WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

TIMBER NOTICE OF SALE

***SALE NAME**: OL STRINGER* ***AGREEMENT NO**: 30-99196*

AUCTION: March 25, 2020 starting at 10:00 a.m., Olympic Region Office, Forks, WA

COUNTY: Jefferson

SALE LOCATION: Sale located approximately 20 miles Southeast of Forks

PRODUCTS SOLD AND SALE AREA: All trees except trees with a band of blue paint or bounded out by leave tree area tags, timber that has been on the ground for five years or more shall be left undisturbed and not yarded, (five years is defined by more than 1.5 inches of sap rot), in no instance shall downed red cedar be removed from the sale area, bounded by timber sale boundary tags and the H-3220 in Unit 1,2,3,4, 5 and 6; all timber bounded out by right-of-way boundary tags on part(s) of Sections 10, 11 and 14 all in Township 27 North, Range 12 West, W.M., containing 168 acres, more or less.

CERTIFICATION: This sale is certified under the Sustainable Forestry Initiative® program Standard (cert no: PwC-SFIFM-513)

ESTIMATED SALE VOLUMES AND QUALITY:

Species	Avg DBH	Ring Count	Total MBF	MBF by Grade 1P	2P	3P	SM	1S	2S	3S	4S	UT
Douglas fir	17.1	6	2,812						1,112	1,273	312	115
Hemlock	13.8	5	1,925						196	1,416	297	16
Silver fir	13.7		94						31	54	9	
Red alder	11		77								62	15
Spruce	11		7								7	
Red cedar	16		6							5	1	
Sale Total			4,921									

MINIMUM BID: $812,000.00

BID METHOD: Sealed Bids

PERFORMANCE SECURITY: $100,000.00

SALE TYPE: Lump Sum

EXPIRATION DATE: October 31, 2023

ALLOCATION: Export Restricted

BID DEPOSIT: $81,200.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Ground 29% - Tethered/Cable 71%
No rubber tire skidders will be allowed unless skid trail and rutting requirements can be met and a harvest plan is submitted and approved. 30' Equipment Limitation Zones on all typed waters.

ROADS: 5.70 stations of optional construction. 337.50 stations of optional prehaul maintenance.
From October 1 - June 30, there will be no bridge removals on the H-3200, stations 32+50 & 44+10) or bridge repair work on the H-3220, station (10+50).
From October 15 - April 15, there will be no Road maintenance activities on the H-3220, Stations 0+00 -160+20.

On the H-3220, Stations 0+00 - 9+00 and the H-3204, Stations 9+00- 29+00, right of way timber falling, yarding and operation of heavy equipment must be performed during the limited operating period (two hours after sunrise to two hours before sunset) during the murrelet nesting season (April 1 through September 23).

ACREAGE DETERMINATION

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

FEES: $83,657.00 is due on day of sale. $9.00 per MBF is due upon removal. These are in addition to the bid price.

SPECIAL REMARKS: There are locked gates on the H-3102 and on Windfield North and South Pit gates. Contact Olympic Region Dispatch Center at 360-374-2800 to check out an AA-1 key.

