33	2	2	0.11	36.8
WH	OS	2S	15	2.6	2,756	2,685	67	100				18				35	20	573	3.26	4.7
WH	Totals		41	1.4	18,488	18,229	454	7 19 74		4 4 5 86				34	8	131	0.93	139.5		
DF	HA	2S	2	.0	604	604	15	100				100				34	12	170	1.09	3.6
DF	HA	3S	3		691	691	17	100				100				34	10	130	0.73	5.3
DF	HB	2S	4		737	737	18	100				100				40	15	360	1.93	2.0
DF	DM	2S	34	2.6	7,665	7,469	186	100				5 95				39	15	347	1.93	21.5
DF	DM	3S	17		3,695	3,695	92	100				11 7 82				37	9	121	0.88	30.5
DF	DM	4S	5		1,036	1,036	26	100				30 6 64				27	6	37	0.39	27.8
DF	DM	UT														22	2		0.14	7.2
DF	OS	2S	33	2.0	7,277	7,130	178	100				11 11 78				38	22	814	4.22	8.8
DF	RO	2S	2	13.0	409	355	9	100				100				40	17	400	2.36	.9
DF	Totals		49	1.8	22,114	21,717	541	5 20 75		3 6 11 81				34	10	202	1.33	107.6		
RC	DM	3S	47		1,763	1,763	44	15 85		100				38	13	230	1.71	7.7		
RC	DM	4S	5		206	206	5	91 9		9 18 25 48				32	6	44	0.51	4.6		
RC	OS	3S	48	14.8	2,086	1,778	44	100				10 90				35	22	659	5.54	2.7
RC	Totals		8	7.6	4,056	3,747	93	5 8 87		5 1 1 92				36	12	250	2.06	15.0		
RA	DM	2S	81		562	562	14	100				100				36	12	180	1.28	3.1
RA	DM	4S	19		125	125	3	100				100				40	5	40	0.46	3.1
RA	Totals		2		687	687	17	18 82		100				38	9	110	0.85	6.2		
Type Totals				2.1	45,344	44,380	1,105	6 18 76		3 5 8 84				34	9	165	1.16	268.3		

TC TSTATS		STATISTICS							PAGE	1	
		PROJECT LOWERSW							DATE	9/24/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
18N	04W	29	LOWER SWAN	0001	24.90	15	98	S	W		
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		15	98	6.5							
CRUISE		8	52	6.5	3,335	1.6					
DBH COUNT											
REFOREST											
COUNT		7	46	6.6							
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	23	85.7	15.7	62	29.0	114.7	18,488	18,229	4,385	4,385	
DOUG FIR	20	38.5	23.1	95	23.3	112.0	22,114	21,717	4,838	4,838	
WR CEDAR	8	6.6	28.5	87	5.5	29.3	4,056	3,747	1,102	1,102	
R ALDER	1	3.1	17.7	78	1.3	5.3	687	687	201	201	
TOTAL	52	133.9	18.9	73	60.1	261.3	45,344	44,380	10,525	10,526	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10			
WHEMLOCK	64.3	13.7	415	480	546						
DOUG FIR	61.7	14.1	692	806	920						
WR CEDAR	53.5	20.2	601	753	904						
R ALDER											
TOTAL	66.6	9.2	583	643	702	177	90	44			
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10			
WHEMLOCK	121.1	32.4	58	86	113						
DOUG FIR	86.6	23.1	30	38	47						
WR CEDAR	284.5	76.0	2	7	12						
R ALDER	263.9	70.5	1	3	5						
TOTAL	67.1	17.9	110	134	158	193	98	48			
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10			
WHEMLOCK	93.1	24.9	86	115	143						
DOUG FIR	81.2	21.7	88	112	136						
WR CEDAR	284.5	76.0	7	29	52						
R ALDER	263.9	70.5	2	5	9						
TOTAL	48.0	12.8	228	261	295	99	50	25			
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10			
WHEMLOCK	98.1	26.2	13,451	18,229	23,007						
DOUG FIR	83.0	22.2	16,900	21,717	26,534						
WR CEDAR	284.5	76.0	900	3,747	6,595						
R ALDER	263.9	70.5	203	687	1,171						
TOTAL	51.9	13.9	38,224	44,380	50,536	115	59	29			

T18N R04W S32 T0002 **T18N R04W S32 T0002**
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt
 18N 04W 32 LOWER SWAN 0002 82.80 39 97 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		
									Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft		CF/ Lf	
									2-4	5-7	8-11	12+	12-20	21-30	31-35	36-99						
DF		HA	2S			235	235	19										40	13	240	1.55	1.0
DF		HB	2S	7		1,584	1,584	131							18	82		39	14	275	1.60	5.8
DF		HB	3S	2		466	466	39			100				100			34	10	139	0.91	3.3
DF		DM	2S	35	2.6	8,833	8,603	712								100		40	14	267	1.62	32.3
DF		DM	3S	32	2.9	8,120	7,888	653				100		0	1	11	89	38	9	114	0.79	69.4
DF		DM	4S	15	.2	3,542	3,536	293		99	1			10	15	9	66	32	5	37	0.36	94.5
DF		DM	UT															23	2		0.13	23.5
DF		OS	2S	8	9.4	2,224	2,015	167									100	40	21	683	3.85	2.9
DF		RO	2S	1	17.4	154	127	11									100	40	17	380	2.36	.3
DF	Totals			82	2.8	25,158	24,453	2,025		14	34	51		2	2	8	88	34	8	105	0.79	233.0
WH		DM	2S	36	6.6	1,777	1,660	137									100	40	15	326	1.92	5.1
WH		DM	3S	43	2.8	2,007	1,951	162									100	40	10	135	0.86	14.5
WH		DM	4S	12		527	527	44		100				9	12		79	32	6	42	0.37	12.6
WH		DM	UT	3		118	118	10						100				21	4	17	0.27	6.8
WH		OS	2S	6		272	272	22									100	40	20	700	3.55	.4
WH	Totals			15	3.7	4,700	4,528	375		12	46	43		4	1		95	34	8	115	0.84	39.3
RA		DM	3S	43		166	166	14							45		55	32	10	119	0.98	1.4
RA		DM	4S	42	4.1	167	160	13		39	61			31	9	61		23	6	38	0.47	4.2
RA		DM	UT	15		55	55	5						100			100	16	12	80	1.18	.7
RA	Totals			1	1.8	388	381	32		17	69	14		27	23	25	24	24	8	60	0.67	6.3
RC		DM	3S	44		83	83	7							10	90		33	8	69	0.76	1.2
RC		DM	4S	12		21	21	2		100				100				18	5	20	0.24	1.1
RC		OS	3S	44		81	81	7									100	32	20	560	5.45	.1
RC	Totals			1		186	186	15		11	45	44		11	5	84		26	7	77	0.95	2.4
SS		DM	UT	5		8	8	1						100			100	16	11	70	1.12	.1
SS		OS	2S	95	27.3	215	156	13									100	40	22	665	4.79	.2
SS	Totals			1	26.3	223	165	14		5	95			5			95	32	18	467	4.18	.4
Type	Totals				3.1	30,656	29,712	2,460		14	36	50		2	2	7	88	34	8	106	0.80	281.4

TC TSTATS		STATISTICS							PAGE	1
		PROJECT LOWERSW							DATE	9/24/2015
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
18N	04W	32	LOWER SWAN	0002	82.80	39	199	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
		PLOTS	TREES	PER PLOT	TREES	TREES				
TOTAL	39	199	5.1							
CRUISE	20	97	4.8	10,256			9			
DBH COUNT										
REFOREST										
COUNT	19	102	5.4							
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR	76	104.9	17.2	75	41.0	170.3	25,158	24,453	6,329	6,329
WHEMLOCK	14	14.5	18.4	89	6.2	26.7	4,700	4,528	1,122	1,122
R ALDER	4	3.2	15.4	51	1.0	4.1	388	381	102	102
WR CEDAR	2	1.2	17.6	53	0.5	2.1	186	186	60	60
S SPRUCE	1	.1	40.0	95	0.2	1.0	223	165	47	47
TOTAL	97	123.9	17.4	76	49.0	204.1	30,656	29,712	7,660	7,660
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	74.5	8.5		310	339	368				
WHEMLOCK	50.1	13.9		330	384	437				
R ALDER	21.5	12.3		107	123	138				
WR CEDAR	105.6	98.9		4	355	706				
S SPRUCE										
TOTAL	76.2	7.7		321	348	375	232	118	58	
CL:	68.1 %	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	51.7	8.3		96	105	114				
WHEMLOCK	329.3	52.7		7	14	22				
R ALDER	441.4	70.6		1	3	5				
WR CEDAR	552.6	88.4		0	1	2				
S SPRUCE	624.5	99.9		0	0	0				
TOTAL	48.3	7.7		114	124	133	93	47	23	
CL:	68.1 %	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	41.7	6.7		159	170	182				
WHEMLOCK	302.6	48.4		14	27	40				
R ALDER	435.7	69.7		1	4	7				
WR CEDAR	435.7	69.7		1	2	3				
S SPRUCE	624.5	99.9		0	1	2				
TOTAL	44.9	7.2		189	204	219	81	41	20	
CL:	68.1 %	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	42.6	6.8		22,785	24,453	26,121				
WHEMLOCK	302.3	48.4		2,338	4,528	6,718				
R ALDER	437.9	70.1		114	381	649				
WR CEDAR	436.0	69.7		56	186	315				
S SPRUCE	624.5	99.9		0	165	329				
TOTAL	53.3	8.5		27,179	29,712	32,246	113	58	28	

TC TSTATS		STATISTICS						PAGE	1	
		PROJECT LOWERSW						DATE	9/24/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
18N	04W	33	LOWER SWAN	0003	24.20	10	51	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		10	51	5.1						
CRUISE		5	28	5.6	4,999	.6				
DBH COUNT										
REFOREST										
COUNT		5	23	4.6						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	9	58.7	21.0	90	30.9	141.4	28,309	27,990	6,250	6,250
WHEMLOCK	15	130.1	12.7	45	32.1	114.2	15,543	14,930	3,771	3,771
R ALDER	3	13.8	14.7	53	4.3	16.3	1,613	1,613	493	493
WR CEDAR	1	4.0	15.8	37	1.4	5.4	160	160	110	110
TOTAL	28	206.6	15.7	58	70.0	277.4	45,625	44,692	10,624	10,624
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	59.7	21.1		540	684	829				
WHEMLOCK	106.9	28.6		306	428	550				
R ALDER	94.1	65.1		53	153	253				
WR CEDAR										
TOTAL	94.3	18.1		382	467	552	368	188	92	
CL:	68.1 %	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	69.7	23.2		45	59	72				
WHEMLOCK	103.5	34.4		85	130	175				
R ALDER	212.6	70.7		4	14	24				
WR CEDAR	316.2	105.2			4	8				
TOTAL	63.6	21.1		163	207	250	179	91	45	
CL:	68.1 %	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	68.3	22.7		109	141	174				
WHEMLOCK	101.5	33.8		76	114	153				
R ALDER	225.0	74.9		4	16	29				
WR CEDAR	316.2	105.2			5	11				
TOTAL	47.5	15.8		234	277	321	100	51	25	
CL:	68.1 %	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	73.6	24.5		21,135	27,990	34,844				
WHEMLOCK	123.9	41.2		8,774	14,930	21,086				
R ALDER	238.3	79.3		334	1,613	2,893				
WR CEDAR	316.2	105.2			160	328				
TOTAL	53.1	17.7		36,795	44,692	52,589	125	64	31	

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

T18N R04W S29 Ty0001	24.9
T18N R04W S32 Ty0002	82.8
T18N R04W S33 Ty000	24.2

Project LOWERSW
Acres 131.90

Page No 1
Date: 9/24/2015
Time 11:46:35AM

Species	Total	Total	Total	Net Cubic Ft/		CF/ LF	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log		Gross	Net	Gross	Net
DOUG FIR	11,068	25,825	22,679	71.90	30.81	0.89	7,958	7,958	3,319	3,243
WHEMLOCK	6,478	11,175	9,386	45.28	26.25	0.78	2,933	2,933	1,226	1,190
WR CEDAR	362	670	825	96.92	52.39	1.61	351	351	120	113
R ALDER	673	1,223	699	37.74	20.77	0.71	254	254	88	88
S SPRUCE	10	29	101	400.88	133.63	4.18	39	39	18	14
Totals	18,591	38,923	33,689	62.05	29.64	0.87	11,534	11,535	4,771	4,647

Wood Type Species	Total	Total	Total	Net Cubic Ft/		CF/ LF	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log		Gross	Net	Gross	Net
C	17,918	37,699	32,991	62.96	29.92	0.87	11,280	11,281	4,683	4,559
H	673	1,223	699	37.74	20.77	0.71	254	254	88	88
Totals	18,591	38,923	33,689	62.05	29.64	0.87	11,534	11,535	4,771	4,647



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

FPA/N No: 2418292

Effective Date: 12/09/2015

Expiration Date: 12/09/2018

Shut Down Zone: 651

EARR Tax Credit: Eligible Non-eligible

Reference Lower Swan

**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 approved FPA/N

FPA/N Classification

Number of Years Granted on Multi-Year Request

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

Conditions on Approval / Reasons for Disapproval

Issued By: Josh Meek Region: South Puget Sound

Title: Resource Protection Forester Date: 12/09/15

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
South Puget Sound Region
950 Farman Ave. N
Enumclaw, WA 98022

Other Applicable Laws

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

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

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

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

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

Use the "Notice of Transfer of Approved Forest Practices Application/Notification" form. This form is available at region offices and on the Forest Practices 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.

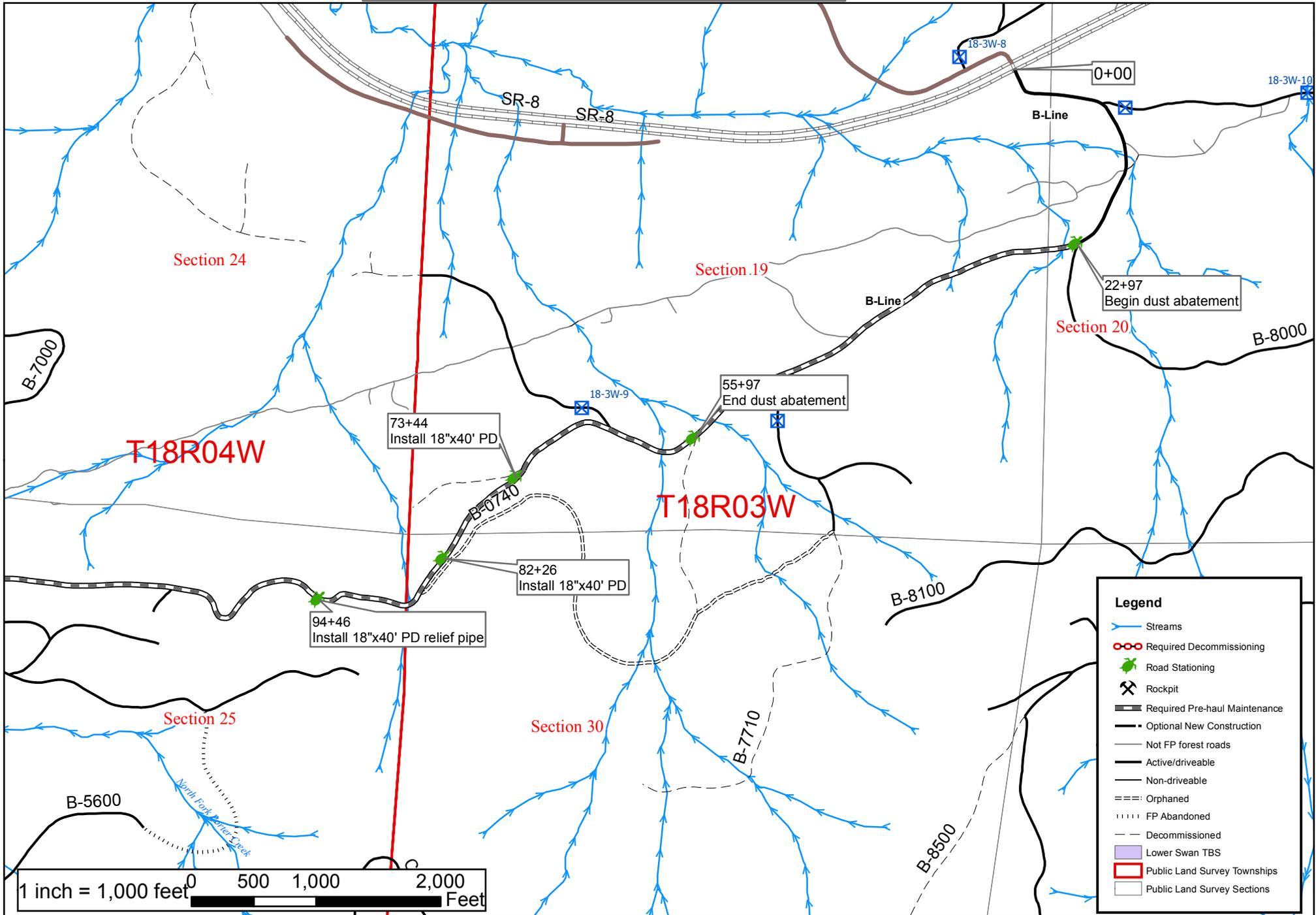
If the seller fails to notify the buyer about the continuing forest land obligation, the seller must pay the buyer's costs related to continuing forest land obligations, including all legal costs and reasonable attorneys' fees incurred by the buyer in enforcing the continuing forest land obligation against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

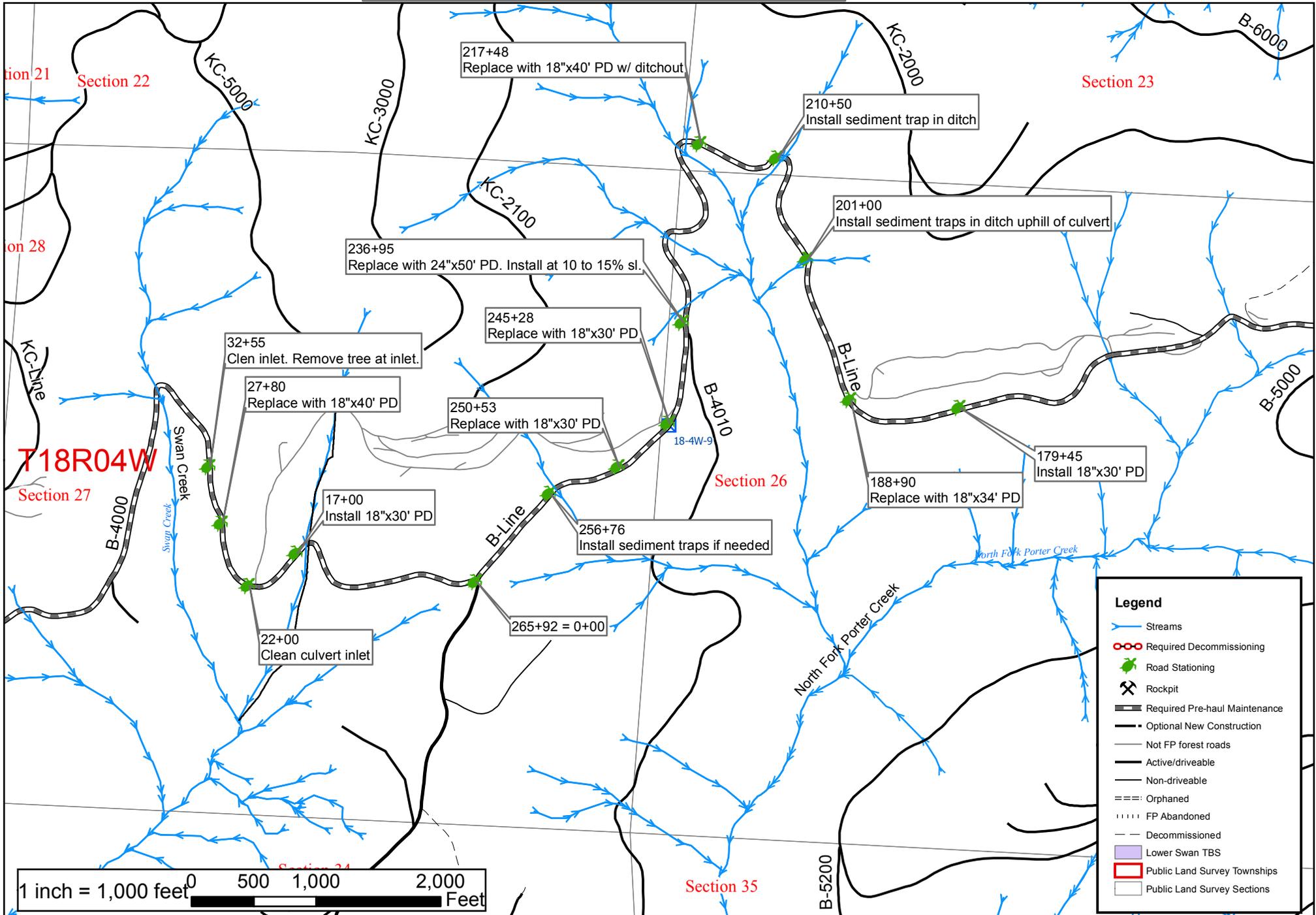
DNR affidavit of mailing:

