

TIMBER NOTICE OF SALE

SALE NAME: HAWK

AGREEMENT NO: 30-091864

AUCTION: June 14, 2016 starting at 10:00 a.m.,
Northeast Region Office, Colville, WA

COUNTY: Stevens

SALE LOCATION: Sale located approximately 16 miles southwest of Colville, WA

**PRODUCTS SOLD
AND SALE AREA:**

All green conifer species not banded with blue paint and all down and standing dead timber, except for trees bounded out by yellow leave tree area tags and two down logs per acre, which meet Forest Practice requirements in Units 1, 2, 3, 4, 5, 6 and 7 bounded by white timber sale boundary tags; and all timber bounded by orange right of way boundary tags on part(s) of Sections 9, 14, 15, 16, 22 and 23 all in Township 33 North, Range 38 East, W.M., containing 525 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 Ring DBH Count	Total MBF	MBF by Grade										
			P	SM	1S	2S	3S	4S	5S	6S	UT		
Douglas fir	14.1	4,543				826	2,360	1,072					285
Grand fir	12.4	1,821				210	1,102	446					63
Larch	13.2	1,009				195	369	155					290
Ponderosa pine	14	23						9		14			
Red cedar	18.6	22					17	5					
Sale Total		7,418											

MINIMUM BID: \$1,118,000.00

BID METHOD: Sealed Bids

**PERFORMANCE
SECURITY:**

\$100,000.00

SALE TYPE: Lump Sum

EXPIRATION DATE: October 1, 2018

ALLOCATION: Export Restricted

BID DEPOSIT: \$111,800.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Cable, Rubber tired skidder and Track skidder. Falling and Yarding will not be permitted from February 1 to May 1 unless authorized in writing by the Contract Administrator due to spring breakup.

ROADS: 77.85 stations of required construction. 397.13 stations of required reconstruction. 10.20 stations of optional construction. 182.01 stations of required prehaul maintenance. 21.25 stations of required decommissioning. Road construction will not be permitted from November 1 to May 1 unless authorized in writing by the Contract Administrator due to frozen conditions and spring breakup. The hauling of forest products will not be permitted from February 1 to May 1 unless authorized in writing by the Contract Administrator due to spring breakup.

ACREAGE DETERMINATION

CRUISE METHOD: Acreage determined using GPS methods. Acreage shown above is net harvest acres in harvest units and external right of ways. Ponderosa pine: 8.0 - 17.5 inches dbh has a

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minimum top of 6.0 inch dob. All other species: 7.0 - 17.5 inches dbh has minimum top of 5.0 inch dob. All species 17.6 inches and greater dbh measure height to 40% of dob at 16 feet or a 6 inch top whichever is greater. Firewood volume (471 mbf) is included in the utility wood volume on the notice of sale. Firewood volume per species is available in the cruise. Utility wood: comprised of non-board foot volume and volume below the minimum top diameter of 5.0 inches or 40% of dob at 16 feet to a minimum of a 2.6 inch top.

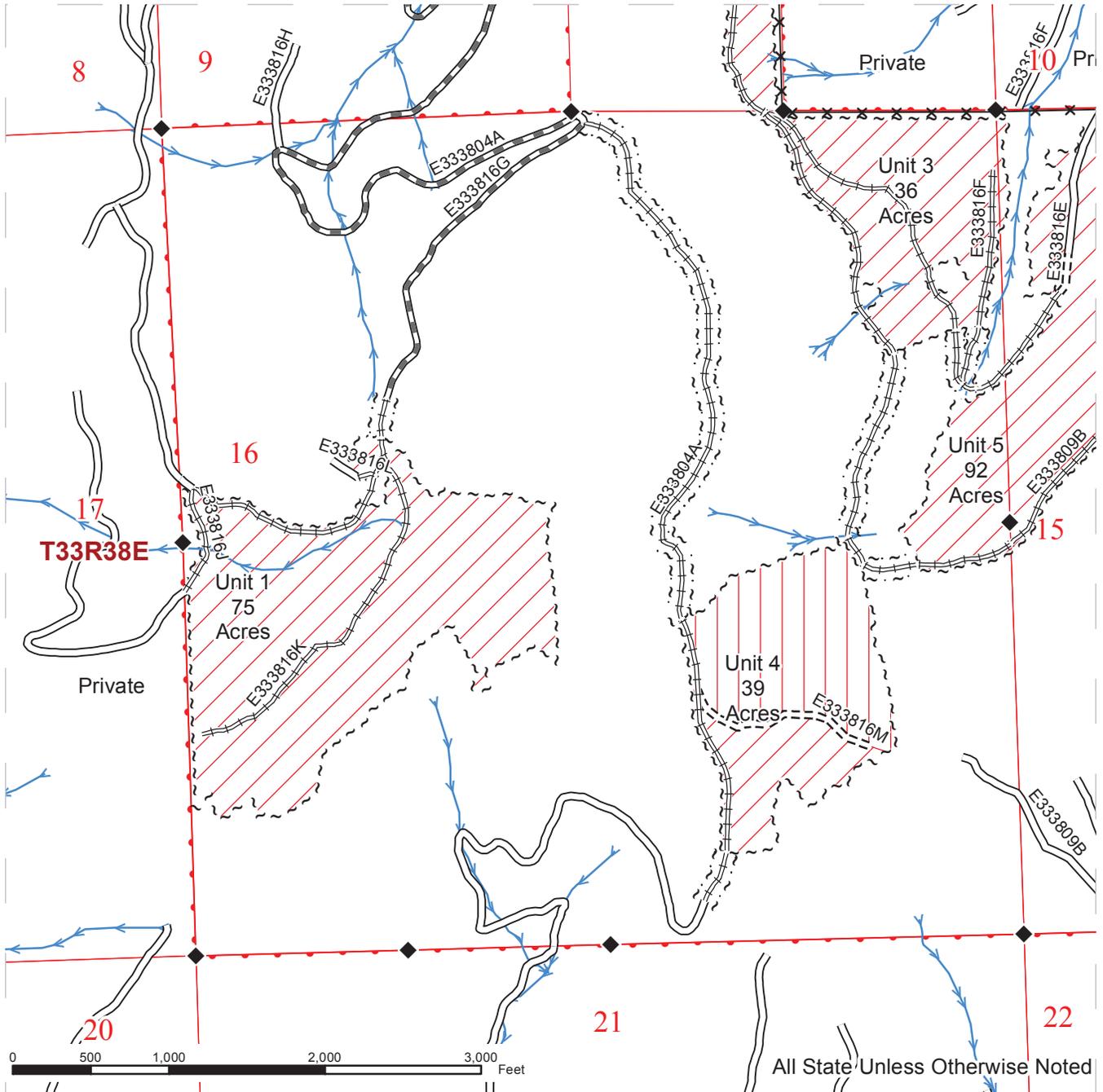
FEES: \$131,670.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

SPECIAL REMARKS: Locked gates restrict access to the sale. Contact the Northeast Region Office at (509) 684-7474 for access. Approximately 79 acres of cable yarding is required, see timber sale map for approximate location. A bridge installation of a state supplied bridge is required, see road plan for details.

TIMBER SALE MAP

SALE NAME: HAWK
AGREEMENT#: 30-091864
TOWNSHIP(S): T33R38E
TRUST(S): Common School and Indemnity(3), Agricultural School(4)

REGION: Northeast Region
COUNTY(S): STEVENS
ELEVATION RGE: 2993-4570



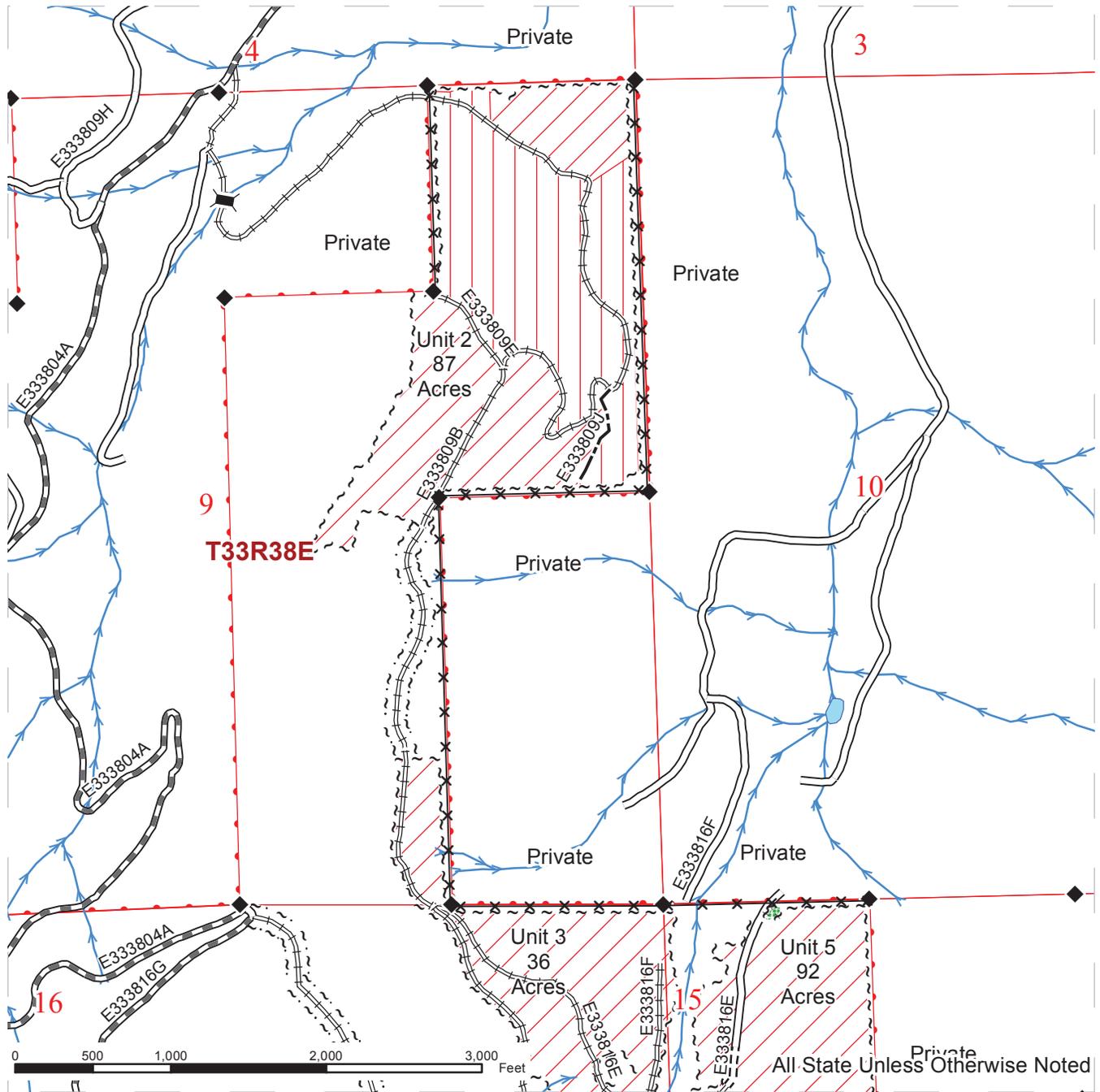
All State Unless Otherwise Noted

~ ~ ~ Sale Boundary Tags	▬▬▬ Required Reconstruction	➡ Streams
▨ Ground Skidding	— Existing Road	*-* Fence
▤ Cable Yarding (79 Ac)	▬▬▬ Required PreHaul Maintenance	◆ Monumented Corners
	▬▬▬ Required Construction	
	~ ~ ~ ROW (14 Ac)	
	➤ Haul Route	

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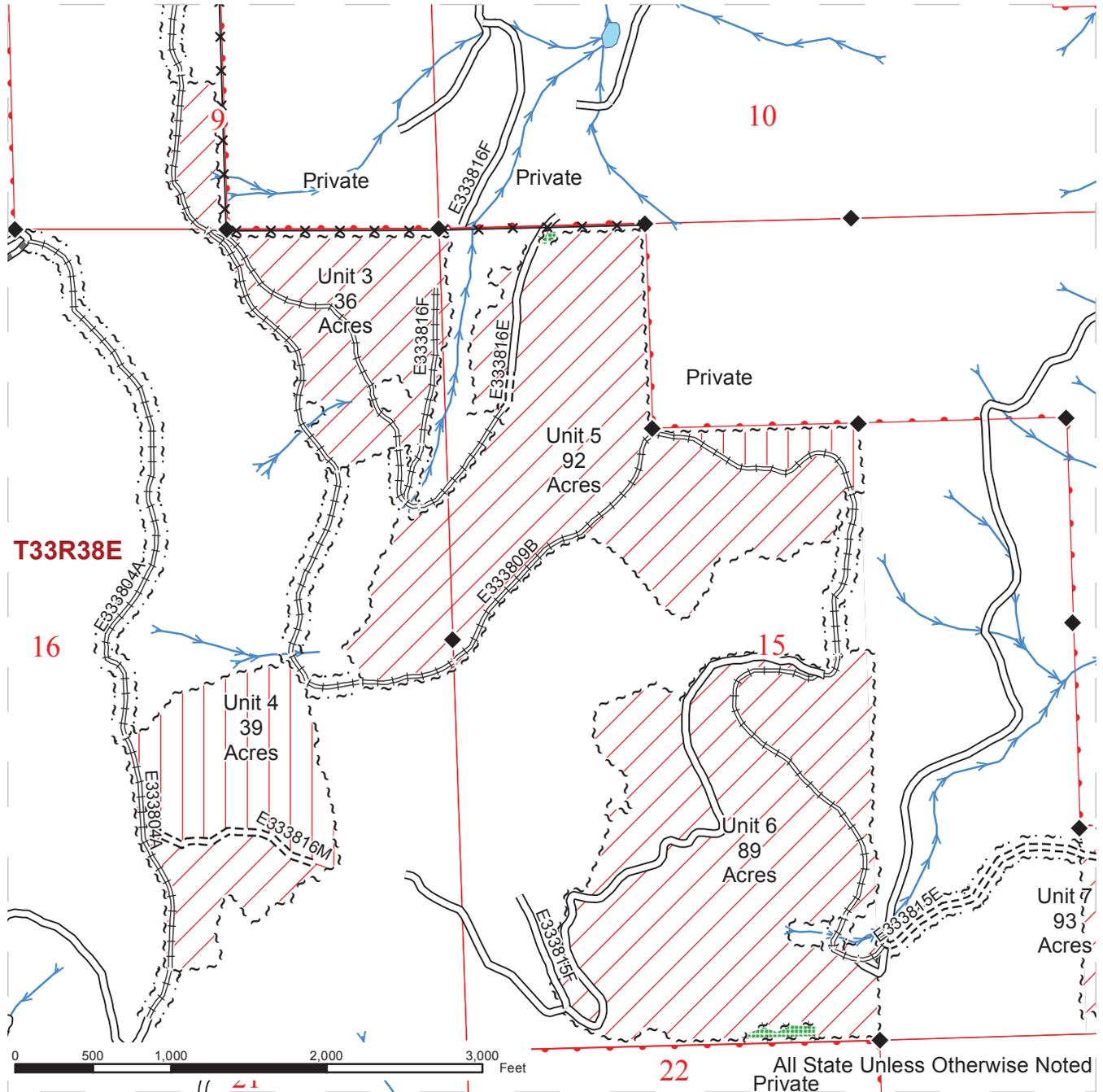
~ ~ ~ Sale Boundary Tags	==== Required Reconstruction	→ Streams
[Red Diagonal Hatching] Ground Skidding	— Existing Road	*-* Fence
[Red Vertical Hatching] Cable Yarding (79 Ac)	- - - Optional Construction	◆ Monumented Corners
~ ~ ~ Leave Tree Tags	== Required PreHaul Maintenance	⚡ Bridge Replacement
[Green Grid] Leave Tree Area	- - - Required Construction	
	~ ~ ~ ROW (14 Ac)	
	▶ Haul Route	



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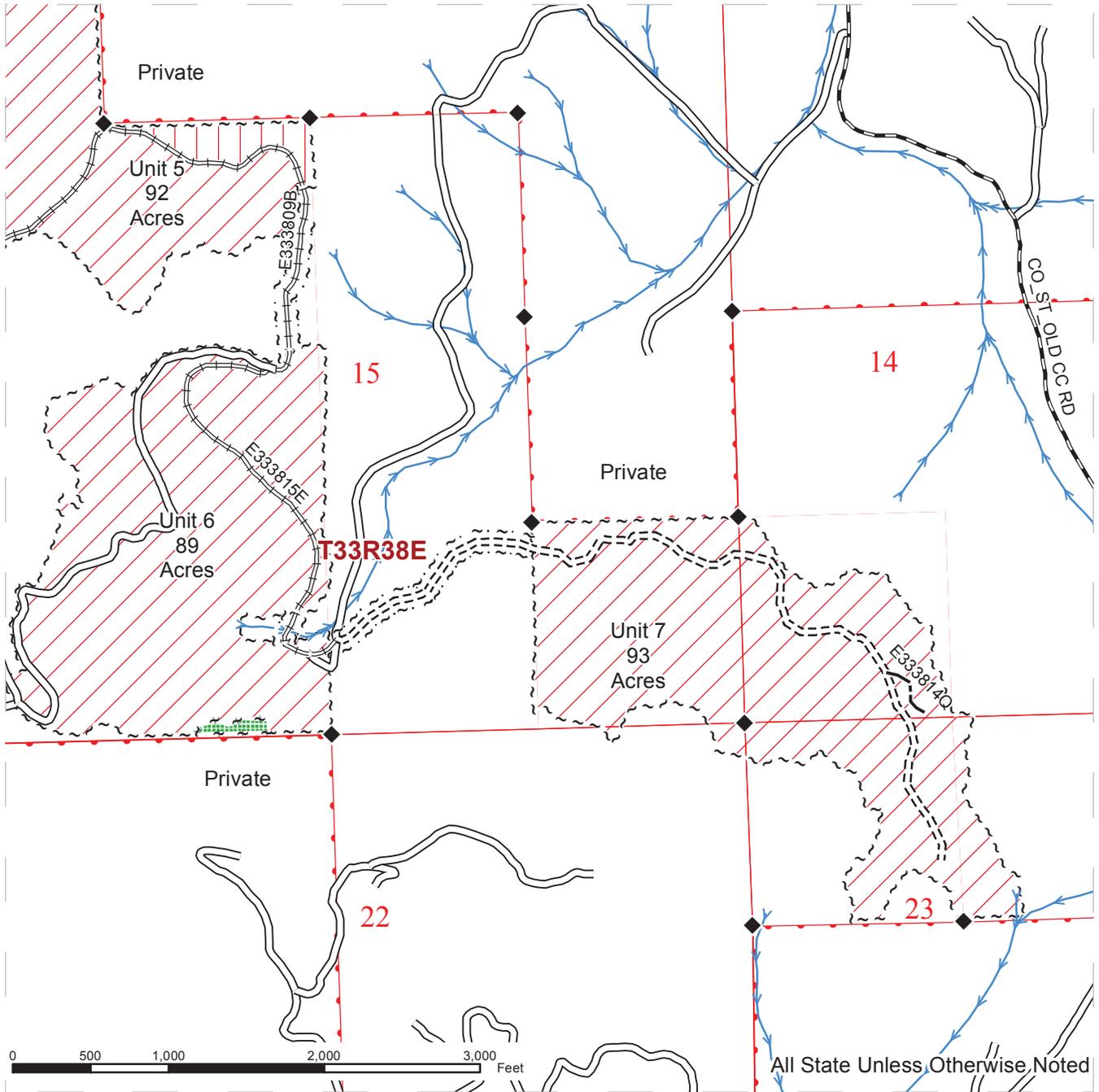
~ ~ ~ Sale Boundary Tags	▬▬▬ Required Reconstruction	➡ Streams
▨ Ground Skidding	▬ Existing Road	✕✕ Fence
▤ Cable Yarding (79 Ac)	▬▬▬ Required PreHaul Maintenance	◆ Monumented Corners
~ ~ ~ Leave Tree Tags	▬▬▬ Required Construction	
▤ Leave Tree Area	~ ~ ~ ROW (14 Ac)	
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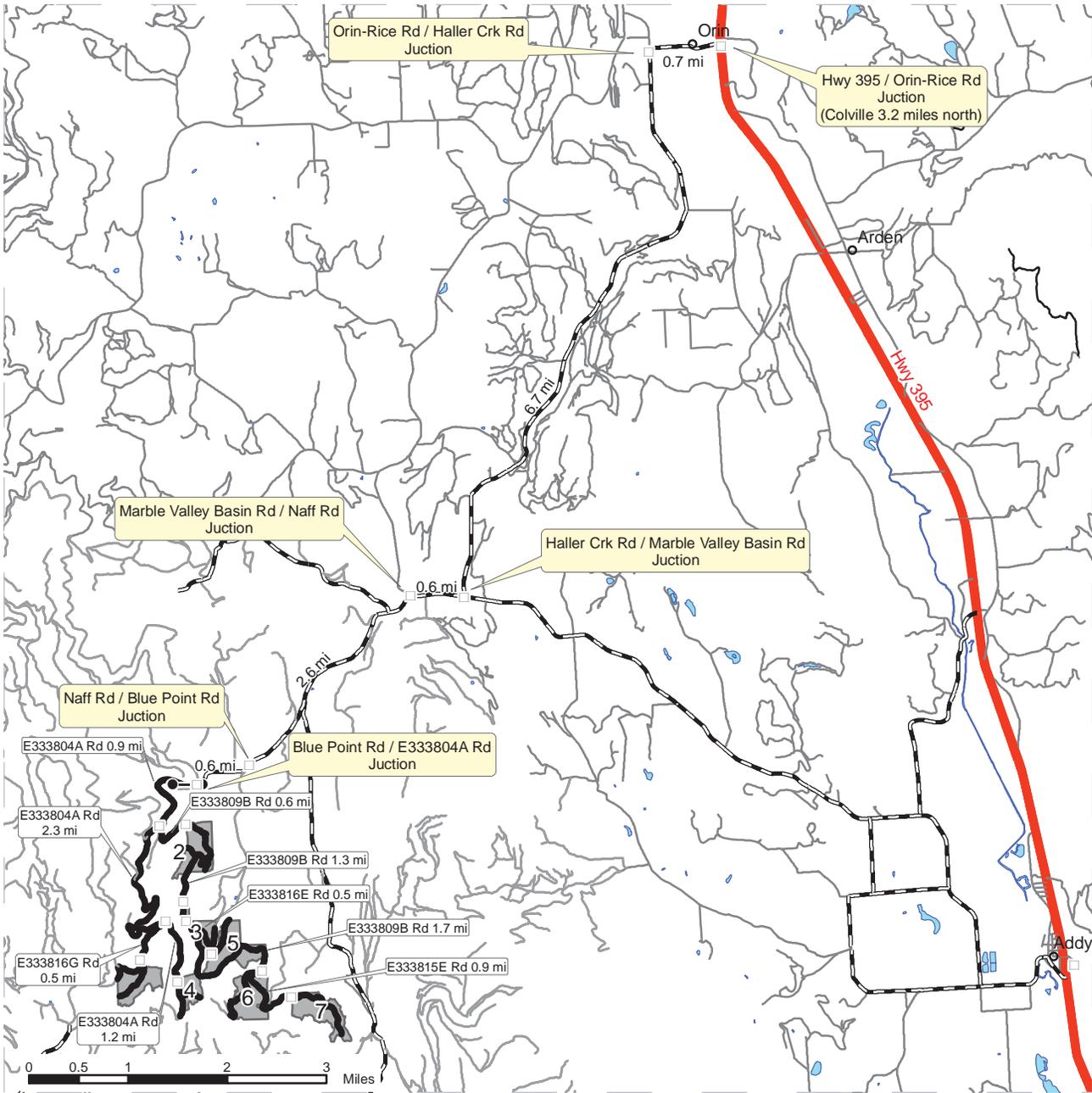
~ ~ ~ Sale Boundary Tags	— County Road	—> Streams
▨ Ground Skidding	≡≡≡ Required Reconstruction	◆ Monumented Corners
▤ Cable Yarding (79 Ac)	— Existing Road	
~ ~ ~ Leave Tree Tags	--- Optional Construction	
▤ Leave Tree Area	==== Required Construction	
	~ ~ ~ ROW (14 Ac)	
	▶ Haul Route	



DRIVING MAP

SALE NAME: HAWK
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	Timber Sale Unit
	Highways
	County Road
	Haul Route
	Other Route
	Milepost Markers
	Gate

DRIVING DIRECTIONS:

Travel south from Colville on Hwy 395 for 3.2 miles. Turn right on to Orin-Rice county road and drive west 0.7 miles. Turn left on Haller Creek county road and drive 6.7 miles. Turn right on Marble Valley Basin county road drive west 0.6 miles. Turn left on Naff county road and drive south 2.6 miles. Turn right on Blue Point county road and drive west 0.6 miles to E333804A road.
 To reach Units 2, 3, 5, 6, and 7; drive south on E333804A road 0.9 miles turn left on E333809B road and drive east 0.6 miles to Unit 2. Continue driving on E333809B 1.3 miles to Unit 3. To reach Unit 5 turn left on E333816E and drive 0.5 miles. To reach Unit 6 continue south on E333809B road 1.7 miles. For Unit 7 turn left on E333815E Road for 0.9 miles.
 To reach Unit 1; from the intersection of Blue Point Road and E333804A road, drive south 3.2 miles turn right on E333816G road and drive south 0.5 miles.
 To reach Unit 4, from the intersection of E333804A and E333816G continue south on E333804A an additional 1.2 miles.



**STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES**

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

Export Restricted Lump Sum AGREEMENT NO. 30-091864

SALE NAME: HAWK

**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 June 14, 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 green conifer species not banded with blue paint and all down and standing dead timber, except for trees bounded out by yellow leave tree area tags and two down logs per acre, which meet Forest Practice requirements in Units 1, 2, 3, 4, 5, 6 and 7 bounded by white timber sale boundary tags; and all timber bounded by orange right of way boundary tags, located on approximately 525 acres on part(s) of Sections 9, 14, 15, 16, 22, and 23 all in Township 33 North, Range 38 East W.M. in Stevens 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 1, 2018.

G-040 Contract Term Adjustment - No Payment

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

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

G-051 Contract Term Extension - Payment

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

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

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

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

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

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

- e. Payment of \$376.00 per acre per annum for the acres on which an operating release has not been issued .
- f. In no event will the extension charge be less than \$200.00.
- g. Extension payments are non-refundable.

G-053 Surveys - Sensitive, Threatened, Endangered Species

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

G-060 Exclusion of Warranties

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

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

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

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

G-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-102 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 shall become a part of this contract and the Scribner log scale volume, as defined by the National Forest Log Scaling Handbook, shall be determined by the Contract Administrator. Added forest products shall be paid for at the following contract payment rates per MBF Scribner log scale.

The pricing schedule has not been set for the sale.

G-106 Adding Naturally Damaged Forest Products

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

G-111 Title and Risk of Loss

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

G-116 Sustainable Forestry Initiative® (SFI) Certification

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

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

G-120 Responsibility for Work

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

G-121 Exceptions

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

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

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

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

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

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

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

G-140 Indemnity

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

G-150 Insurance

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

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

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

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

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

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

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

All insurance provided in compliance with this contract shall be primary as to any other insurance or self-insurance programs afforded to or maintained by State. Purchaser

waives all rights against State for recovery of damages to the extent these damages are covered by general liability or umbrella insurance maintained pursuant to this contract.

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

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

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

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

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

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

If Purchaser, subcontractor or sub-subcontractor fails to comply with all State of Washington workers' compensation statutes and regulations and State incurs fines or is required by law to provide benefits to or obtain coverage for such employees, Purchaser

shall indemnify State. Indemnity shall include all fines, payment of benefits to Purchaser or subcontractor employees, or their heirs or legal representatives, and the cost of effecting coverage on behalf of such employees.

Business Auto Policy (BAP). Purchaser shall maintain business auto liability and, if necessary, commercial umbrella liability insurance with a limit not less than \$1,000,000.00 per accident. Such insurance shall cover liability arising out of "Any Auto". Business auto coverage shall be written on ISO form CA 00 01, or substitute liability form providing equivalent coverage. If necessary the policy shall be endorsed to provide contractual liability coverage and cover a "covered pollution cost or expense" as provided in the 1990 or later editions of CA 00 01. Purchaser waives all rights against State for the recovery of damages to the extent they are covered by business auto liability or commercial umbrella liability insurance.

G-160 Agents

The State's rights and duties will be exercised by the Region Manager at Colville, 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; E333804A, E333816G, E333816J, E333816K, E333816L, E333816M, E333809B, E333809E, E333816E, E333816F, E333815E, E333814Q and E333809J. The State may authorize in writing the use of other roads subject to fees, restrictions, and prior rights.

G-320 Erosion Control

Purchaser shall deliver 300 pounds of grass seed to a location designated by the Contract Administrator. Seed provided shall meet the following specifications.

20% Timothy, 40% Smooth Brome, 40% Alsike Clover

Seed shall be certified weed free, premixed and delivered to Northeast Region Office in 50 pound bags clearly labeled with the timber sale name on each bag.

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 E333804A and E333809B 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 1009 with Boise Cascade Corp. dated June 2, 1976.

Easement 994 with Loveall dated March 19, 1975.

Easement 1131 with Brooks, Lundquist, Buchanan & Arden Lumber Co. dated May 16, 1975.

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:

DATA MISSING

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 \$198,432.00. The total contract price consists of a \$0.00 contract bid price plus \$198,432.00 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-010 Cutting and Yarding Schedule

Falling and Yarding will not be permitted from February 1 to May 1 in all units unless authorized in writing by the Contract Administrator.

H-013 Reserve Tree Damage Definition

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

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

- a. A reserve tree has one or more scars on its trunk exposing the cambium layer, which in total exceeds 144 square inches.
- b. A reserve tree top is broken or the live crown ratio is reduced below 30 percent.
- c. A reserve tree has more than 1/3 of the circumference of its root system injured such that the cambium layer is exposed.

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

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

H-015 Skid Trail Requirements

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

Purchaser shall comply with the following during the yarding operation:

- a. Skid trails will not exceed 12 feet in width, including rub trees.
- b. Skid trails shall not cover more than 10 percent of the total acreage on one unit.
- c. Skid trail location will be pre-approved by the Contract Administrator.
- d. Except for rub trees, skid trails shall be felled and yarded prior to the felling of adjacent timber.
- e. Rub trees shall be left standing until all timber tributary to the skid trail has been removed.
- f. Excessive soil damage is not permitted. Excessive soil damage is described in clause H-017.
- g. Skid trails will be water barred at the time of completion of yarding, if required by the Contract Administrator.

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

H-017 Preventing Excessive Soil Disturbance

Operations may be suspended when soil rutting exceeds 8 inches as measured from the natural ground line. To reduce soil damage, the Contract Administrator may require water bars to be constructed, grass seed to be placed on exposed soils, or other mitigation measures. Suspended operations shall not resume unless approval to do so has been given, in writing, by the Contract Administrator.

H-035 Fall Trees Into Sale Area

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

H-050 Rub Trees

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

H-051 Branding and Painting

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

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

H-080 Snags Not to be Felled

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

H-090 Designated Trees Felled

All trees infected with dwarf mistletoe not banded with blue paint shall be felled concurrently with the falling operation.

H-110 Stump Height

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

H-120 Harvesting Equipment

Forest products sold under this contract shall be felled by hand or feller buncher and yarded by cable equipment, rubber tired skidder, D-6 or smaller tracked dozer 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-130 Hauling Schedule

The hauling of forest products will not be permitted on all authorized roads from February 1 to May 1 unless authorized in writing by the Contract Administrator .

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

- a. Purchaser shall cut and deck private right of way timber on the E333809B road as directed by the Contract Administrator.
- b. Hand falling and cable yarding is required in the designated cable yarding areas in Units 2, 4 and 5.

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

H-190 Completion of Settings

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

H-220 Protection of Residual or Adjacent Trees

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

H-230 Tops and Limbs Outside the Sale Boundary

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

H-250 Additional Falling Requirements

Within all units, all live stems greater than 3 inches in diameter at breast height not banded with blue paint, shall be felled concurrently with felling operations. Areas of young or immature timber may be excluded from this requirement by the Contract Administrator.

H-260 Fall Leaners

Trees within 100 feet of haul roads that have been pushed over in falling or skidding operations shall be felled.

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

Road construction and associated work provisions of the Road Plan for this sale, dated 12/23/2015 are hereby made a part of this contract.

C-050 Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on E333804A, E333816G, E333816J, E333816K, E333816L, E333816M, E333809B, E333809E, E333816E, E333816F, E333815E, E333814Q and E333809J roads. All work shall be completed to the specifications detailed in the Road Plan.

C-080 Landing Locations Approved Prior to Construction

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

C-140 Water Bars

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

Section S: Site Preparation and Protection

S-001 Emergency Response Plan

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

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

S-010 Fire Hazardous Conditions

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

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

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

S-030 Landing Debris Clean Up

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

S-040 Noxious Weed Control

Purchaser shall notify the Contract Administrator in advance of moving equipment onto State lands. Purchaser shall thoroughly clean all off road equipment prior to entry onto State land to remove contaminated soils and noxious weed seed. If equipment is moved from one DNR project area to another, the Contract Administrator reserves the right to require the cleaning of equipment. Equipment shall be cleaned at a location approved by the Contract Administrator.

S-050 Cessation of Operations for Low Humidity

During the "closed season", when the humidity is 15 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 felling or yarding equipment may operate within the designated leave tree areas in Units 5 and 6 and in the Equipment Limitation Zones unless authority is granted in writing by the Contract Administrator.

S-120 Stream Protection

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

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.

S-140 Fence Repair

Purchaser shall immediately repair all fence damage resulting from operations on this sale to an equal or better condition than existed at the time of sale.

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 Units 1, 2, 3, 4, 5, 6 and 7.

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

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Purchaser

Loren D. Torgerson
Northeast Region Manager

Date: _____

Date: _____

Address:

CORPORATE ACKNOWLEDGEMENT

STATE OF _____)

COUNTY OF _____)

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

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

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

Notary Public in and for the State of

My appointment expires _____



WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

FOREST EXCISE TAX ROAD SUMMARY SHEET

Region: Northeast

Timber Sale Name: Hawk

Application Number: 30- 091864

EXCISE TAX APPLICABLE ACTIVITIES

Construction: 8,805 linear feet
Road to be constructed (optional and required) but not abandoned

Reconstruction: 39,713 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

Decommission: 2,125 linear feet
Road to be made undriveable but not officially abandoned.

Pre-Haul Maintenance: 18,201 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 4/09)

PRE-CRUISE NARRATIVE

Sale Name: Hawk TS	Region: Northeast
Agreement #: 30-091864	District: North Columbia
Contact Forester: Matt Garringer Phone / Location: 208-660-4182	County(s): Stevens, Stevens
Alternate Contact: Tony Flanagan Phone / Location: 509-481-8032	Other information: Click here to enter text.

Type of Sale: Lump Sum	
Harvest System: Ground based Click here to enter text.	86%
Harvest System: Uphill Cable Click here to enter text.	14%
Enter % of sale acres	

UNIT ACREAGES AND METHOD OF DETERMINATION:

Unit #	Legal Description (Enter only one legal for each unit) Sec/Twp/Rng	Grant or Trust	Gross Proposal Acres	Deductions from Gross Acres (No harvest acres)				Net Harvest Acres	Acreage Determination (List method and error of closure if applicable)
				RMZ/WMZ Acres	Leave Tree Acres	Existing Road Acres	Other Acres (describe)		
1	Sec 16 T33N R38E	03	77			2		75	GPS (Garmin)
2	Sec 9 T33N R38E	04	91			6		85	GPS (Garmin)
3	Sec 9, Sec 16 T33E R38N	03, 04	44	1		5		38	GPS (Garmin)
4	Sec 16 T33N R38E	03	41			2		39	GPS (Garmin)
5	Sec 15, 16 T33N R38E	03, 04	99		.2	5		94	GPS (Garmin)
6	Sec 15 T33N R38E	04	97		1	8		88	GPS (Garmin)
7	Sec 14,15,23 ,22 T33N R38E	04	93					93	GPS (Garmin)
8 Ext ROW	Sec 9, 15, 16 T33N R38E	03, 04	22			13		9	Laser/GIS Combination
TOTAL			563	1	1.2	41		521	

ACRE S									
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HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Leave, take, paint color, tags, flagging etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
1	Leave trees marked in blue paint. Cut all green and dead standing timber 3" DBH and greater not marked in blue paint. All dead can be removed with the exception of 2 standing and 2 down per acre. Leave all hardwoods.	Only the main haul route is included in the existing road acreage calculation. Rd E333816K that runs through the middle of the unit and is very overgrown was not deleted from gross acres	6-8 leave trees per acre
2	Leave trees marked in blue paint. Cut all green and dead standing timber 3" DBH and greater not marked in blue paint. All dead can be removed with the exception of 2 standing and 2 down per acre. Leave all hardwoods.	The acreage of all existing roads is included in gross acres and excluded in net acres.	6-8 leave trees per acre
3	Leave trees marked in blue paint. Cut all green and dead standing timber 3" DBH and greater not marked in blue paint. All dead can be removed with the exception of 2 standing and 2 down per acre. Leave all hardwoods.	The two main haul routes were deleted from the gross acres. The spur road along the creek (E333816F) was not deleted from gross acres. There is a small exclusion "PIP" area in south end of unit.	6-8 leave trees per acre
4	Leave trees marked in blue paint. Cut all green and dead standing timber 3" DBH and greater not marked in blue paint. All dead can be removed with the exception of 2 standing and 2 down per acre. Leave all hardwoods.	The acreage of all existing roads is included in gross acres and excluded in net acres.	6-8 leave trees per acre
5	Leave trees marked in blue paint. Cut all green and dead standing timber 3" DBH and greater not marked in blue paint. All dead can be removed with the exception of 2 standing and 2 down per acre. Leave all hardwoods.	Road acreage is included in gross acres and excluded in net acres. There is a small leave tree area in the Northwest corner of the unit. Leave tree area is tagged with leave tree area tags.	6-8 leave trees per acre in most of the unit, and all trees are marked in blue to leave in leave tree area.

6	Leave trees marked in blue paint. Cut all green and dead standing timber 3" DBH and greater not marked in blue paint. All dead can be removed with the exception of 2 standing and 2 down per acre. Leave all hardwoods.	The acreage of all existing roads is included in gross acres and excluded in net acres.	6-8 leave trees per acre in most of the unit, and all trees are marked in blue to leave in leave tree area.
7	Leave trees marked in blue paint. Cut all green and dead standing timber 3" DBH and greater not marked in blue paint. All dead can be removed with the exception of 2 standing and 2 down per acre. Leave all hardwoods.	The acreage of all existing roads is included in gross acres and excluded in net acres.	6-8 leave trees per acre
8 ROW	External ROW is bound by orange Right of Way boundary tags	Gross ROW acreage includes existing road acres. Existing road acres is excluded in net acreage.	Remove all trees within the ROW boundary tags. Existing road will be widened in many areas, and trees will be removed from cut and fill slopes.

OTHER PRE-CRUISE INFORMATION:

Unit #	Primary,secondary Species / Estimated Volume (MBF)	Access information (Gates, locks, etc.)	Photos, traverse maps required
1	DF, WL, GF 1078mbf	Gate combo 2971. Twilight Canyon Rd.	
2	DF, WL, GF 1220mbf	Gate combo 2971. Hawks Canyon Rd.	
3	DF, WL, GF 420mbf	Gate combo 2971. Hawks Canyon Rd.	
4	DF, WL, GF 410mbf	Gate combo 2971. Hawks Canyon Rd.	
5	DF, WL, GF 760mbf	Gate combo 2971. Hawks Canyon Rd.	
6	DF, WL, GF 1078mbf	Gate combo 2971. Hawks Canyon Rd.	
7	DF, WL, GF 1020mbf	Gate combo 2971. Hawks Canyon Rd.	
8 ROW	DF, WL, GF 50mbf	Gate combo 2971.	
TOTAL MBF	DF, WL, GF 6036mbf		

REMARKS:

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Prepared By: Matt Garringer Date: 8/21/14	Title: Forester	CC: Tony Flanagan
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Hawk Cruise Narrative

Sale Name: Hawk	Region: Northeast
Agreement #: 30-091864	District: North Columbia
Lead Cruiser: Nathan Simpkins	Completion date: 11/3/2014
Other Cruisers on sale: Dan Griggs	Legal: Sections 9, 14, 15, 16, 22, and 23; T 33 N, R 38 E WM.

Unit Acreage Specifications:

Unit#	Gross Acres	Net Acres	List deletions for each unit.
1	76.86	74.86	Existing Road - 2.0 Acres
2	93.21	87.21	Existing Road - 6.0 Acres
3	42.25	36.25	Existing Road - 5.0 Acres RMZ - 1.0 Acre
4	40.70	38.70	Existing Road - 2.0 Acres
5	97.81	92.61	Existing Road - 5.0 Acres Leave Tree Area - 0.2 Acre
6	97.75	88.75	Existing Road - 8.0 Acres Leave Tree Area - 1.0 Acre
7	92.61	92.61	
8RW	22.00	14.50	Existing Road - 7.5 Acres
			Existing Road - 35.5 Acres RMZ - 1.0 Acre
Total	563.19	525.49	Leave Tree Area - 1.2 Acres

Cruise Specifications:

This timber sale was cruised using the **variable plot** sampling method. The double basal area system was employed; a small BAF to determine Basal Area (count trees) and a large BAF to determine the Volume-Basal Area Ratio (cruise trees). Each plot was a full plot. Plot locations were created using a computer generated grid, and found using a hand held GPS unit.