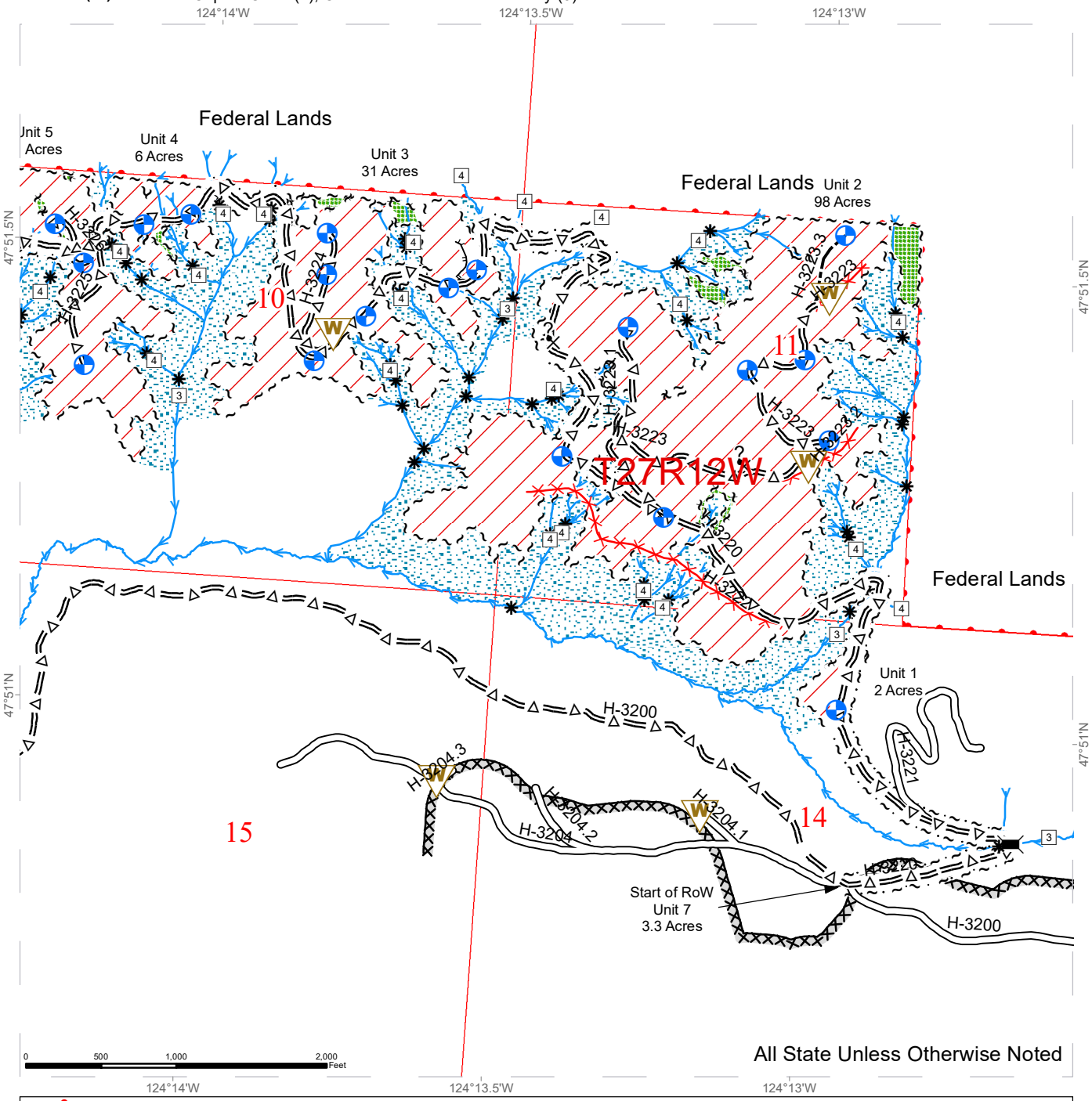
Required Bridge and Culvert removal operational period on the H-3200, stations 32+50, 34+00, 36+60 , 40+60 and 44+10 is from July 1-September 30.

From October 15 - April 15, there will be no Road maintenance activities on the H-3220, Stations 0+00 -160+20.

TIMBER SALE MAP

SALE NAME: OL STRINGER
AGREEMENT #: 30-099196
TOWNSHIP(S): T27R12W
TRUST(S): Capitol Grant (7), Common School and Indemnity (3)

REGION: Olympic Region
COUNTY(S): Jefferson
ELEVATION RGE: 960'-2160'



DNR Managed Lands	Stream Type	Riparian Mgt Zone
Variable Retention Harvest	Stream Type Break	Streams
Sale Boundary Tags	Bridge	Existing Roads
Leave Tree Tags	Landing - Proposed	Orphaned Road
Right of Way Tags	Potential Rock Source	Optional Pre-Haul Maintenance
Property Line		Optional Construction
Timing Restriction	Waste Area	Designated Skid Trail
	Leave Tree Area	

* All Streams Are Type 5's Unless Otherwise Labeled.