On this day 12/09/2015, I placed in the United States mail at Enumclaw, WA,
(date mm/dd/yyyy) (post office location)
postage paid, a true and accurate copy of this document. Notice of Decision FPA #2418292
Sharon Koehn
(Printed name) (Signature)

Lower Swan TBS Road Plan Views, Page 1 of 5



Lower Swan TBS Road Plan Views, Page 2 of 5

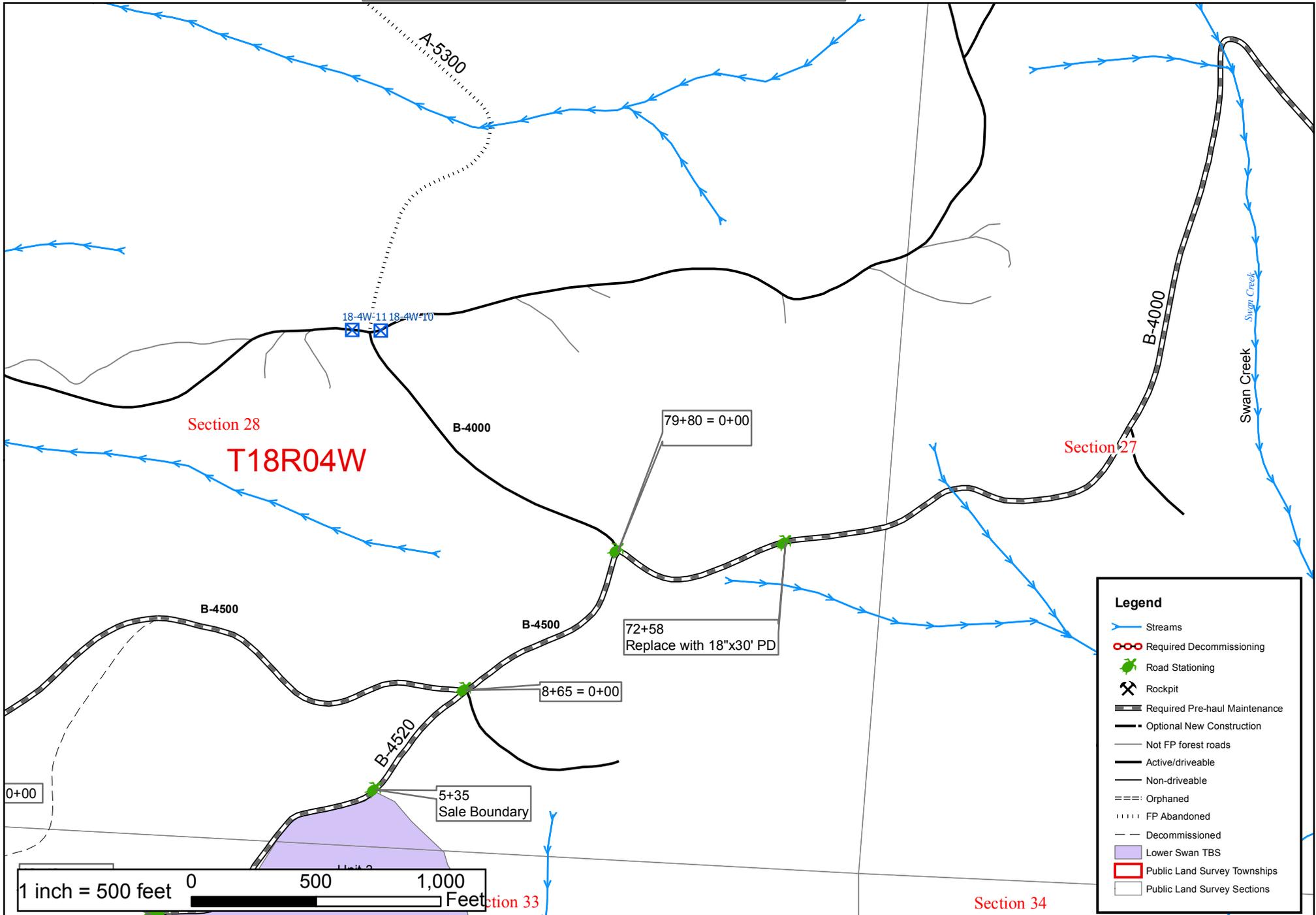


1 inch = 1,000 feet
 0 500 1,000 2,000
 Feet

Legend

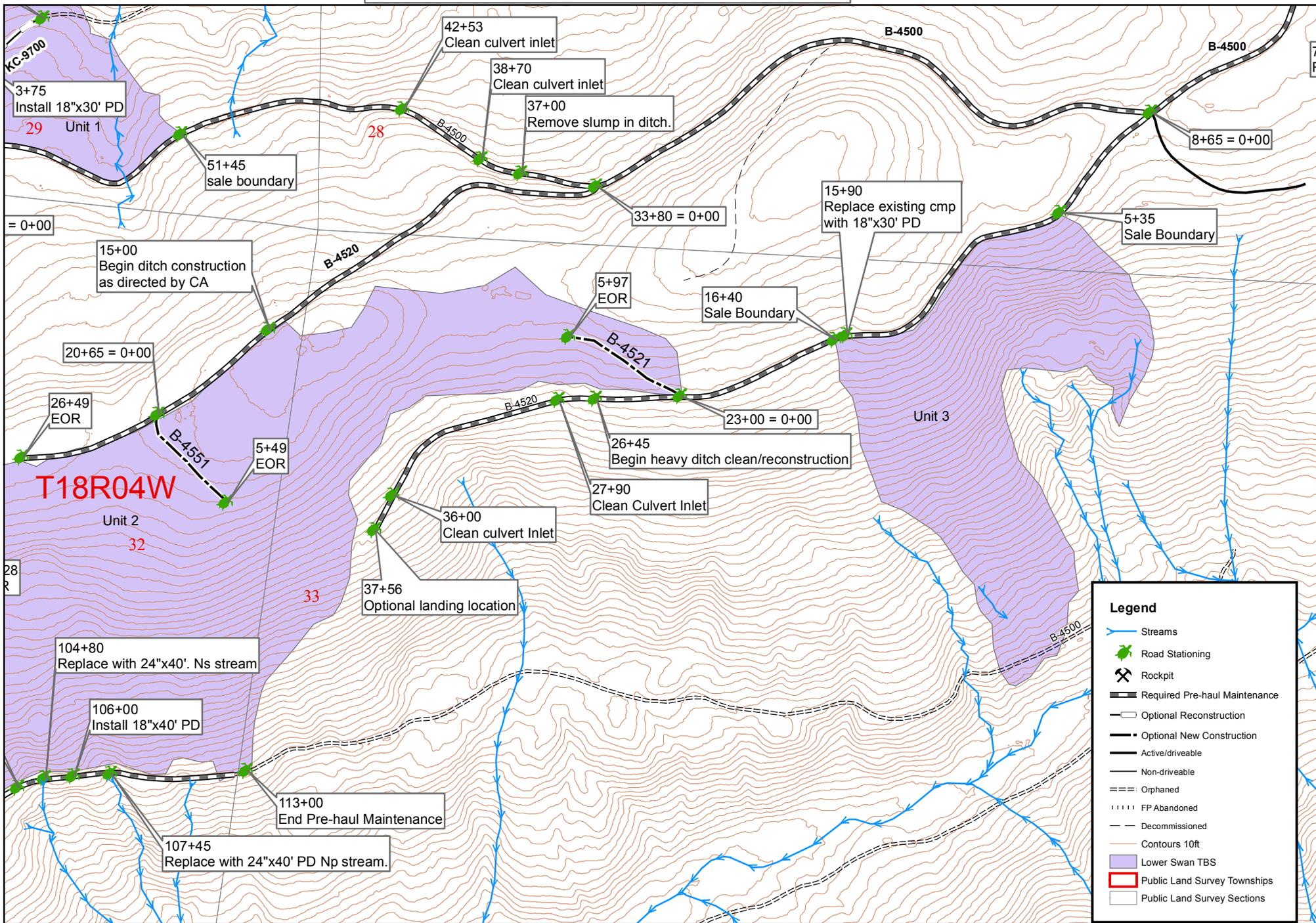
- Streams
- Required Decommissioning
- Road Stationing
- Rockpit
- Required Pre-haul Maintenance
- Optional New Construction
- Not FP forest roads
- Active/driveable
- Non-driveable
- Orphaned
- FP Abandoned
- Decommissioned
- Lower Swan TBS
- Public Land Survey Townships
- Public Land Survey Sections

Lower Swan TBS Road Plan Views, Page 3 of 5



Lower Swan TBS Road Plan Views, Page 4 of 5

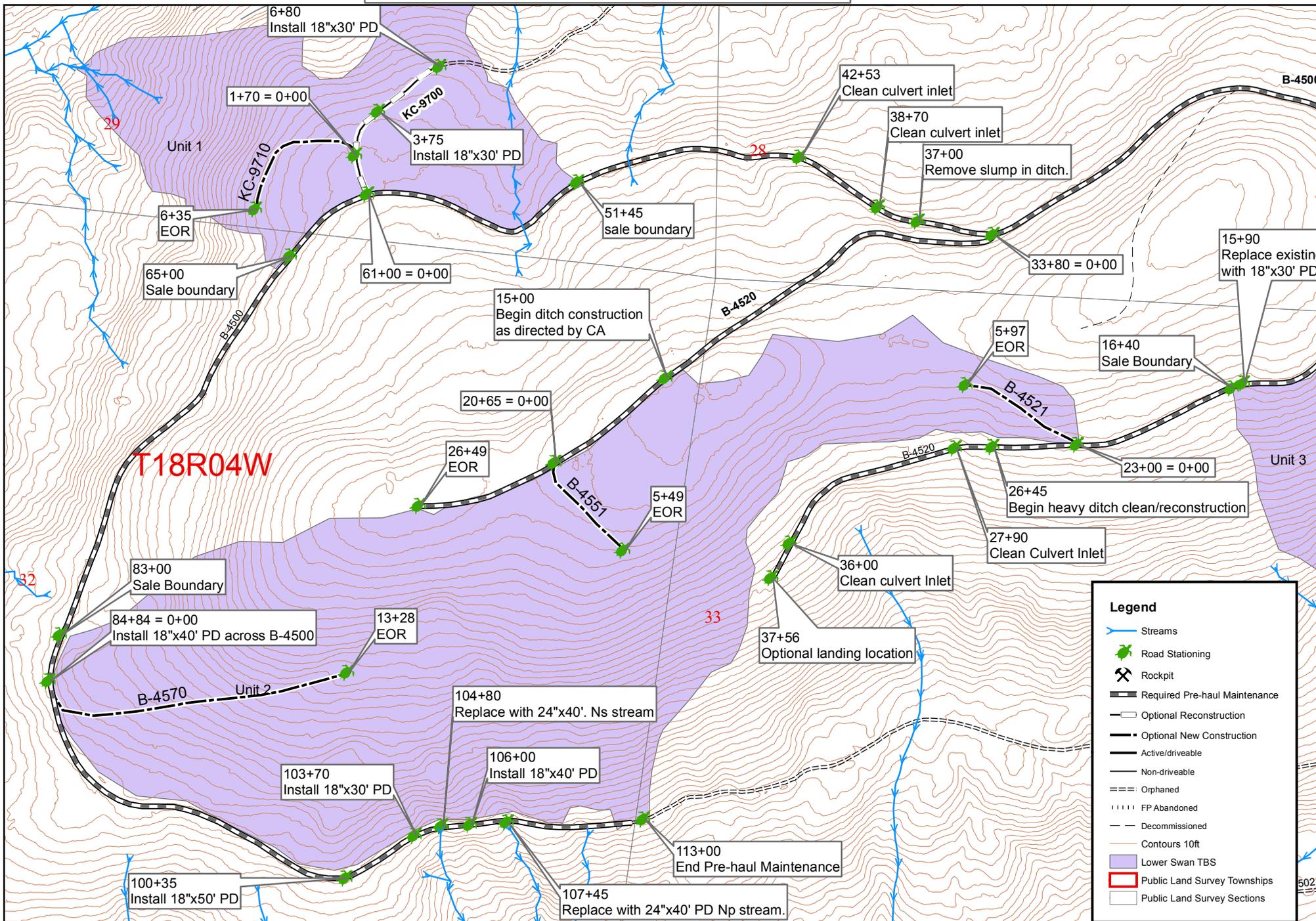
1 inch = 500 feet



Legend	
	Streams
	Road Stationing
	Rockpit
	Required Pre-haul Maintenance
	Optional Reconstruction
	Optional New Construction
	Active/driveable
	Non-driveable
	Orphaned
	FP Abandoned
	Decommissioned
	Contours 10ft
	Lower Swan TBS
	Public Land Survey Townships
	Public Land Survey Sections

Lower Swan TBS Road Plan Views, Page 5 of 5

1 inch = 500 feet



STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

LOWER SWAN TIMBER SALE ROAD PLAN
GRAYS HARBOR AND THURSTON COUNTIES
BLACK HILLS DISTRICT
DELPHI UNIT

AGREEMENT NO.: 30-091587

STAFF ENGINEER: MICHELLE BELL

DATE: 8/12/2015

SECTION 0 – SCOPE OF PROJECT

0-1 ROAD PLAN SCOPE

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

0-2 REQUIRED ROADS

The specified work on the following roads is required.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
B-Line	22+97 to 265+92	Pre-haul maintenance
B-4000	0+00 to 79+80	Pre-haul maintenance
B-4500	0+00 to 113+00	Pre-haul maintenance
B-4520	0+00 to 37+56	Pre-haul maintenance
B-4550	0+00 to 26+49	Pre-haul maintenance
B-4521	0+00 to 5+97	Decommission, if built
B-4551	0+00 to 5+49	Decommission, if built
B-4570	0+00 to 13+28	Decommission, if built
KC-9710	0+00 to 6+35	Decommission, if built

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>
B-4521	0+00 to 5+97	Construction
B-4551	0+00 to 5+49	Construction
B-4570	0+00 to 13+28	Construction
KC-9700	0+00 to 6+80	Reconstruction
KC-9710	0+00 to 6+35	Construction

0-4 CONSTRUCTION

Construction includes, but is not limited to:

- Clearing.
- Grubbing.
- Right of way debris disposal.
- Excavation and/or embankment to subgrade.
- Landing construction.
- Acquisition and installation of drainage structures.
- Manufacture and application of rock.

0-5 RECONSTRUCTION

Reconstruction includes, but is not limited to:

- Clearing.
- Grubbing.
- Right of way debris disposal.
- Excavation and/or embankment to subgrade.
- Landing construction.
- Acquisition and installation of drainage structures.
- Manufacture and application of rock.

0-6 PRE-HAUL MAINTENANCE

Pre-haul maintenance includes, but is not limited to:

- Brushing.
- Grading.
- Ditch cleaning and reconstruction
- Culvert cleaning and headwall reconstruction.
- Sediment trap installations.
- Acquisition and installation of drainage structures.
- Manufacture and application of rock.

0-7 POST-HAUL MAINTENANCE

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

0-9 DECOMMISSIONING

This project includes decommissioning listed in Clause 9-20 ROAD DECOMMISSIONING.

0-12 DEVELOP ROCK SOURCE

Purchaser may develop an existing rock source. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

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

1-3 ROAD DIMENSIONS

Purchaser shall perform road work in accordance with the dimensions shown on the TYPICAL SECTION SHEET and the specifications within this road plan, unless controlled by construction stakes or design data (plan, profile, and cross-sections).

1-4 ROAD TOLERANCES

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

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

1-6 ORDER OF PRECEDENCE

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

1. Addenda.
2. 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.

1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS

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

SUBSECTION ROAD MARKING

1-15 ROAD MARKING

Purchaser shall perform road work in accordance with the state's marked location. All road work is marked as follows:

- Centerline is marked with stakes and orange flagging for new construction.

1-18 REFERENCE POINT DAMAGE

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

SUBSECTION TIMING

1-20 COMPLETE BY DATE

Purchaser shall complete pre-haul road work before the start of timber haul, unless approved in writing by the Contract Administrator.

1-21 HAUL APPROVAL

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

1-23 ROAD WORK PHASE APPROVAL

Purchaser shall obtain written approval from the Contract Administrator upon completion of each of the following phases of road work:

- Subgrade construction
- Drainage installation
- Subgrade compaction
- Rock application
- Rock compaction

SUBSECTION RESTRICTIONS

1-25 ACTIVITY TIMING RESTRICTION

No operation of road construction equipment or rock haul will be allowed on weekends or state recognized holidays, unless authorized in writing by the Contract Administrator.

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

<u>Activity</u>	<u>Closure Period</u>
Operation of road construction equipment or rock haul	November 1 to April 30

1-26 OPERATING DURING CLOSURE PERIOD

If permission is granted to operate during a seasonal closure period listed in Clause 1-25 ACTIVITY TIMING RESTRICTION, the Purchaser shall comply with a maintenance plan to include further protection of water, soil, roads, and other forest assets at the Purchaser's expense. Preventative measures shall be in place prior to operating during the closure period. Purchaser is required to maintain all haul roads at their own expense including those listed in Contract Clause C-060 DESIGNATED ROAD MAINTAINER. If other operators are using, or desire to use these roads, a joint operating plan must be developed. All parties shall follow this plan.

1-29 SEDIMENT RESTRICTION

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

1-30 CLOSURE TO PREVENT DAMAGE

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

- Surface or base stability problems persist.
- Weather is such that satisfactory results cannot be obtained in an area of operations.
- When, in the opinion of the Contract Administrator, excessive road damage or rutting may occur.
- Wheel track rutting exceeds 6 inches on new construction rocked roads.

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

1-32 BRIDGE AND ASPHALT SURFACE RESTRICTION

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

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

1-33 SNOW PLOWING RESTRICTION

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

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

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

SECTION 2 – MAINTENANCE

2-1 GENERAL ROAD MAINTENANCE

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

2-2 ROAD MAINTENANCE – PURCHASER MAINTENANCE

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

2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER

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

2-5 MAINTENANCE GRADING – EXISTING ROAD

On the following road(s), Purchaser shall use a grader to shape the existing surface before timber haul unless an alternative time is approved in writing by the Contract Administrator.