Unit#	Small BAF (count)	Large BAF (cruise)	Sighting height (D4H, or 16')	Grid size (plot spacing in feet)	% Cruise to count Target	% Cruise to count Actual	Total number of plots
1	33.61	134.44	D4H	340x340	25%	34.5%	26
2	27.78	90	D4H	340x340	25%	29.8%	29
3	27.78	90	D4H	340x340	25%	38.7%	14
4	33.61	134.44	D4H	340x340	25%	39.6%	14
5	33.61	134.44	D4H	340x340	25%	26.5%	30
6	33.61	134.44	D4H	340x340	25%	31.9%	34
7	33.61	134.44	D4H	340x340	25%	33.6%	39
Unit#	Fixed Plot Size	Fixed Plot Radius	Sighting height (D4H, or 16')	Grid size (plot spacing in feet)	% Cruise to count Target	% Cruise to count Actual	Total number of plots
8RW	1/10 th Acre	37.237'	D4H	1,099x1,099	100%	100%	9
Total						35.9%	195

Sale / Cruise Description:

Minor species cruise intensity:	We grade the first tree of all minor species encountered with the smaller BAF; then followed through with the small BAF to large BAF ratio.
Minimum cruise specifications:	<p>Ponderosa pine: 8.0" to 17.5" DBH has minimum top of 6" dob. 17.6" and greater DBH measured height to 40% of DOB at 16' or a 6" top whichever is greater.</p> <p>All other species: 7.0" – 17.5" DBH has minimum top of 5" dob. 17.6" and greater DBH measured height to 40% of DOB at 16' or a 6" top whichever is greater.</p> <p>Firewood: Douglas-fir and western larch. 8.0" and up DBH has a minimum top of 5" DOB and a minimum length of 12'.</p>

	<p>Utility Wood:</p> <p>Comprised of non-board foot volume and volume below the minimum top diameter of 5" or 40% of DOB at 16' to a minimum of a 2.6" top.</p>
Take /leave tree Description:	Harvest all green and dead timber that is not banded with blue paint. All dead timber can be removed with the exception that 2 standing and 2 down trees per acre must be left. Leave all hardwoods. Remove all timber within the orange right of way tags.
Other conditions:	All timber was graded in 32 foot segments with the Scaling Bureaus Eastside / Northwest log rules. Dead wood can be identified in the cruise data by a "D" in the status column. The firewood logs were graded in 40 foot segments. The utility wood was given a board foot volume.

Field Observations:

<p>Hawk Timber Sale</p> <p>Location: Central Stevens County, 14 road miles West of Addy, Washington. Aspect: North, South, East, and West Elevation: 3,000 to 4,600 feet Slope: Unit 1 - 0% to 60% average 30% Unit 2 - 0% to 75% average 38% Unit 3 - 0% to 40% average 28% Unit 4 - 0% to 75% average 45% Unit 5 - 0% to 55% average 33% Unit 6 - 0% to 55% average 28% Unit 7 - 0% to 60% average 30%</p> <p>Harvesting methods: Units 1 through 7 – Ground base yarding with longest skidding distance 1,200 feet. About half of Units 2 and 4 will require uphill cable yarding.</p> <p>Stand composition: The stands are second growth Douglas-fir, grand fir, and western larch with larger residual trees. There is a minor component of ponderosa pine and western red cedar.</p> <p>Stand health:</p>

There is light bark beetle activity in the ponderosa pine.
 The Douglas-fir has a moderate mistletoe and spruce budworm problem.
 The western larch has a light mistletoe and spruce budworm problem.
 There are scattered small patches of root rot.

Timber quality:

The timber is a mix of average quality Douglas-fir (61%), grand fir (24.5%), and western larch (14%). The ponderosa pine (0.3%), and western red cedar (0.2%) are of average quality.

Non-board foot volume:

Of the 7,418 MBF to be removed from this timber sale, 167 MBF consists of utility wood and 471 MBF consists of firewood logs.

Other considerations:

This sale is very brushy. The stand density is highly variable ranging from brushy areas with widely spaced trees to draws with dense stands of timber.

Unit #	Based on Volume			Based on Acres	
	Trust 03 Vol. MBF	Trust 04 Vol. MBF	Combined Vol. MBF	Stevens Co.	Pend Oreille Co.
1	1033		1033	74.86	
2		1149	1149	87.21	
3	401	106	507	36.25	
4	691		691	38.70	
5	113	1232	1345	92.61	
6	11	1225	1236	88.75	
7	90	1311	1401	92.61	
8RW	40	15	55	14.5	
Total	2379	5038	7417	525.49	0.00
% of Total	32.07%	67.93%	100%	100%	

Trust Acres: **03-172.42(32.81%)** **04-353.07(67.19%)**

Prepared by: Nathan Simpkins

Title: Natural Resource Specialist 1

CC: Timber Sales Document Center & File #30-091864

TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																	
T33N R38E S09 Ty00U2 THRU T33N R38E S16 Ty00U4				Project: HAWK				Page 1													
				Acres 525.49				Date 11/3/2014				Time 2:06:08PM									
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	
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
DF	D	2		19	3.3	1,626	1,572	826			78	22		100	32	14	276	1.76	5.7		
DF	D	3		54	3.6	4,660	4,492	2,361		85	15		2	97	1	32	9	106	0.79	42.2	
DF	D	4		25	6.0	2,170	2,040	1,072	58	29	13		15	23	62	25	5	37	0.38	55.3	
DF	U	UT		2		143	143	75	100				99	1		16	3	10	0.14	14.4	
DF Totals				58	4.1	8,599	8,247	4,334	16	53	26	4	5	7	87	1	27	7	70	0.62	117.6
DF	D	F	W	100	3.7	414	399	210	13	45	35	7	18	13	69	27	7	77	0.72	5.2	
DF Totals				3	3.7	414	399	210	13	45	35	7	18	13	69	27	7	77	0.72	5.2	
WL	D	2		26		370	370	195			65	35		100	32	14	277	1.65	1.3		
WL	D	3		49	2.2	719	703	369		100				100	32	8	93	0.64	7.6		
WL	D	4		21	.8	298	295	155	79	13	8		12	31	57	25	5	34	0.28	8.8	
WL	U	UT		4		55	55	29	100				100			16	3	9	0.10	5.9	
WL Totals				10	1.3	1,441	1,423	748	20	52	19	9	6	6	87	25	6	60	0.50	23.6	
WL	D	F	W	100	.9	501	497	261	23	53	17	7	5	7	1	87	33	6	58	0.46	8.6
WL Totals				4	.9	501	497	261	23	53	17	7	5	7	1	87	33	6	58	0.46	8.6
GF	D	2		11	11.1	449	399	210			46	54		100	32	16	338	2.11	1.2		
GF	D	3		61	7.7	2,272	2,097	1,102		74	26			3	97	32	10	124	0.82	16.9	
GF	D	4		24	3.5	880	849	446	84	16			13	38	49	25	5	32	0.34	26.3	
GF	U	UT		4	2.3	123	120	63	76	24			45	55		20	4	14	0.28	8.3	
GF Totals				25	6.9	3,722	3,465	1,821	23	50	21	6	5	13	82	27	7	66	0.57	52.7	
PP	D	4		38	8.3	18	17	9			100			100	32	13	220	1.78	.1		
PP	D	5		62	12.7	31	27	14		100			8	61	31	27	6	45	0.55	.6	
PP Totals				0	11.1	49	44	23		62	38		5	38	57	28	7	64	0.71	.7	
RC	D	3		78	6.4	35	32	17			33	67		100	32	16	365	2.49	.1		
RC	D	4		22	25.4	12	9	5		100			15	85		28	7	46	0.79	.2	
RC Totals				0	11.4	47	41	22		22	26	52	3		97	30	10	144	1.36	.3	
Totals					4.5	14,774	14,116	7,418	18	52	24	5	6	9	81	5	27	7	68	0.59	208.5

TC PSTATS		PROJECT STATISTICS							PAGE 1		
		PROJECT HAWK							DATE 11/3/2014		
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt	
33N	38E	09	HAWK	00U2	THR	525.49	195	686	S	E	
33N	38E	16	HAWK	00U4							
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL			195	686	3.5						
CRUISE			136	246	1.8	59,136	.4				
DBH COUNT											
REFOREST											
COUNT			52	121	2.3						
BLANKS			7								
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		108	59.8	14.1	70	17.2	64.4	8,599	8,247	1,937	1,937
DOUG FIR-D		24	4.4	13.0	40	1.1	4.0	414	399	102	102
GR FIR		57	32.5	12.4	59	7.7	27.3	3,722	3,465	798	798
W LARCH		26	9.9	13.2	81	2.6	9.5	1,441	1,423	297	297
W LARCH-D		24	5.2	12.3	68	1.2	4.3	501	497	131	131
P PINE		5	.5	14.0	56	0.2	.6	49	44	13	13
WR CEDAR		2	.2	18.6	58	0.1	.4	47	41	12	12
TOTAL		246	112.5	13.4	67	30.1	110.4	14,774	14,116	3,289	3,289
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL	68.1	COEFF		SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		83.7	8.0	178	194	209					
DOUG FIR-D		127.9	26.7	149	203	257					
GR FIR		108.9	14.4	129	151	173					
W LARCH		90.8	18.5	172	212	251					
W LARCH-D		101.0	21.0	136	172	208					
P PINE		148.3	73.7	25	96	167					
WR CEDAR		124.0	116.1		405	875					
TOTAL		98.5	6.3	172	184	196	388	97	43		
CL	68.1	COEFF		SAMPLE TREES - CF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		72.9	7.0	41	45	48					
DOUG FIR-D		111.2	23.2	37	48	59					
GR FIR		91.5	12.1	31	35	39					
W LARCH		81.0	16.5	37	44	52					
W LARCH-D		89.3	18.6	34	42	50					
P PINE		123.6	61.4	10	26	42					
WR CEDAR		102.7	96.2	4	97	191					
TOTAL		86.1	5.5	40	42	45	296	74	33		
CL	68.1	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		74.0	5.3	57	60	63					
DOUG FIR-D		388.4	27.8	3	4	6					
GR FIR		136.9	9.8	29	33	36					
W LARCH		210.1	15.0	8	10	11					
W LARCH-D		510.5	36.5	3	5	7					
P PINE		762.6	54.6	0	1	1					
WR CEDAR		1127.3	80.7	0	0	0					
TOTAL				113	113	113					

PROJECT STATISTICS
PROJECT HAWK

TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
33N	38E	09	HAWK	00U2	THR	525.49	195	686	S	E
33N	38E	16	HAWK	00U4						

CL	68.1	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR		71.2	5.1	61	64	68			
DOUG FIR-D		319.9	22.9	3	4	5			
GR FIR		131.3	9.4	25	27	30			
W LARCH		202.7	14.5	8	9	11			
W LARCH-D		343.2	24.6	3	4	5			
P PINE		755.6	54.1	0	1	1			
WR CEDAR		986.4	70.6	0	0	1			
TOTAL				<i>110</i>	<i>110</i>	<i>110</i>			

CL	68.1	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR		73.7	5.3	7,812	8,247	8,682			
DOUG FIR-D		357.5	25.6	297	399	501			
GR FIR		138.6	9.9	3,121	3,465	3,808			
W LARCH		219.5	15.7	1,199	1,423	1,646			
W LARCH-D		331.2	23.7	379	497	615			
P PINE		918.9	65.7	15	44	72			
WR CEDAR		1164.2	83.3	7	41	76			
TOTAL				<i>14,116</i>	<i>14,116</i>	<i>14,116</i>			

CL	68.1	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR		73.2	5.2	1,836	1,937	2,039			
DOUG FIR-D		342.4	24.5	77	102	127			
GR FIR		133.9	9.6	721	798	874			
W LARCH		216.4	15.5	251	297	343			
W LARCH-D		333.9	23.9	100	131	162			
P PINE		818.1	58.5	6	13	21			
WR CEDAR		1025.4	73.4	3	12	20			
TOTAL				<i>3,289</i>	<i>3,289</i>	<i>3,289</i>			

CL	68.1	COEFF	V BAR/ACRE				# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR				121	128	135			
DOUG FIR-D		355.1	25.4	73	99	124			
GR FIR				114	127	140			
W LARCH		129.4	9.3	127	151	174			
W LARCH-D		322.4	23.1	89	116	144			
P PINE		800.0	57.2	26	77	127			
WR CEDAR		1164.2	83.3	18	110	202			
TOTAL				<i>128</i>	<i>128</i>	<i>128</i>			

Species, Sort Grade - Board Foot Volumes (Type)											Page 1										
T TSPCSTGR											Date 11/3/2014										
Project: HAWK											Time 2:06:08PM										
T33N R38E S16 T00U1											T33N R38E S16 T00U1										
Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt											BdFt										
33N 38E 16 HAWK 00U1 74.86 26 30 S											E										
Spp	S	So	Gr	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln	Dia	Bd		CF/Lf
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft			
GF	D	2		16	13.2	1,484	1,288	96			49	51			100	32	16	318	1.95	4.1	
GF	D	3		59	8.8	5,138	4,687	351		76	24				100	32	10	133	0.92	35.2	
GF	D	4		25		1,930	1,930	144	86	14			15	54	31	24	5	28	0.32	70.1	
GF	Totals			57	7.6	8,551	7,905	592	21	48	22	8	4	13	83	27	7	72	0.63	109.3	
DF	D	2		26		1,032	1,032	77			53	47			100	32	16	392	2.78	2.6	
DF	D	3		37		1,477	1,477	111		100					7	32	9	107	0.71	13.9	
DF	D	4		32		1,260	1,260	94	68	32			15	19	66	26	5	34	0.39	37.3	
DF	U	UT		5		165	165	12	100				100			15	3	10	0.11	16.5	
DF	Totals			29		3,934	3,934	295	26	48	14	12	9	9	82	25	6	56	0.54	70.3	
DF	D	F	W	100		960	960	72	3	43	33	20	1	21	78	29	9	124	1.06	7.7	
DF	D	Totals		7		960	960	72	3	43	33	20	1	21	78	29	9	124	1.06	7.7	
WL	D	F	W	100		559	559	42	11	58	31		1	4	96	35	7	113	0.81	4.9	
WL	D	Totals		4		559	559	42	11	58	31		1	4	96	35	7	113	0.81	4.9	
WL	D	3		50		227	227	17		100					100	32	7	60	0.46	3.8	
WL	D	4		50	7.3	235	218	16	17	8	75		25	75		16	6	40	0.79	5.5	
WL	Totals			3	3.7	462	445	33	8	55	37		12	88		23	7	48	0.60	9.3	
Type Totals					4.6	14,466	13,802	1,033	20	48	21	10	5	12	74	9	26	7	68	0.62	201.6

T33N R38E S09 T00U2										T33N R38E S09 T00U2				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
33N	38E	09	HAWK	00U2	87.21	29	31	S	E					

Spp	Sp	T	So	Gr	ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
							Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft		CF/ Lf
											4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
DF		D	2			3		431	431	38	100				100				32	12	190	1.28	2.3
DF		D	3			73	1.6	8,576	8,437	736		95	5			100	32	8	98	0.69	85.9		
DF		D	4			22	6.5	2,742	2,564	224	70	30		21	24	55	24	5	31	0.34	82.4		
DF		U	UT			2	.0	217	217	19	100					100	16	3	10	0.15	21.7		
DF	Totals					88	2.7	11,966	11,648	1,016	17	75	8	6	5	88	27	7	61	0.53	192.2		
DF		D	F		W	100	.0	154	154	13	100				28				26	7	58	0.53	2.7
DF	D	Totals				1	.0	154	154	13	100				28				26	7	58	0.53	2.7
WL		D	3			50	10.8	628	560	49	100				100				32	8	71	0.49	7.9
WL		D	4			41		456	456	40	100				68	32	27	5	32	0.23	14.3		
WL		U	UT			9		93	93	8	100			100			16	4	10	0.11	9.3		
WL	Totals					8	5.8	1,176	1,109	97	49	51		8	28	64	25	5	35	0.29	31.6		
WL		D	F		W	100	11.1	126	112	10	25	75		25		75	34	5	40	0.34	2.8		
WL	D	Totals				1	11.1	126	112	10	25	75		25		75	34	5	40	0.34	2.8		
GF		D	2			71		111	111	10	100				100				32	14	270	1.85	.4
GF		D	3			26		41	41	4	100				100				32	8	100	0.71	.4
GF		D	4			3		4	4	0	100			100			12	5	10	0.24	.4		
GF	Totals					1		156	156	14	3	26	71	3	97		25	9	127	1.12	1.2		
Type	Totals						2.9	13,579	13,179	1,149	20	73	8	7	7	85	1	27	6	57	0.50	230.5	

T	TSPCSTGR	Species, Sort Grade - Board Foot Volumes (Type)										Page	1								
												Date	11/3/2014								
												Time	2:06:08PM								
T33N R38E S09 T00U3										T33N R38E S09 T00U3											
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
33N	38E	09	HAWK	00U3	36.25	14	25	S	E												
Spp	S	So	Gr	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln	Dia	Bd		CF/Lf
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf		
GF	D	2		19	9.4	1,177	1,066	39	100				100				32	15	290	1.99	3.7
GF	D	3		43	7.3	2,466	2,287	83	74	26		100				32	10	121	0.84	18.9	
GF	D	4		20	12.4	1,204	1,055	38	54	46		13	49	38		26	6	33	0.47	31.8	
GF	U	UT		18	4.2	999	958	35	56	44		50	50		23	5	24	0.36	40.4		
GF	Totals			38	8.2	5,846	5,367	195	21	48	31	11	18	70		26	6	57	0.59	94.8	
DF	D	3		55	11.3	3,289	2,918	106	66	34		100				32	8	89	0.69	32.6	
DF	D	4		40	3.0	2,149	2,084	76	41	59		25	75		25	5	36	0.31	57.3		
DF	U	UT		5		247	247	9	100			100			16	3	10	0.12	24.7		
DF	Totals			38	7.7	5,685	5,249	190	21	60	19	15	85		25	6	46	0.42	114.7		
DF	D	F	W	100		997	997	36	19	8	73	11	89		38	8	147	0.82	6.8		
DF	D	Totals		7		997	997	36	19	8	73	11	89		38	8	147	0.82	6.8		
WL	D	2		26		527	527	19	100			100				32	13	210	1.34	2.5	
WL	D	3		70		1,382	1,382	50	100			100				32	9	110	0.66	12.6	
WL	D	4		4		75	75	3	100			100			20	5	20	0.24	3.8		
WL	U	UT													12	3		0.12	2.5		
WL	Totals			14		1,984	1,984	72	4	70	27	4	96		28	8	93	0.67	21.3		
WL	D	F	W	100		378	378	14	22	78		27	73		33	5	42	0.33	8.9		
WL	D	Totals		3		378	378	14	22	78		27	73		33	5	42	0.33	8.9		
Type Totals					6.2	14,890	13,974	507	18	54	28	11	8	73	8	26	6	57	0.52	246.6	

T TSPCSTGR	Species, Sort Grade - Board Foot Volumes (Type)										Page 1											
	Project: HAWK										Date 11/3/2014											
											Time 2:06:08PM											
T33N R38E S16 T00U4										T33N R38E S16 T00U4												
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt													
33N	38E	16	HAWK	00U4	38.70	14	21	S	E													
Spp	S	So	Gr	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre		
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln	Dia	Bd		CF/Lf	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf			
GF	D	2		18	10.2	1,868	1,678						100			100	32	18	440	2.59	3.8	
GF	D	3		57	4.8	5,455	5,193			44	56			18	82		32	12	194	1.12	26.8	
GF	D	4		25	6.0	2,317	2,177		64	36			9	11	80		28	5	42	0.45	51.5	
GF	Totals			51	6.1	9,640	9,048		350	15	34	32	19	2	13	85	30	8	110	0.79	82.1	
WL	D	2		67		2,820	2,820				38	62			100		32	15	315	1.68	9.0	
WL	D	3		10		448	448			100					100		32	8	100	0.64	4.5	
WL	D	4		18	.0	760	760		100				6	94			28	5	34	0.24	22.4	
WL	U	UT		5	.0	179	179		7	100			100				16	3	10	0.09	17.9	
WL	Totals			24		4,207	4,207		163	22	11	26	41	5	95		25	6	78	0.56	53.7	
WL	D	F	W	100		1,016	1,016		39	44	56			14		86	35	5	35	0.28	28.7	
WL	D	Totals		6		1,016	1,016		39	44	56			14		86	35	5	35	0.28	28.7	
DF	D	2		57	9.6	1,736	1,570		61			100			100		32	14	246	1.69	6.4	
DF	D	3		23	3.9	664	638		25		100				100		32	8	100	0.70	6.4	
DF	D	4		16	17.2	543	449		17	17	83		17	83			27	6	34	0.45	13.1	
DF	U	UT		4		93	93		4	100			100				14	3	8	0.14	11.9	
DF	Totals			15	9.4	3,035	2,750		106	6	37	57		6	94		25	7	73	0.72	37.8	
DF	D	F	W	100		738	738		29	22	78			37		63	21	6	39	0.50	18.8	
DF	D	Totals		4		738	738		29	22	78			37		63	21	6	39	0.50	18.8	
RC	D	4		100	28.6	147	105		4		100				100		32	7	50	0.83	2.1	
RC	Totals			1	28.6	147	105		4		100				100		32	7	50	0.83	2.1	
Type Totals					4.9	18,784	17,864		691	17	32	31	19	6	6	80	8	28	7	80	0.63	223.3

T33N R38E S15 T00U5	T33N R38E S15 T00U5
Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt	BdFt
33N 38E 15 HAWK 00U5 92.61 30 27 S	E

Spp	S	So	Gr	% 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
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
DF	D	2		28	5.7	3,099	2,924	271		47	53			100	32	15	325	2.05	9.0		
DF	D	3		49	5.1	5,444	5,168	479		61	39			4 96	32	9	118	0.90	43.8		
DF	D	4		22	5.7	2,360	2,227	206	14	34	52			7 6 86	25	7	70	0.72	31.6		
DF	U	UT		1		96	96	9	100					100	15	3	10	0.17	9.6		
DF	Totals			72	5.3	10,999	10,414	964	4	38	44	15		3 3 94	28	8	111	0.93	94.0		
DF	D	F	W	100	24.0	299	227	21		19	81			100	40	11	192	1.51	1.2		
DF	D	Totals		2	24.0	299	227	21		19	81			100	40	11	192	1.51	1.2		
WL	D	2		37		539	539	50			100			100	32	14	250	1.63	2.2		
WL	D	3		59		842	842	78		100				100	32	9	109	0.83	7.7		
WL	D	4		4		56	56	5	100				100	16	5	20	0.24	2.8			
WL	Totals			10		1,437	1,437	133	4	59	38			4 96	28	9	113	0.91	12.7		
WL	D	F	W	100		779	779	72	13	69	18			8 92	32	5	51	0.45	15.2		
WL	D	Totals		5		779	779	72	13	69	18			8 92	32	5	51	0.45	15.2		
GF	D	3		43	7.1	618	574	53			100			100	32	10	130	0.81	4.4		
GF	D	4		42		558	558	52	100					60 40	29	5	36	0.31	15.7		
GF	U	UT		15		189	189	18	100				100	30	3	20	0.35	9.5			
GF	Totals			9	3.2	1,365	1,321	122	57	43				40 60	30	5	45	0.40	29.5		
RC	D	3		96	6.4	196	183	17			33	67		100	32	16	365	2.49	.5		
RC	D	4		4		8	8	1		100				100	16	7	30	0.53	.3		
RC	Totals			1	6.2	203	191	18		4	32	64		4 96	27	13	253	2.10	.8		
PP	D	4		62	8.3	103	94	9			100			100	32	13	220	1.78	.4		
PP	D	5		38		56	56	5		100				15 85	23	8	65	0.57	.9		
PP	Totals			1	5.4	158	150	14		37	63			6 94	26	9	117	1.07	1.3		
Type	Totals				4.7	15,242	14,520	1,345	9	41	38	11		3 6 85 7	29	7	94	0.79	154.6		

T33N R38E S15 T00U6										T33N R38E S15 T00U6			
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt				
33N	38E	15	HAWK	00U6	88.75	34	36	S	E				

Spp	S	So	Gr	% 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		
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99							
DF	D	2		19	1.0	1,782	1,764	157	100				100				32	14	262	1.58	6.7		
DF	D	3		49	4.0	4,616	4,433	393	86	14					3	97	32	9	119	0.97	37.2		
DF	D	4		31	2.0	2,916	2,858	254	75	25			10	21	69	26	5	37	0.34	77.9			
DF	U	UT		1		43	43	4	100				100				16	3	10	0.22	4.3		
DF	Totals			65	2.8	9,357	9,098	807	24	50	26			4	8	88	28	7	72	0.63	126.1		
DF	D	F	W	100		165	165	15	61	39					100				19	10	70	0.91	2.4
DF	D	Totals		1		165	165	15	61	39					100				19	10	70	0.91	2.4
GF	D	3		68	5.8	2,412	2,272	202	100				100				32	8	97	0.60	23.5		
GF	D	4		29	5.4	1,036	980	87	100					12	11	77	27	5	37	0.30	26.5		
GF	U	UT		3		77	77	7	100					100				14	3	4	0.13	18.5	
GF	Totals			24	5.6	3,525	3,329	295	32	68			6	3	91	25	6	49	0.41	68.5			
WL	D	3		72	2.6	823	802	71	100				100				32	8	89	0.60	9.0		
WL	D	4		22		240	240	21	62	38					17	83	24	5	39	0.28	6.2		
WL	U	UT		6		62	62	6	100				100				16	3	10	0.11	6.2		
WL	Totals			8	1.9	1,125	1,104	98	19	81			9	91			25	6	51	0.42	21.5		
WL	D	F	W	100		138	138	12	18	82					100				40	7	110	0.69	1.3
WL	D	Totals		1		138	138	12	18	82					100				40	7	110	0.69	1.3
PP	D	5		100	20.0	116	93	8	100				100				30	6	40	0.56	2.3		
PP	Totals			1	20.0	116	93	8	100				100				30	6	40	0.56	2.3		
Type	Totals				3.5	14,427	13,927	1,236	25	57	18			6	7	86	1	27	6	63	0.55	222.0	

Species, Sort Grade - Board Foot Volumes (Type)										Page 1											
T TSPCSTGR										Date 11/3/2014											
Project: HAWK										Time 2:06:08PM											
T33N R38E S09 T00U7										T33N R38E S09 T00U7											
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt			
33N		38E		09		HAWK		00U7		92.61		39		46		S		E			
Spp	S	So	Gr	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln	Dia	Bd		CF/Lf
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft			
DF	D		2	21	1.8	2,190	2,150									32	13	240	1.49	9.0	
DF	D		3	55	3.8	5,580	5,366			92	8			95	5	32	9	105	0.76	51.0	
DF	D		4	22	12.7	2,454	2,142	75	8	17		15	56	29		24	5	31	0.34	70.1	
DF	U		UT	2		186	186	100				100				16	3	10	0.11	18.6	
DF	Totals			65	5.4	10,410	9,845		18	52	30		5	12	80	3	26	7	66	0.59	148.7
DF	D	F	W	100	5.8	274	259	24	50	50		17	50		33	29	6	39	0.39	6.6	
DF	D	Totals		2	5.8	274	259	24	50	50		17	50		33	29	6	39	0.39	6.6	
WL	D		2	10		176	176	16			100				100	32	14	250	1.98	.7	
WL	D		3	58	.7	947	940	87			100				100	32	9	100	0.67	9.4	
WL	D		4	26		433	433	40	73	27		3	52	44		27	5	36	0.28	12.1	
WL	U		UT	6	.0	87	87	8	100			100				15	3	9	0.11	10.2	
WL	Totals			11	.4	1,644	1,637	152	25	65	11		6	14	80	25	6	51	0.44	32.4	
WL	D	F	W	100	1.5	790	778	72	29	21	26	24	3	14	5	78	33	6	78	0.58	10.0
WL	D	Totals		5	1.5	790	778	72	29	21	26	24	3	14	5	78	33	6	78	0.58	10.0
GF	D		3	84	10.7	2,461	2,198	204		66	34				100	32	9	107	0.77	20.6	
GF	D		4	14		375	375	35	93	7		33	67			22	5	25	0.26	14.9	
GF	U		UT	2		40	40	4	100			100				14	3	10	0.09	4.0	
GF	Totals			17	9.1	2,876	2,613	242	15	56	29		6	10	84	26	7	66	0.57	39.4	
Type Totals					5.4	15,994	15,131	1,401	19	52	27	1	6	13	75	6	26	7	64	0.56	237.1

T33N R38E S15 TRWU8										T33N R38E S15 TRWU8				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
33N	38E	15	HAWK	RWU8	14.50	9	32	S	E					

Spp	S	So	Gr	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			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			
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99								
DF	D	2		55	1.3	1,678	1,656	24	100				100				32	14	248	1.79	6.7			
DF	D	3		34	1.1	1,033	1,022	15	100				8 92				32	8	102	0.71	10.0			
DF	D	4		8	5.0	222	211	3	53	47					74	26			19	6	21	0.33	10.0	
DF	U	UT		3	89		89	1	100				63 38				18	4	16	0.21	5.6			
DF	Totals			78	1.5	3,022	2,978	43	7	38	56				7	6	87			26	8	92	0.84	32.2
GF	D	3		47	11.1	400	356	5	100				100				32	8	80	0.79	4.4			
GF	D	4		51	5.6	400	378	5	53	47					41	9	50			20	5	26	0.37	14.4
GF	U	UT		2	11		11	0	100				100				13	3	5	0.14	2.2			
GF	Totals			20	8.2	811	744	11	28	72				22	4	73			22	6	35	0.48	21.1	
PP	D	5		100	56		56	1	100				40 60				19	6	25	0.37	2.2			
PP	Totals			1	56		56	1	100				40 60				19	6	25	0.37	2.2			
WL	D	4		100	22		22	0	100				100				24	5	20	0.24	1.1			
WL	Totals			1	22		22	0	100				100				24	5	20	0.24	1.1			
Type Totals					2.8	3,911	3,800	55	11	45	44				11	7	83			24	7	67	0.69	56.7

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

T33N R38E S09 Ty00U2	87.2
T33N R38E S09 Ty00U3	36.2
T33N R38E S16 Ty00U	38.7

Project HAWK
Acres 525.49

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Species	S T	Total	Total	Total	Net Cubic Ft/		CF/ LF	Total CCF		Total MBF	
		Trees	Logs	Tons	Tree	Log		Gross	Net	Gross	Net
DOUG FIR		31,418	61,784	29,005	32.40	16.48	0.62	10,177	10,180	4,519	4,334
GR FIR		17,079	27,681	12,013	24.55	15.15	0.56	4,193	4,193	1,956	1,821
W LARCH		5,190	12,397	3,742	30.04	12.58	0.50	1,559	1,559	757	748
W LARCH	D	2,750	4,497	1,649	24.98	15.28	0.46	687	687	263	261
DOUG FIR	D	2,316	2,714	1,525	23.10	19.72	0.73	535	535	218	210
P PINE		278	357	168	25.14	19.55	0.71	70	70	26	23
WR CEDAR		104	151	142	58.12	40.19	1.35	61	61	25	22
Totals		59,136	109,581	48,244	29.23	15.77	0.59	17,282	17,285	7,764	7,418

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	59,136	109,581	48,244	29.23	15.77	0.59	17,282	17,285	7,764	7,418
Totals	59,136	109,581	48,244	29.23	15.77	0.59	17,282	17,285	7,764	7,418

Log Stock Table - MBF

T33N R38E S09 Ty00U2
THRU
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Spp	S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches									
									2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29
DF		D	2	32	854	3.3	826	19.1				362	91	373				
DF		D	3	28	9		9	.2		9								
DF		D	3	30	31	5.5	29	.7		29								
DF		D	3	32	2,379	3.3	2,299	53.1		431	943	569	290	66				
DF		D	3	40	31	23.1	24	.5			24							
DF		D	4	12	12		12	.3		9	3							
DF		D	4	14	31		31	.7		31								
DF		D	4	16	53		53	1.2		49	4							
DF		D	4	18	9		9	.2		7	2							
DF		D	4	20	51		51	1.2		48	3							
DF		D	4	22	46		46	1.1		46								
DF		D	4	24	17		17	.4		17								
DF		D	4	25	28		28	.6		28								
DF		D	4	26	71		71	1.6		71								
DF		D	4	28	55		55	1.3		55								
DF		D	4	30	34		34	.8		34								
DF		D	4	32	733	9.3	665	15.3		228	202	65	29	45	96			
DF		U	UT	14	13		13	.3	13									
DF		U	UT	16	59		59	1.4	45	14								
DF		U	UT	19	3		3	.1	3									
DF		U	UT	30	0		0	.0		0								
DF		Totals			4,519	4.1	4,334	58.4	61	637	682	1032	598	651	202	470		
DF	D	F	W	12	5		5	2.3		5								
DF	D	F	W	16	5		5	2.5				5						
DF	D	F	W	18	4		4	1.8		4								
DF	D	F	W	20	24		24	11.5	1	10			4	10				
DF	D	F	W	22	4		4	1.8				4						
DF	D	F	W	26	6		6	2.9				6						
DF	D	F	W	28	5		5	2.5		5								
DF	D	F	W	30	13	10.9	12	5.7		6	6							
DF	D	F	W	36	10		10	4.6				10						
DF	D	F	W	39	2		2	1.0	2									
DF	D	F	W	40	139	4.8	133	63.4		15	7	18	15	5	46	12	15	
DF		Totals			218	3.7	210	2.8	3	24	26	44	24	5	56	12	15	
WL		D	2	32	195		195	26.0					61	66	68			

Log Stock Table - MBF

T33N R38E S09 Ty00U2
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Spp	S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches										
									2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39
WL		D	3	32	378	2.2	369	49.4			76	139	155						
WL		D	4	12	6		6	.8		6									
WL		D	4	16	9		9	1.2		9									
WL		D	4	18	1		1	.2			1								
WL		D	4	20	3		3	.4		3									
WL		D	4	22	6		6	.8		6									
WL		D	4	24	7		7	.9		7									
WL		D	4	26	31		31	4.2		31									
WL		D	4	28	5		5	.6		5									
WL		D	4	32	89	1.4	88	11.8		57	19		12						
WL		U	UT	14	1		1	.2		1									
WL		U	UT	16	27		27	3.7		21	7								
WL		Totals			757	1.3	748	10.1		22	129	96	139	155	73	66	68		
WL	D	F	W	14	2		2	.7		2									
WL	D	F	W	17	2		2	.7		2									
WL	D	F	W	18	2		2	.9		2									
WL	D	F	W	20	7		7	2.7		0	3		4						
WL	D	F	W	25	4		4	1.4			4								
WL	D	F	W	26	2		2	.6		2									
WL	D	F	W	27	2		2	.9		2									
WL	D	F	W	28	9	12.5	8	2.9								8			
WL	D	F	W	30	2		2	.9		2									
WL	D	F	W	35	4		4	1.5			4								
WL	D	F	W	36	13		13	4.8		3	10								
WL	D	F	W	40	215		214	81.9		2	39	58	21	40	32	13	10		
WL		Totals			263		261	3.5		18	42	75	21	43	32	13	18		
GF		D		32	236	11.1	210	11.5						96	114				
GF		D		30	38	6.7	35	1.9					35						
GF		D		32	1,156	7.7	1,066	58.6			84	340	356	178	73	35			
GF		D		12	1		1	.0		1									
GF		D		14	12		12	.6		12									
GF		D		16	32		32	1.8		27	5								
GF		D		18	8		8	.4		3	6								
GF		D		20	6		6	.3		6									
GF		D		22	37		37	2.0		35	3								

Log Stock Table - MBF

T33N R38E S09 Ty00U2
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Spp	S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches									
									2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29
GF		D	4	24	21		21	1.2		12	9							
GF		D	4	26	37	13.2	32	1.8		32								
GF		D	4	28	41		41	2.3		41								
GF		D	4	30	38		38	2.1		38								
GF		D	4	32	228	4.9	217	11.9		167	49	1						
GF		U	UT	12	6		6	.3				6						
GF		U	UT	13	1		1	.1			1							
GF		U	UT	14	4		4	.2	4									
GF		U	UT	16	18	8.3	17	.9		9		8						
GF		U	UT	29	17		17	.9	17									
GF		U	UT	30	18		18	1.0	18									
GF		Totals			1,956	6.9	1,821	24.5	39	383	156	341	406	178	169	148		
PP		D	4	32	10	8.3	9	38.1				9						
PP		D	5	14	1		1	4.9		1								
PP		D	5	24	0		0	2.1		0								
PP		D	5	30	10	20.0	8	35.9		8								
PP		D	5	32	4		4	19.0			4							
PP		Totals			26	11.1	23	.3		10	4		9					
RC		D	3	32	18	6.4	17	78.1				6		11				
RC		D	4	16	1		1	3.2		1								
RC		D	4	32	6	28.6	4	18.6		4								
RC		Totals			25	11.4	22	.3		5		6		11				
Total		All Species			7,764	4.5	7,418	100.0	142	1217	1050	1581	1226	954	507	727	15	

TC TSTATS				STATISTICS				PAGE 1		
PROJECT HAWK				DATE 11/3/2014						
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
33N	38E	16	HAWK	00U1	74.86	26	87	S	E	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	26	87	3.3							
CRUISE	18	30	1.7	9,051			.3			
DBH COUNT										
REFOREST										
COUNT	6	13	2.2							
BLANKS	2									
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
GR FIR	12	70.1	12.6	59	17.1	60.8	8,551	7,905	1,822	1,822
DOUG FIR	7	38.5	12.9	59	9.7	34.9	3,934	3,934	942	944
DOUG FIR-D	6	5.4	16.2	43	1.9	7.8	960	960	237	237
W LARCH	2	4.6	14.3	64	1.4	5.2	462	445	126	126
W LARCH-D	3	2.2	17.8	88	0.9	3.9	559	559	139	139
TOTAL	30	120.9	13.1	59	31.1	112.5	14,466	13,802	3,266	3,268
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
GR FIR	83.2	25.0	152	203	254					
DOUG FIR	109.9	44.7	115	209	302					
DOUG FIR-D	103.4	46.0	206	382	557					
W LARCH	70.7	66.2	47	140	233					
W LARCH-D	68.1	47.1	159	300	441					
TOTAL	97.8	18.2	201	246	290	396	99	44		
CL: 68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
GR FIR	72.8	21.9	36	46	56					
DOUG FIR	106.3	43.2	27	48	69					
DOUG FIR-D	91.2	40.6	51	86	121					
W LARCH	86.1	80.6	9	44	80					
W LARCH-D	55.8	38.6	44	72	100					
TOTAL	87.4	16.2	48	57	66	316	79	35		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
GR FIR	65.6	13.1	61	70	79					
DOUG FIR	114.4	22.9	30	39	47					
DOUG FIR-D	239.8	48.0	3	5	8					
W LARCH	265.7	53.1	2	5	7					
W LARCH-D	297.7	59.5	1	2	4					
TOTAL			121	121	121					
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
GR FIR	56.5	11.3	54	61	68					
DOUG FIR	107.2	21.4	27	35	42					
DOUG FIR-D	222.9	44.6	4	8	11					
W LARCH	239.2	47.8	3	5	8					
W LARCH-D	282.4	56.5	2	4	6					
TOTAL			112	112	112					
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
GR FIR	57.4	11.5	6,998	7,905	8,812					