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Prepared By: kale490

Modification Date: kale490 1/7/2020

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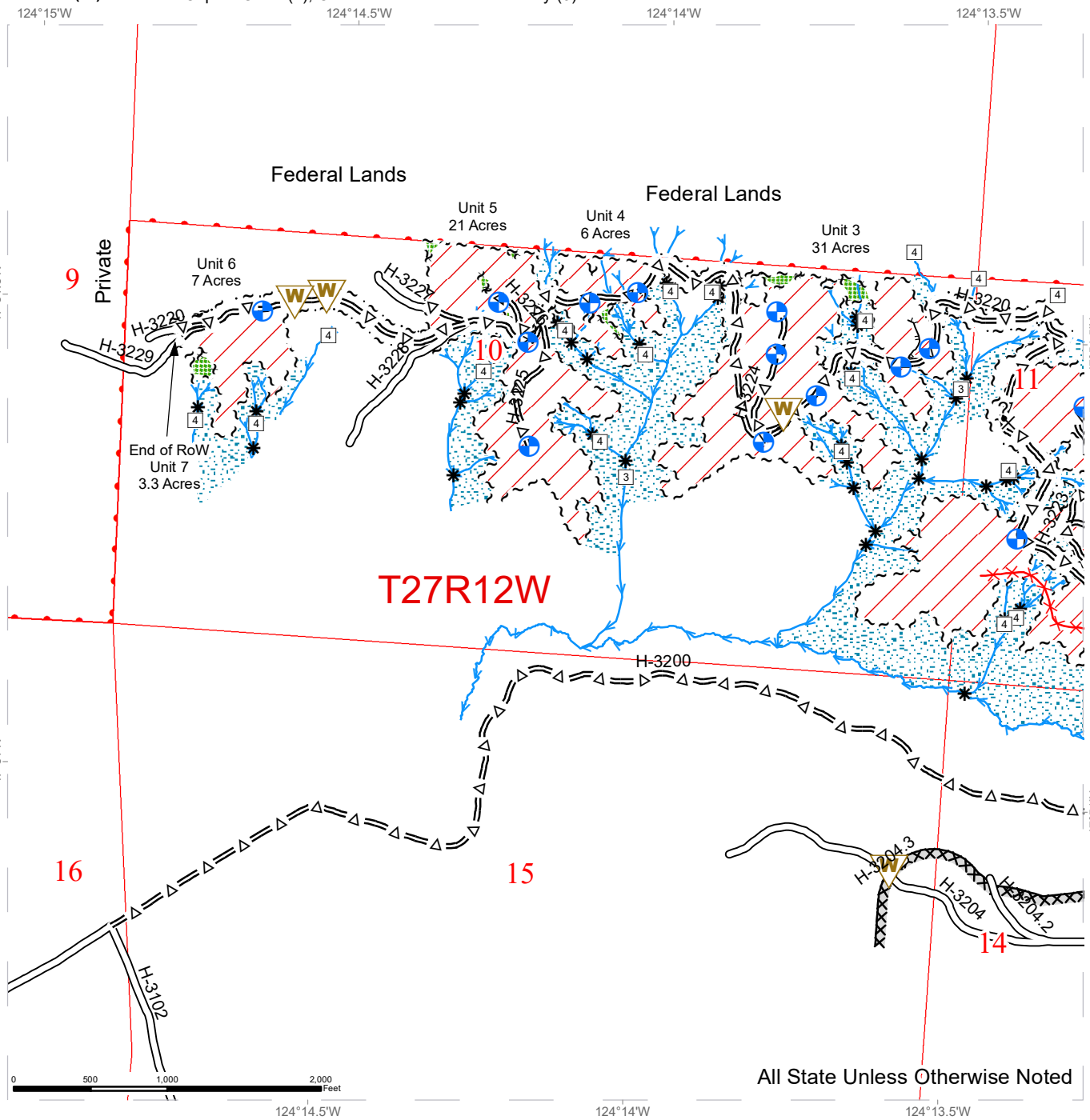