<u>Road</u>	<u>Stations</u>	<u>Comments</u>
B-Line	55+97 to 265+92	Grade after all culvert installations are complete
B-4000	0+00 to 79+80	
B-4500	0+00 to 113+00	
B-4520	0+00 to 37+56	
B-4550	0+00 to 26+49	

2-6 CLEANING CULVERTS

On the following road(s), Purchaser shall clean the inlets and outlets of all culverts and shall obtain written approval from the Contract Administrator before timber haul.

<u>Road</u>	<u>Stations</u>
B-Line	55+97 to 265+92
B-4000	0+00 to 79+80
B-4500	0+00 to 113+00
B-4520	0+00 to 37+56
B-4550	0+00 to 26+49

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

On the following road(s), Purchaser shall clean and reconstruct ditches, headwalls, and catchbasins. Work must be completed before timber haul and must be done in accordance with the TYPICAL SECTION SHEET. Pulling ditch material across the road or mixing in with the road surface is not allowed.

<u>Road</u>	<u>Stations</u>	<u>Comments</u>
B-4000	0+00 to 79+80	
B-4500	0+00 to 113+00	
B-4520	0+00 to 37+56	
B-4550	0+00 to 26+49	From 15+00 to 26+49 ditch as directed by Contract Administrator

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

SUBSECTION BRUSHING

3-1 BRUSHING

On the following road(s), Purchaser shall cut vegetative material up to 3 inches in diameter, including limbs, as shown on the BRUSHING DETAIL. Brushing must be achieved by manual or mechanical cutting of brush, trees, and branches. Purchaser shall remove brushing debris from the road surface, ditchlines, and culvert inlets and outlets.

<u>Road</u>	<u>Stations</u>
B-4000	0+00 to 79+80
B-4500	0+00 to 113+00
B-4520	0+00 to 37+56
B-4550	0+00 to 26+49

SUBSECTION CLEARING

3-5 CLEARING

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

3-8 PROHIBITED DECKING AREAS

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

- Within the grubbing limits.
- Within 50 feet of any stream.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- On slopes greater than 55%.
- Against standing trees unless approved by the Contract Administrator.

SUBSECTION GRUBBING

3-10 GRUBBING

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

SUBSECTION ORGANIC DEBRIS

3-20 ORGANIC DEBRIS DEFINITION

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

3-21 DISPOSAL COMPLETION

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

3-23 PROHIBITED DISPOSAL AREAS

Purchaser shall not place organic debris in the following areas:

- Within 50 feet of a cross drain culvert.
- Within 100 feet of a live stream, or wetland.
- On road subgrades, or excavation and embankment slopes.
- On slopes greater than 55%.
- Within the operational area for cable landings where debris may shift or roll.
- On locations where brush can fall into the ditch or onto the road surface.
- Against standing timber.

3-24 BURYING ORGANIC DEBRIS RESTRICTED

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

3-25 SCATTERING ORGANIC DEBRIS

Purchaser shall scatter organic debris outside the clearing limits.

SECTION 4 – EXCAVATION

4-1 EXCAVATOR CONSTRUCTION

Purchaser shall use a track mounted hydraulic excavator for construction work, unless authorized in writing by the Contract Administrator.

4-2 PIONEERING

Pioneering may not extend more than 1000 feet beyond completed construction unless approved in writing by the Contract Administrator. In addition, the following actions must be taken as pioneering progresses:

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

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

Purchaser shall follow these standards for road grade and alignment except as designed:

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 18 percent favorable and 12 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Maximum grade change for sag vertical curves is 6% in 100 feet.
- Maximum grade change for crest vertical curves is 4% in 100 feet.

4-5 CUT SLOPE RATIO

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

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

4-6 EMBANKMENT SLOPE RATIO

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

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

4-7 SHAPING CUT AND FILL SLOPE

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

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

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

4-9 EMBANKMENT WIDENING

The minimum embankment widening is:

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

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

SUBSECTION INTERSECTIONS, TURNOUTS AND TURNAROUNDS

4-21 TURNOUTS

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

4-22 TURNAROUNDS

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

SUBSECTION DITCH CONSTRUCTION

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

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

4-27 DITCH WORK – MATERIAL USE PROHIBITED

On the following road(s), Purchaser shall not pull ditch material across the road or mix in with the road surface. Excavated material must be scattered outside the grubbing limits.

<u>Road</u>	<u>Stations</u>
B-4000	0+00 to 79+80
B-4500	0+00 to 113+00
B-4520	0+00 to 37+56
B-4550	0+00 to 26+49

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

Purchaser shall construct ditchouts as needed and as directed by the Contract Administrator. Ditchouts must be constructed in a manner that diverts ditch water onto the forest floor and must have excavation backslopes no steeper than a 1:1 ratio.

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 55% if the waste material is compacted and free of organic debris.

4-38 PROHIBITED WASTE DISPOSAL AREAS

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

- Within 50 feet of a cross drain culvert.
- Within 100 feet of a live stream or wetland.
- Within a riparian management zone.
- On side slopes steeper than 55%.
- 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.

SUBSECTION SHAPING

4-55 ROAD SHAPING

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

4-56 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 for embankment and waste area segments too narrow to accommodate equipment. Waste material may be placed by end-dumping or sidecasting until sufficiently wide enough to support the equipment.

4-61 SUBGRADE COMPACTION

Purchaser shall compact constructed 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 rock application.

4-62 DRY WEATHER COMPACTION

At any time of 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.

SECTION 5 – DRAINAGE

SUBSECTION CULVERTS

5-5 CULVERTS

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

5-6 USED CULVERT MATERIAL

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

<u>Road</u>	<u>Stations</u>
B-4521	0+00 to 5+97
B-4551	0+00 to 5+49
B-4570	0+00 to 13+28
KC-9710	0+00 to 6+35

5-11 UNUSED MATERIALS STATE PROPERTY

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

SUBSECTION CULVERT INSTALLATION

5-15 CULVERT INSTALLATION

Culvert installation must be in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL and the Corrugated Polyethylene Pipe Association’s “Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings”. Corrugated Polyethylene pipe must be installed in a manner consistent with the manufacturer’s recommendations.

5-17 CROSS DRAIN SKEW AND SLOPE

Cross drains, on road grades in excess of 3%, must be skewed at least 30 degrees from perpendicular to the road centerline, except where the cross drain is at the low point in the road culverts will not be skewed. Cross drain culverts must be installed at a slope steeper than the incoming ditch grade, but not less than 3% or more than 10%.

5-18 CULVERT DEPTH OF COVER

Cross drain culverts must be installed with a depth of cover of not less than 1 foot of compacted subgrade over the top of the culvert at the shallowest point. Stream crossing culverts must be installed with a depth of cover recommended by the culvert manufacturer for the type and size of the pipe.

SUBSECTION ENERGY DISSIPATERS

5-20 ENERGY DISSIPATERS

Purchaser shall install energy dissipaters in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all culverts on the CULVERT AND DRAINAGE LIST that specify the placement of rock. Energy dissipater installation is subject to approval by the Contract Administrator.

The type of energy dissipater and the amount of material must be consistent with the specifications listed on the CULVERT AND DRAINAGE LIST. Energy dissipaters must extend a minimum of 1 foot to each side of the culvert at the outlet and a minimum of 2 feet beyond the outlet. Rock must be set in place by machine. Placement must be by zero-drop-height method only. No placement by end dumping or dropping of rock is allowed.

SUBSECTION CATCH BASINS, HEADWALLS, AND ARMORING

5-25 CATCH BASINS

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

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

Purchaser shall construct headwalls in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all cross drain culverts. Rock used for headwalls must be QUARRY SPLLS or LIGHT LOOSE RIP RAP. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets. Minimum specifications require that rock be placed at a width of one culvert diameter on each side of the culvert opening, and to a height of one culvert diameter above the top of the culvert. Rock may not restrict the flow of water into culvert inlets or catch basins. Placement must be by zero-drop-height method only. No placement by end dumping or dropping of rock is allowed. QUARRY SPALLS and LIGHT LOOSE RIP RAP shall meet the specifications in CLAUSE 6-43 QUARRY SPALLS and CLAUSE 6-50 LIGHT LOOSE RIP RAP.

SUBSECTION SURFACE DRAINAGE

5-33 NATIVE SURFACE ROADS

If overwintered, native surface roads must be waterbarred by November 1. Purchaser shall construct waterbars according to the attached DRIVABLE WATERBAR DETAIL at a maximum spacing that will produce a vertical distance of no more than 10 feet between waterbars or between natural drainage paths, and with a maximum spacing of 300 feet.

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. Purchaser shall obtain written approval from the Contract Administrator for the use of material from any other source. If other operators are using, or desire to use the rock source(s), a joint operating plan must be developed. All parties shall follow this plan. 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>
Too Thin Quarry	SE ¼, NW ¼, Section 4, Township 17 North, Range 04 West, W.M.	4 Inch In Place

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 not remove more than 300 cubic yards of 3 Inch Minus Crushed rock. Purchaser shall not remove additional yardage without prior written approval from the Contract Administrator. Other stockpiles may not be used without prior written approval from the Contract Administrator.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
Too Thin Quarry	SE ¼, NW ¼, Section 4, Township 17 North, Range 04 West, W.M.	3 Inch Minus Crushed

SUBSECTION ROCK SOURCE DEVELOPMENT

6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE

Purchaser shall conduct rock source development and use at the following sources, in accordance with the written ROCK SOURCE DEVELOPMENT PLAN prepared by the state included in this road plan. Upon completion of operations, the rock source must be left in the condition specified in the ROCK SOURCE DEVELOPMENT PLAN, and approved in writing by the Contract Administrator. Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before starting any operations in the rock source.

<u>Source</u>
Too Thin Quarry

6-12 ROCK SOURCE SPECIFICATIONS

Rock sources must be in accordance with the following specifications, unless otherwise specified in the ROCK SOURCE DEVELOPMENT PLAN:

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

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

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

6-14 DRILL AND SHOOT

Rock drilling and shooting must meet the following specifications:

- Oversize material remaining in the rock source at the conclusion of the timber sale may not exceed 5% of the total volume mined in that source.
- Oversize material is defined as rock fragments larger than two feet in any dimension.
- Oversized rock that exceeds the maximum allowable amount must be reduced to a smaller size within the rock source.
- Purchaser shall notify the Contract Administrator a minimum of 3 working days before blasting operations.
- Purchaser shall submit an informational drilling and shooting plan to the Contract Administrator 3 working days before any drilling.
- All operations must be carried out in compliance with the Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration and the Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.
- Purchaser shall block access roads before blasting operations.

6-20 ROCK GRADATION TYPES

Purchaser shall manufacture rock in accordance with the types and amounts listed in the ROCK LIST. Rock must meet the following specifications for gradation and uniform quality when placed in hauling vehicles.

6-21 IN-PLACE PROCESSING

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

SUBSECTION ROCK GRADATIONS

6-38 4-INCH IN-PLACE ROCK

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

In-place rock may not contain more than 5 percent by weight of organic debris and trash. No more than 50 percent of rock may be larger than 8 inches in any dimension and no rock may be larger than 12 inches in any dimension.

6-43 QUARRY SPALLS

% Passing 8" square sieve	100%
% Passing 3" square sieve	40% maximum
% Passing 3/4" square sieve	10% maximum

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

6-50 LIGHT LOOSE RIP RAP

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

<u>At Least/Not More Than</u>	<u>Size Range</u>
20% / 90%	20" - 36"
80% / --	12" - 30"
10% / 20%	3" - 8"

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 compacted 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

Purchaser shall obtain written approval from the Contract Administrator for subgrade including: ditches, headwalls, catch basins, culverts, energy dissipaters, ditch-outs, subgrade shaping and compacting before rock application.

6-71 ROCK APPLICATION

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

6-73 ROCK FOR WIDENED PORTIONS

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

SUBSECTION DUST ABATEMENT

6-80 WATERING FOR DUST ABATEMENT

On the following roads, Purchaser shall use water for dust abatement as directed by the Contract Administrator.

<u>Road</u>	<u>Stations</u>
B-Line	22+97 to 55+97

SECTION 8 – EROSION CONTROL

8-1 SEDIMENT CONTROL STRUCTURES

Purchaser shall install sediment traps in accordance with the SEDIMENT TRAP DETAIL and as listed on the CULVERT AND DRAINAGE LIST.

8-2 PROTECTION FOR EXPOSED SOIL

Purchaser shall provide and evenly spread a layer of straw to all exposed soils within 50 feet of a stream or wetland. Soils must be covered before the first anticipated storm event. Soils may not sit exposed during any rain event.

SECTION 9 – POST-HAUL ROAD WORK

SUBSECTION STRUCTURES

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

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

SUBSECTION POST-HAUL MAINTENANCE

9-5 POST-HAUL MAINTENANCE

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

SUBSECTION POST-HAUL LANDING MAINTENANCE

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

SUBSECTION DECOMMISSIONING

9-20 ROAD DECOMMISSIONING

Purchaser shall decommission the following roads before the termination of this contract.

<u>Road</u>	<u>Stations</u>
B-4521	0+00 to 5+97
B-4551	0+00 to 5+49
B-4570	0+00 to 13+28
KC-9710	0+00 to 6+35

9-22 DECOMMISSIONING

- Construct non-drivable waterbars according to the attached NON-DRIVABLE WATERBAR DETAIL at a maximum spacing that will produce a vertical drop of no more than 10 feet between waterbars or between natural drainage paths and with a maximum spacing of 100 feet, or as marked in the field.
- Skew waterbars at least 30 degrees from perpendicular to the road centerline on roads in excess of 3 percent grade.
- Key waterbars into the cut-slope to intercept the ditch. Waterbars shall be outsloped to provide positive drainage. Outlets must be on stable locations.
- Block roads with earthen barricades in accordance with the attached BARRICADE DETAIL at the following locations:

<u>Road</u>	<u>Stations</u>
B-4521	0+00
B-4551	0+00
B-4570	0+00
KC-9710	0+00

- Remove ditch cross drain culverts and leave the resulting trench open.
- Remove stream culverts and leave the resulting trench open with excavated channel width of minimum 2 feet.
- Slope all trench walls and approach embankments no steeper than 1.5:1.
- Remove culverts from State land.
- Cover, concurrently with decommissioning, all exposed soils within 50 feet of any live stream, with a layer of straw. Straw shall be furnished by the Purchaser.

SECTION 10 MATERIALS

SUBSECTION CULVERTS

10-17 CORRUGATED PLASTIC CULVERT

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

10-22 PLASTIC BAND

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

COMPACTION LIST

Road	From Station	To Station	Type	Max Depth Per Lift (inches)	Equipment Type	Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)
All new construction			Culvert Installations	12	Vibratory Smooth Drum	14,000	4	3
			Embankment	12				
			Fill	12				
			Subgrade	12				
			Rock	12				
			Waste Area	12				
B-Line	55+97	265+92	After grading existing road surface. Culvert Installations.	12	Vibratory Smooth Drum	14,000	4	3
B-4000	0+00	229+64						
B-4500	0+00	30+99						
B-4520	0+00	32+83						
B-4550	0+00	26+49						

ROCK LIST

BALLAST

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y. Station	# of Stations	C.Y. Subtotal	Rock Source
			K2	B2	4 Inch In Place			
B-4521*	0+00	5+97	1.5:1	9"	38	6	228	Too Thin Quarry
B-4551*	0+00	5+49	1.5:1	9"	38	6	228	
B-4570*	0+00	13+28	1.5:1	9"	38	13	494	
KC-9700	0+00	6+80	1.5:1	9"	38	7	266	
KC-9710*	0+00	6+35	1.5:1	9"	38	7	266	
Quarry Spalls or Light Loose Rip Rap								
For culvert Installations. See Culvert and Drainage List for locations							24.5	

4 Inch In Place BALLAST TOTAL: 1482 cubic yards
 Quarry Spalls BALLAST TOTAL: 24.5 cubic yards

*Optional Rock: If Purchaser elects to haul on optional rock roads in wet weather, the depth listed above is recommended but not required.

SURFACE

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y. Station	# of Stations	C.Y. Total	Rock Source	Comment
			K1	B1	2-1/2 Inch Minus Crushed				
For surface rock over B-Line Road culvert Installations. See Culvert List for locations. Place minimum 12 inches of rock over disturbed ground over each culvert installation on the B-Line road. Rock slope is 1.5:1.							99	Too Thin Quarry Stockpile	
For surface rock over B-4000 road culvert Installations. See Culvert List for locations. Place minimum 12 inches of rock over disturbed ground over each culvert installation on the B-4000 road. Rock slope is 1.5:1.							11		
For surface rock over B-4500 road culvert Installations. See Culvert List for locations. Place minimum 12 inches of rock over disturbed ground over each culvert installation on the B-4500 road. Rock slope is 1.5:1.							22		
For surface rock over B-4520 road culvert Installations. See Culvert List for locations. Place minimum 12 inches of rock over disturbed ground over each culvert installation on the B-4520 road. Rock slope is 1.5:1.							11		

SURFACE TOTAL 143 Cubic Yards

NOTE: Yardages are estimated on a compacted (In-Place) basis. Compliance of required rock will be based on compacted depth measurement. Apply appropriate factors to determine loose amounts for estimating purposes. Roads and rock quantities are designed for dry weather use. If Purchaser elects to haul in wet weather additional rock may be obtained from the rock pits listed in Section 6 at the Purchaser's expense and with prior written approval from the Contract Administrator.