TC TSTATS				STATISTICS			PAGE	2		
				PROJECT HAWK			DATE	11/3/2014		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
33N	38E	16	HAWK	00U1	74.86	26	87	S	E	
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		106.8	21.4	3,094	3,934	4,774				
DOUG FIR-D		258.8	51.7	463	960	1,456				
W LARCH		241.7	48.3	230	445	660				
W LARCH-D		289.6	57.9	235	559	883				
TOTAL				<i>13,802</i>	<i>13,802</i>	<i>13,802</i>				
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
GR FIR		56.9	11.4	1,615	1,822	2,029				
DOUG FIR		106.6	21.3	743	944	1,145				
DOUG FIR-D		242.8	48.6	122	237	352				
W LARCH		239.2	47.8	66	126	186				
W LARCH-D		284.2	56.8	60	139	219				
TOTAL				<i>3,268</i>	<i>3,268</i>	<i>3,268</i>				
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
GR FIR				115	130	145				
DOUG FIR				89	113	137				
DOUG FIR-D		258.8	51.7	60	124	188				
W LARCH		156.9	31.4	44	86	128				
W LARCH-D		289.6	57.9	61	144	228				
TOTAL		<i>248.8</i>	<i>49.7</i>	<i>123</i>	<i>123</i>	<i>123</i>	<i>2,574</i>	<i>643</i>	<i>286</i>	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT HAWK				DATE	11/3/2014	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
33N	38E	09	HAWK	00U2	87.21	29	104	S	E	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL	29	104	3.6	9,424		.3				
CRUISE	20	31	1.5							
DBH COUNT										
REFOREST										
COUNT	8	22	2.8							
BLANKS	1									
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	23	89.2	13.5	77	24.0	88.1	11,966	11,648	2,706	2,707
DOUG FIR-D	2	2.7	11.5	26	0.6	1.9	154	154	37	37
W LARCH	4	14.3	9.9	82	2.4	7.7	1,176	1,109	229	229
W LARCH-D	1	1.4	11.2	80	0.3	1.0	126	112	32	32
GR FIR	1	.4	20.7	74	0.2	1.0	156	156	35	35
TOTAL	<i>31</i>	<i>108.1</i>	<i>13.0</i>	<i>77</i>	<i>27.6</i>	<i>99.6</i>	<i>13,579</i>	<i>13,179</i>	<i>3,038</i>	<i>3,039</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	48.4	10.3	132	147	163					
DOUG FIR-D	70.7	66.2	20	60	100					
W LARCH	50.5	28.8	68	95	122					
W LARCH-D										
GR FIR										
TOTAL	<i>58.8</i>	<i>10.5</i>	<i>126</i>	<i>140</i>	<i>155</i>	<i>138</i>	<i>34</i>	<i>15</i>		
CL: 68.1 %	COEFF	SAMPLE TREES - CF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	39.4	8.4	31	34	37					
DOUG FIR-D	59.4	55.6	6	14	22					
W LARCH	53.8	30.7	14	20	26					
W LARCH-D										
GR FIR										
TOTAL	<i>52.3</i>	<i>9.4</i>	<i>29</i>	<i>32</i>	<i>35</i>	<i>109</i>	<i>27</i>	<i>12</i>		
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR			89	89	89					
DOUG FIR-D	374.9	70.8	1	3	5					
W LARCH	177.6	33.5	10	14	19					
W LARCH-D	538.5	101.7	1	1	3					
GR FIR	538.5	101.7	0	0	1					
TOTAL			<i>108</i>	<i>108</i>	<i>108</i>					
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR			88	88	88					
DOUG FIR-D	373.9	70.6	1	2	3					
W LARCH	164.9	31.1	5	8	10					
W LARCH-D	538.5	101.7	1	1	2					
GR FIR	538.5	101.7	1	1	2					
TOTAL			<i>100</i>	<i>100</i>	<i>100</i>					

TC TSTATS				STATISTICS			PAGE	2		
				PROJECT HAWK			DATE	11/3/2014		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
33N	38E	09	HAWK	00U2	87.21	29	104	S	E	
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR				11,648	11,648	11,648				
DOUG FIR-D	411.9	77.8		34	154	274				
W LARCH	167.4	31.6		758	1,109	1,459				
W LARCH-D	538.5	101.7			112	226				
GR FIR	538.5	101.7			156	314				
TOTAL				<i>13,179</i>	<i>13,179</i>	<i>13,179</i>				
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR				2,707	2,707	2,707				
DOUG FIR-D	399.2	75.4		9	37	65				
W LARCH	166.1	31.4		157	229	300				
W LARCH-D	538.5	101.7			32	64				
GR FIR	538.5	101.7			35	70				
TOTAL				<i>3,039</i>	<i>3,039</i>	<i>3,039</i>				
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR				132	132	132				
DOUG FIR-D	411.9	77.8		18	81	143				
W LARCH	96.2	18.2		99	145	190				
W LARCH-D	538.5	101.7			117	236				
GR FIR	538.5	101.7			163	328				
TOTAL	<i>304.9</i>	<i>57.6</i>		<i>132</i>	<i>132</i>	<i>132</i>	<i>3,844</i>	<i>961</i>	<i>427</i>	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT HAWK				DATE	11/3/2014	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
33N	38E	09	HAWK	00U3	36.25	14	62	S	E	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				TREES	TREES	TREES				
TOTAL	14	62	4.4							
CRUISE	12	24	2.0	5,218			.5			
DBH COUNT										
REFOREST										
COUNT	2	9	4.5							
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
GR FIR	12	65.9	12.4	49	15.8	55.6	5,846	5,367	1,454	1,454
DOUG FIR	4	57.3	11.8	68	12.7	43.7	5,685	5,249	1,220	1,220
DOUG FIR-D	3	5.3	14.4	66	1.6	6.0	997	997	211	211
W LARCH	3	9.2	16.7	107	3.4	13.9	1,984	1,984	393	393
W LARCH-D	2	6.2	10.9	54	1.2	4.0	378	378	98	98
TOTAL	24	143.9	12.5	61	34.8	123.0	14,890	13,974	3,376	3,376
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
GR FIR	116.3	35.0	94	144	195					
DOUG FIR	54.0	30.9	78	113	147					
DOUG FIR-D	75.1	52.0	179	373	567					
W LARCH	92.3	63.8	80	220	360					
W LARCH-D	76.1	71.3	19	65	111					
TOTAL	105.1	21.9	133	170	208	460	115	51		
CL: 68.1 %	COEFF	SAMPLE TREES - CF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
GR FIR	92.8	28.0	26	37	47					
DOUG FIR	64.5	36.9	17	28	38					
DOUG FIR-D	71.4	49.4	38	75	113					
W LARCH	92.6	64.1	16	44	72					
W LARCH-D	63.2	59.1	7	17	27					
TOTAL	89.8	18.7	32	39	46	336	84	37		
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
GR FIR	54.7	15.2	56	66	76					
DOUG FIR	67.1	18.6	47	57	68					
DOUG FIR-D	269.3	74.6	1	5	9					
W LARCH	171.8	47.6	5	9	14					
W LARCH-D	256.0	70.9	2	6	11					
TOTAL			144	144	144					
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
GR FIR	43.9	12.1	49	56	62					
DOUG FIR	64.7	17.9	36	44	51					
DOUG FIR-D	198.7	55.0	3	6	9					
W LARCH	171.0	47.4	7	14	20					
W LARCH-D	254.2	70.4	1	4	7					
TOTAL			123	123	123					
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
GR FIR	47.1	13.1	4,666	5,367	6,068					

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				PROJECT HAWK			DATE	11/3/2014		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
33N	38E	09	HAWK	00U3	36.25	14	62	S	E	
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		66.4	18.4	4,284	5,249	6,213				
DOUG FIR-D		210.9	58.4	414	997	1,579				
W LARCH		184.0	51.0	973	1,984	2,995				
W LARCH-D		283.3	78.5	81	378	675				
TOTAL				<i>13,974</i>	<i>13,974</i>	<i>13,974</i>				
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15	
GR FIR		45.5	12.6	1,270	1,454	1,637				
DOUG FIR		64.8	17.9	1,001	1,220	1,438				
DOUG FIR-D		203.1	56.3	92	211	330				
W LARCH		184.0	51.0	193	393	594				
W LARCH-D		272.2	75.4	24	98	173				
TOTAL				<i>3,376</i>	<i>3,376</i>	<i>3,376</i>				
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15	
GR FIR				84	97	109				
DOUG FIR				98	120	142				
DOUG FIR-D		210.9	58.4	70	167	265				
W LARCH		55.5	15.4	70	143	216				
W LARCH-D		283.3	78.5	20	95	170				
TOTAL		<i>193.5</i>	<i>53.6</i>	<i>114</i>	<i>114</i>	<i>114</i>	<i>1,609</i>	<i>402</i>	<i>179</i>	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT HAWK				DATE	11/3/2014	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
33N	38E	16	HAWK	00U4	38.70	14	53	S	E	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL	14	53	3.8							
CRUISE	13	21	1.6	5,334			.4			
DBH COUNT										
REFOREST										
COUNT	1	2	2.0							
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
GR FIR	5	58.1	14.0	56	16.7	62.4	9,640	9,048	1,911	1,911
W LARCH	3	22.4	12.5	74	5.4	19.2	4,207	4,207	750	750
W LARCH-D	5	24.3	9.5	57	3.9	12.0	1,016	1,016	283	283
DOUG FIR	3	15.7	15.9	63	5.4	21.6	3,035	2,750	671	671
DOUG FIR-D	4	15.3	10.7	29	2.9	9.6	738	738	202	202
WR CEDAR	1	2.1	14.5	52	0.6	2.4	147	105	56	56
TOTAL	21	137.8	13.0	57	35.3	127.2	18,784	17,864	3,872	3,872
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
GR FIR	106.7	53.0	135	288	441					
W LARCH			765	765	765					
W LARCH-D	37.3	18.5	39	48	57					
DOUG FIR	69.8	48.3	133	257	381					
DOUG FIR-D	92.9	53.1	40	85	130					
WR CEDAR										
TOTAL	117.9	27.0	159	219	278	584	146	65		
CL: 68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
GR FIR	94.4	46.9	30	56	83					
W LARCH			135	135	135					
W LARCH-D	41.5	20.6	11	14	16					
DOUG FIR	64.5	44.6	33	60	87					
DOUG FIR-D	98.1	56.1	11	24	38					
WR CEDAR										
TOTAL	97.2	22.3	36	46	57	397	99	44		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
GR FIR	73.0	20.2	46	58	70					
W LARCH	124.2	34.4	15	22	30					
W LARCH-D	352.2	97.6	1	24	48					
DOUG FIR	173.4	48.0	8	16	23					
DOUG FIR-D	295.3	81.8	3	15	28					
WR CEDAR	374.2	103.6		2	4					
TOTAL	15.7	4.3	132	138	144	11	3	1		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
GR FIR	72.7	20.1	50	62	75					
W LARCH	113.1	31.3	13	19	25					
W LARCH-D	302.9	83.9	2	12	22					
DOUG FIR	168.3	46.6	12	22	32					
DOUG FIR-D	254.2	70.4	3	10	16					

TC TSTATS				STATISTICS			PAGE	2		
				PROJECT HAWK			DATE	11/3/2014		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
33N	38E	16	HAWK	00U4	38.70	14	53	S	E	
CL:	68.1 %	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
WR CEDAR		374.2	103.6		2	5				
TOTAL				127	127	127				
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
GR FIR		79.0	21.9	7,068	9,048	11,028				
W LARCH		122.9	34.1	2,774	4,207	5,640				
W LARCH-D		338.3	93.7	64	1,016	1,969				
DOUG FIR		170.8	47.3	1,449	2,750	4,051				
DOUG FIR-D		272.4	75.5	181	738	1,295				
WR CEDAR		374.2	103.6		105	213				
TOTAL				17,864	17,864	17,864				
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
GR FIR		75.9	21.0	1,509	1,911	2,312				
W LARCH		122.2	33.8	496	750	1,004				
W LARCH-D		335.2	92.9	20	283	545				
DOUG FIR		168.9	46.8	357	671	985				
DOUG FIR-D		283.9	78.6	43	202	360				
WR CEDAR		374.2	103.6		56	113				
TOTAL				3,872	3,872	3,872				
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
GR FIR				113	145	177				
W LARCH		57.7	16.0	144	219	294				
W LARCH-D		338.3	93.7	5	85	164				
DOUG FIR				67	127	188				
DOUG FIR-D		272.4	75.5	19	77	135				
WR CEDAR		374.2	103.6		44	89				
TOTAL		258.2	71.5	140	140	140	2,864	716	318	

TC TSTATS				STATISTICS				PAGE	1	
PROJECT				HAWK				DATE	11/3/2014	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
33N	38E	15	HAWK	00U5	92.61	30	98	S	E	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL	30	98	3.3							
CRUISE	19	26	1.4		7,373		.4			
DBH COUNT										
REFOREST										
COUNT	11	22	2.0							
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR	12	40.5	18.3	75	17.3	73.9	10,999	10,414	2,434	2,434
DOUG FIR-D	2	.8	22.7	71	0.5	2.2	299	227	71	71
W LARCH	2	4.9	19.3	74	2.3	10.1	1,437	1,437	329	329
W LARCH-D	5	7.6	12.7	77	1.9	6.7	779	779	218	218
GR FIR	3	25.1	10.3	51	4.5	14.6	1,365	1,321	354	354
WR CEDAR	1	.3	28.6	80	0.2	1.1	203	191	42	42
P PINE	1	.4	21.9	82	0.2	1.1	158	150	36	36
TOTAL	26	79.6	15.9	68	27.5	109.8	15,242	14,520	3,484	3,484
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	78.0	23.5	253	331	409					
DOUG FIR-D	78.0	73.1	78	290	502					
W LARCH	16.8	15.7	249	295	341					
W LARCH-D	74.7	37.1	85	136	187					
GR FIR	116.9	80.9	15	77	139					
WR CEDAR										
P PINE										
TOTAL	84.0	16.8	229	275	322	293	73	33		
CL: 68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	58.7	17.7	61	74	87					
DOUG FIR-D	34.2	32.0	61	90	119					
W LARCH	10.7	10.0	60	67	74					
W LARCH-D	66.9	33.2	25	37	49					
GR FIR	85.8	59.3	8	18	29					
WR CEDAR										
P PINE										
TOTAL	67.5	13.5	56	65	74	189	47	21		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	76.7	14.2	35	40	46					
DOUG FIR-D	380.7	70.7	0	1	1					
W LARCH	234.3	43.5	3	5	7					
W LARCH-D	273.0	50.7	4	8	11					
GR FIR	169.9	31.5	17	25	33					
WR CEDAR	547.7	101.7		0	1					
P PINE	547.7	101.7		0	1					
TOTAL	13.2	2.5	78	80	82	7	2	1		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	74.9	13.9	64	74	84					

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				PROJECT HAWK			DATE	11/3/2014		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
33N	38E	15	HAWK	00U5	92.61	30	98	S	E	
CL:	68.1 %	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR-D		380.6	70.6	1	2	4				
W LARCH		234.1	43.5	6	10	14				
W LARCH-D		242.1	44.9	4	7	10				
GR FIR		168.0	31.2	10	15	19				
WR CEDAR		547.7	101.7		1	2				
P PINE		547.7	101.7		1	2				
TOTAL				<i>110</i>	<i>110</i>	<i>110</i>				
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		74.3	13.8	8,978	10,414	11,850				
DOUG FIR-D		435.3	80.8	44	227	411				
W LARCH		234.1	43.5	813	1,437	2,062				
W LARCH-D		236.2	43.8	438	779	1,121				
GR FIR		173.5	32.2	895	1,321	1,746				
WR CEDAR		547.7	101.7		191	385				
P PINE		547.7	101.7		150	302				
TOTAL				<i>14,520</i>	<i>14,520</i>	<i>14,520</i>				
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		74.3	13.8	2,099	2,434	2,770				
DOUG FIR-D		390.4	72.5	20	71	123				
W LARCH		234.1	43.5	186	329	472				
W LARCH-D		236.6	43.9	122	218	313				
GR FIR		169.2	31.4	243	354	465				
WR CEDAR		547.7	101.7		42	85				
P PINE		547.7	101.7		36	72				
TOTAL				<i>3,484</i>	<i>3,484</i>	<i>3,484</i>				
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR				121	141	160				
DOUG FIR-D		435.3	80.8	19	102	184				
W LARCH				81	143	205				
W LARCH-D		217.1	40.3	65	116	167				
GR FIR				61	91	120				
WR CEDAR		547.7	101.7		170	344				
P PINE		547.7	101.7		134	270				
TOTAL		<i>379.5</i>	<i>70.5</i>	<i>132</i>	<i>132</i>	<i>132</i>	<i>5,957</i>	<i>1,489</i>	<i>662</i>	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT HAWK				DATE	11/3/2014	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
33N	38E	15	HAWK	00U6	88.75	34	113	S	E	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		34	113	3.3						
CRUISE		20	36	1.8	10,688		.3			
DBH COUNT										
REFOREST										
COUNT		13	31	2.4						
BLANKS		1								
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	21	74.6	13.7	68	20.6	76.1	9,357	9,098	2,192	2,192
DOUG FIR-D	3	2.4	15.2	29	0.8	3.0	165	165	40	40
GR FIR	5	34.2	11.3	66	7.1	23.7	3,525	3,329	700	700
W LARCH	4	6.2	13.2	104	1.6	5.9	1,125	1,104	224	224
W LARCH-D	1	.6	17.0	90	0.2	1.0	138	138	35	35
P PINE	2	2.3	12.5	55	0.6	2.0	116	93	39	39
TOTAL	36	120.4	13.0	69	30.9	111.7	14,427	13,927	3,230	3,230
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	71.3	15.9	158	188	218					
DOUG FIR-D	61.6	42.6	48	83	119					
GR FIR	50.3	25.0	84	112	140					
W LARCH	25.9	14.8	158	185	212					
W LARCH-D										
P PINE	35.4	33.1	27	40	53					
TOTAL	71.5	11.9	142	161	180		204	51	23	
CL: 68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	63.2	14.1	39	45	51					
DOUG FIR-D	56.5	39.1	12	20	27					
GR FIR	49.8	24.8	18	24	29					
W LARCH	21.9	12.5	33	37	42					
W LARCH-D										
P PINE			17	17	17					
TOTAL	65.5	10.9	34	38	42		171	43	19	
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	74.9	12.8	65	75	84					
DOUG FIR-D	407.8	69.9	1	2	4					
GR FIR	142.0	24.3	26	34	43					
W LARCH	336.4	57.6	3	6	10					
W LARCH-D	583.1	99.9	0	1	1					
P PINE	406.0	69.6	1	2	4					
TOTAL	9.1	1.6	119	120	122		3	1	0	
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	63.7	10.9	68	76	84					
DOUG FIR-D	429.3	73.6	1	3	5					
GR FIR	137.4	23.5	18	24	29					
W LARCH	326.3	55.9	3	6	9					
W LARCH-D	583.1	99.9	0	1	2					

TC TSTATS				STATISTICS			PAGE	2		
				PROJECT HAWK			DATE	11/3/2014		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
33N	38E	15	HAWK	00U6	88.75	34	113	S	E	
CL: 68.1 %		COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.	S.E. %	LOW	AVG	HIGH	5	10	15		
P PINE	406.0	69.6	1	2	3					
TOTAL			<i>112</i>	<i>112</i>	<i>112</i>					
CL: 68.1 %		COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15		
DOUG FIR	62.6	10.7	8,123	9,098	10,073					
DOUG FIR-D	452.9	77.6	37	165	293					
GR FIR	136.6	23.4	2,550	3,329	4,108					
W LARCH	326.4	55.9	487	1,104	1,722					
W LARCH-D	583.1	99.9	0	138	276					
P PINE	419.3	71.8	26	93	159					
TOTAL			<i>13,927</i>	<i>13,927</i>	<i>13,927</i>					
CL: 68.1 %		COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15		
DOUG FIR	62.6	10.7	1,957	2,192	2,428					
DOUG FIR-D	427.2	73.2	11	40	69					
GR FIR	136.4	23.4	536	700	864					
W LARCH	327.9	56.2	98	224	350					
W LARCH-D	583.1	99.9	0	35	69					
P PINE	406.0	69.6	12	39	66					
TOTAL			<i>3,230</i>	<i>3,230</i>	<i>3,230</i>					
CL: 68.1 %		COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15		
DOUG FIR			107	120	132					
DOUG FIR-D	452.9	77.6	12	56	99					
GR FIR			107	140	173					
W LARCH	295.1	50.6	82	186	290					
W LARCH-D	583.1	99.9	0	140	279					
P PINE	419.3	71.8	13	47	81					
TOTAL	<i>301.0</i>	<i>51.6</i>	<i>125</i>	<i>125</i>	<i>125</i>	<i>3,618</i>	<i>905</i>	<i>402</i>		

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT HAWK				DATE	11/3/2014	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
33N	38E	09	HAWK	00U7	92.61	39	137	S	E	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		39	137	3.5						
CRUISE		27	46	1.7	11,533	.4				
DBH COUNT										
REFOREST										
COUNT		11	22	2.0						
BLANKS		1								
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	22	80.3	13.3	68	21.3	77.6	10,410	9,845	2,279	2,279
DOUG FIR-D	4	6.6	9.8	44	1.1	3.4	274	259	75	75
W LARCH	7	14.8	12.7	77	3.6	12.9	1,644	1,637	354	354
W LARCH-D	7	5.8	13.8	72	1.6	6.0	790	778	191	191
GR FIR	6	17.1	13.9	77	4.8	18.1	2,876	2,613	595	595
TOTAL	46	124.5	13.2	69	32.5	118.1	15,994	15,131	3,494	3,494
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		78.9	17.2	159	192	225				
DOUG FIR-D		40.2	23.0	33	43	52				
W LARCH		81.7	33.3	104	156	208				
W LARCH-D		87.9	35.8	172	269	365				
GR FIR		82.7	36.8	122	193	265				
TOTAL		87.4	12.9	162	185	209	305	76	34	
CL:	68.1 %	COEFF	SAMPLE TREES - CF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		67.3	14.7	37	43	49				
DOUG FIR-D		38.3	21.9	10	12	15				
W LARCH		87.8	35.7	22	35	47				
W LARCH-D		81.7	33.2	41	62	82				
GR FIR		70.5	31.4	29	43	56				
TOTAL		79.2	11.7	37	42	47	251	63	28	
CL:	68.1 %	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		53.4	8.6	73	80	87				
DOUG FIR-D		308.8	49.4	3	7	10				
W LARCH		167.6	26.8	11	15	19				
W LARCH-D		287.9	46.1	3	6	8				
GR FIR		160.2	25.6	13	17	21				
TOTAL				125	125	125				
CL:	68.1 %	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		46.8	7.5	72	78	83				
DOUG FIR-D		299.7	47.9	2	3	5				
W LARCH		153.4	24.5	10	13	16				
W LARCH-D		216.6	34.7	4	6	8				
GR FIR		158.5	25.4	14	18	23				
TOTAL				118	118	118				
CL:	68.1 %	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		47.7	7.6	9,093	9,845	10,597				

TC TSTATS				STATISTICS			PAGE	2			
				PROJECT HAWK			DATE	11/3/2014			
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
33N	38E	09	HAWK	00U7	92.61	39	137	S	E		
CL: 68.1 %		COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1.0		VAR.		S.E.%		LOW	AVG	HIGH	5	10	15
DOUG FIR-D		308.4		49.3		131	259	386			
W LARCH		163.7		26.2		1,208	1,637	2,065			
W LARCH-D		227.1		36.3		495	778	1,061			
GR FIR		160.2		25.6		1,943	2,613	3,283			
TOTAL						<i>15,131</i>	<i>15,131</i>	<i>15,131</i>			
CL: 68.1 %		COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1.0		VAR.%		S.E.%		LOW	AVG	HIGH	5	10	15
DOUG FIR		46.6		7.5		2,109	2,279	2,449			
DOUG FIR-D		306.8		49.1		38	75	112			
W LARCH		165.1		26.4		260	354	447			
W LARCH-D		222.7		35.6		123	191	260			
GR FIR		159.0		25.4		444	595	747			
TOTAL						<i>3,494</i>	<i>3,494</i>	<i>3,494</i>			
CL: 68.1 %		COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1.0		VAR.%		S.E.%		LOW	AVG	HIGH	5	10	15
DOUG FIR						117	127	137			
DOUG FIR-D		308.4		49.3		38	75	112			
W LARCH		94.9		15.2		93	127	160			
W LARCH-D		227.1		36.3		82	129	176			
GR FIR						107	144	181			
TOTAL		<i>261.1</i>		<i>41.8</i>		<i>128</i>	<i>128</i>	<i>128</i>	<i>2,722</i>	<i>681</i>	<i>302</i>

TC TSTATS				STATISTICS				PAGE	1	
PROJECT				HAWK				DATE	11/3/2014	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
33N	38E	15	HAWK	RWU8	14.50	9	32	S	E	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL	9	32	3.6							
CRUISE	7	32	4.6	516	6.2					
DBH COUNT										
REFOREST										
COUNT										
BLANKS	2									
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	16	17.8	15.4	51	5.8	22.9	3,022	2,978	691	691
GR FIR	13	14.4	11.3	44	3.0	10.0	811	744	222	221
P PINE	2	2.2	10.4	35	0.4	1.3	56	56	16	16
W LARCH	1	1.1	8.8	40	0.2	.5	22	22	6	6
TOTAL	32	35.6	13.4	47	9.5	34.7	3,911	3,800	935	934
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	97.9	25.3	125	168	210					
GR FIR	64.3	18.5	42	52	61					
P PINE	28.3	26.5	18	25	32					
W LARCH										
TOTAL	123.1	21.7	84	107	130	605	151	67		
CL: 68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	92.8	23.9	30	39	48					
GR FIR	84.8	24.4	12	15	19					
P PINE	64.8	60.7	3	7	11					
W LARCH										
TOTAL	111.9	19.8	21	26	31	500	125	56		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	96.5	34.1	12	18	24					
GR FIR	134.6	47.5	8	14	21					
P PINE	198.4	70.0	1	2	4					
W LARCH	300.0	105.9	1	1	2					
TOTAL	67.6	23.9	27	36	44	205	51	23		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	105.0	37.1	14	23	31					
GR FIR	152.6	53.9	5	10	15					
P PINE	212.0	74.8	0	1	2					
W LARCH	300.0	105.9	0	0	1					
TOTAL	77.5	27.3	25	35	44	269	67	30		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	117.5	41.5	1,743	2,978	4,212					
GR FIR	161.2	56.9	321	744	1,168					
P PINE	203.5	71.8	16	56	95					
W LARCH	300.0	105.9	22	22	46					
TOTAL	96.7	34.1	2,503	3,800	5,097	419	105	47		

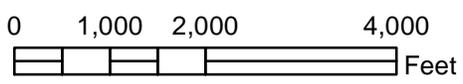
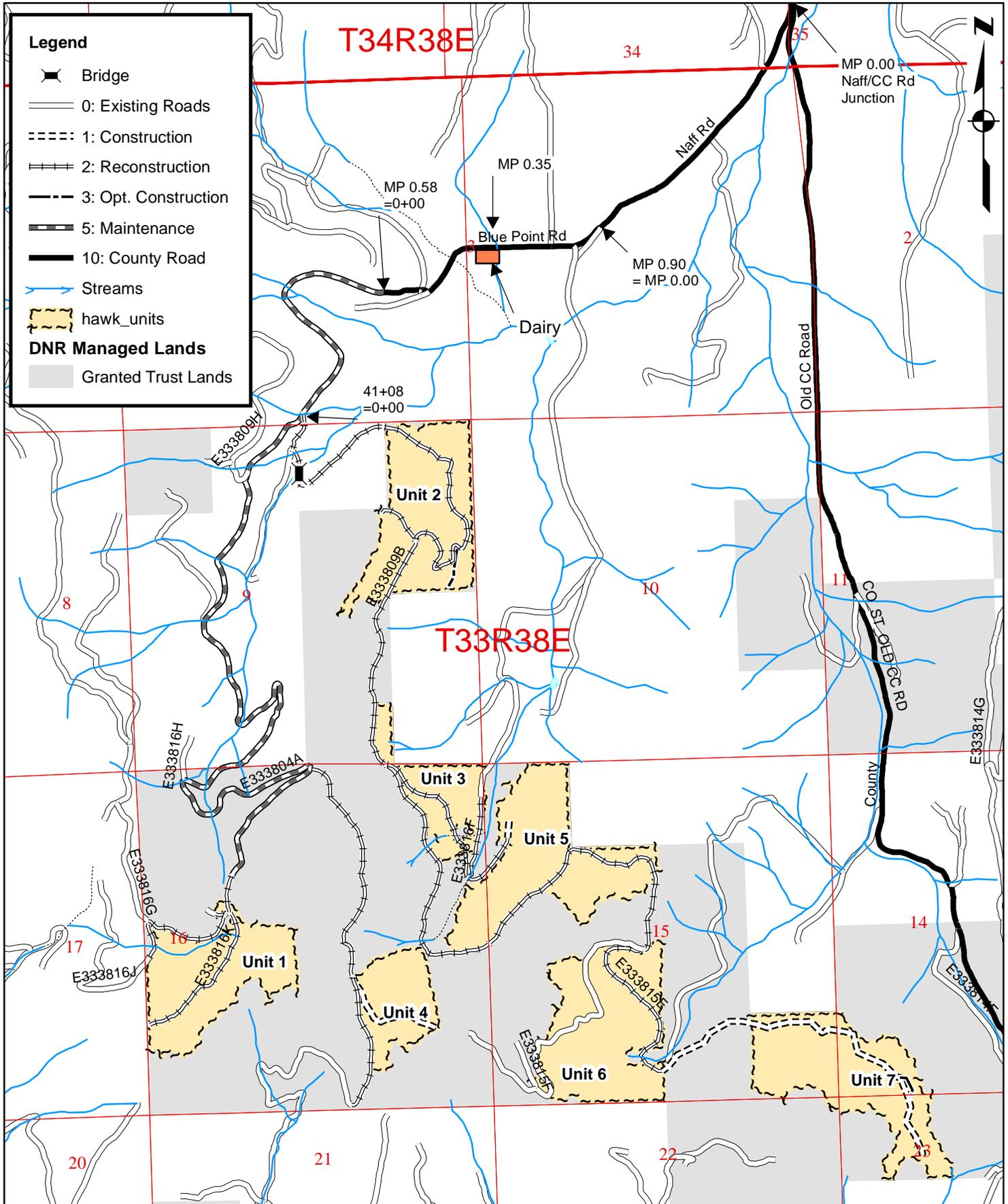
TC TSTATS				STATISTICS			PAGE	2		
				PROJECT HAWK			DATE	11/3/2014		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
33N	38E	15	HAWK	RWU8	14.50	9	32	S	E	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		114.3	40.4	412	691	970				
GR FIR		162.7	57.4	94	221	349				
P PINE		223.6	78.9	3	16	28				
W LARCH		300.0	105.9		6	13				
TOTAL		90.5	31.9	636	934	1,233	367	92	41	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		89.6	31.6	76	130	184				
GR FIR		142.6	50.3	32	75	117				
P PINE		201.0	70.9	12	42	73				
W LARCH		300.0	105.9		47	97				
TOTAL		75.5	26.7	72	110	147	256	64	28	

Washington State Department of Natural Resources

Sale Name: Hawk
Agreement No.: 30-091864

Road Plan Map
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Region: Northeast
County: Stevens



1 inch = 2,000 feet

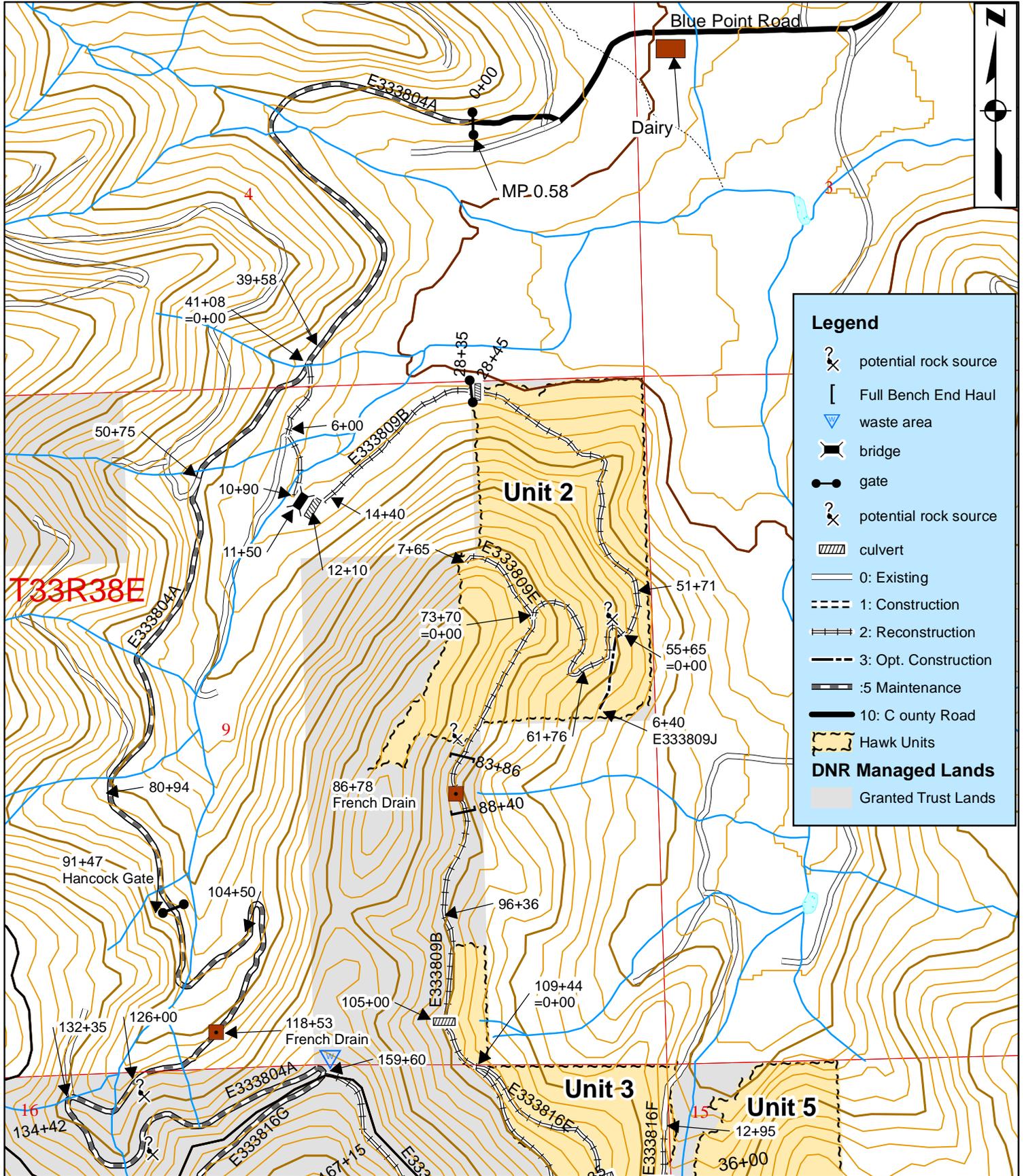
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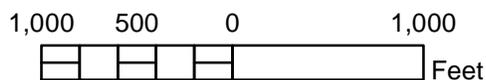
Sale Name: Hawk
Agreement No.: 30-091864

Road Plan Map
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Region: Northeast
County: Stevens



T33R38E



1 inch = 1,000 feet

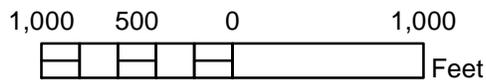
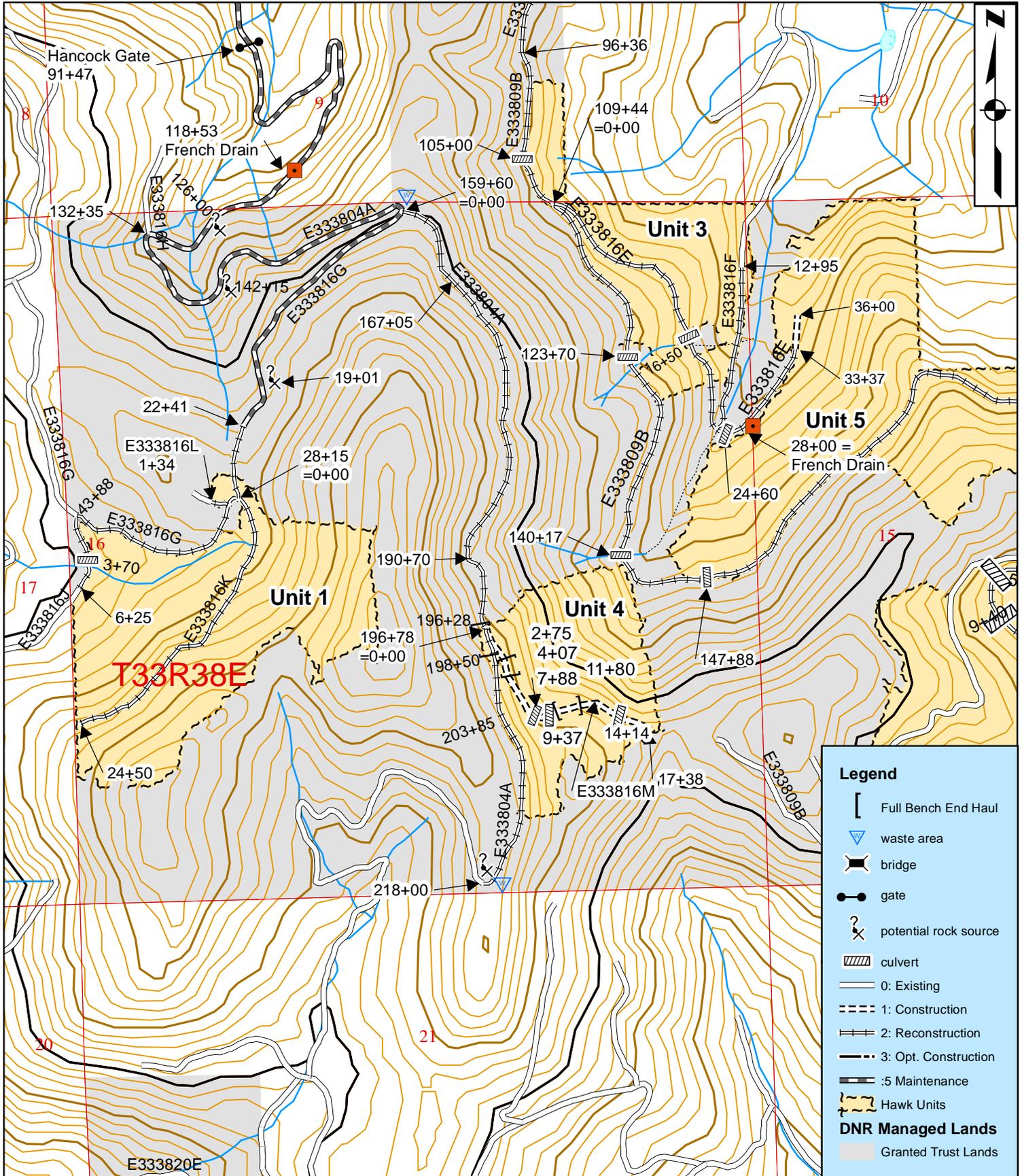
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Washington State Department of Natural Resources

Sale Name: Hawk
 Agreement No.: 30-091864

Road Plan Map
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Region: Northeast
 County: Stevens



1 inch = 1,000 feet

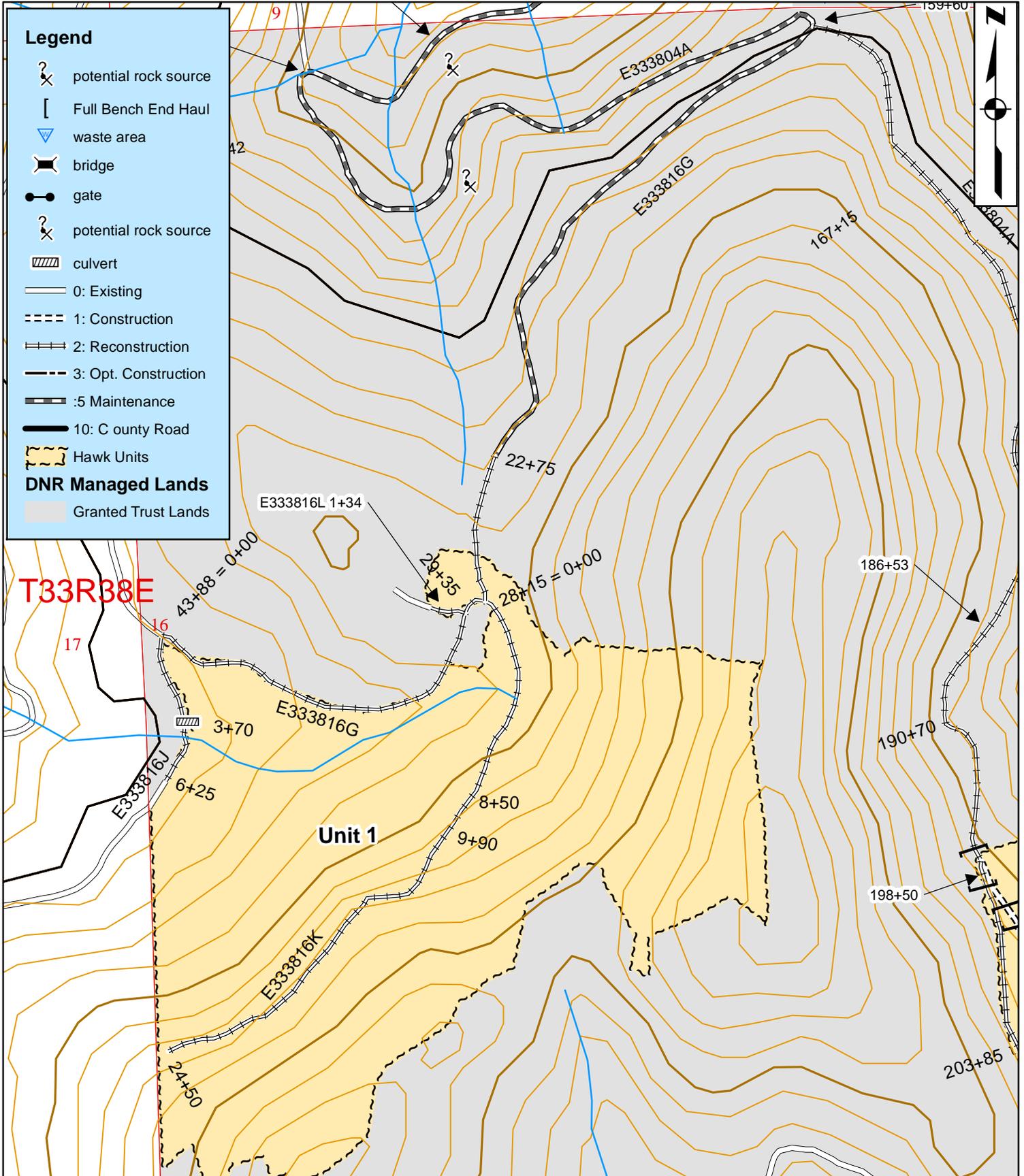
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Washington State Department of Natural Resources

Sale Name: Hawk
 Agreement No.: 30-091864

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Region: Northeast
 County: Stevens

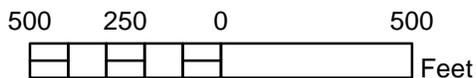


Legend

- potential rock source
- Full Bench End Haul
- waste area
- bridge
- gate
- potential rock source
- culvert
- 0: Existing
- 1: Construction
- 2: Reconstruction
- 3: Opt. Construction
- :5 Maintenance
- 10: C ounty Road
- Hawk Units

DNR Managed Lands

- Granted Trust Lands



1 inch = 500 feet

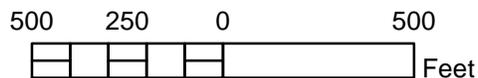
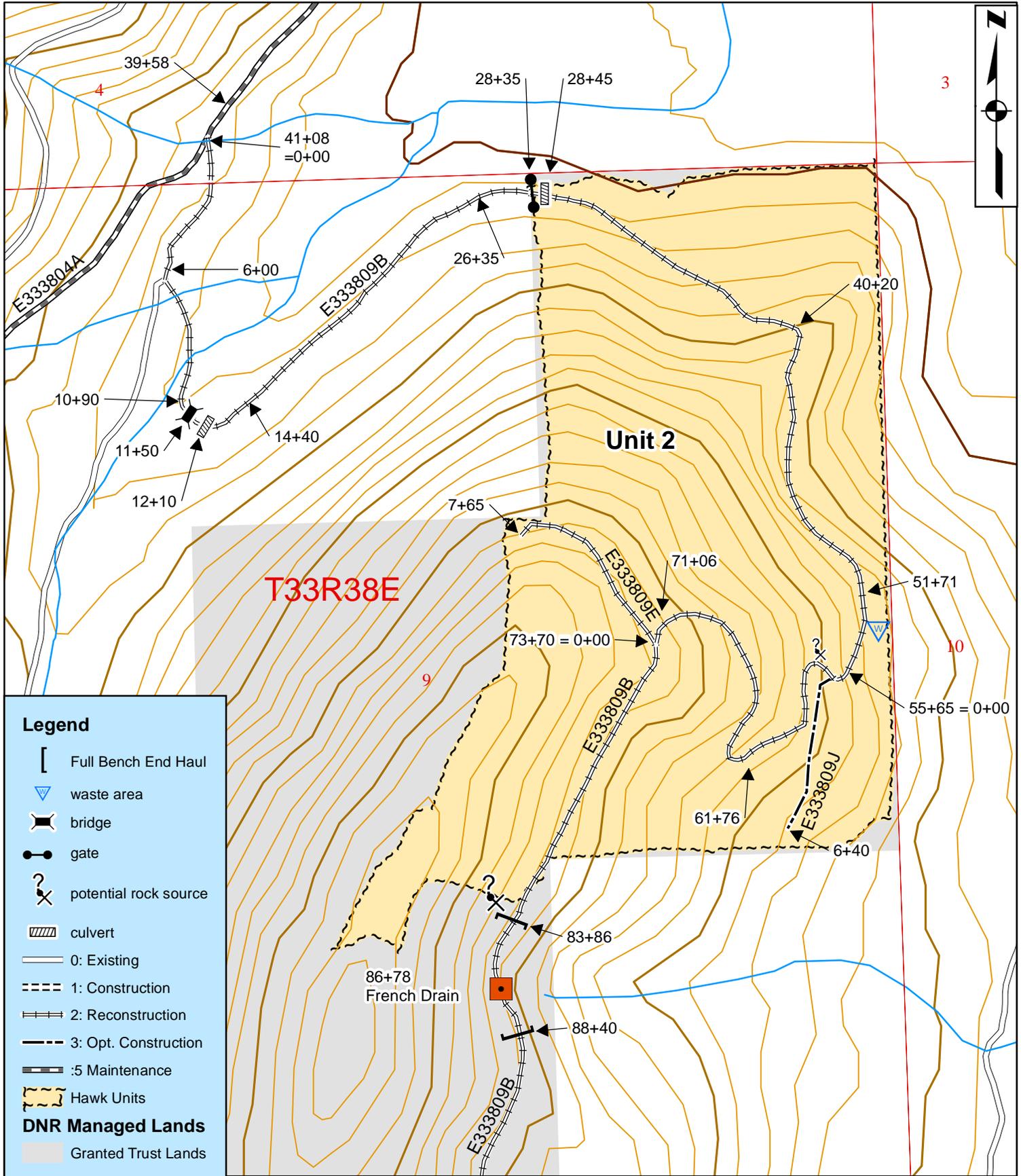
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Washington State Department of Natural Resources

Sale Name: Hawk
 Agreement No.: 30-091864

Road Plan Map
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Region: Northeast
 County: Stevens



1 inch = 500 feet

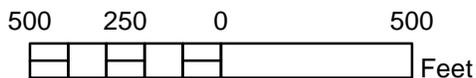
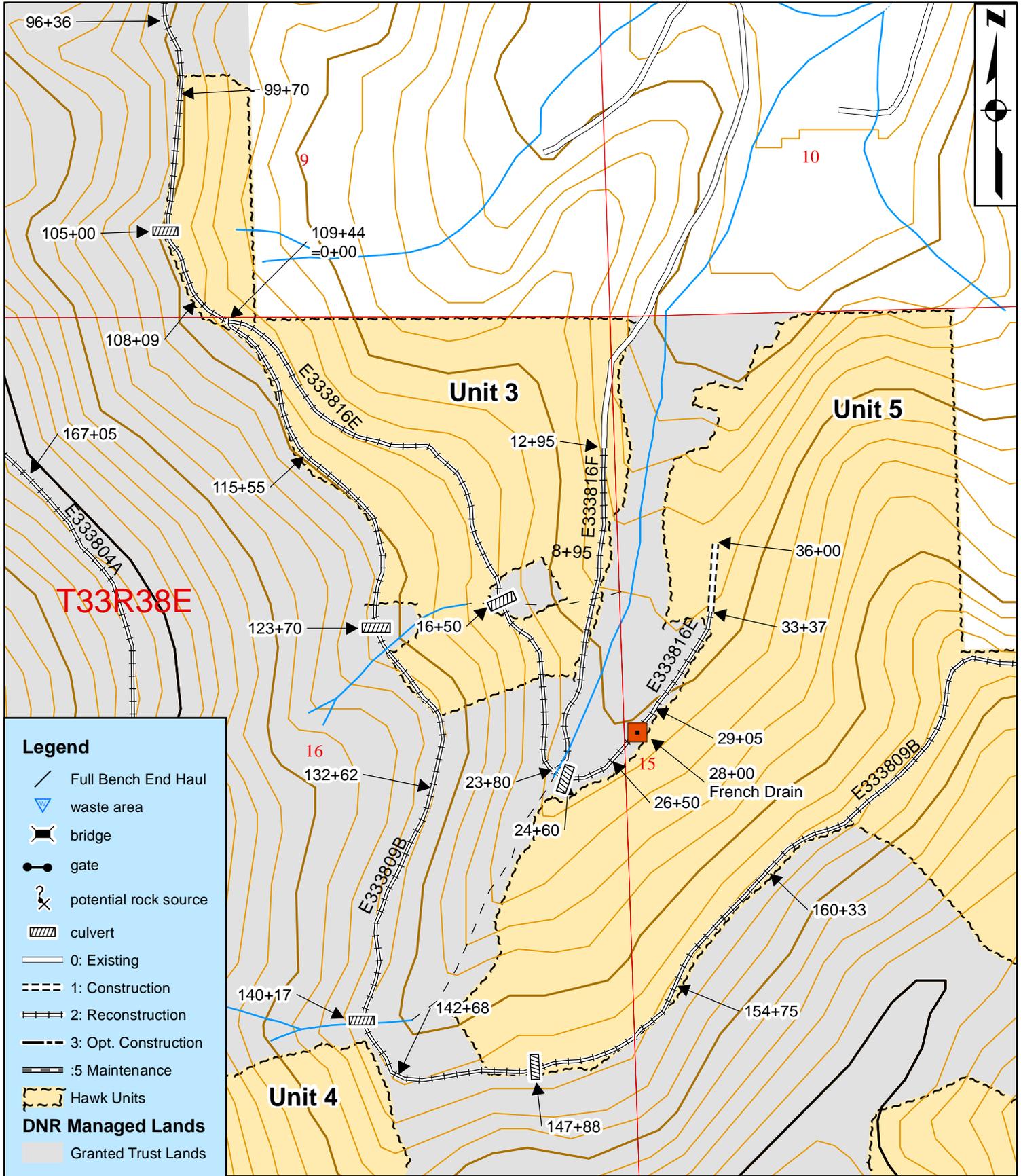
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Washington State Department of Natural Resources

Sale Name: Hawk
Agreement No.: 30-091864

Road Plan Map
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Region: Northeast
County: Stevens



1 inch = 500 feet

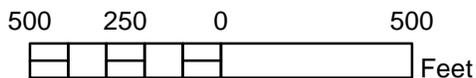
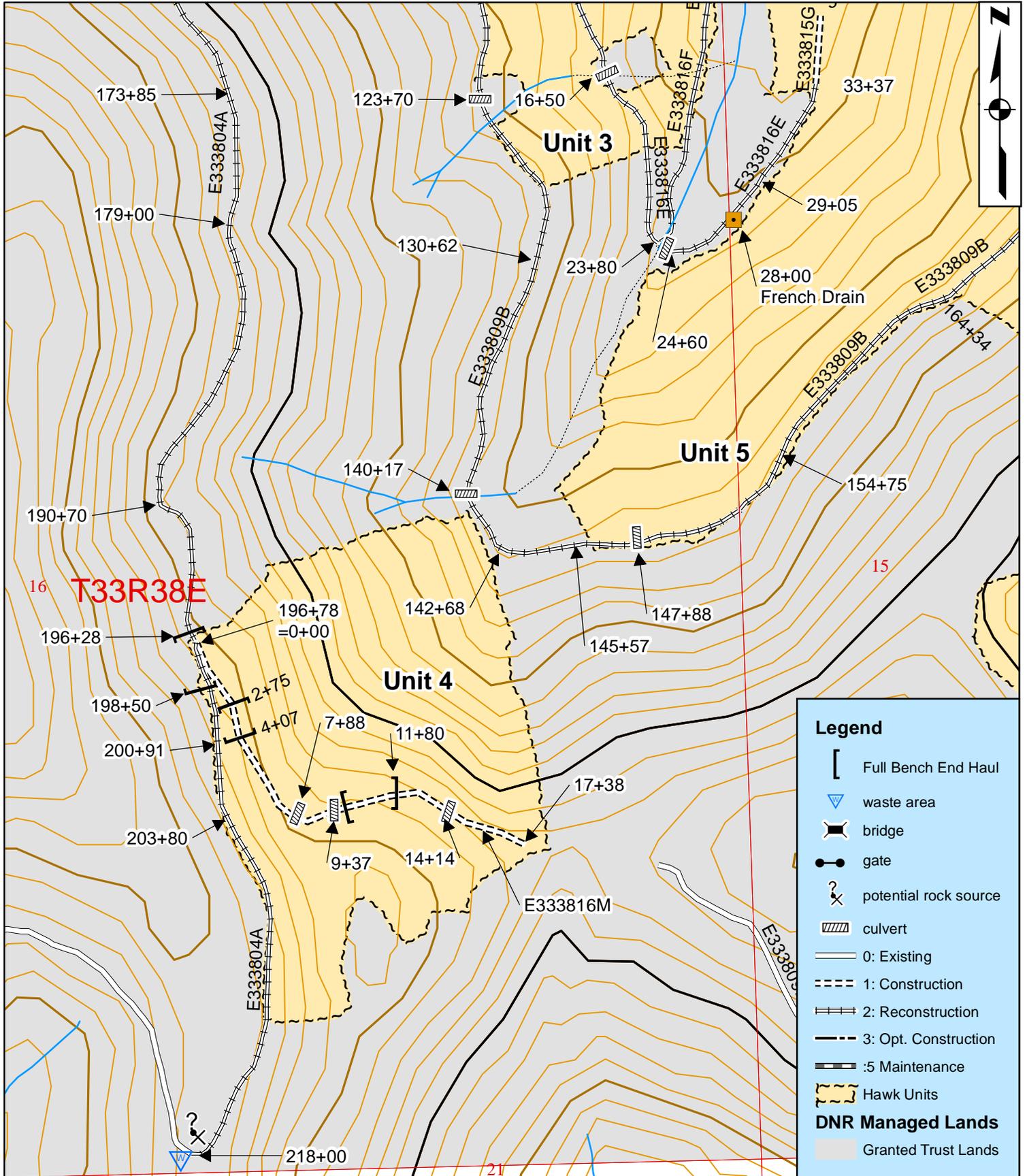
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Washington State Department of Natural Resources

Sale Name: Hawk
Agreement No.: 30-091864

Road Plan Map
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Region: Northeast
County: Stevens



1 inch = 500 feet

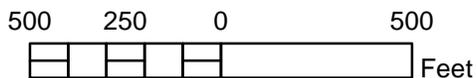
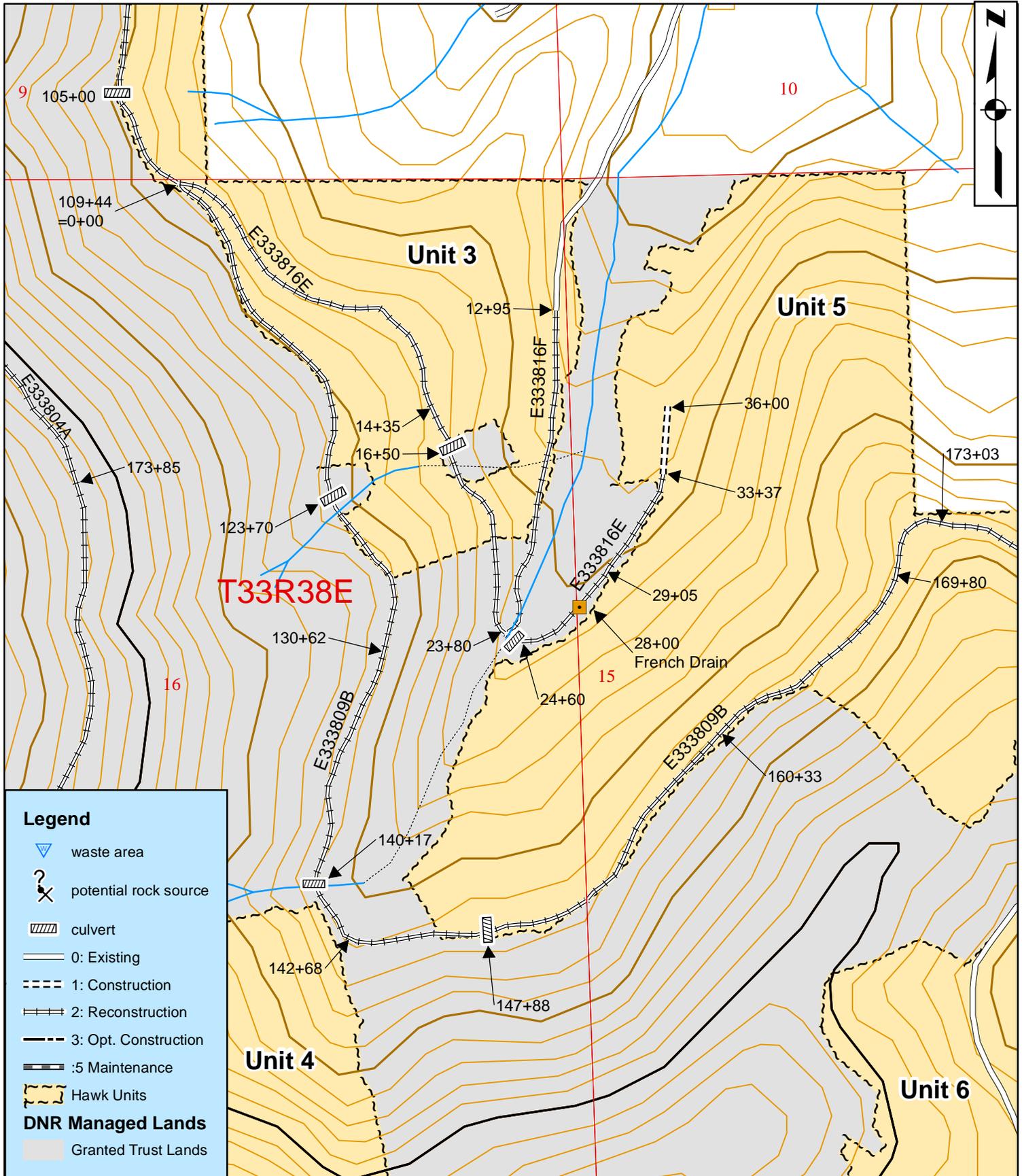
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Washington State Department of Natural Resources

Sale Name: Hawk
 Agreement No.: 30-091864

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Region: Northeast
 County: Stevens



1 inch = 500 feet

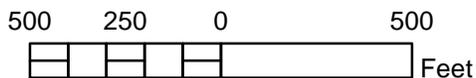
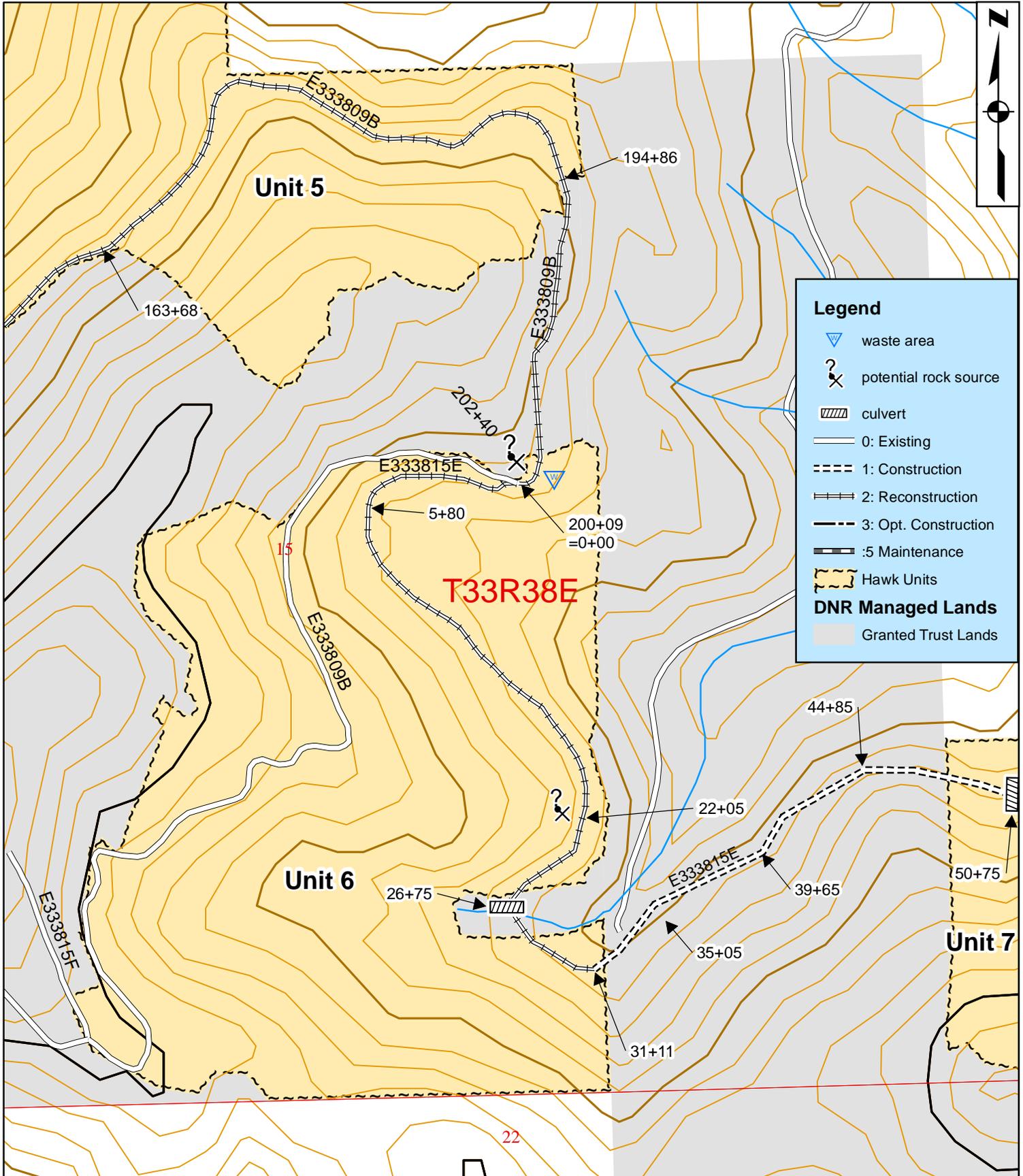
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Washington State Department of Natural Resources

Sale Name: Hawk
Agreement No.: 30-091864

Road Plan Map
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Region: Northeast
County: Stevens



1 inch = 500 feet

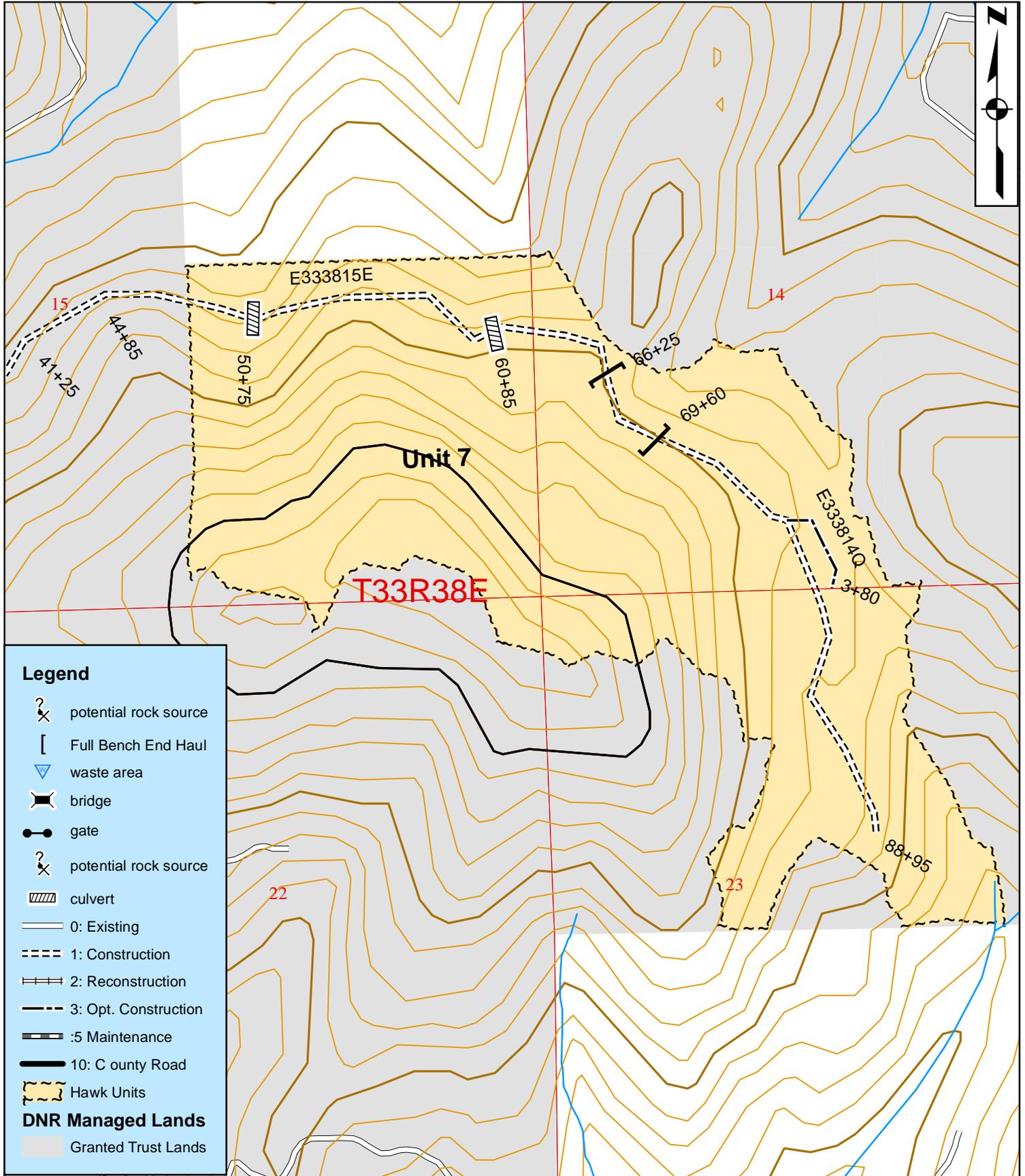
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Washington State Department of Natural Resources

Sale Name: Hawk
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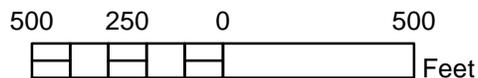
Road Plan Map
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Region: Northeast
 County: Stevens



Legend

-  potential rock source
-  Full Bench End Haul
-  waste area
-  bridge
-  gate
-  potential rock source
-  culvert
-  0: Existing
-  1: Construction
-  2: Reconstruction
-  3: Opt. Construction
-  :5 Maintenance
-  10: County Road
-  Hawk Units
- DNR Managed Lands**
-  Granted Trust Lands



1 inch = 500 feet

Date: 3/29/2016

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

HAWK TIMBER SALE ROAD PLAN
STEVENS COUNTY
NORTH COLUMBIA DISTRICT

AGREEMENT NO.: 30-091864

STAFF ENGINEER: GENE GIBBS

DATE: 12/23/2015

DRAWN & COMPILED BY: GENE GIBBS
AND JIM ENGLISH

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>
E333804A	0+00 to 159+60	Prehaul Maintenance
	159+60 to 218+00	Reconstruction
E333816G	0+00 to 22+41	Prehaul Maintenance
	22+41 to 43+88	Reconstruction
E333816J	0+00 to 6+25	Reconstruction
E333816K	0+00 to 24+50	Reconstruction
E333816L	0+00 to 1+34	Reconstruction
E333816M	0+00 to 17+38	New Construction
E333809B	0+00 to 200+09	Reconstruction
E333809E	0+00 to 7+65	Reconstruction
E333816E	0+00 to 33+37	Reconstruction
E333816E	33+37 to 36+00	New Construction
E333816F	0+00 to 12+95	Reconstruction
E333815E	0+00 to 31+11	Reconstruction
	31+11 to 88+95	New Construction
E333814Q	0+00 to 3+80	Optional New Construction
E333809J	0+00 to 6+40	Optional New Construction

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>
E333814Q	0+00 to 3+80	Optional New Construction. Construct road in accordance with typical section, rock list and culvert and drainage sheet. Full bench construction required, see clause 4-12.
E333809J	0+00 to 6+40	Optional New Construction. Construct road in accordance with typical section, rock list and culvert and drainage sheet.

0-4 CONSTRUCTION

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
E333816M	0+00 to 17+38	New road construction. Full bench construction required, see Clause 4-12. Spot patch as needed 80 cy.
16M-17	0+00	Junction with Sta 196+78 E333804A Road
	2+75 to 7+11	Full Bench construction, endhaul to waste area.
16M-4	7+88	Install 18" x 50' culvert, headwall, catch basin, and 10 cy rock.
	8+38 to 11+68	Full Bench construction. Install 18x60 culvert at 9+37
16M-7	11+68	Install rolling dip.
16M-8	12+83	Start full bench construction.
16M-10	14+97	Install rolling dip. Install 18x50 culvert at station 14+14.
16M-11	16+37	End full bench construction.
16M-12	17+38	End construction
E333815E	31+11 to 88+95	New construction. Some full bench construction required, see Clause 4-12. Lift subgrade 18" where called for turnpike.
15E-12	31+11	Begin new construction. Start ditch on right.
15E-13	32+80	Install rolling dip.

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
E333815E 15E-14	35+05	New construction intersect old road. Install 18" x 36' culvert, headwall, catch basin, and apply 10 cy rock. Ditch right.
15E-15	39+65	End ditch. Install rocked rolling dip.
15E-17		
15E-19	49+40 to 51+75	Apply 6 inch lift of rock.
15E-20	50+75	Install 18" x 36' culvert in non-typed draw, apply 10 cy rock. Install headwall.
15E-24	60+00	Start 9-inch lift of rock.
15E-25	60+85	Install 18" x 36' culvert in non-typed draw.
15E-26	61+35	End rock lift.
15E-29	66+25	Start full bench construction. Endhaul where the side slopes are 55% or greater.
15E-30	68+25	Full bench construction.
15E-31	69+60	End full bench, and install rolling dip.
15E-34	75+85	Junction with proposed E333814Q road left.
15E-35	78+90	Begin turnpike and ditch on each side.
15E-36	80+65	Install rolling dip. End turnpike.
15E-37	83+00	Install rolling dip. Begin turnpike and ditch both sides.
15E-38	85+50	Continue turnpike. Ditch out left and right.
15E-40	88+95	End of construction.
E333816E	33+37 to 36+00	Construct road in accordance with Typical Section Sheet, Rock List, and Culvert and Drainage Sheet.

Construction includes, but is not limited to clearing & grubbing, pioneering & decking logs, subgrade construction and compaction, rolling dip, cross drain, and culvert installation, Fish passage structure installation, cut & fill, embankment construction, riprap and rock application. Construct roads to the TYPICAL SECTION SHEET, ROCK LIST, and CULVERT & DRAINAGE LIST, for general specifications, unless otherwise specified in design details.

0-5 RECONSTRUCTION

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
E333804A	159+60 to 218+00	Reconstruction. Brushing required. Brush in accordance with brushing detail. Some Full bench construction required (see Clause 4-12).
04A-23	156+60	Junction with E333816G on right. Start Reconstruction. Potential waste area on left.
04A-24	162+87	Begin heavy brushing right and left.

E333804A	178+50 to 179+80	Widen road to Typical Section Sheet specifications.
04A-28	186+53	Begin widening road into right bank to be full bench. (Minimum road width 14 feet).
04A-29		
04A-30	190+70 to 196+28	Over steepened ½ bench road. Widen or move road to right to create full bench road. (Minimum road width 14 feet).
04A-31	196+28	Begin widening existing full bench road to allow for a full bench transition at the junction with E333816M new construction.
	196+78	Begin new construction left E333816M Road.
	198+50	End of transition widening.
	218+00	End reconstruction. Waste Area and Borrow site.
E333809B	0+00 to 200+09	Reconstruction. Brush in accordance with brushing detail.
Sta 1	0+00	Junction with Sta 41+08 E333804A Road.
	0+00 to 10+90	Brush road as needed. Relocate existing gate from station 7+90 to 28+35.
Sta 2	7+90	Existing gate, remove and reinstall at Sta 28+35.
	6+00 to 10+90	Protect merchantable trees on the west side of the road. Widen road to the east as needed to reconstruct road in accordance to typical section.
	9+90 to 10+90	Apply 6 inch lift of surface rock.
Sta 3	10+90 to 11+30	Turnpike the road to lift road subgrade approximately 2 feet tapering up to the bridge approach. Install geotextile fabric for subgrade stabilization. Apply 12-inch lift of ballast rock and cap with a 6 inch lift of crushed rock.
	11+30 to 11+70	Install Modular steel bridge 14 ft. x 40 ft., Centerline at Sta 11+50, see bridge design.
	11+70 to 14+40	Turnpike the road to lift road subgrade approximately 2 feet tapering away from bridge approach. Install geotextile fabric for subgrade stabilization. Apply 12-inch lift of rock.
	11+67 to 12+20	Apply 6 inch lift of crushed rock.

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
Sta 4	12+10	Install 18"x34' cross drain with ditchout directing runoff away from live water. Install catch basin with 20 CY Rip Rap lined with non-woven needle punch fabric.
Sta 5	14+40	End turnpike lift.
	14+40 to 200+32	Reconstruct road in accordance with Typical Section Sheet, Rock List, and Culvert and Drainage List. Brushing required. Brush in accordance with brushing detail.
Sta 6	26+35	Install rocked rolling dip, (10 cy rock).
Sta 7	28+35	Install metal gate from Sta 7+90.
	28+45	Install 18" x 36' culvert, headwall, catch basin.
Sta 8	32+00	Existing cmp, clean inlet and outlet.
Sta 9	37+60	Existing cmp, clean inlet and outlet.
Sta 10	40+20	Reshape dip.
Sta 18	55+65	Rock Source, waste area, junction with E333816I Road on left.
Sta 26	67+79	Install rocked rolling dip, (5 cy rock). Begin insloping road.
Sta 27	69+52	Install rocked rolling dip, (5 cy rock).
Sta 28	71+06	Install rocked rolling dip, (5 cy rock) and ditch out right. Begin constructing ditch on the left for 100 feet.
	72+06	End Inslope. Begin Outslope.
Sta 29	73+70	Junction E333809E on right. Heavy reconstruction/re-alignment of the intersection with the E333809E required.
Sta 30		
Sta 31	83+86	Start full bench end haul, begin side cast pullback. Barrow/Rock source. No ditch.
Sta 32	86+78	Install Geotextile French drain or under drain. See French Drain Detail.
Sta 33	88+40	End full bench end haul, end side cast pullback.
	104+20 to 105+80	Construct or reconstruct ditch on right.
Sta 37	105+00	Install 18" x 40' culvert with catch basin lined with non-woven needle punch fabric and 10 cy Rip Rap, (10 cy surface rock)
Sta 39	109+44	Junction E333816E Road & waste area.
	123+40 to 124+00	Install geotextile fabric for subgrade stabilization. Apply 12-inch lift of rock.
Sta 42	123+70	Install 24" x 36' culvert, CB, HW, and 5 cy rock.

	139+87 to 140+47	Install geotextile fabric for subgrade stabilization. Apply 12-inch lift of rock.
Sta 46	140+17	Replace existing cmp with 24" x 40' culvert, CB, HW, and 5 cy rock.
	140+47 to 147+60	Spot patch 30 cy rock.
Sta 47	142+68	Existing cmp.
Sta 48	145+57	Existing 15" cmp, okay. Begin clean ditch to Sta 147+88.
	147+60 to 148+20	Install geotextile fabric for subgrade stabilization. Apply 12-inch lift of rock.
Sta 49	147+88	Install 18' x 36' culvert, HW, CB, and rock.
	148+20 to 200+09	Spot patch 60 cy.
Sta 58	200+09	End reconstruction, junction with E333815E Road. Potential rock source.
E333809E	0+00 to 7+65	Reconstruction. Brush in accordance with brushing detail. Heavy reconstruction/re-alignment of the intersection with the E333809B required.
E333816E	0+00 to 33+37	Reconstruction. Brush in accordance with brushing detail. Reconstruct intersection with E333816F road.
	0+00	Junction with Sta 109+44 E333809B Road.
16E-5	14+35	Existing cmp; reshape and clean catch basin.
	16+10 to 16+90	Install geotextile fabric for subgrade stabilization. Apply 12-inch lift of rock.
16E-6	16+50	Install 24" x 40' culvert, headwall, and catch basin. Ditch right to 16+90.
16E-7	18+25	Install rocked rolling dip, (5 cy).
16E-8	23+05	Install rocked rolling dip, (5 cy).
16E-9	23+80	Junction with E333816F Road left. Reshape intersection for curve transition to E333816F road.
E333816E	23+80 to 25+10	Turnpike road/lift subgrade approximately 18 inches. Install geotextile fabric for subgrade stabilization. Apply rock over geotextile.
	23+80 to 26+50	Apply 12-inch lift of rock over geotextile.
16E-10	24+60	Install 24"x40' cmp in Np stream.
	26+50 to 29+05	Apply 6 inch lift of rock over geotextile.
16E-11	26+50	Install rolling dip.
16E-12	28+00	Install French drain.
16E-14	31+00	Install rocked rolling dip, (5 cy).

16E-15	33+37	Install rocked rolling dip, (5 cy). Begin E333815G new construction.
E333816F	0+00 to 12+95	Reconstruction. Medium to heavy brushing required. Brush in accordance with brushing detail.
	0+00 to 1+00	Reconstruct and widen curve and intersection transition with E333816E Road.
	0+00 to 1+90	Apply 9 inch lift of rock.
16F-2	1+90	Install rocked rolling dip, (10 cy).
16F-3	4+20	Install rocked rolling dip, (10 cy).
16F-4	8+95	Install rocked rolling dip, (10 cy).
16F-5	12+95	Install rolling dip, (10 cy).
E333816G	22+41 to 43+88	Reconstruction. Brush in accordance with brushing detail.
16G-7	22+41	Junction with Sta 159+60 E333816K.
16G-8	24+80	Install rocked rolling dip, (5cy).
16G-9	27+90	Install rolling dip.
	28+15	Junction with E333816K left.
16G-10	29+19	Junction with E333816L right.
16G-14	43+88	Junction with E333816J on left.
E333816J	0+00 to 6+25	Reconstruction. Light brushing.
16J-2	3+70	Replace existing cmp with 18" x 34' culvert. Install headwall and catch basin with 10 cy Rip Rap. Apply 10 cy rock over crossing.
E333816K	0+00 to 24+50	Reconstruction. Medium to heavy brushing required.
	0+00	Junction Sta 28+15 E333816G Road.
087 to 086	8+50 to 9+90	Apply a 9 inch lift of rock.
16K-9	24+50	End reconstruction.
E333816L	0+00 to 1+34	Light reconstruction. Brush in accordance with brushing detail. Install rolling dips as needed for drainage.
E333815E	0+00 to 31+11	Reconstruction. Medium to heavy brushing required. Brush in accordance with brushing detail. Install rolling dips as needed for drainage.
15E-1	0+00	Junction with Station 200+09 E333809B Road.
	26+50 to 28+10	Apply 9 inch lift of rock.
15E-9	26+75	Replace existing 15" cmp with 24" x 40' culvert. Armor inlet and headwall.
15E-12	31+11	Begin new construction.

Reconstruction includes, but is not limited to clearing & grubbing, subgrade reconstruction, rolling dip, cross drain, and culvert installation, bridge installation, cut & fill, embankment construction, culvert and ditch cleaning, riprap and rock application. Reference the TYPICAL SECTION SHEET, ROCK LIST, and CULVERT & DRAINAGE LIST, for general specifications.

0-6 PRE-HAUL MAINTENANCE

This project includes, but is not limited to the following pre-haul maintenance requirements:

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
E333804A	0+00 to 159+60	Reshape road to provide drainage as needed. Rock road in accordance with Rock List. Install drainage in accordance with Culvert and Drainage List.
04A-0	0+00	Existing wire gate. Begin light brushing. Brush in accordance to Brushing Detail.
Sta 1	41+08	Junction E333809B on the left.
04A-5	91+47	Existing metal gate, needs repair.
04A-6	100+24	Install rolling dip.
04A-7	104+50	Install rolling dip connecting to ditch line, install ditch out. Ditch from station 104+25 to 106+00. Rock in accordance with Rock List.
	104+00 to 105+00	Rock over geotextile in accordance to Rock List.
04A-9.5	112+38	Install rocked rolling dip, (10 cy rock). Ditch left for 50 feet to Sta 112+88.
04A-9.9	117+58	Existing culvert, brush out and clean catch basin, pull ditch left to Sta 118+53.
	118+28 to 118+78	Apply 12 inch lift of rock.
04A-10	118+53	Install Geotextile French drain or under drain. See French Drain Detail.
04A-10.5	121+45	Install rocked rolling dip, (5 cy rock). Begin ditching on the left.
04A-11	124+00	Install rocked rolling dip, (5 cy rock).
04A-12	126+00	Potential rock source in left bank. Stop ditching
04A-13	127+31	Continue clean ditch left.
	129+30 to 130+95	Np stream crossing, (Ex. 18" X 40' cmp), install 6-inch lift of rock.
04A-14.5	130+95	Existing 24" CPP culvert. Clean and brush ditch on left. Fix ruts in road.
	132+35	Junction with E333816H Road on right.
04A-16.5	139+08 to 140+70	Rock in accordance with Rock List.
04A-17	140+93	End Brushing. Turnout left, reshape and rock.

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
E333804A	141+33	Install rolling dip just uphill of turnout.
04A-18	142+15	Existing borrow source right.
04A-23	159+60	Junction E333816G road on right. Begin reconstruction.
E333816G	0+00 to 22+41	Reshape and grade road to provide drainage as needed.
	18+75	Potential rock source in left cut bank.
16G-7	22+41	Begin reconstruction.

Maintenance includes, but is not limited to brushing, clearing, grubbing, subgrade reshaping, rolling dip, cross drain, underdrain, and culvert installation, cleaning culverts and ditches, grading, and riprap and rock application. Reference the TYPICAL SECTION SHEET, ROCK LIST, and CULVERT & DRAINAGE LIST, for general specifications.