CULVERT AND DRAINAGE LIST, pg 2 of 2

Road Number	Location	Culvert		Length (ft)			Riprap (C.Y.)			Backfill Material*	Placement Method*	Const. Staked*	Remarks
		Dia. (in)	Type	Culvert	Downspt	Flume	Inlet	Outlet	Type				
KC-9700	3+75	18	PD	30			0.5	0.5	QS				
	6+80	18	PD	30			0.5	0.5	QS				
KC-9710	3+80	18	TEMP	30									
Any Road listed in Clause 0-2	-	18	PD	30			0.5	0.5	QS			Install at CA discretion	
	-	18	PD	30			0.5	0.5	QS			Install at CA discretion	
	-	18	PD	30			0.5	0.5	QS			Install at CA discretion	
	-	18	PD	30			0.5	0.5	QS			Install at CA discretion	

* SEE CULVERT AND DRAINAGE SPECIFICATION DETAIL

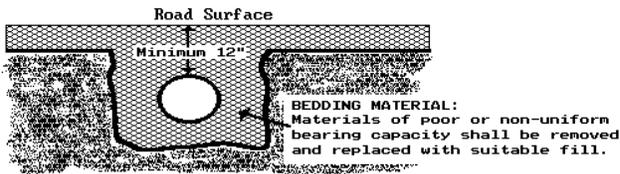
PD = Polyethylene Pipe Dual Wall AASHTO No. M294 Type S or ASTM F2648

TEMP = Temporary Culvert

Key:

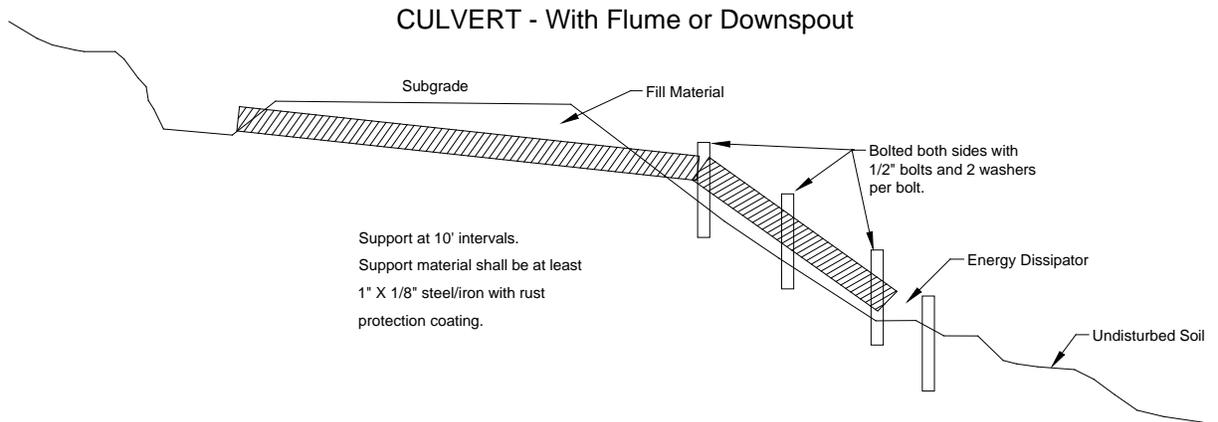
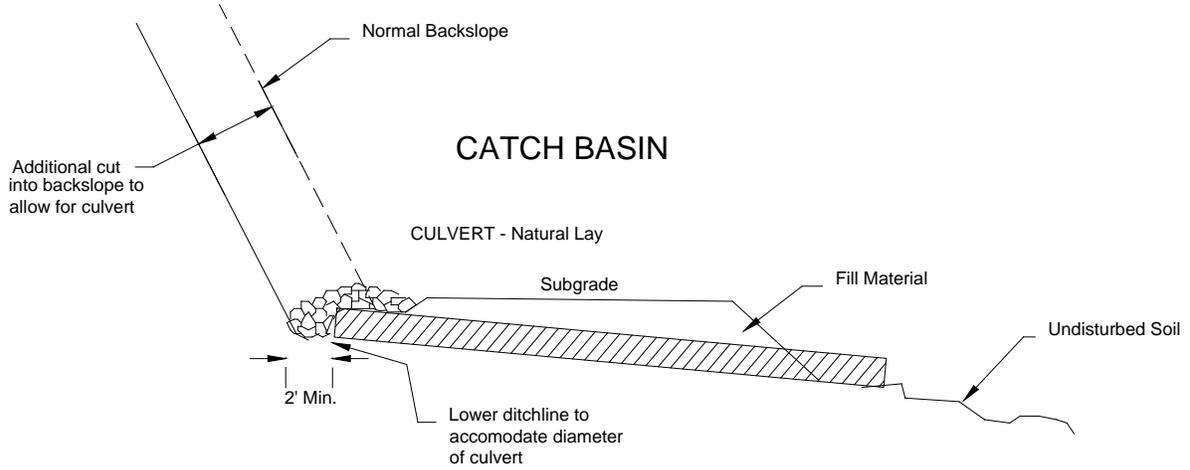
- QS - Quarry Spalls or Light Loose Riprap
- SR - Shot Rock
- NT - Native (bank run)
- SL - Select Fill
- HL - Heavy Loose Riprap
- Flume - Half round pipe
- Downsput - Full round pipe

CULVERT BACKFILL AND BASE PREPARATION
(For culverts less than 36")



CULVERT AND DRAINAGE SPECIFICATION DETAIL

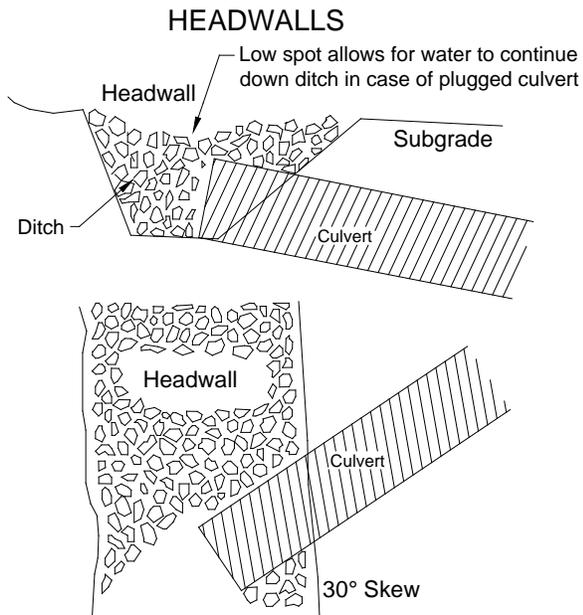
(Page 1 of 3)



CULVERT AND DRAINAGE SPECIFICATION DETAIL

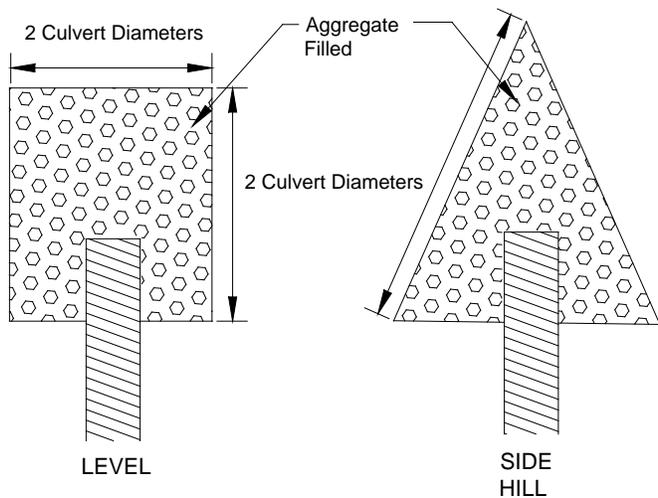
(Page 2 of 3)

Proper preparation of foundation and placement of bedding material shall precede the installation of all culvert pipe. This includes necessary leveling of the native trench bottom and compaction of required bedding material to form a uniform dense unyielding base. The backfill material shall be placed so that the pipe is uniformly supported along the barrel.



Headwalls to be constructed of material that will resist erosion.

ENERGY DISSIPATORS



Dissipator Specifications:
Depth: 1 culvert diameter
Aggregate: as specified in the
CULVERT AND DRAINAGE LIST.

CULVERT AND DRAINAGE SPECIFICATION DETAIL

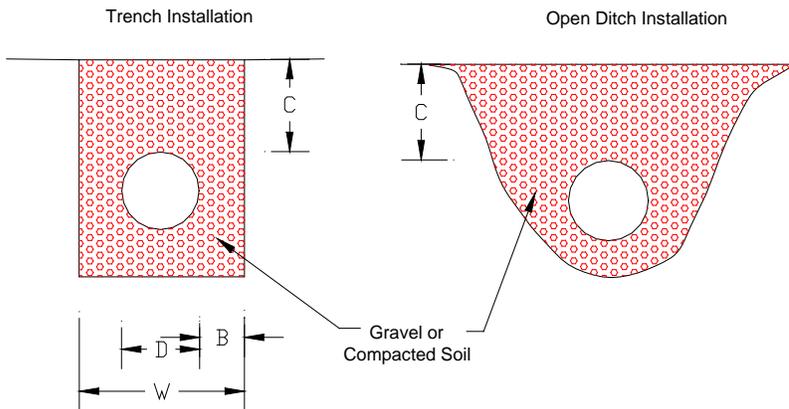
(Page 3 of 3)

POLYETHYLENE PIPE INSTALLATION

INSTALLATION REQUIREMENTS:

1. Crushed stone, gravel, or compacted soil backfill material shall be used as the bedding and envelope material around the culvert. The aggregate size shall not exceed 1/6 pipe diameter or 4" diameter, whichever is smaller.
2. The corrugated pipe shall be laid on grade, on a layer of bedding material as shown for the two types of installations. If native soil is used as the bedding and backfill material, it shall be well compacted in six inch layers under the haunches, around the sides and above the pipe to the recommended minimum height of cover.
3. Either crushed aggregate or flexible (asphalt) pavement may be laid as part of the minimum cover requirements.
4. Site conditions and availability of bedding materials often dictate the type of installation method used.
5. The load bearing capability of flexible conduits is dependent on the type of backfill material used and the degree of compaction achieved. Crushed stone and gravel backfill materials typically reach a compaction level of 90-95% AASHTO standard density without compaction. When native soils are used as backfill material, a compaction level of 85% is required. This minimum compaction can be achieved by either hand or mechanical tamping.

MINIMUM DIMENSIONS Trench or Open Ditch Installation



Nominal Diameter	Minimum Thickness	Minimum Cover	Min. Trench Width
D	B	C	W
18"	6"	12"	36"
24"	6"	12"	42"
30"	6"	12"	48"
36"	6"	12"	54"

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS, page 1 of 2

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, with selected material or material approved by the Contract Administrator. Remove overhanging material from the top of cut slopes.
- Waste material from slides or other sources shall be placed and compacted in stable locations identified in the road plan or approved by the Contract Administrator, so that sediment will not deliver to any streams or wetlands.
- Slide material and debris shall not be mixed into the road surface materials, unless approved by the Contract Administrator.

Surface

- Grade and shape the road surface, turnouts, and shoulders to the original shape on the TYPICAL SECTION SHEET 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.

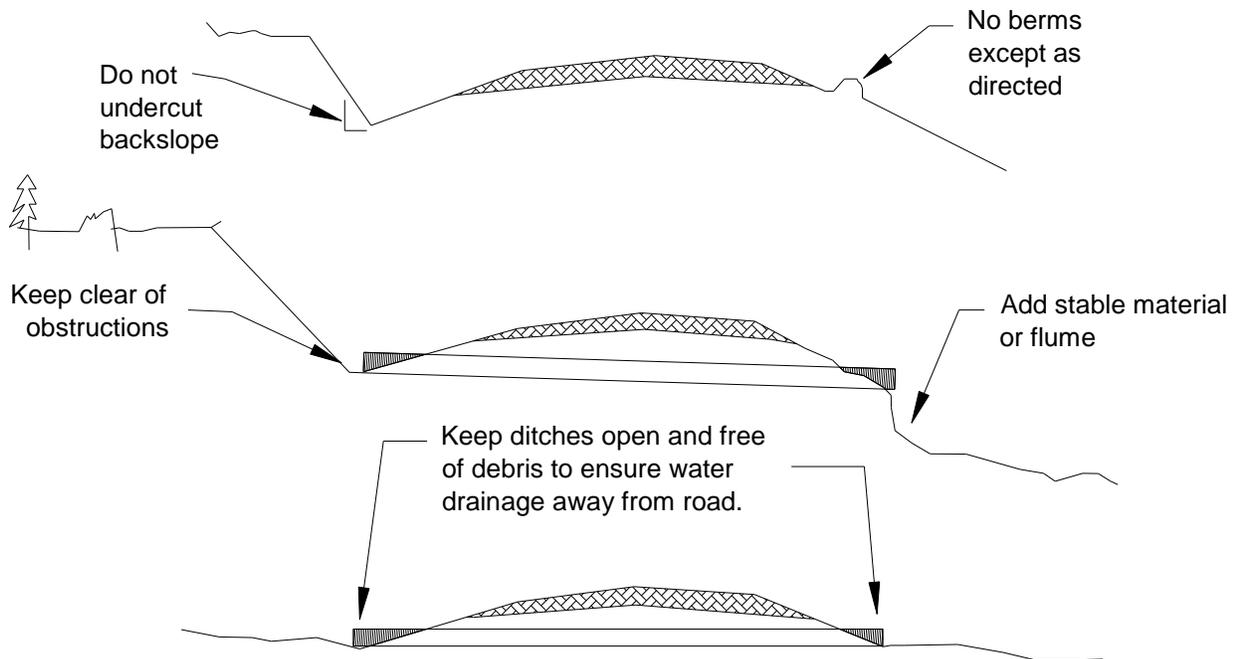
FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS, page 2 of 2

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.



STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES
SOUTH PUGET SOUND REGION

TOO THIN QUARRY DEVELOPMENT PLAN

SE ¼, NW ¼, Section 4, Township 17 North, Range 04 West, W.M.

(Page 1 of 3)

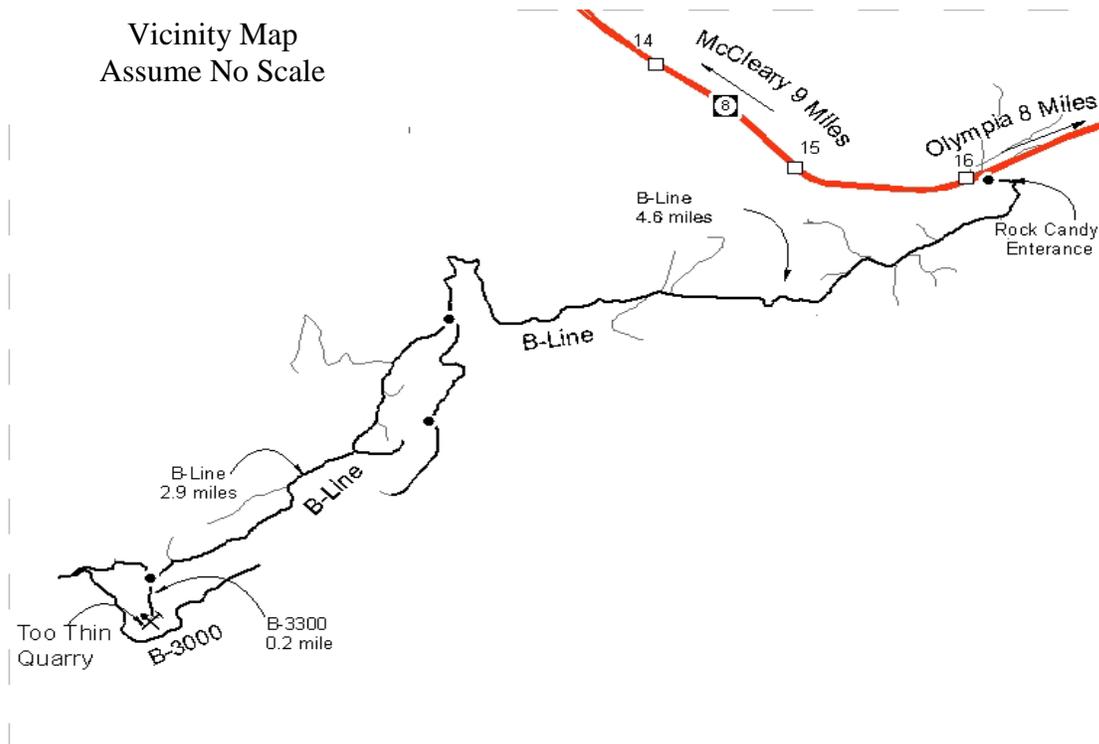
1. Existing Shot Rock may be used from the source indicated on the Plan View.
2. All vegetation including stumps shall be cleared a minimum of 20 feet beyond the top of all working faces.
3. Waste shall be deposited in areas designated by the Contract Administrator. Minimal acceptable compaction is achieved by placing waste material in 2 foot or shallower lifts and routing excavation equipment over the entire width of the lifts.
4. Root wads and organic debris larger than one cubic foot in volume shall be separated from overburden material and piled in the designated waste area.
5. Quarry faces shall not exceed 30 feet in height and shall be sloped no steeper than 1/4:1.
6. Working bench width shall be a minimum of 30 feet.
7. The quarry floor shall have continuity of slope, providing drainage to the B-3300 road (south easterly direction) at a minimum of 2 percent.
8. The Purchaser shall submit an informational drilling and shooting plan to the Contract Administrator 5 working days prior to any drilling (Form#M-126 PAC). Prior to blasting, the Purchaser shall ensure that the B-3000 road is clear of all human life, close the B-3000 to all traffic during blasting activities and maintain the B-3000 as closed to all traffic until the area has been determined safe from blasting activities.
9. Oversize material remaining in the rock source at the conclusion of use shall not exceed 2 percent of the total volume mined during that operation. Oversize material is defined as rock fragments larger than two feet in any direction. At the conclusion of operations, oversize material shall be placed as directed by the Contract Administrator.
10. The pit area shall be worked and left in a condition that future operations may proceed in an orderly manner.
11. Upon completion of operations, the site shall be cleared of all temporary structures, equipment and rubbish, and shall be left in a neat and presentable condition.
12. At the end of operations, quarry faces and walls shall be scaled and cleared of loose and overhanging material. Benches shall have safety berms constructed or access blocked to highway vehicles. Upon completion of operations in the pit, the area will be left in a condition that will not endanger public safety, damage property, or be hazardous to animal or human life.

TOO THIN QUARRY DEVELOPMENT PLAN

SE ¼, NW ¼, Section 4, Township 17 North, Range 04 West, W.M.

(Page 2 of 3)

13. Reclamation will not be required following use.
14. All operations shall be carried out in compliance with all regulations of:
 - a. "Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations" (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration.
 - b. "Safety Standards for Construction Work" (296-155 WAC), Washington Department of Labor and Industries.
15. At the completion of rock source operations, Purchaser shall ask Contract Administrator for written approval of final rock source condition and compliance with the terms of this plan.

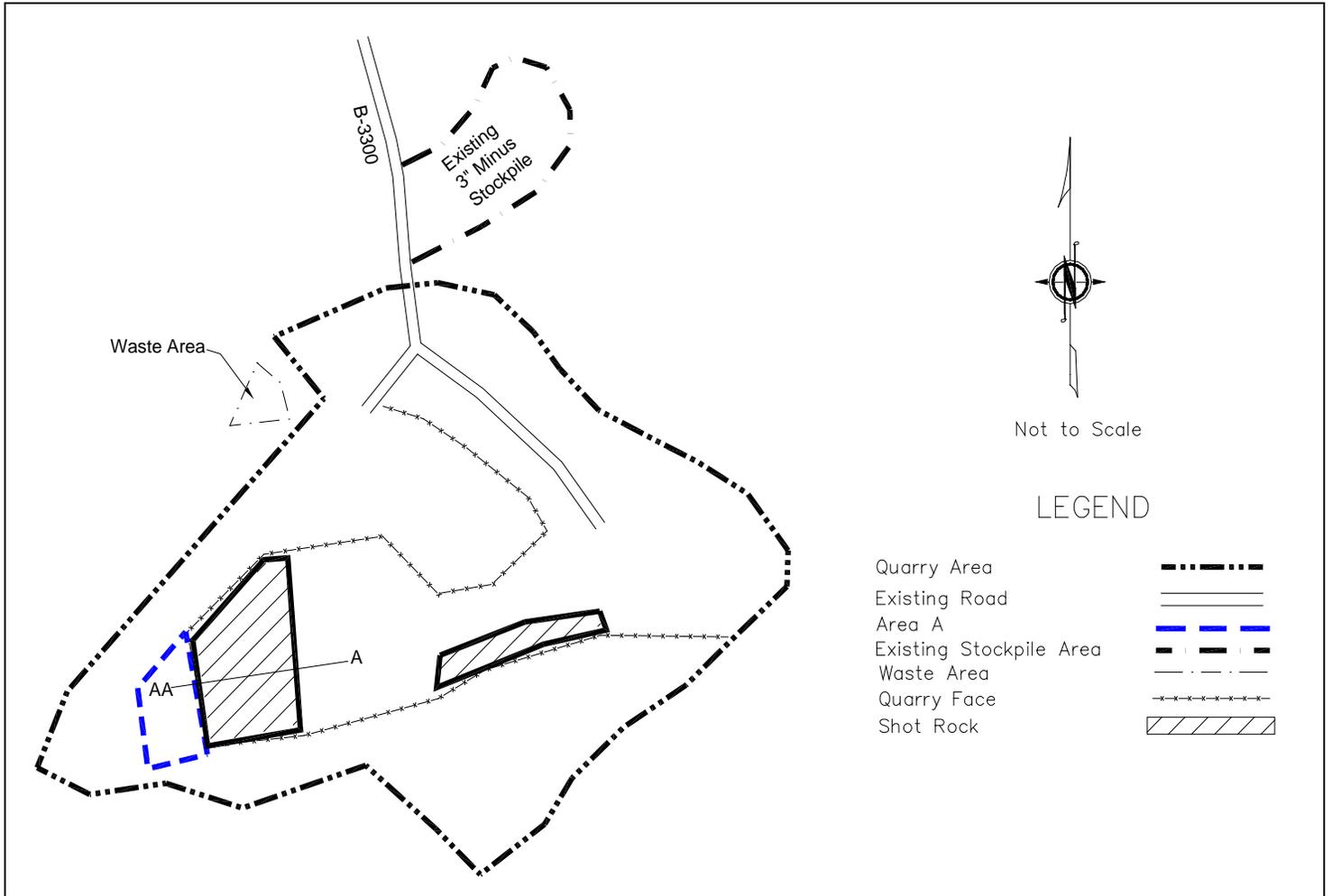


TOO THIN QUARRY DEVELOPMENT PLAN

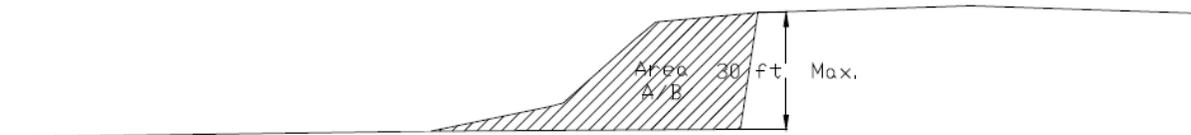
SE ¼, NW ¼, Section 4, Township 17 North, Range 04 West, W.M.

(Page 3 of 3)

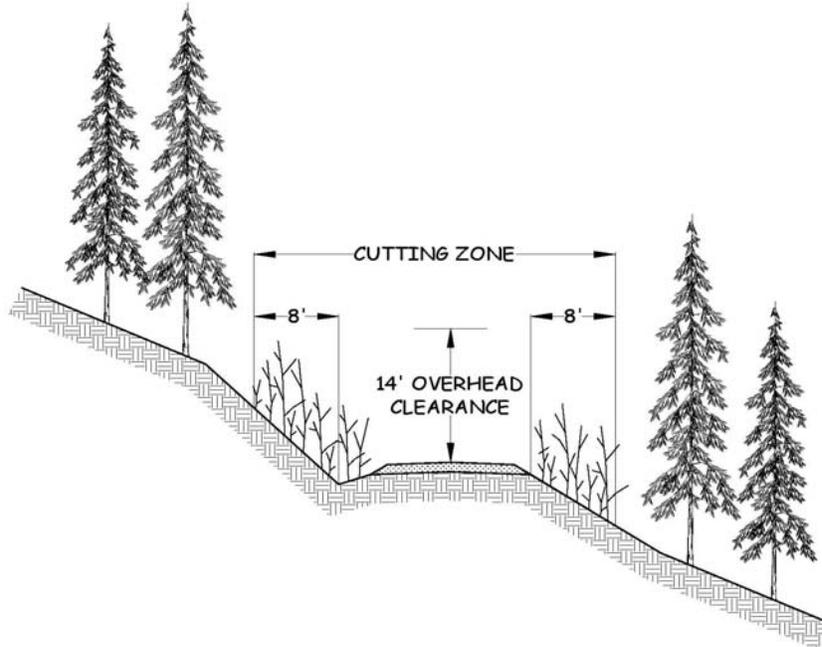
Plan View



PROFILE VIEW



ROAD BRUSHING DETAIL



SPECIFICATIONS

Brush shall be cut on the road surface and 8 ft. back from the back of road ditch and outside edge of running surface.

On the inside of switchbacks and tight curves, brush shall be cut back 16 ft. for visibility.

On truck turnouts or turnarounds, brush shall be cut 8 ft. back from outside edge.

Brush shall be cut to provide an overhead clearance of 14 ft. above the road running surface.

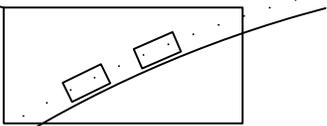
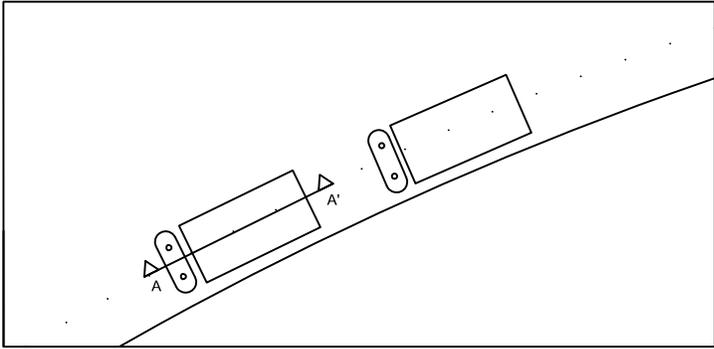
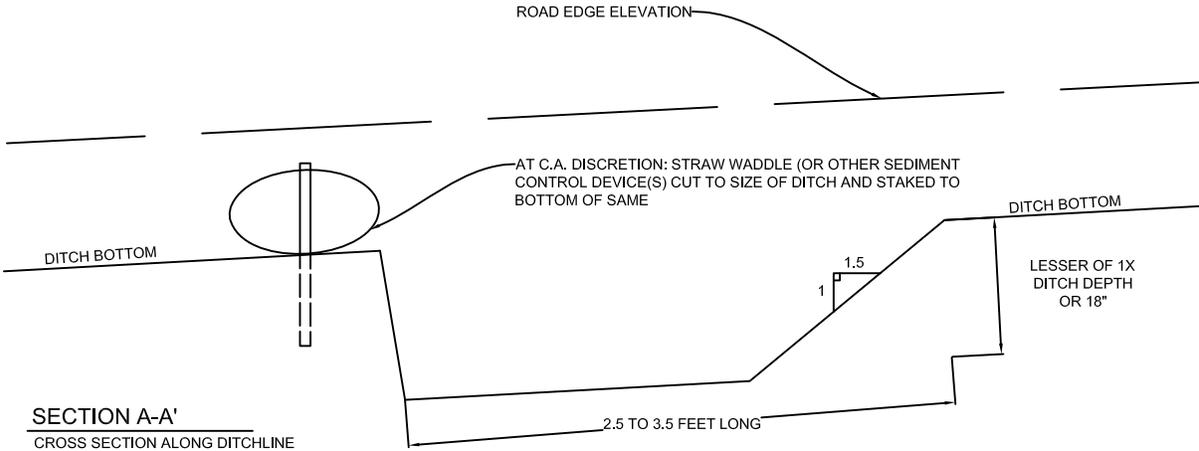
Brush shall be cut to within 6 in. of the ground.

Slash shall be removed from cut slopes above the road and scattered on embankment slopes.

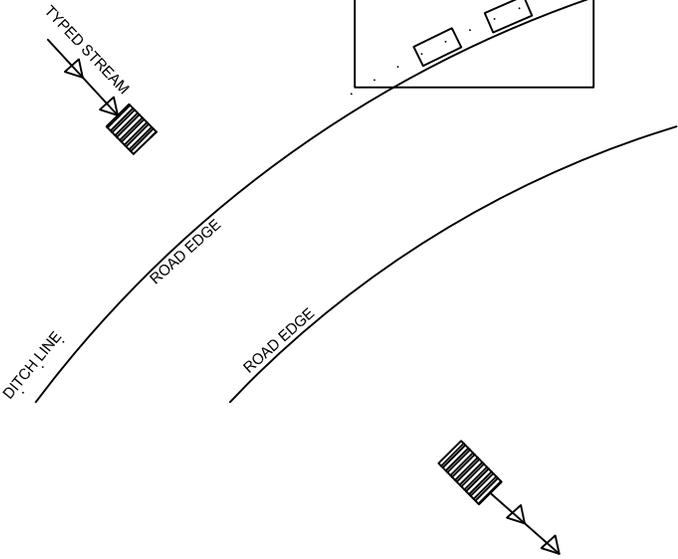
Ditches shall be cleared of woody debris.

Culvert inlets and outlets shall be cleaned a minimum distance of two pipe diameters away.

SEDIMENT TRAP DETAIL



- NOTES:
- CONSTRUCT SEDIMENT TRAPS IN SETS GREATER THAN ONE, WHENEVER POSSIBLE.
 - SEDIMENT TRAPS SHOULD BE PLACED AS CLOSE AS PRACTICABLE TO STREAM CROSSING.
 - IF SEDIMENT TRAPS FILL WITH SEDIMENT DURING HAUL OPERATIONS, REMOVING SEDIMENT FROM TRAPS IS CONSIDERED ROUTINE MAINTENANCE.
 - ADDITIONAL SEDIMENT CONTROL DEVICES, SUCH AS HAY BALES, STRAW WADDLES OR OTHERS MAY BE REQUIRED AS SHOWN IF IN THE OPINION OF THE CONTRACT ADMINISTRATOR, SEDIMENT TRAP ALONE DOES NOT APPEAR TO BE EFFECTIVE.



Date: 09/16/2014
 Scale : NTS
 App#
 Drawn by: WPH
 Sheet 1 of 1

SEDIMENT TRAP DETAIL

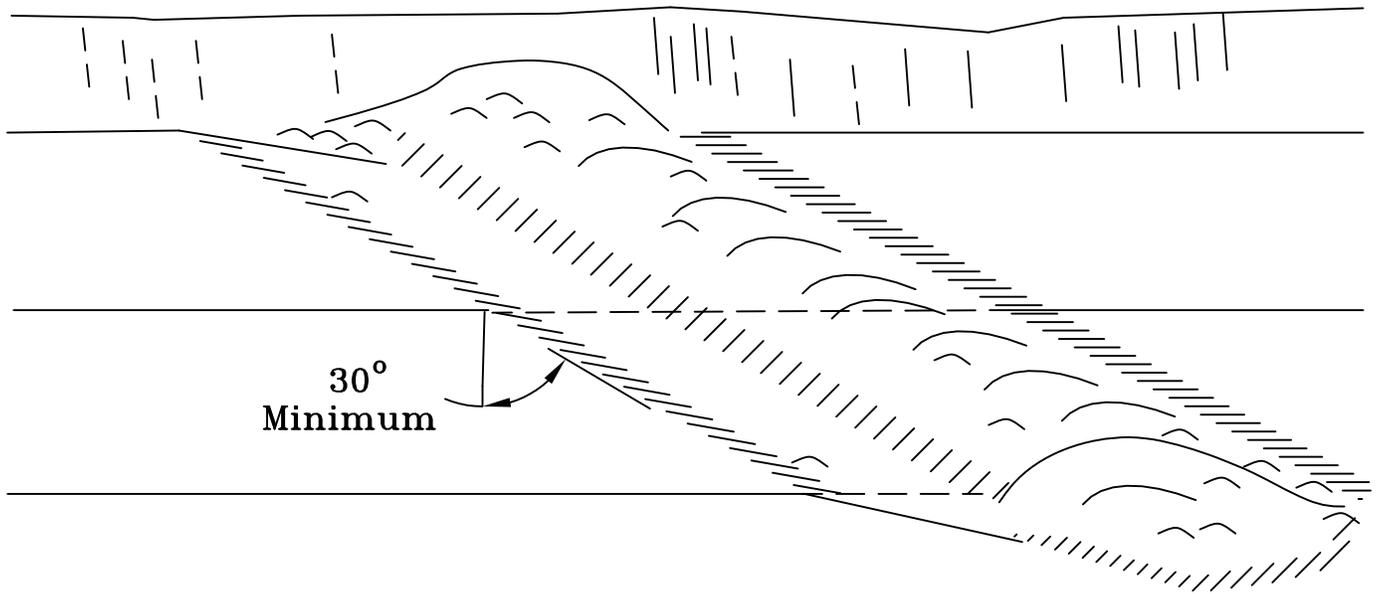
WASHINGTON STATE DEPARTMENT OF

Natural Resources

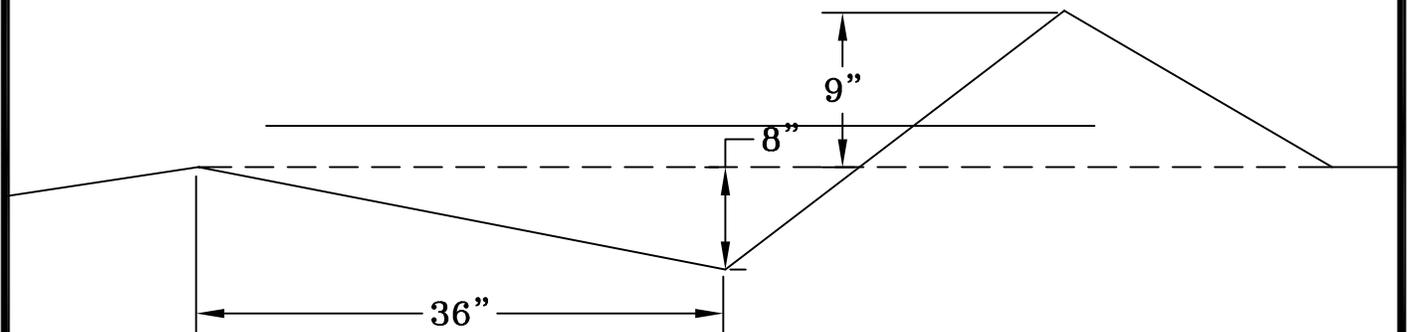
SPS Region

Drivable Water Bar Detail

Cross Ditch



Cross Section at Centerline

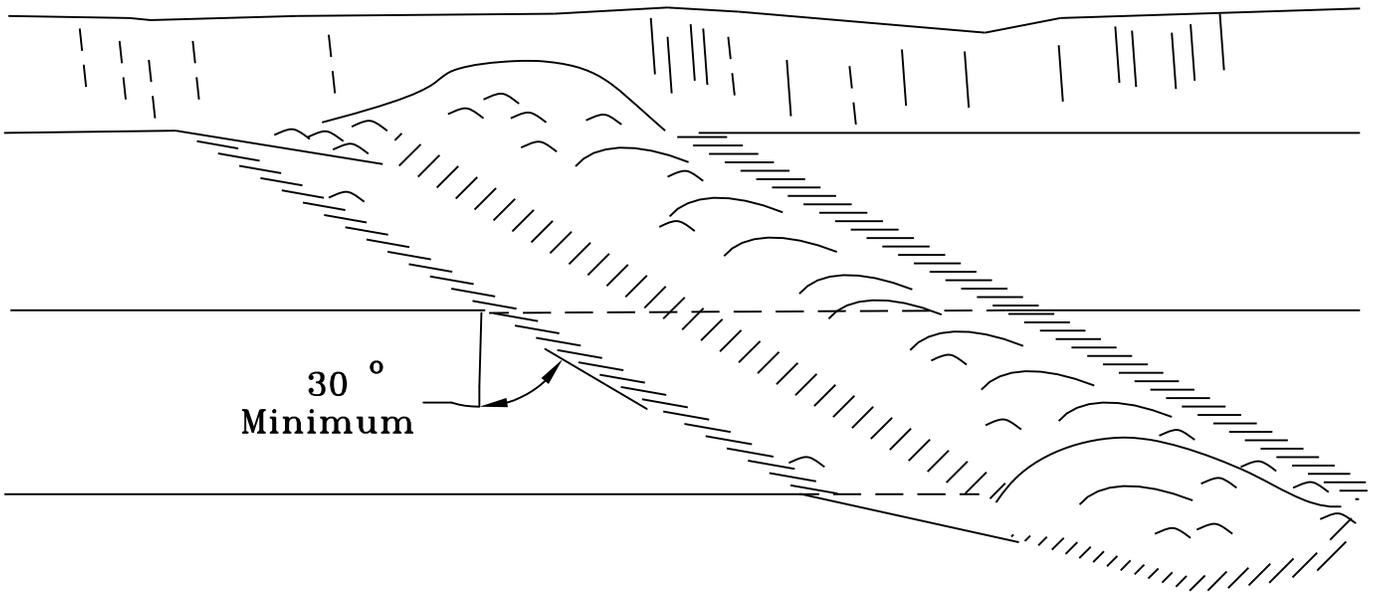


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Drawn by: M.A.D.

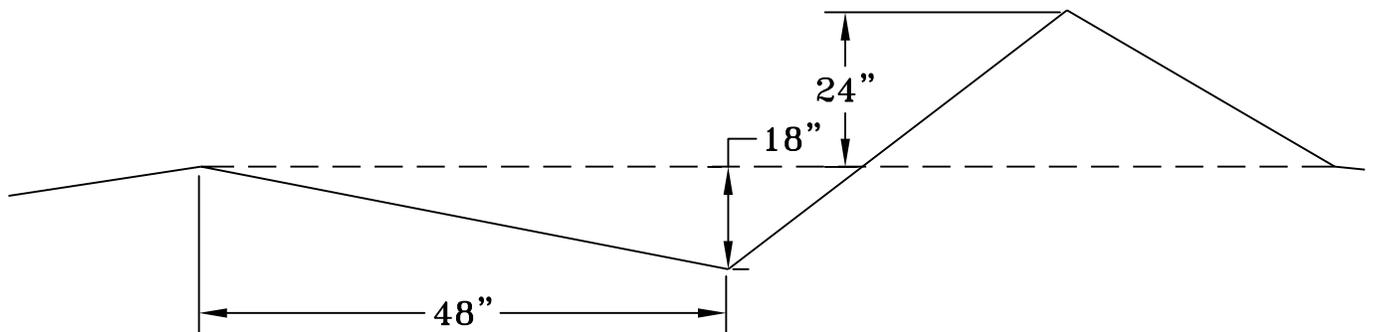
Drivable Water Bar Detail	
	WASHINGTON STATE DEPARTMENT OF Natural Resources
SPS Region	

Non-Drivable Water Bar Detail

Cross Ditch



Cross Section at Centerline



Scale : None
Drawn by: M.A.D.