0-9 DECOMMISSIONING

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

0-10 ABANDONMENT

This project includes abandonment listed in Clause **Error! Reference source not found..**

0-12 DEVELOP ROCK SOURCE

Purchaser may develop new or existing rock sources. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING. See attached maps for potential rock source locations.

0-13 STRUCTURES

Purchaser shall mobilize and install a 40-ft by 14-ft Bridge. Requirements for these structures are listed in Section 7 STRUCTURES.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

Quantities established in this road plan are minimum acceptable values. Additional quantities required by the state due to unforeseen conditions, or Purchaser's choice of construction season or techniques will be at the Purchaser's expense. Unforeseen

conditions include, but are not limited to, solid subsurface rock, subsurface springs, saturated ground, and unstable soils.

1-3 ROAD DIMENSIONS

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

1-5 DESIGN DATA

Bridge design data is available upon request at the Department of Natural Resources Northeast Region Office in Colville, WA.

1-6 ORDER OF PRECEDENCE

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

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

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

1-7 TEMPORARY ROAD CLOSURE

Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before the closure of any road. Construction may not close the any roads for more than 5 consecutive days unless authorized by the contract administrator.

1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS

Purchaser shall repair or replace all materials, roadway infrastructure, and road components damaged during road work or operation activities. The Contract Administrator will direct repairs and replacements. Repairs to structural materials must

be made in accordance with the manufacturer’s recommendation, and may not begin without written approval from the Contract Administrator.

1-9 DAMAGED METALLIC COATING

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

1-10 WSDOT STANDARD SPECIFICATION REFERENCE

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

1-11 TYPE F STREAM CONSTRUCTION PROJECTS

The following work is subject to requirements under a FPA issued by the State of Washington including work in the vicinity of Type F waters.

<u>Road</u>	<u>Stations</u>	<u>Work Type</u>
E333809B	11+50	Bridge installation

1-15 ROAD MARKING

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

- Center line marked with orange flagging for new construction
- Maintenance and reconstruction stationing marked on orange ribbon and/or pink tags.

1-16 CONSTRUCTION STAKES SET BY STATE

Purchaser shall perform work on the following road(s) in accordance with the construction stakes and/or reference points set in the field for grade and alignment. Reconstruction of existing road grades must conform to the original location except where construction staked or designed.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
E333809B	83+86 to 88+40	Sidecast pull back/full bench

1-18 REFERENCE POINT DAMAGE

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

1-21 HAUL APPROVAL

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

1-22 WORK NOTIFICATIONS

Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before work begins.

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
- Excavation to elevation
- Bridge footing or foundation, and bridge installation

1-25 ACTIVITY TIMING RESTRICTION

The operation of road construction equipment is not allowed on weekends or state recognized holidays, unless authorized in writing by the Contract Administrator.

1-26 OPERATING DURING CLOSURE PERIOD

If permission is granted to operate during a closure period, purchaser shall provide a maintenance plan to include further protection of state resources. Purchaser shall obtain written approval from the Contract Administrator for the maintenance plan, and shall put preventative measures in place before operating during the closure period. Purchaser is required to maintain all haul roads at their own expense.

1-29 SEDIMENT RESTRICTION

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

1-30 CLOSURE TO PREVENT DAMAGE

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

- Wheel track rutting exceeds 4 inches on jaw run or pit run roads.
- Wheel track rutting exceeds 4 inches on crushed rock roads.
- Wheel track rutting exceeds 6 inches on native surface roads.
- Surface or base stability problems persist.
- Weather is such that satisfactory results cannot be obtained in an area of operations.

- When, in the opinion of the Contract Administrator excessive road damage or rutting may occur.

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

1-32 BRIDGE SURFACE RESTRICTION

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

1-33 SNOW PLOWING RESTRICTION

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

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.

1-43 ROAD WORK AROUND UTILITIES

It is the Purchaser's responsibility to identify any utilities not listed. Purchaser shall work in accordance with all applicable laws or rules concerning utilities. Purchaser is responsible for all notification, including "call before you dig", and liabilities associated with the utilities and their rights-of-way

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.

2-4 PASSAGE OF LIGHT VEHICLES

Purchaser shall maintain roads in a condition that will allow the passage of light administrative vehicles.

2-5 MAINTENANCE GRADING – EXISTING ROAD

Purchaser shall use a grader to shape the existing surface before. Purchaser shall accomplish all grading using a motor grader with a minimum of 175 horsepower.

2-6 CLEANING CULVERTS

Purchaser shall clean the inlets, outlets and catch basins of all culverts.

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

3-1 BRUSHING

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. Root systems and stumps of cut vegetation may not be disturbed unless directed by the Contract Administrator. Purchaser shall remove brushing debris from the road surface, ditchlines, and culvert inlets and outlets.

3-2 BRUSHING RESTRICTION

Pulling, digging, pushing over, and other non-cutting methods used for vegetation removal may not be used for brushing within riparian management zones. Excavator buckets, log loaders and similar equipment may not be used for brushing unless otherwise approved in writing by the Contract Administrator.

3-5 CLEARING

Purchaser shall fall all vegetative material larger than 3 inches DBH or over 5 feet high between the marked right-of-way boundaries and within waste and debris areas or if not marked in the field, between the clearing limits specified on the TYPICAL SECTION SHEET. Clearing must be completed before starting excavation and embankment.

3-7 RIGHT-OF-WAY DECKING

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

3-8 PROHIBITED DECKING AREAS

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

- Within the grubbing limits.
- Within 50 feet of any stream.
- In locations that interfere with the construction of the road prism.

- In locations that impede drainage.
- On slopes greater than 40%.
- Against standing trees unless approved by the Contract Administrator.

3-10 GRUBBING

Remove all stumps between the grubbing limits specified on the TYPICAL SECTION SHEET. Those stumps outside the grubbing limits but with undercut roots shall also be removed. Stumps over 22 inches diameter shall be split. Stumps over 40 inches shall be quartered. Grubbing shall be completed before starting excavation and embankment.

3-20 ORGANIC DEBRIS DEFINITION

Organic debris is defined as all vegetative material not eligible for removal by Contract Clauses G-010 PRODUCTS SOLD AND SALE AREA or G-011 RIGHT TO REMOVE FOREST PRODUCTS AND CONTRACT AREA, that is larger than one cubic foot in volume within the grubbing 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. Contractor shall complete all disposal of organic debris, except by burning, before the application of rock or timber haul.

3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

Waste areas for organic debris shall be located within the cleared right-of-way or in natural openings, or in areas approved in writing by the Contract Administrator.

3-23 PROHIBITED DISPOSAL AREAS

Purchaser shall not place organic debris in the following areas:

- Within 50 feet of a cross drain culvert.
- Within 100 feet of a live stream, or wetland.
- On road subgrades, or excavation and embankment slopes.
- On slopes greater than 40%.
- Within the operational area for cable landings where debris may shift or roll.
- On locations where brush can fall into the ditch or onto the road surface.
- Against standing timber.

3-24 BURYING ORGANIC DEBRIS RESTRICTED

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

3-30 EXCLUSION OF DOZER BLADES

Purchaser shall not use dozer blades for the piling of organic debris.

3-31 PILING

Purchaser shall pile organic debris no closer than 20 feet from standing timber and no higher than 10 feet in areas specified in Clause 3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS. Piles must be burnable, clean and free of rock and soil.

3-33 PILES

Debris piles will be burned by the State.

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

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

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

- Grade and alignment shall have smooth continuity, without abrupt changes in direction.
- Maximum grade shall not exceed 18 percent favorable and 12 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Sag vertical curves shall not have a grade change greater than 5% in 100 feet.
- Crest vertical curves shall not have a grade change greater than 4% in 100 feet.

4-4 SWITCHBACK STANDARDS

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

Purchaser shall follow these standards for switchbacks:

- Maximum adverse grades for switchbacks is 10%.
- Maximum favorable grades for switchbacks is 12%.
- Maximum transition grades entering and leaving switchbacks is a 5% grade change.
- Transition grades required to meet switchback grade limitations must be constructed on the tangents preceding and departing from the switchbacks.

4-5 CUT SLOPE RATIO

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

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

4-6 EMBANKMENT SLOPE RATIO

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

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

4-7 SHAPING CUT AND FILL SLOPE

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

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

- 7 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 1 to 6 feet.
- 4 feet for embankment heights at centerline of greater than 6 feet.

4-10 WIDEN THE EXISTING SUBGRADE

On the following road(s), Purchaser shall widen the subgrade and fill slopes to the dimensions shown on the TYPICAL SECTION SHEET. If necessary, Purchaser shall reconstruct excavation slopes to provide sufficient width for the road surface and any ditches.

<u>Road</u>	<u>Stations</u>
E333809B	83+86 to 92+28
E333804A	178+50 to 179+80
	190+70 to 198+28 (as needed).
	196+28 to 198+50

4-12 FULL BENCH CONSTRUCTION

On the following roads and where side slopes exceed 45%, full bench construction shall be utilized for the entire subgrade width except as construction staked or designed. Waste material shall be end hauled to the location specified in Clause 4-37 WASTE AREA LOCATION.

<u>Road</u>	<u>Full Bench Location</u>	<u>Comments</u>
E333804A	196+28 to 198+50	Sidecast permitted up to 55% side slopes. End haul required for side slopes over 55%.
E333816M	0+00 to 17+38	Full Bench construction required. Sidecast permitted up to 55% side slopes. End haul required for side slopes over 55%.
E333809B	83+86 to 88+40	Sidecast pull back, reconstruct existing road moving into the hillside. Full bench construction required. Endhaul Required.
E333815E	66+25 to 69+60	Full Bench construction required. Sidecast permitted up to 55% side slopes. End haul required for side slopes over 55%.
E333814Q	0+95 to 3+05	Sidecast permitted up to 55% side slopes. End haul required for side slopes over 55%.

4-21 TURNOUTS

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

4-22 TURNAROUNDS

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

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

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

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

Purchaser shall construct ditchouts as needed and as directed by the Contract Administrator. Purchaser shall construct ditchouts at locations shown on the culvert and drainage sheet. 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.

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. On side slopes greater than 55%, all waste material must be end hauled or pushed to the designated embankment sites and waste areas identified in Clause 4-37 WASTE AREA LOCATION.

4-37 WASTE AREA LOCATION

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

<u>Road</u>	<u>Waste Area Location</u>	<u>Comments</u>	<u>Volume</u>
E333804A	Near Sta 159+60	Brush and clear to prepare location. Provide for drainage.	TBD
E333804A	Near Sta 218+00	Brush and clear to prepare location. Provide for drainage	TBD

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 40%.

- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Within the operational area for cable landings.
- Against standing timber.

4-45 SELECT BORROW

Select borrow consists of granular material, either naturally occurring or processed, and contains no more than 5% clay, organic debris, or trash by volume.

4-46 COMMON BORROW

Common borrow consists of soil, and/or aggregate that is non-plastic and contains no more than 5% clay, organic debris, or trash by volume. The material is considered non-plastic if the fines in the sample cannot be rolled, between the hand and a smooth surface, into a thread at any moisture content.

4-47 NATIVE MATERIAL

Native material consists of naturally occurring material that is free of organic debris, trash, and rocks greater than 6 inches in any dimension.

4-48 BORROW MATERIAL

Borrow material may not contain more than 5% clay, organic debris, or trash by volume.

4-49 BORROW SOURCE

Purchaser shall obtain borrow material from borrow sources identified or approved by the Contract Administrator. Development of the borrow source must be in accordance with written BORROW SOURCE DEVELOPMENT PLAN to be submitted by the Purchaser and approved in writing by the Contract Administrator.

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. Purchaser shall accomplish all shaping using a motor grader with a minimum of 175 horsepower.

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.

4-60 FILL COMPACTION

Purchaser shall compact all embankment and waste material. Minimum acceptable compaction is achieved by placing embankments in 1 foot or shallower lifts, and routing excavation equipment over the entire width of each lift. Waste material may be placed by end-dumping or sidecasting until sufficiently wide enough to support the equipment.

Except as otherwise specified in this plan, a vibratory plate compactor or tamper shall be used for areas specifically requiring keyed embankment construction, and for embankment segments too narrow to accommodate equipment. Compaction with a plate compactor shall be made by a minimum of three full coverages; each lift shall not exceed 6 inches in depth.

For compaction at bridge installation see Bridge Design.

4-61 SUBGRADE COMPACTION

Purchaser shall compact constructed and/or reconstructed subgrades deeper than 5 feet at the road shoulder by routing equipment over the entire width.

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 by routing equipment over the entire width.

4-70 SUBGRADE REINFORCEMENT

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

<u>Road</u>	<u>Stations</u>
E333804A	104+00 to 105+00
E333809B	10+90 to 11+30 11+70 to 14+40 123+40 to 124+40 139+87 to 140+47 147+60 to 148+20
E333816E	16+10 to 16+90 23+80 to 29+05 27+90 to 28+20
E333816F	0+00 to 1+90

SECTION 5 – DRAINAGE

5-1 REMOVAL OF SHOULDER BERMS

Berms shall be removed from road shoulders to permit the escape of runoff. The construction of ditchouts will be required where ponding will result from the effects of sidecast debris.

5-5 CULVERTS

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

5-11 UNUSED MATERIALS STATE PROPERTY

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

5-15 CULVERT INSTALLATION

Culvert installation must be in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL and the National Corrugated Metal Pipe Association's "Installation Manual for Corrugated Steel Drainage Structures" and the Corrugated Polyethylene Pipe Association's "Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings". Corrugated Polyethylene pipe shall 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 specified in the Engineer's design or as recommended by the culvert manufacturer for the type and size of the pipe.

5-20 ENERGY DISSIPATERS

Purchaser shall install energy dissipaters at all culverts on the CULVERT & DRAINAGE LIST. Energy dissipater installation is subject to approval by the Contract Administrator.

The type of energy dissipater and the amount of material must be consistent with the specifications listed on the CULVERT AND DRAINAGE SPECIFICATION DETAIL. Rock used for energy dissipaters must weigh at least 20 pounds. 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. Placement must be by zero-drop-height method only. No placement by end dumping or dropping of rock is allowed.

5-21 DOWNSPOUTS AND FLUMES

Downspouts and flumes longer than 5 feet shall be staked on both sides at maximum intervals of 10 feet with 6-foot heavy-duty steel posts, and fastened securely to the posts with No. 10 galvanized smooth wire or 1/2-inch bolts in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL.

5-25 CATCH BASINS

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

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

Purchaser shall construct headwalls in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all cross drain culverts, except for temporary culverts. Rock used for headwalls must weigh at least 20 pounds or meet the specifications for Light Loose Riprap. 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.

5-31 ROLLING DIP CONSTRUCTION

Purchaser shall construct rolling dips in accordance with the ROLLING DIP DETAIL and as specified on the CULVERT & DRAINAGE LIST. Rolling dips shall be installed concurrently with construction of the subgrade and shall be maintained in an operable condition. Minimum frequency of rolling dips shall be at a maximum spacing of 400 feet horizontal or one for every 10 feet of vertical change.

5-33 NATIVE SURFACE ROADS

If overwintered, native surface roads must be waterbarred. Purchaser shall construct waterbars according to the attached 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

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.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
Potential Source	Near Stations 126+00 and 142+15 of the E333804A Road. NE¼ of NW¼ of Sec. 16, T33N N38E	Pit Run & surface rock, ripable shale. (Potential Unknown)
Potential Source	Near Station 19+01 of the E333816G Road. NW¼ of Sec. 16, T33N N38E	Pit Run & surface rock, ripable shale. (Potential Unknown)
Potential Source	Near Sta 218+00 E333804A Road SW¼ of SE¼ of Sec. 16, T33N R38E	Pit Run (Potential Unknown)
Potential Source	Near Sta 55+65 E333809B Road SE¼ of NE¼ of Sec. 9, T33N R38E	Pit Run (Potential Unknown)
Potential Source	Near Sta 83+86 E333809B Road NW¼ of SE¼ of Sec. 9, T33N R38E	Pit Run (Potential Unknown)
Potential Source	Near Sta 200+32 E333809B Road NE¼ of SW¼ of Sec. 15, T33N R38E	Pit Run (Potential Unknown)
Potential Source	Near Sta 22+05 E333815E Road SE¼ of SW¼ of Sec. 15, T33N R38E	Pit Run (Potential Unknown)

Note: The above sites are potential sources that visible rock has been observed. The quality or quantities available are unknown. They may require drilling and shooting.

Potential rock encountered from within the road prism at other locations on state land during road construction may be developed subject to written approval from the Contract Administrator.

6-5 ROCK FROM COMMERCIAL SOURCE

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

6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE

Purchaser shall conduct rock source development and use shall be in accordance with a written ROCK SOURCE DEVELOPMENT PLAN prepared by the state and on file at the Northeast Region office. Upon completion of operations, the rock source shall be left in

the condition specified in the ROCK SOURCE DEVELOPMENT PLAN, and approved in writing by the Contract Administrator. The Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before starting any operations in the rock source.

6-12 ROCK SOURCE SPECIFICATIONS

Rock sources 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.
- All vehicle access to the top of the pit faces must be blocked.

6-14 DRILL AND SHOOT

Rock drilling and shooting must meet the following specifications:

- Oversize material remaining in the rock source at the conclusion of the timber sale may not exceed 5% of the total volume mined in that source.
- Oversize material is defined as rock fragments larger than two feet in any dimension or too large to be converted by the Purchaser to a size that will meet specifications used for the roads in this sale.

- Oversized rock that exceeds the maximum allowable amount must be reduced to less than 36 inches in any dimension.
- Purchaser shall notify the Contract Administrator a minimum of two working days before blasting operations.
- Purchaser shall submit an informational drilling and shooting plan to the Contract Administrator 5 working days before any drilling (Form #M-126).
- All operations must be carried out in compliance with the Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration and the Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.
- Purchaser shall block access roads and trails before blasting operations.

6-21 IN-PLACE PROCESSING

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

6-22 FRACTURE REQUIREMENT FOR ROCK

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

6-25 FINES

% Passing U.S. #40 sieve	100%
% Passing U.S. #200 sieve	0%

The portion of aggregate retained on the No. 200 sieve may not contain more than 0.2 percent organic debris and trash. All percentages are by weight.

6-26 5/8-INCH MINUS CRUSHED ROCK

% Passing 5/8" square sieve	100%
% Passing 3/8" square sieve	55 - 75%
% Passing U.S. #4 sieve	40 - 60%

Of the fraction passing the No. 4 sieve, 40% to 60% must pass the No. 10 sieve.

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

6-35 3-INCH CLEAN ROCK

% Passing 3" square sieve	100%
% Passing U.S. #4 sieve	16%
% Passing U.S. #200 sieve	7%

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

6-41 PIT RUN ROCK

No more than 20 percent of the rock may be larger than 8 inches in any dimension and no rock may be larger than 12 inches in any dimension. Pit Run rock may not contain more than 5 percent by weight of organic debris, dirt, and trash. Rock may require processing to meet this specification.

6-38 4-INCH IN-PLACE ROCK

Purchaser shall manufacture 4-inch in-place rock. In-place processing such as grid rolling, jaw crushing, or other such method as demonstrated by the Purchaser to be effective, shall be required if necessary to achieve the following requirements:

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

In-place rock shall contain no more than 5 percent by weight of organic debris and trash. No more than 40 percent of rock shall be larger than 8 inches in any dimension and no rock shall be larger than 12 inches in any dimension.

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>Weight Range</u>	<u>Size Range</u>
20% / 90%	300 lbs. to 1 ton	20" - 36"
80% / --	50 lbs. to ½ ton	12" - 30"
10% / 20%	50 lbs. max	3" - 8"

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

Measurement of specified rock depths, are defined as the compacted depth(s) using the compaction methods required in this road plan. Estimated quantities specified in the 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.

6-70 APPROVAL BEFORE ROCK APPLICATION

Purchaser shall obtain written approval from the Contract Administrator that the Subgrade and drainage installations are completed and approved, before rock application.

6-73 ROCK FOR WIDENED PORTIONS

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

6-80 WATERING FOR DUST ABATEMENT

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

SECTION 7 – STRUCTURES

7-5 STRUCTURE DEBRIS

Purchaser shall not allow debris from the installation or removal of structures to enter any stream. Components removed from existing structures(s) must be removed to a waste site approved by the contract administrator. Purchaser shall maintain a clean jobsite, with all materials stored away from the high water mark or other area presenting a risk of the materials entering a stream. Debris entering any stream must be removed immediately, and placed in the site(s) designated for stockpiling or disposal.

7-6 STREAM CROSSING INSTALLATION

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

7-7 BANK PROTECTION FOR STREAM CROSSING STRUCTURES

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

7-15 DRAWING AND CALCULATION REVIEW FOR ACCEPTANCE

Purchaser shall prepare and submit three sets of complete design drawings and calculations for foundation below the bridge and footing sills, bank and scour protection. Foundation below footing sills should be designed for an ultimate bearing capacity of 8,000 psf¹. All drawings and calculations must be prepared, stamped, and signed by a Registered Professional Engineer in the State of Washington. Drawings can be in either electronic or hard copy form and must be no smaller than 11" X 17" sheets.

Send submittals to:

Department of Natural Resources
Attn.: Gene Gibbs North Columbia District Engineer
225 South Silke Road, Colville, WA 99114
(509) 674-7474
gene.gibbs@dnr.wa.gov
CC: JIM.ENGLISH@dnr.wa.gov

Reports and plans will be accepted or rejected within 10 working days of receipt of final drawing submittal. Delays in work because of the possibility of rejection, revision, and resubmittal of documents are deemed a risk of the Purchaser and may not be the basis for claims of additional compensation.

¹psf = pounds per square feet.

7-17 INSTALLATION PRODUCTION SCHEDULE

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

- construction staking
- Stream diversion plan
- Silt and sediment structures and best management practices
- excavation
- Spread footing backfilling/compaction
- placement of sills/abutments/footings/structure
- backfill compaction, rock application and compaction

7-18 INSTALLATION STAGE ACCEPTANCE

Purchaser shall ensure that all materials and procedures used during construction comply with the design. Purchaser shall obtain written approval from the Purchaser's licensed Professional Engineer, for each stage of construction, listed in Clause 7-17 INSTALLATION PRODUCTION SCHEDULE, before starting construction on the next stage. Purchaser shall notify the Contract Administrator in writing when each construction stage is complete.

Purchaser shall provide all the materials, labor, and equipment to remove an existing timber bridge; and install a 14-ft x 40-ft modular steel bridge, reinforced concrete footings, and associated endwalls and wingwalls; construction of embankment, riprap slope protection, stream channel reconstruction, construction and compaction of fill, riprap slope protection, stream channel reconstruction, as well as associated roadway approach work.

7-19 INSTALLATION FINAL ACCEPTANCE

Purchaser shall notify the Contract Administrator in writing when each structure is complete. Before final acceptance of the structure Purchaser shall submit a complete set of as-built plans stamped by the Purchaser's design engineer. Any omissions to the plans are the responsibility of the Purchaser to correct and include in the finalized set of plans. Submit finalized plans to the same location stated in Clause 7-15 DRAWING AND CALCULATION REVIEW FOR ACCEPTANCE.

7-26 BEARING STRENGTH TESTING

For shallow foundations, Purchaser shall perform one of the following soil testing methods appropriate for the type of material encountered: standard penetration test,

cone penetration test, or vane shear test, or as determined by the purchaser’s engineer. Bearing capacity test must be completed by an accredited and certified materials testing company. Bearing capacity test results must be submitted to the same location stated in Clause 7-15 DRAWING AND CALCULATION REVIEW FOR ACCEPTANCE. Purchaser shall excavate any unsuitable material present at foundation grade.

7-46 STATE SUPPLIED BRIDGE

Purchaser shall construct each bridge listed below. Bridge(s) are available for use within the terms of the contract without charge from the state. Refer to manufacturer’s drawings and specifications for details.

Road	Station	Length (ft)	W.B.S.R. ¹ (ft)	Loading/ Deflection Ratio	Type	Vert.Clear ² (ft)	Hor. Align ³
E333809B	11+50	40	14	HL-93 with U80 overload	Steel	5.3	P.P.

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

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

³Horizontal alignment: P.P. = on the attached plan/profile, C.S. = according to construction stakes on the ground.

225 South Silke Road, Colville, WA 99114
 Contact: Gene Gibbs, North Columbia District Engineer
 509-684-7474
 gene.gibbs@dnr.wa.gov

Purchaser may pick up bridges Monday through Thursday, between 8:00 A.M. and 3:30 P.M. excluding state recognized holidays. Purchaser shall notify the Contract Administrator a minimum of 3 calendar days before pick up of the bridge and associated hardware.

7-48 STATE SUPPLIED BRIDGE – MOBILIZATION

Bridge Specification: Contech Engineered Solutions 14-ft x 40-ft modular bridge. Bridge is in two pieces, approximately 15,000 lbs. each. Two precast steel reinforced concrete footing sills (18-in x 30-in x 16-ft), approximate weight 9,000 lbs. each). Two endwalls top width 20-ft bottom width 28-ft, height approximately 4-ft. Design loading of the bridge is HL-93 Loading with U80 overload. The bridge and sills have durable lifting points for loading. Manufacture’s drawings, specifications, and calculations are included.

The bridge is partially assembled and ready to load for transportation to the jobsite. Purchaser shall submit a plan of operations to the Contract Administrator for written approval for disassembly, loading, transport, and placement of the state provided bridge superstructure. The plan must include a description of the equipment and techniques to be used to lift and place the superstructure. Equipment used to lift the superstructure

must have sufficient capacity to lift it free and clear without dragging. Purchaser is liable for damage to the bridge structure.

7-51 EMBANKMENT RETENTION

Purchaser shall provide embankment retention to ensure that bridge approach embankments are well compacted, stable, contained behind the bridge endwall, and does not encroach the stream channel.

7-53 BRIDGE INSTALLATION

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

7-70 GATE CLOSURE

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

<u>Road</u>	<u>Station</u>	<u>Gate No.</u>	<u>Comment</u>
E333804A	0+00	1	Wire Gate
E333804A	91+47	2	Metal Gate
E333809B	28+35	3	Metal Gate

7-75 GATE MAINTENANCE

Purchaser shall conduct gate maintenance as listed.

<u>Road</u>	<u>Station</u>	<u>Requirements</u>
E333804A	0+00	Maintain and repair any damage.
E333804A	91+47	Maintain and repair any damage.
E333809B	28+35	Maintain and repair any damage.

7-76 GATE INSTALLATION

Purchaser shall install the listed gate(s). Gate installations must be installed prior to log hauling activities.

<u>Road</u>	<u>Station</u>	<u>Type*</u>	<u>Provided by</u>
E333809B	28+35	custom	Relocate gate from station 6+00

The gate must be installed plumb and aligned to ensure all mating components match with precision. Each post must be set in a minimum of 2 cubic yards of poured-in-place concrete. The gate must be installed with a post and locking device to allow the gate to be locked in an open position. The Contract Administrator will provide Purchaser with a padlock.

If Purchaser wishes to install an alternate design, detailed plans for the construction of the gate must be submitted to the Contract Administrator. Purchaser shall obtain written approval for the plans from the Contract Administrator or their designee, before gate installation begins.

SECTION 8 – EROSION CONTROL

8-1 SEDIMENT CONTROL STRUCTURES

On the following road(s), Purchaser shall install French Drains in accordance with the FRENCH DRAIN DETAIL.

<u>Road</u>	<u>Stations</u>	<u>Comments</u>
E333804A	118+53	Install in accordance to french drain detail.
E333809B	86+78	Install in accordance to french drain detail.
E333816E	28+00	Install in accordance to french drain detail.

8-2 PROTECTION FOR EXPOSED SOIL

Purchaser shall provide and evenly spread a 6-inch layer of straw to all exposed soils within 50 feet of a stream or wetland. Soils may not sit exposed during any rain event.

SECTION 9 – POST-HAUL ROAD WORK

9-1 EARTHEN BARRICADES

Purchaser shall construct barricades in accordance with the EARTHEN BARRICADE DETAIL.

<u>Road</u>	<u>Stations</u>
E333809J*	Near Sta 0+00
E333814Q*	Near Sta 0+00
E333815E	Near Sta 80+65

*Optional construction, abandon if built.

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

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

9-5 POST-HAUL MAINTENANCE

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

<u>Road</u>	<u>Stations</u>	<u>Additional Requirements</u>
E333804A	0+00 to 218+00	Grade road.
E333809B	0+00 to 200+09	Grade road.
E333816G	0+00 to 43+88	Grade road.
E333816E	0+00 to 26+50	Grade road.
E333816M	0+00 to 17+38	Grade road.
E333815E	0+00 to 80+65	Grade road.

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

9-11 LANDING EMBANKMENT

Purchaser shall slope landing embankments to the original construction specifications.

9-20 ROAD DECOMMISSIONING

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

<u>Road</u>	<u>Stations</u>	<u>Type</u>
E333816F	0+00to 12+95	Light Decommissioning
E333815E	80+65 to 88+95	Light Decommissioning

9-22 LIGHT DECOMMISSIONING

- Remove road shoulder berms except as directed.
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 200 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 must be outsloped to provide positive drainage. Outlets must be on stable locations.
- Slope all trench walls and approach embankments no steeper than 1.5:1.
- Apply grass seed concurrently with abandonment and in accordance with Section 8 EROSION CONTROL.
- Cover, concurrently with abandonment, all exposed soils within 100 feet of any live stream, with a 6-inch deep layer of straw.

SECTION 10 MATERIALS

10-1 GEOTEXTILE FOR SUBSURFACE DRAINAGE (FRENCH DRAINS)

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

	<u>ASTM Test</u>	<u>Requirements</u>
Type	--	Non-woven
Apparent opening size	D 4751	No. 80 max
Water permittivity	D 4491	0.3 sec ⁻¹
Grab tensile strength	D 4632	160 lb
Grab tensile elongation	D 4632	>= 50%
Puncture strength	D 6241	310 lb
Tear strength	D 4533	50 lb
Ultraviolet stability	D 4355	50% retained after 500 hours of exposure

The Purchaser must provide 2 unused rolls minimum of 15' width x 300' length. Any unused material will remain the property of the state.

10-2 GEOTEXTILE FOR SEPARATION (ROAD ROCKING)

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

	<u>ASTM Test</u>	<u>Requirements</u>
Type	--	Non-woven
Apparent opening size	D 4751	No. 30 max
Water permittivity	D 4491	0.02 sec ⁻¹
Grab tensile strength	D 4632	160 lb
Grab tensile elongation	D 4632	>= 50%
Puncture strength	D 6241	310 lb
Tear strength	D 4533	50 lb
Ultraviolet stability	D 4355	50% retained after 500 hours of exposure

The Purchaser must provide 6 unused rolls minimum of 15' width x 300' length. Any unused material will remain the property of the state.

10-3 GEOTEXTILE FOR STABILIZATION (BRIDGE SPREAD FOOTINGS)

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

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

The Purchaser must provide 2 unused rolls minimum of 15' width x 300' length. Any unused material will remain the property of the state.

10-15 CORRUGATED STEEL CULVERT

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

10-17 CORRUGATED PLASTIC CULVERT

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

10-18 CORRUGATED STEEL STRUCTURAL PLATE

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

10-20 FLUME AND DOWNSPOUT

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

10-21 METAL BAND

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

10-22 PLASTIC BAND

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

10-23 RUBBER CULVERT GASKETS

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

10-24 GAGE AND CORRUGATION

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

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

10-50 BRIDGE MATERIAL

All materials necessary for assembly must be included with the structure and meet the following requirements:

- a. All structural steel must be of domestic (USA) manufacture and conform to the requirements of ASTM Specification A588 weathering steel.
- b. All galvanizing must be done after fabrication and must be in accordance with AASHTO Designation M111-09 (ASTM Designation: A123) and/or AASHTO Designation M232-10 centrifuged to remove excess (ASTM Designation A153) and/or AASHTO M298-10 mechanical galvanization (ASTM B695-04).
- c. Flanges used for connecting the stringer units together must be designed to facilitate field assembly.
- d. All bolts used to facilitate field assembly will be A325 Type 1 or 2 galvanized. All materials necessary for assembly must be included with the structure. All hardware connections and fasteners must be in accordance with AASHTO Designation ASTM Designation A325 Type 3 weathering steel.
- e. Elastomeric bearing pads must conform to the requirements of AASHTO M251-06.
- f. All concrete and asphalt used must conform to AASHTO specifications.
- g. The superstructure must have permanent, functional provisions for lifting.

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Cuts and Fills

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

Surface

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

Drainage

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

Structures

- Repair culverts, bridges, gates, fences, cattle guards, signs, and other road structures as required because of purchaser use. Repairs shall be subject to Contract Administrator's approval.

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Preventative Maintenance

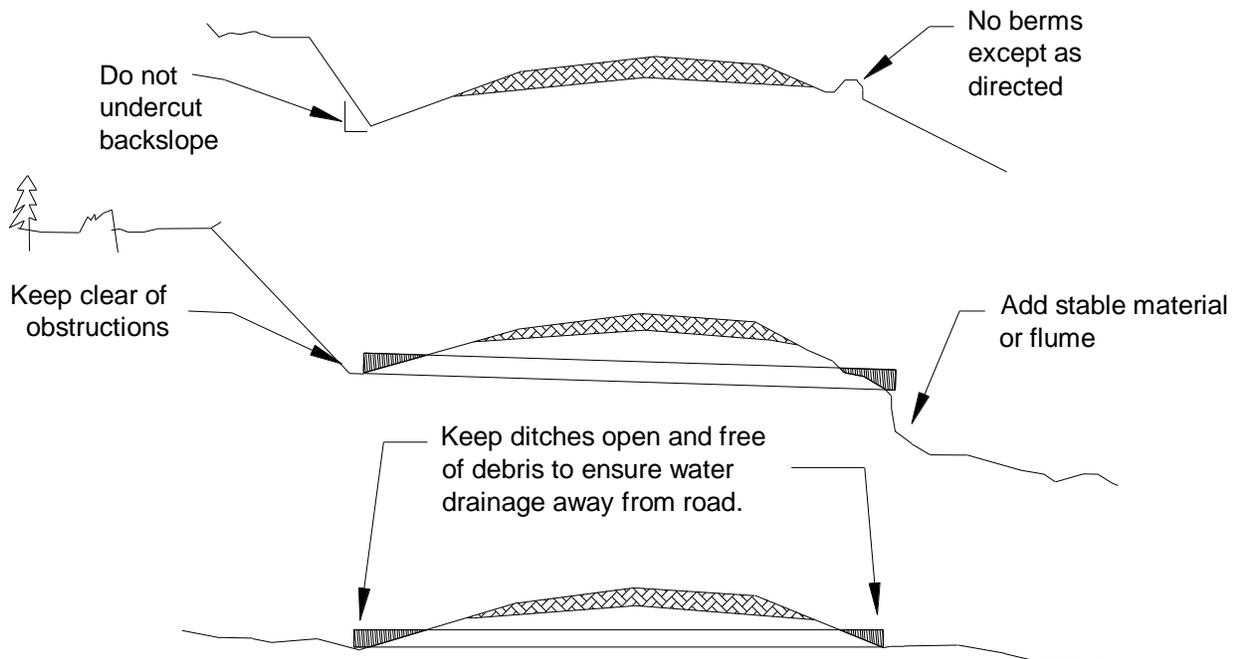
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

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

Debris

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

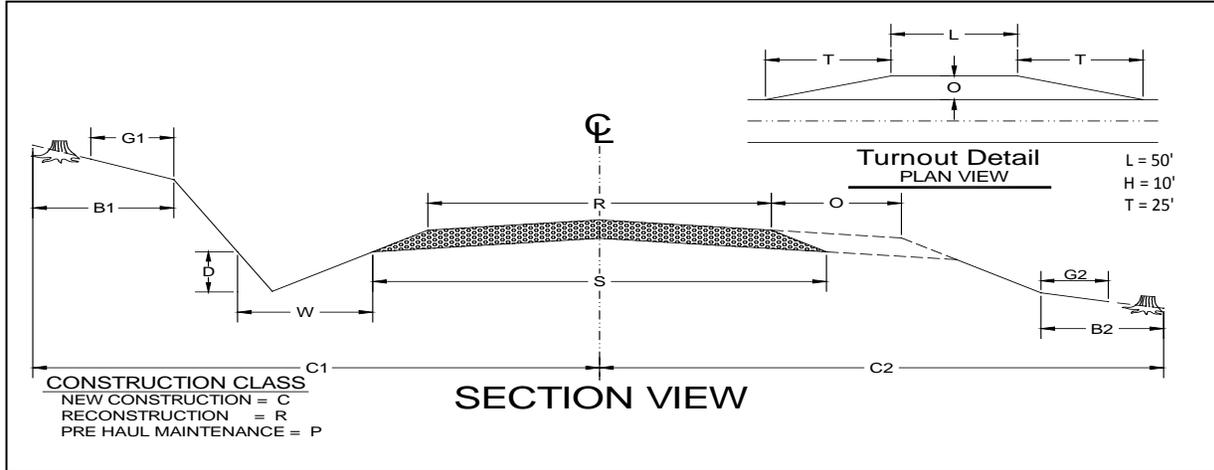


DEPARTMENT OF NATURAL RESOURCES

Application No.: 30-091864

Name of Sale: Hawk

TYPICAL SECTION SHEET



MAINTENANCE=M

ROAD NAME	START STATION	END STATION	CONSTRUCTION CLASS	FULL BENCH	TOLERANCE CLASS	SUBGRADE WIDTH (S)	ROAD WIDTH (R)	INSLOPE "/10'	OUTSLOPE "/10'	CROWN " AT CL	DITCH WIDTH (W)	DITCH DEPTH (D)	DITCH 2 SIDES	GRUBBING CUT BANK (G1)	GRUBBING FILL TOE (G2)	ROAD CUT CLEARING (B1)	ROAD FILL CLEARING (B2)	R/W CUT CLEARING (C1)	R/W FILL CLEARING (C2)
E333804A	0+00	125+00	M		C	12'													
	125+00	159+60	M		C	14' 12'													
	159+60	218+00	R		C	14' 12'								3'	3'	6'	6'		
E333816G	0+00	22+41	M		C	14' 12'													
	22+41	43+88	R		C	14' 12'		4"						3'	3'	6'	6'		
E333816J	0+00	6+25	R		C	14' 12'		4"						3'	3'	6'	6'		
E333816K	0+00	24+50	R		C	14' 12'		4"						3'	3'	6'	6'		
E333816L	0+00	1+34	R		C	14' 12'		4"						3'	3'	6'	6'		
E333816M	0+00	17+38	C		C	14' 12'		4"						3'	3'	6'	6'		
E333809B	0+00	10+90	R		C	12'		4"									6'	6'	
	10+90	14+40	R		C	16' 14'			4"	3'	1'	X		3'	3'	6'	6'		
	14+40	28+45	R		C	14' 12'		4"						3'	3'	6'	6'		
	28+45	58+57	R		C	14' 12'		4"		3'	1'			3'	3'	6'	6'		
	58+57	67+79	R		C	14' 12'		4"						3'	3'	6'	6'		
	67+79	75+90	R		C	14' 12'	4"							3'	3'	6'	6'		
	75+90	83+86	R		C	15' 12'		4"						3'	3'	6'	6'		
	83+86	92+28	R		C	15' 12'	4"							3'	3'	6'	6'		
	92+28	200+09	R		C	14' 12'		4"						3'	3'	6'	6'		

DATE: 12/23/2015

*Optional

Page One of Two

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STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Application No.: 30-091864

Name of Sale: Hawk

Date: 12/23/2015

CULVERT & DRAINAGE LIST

Road Name	Station	CULVERT			LENGTH			RIPRAP		Ditch	Ditchout	Rolling Dip	Notes
		Diameter (in)	Gauge	Skew (deg)	Culvert (ft)	Downspout	Flume	Inlet C.Y.	Outlet C.Y.				
E333804A													
04A-6	104+50										X	X	
04A-9.5	112+38										X	X	9
04A-10	118+53										X	X	See Detail
04A-10.5	121+45										X		9
04A-13	127+31											X	9
04A-11	124+00										X	X	9
04A-15												X	9
04A-16												X	9
	141+33											X	9
04A-20												X	ditchout left
04A-21													9
04A-21.5													9
E333816G													
16G-8	24+80											X	9
E333816J													
16J-2	3+70	18	16	NA	36			10	1/2		X		1, 2,3,8,10
E333809B												X	9
	10+90											X	See Detail
	11+50											X	1,2,3, 4,7,10
Sta 4	12+10	18	16		34			20			X	X	9
Sta 5	14+40										X	X	9
Sta 6	26+35										X	X	9
Sta 7	28+45	18	16								X	X	1,2,3, 4,7,10
Sta 8	37+60												
Sta 10	40+20											X	9,13
Sta 12	42+77											X	9
Sta 13	46+20											X	9

STRUCTURE NOTES

1. Install Headwall - See Detail D1
2. Install Catchbasin - See Detail D1
3. Armor Catchbasin - See Detail D1
4. Armor Ditch
5. Heavy Loose Riprap
6. Light Loose Riprap
7. Step Bevel Pipe Ends
8. Remove Existing Pipe
9. See Rolling Dip Detail D5
10. See Pipe Installation Detail D1
11. Install Energy dissipator - See D1
12. Install Ditchout
13. Reshape Rolling Dip