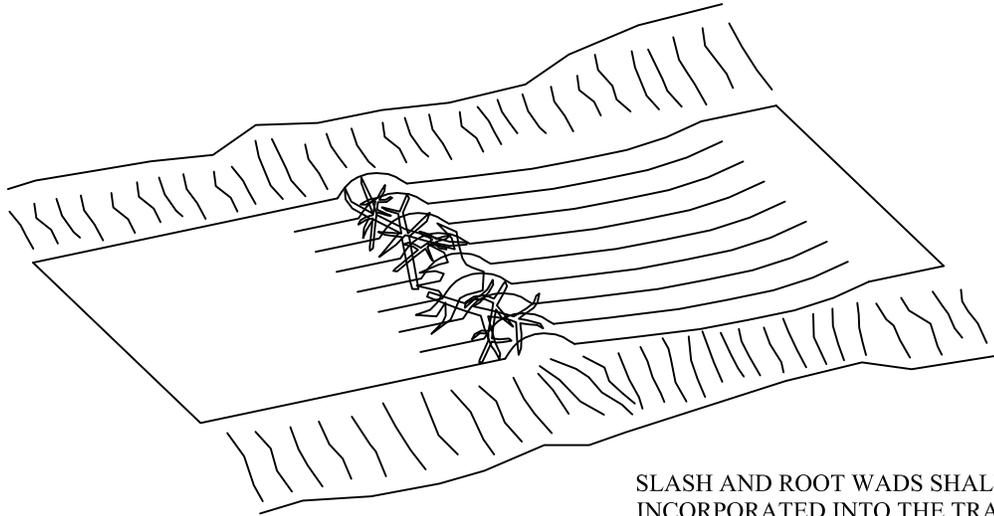


Non-Drivable Water Bar Detail

WASHINGTON STATE DEPARTMENT OF
Natural Resources

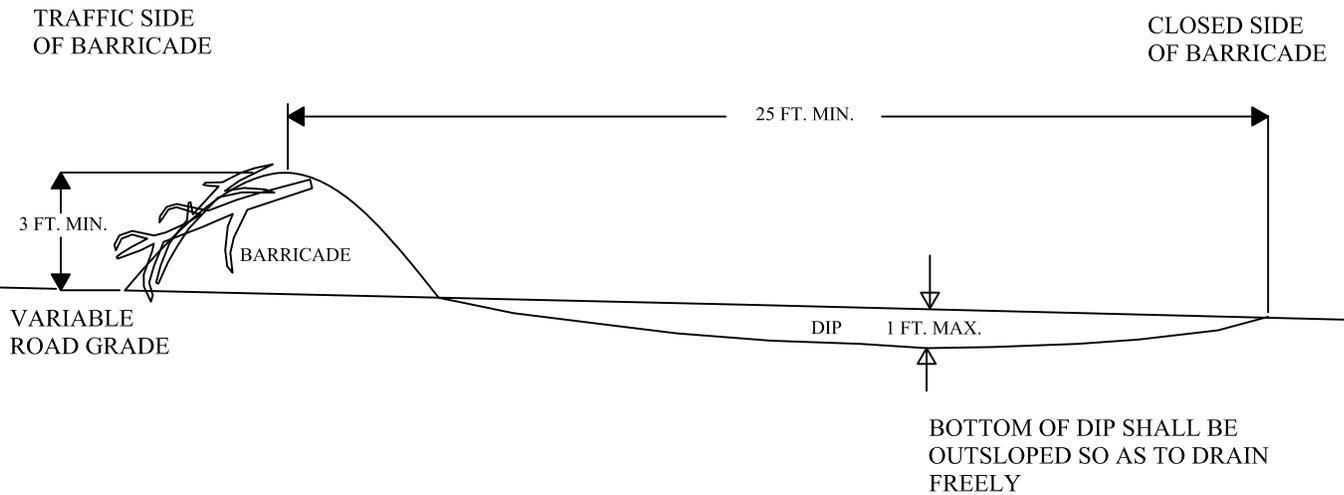
SPS Region

BARRICADE DETAIL

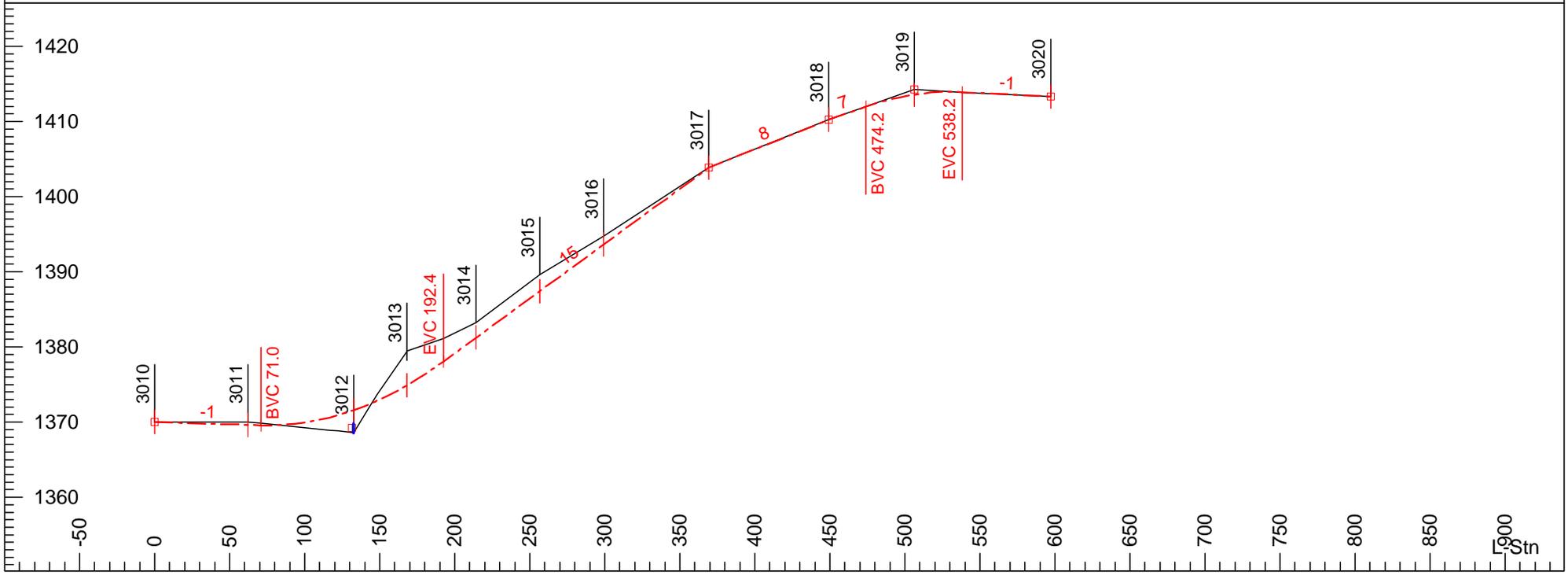
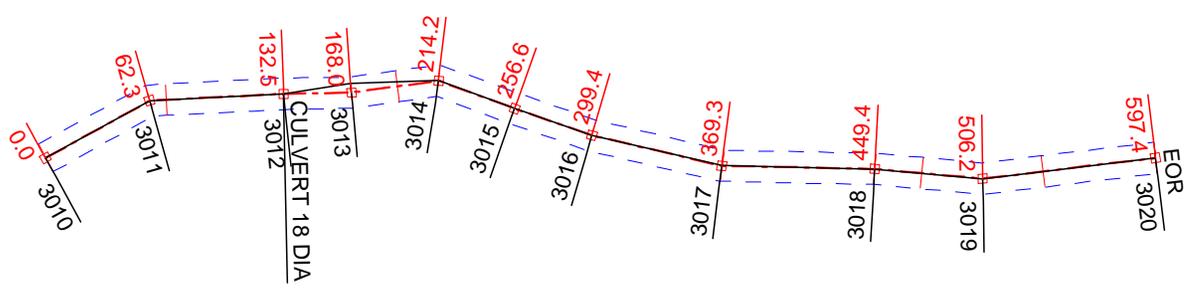


SLASH AND ROOT WADS SHALL BE INCORPORATED INTO THE TRAFFIC SIDE OF THE BARRICADE.

PLAN VIEW



PROFILE VIEW



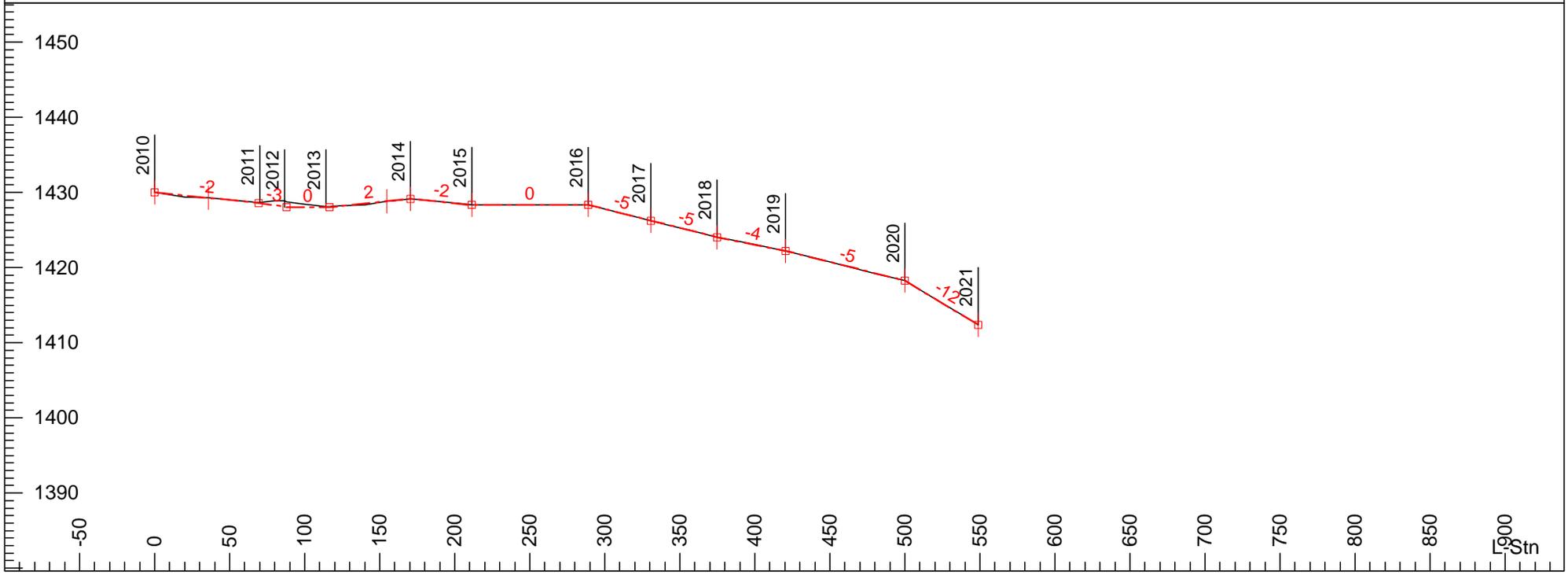
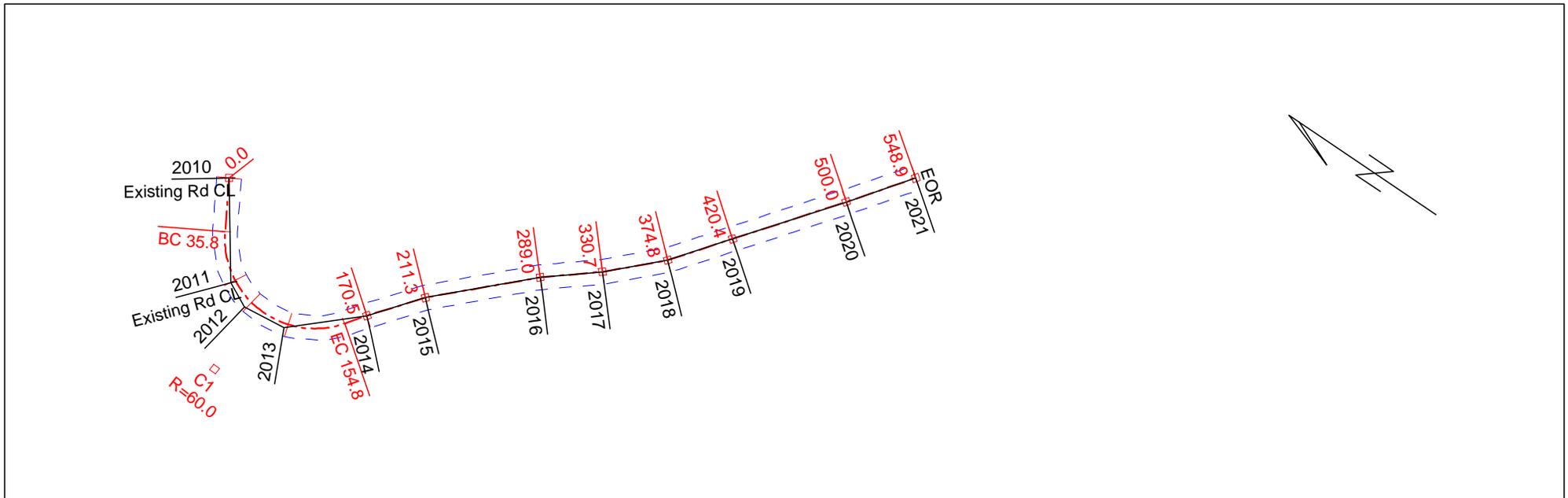
Lower Swan Timber Sale
 B-4521 Road August 12, 2015
 Contract #: 30-091587



Washington State Department of
 Natural Resources
 South Puget Sound Region

Plan Scale 1:1200
 Profile Vert Scale 1:240
 Profile Horz Scale 1:1200

Engineer: M. Bell
 15/09/16 Page 1 of 1



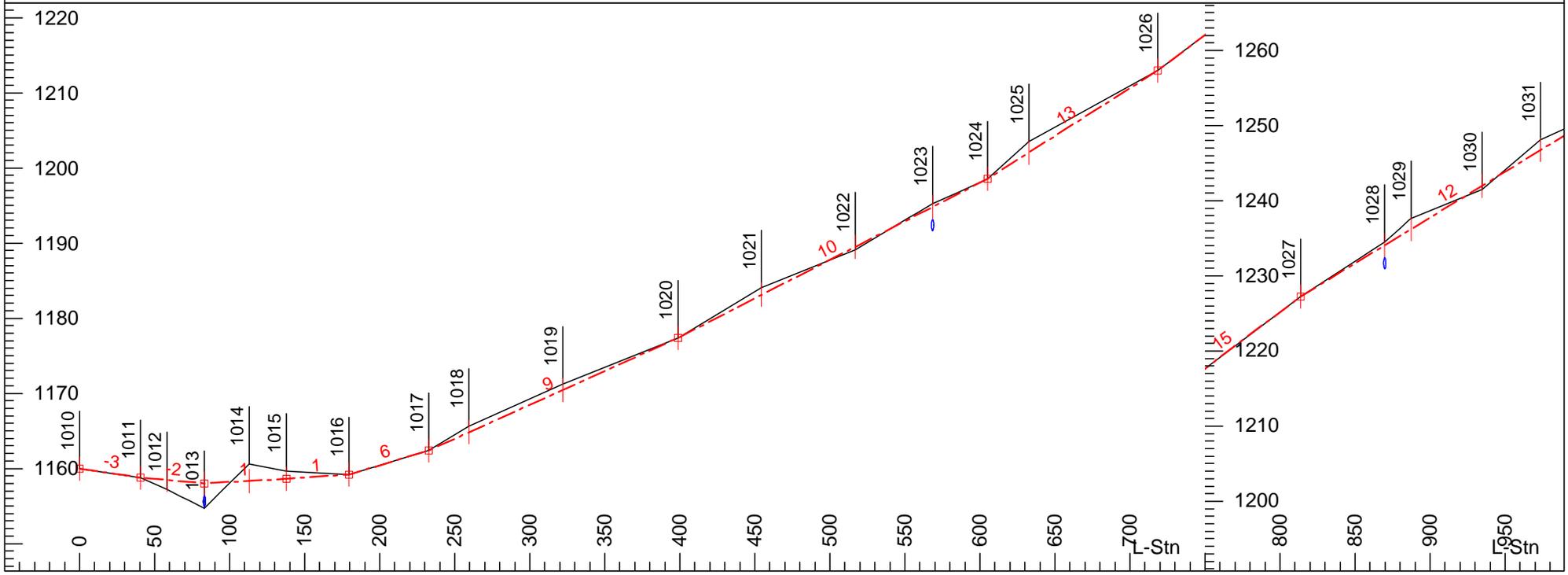
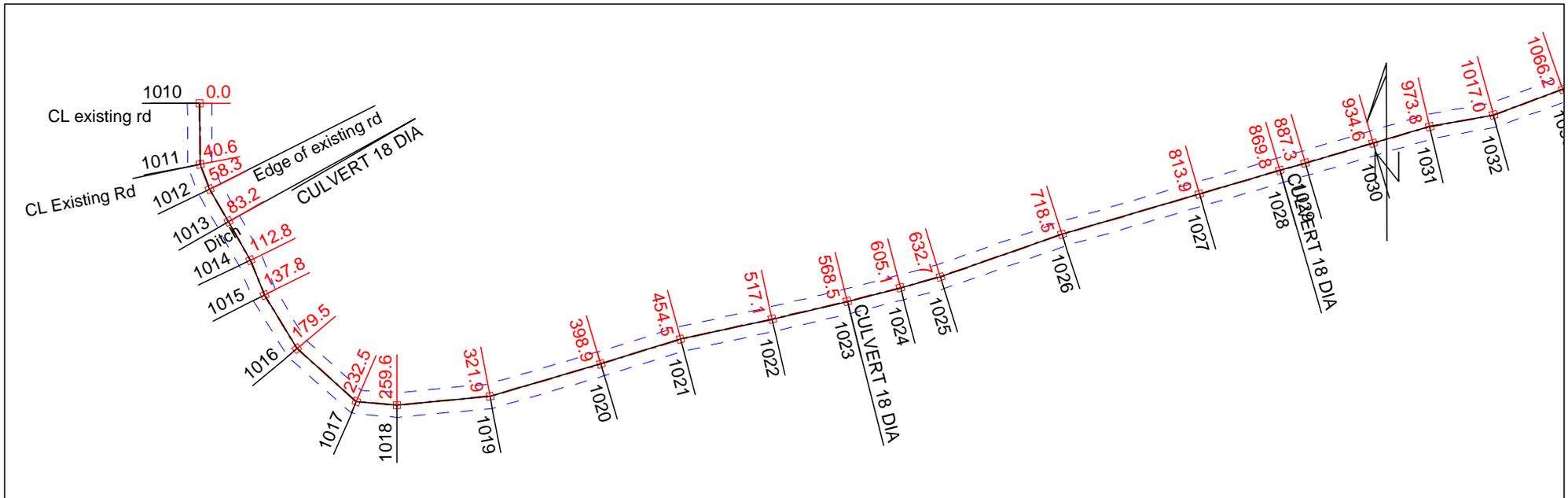
Lower Swan Timber Sale
 B-4551 Road August 12, 2015
 Contract #: 30-091587



Washington State Department of
 Natural Resources
 South Puget Sound Region

Plan Scale 1:1200
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 Profile Horz Scale 1:1200

Engineer: M. Bell
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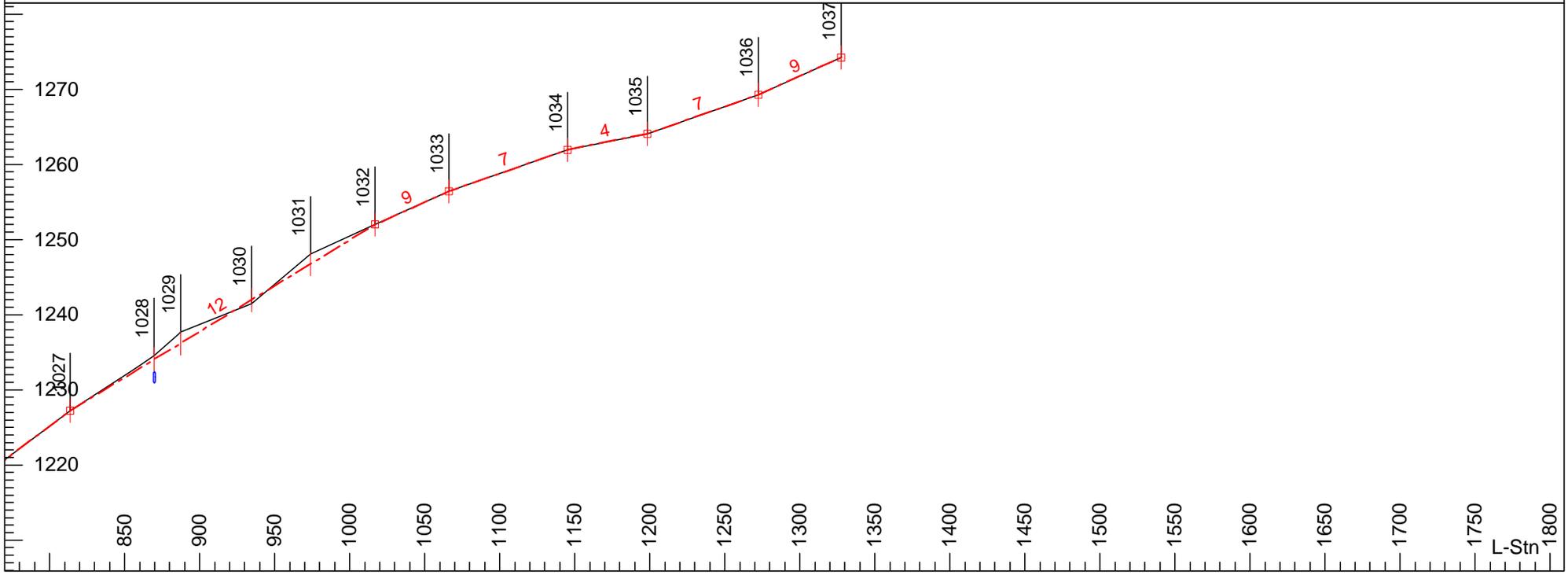
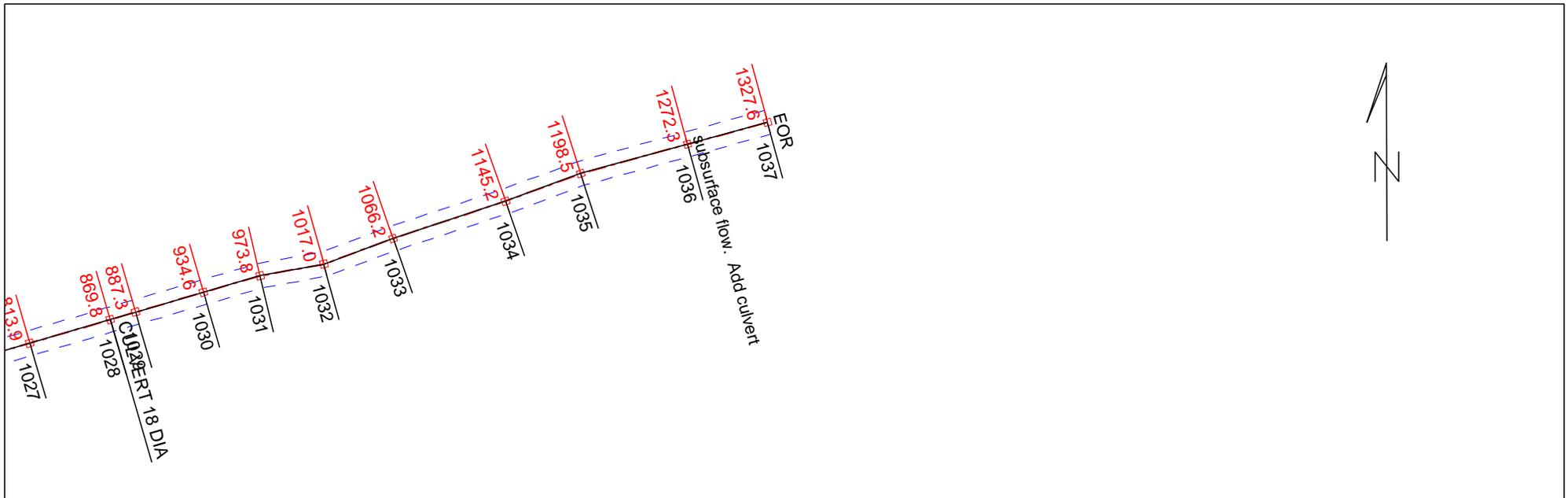
Lower Swan Timber Sale
 B-4570 Road August 12, 2015
 Contract #: 30-091587



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Plan Scale 1:1200
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 Profile Horz Scale 1:1200

Engineer: M. Bell
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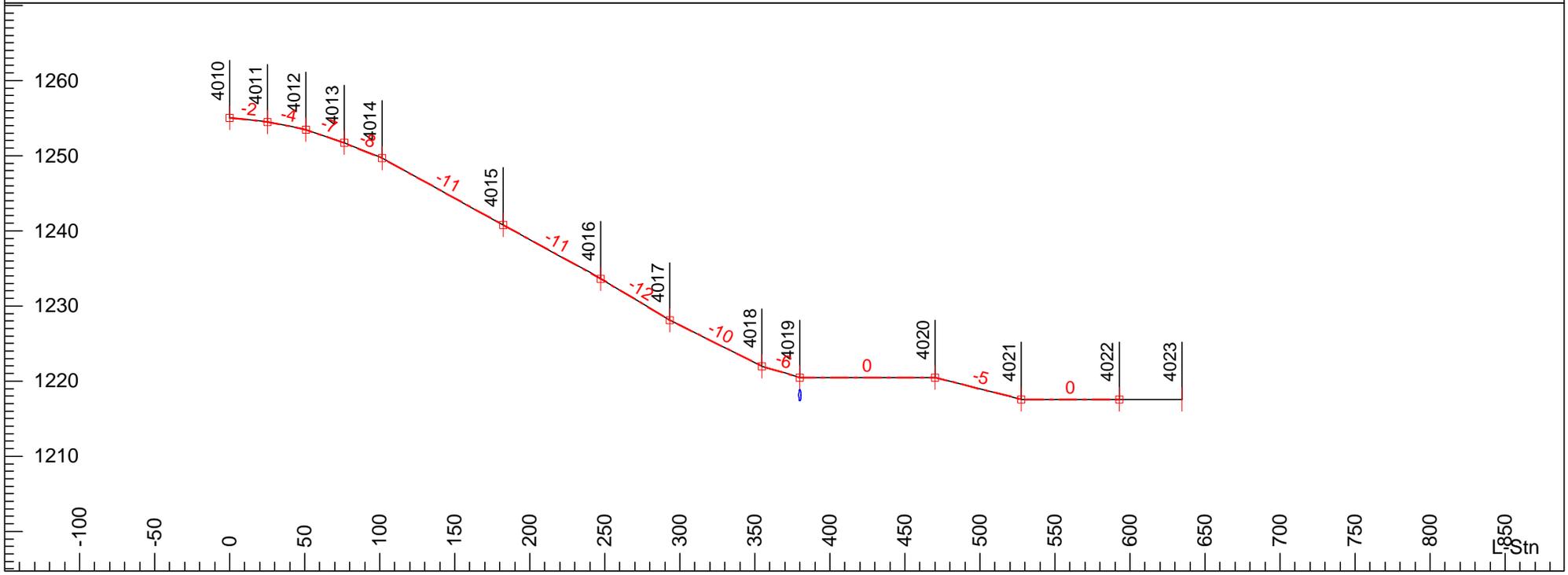
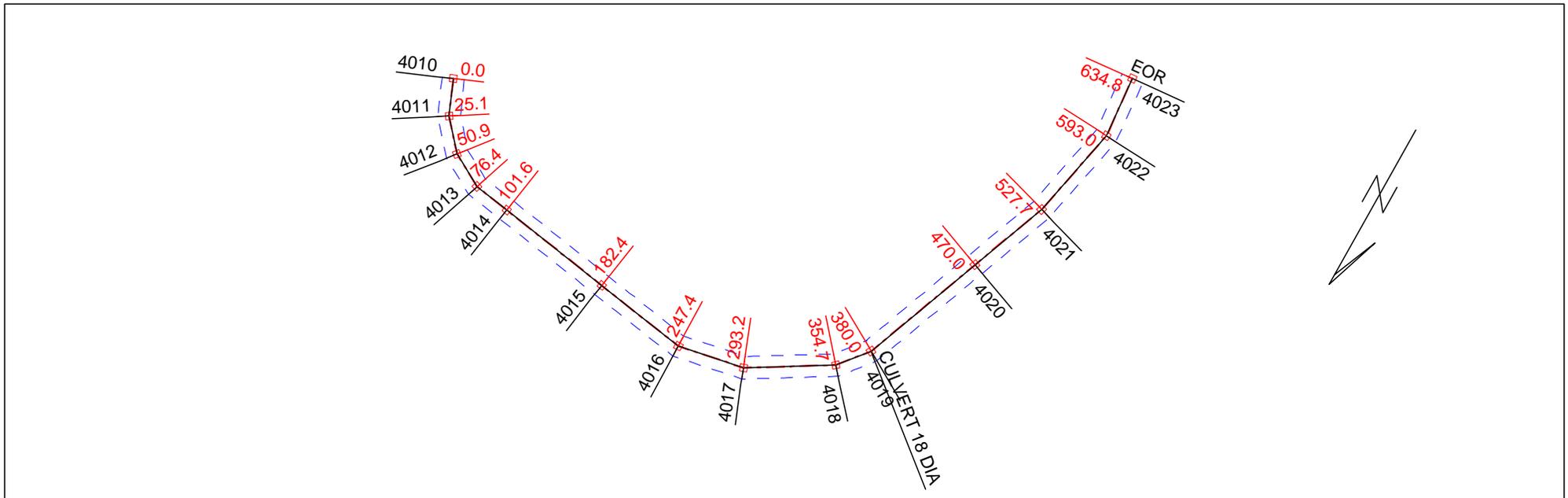
Lower Swan Timber Sale
 B-4570 Road August 12, 2015
 Contract #: 30-091587



Washington State Department of
 Natural Resources
 South Puget Sound Region

Plan Scale 1:1200
 Profile Vert Scale 1:240
 Profile Horz Scale 1:1200

Engineer: M. Bell
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Lower Swan Timber Sale
 KC-9710 Road August 12, 2015
 Contract #: 30-091587



Washington State Department of
 Natural Resources
 South Puget Sound Region

Plan Scale 1:1200
 Profile Vert Scale 1:240
 Profile Horz Scale 1:1200

Engineer: M. Bell
 15/10/26 Page 1 of 2

DEPARTMENT OF NATURAL RESOURCES - SOUTH PUGET SOUND REGION

FORM 9-87(Rev. 05-03)

SUMMARY - ROAD DEVELOPMENT COSTS

(COSTS ARE ESTIMATES ONLY & ARE NOT GUARANTEED BY THE STATE OR PART OF THE ROAD PLAN.)

SALE/PROJECT NAME: **Lower Swan**

CONTRACT NUMBER: **30-091587**

TYPE:	Construction	Reconstruction	Pre-Haul Maintenance
NUMBER OF STATIONS:	31.09	6.80	499.80 pre-haul
AVG. SIDESLOPE:	14	15	
CLEARING AND GRUBBING:	\$4,141	\$544	
EXCAVATION AND FILL:	\$4,678	\$1,047	
MISC. MAINTENANCE:			\$21,163
ROCK TOTALS (Cu. Yds.):			
Ballast 1 (Too Thin):	\$16,820	\$3,679	\$0
Ballast 2:	\$0	\$0	\$1,699
Riprap/Quarry Spalls	\$11	\$0	\$253
CULVERTS AND FLUMES:	\$3,454	\$602	\$13,027
STRUCTURES:	\$0	\$0	\$0
GENERAL EXPENSES:	\$2,619	\$646	\$3,253
MOBILIZATION:	\$1,067	\$1,067	\$1,067
TOTAL COSTS:	\$32,790	\$7,586	\$40,462
COST PER STATION:	\$1,055	\$1,116	\$81
ROAD DEACTIVATION AND ABANDONMENT COSTS:		\$5,772	

NOTE: This appraisal has no allowance for profit and risk.

TOTAL (All Roads) =	\$86,609
SALE VOLUME MBF =	6,900
TOTAL COST PER MBF =	\$12.55

Plans to be furnished by:

Compiled by: M. Bell

Date: 08/12/15

**ROAD COST ESTIMATE - RECONSTRUCTION
(FOR INTERNAL DNR USE ONLY)**

SALE NAME: Lower Swan

CONTRACT NUMBER: 30-091587

I. CLEARING AND GRUBBING:

Flat Rate -	% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
KC-9700	15	20	1.00	2.00	\$40	1.0	6.80	\$544
0	0		1.00	1.00			0.00	\$0
0			1.00	1.00			0.00	\$0
0			1.00	1.00			0.00	\$0
0			1.00	1.00			0.00	\$0

Clear and Grub TOTAL = \$544

II. EXCAVATION:

Flat Rate -	% Side Slope	Exc. Type Fact.	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
KC-9700	15	1.0	1.75	\$88	1.00	6.80	\$1,047
0	0		1.00			0.00	\$0
0	0		1.00			0.00	\$0
0	0		1.00			0.00	\$0
0			1.00			0.00	\$0

*End Haul, Over Haul, Large Fills/Cuts

End Haul/ Over Haul
Large Fills/ Cuts

Estimated Vol. (cy)	No. of Equip. Days	Cost/day	Sub Total
			\$0
			\$0

Excavation TOTAL = \$1,047

III. BALLAST AND SURFACING :

Ballast source 1: Too Thin
Ballast source 2:
Riprap source : Too Thin

Description	cu.yds/sta	x sta	x compaction factor	= cubic yds
Required Ballast 1 (4"-)	266		1.30	346
Required Ballast 2 (4"-)			1.30	0
Riprap/Quarry Spalls			1.30	0

* Haul Formula: (R.T.Miles/MPH+Delay)/(\$/hr / Cy/load)

	Ballast 1	Ballast 2
R.T. Miles =	11.0	
Ave. Speed =	15.0	15.0
Delay (Hrs.)=	0.1	0.1
Cost / Hour =	\$102.85	\$102.85
CY / Load =	12.0	12.0

Required Ballast 1 (4"-)	346 Cu. yds @	\$10.64 /cu. yd =	\$3,679
Required Ballast 2 (4"-)	0 Cu. yds @	\$0.86 /cu. yd =	\$0
Riprap/Quarry Spalls	0 Cu. yds @	\$0.86 /cu. yd =	\$0

UNIT COSTS	Too Thin	
	Ballast 1	Surface Riprap
Drill & Shoot	\$1.50	
Dig and load	\$0.75	
Crushing	\$0.00	
Purchase		
Haul *	\$7.14	\$0.86
Spread	\$0.80	
Compact	\$0.45	
Strip	\$0.00	
Reclamation	\$0.00	
Use tax	\$0.00	\$0.00
TOTAL (\$/cy)	\$10.64	\$0.86

Rock total = \$3,679

IV. CULVERTS AND FLUMES:

Description	Qty.	Gauge	Diameter (in.)	No/Length (ft)	Installed Cost/ft	Sub-total
	1	PD	18	30	\$20.08	\$602
		PD	18	36	\$20.08	\$0
		PD	18	41	\$20.08	\$0
		PD	24	30	\$24.39	\$0
		PD	24	41	\$24.39	\$0
		PD	24	51	\$24.39	\$0
		PD	24	82	\$24.39	\$0
		PD	48	52	\$60.00	\$0

Bands & Gaskets: one ft extra included in length to account for band cost.

\$0

Culvert total = \$602

V. STRUCTURES

Description	Type	Width	Length	Cost/ft.	Sub-total
					\$0
					\$0
					\$0
					\$0

Structure total = \$0

Sub-TOTAL = \$5,873

VI. GENERAL EXPENSES:

Overhead & General Exp. Add 11% \$646

VII. MOBILIZATION:

Description	\$ per Move	# of Moves	Sub-total
Dump Trucks	\$100	7	\$700
Grader	\$400	1	\$400
Compactor	\$400	1	\$400
Excavator	\$450	2	\$900
Dozer (D8)	\$400	1	\$400
Front end loader	\$400	0	\$0
Rock crusher	\$4,000	0	\$0
Drill	\$400	1	\$400

Total Mobilization = \$3,200 Mobilization sub-total = \$1,066.67

SHEET TOTAL = \$7,586

Stations: 6.80

**ROAD COST ESTIMATE - PRE-HAUL and POST-HAUL MAINTENANCE
(FOR INTERNAL DNR USE ONLY)**

SALE NAME: Lower Swan

CONTRACT NUMBER: 30-091587

Total stations Pre-Haul Maintenance = 499.80
 Total stations Post-Haul Maintenance = 0.00

I. MISC. MAINTENANCE ITEMS:

Pre-haul

Rd	Stations	
B-4000	79.80	brush/grade/ditch clean
B-4500	113.00	brush/grade/ditch clean
B-4520	37.56	brush/grade/ditch clean
B-4550	26.49	brush/grade/ditch clean
B-line	33.00	dust abatement
B-Line	209.95	grade/ culvert clean

Post-haul

Rd	Stations

	Cost/ Station	Total Stations	Sub Total
mechanical brushing =	\$15.00	466.80	\$7,002
hand brushing =			\$0
ditch cleaning/reconstruction =	\$31.00	256.85	\$7,962
grading/berm removal =	\$4.00	466.80	\$1,867
culvert & ditch cleanout =	\$4.00	466.80	\$1,867
sediment trap installation=	\$50.00		\$0
compaction (hrs) =	\$92.14	8.84	\$815
Dust abatement =	\$50.00	33.00	\$1,650
post-haul grading =	\$4.00		\$0

Misc TOTAL = \$21,163

III. BALLAST AND SURFACING :

Ballast source: Too Thin
 Surface source:
 Riprap source :

Description	cu.yds/sta	x sta	x compaction factor	= cubic yds
Required Ballast 1 (4"-)			1.30	0
Required Surface (2-1/2"-)	143		1.30	186
Riprap/Quarry Spalls	23		1.30	29

* Haul Formula: (R.T.Miles/MPH+Delay)/(\$/hr / Cy/load)

Pit:	Too Thin
R.T. Miles =	11.0
Ave. Speed =	15.0
Delay (Hrs.)=	0.1
Cost / Hour =	102.9
CY / Load =	12.0

Required Ballast 1 (4"-)	0	Cu. yds @	\$10.64 /cu. yd =	\$0
Required Surface (2-1/2"-)	186	Cu. yds @	\$9.14 /cu. yd =	\$1,699
Riprap/Quarry Spalls	29	Cu. yds @	\$8.64 /cu. yd =	\$253

UNIT COSTS	Too Thin stockpile		
	Ballast 1	Surface	Riprap
Drill & Shoot	\$1.50		
Dig and load	\$0.75	\$0.75	\$0.75
Crushing			
Purchase			
Haul *	\$7.14	\$7.14	\$7.14
Spread	\$0.80	\$0.80	\$0.75
Compact	\$0.45	\$0.45	
Strip			
Reclamation			
Use tax	\$0.00	\$0.00	\$0.00
TOTAL (\$/cy)	\$10.64	\$9.14	\$8.64

Rock total = \$1,952

IV. CULVERTS AND FLUMES:

Description	Qty.	Gauge	Diameter (in.)	No/Length (ft)	Installed Cost/ft	Sub-total
	8	PD	18	30	\$20.08	\$4,819
	6	PD	18	41	\$20.08	\$4,940
		PD	24	30	\$24.39	\$0
	2	PD	24	41	\$24.39	\$2,000
	1	PD	24	52	\$24.39	\$1,268
		PD	36	114	\$35.38	\$0
		PD	48	41	\$60.00	\$0
		PD	48	52	\$60.00	\$0

Bands & Gaskets: one ft extra included in length to account for band cost.