Additional Rolling Dips shall be installed at the discretion of the Contract Administrator

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Application No.: 30-091864

Name of Sale: Hawk

Date: 12/23/2015

CULVERT & DRAINAGE LIST

Road Name	Station	CULVERT				LENGTH			RIPRAP		Ditch	Ditchout	Rolling Dip	Notes
		Diameter (in)	Gauge	Skew	Culvert (ft)	Downspout	Flume	Inlet C.Y.	Outlet C.Y.	Catchbasin				
Sia 14	48+50												X	9
Sia 15	51+71												X	9
Sia 16	53+95												X	9
Sia 17	54+96												X	9
Sia 19	57+77												X	9
Sia 20	58+70												X	9
Sia 21	60+55												X	9
Sia 22	61+76												X	9
Sia 24	63+77												X	9
Sia 25	65+55												X	9
Sia 26	67+79												X	9
Sia 27	69+52													
Sia 28	71+06												X	1,2,3, 4,7,10
Sia 29	73+70												X	9
Sia 30	86+78												X	See Detail
E333809B														
Sia 37	105+00	18	16	30	40								X	1,2,3, 4,7,10
Sia 42	123+70	24	14		40								X	1,2,3, 4,7,10
Sia 46	140+17	24	14		40								X	1,2,3, 4,7,10
Sia 49	147+88	18	16		36								X	1,2,3, 4,7,10
E333816E														
16E-6	16+50	24	14		40								X	1,2,3, 4,7,10
16E-7	18+25												X	9
16E-8	23+05												X	9

STRUCTURE NOTES

1. Install Headwall - See Detail D1
 2. Install Catchbasin - See Detail D1
 3. Armor Catchbasin - See Detail D1
 4. Armor Ditch
 5. Heavy Loose RipRap
 6. Light Loose RipRap
 7. Step Bevel Pipe Ends
 8. Remove Existing Pipe
 9. See Rolling Dip Detail D5
 10. See Pipe Installation Detail D1
 11. Install Energy dissipator - See D1
 12. Install Ditchout
 13. Reshape Rolling Dip
- Backfill culverts with native material.
- Additional Rolling Dips shall be installed at the discretion of the Contract Administrator

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Application No.: 30-091864

Name of Sale: Hawk

Date: 12/23/2015

CULVERT & DRAINAGE LIST

Road Name	Station	CULVERT			LENGTH			RIPRAP		Ditch	Ditchout	Rolling Dip	Notes	
		Diameter (in)	Gauge	Skew	Culvert (ft)	Downspout	Flume	Inlet C.Y.	Outlet C.Y.					Catchbasin
E333816E	26+40	24	14		40									
16E-12	28+00						install french drain 30 ft in length							
16E-14	31+00				Install rolling dip, apply 5 cy rock.								X	9
16E-15	33+37				Install rolling dip, apply 5 cy rock.								X	9
E333816F	1+90				Install rolling dip, apply 10 cy rock.								X	9
16F-3	4+20				Install rolling dip, apply 10 cy rock.								X	9
16F-4	8+95				Install rolling dip, apply 10 cy rock.								X	9
16F-5	12+95				Install rolling dip, apply 10 cy rock.								X	9
E333815E														
15E-9	26+75	24	14		40				7	3			1,2,3, 4,7,8,10	
15E-13	32+80				Install rolling dip, apply 5 cy rock.								X	9
15E-14	35+05	18	16	30	36			1	1				1,2,3, 4,7,10	
15E-15	39+65				Install rolling dip, apply 5 cy rock.								X	9
15E-20	50+75	18	16		36			1	1				1,2,3, 4,7,10	
15E-25	60+85	18	16		36			1/4	1/4				1,2,3,7,10	
15E-35	78+90				Install rolling dip, apply 5 cy rock.								2	9
15E-36	80+65				Install rolling dip, apply 5 cy rock.								X	9
15E-37	83+00				Install rolling dip, apply 5 cy rock.								X	9
E333816M	2+75												9	
16M-13	6+29												9	
16M-4	7+88	18	16		50			1/2	1/2				1,2,3,7,10	
16M-7	9+37	18	16		60			1/2	1/2				9	
16M-10	14+14	18	16		50			1/2	1/2				9	
E333809I	0+00 to 6+40				Install rolling dips as needed.								3	9
E333814Q	3+05				Install rolling dip.								X	9

STRUCTURE NOTES

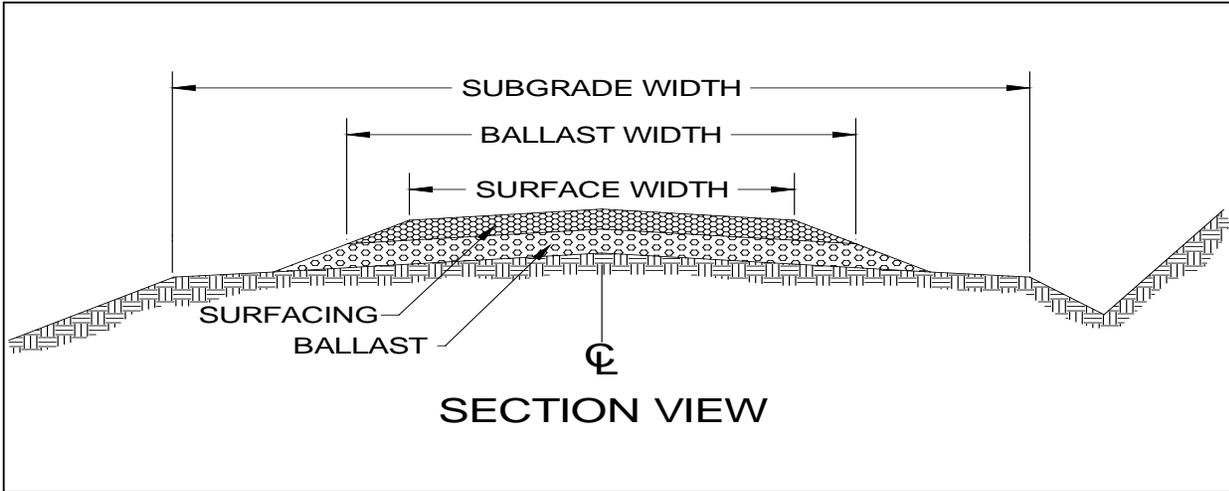
1. Install Headwall - See Detail D1
 2. Install Catchbasin - See Detail D1
 3. Armor Catchbasin - See Detail D1
 4. Armor Ditch
 5. Heavy Loose RipRap
 6. Light Loose RipRap
 7. Step Bevel Pipe Ends
 8. Remove Existing Pipe
 9. See Rolling Dip Detail D5
 10. See Pipe Installation Detail D1
 11. Install Energy dissipator - See D1
 12. Install Ditchout
 13. Reshape Rolling Dip
- Backfill culverts with native material.
- Additional Rolling Dips shall be installed at the discretion of the Contract Administrator

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Application No.: 30-091864

Name of Sale: Hawk

ROCK LIST



1. ROCK DEPTHS ARE DEFINED AS COMPACTED DEPTHS.
2. LOOSE YARD QUANTITIES ARE DEPENDANT ON SOURCE.
3. ROCK SLOPES SHALL BE 1.5(H) : 1(V).
4. ALL ROCK SOURCES ARE SUBJECT TO APPROVAL BY THE CONTRACT ADMINISTRATOR.
5. THE ROCK QUANTITIES SHOWN ASSUME AN EXPANSION FACTOR (25%)

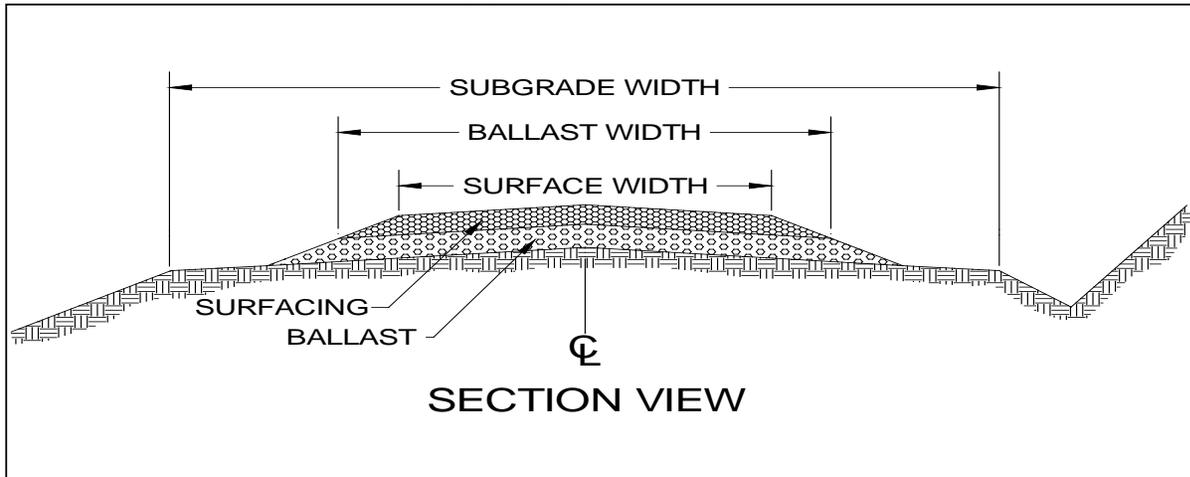
ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	BALLAST SOURCE	BALLAST WIDTH (ft)	BALLAST DEPTH (in)	BALLAST QUANTITY (cu.yd./sta)	SURFACE SOURCE	SURFACE WIDTH (ft)	SURFACE DEPTH (in)	SURFACE QUANTITY (cu.yd./sta)	FABRIC WIDTH (ft)
E333804A	80+94			10 CY rock over cross drain								
pt 129 04A-6	100+00	100+50	18						16	6	39	
04A-7	104+00	105+00	14						12	9	46	14
04A-9.5	112+38		14					rock rolling dip, 10 cy				
04A-10	118+53			20 cy of Drain Rock, (See Clause 6-35 3-inch Clean Rock)								
	118+28	118+78	15						13	12	68	
04A-11	121+45		14					rock rolling dip, 5 cy				
04A-11	124+00		14					rock rolling dip, 5 cy				
	129+30	130+95	14						12	6	30	
04A-16.5	139+08	140+78	14						12	6	30	
04A-17	140+93			20 CY to rock turnout								
E333809B	9+90	10+90	14						12	6	30	
Sta 3	10+90	11+30	16	PR	15	12	77	C	14	6	35	18
	12+10			20 CY Rip Rap for catch basin lined with non woven needle punch								
	11+70	12+20	16	PR	15	12	77	C	14	6	35	18
Sta 4 to Sta 5	12+20	14+40	16						14	9	53	16
Sta 6	26+95							rock rolling dip, 10 cy				
Sta 26	67+79							rock rolling dip, 5 cy				
	69+52							rock rolling dip 5 cy				
Sta 28	71+06							rock rolling dip, 5 cy				
	86+78			20 CY Rip Rap to armor cut slope								
Sta 32	86+78			20 cy of Drain Rock, (See Clause 6-35 3-inch Clean Rock)								

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

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Name of Sale: Hawk

ROCK LIST



1. ROCK DEPTHS ARE DEFINED AS COMPACTED DEPTHS.
2. LOOSE YARD QUANTITIES ARE DEPENDANT ON SOURCE.
3. ROCK SLOPES SHALL BE 1.5(H) : 1(V).
4. ALL ROCK SOURCES ARE SUBJECT TO APPROVAL BY THE CONTRACT ADMINISTRATOR.
5. THE ROCK QUANTITIES SHOWN ASSUME AN EXPANSION FACTOR (25%)

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	BALLAST SOURCE	BALLAST WIDTH (ft)	BALLAST DEPTH (in)	BALLAST QUANTITY (cu.yd./sta)	SURFACE SOURCE	SURFACE WIDTH (ft)	SURFACE DEPTH (in)	SURFACE QUANTITY (cu.yd./sta)	FABRIC WIDTH (ft)	
E333809B	86+50	87+00	16						14	6	35		
Sta 37	105+00	10 CY Rip Rap				Apply rock over culvert, 10 cy.							
12340	123+40	124+00						15	12	12	63		
	139+87	140+47						15	12		77	16	
Sta 46	140+17	5 CY Rip Rap				Apply rock over culvert, 5 cy.							
	140+47	147+60						Spot patch 30 cy rock.					
	147+60	148+20						15	12		77	16	
Sta 49	147+88	5 CY Rip Rap											
	148+20	200+09						Spot patch 60 cy rock.					
E333816E													
10 CY Rip Rap	16+10	16+90						14	12		72	16	
16E-7	18+25							rock rolling dip, 5 cy					
16E-8	23+05							rock rolling dip, 5 cy					
16E-9 to 16E-11	23+80	26+50						12	12		63	14	
16E-11 to 16E-13	26+50	29+05						12	6		30	14	
16E-11	26+50							rock rolling dip, 5 cy					
16E-12	27+90	28+20						30 cy drain rock		12	9	46	16
16E-14	31+00							rock rolling dip, 5 cy					
16E-15	33+37							rock rolling dip, 5 cy					
E333816F	0+00	1+90						15	9		56	16	
16F-2	1+90							rock rolling dip, 10 cy					
16F-3	4+20							rock rolling dip, 10 cy					
16F-4	8+95							rock rolling dip, 10 cy					
16F-5	12+95							rock rolling dip, 10 cy					

BRUSHING DETAIL - D2

TYPICAL BRUSHING LIMITS SECTION

BRUSHING LIMITS

Trim all limbs, vegetation, and down logs that fall within brushing limits.

14' min

width varies

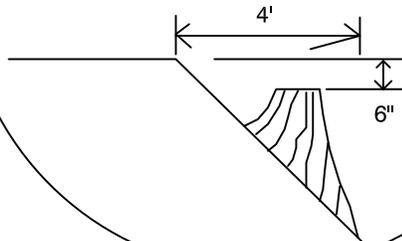
6' min

4' min

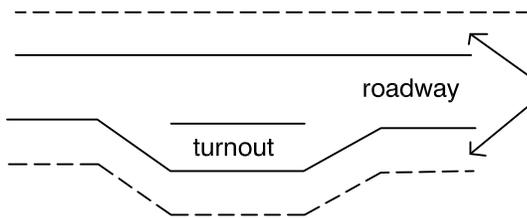
All limbs on standing trees that extend into the brushing limits shall be trimmed within 6" of the stem.

Any trees less than 6" in diameter shall be cleared within the transition zones.

Trim all stumps and vegetation within 4' of edge of road and in ditch to at least 6" below the elevation of the edge of road.



CURVE BRUSHING PLAN



Brushing limits as shown on typical section

TURNOUT BRUSHING PLAN

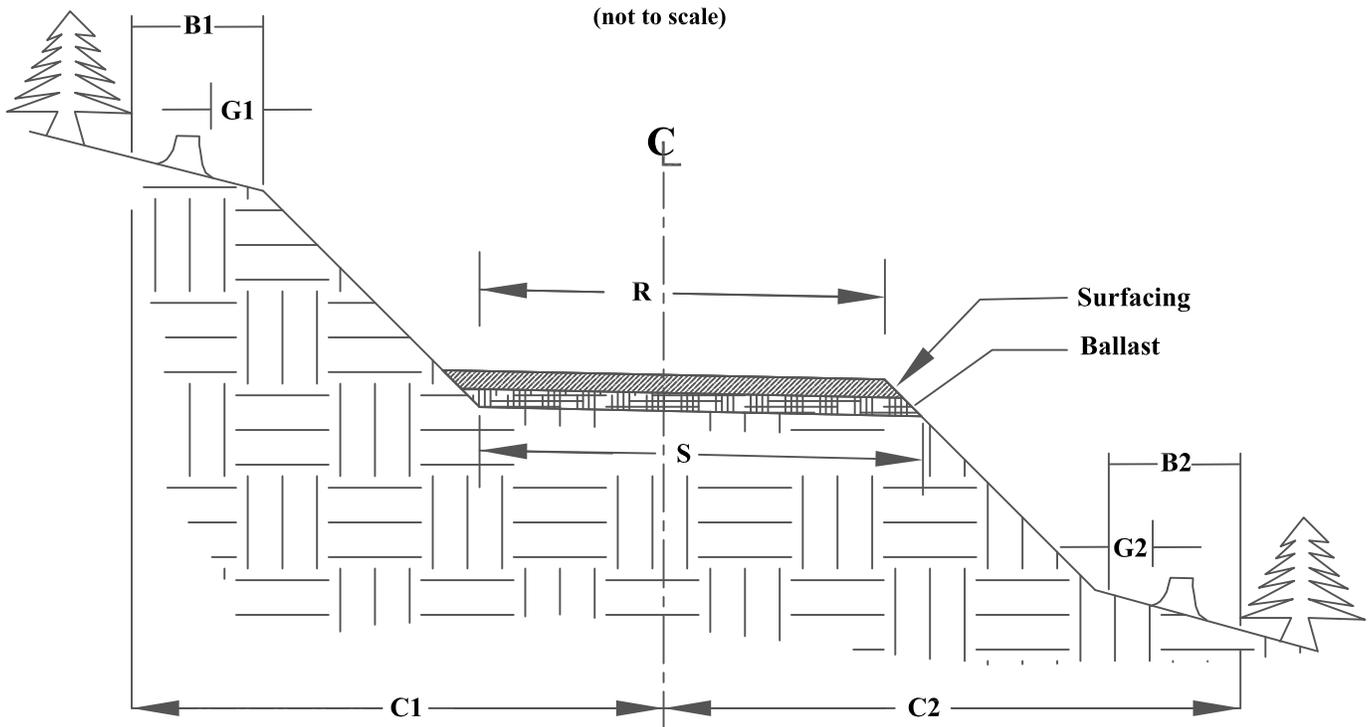
extra 4' brushing limits on inside of curve.

50' taper

50' taper

1. All vegetation within the brushing limits shall be cut to within 8" of the ground, unless otherwise directed by the contract administrator.
2. All brush, trees, limbs, etc. shall be removed from the road surface and ditchline.
3. All debris that may roll or migrate into the ditchline shall be removed.

OUTSLOPED ROAD CROSS-SECTION DETAIL D7

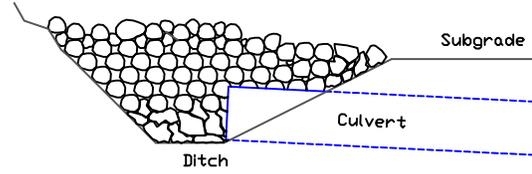
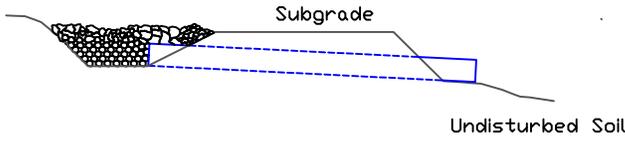


Drawn by: JBB 2/18/03

Revised: JE 12/20/2012

CULVERT AND DRAINAGE SPECIFICATIONS DETAIL - D1

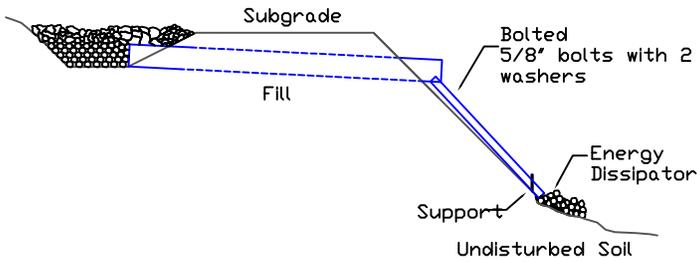
HEADWALLS



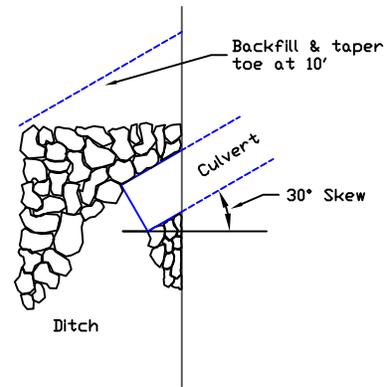
Headwall to be constructed of material that will resist erosion

FLUME

Use where ground conditions are uniform, providing for stability of flume.

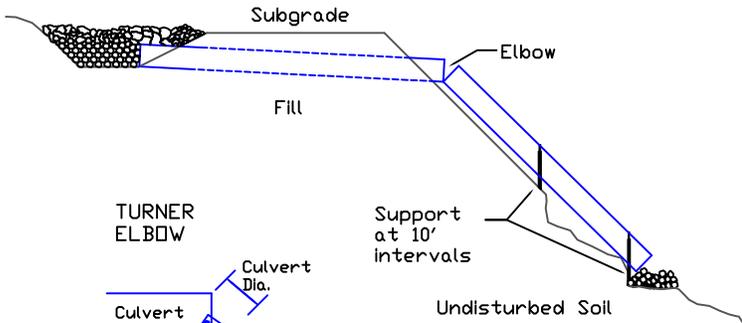


PLAN VIEW

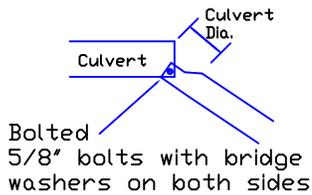


DOWNSPOUT

Use where ground conditions are irregular.



TURNER ELBOW

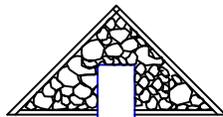


CULVERT BACKFILL & BASE PREPARATION (For Culverts Less Than 36")

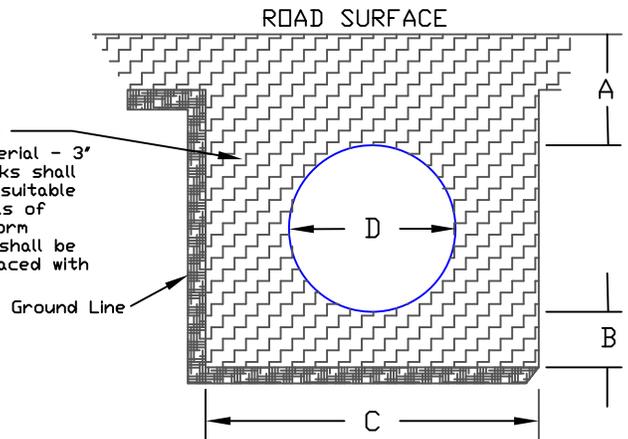
Minimum Cover	Minimum Bed Depth	Min. Trench Width	Nominal Diameter
A	B	C	D
12"	6"	36"	18"
12"	6"	42"	24"
12"	6"	48"	30"
12"	6"	54"	36"

DISSIPATOR SPEC'S Size In Culvert Diameters

Area 2 X 2
Depth 1
Aggregate 1/3



BEDDING MATERIAL:
Use granular material - 3" minus. Large rocks shall be replaced with suitable material. Materials of poor or non-uniform bearing capacity shall be removed and replaced with suitable fill.



STANDARD 30° ROLLING DIP - D5

Note: Plan of dip shown is for an outsloped rolling dip. Dips may be either insloped or outsloped. When insloped, dips shall discharge into a culvert, drop inlet, overside drain, or drainage ditch. When outsloped, they shall discharge into an overside drain or on to natural ground. Minimum skew is 30°, and the maximum skew is 45°.

The minimum cross grade from "B" to "E" is 1% greater than the original road grade.

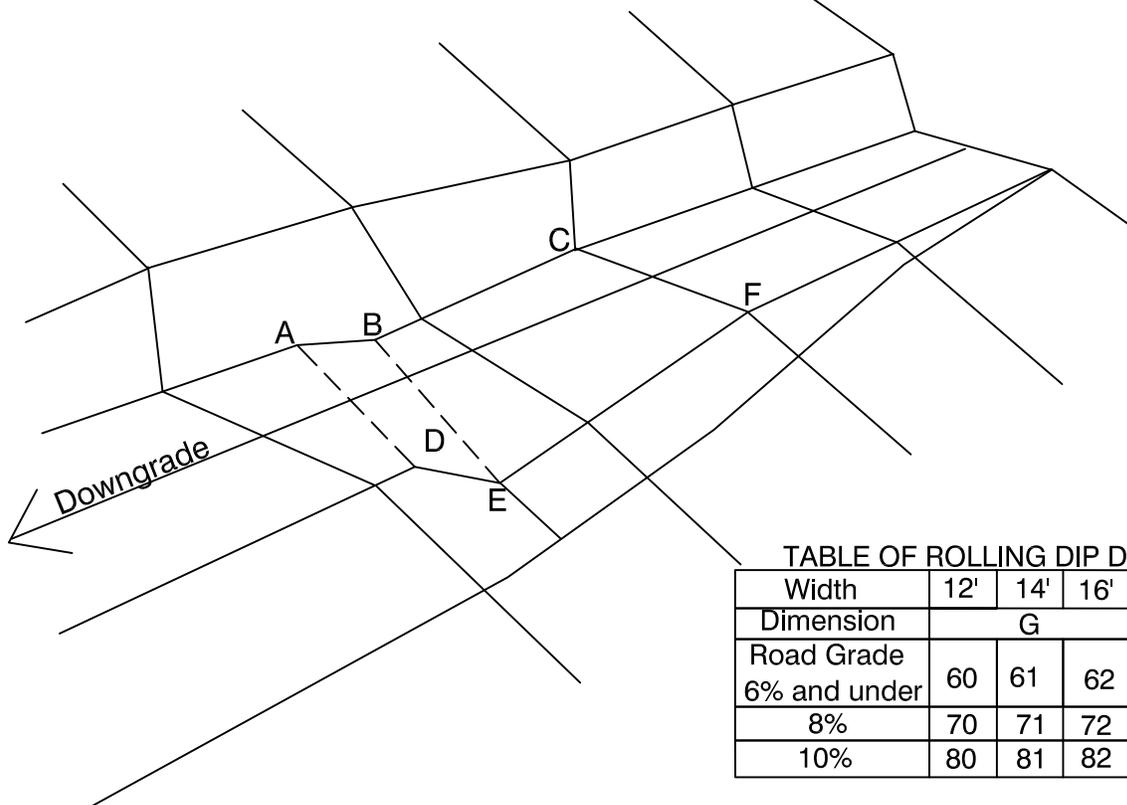
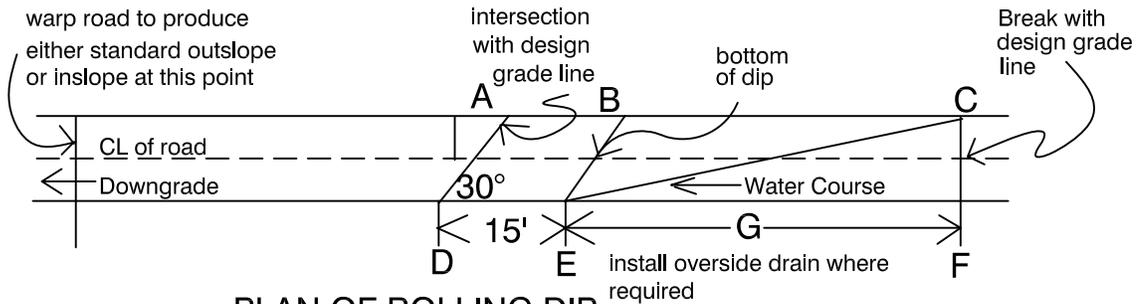
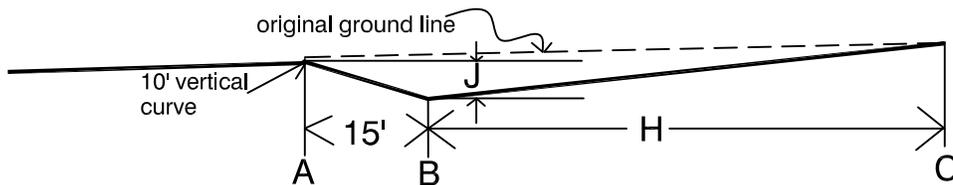


TABLE OF ROLLING DIP DIMENSIONS

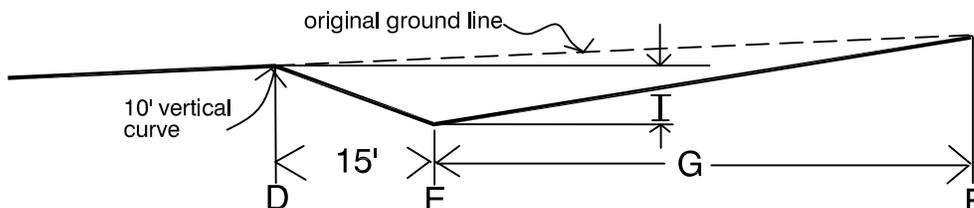
Width	12'	14'	16'	ALL		
Dimension	G			H	I	J
Road Grade 6% and under	60	61	62	52	.8	0.3
8%	70	71	72	62	1.0	0.2
10%	80	81	82	72	1.1	0.1



PLAN OF ROLLING DIP



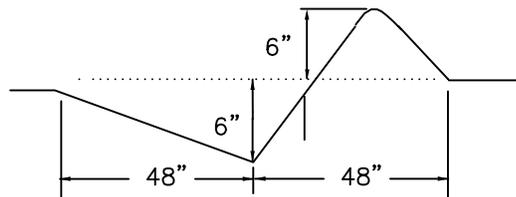
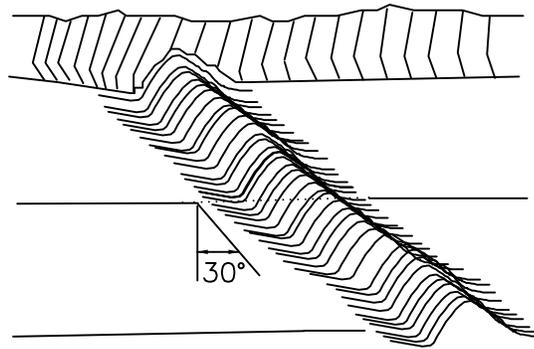
ROAD PROFILE ALONG A-B-C OF ROLLING DIP



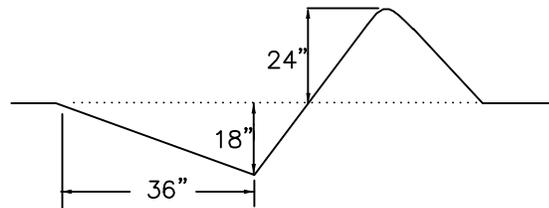
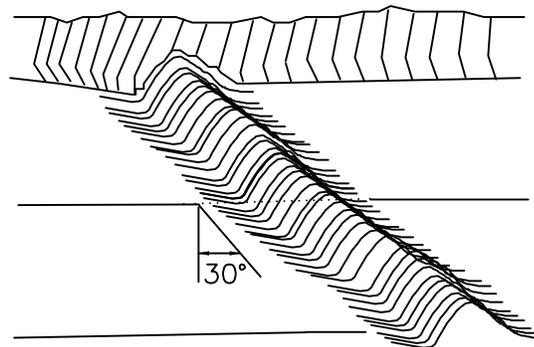
ROAD PROFILE ALONG D-E-F OF ROLLING DIP

WATERBAR DETAIL—D6

DRIVABLE WATERBAR



NON DRIVABLE WATERBAR

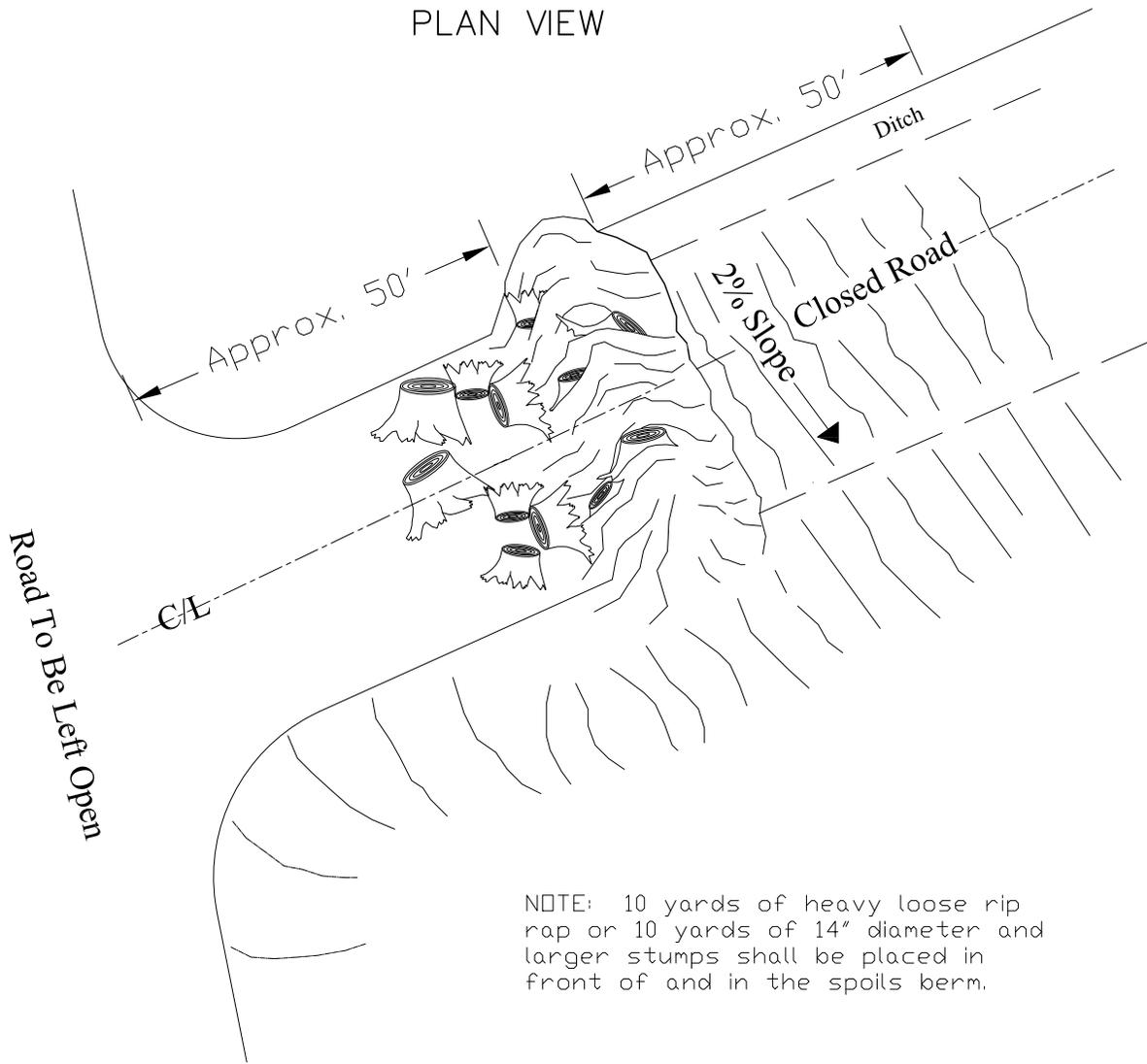


1. Waterbar construction for forest roads Specifications are average and may be adjusted to conditions.
2. Waterbar shall keyed into the bank.
3. The waterbar shall be outsloped for proper drainage.
4. Rock outlet if fill slope is present.

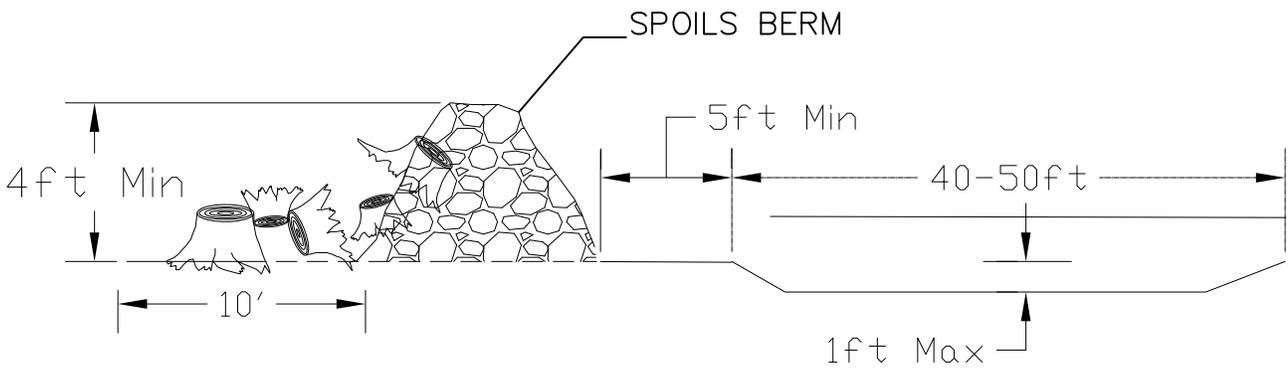
Revised: 05/21/2012

SPOILS BERM DETAIL-D8

PLAN VIEW



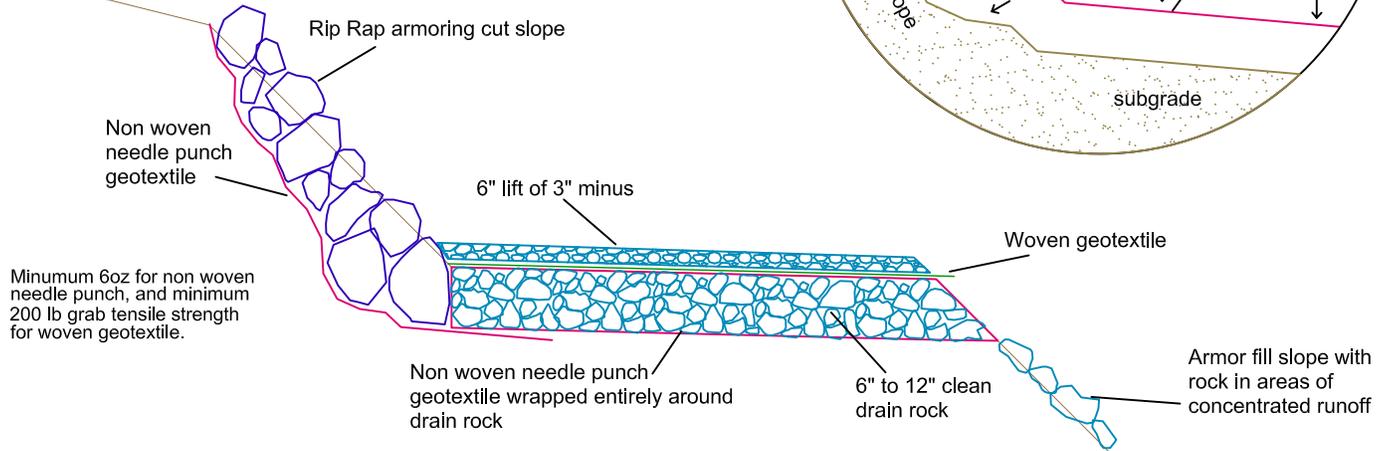
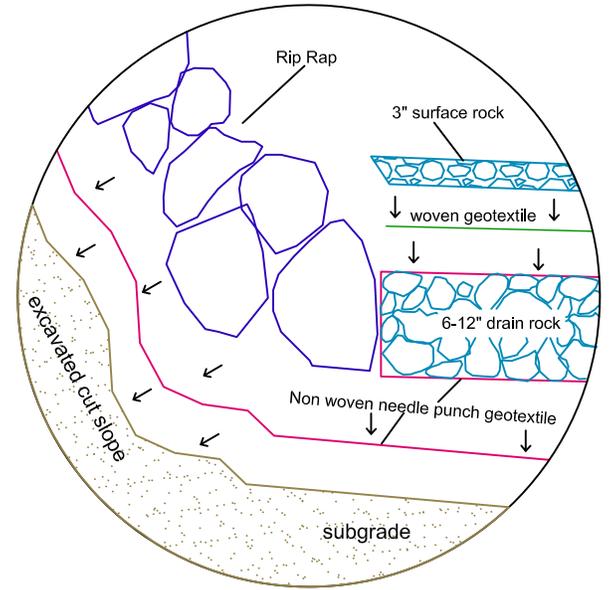
NOTE: 10 yards of heavy loose rip rap or 10 yards of 14" diameter and larger stumps shall be placed in front of and in the spoils berm.