\$0

Culvert total = \$13,027

V. STRUCTURES

Description	Type	Quantity	Width	Length	Cost/ft.	Sub-total
						\$0
						\$0
						\$0

Structure total = \$0

Sub-TOTAL = \$36,142

VI. GENERAL EXPENSES:

Overhead & General Exp. Add 9% \$3,253

VII. MOBILIZATION:

Description	\$ per Move	# of Moves	Sub-total
Dump Trucks	100	7	\$700
Grader	400	1	\$400
Compactor	400	1	\$400
Excavator	450	2	\$900
Dozer (D8)	400	1	\$400
Front end loader	400	0	\$0
Rock crusher w/ platform scales	4,800	0	\$0
Drill	400	1	\$400

Total Mobilization = \$3,200

Mobilization sub-total = \$1,066.67

SHEET TOTAL = \$40,462

Stations: 499.80

By: M. Bell

Sheet 4 of 5

Date: 08/12/15

**ROAD COST ESTIMATE -ABANDONMENT & DECOMMISSIONING
(FOR INTERNAL DNR USE ONLY)**

SALE NAME: Lower Swan

CONTRACT NUMBER: 30-091587

Total stations Road Decommissioned = 31.09

I. MISC. ROAD CLOSURE COSTS:

<u>Road</u>	<u>Station</u>
B-4521	5.97
B-4551	5.49
B-4570	13.28
KC-9710	6.35

	Cost/ Station	Total Stations	Sub Total
water barring =			\$0
ripping =			\$0
culvert removal =			\$0
sidecast pullback =			\$0
grass seeding =			\$0
Decommissioning =	\$115	31.09	\$3,575
Light Abandonement =	\$115		\$0
Medium Abandonment =	\$150		\$0
Heavy Abandonment =	\$500		\$0
			\$0
			\$0
			\$0
Misc TOTAL =			<u>\$3,575</u>

VI. GENERAL EXPENSES:

Overhead & General Exp. Add 12% \$429

VII. MOBILIZATION:

Description	\$ per Move	# of Moves	Sub-total
Dump Trucks	100		\$0
Grader	400		\$0
Compactor	400		\$0
Excavator	450	1	\$450
Dozer (D8)	400		\$0
Front end loader	400		\$0
Rock crusher	\$4,000		\$0
Crane	\$1,000		\$0

Total Mobilization = \$450

Standard: Abandonment and closure
Stations: 31.09

SHEET TOTAL = \$4,454

By: M. Bell

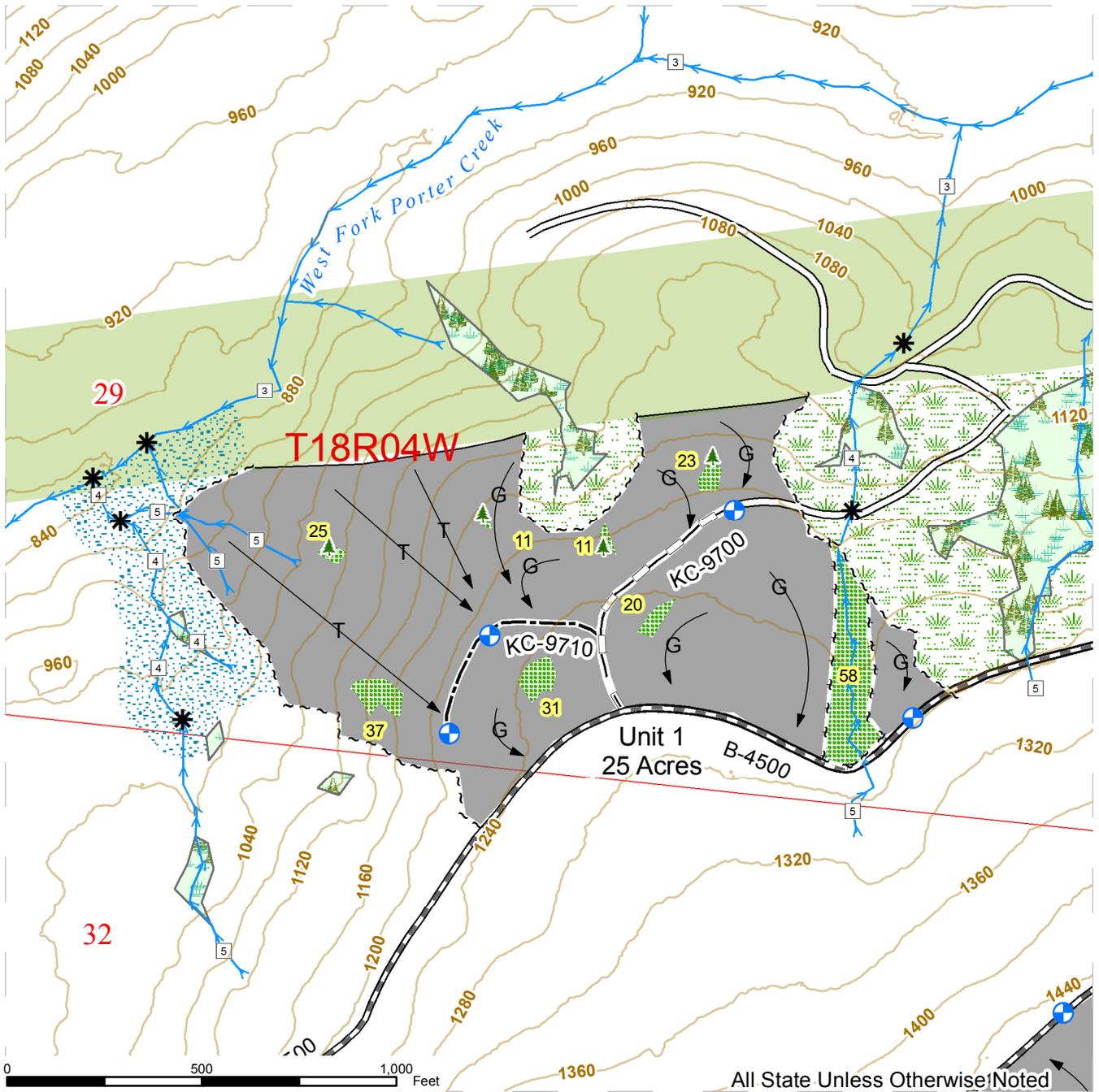
Sheet 5 of 5

Date: 08/12/15

LOGGING PLAN MAP

SALE NAME: Lower Swan
 AGREEMENT#: 30-091857
 TOWNSHIP(S): T18R04W
 TRUST(S): State Forest Transfer (01), State Forest Purchase (02), Forest Board Repayment (42)

REGION: South Puget Sound Region
 COUNTY(S): GRAYS HARBOR & THURSTON
 ELEVATION RGE: 911-1463

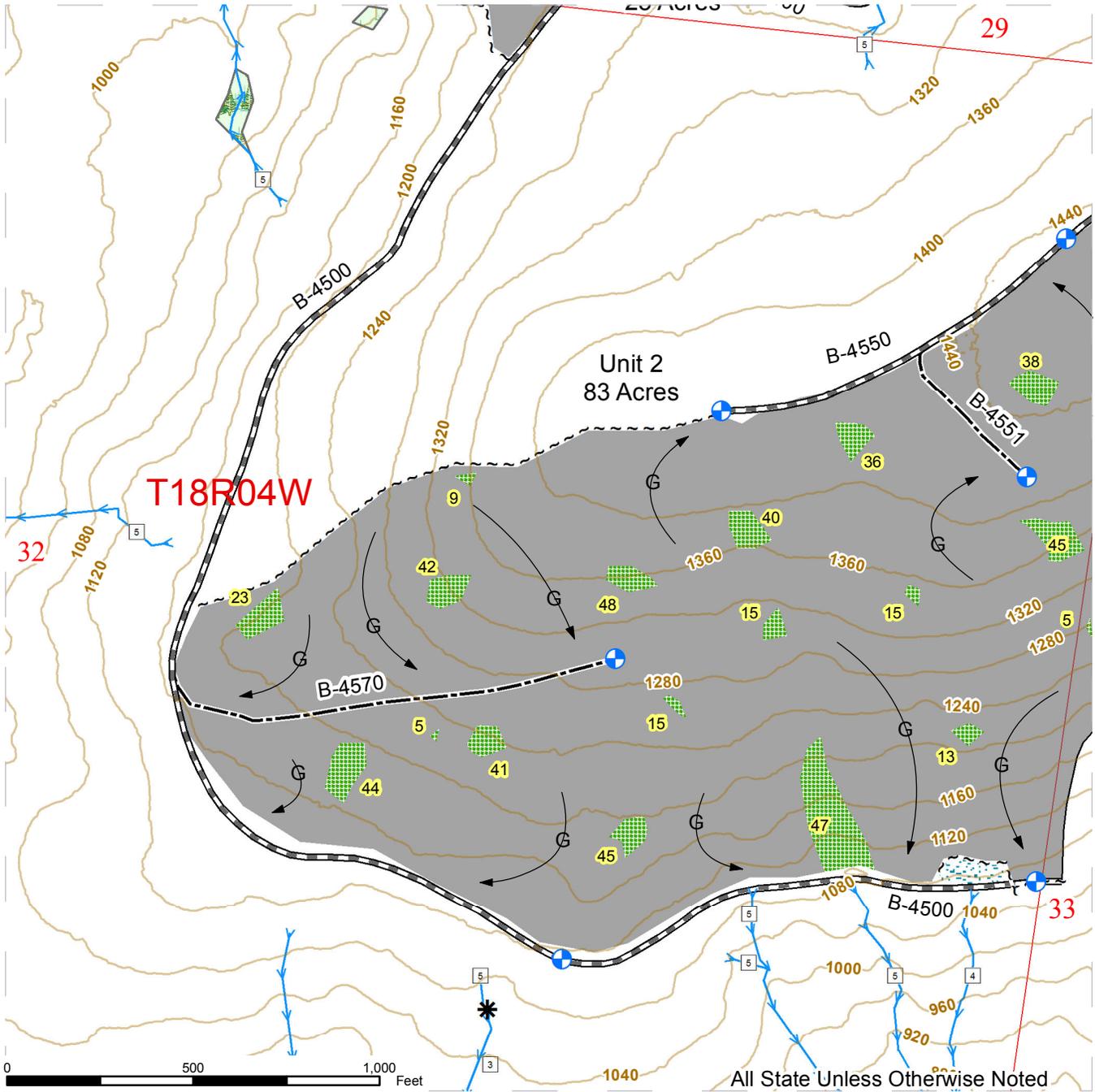


Sale Area	Existing Roads	Contours 40 ft
Leave Tree Area - Marked w/ Yellow "Leave Tree Area" Tags	Required Pre-Haul Maintenance	Sale Boundary Tags
Riparian Mgt Zone	Optional Reconstruction	Leave Tree Tags
Wetland Mgt Zone	Optional Construction	Timber Type Change
Forested Wetlands	Ground Logging	Streams
Power Line ROW	Cable Logging	Leave Trees
		Landing - Proposed

LOGGING PLAN MAP

SALE NAME: Lower Swan
 AGREEMENT#: 30-091857
 TOWNSHIP(S): T18R04W
 TRUST(S): Transfer (01), State Forest Purchase (02), Forest Board Repayment (42)

REGION: South Puget Sound Region
 COUNTY(S): GRAYS HARBOR & THURSTON
 ELEVATION RGE: State Forest 911-1463

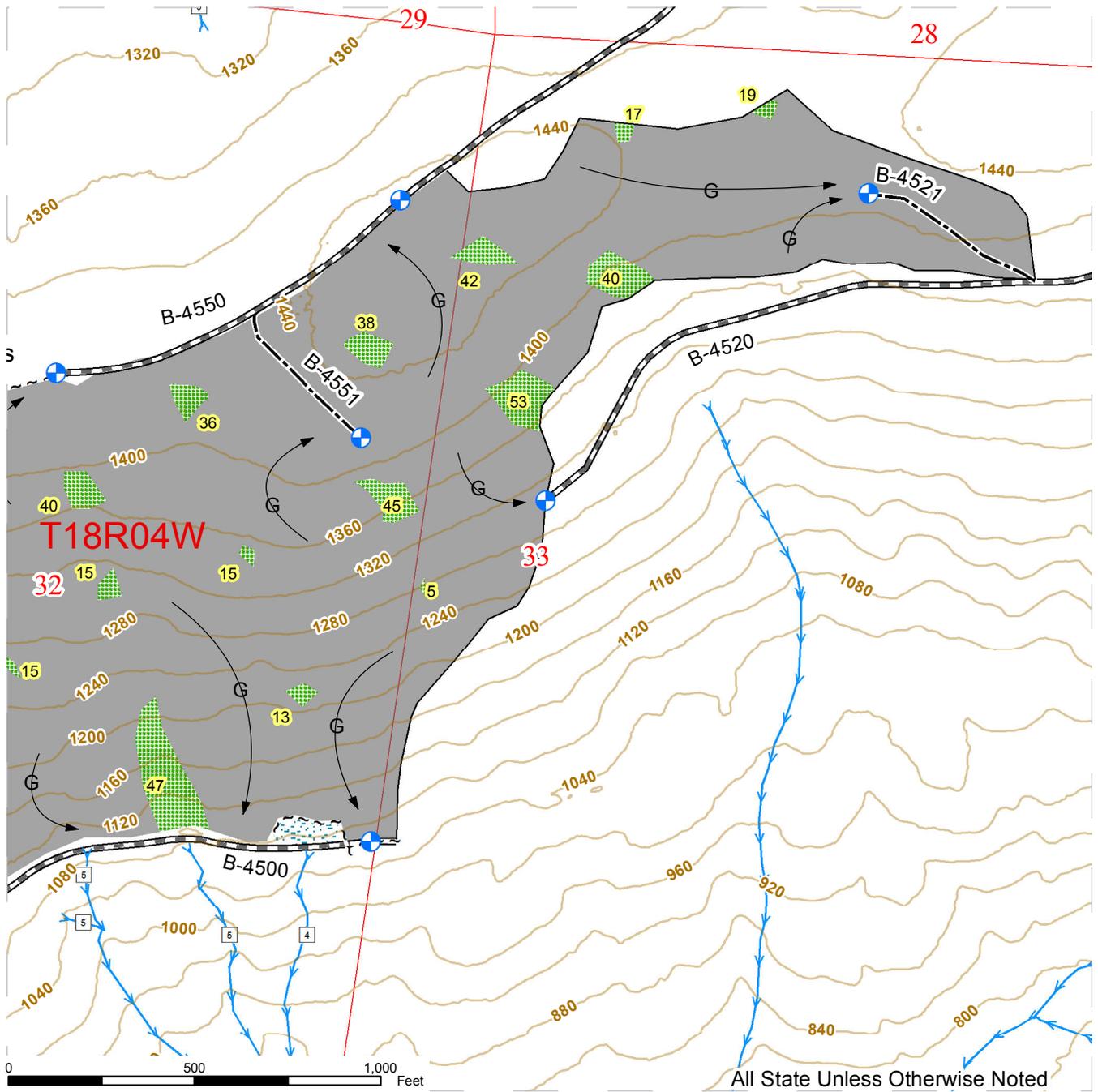


Sale Area	Existing Roads	Contours 40 ft
Leave Tree Area - Marked w/ Yellow "Leave Tree Area" Tags	Required Decommissioning	Sale Boundary Tags
Riparian Mgt Zone	Optional Reconstruction	Leave Tree Tags
Wetland Mgt Zone	Optional Construction	Timber Type Change
Forested Wetlands	Required Pre-Haul Maintenance	Streams
Power Line ROW	Ground Logging	Leave Trees
	Cable Logging	Landing - Proposed

LOGGING PLAN MAP

SALE NAME: Lower Swan
 AGREEMENT#: 30-091857
 TOWNSHIP(S): T18R04W
 TRUST(S): State Forest Transfer (01), State Forest Purchase (02), Forest Board Repayment (42)

REGION: South Puget Sound Region
 COUNTY(S): GRAYS HARBOR & THURSTON
 ELEVATION RGE: 911-1463



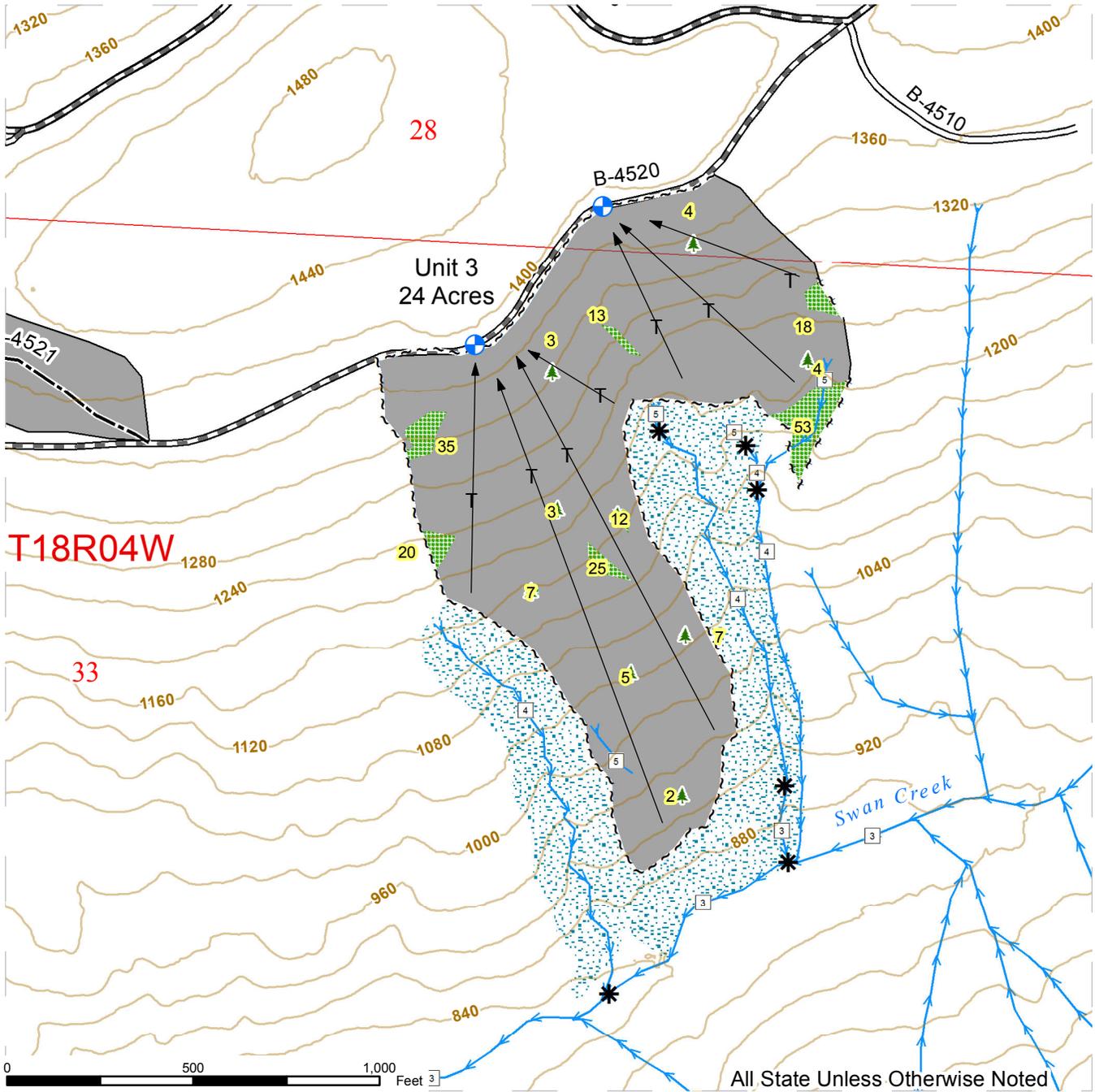
Sale Area	Existing Roads	Contours 40 ft
Leave Tree Area - Marked w/ Yellow "Leave Tree Area" Tags	Required Decommissioning	Sale Boundary Tags
Riparian Mgt Zone	Optional Reconstruction	Leave Tree Tags
Wetland Mgt Zone	Optional Construction	Timber Type Change
Forested Wetlands	Required Pre-Haul Maintenance	Streams
Power Line ROW	Ground Logging	Leave Trees
	Cable Logging	Landing - Proposed



LOGGING PLAN MAP

SALE NAME: Lower Swan
 AGREEMENT#: 30-091857
 TOWNSHIP(S): T18R04W
 TRUST(S): State Forest Transfer (01), State Forest Purchase (02), Forest Board Repayment (42)

REGION: South Puget Sound Region
 COUNTY(S): GRAYS HARBOR & THURSTON
 ELEVATION RGE: 911-1463



Sale Area	Existing Roads	Contours 40 ft
Leave Tree Area - Marked w/ Yellow "Leave Tree Area" Tags	Required Decommissioning	Sale Boundary Tags
Riparian Mgt Zone	Optional Reconstruction	Leave Tree Tags
Wetland Mgt Zone	Optional Construction	Timber Type Change
Forested Wetlands	Required Pre-Haul Maintenance	Streams
Power Line ROW	Ground Logging	Leave Trees
	Cable Logging	Landing - Proposed