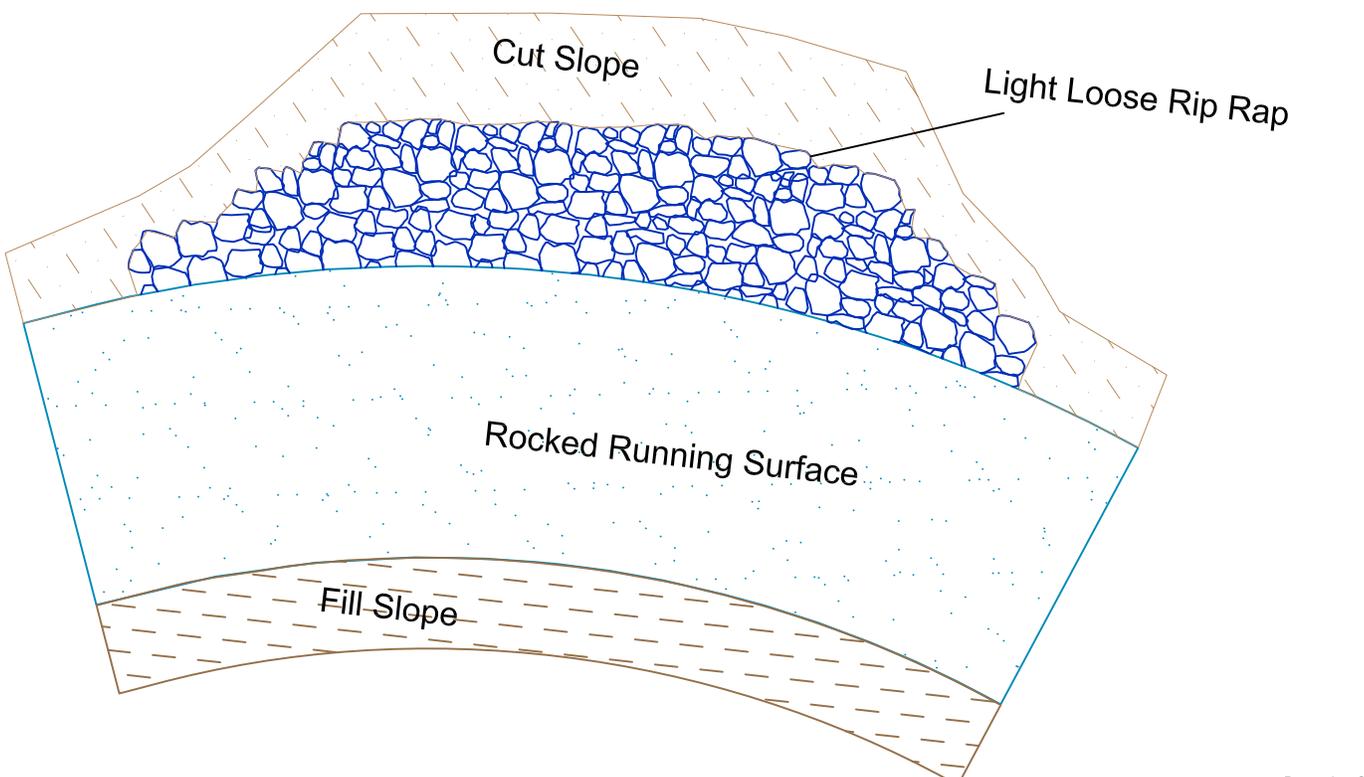
Note: $\frac{1}{3}$ of stumps or rip rap shall be partially buried in the spoils berm and/or road surface.

French Drain Construction

Rip Rap for armoring cut slope may not be required in all instances. Consult with Contract Administrator and Rock List.

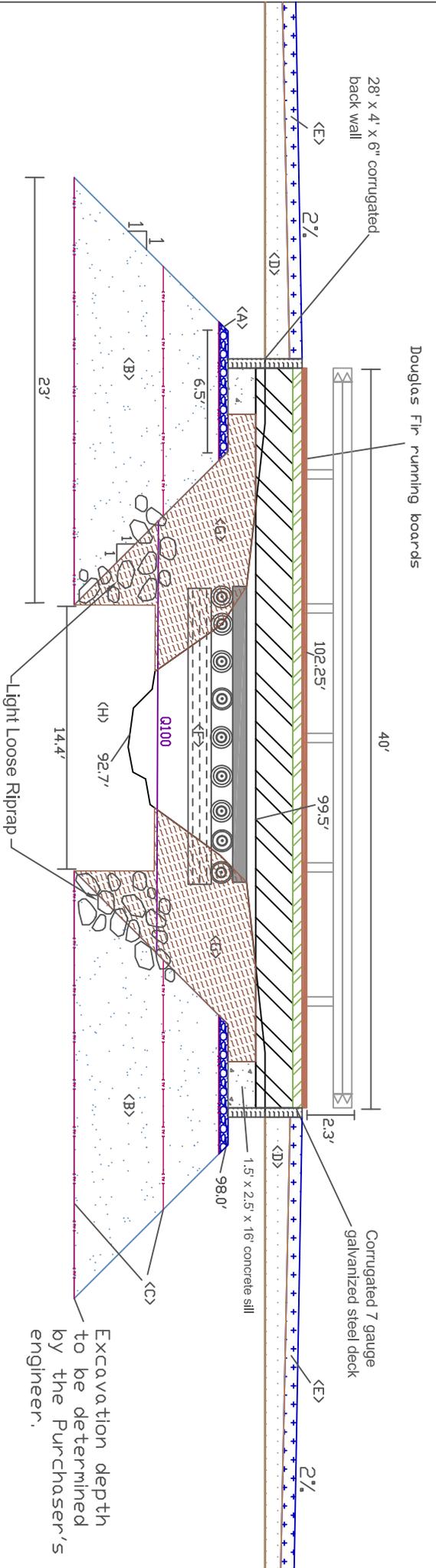


Minimum 6oz for non woven needle punch, and minimum 200 lb grab tensile strength for woven geotextile.



Hawk Timber Sale
 Bridge Installation
 Looking Downstream

6 inch lift of 1 1/4 inch crushed rock. Minimum of 4 CY to be placed and compacted to 90% Relative Density as approved by the purchaser's engineer.



Excavation depth to be determined by the Purchaser's engineer.

Loading HL/93 with U80 Overload

Stream Information:
 Drainage Area: 723 acres.
 Annual Precipitation: 201 in.
 Average Bankfull Width: 42 ft.
 Average Stream Gradient: 5.8%.
 Two-year Flow, Q₂: 457 cfs.
 100-year Flow, Q₁₀₀: 246 cfs.

10'

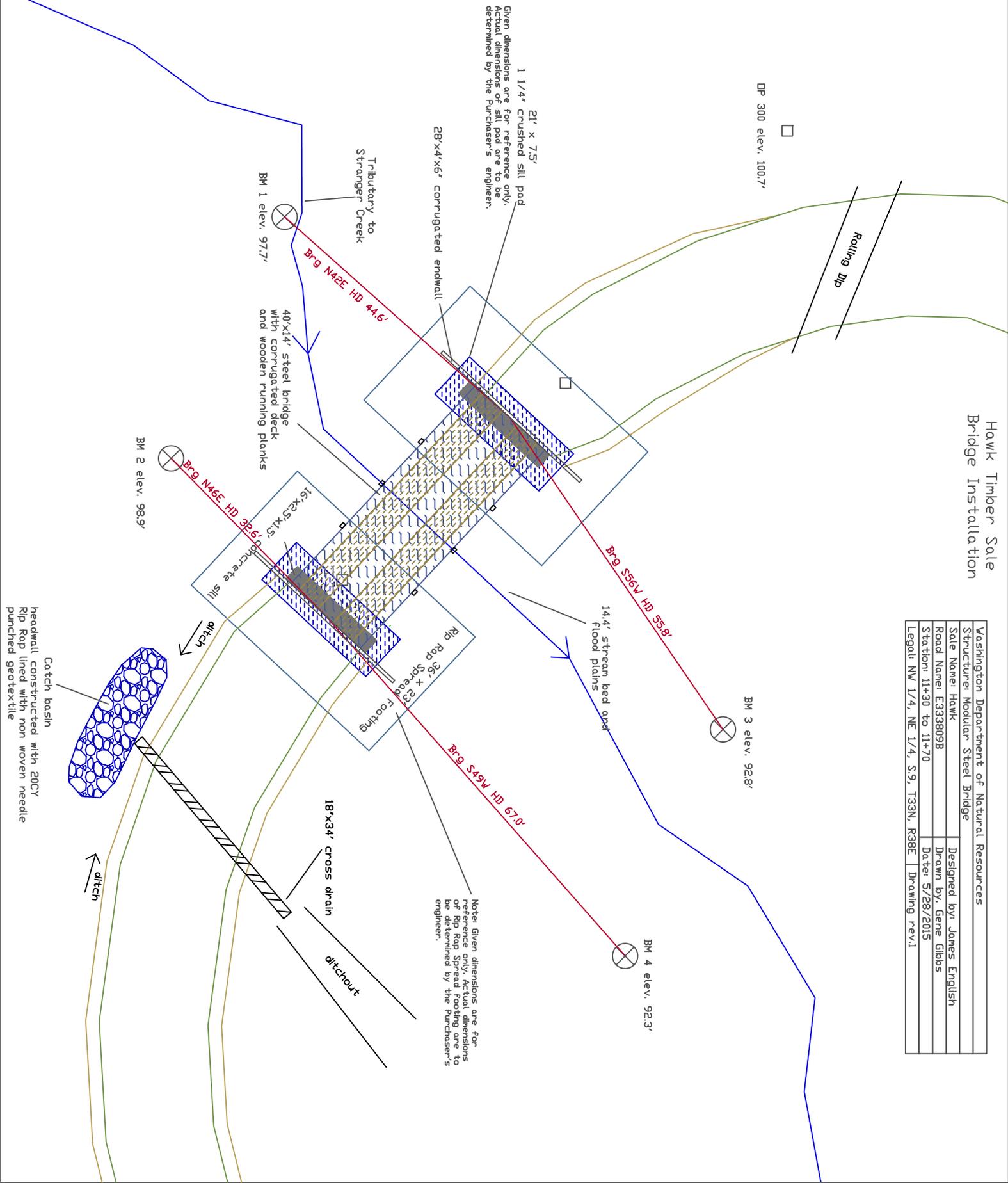


- <A>= Sill Pad
 6 inch lift of 1.25 inch crushed rock. Compact to 90% Relative density. Minimum Sill Pad dimensions should extend 1.5 ft from edge of concrete footing sill. Actual Sill Pad dimensions to be determined by the Purchaser's engineer.
- = Rip Rap Spread Footing
 Build to specifications shown on cross sectional and plan view. Base elevation and dimensions of the spread footing to be determined by the Purchaser's engineer before backfilling and construction activities. Spread Footings shall be constructed with a well graded mixture of Light Loose Rip Rap and Pit Run. Compact to 90% Relative density in lifts approved by the Purchaser's engineer.
- <C>= Geotextile layers
 Spacing and placement to be determined by the Purchaser's engineer.
- <D>= 9 inch lift of 1.25 inch crushed rock, reinforced with woven geotextile see clause 10.3.
- <E>= Existing Log Bridge
- <G>= Area of Excavation (approximate)
- <H>= Undisturbed/unexcavated area.

Washington Department of Natural Resources	
Structure Name: Hawk	Designed by: James English
Road Name: E333809B	Drawn by: Gene Gibbs
Station: 11+30 to 11+70	Date: 2/4/2016
Legal: NW 1/4, NE 1/4, S9, T33N, R38E	Drawing rev: 1

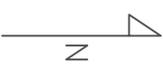
Hawk Timber Sale Bridge Installation

Washington Department of Natural Resources	Designed by: James English
Structure: Modular Steel Bridge	Drawn by: Gene Gibbs
Sale Name: Hawk	Date: 5/28/2015
Road Name: E333809B	Drawing rev: 1
Station: 11+30 to 11+70	
Legal: NW 1/4, NE 1/4, S9, T33N, R38E	

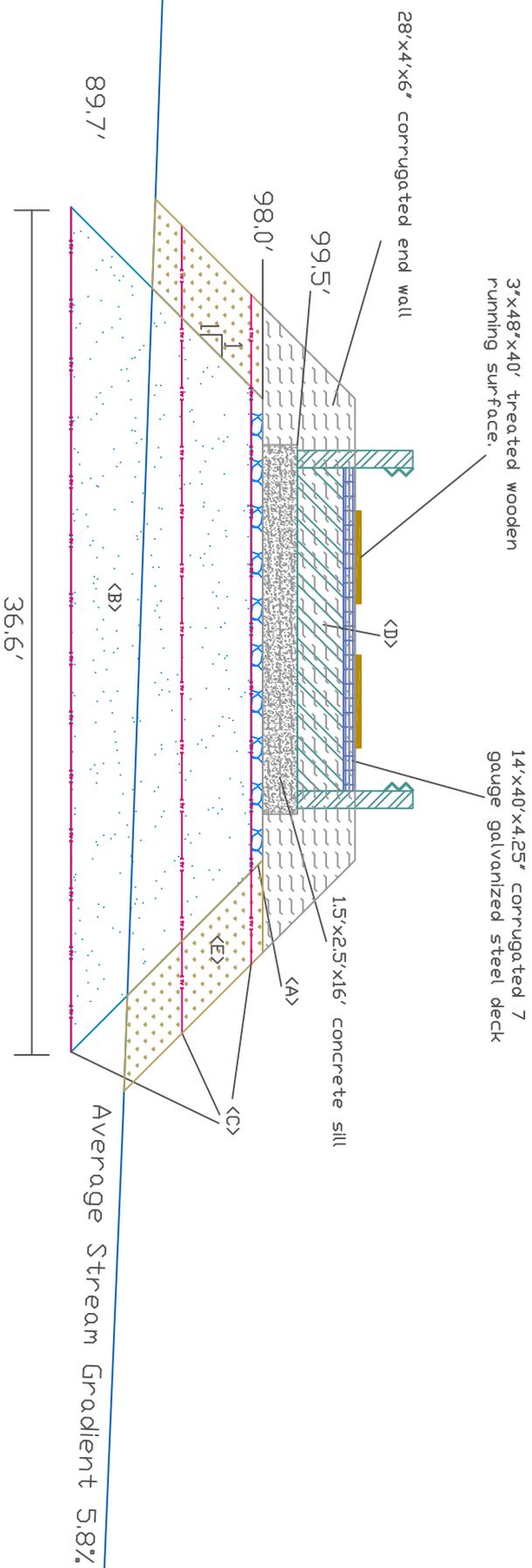


Given dimensions are for reference only. Actual dimensions of sill pad are to be determined by the Purchaser's engineer.

Note: Given dimensions are for reference only. Actual dimensions of Rip Rap Spread Footing are to be determined by the Purchaser's engineer.



Hawk Timber Sale Bridge Installation

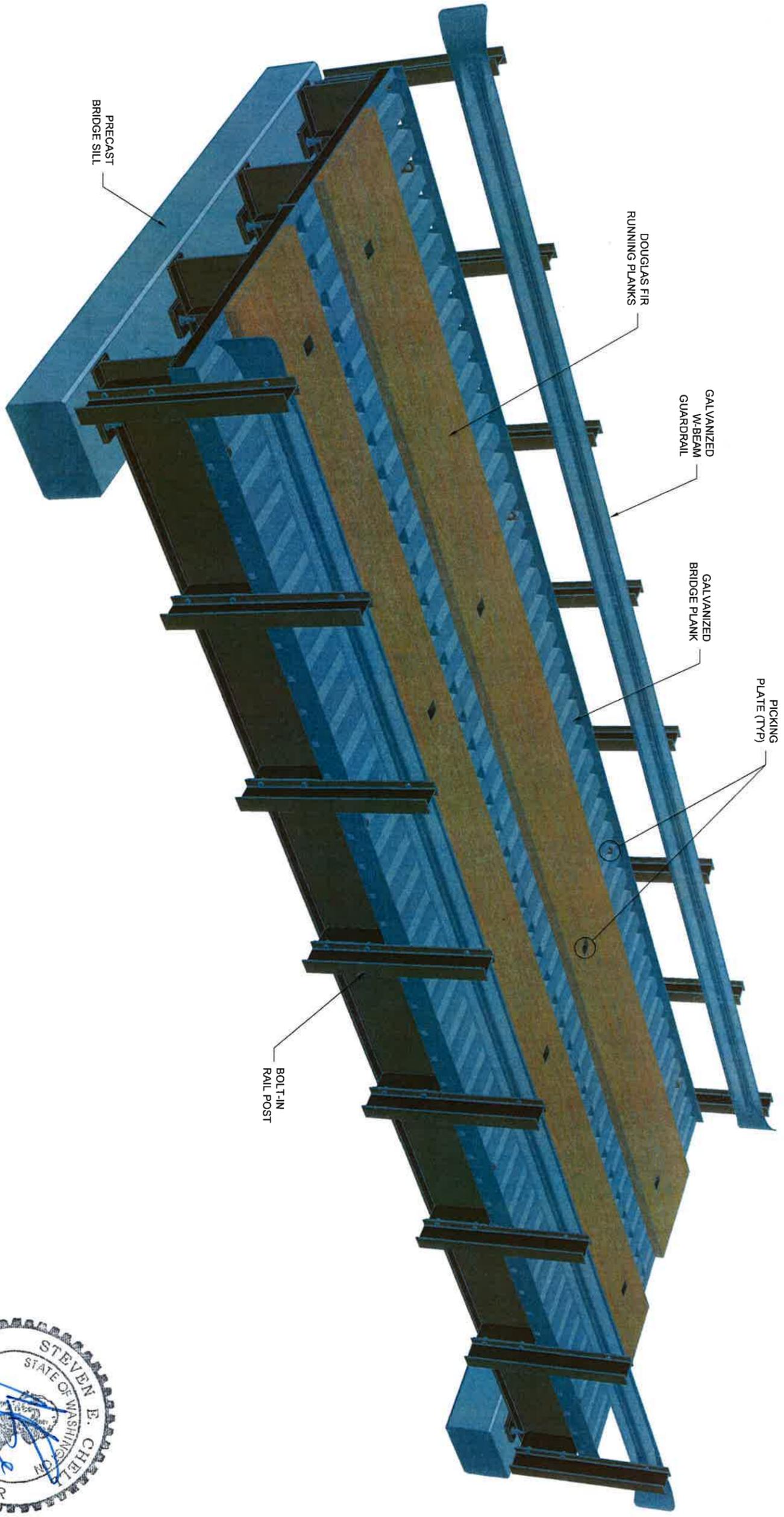


Stream Information:
 Drainage Area: 723 acres.
 Annual Precipitation: 20.1 in.
 Average Bankfull Width: 4.2 ft.
 Average Stream Gradient: 5.8%.
 Two-year Flow, Q_2 4.57 cfs.
 100-year Flow, Q_{100} 24.6 cfs.



- <A>= Sill Pad
6 inch lift of 1.25 inch minus crushed rock. Compact to 90% Relative density. Minimum Sill Pad dimensions should extend 1.5 ft from edge of concrete footing sill. Actual Sill Pad dimensions to be determined by the Purchaser's engineer.
- = Rip Rap Spread Footing
Build to specifications shown on cross sectional and plan view. Base elevation and dimensions of the spread footing to be determined by the Purchaser's engineer before backfilling and construction activities. Spread Footings shall be constructed with a well graded mixture of Light Loose Rip Rap and Pit Run. Compact to 90% Relative density in lifts approved by the Purchaser's engineer.
- <C>= Geotextile layers
Spacing and placement to be determined by the Purchaser's engineer.
- <D>= Loading HL/93 with U80 Overload
A588 weathering steel superstructure
- <E>= Compacted Fill

Washington Department of Natural Resources	
Structure: Modular Steel Bridge	Designed by: James English
Sale Name: Hawk	Drawn by: Gene Gibbs
Road Name: E333809B	Date: 5/28/2015
Station: 11+30 to 11+70	Preliminary Drawing rev.1
Legal: NW 1/4, NE 1/4, S.9, T33N, R38E	



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CONTINENTAL
BRIDGE

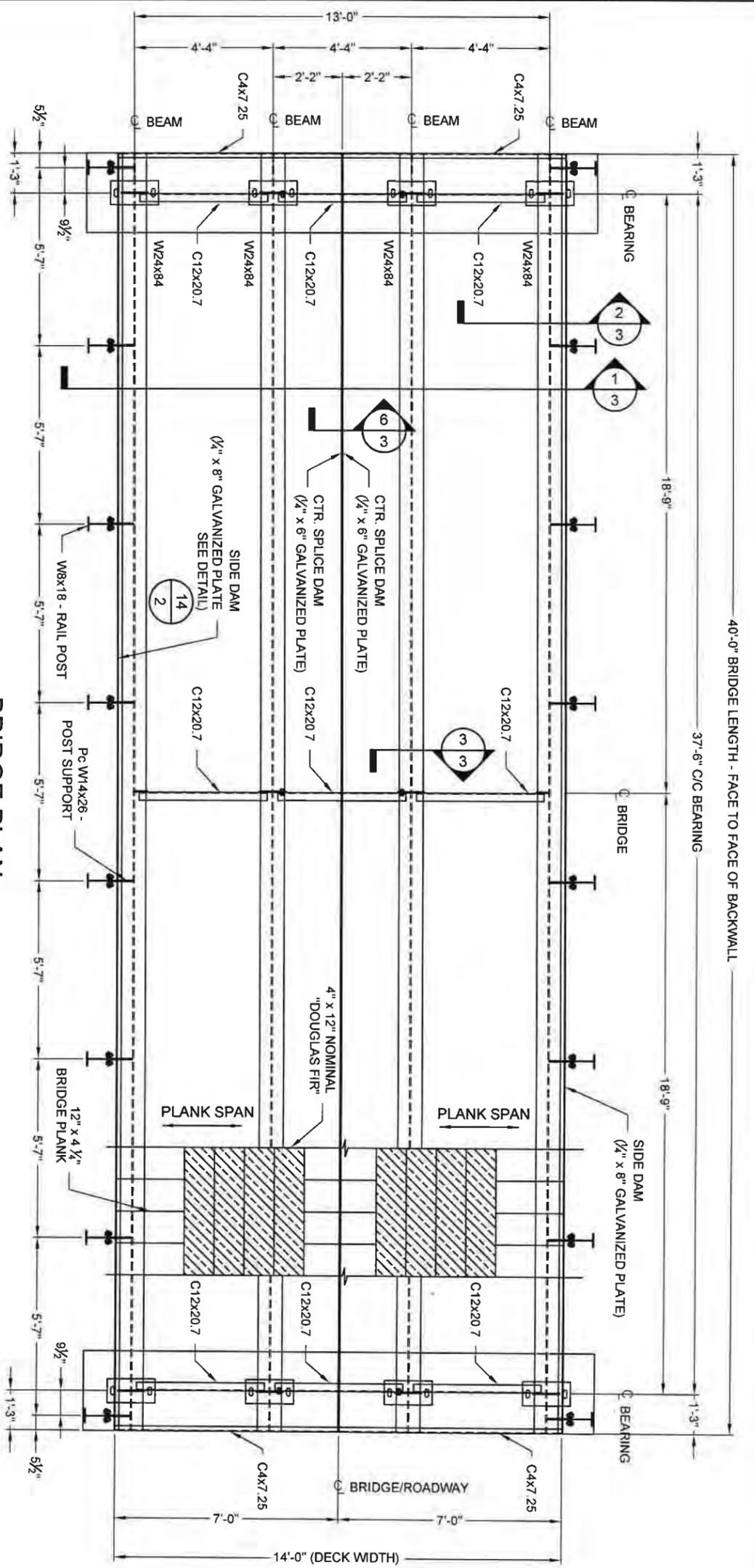
40'-0" x 14'-0"
DNR 15-76 BRIDGE
VEHICULAR BRIDGE
COLVILLE, WA

MARK	DATE	REVISION DESCRIPTION	BY

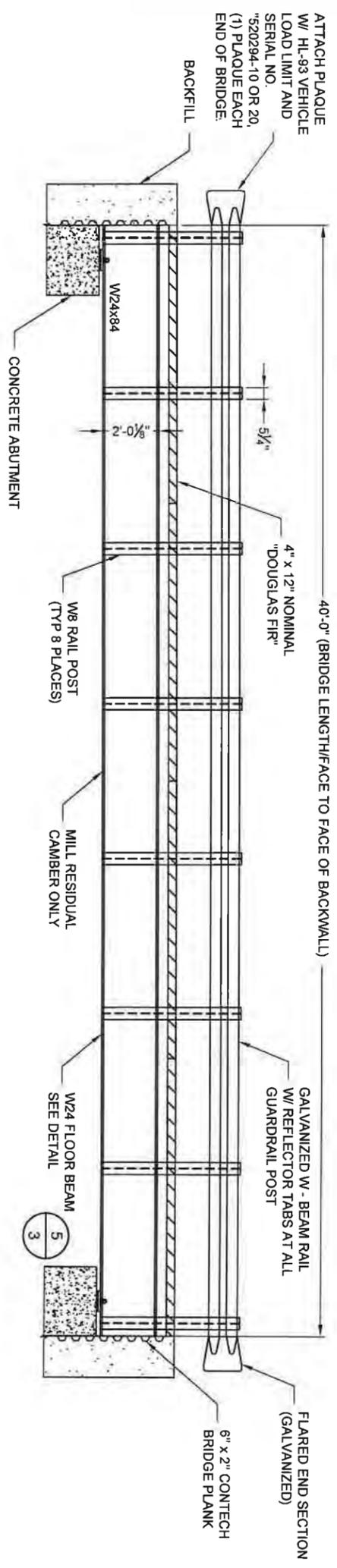
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DATE	5/20/2015
DESIGNED	BAH
DRAWN	RJP
CHECKED	BAH
APPROVED	BAH
PROJECT No.	520294
SEQUENCE No.	10.30
SHEET	COVER



BRIDGE PLAN



BRIDGE ELEVATION

SCHEDULE OF MEMBERS	
FLOOR BEAMS	W 24 x 84
DIAPHRAM	C 12 x 20.7
OUT RIGGER	W 14 x 26
RAIL POST	W 8 x 18
SIDE DAM	FLT 8 x 1/4
CTR SPLICE DAM	FLT 6 x 1/4
END DAM	C 4 x 7.25

40'-0" x 14'-0"
 DNR 15-76 BRIDGE
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 COLVILLE, WA

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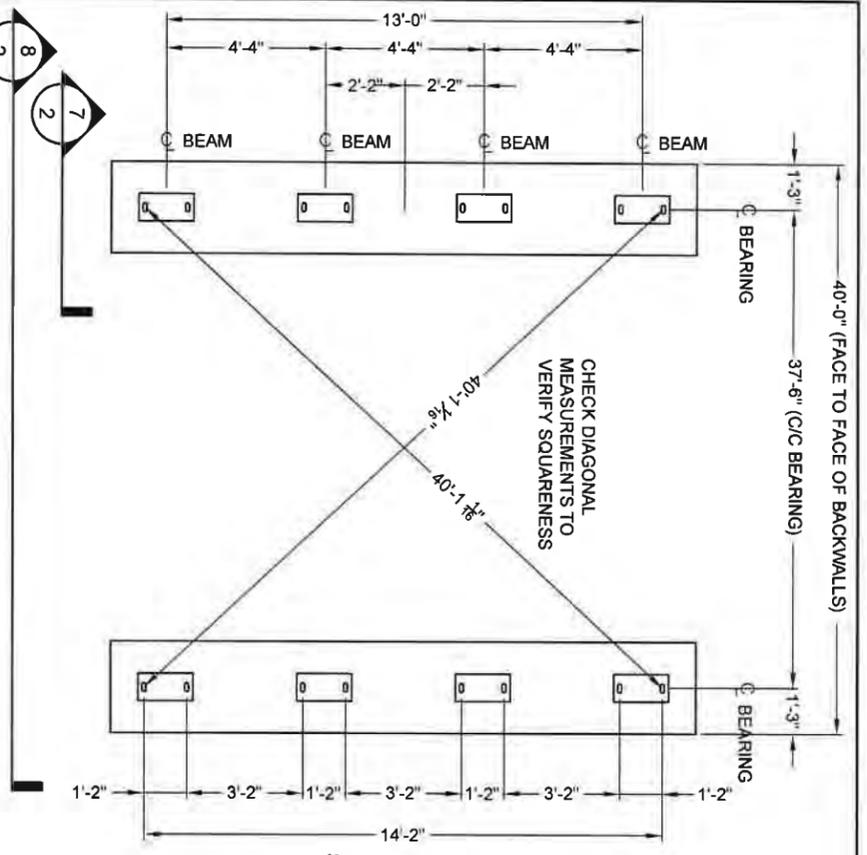
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 DRAWING

DATE	5/15/2015
DESIGNED	BAH
CHECKED	BAH
PROJECT NO.	520294
SHEET	1 OF 5

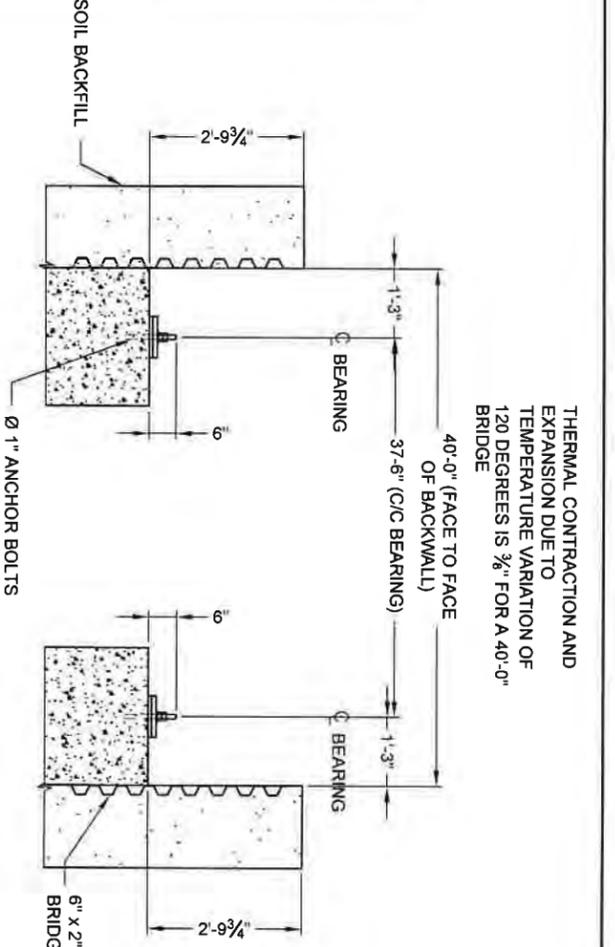
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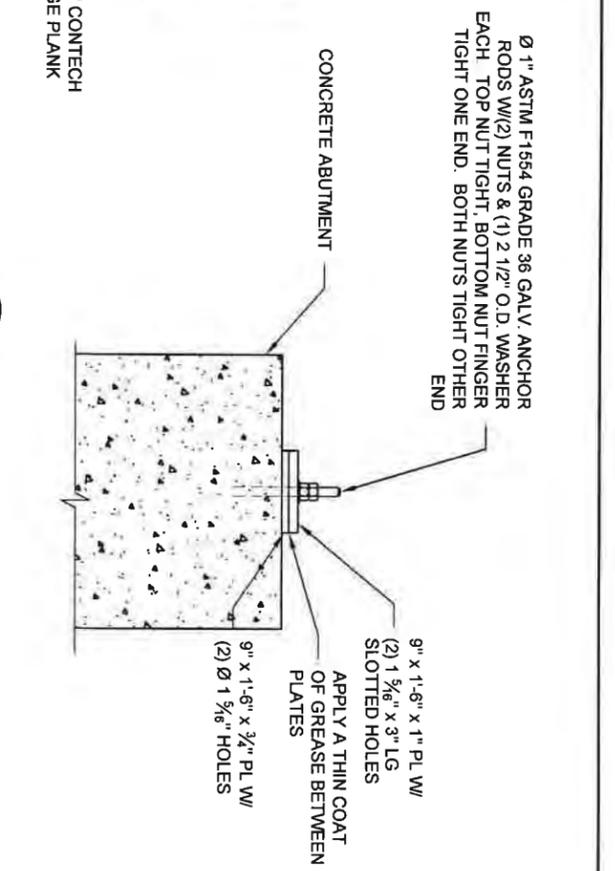
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ABUTMENT PLAN



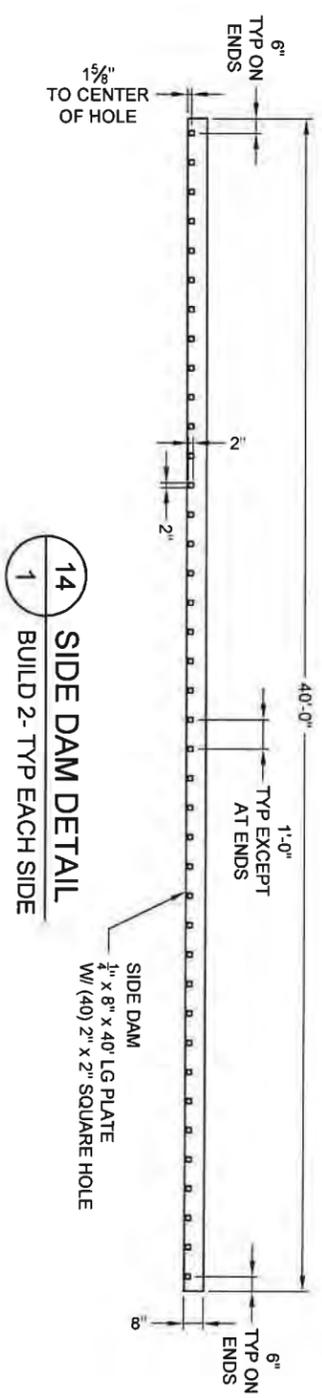
8 ABUTMENT SECTION



7 BEARING ASSEMBLY

GENERAL NOTES

1. ALL DESIGN STRESSES ARE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 6th EDITION, USING "LRFD BRIDGE DESIGN SPECIFICATIONS".
2. BRIDGE MEMBERS ARE FABRICATED FROM HIGH STRENGTH, LOW ALLOY, ENHANCED ATMOSPHERIC CORROSION RESISTANT ASTM A709W, ASTM A588, ASTM A606, OR ASTM A242 PLATE AND STRUCTURAL SHAPES (Fy=90,000 PSI).
3. FLUX CORED ARC WELDING OR GMAW PROCESS WILL BE USED. WELDING TO BE IN ACCORDANCE WITH AWS D1.5
4. ALL CONNECTION BOLTS SHALL BE 7/8" DIA. A325-SC TYPE 3 WITH A563 GR D43 HEAVY HEX NUTS AND F436 TYPE 3 WASHERS UNLESS NOTED. FIELD CONNECTIONS SHALL BE MADE USING THE "TURN-OF-NUT" TIGHTENING METHOD IN ACCORDANCE WITH AISC. *SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR M490 BOLTS.*
5. ANCHOR BOLTS TO BE GALVANIZED ASTM F1554 GRADE 36 WITH A563 NUTS AND F436 WASHERS.
6. THE BRIDGE SHALL BE FORMED WITH CONTECH GALVANIZED 1/4" x 12" 7 GA. BRIDGE PLANK. BRIDGE DECKING SHALL BE NOMINAL 4-INCH THICK SELECT STRUCTURAL FIR (Fb=1,500 PSI min). TIMBER DECK MATERIAL SHALL BE TREATED WITH ALKALINE COPPER QUATERNARY (ACQ) TO A 0.4 PCF RETENTION OR TO REFUSAL OR AZOLE BIOCIDES (MCA) TO A 0.06 PCF RETENTION OR TO REFUSAL
7. THE BRIDGE DECKING SHALL BE ATTACHED TO BRIDGE PLANKS USING 1/2" x 4 1/2" GALVANIZED CARRIAGE BOLTS.
8. CLEANING: ALL EXPOSED SURFACES OF STEEL SHALL BE CLEANED IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL SURFACES PREPARATION SPECIFICATIONS NO. 7 BRUSH-OFF BLAST CLEANING. SSPC-SP7-LATEST EDITION
9. 1/4" MINIMUM THICKNESS IS REQUIRED ON ALL STRUCTURAL MEMBERS



14 SIDE DAM DETAIL
1 BUILD 2- TYP EACH SIDE

DESIGN CRITERIA

- (1) DEAD LOAD CONSISTING OF STEEL SELFWEIGHT, BRIDGE PLANKING, AND BRIDGE DECK 4 INCH SELECT STRUCTURAL FIR
- (2) HL-93 AASHTO LIVE LOADING WITH U80 OVERLOAD
- (3) 300 PLF WIND LOADING
- (4) RAIL IMPACT LOAD OF 10,000 POUNDS IN ACCORDANCE WITH AASHTO

COMBINE REACTIONS AS PER LOCAL OR GOVERNING BUILDING CODES AS REQUIRED

BRIDGE REACTIONS	P (LBS)	H (LBS)	L (LBS)
DEAD LOAD	3,750		
UNIFORM LIVE LOAD	17,000		
VEHICLE LOAD	17,000		
WIND		6,000	

P - VERTICAL LOAD EACH BASE PLATE (6 PER BRIDGE)
 H - HORIZONTAL LOAD EACH FOOTING (2 PER BRIDGE)
 L - LONGITUDINAL LOAD EACH BASE PLATE (6 PER BRIDGE)
 BRIDGE LIFTING WEIGHT: 30,000 LBS

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CONTINENTAL BRIDGE

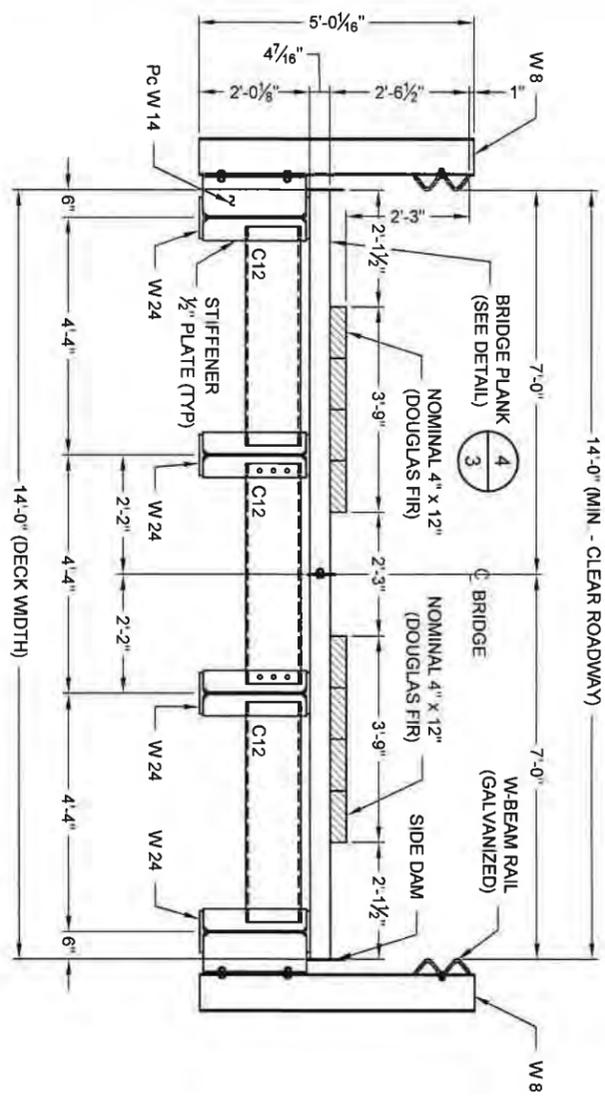
40'-0" x 14'-0"
DNR 15-76 BRIDGE
VEHICULAR BRIDGE
COLVILLE, WA

DATE	5/15/2015
DESIGNED	BAH
CHECKED	BAH
PROJECT NO.	S20294
SHEET	2 OF 5

SHOP NOTE:
INSTALL DOUG FIR USING (2) 1/2" x 4 1/2" LG GALVANIZED CARRIAGE BOLT W/ NUT AND WASHER AT EACH END OF PLANK.

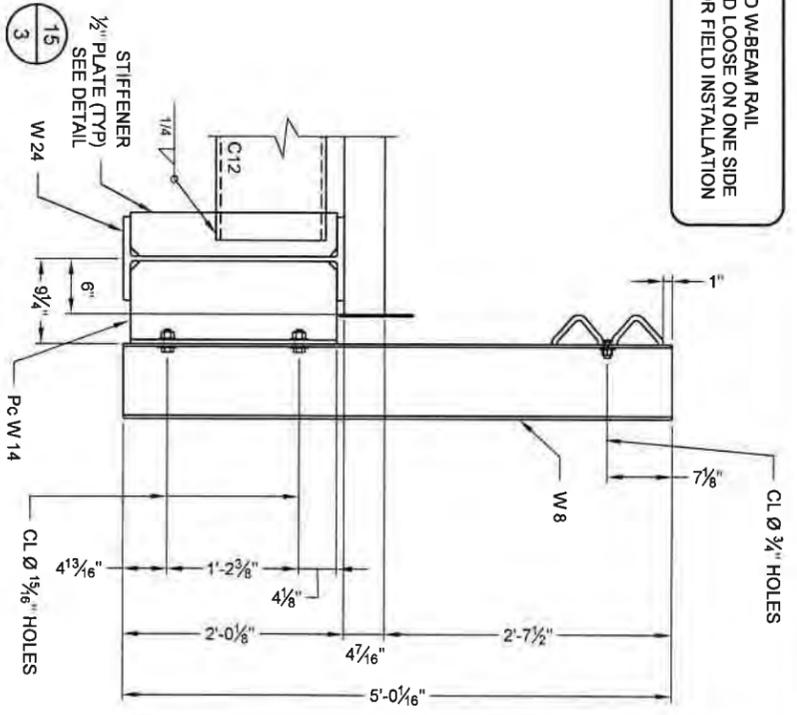
NOTICE:
RAIL POST AND W-BEAM RAIL TO BE SHIPPED LOOSE ON ONE SIDE OF BRIDGE FOR FIELD INSTALLATION BY OTHERS

NOTICE:
C12 DIAPHRAM LOCATED AT THE CENTER OF THE BRIDGE SHALL BE SHIPPED LOOSE FOR FIELD INSTALLATION BY OTHERS.



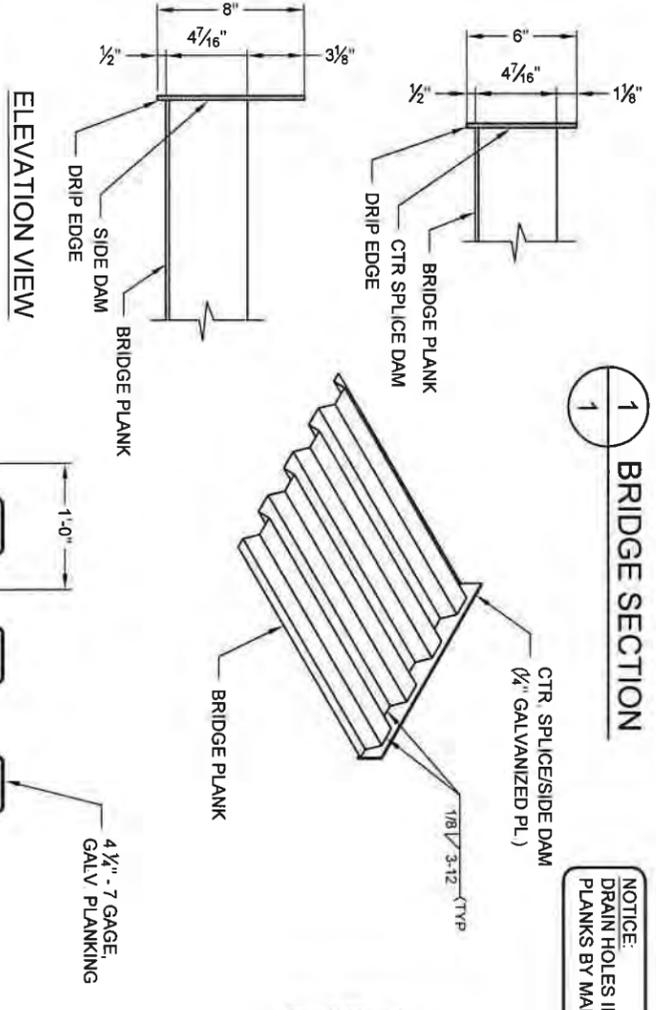
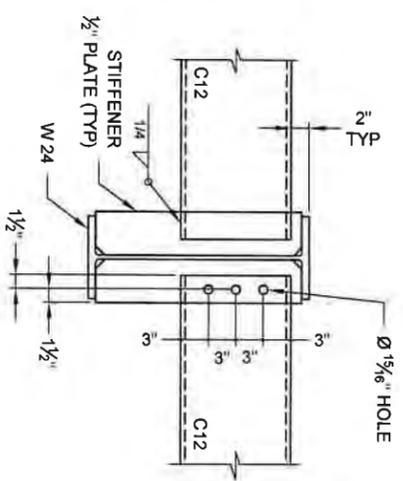
1 BRIDGE SECTION

NOTICE:
DRAIN HOLES IN BRIDGE PLANKS BY MANUFACTURER.



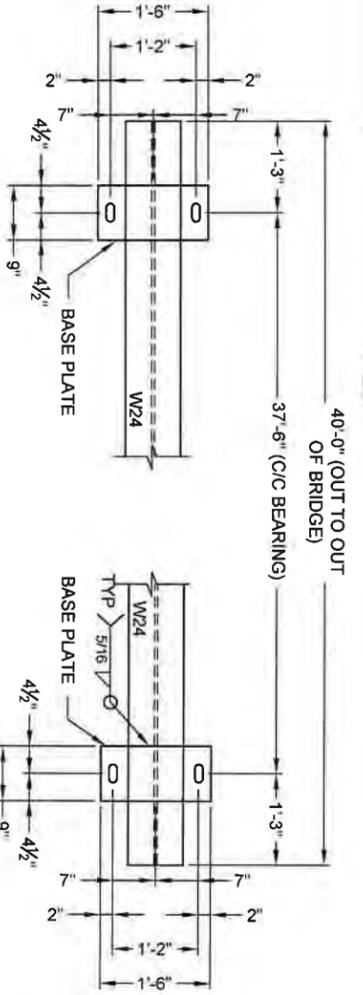
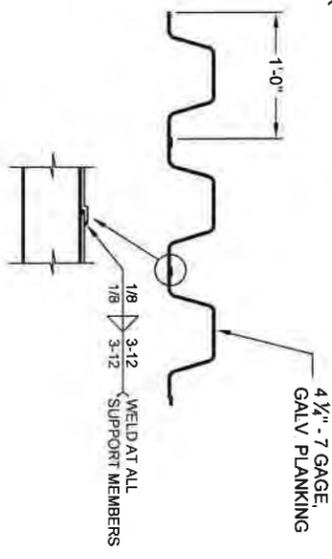
2 OUTRIGGER DETAIL

3 DIAPHRAM DETAIL

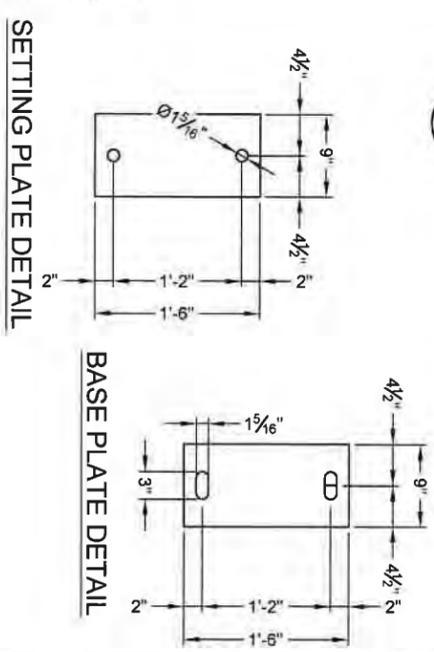


ELEVATION VIEW

SHOP NOTE:
INSTALLATION SHALL BE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AND THE MANUFACTURERS RECOMMENDATIONS.

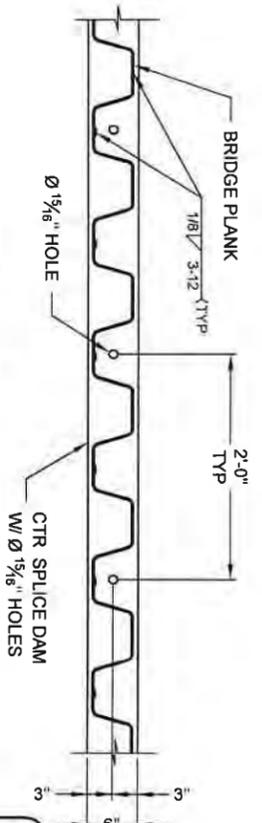


5 FLOOR BEAM BEARING DETAIL



SETTING PLATE DETAIL

BASE PLATE DETAIL



6 CTR SPLICE DAM DETAIL

QUALITY ASSURANCE NOTES

1. ALL WELDS TO BE VISUALLY INSPECTED.
2. MATERIAL WILL CERTIFICATIONS REQUIRED.

NOTICE:
CENTER SPLICE DAMS TO BE FIELD BOLTED TOGETHER WITH Ø 1 1/4" ASTM A325 BOLTS

FABRICATION DRAWING



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8301 State Highway 29 North, Alexandria, MN 56308
800-328-2047 320-852-7500 320-852-7067 FAX

CONTINENTAL BRIDGE

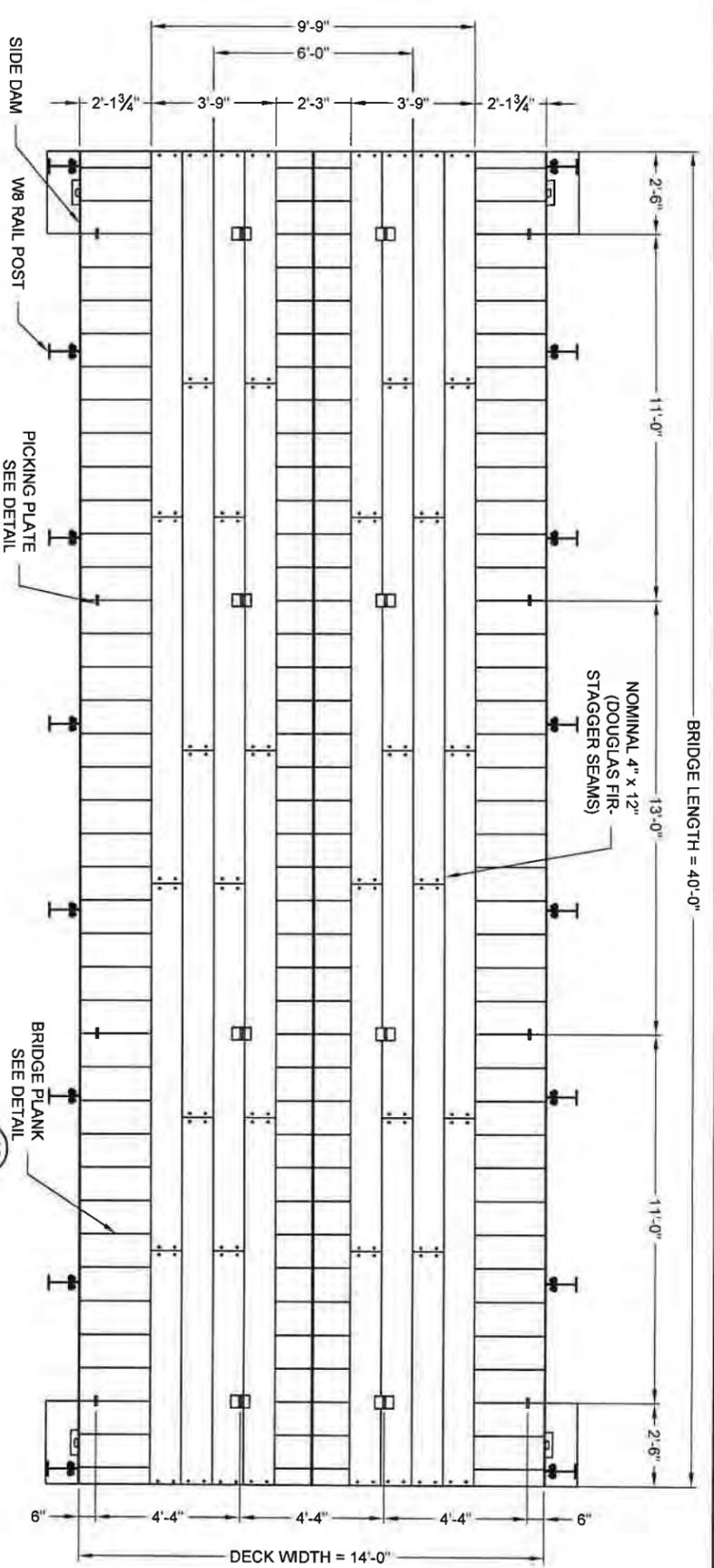
DATE: 5/15/2015
DESIGNED: BAH
CHECKED: BAH
PROJECT No.: 520294
SEQUENCE No.: 10.30
SHEET: 3 OF 5

40'-0" x 14'-0"
DNR 15-76 BRIDGE
VEHICULAR BRIDGE
COLVILLE, WA

MARK	DATE	REVISION DESCRIPTION	BY

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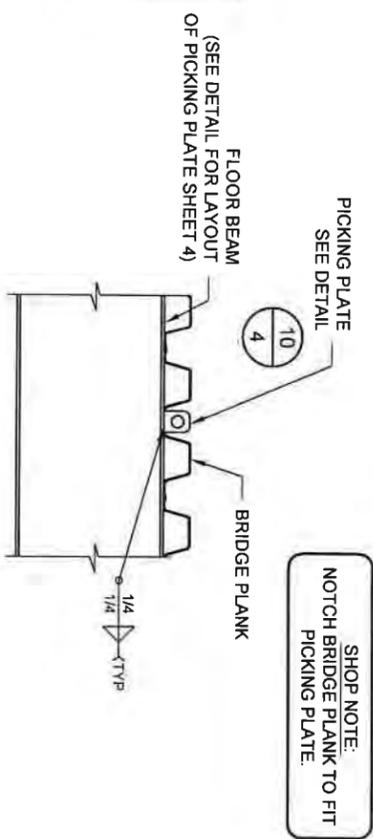
9
4

12
4

DECK PLAN

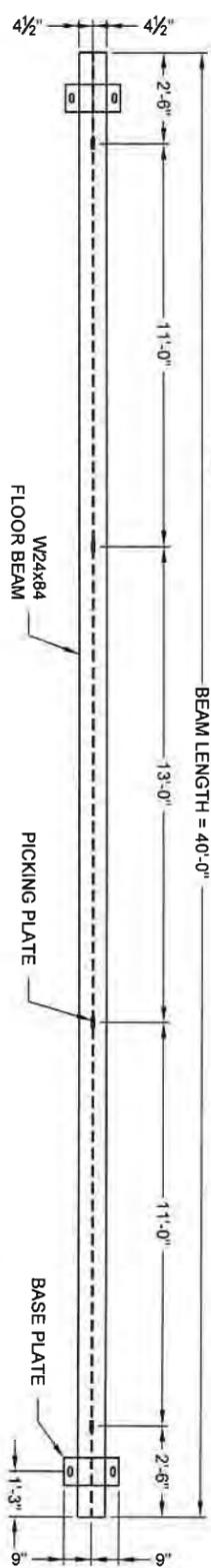
BEAM LENGTH = 40'-0"

9 PICKING PLATE DETAIL



SHOP NOTE:
NOTCH BRIDGE PLANK TO FIT PICKING PLATE

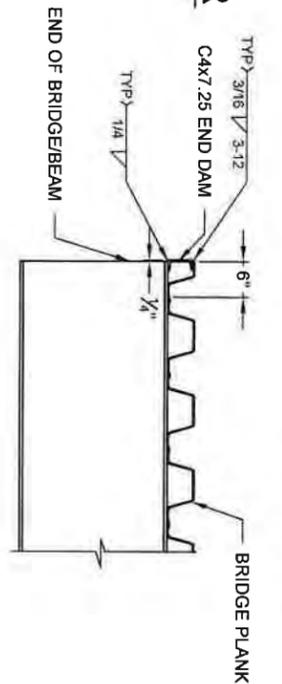
NOTICE:
PICKING PLATE TO BE USED WITH A CLEVIS SHACKLE. (BY OTHERS)



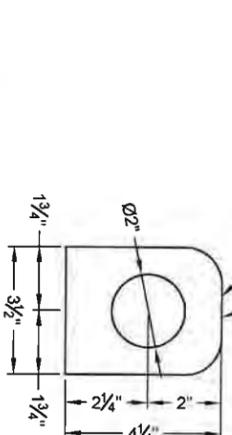
PICKING PLATE EXTERIOR FLOOR BEAM LAYOUT

SHOP NOTE:
LAYOUT OF DECKING IS BASED ON BOARD LENGTHS OF 11'-11 1/4"

12 END PLANK DETAIL



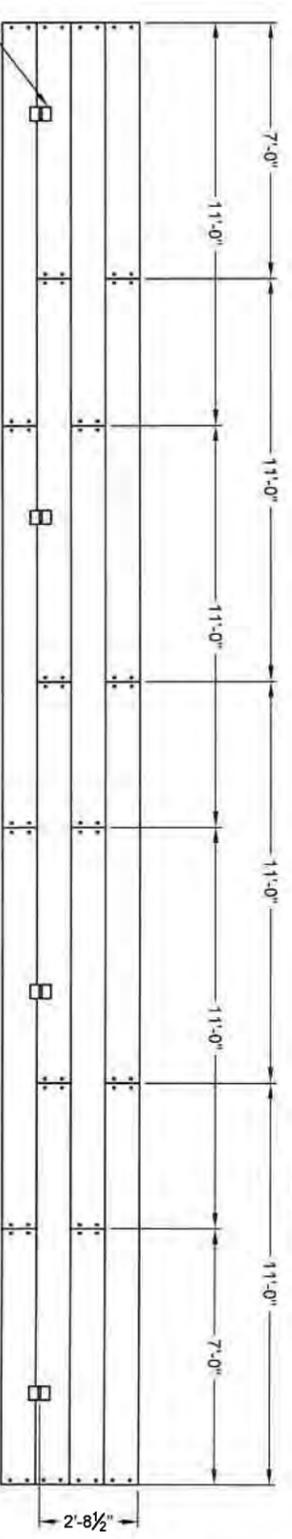
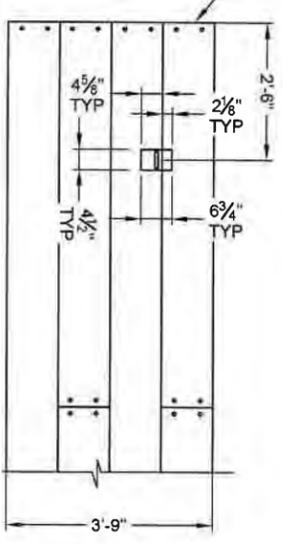
10 PICKING PLATE DETAIL



NOMINAL 4" x 12" (DOUGLAS FIR-STAGGER SEAMS SEE DETAIL)

13
4

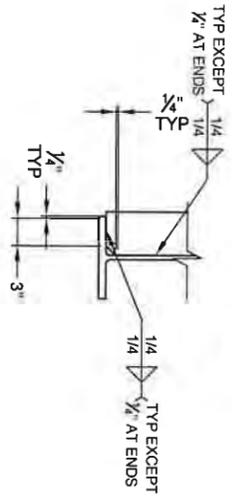
11 DECKING NOTCH DETAIL



13 DECK LAYOUT

13
4

15 STIFFENER WELD DETAIL



3

CONTECH FABRICATION DRAWING



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800-326-2047 320-852-7500 320-862-7067 FAX

CONTINENTAL BRIDGE

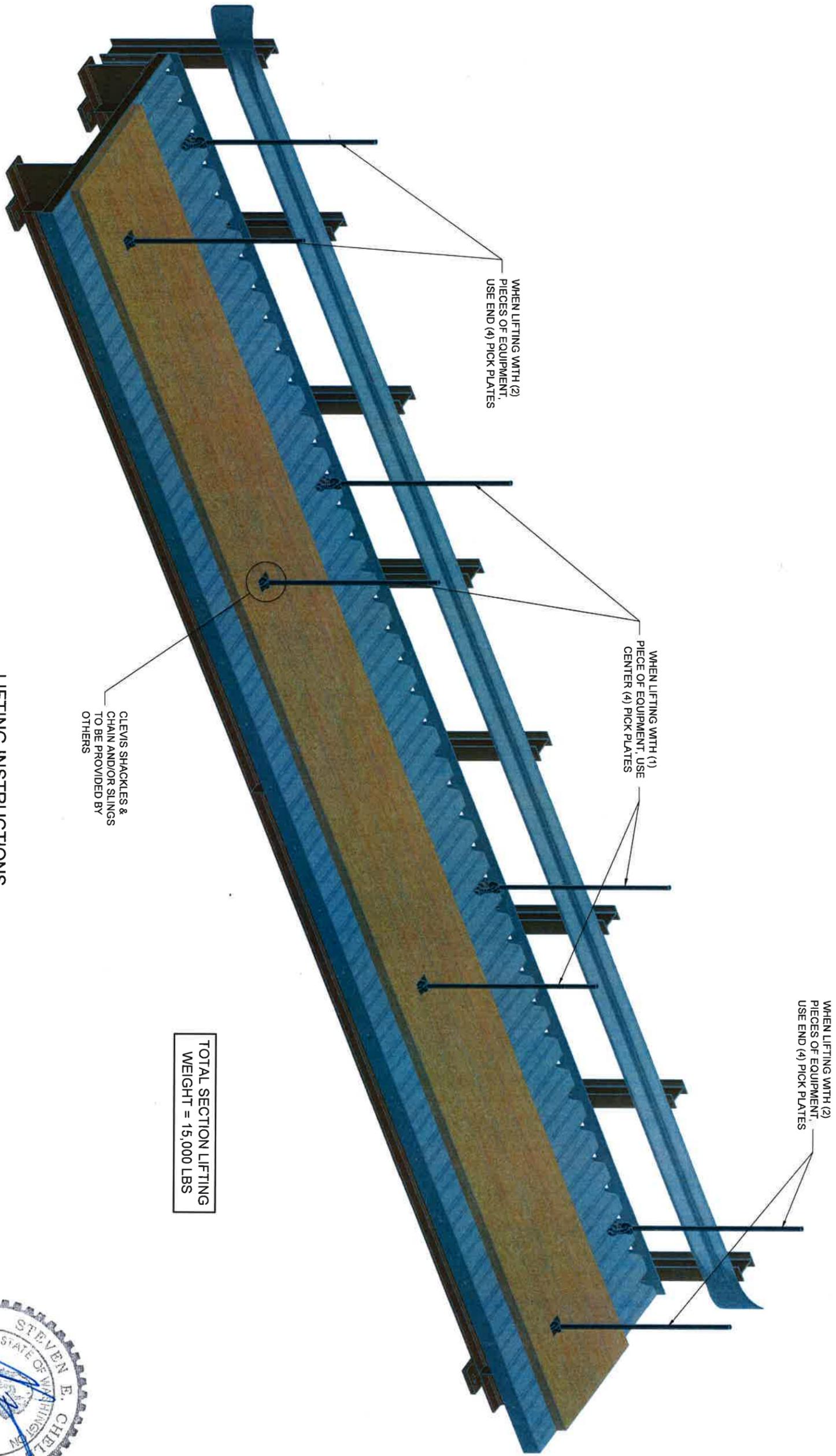
DATE: 5/15/2015
DESIGNED: BAH
CHECKED: BAH
PROJECT NO.: 520294
SEQUENCE NO.: 10.30
SHEET: 4 OF 5

40'-0" x 14'-0"
DNR 15-76 BRIDGE
VEHICULAR BRIDGE
COLVILLE, WA

MARK	DATE	REVISION DESCRIPTION	BY

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LIFTING INSTRUCTIONS

TOTAL SECTION LIFTING WEIGHT = 15,000 LBS

WHEN LIFTING WITH (2) PIECES OF EQUIPMENT, USE END (4) PICK PLATES

CONTECH FABRICATION DRAWING

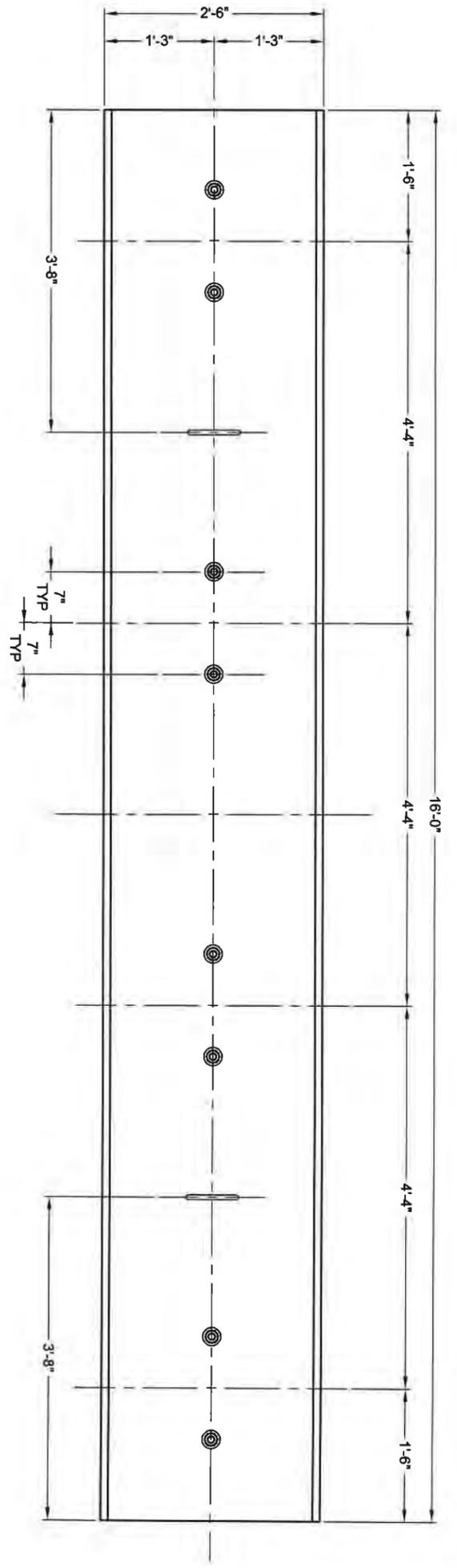


CONTECH ENGINEERED SOLUTIONS LLC www.ContechES.com 8301 State Highway 28 North, Alexandria, MN 56308 800-328-2047 320-852-7500 320-852-7067 FAX		40'-0" x 14'-0" DNR 15-76 BRIDGE VEHICULAR BRIDGE COLVILLE, WA	
DATE: 5/20/2015 DESIGNED: BAH CHECKED: BAH PROJECT NO: 520294 SHEET: 5 OF 5	DRAWN: RJP APPROVED: BAH SEQUENCE NO: 10.30		

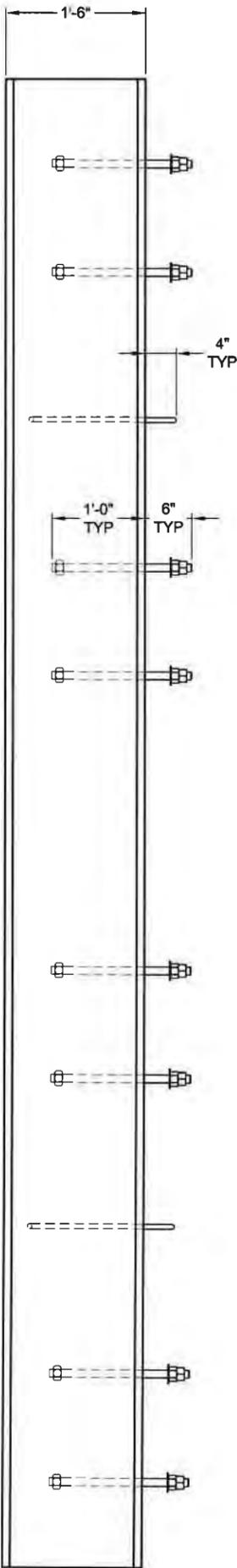
MARK	DATE	REVISION DESCRIPTION	BY

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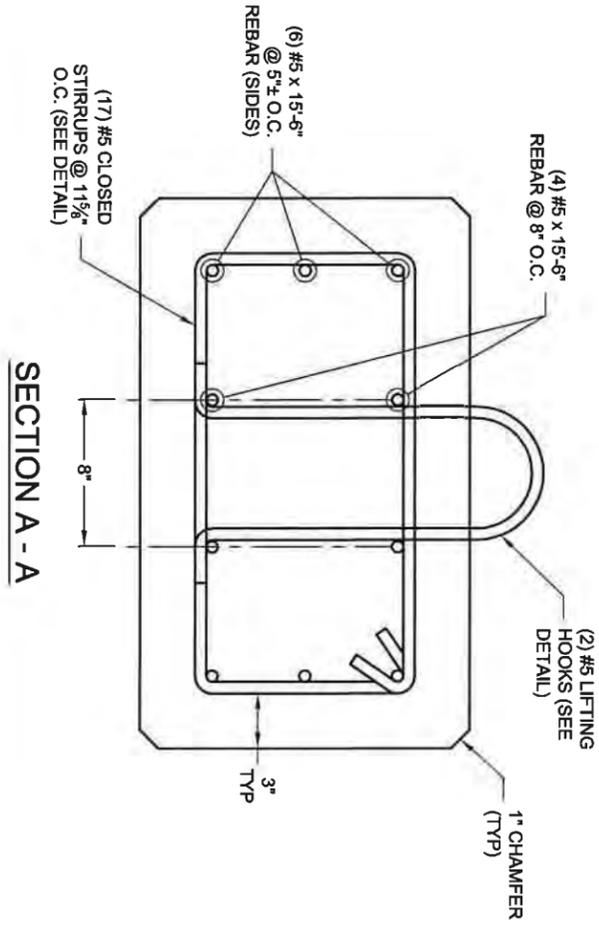
If discrepancies between the supplied information upon which the drawing is based and actual field conditions are encountered as site work progresses, these discrepancies must be reported to Contech immediately for re-evaluation of the design. Contech accepts no liability for designs based on missing, incomplete or inaccurate information supplied by others.



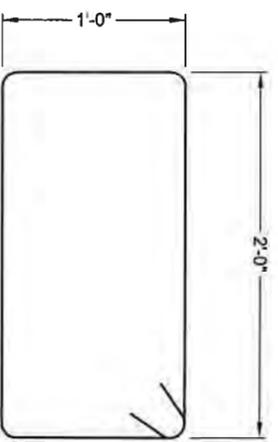
BRIDGE SILL PLAN



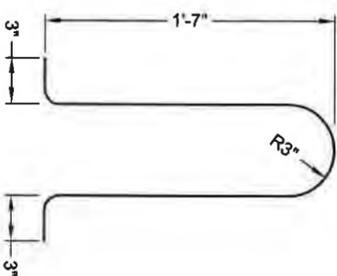
BRIDGE SILL ELEVATION



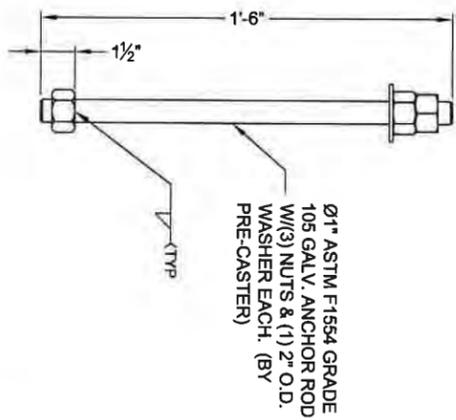
SECTION A - A



CLOSED STIRRUP
(17) REQ'D



LIFTING HOOK
(2) REQ'D



ANCHOR ROD DETAIL
(8) REQ'D

QUANTITIES SHOWN ARE FOR (1) BRIDGE SILL.
BUILD (4) TOTAL
(2) 520294-040
(2) 520294-050

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DRAWING
FABRICATION



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CONTINENTAL
BRIDGE

PRECAST BRIDGE SILL
DNR 15-76 BRIDGE
VEHICULAR BRIDGE
COLVILLE, WA

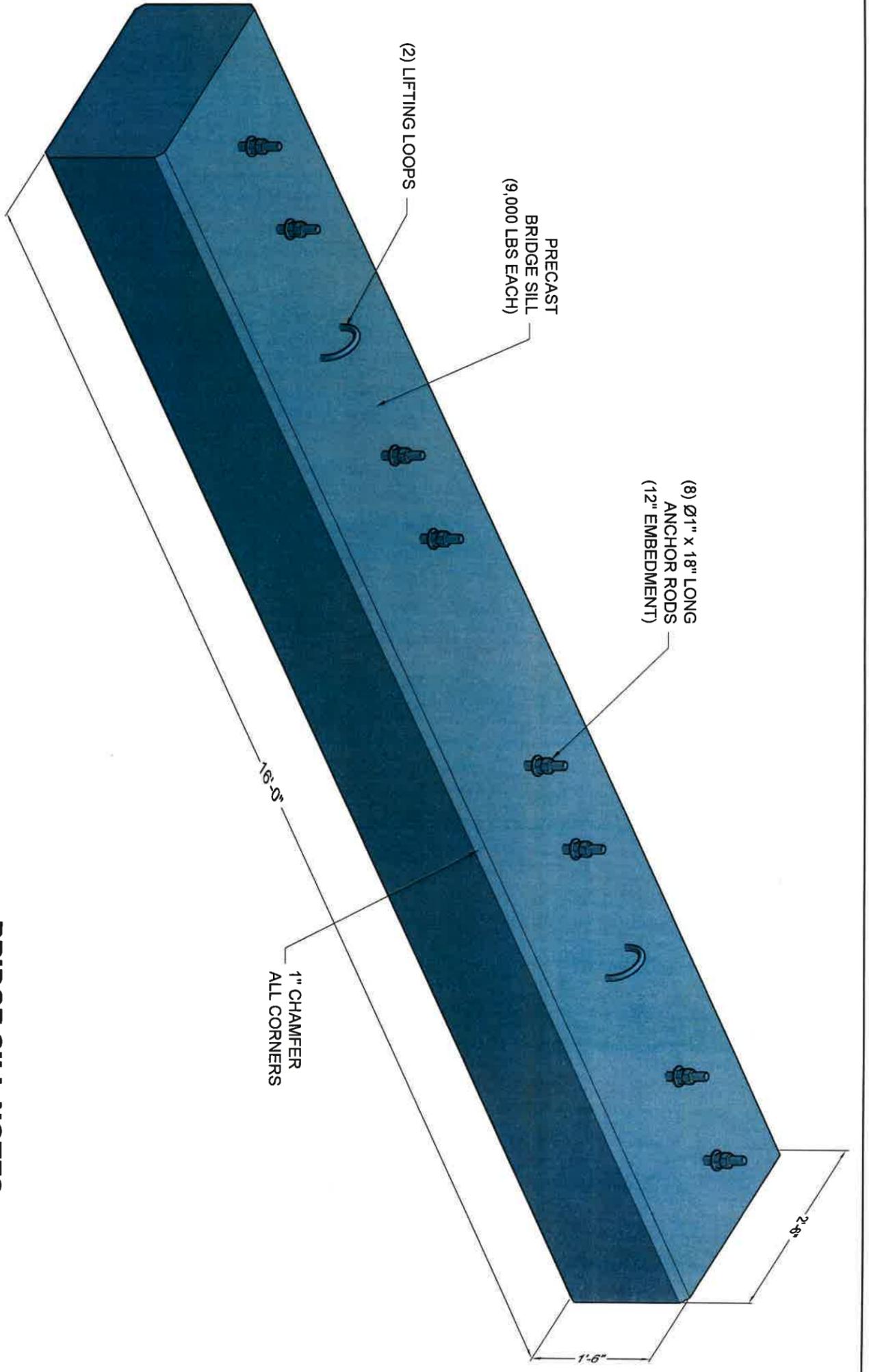
MARK	DATE	REVISION DESCRIPTION	BY

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DATE: 5/19/2015

DESIGNED: BAH	DRAWN: RJP
CHECKED: AKH	APPROVED: BAH
PROJECT No.: 520294	SEQUENCE No.: 40.50
SHEET: 1	OF: 2



BRIDGE SILL NOTES

1. BAR REINFORCEMENT SHALL BE GRADE 60 MINIMUM AND CONFORM TO THE REQUIREMENTS OF ASTM A 615.
2. CONCRETE BEAM AND REINFORCING TO BE AS SHOWN ON DRAWINGS AND TO BE FURNISHED AND INSTALLED BY PRE-CASTER. THE COMPRESSIVE STRENGTH OF THE CONCRETE (f_c) MUST BE A MINIMUM OF 4,000 PSI (28 DAY STRENGTH). BEAM IS DESIGNED FOR REGULAR WEIGHT (145 PCF) CONCRETE WITH A MAXIMUM AGGREGATE SIZE OF 3/4".
3. CONCRETE COVER OF 3" AROUND REINFORCEMENT SHALL BE STRICTLY MAINTAINED.
4. CONCRETE DESIGN, QUALITY, MIXING, AND PLACING SHALL BE IN ACCORDANCE WITH BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE ACI 301-05.
5. COMPRESSION TEST SPECIMENS SHALL BE TAKEN DURING CONSTRUCTION TO INSURE COMPLIANCE WITH CONCRETE STRENGTH REQUIREMENTS. EVALUATION AND ACCEPTANCE OF THE COMPRESSIVE STRENGTH OF CONCRETE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 318-08, CHAPTER 5 "CONCRETE QUALITY, MIXING, AND PLACING." ALL CONCRETE WHICH FAILS TO MEET THE ACI REQUIREMENTS IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE COST OF THE CONTRACTOR.

QUANTITIES SHOWN ARE FOR (1) BRIDGE SILL.
 BUILD (4) TOTAL
 (2) 520294-040
 (2) 520294-050

CONTECH
 FABRICATION
 DRAWING



MARK	DATE	REVISION DESCRIPTION	BY

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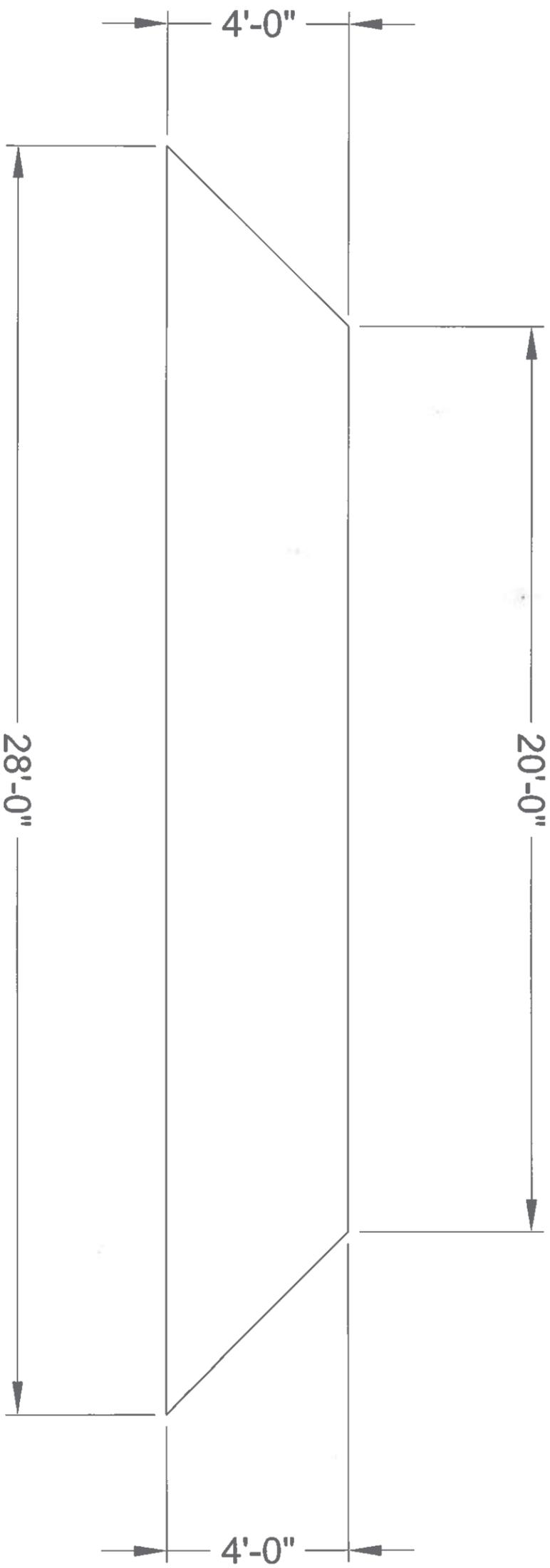
If discrepancies between the supplied information upon which the drawing is based and actual field conditions are encountered as site work progresses, these discrepancies must be reported to Contech immediately for re-evaluation of the design. Contech accepts no liability for designs based on missing, incomplete or inaccurate information supplied by others.

PRECAST BRIDGE SILL
 DNR 15-76 BRIDGE
 VEHICULAR BRIDGE
 COLVILLE, WA

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CONTINENTAL
 BRIDGE

DATE	5/19/2015
DESIGNED	BAH
CHECKED	AKH
PROJECT No.	520294
SHEET	2 OF 2



2 PER BRIDGE

Approved for Construction
[Signature]
5/22/2015

Sale Name Hawk SUMMARY - Road Development Costs

REGION: Northeast

CONTRACT #: 30-091864 ENGINEER: Gene Gibbs

DISTRICT: North Columbia

DATE: 3/10/2016

	<i>Construction</i>	<i>Reconstruction</i>	<i>Maintenance</i>	<i>Deactivation</i>	
ROAD NUMBERS:	E333816M, E333815E, E333816E, E333809J, E333814Q	E333804A, E333809B, E333809E, E333816E, E333816F, E333816G, E333816J, E333816K, E333816L, E333815E	E333804A, E333816G,	E333816F, E333815E	Additional Items Contract Engineering Bridge Design \$5000 Contract Bearing strength testing \$2250 Geotetile \$5000
ROAD STANDARD:	<i>Construction</i>	<i>Reconstruction</i>	<i>Maintenance</i>	<i>Deactivation</i>	<i>Additional Items</i>
NUMBER OF STATIONS:	88.05	397.13	182.01	21.25	
CLEARING & GRUBBING:	\$2,484	\$10,506			
EXCAVATION AND FILL:	\$37,758	\$30,935		\$638	\$12,250
MISC. MAINTENANCE:	\$587	\$24,186	\$3,279		
ROAD ROCK:	\$2,775	\$24,168	\$4,350		
ADDITIONAL ROCK:					
CULVERTS AND FLUMES:	\$5,004	\$8,775	\$300		
STRUCTURES/MATERIALS:					

TOTAL COSTS:	\$48,607	\$98,569	\$7,929	\$638	\$12,250
<i>COST PER STATION:</i>	\$552	\$248	\$44	\$30	\$0

	\$/per move	# of moves	Total
MOBILIZATION:	\$300	6	\$1,800

TOTAL (All Roads) = \$169,793
SALE VOLUME mbf = 7,418
TOTAL \$/MBF = \$23

Engineer's Notes: Reconstruction includes bridge installation estimate under Misc. Maintenance. Additional Items includes \$5000 for contracting bridge design, \$2250 for contracting bearing strength testing and \$5000 for geotextile.