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DRIVING MAP

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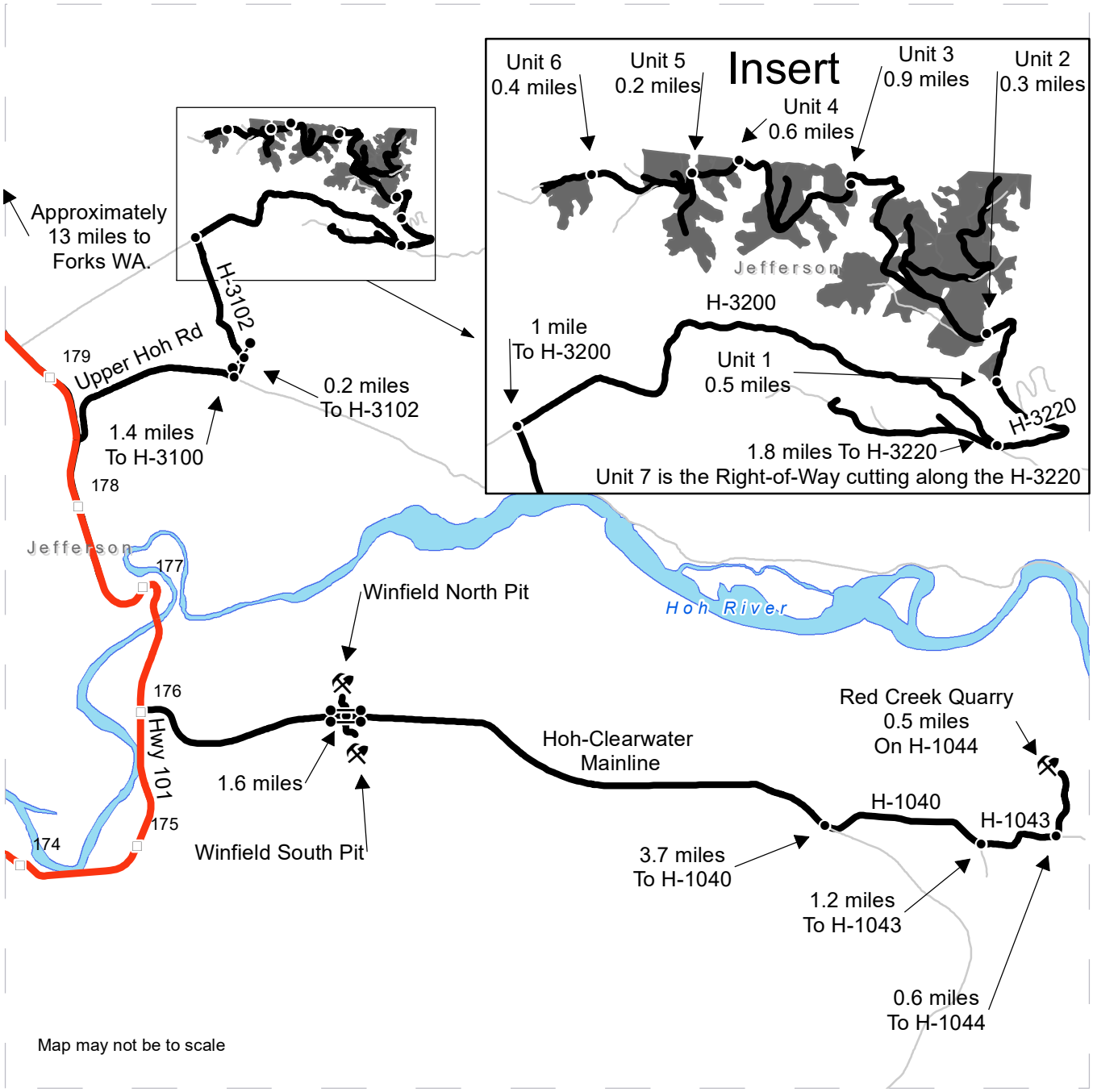

- Timber Sale Unit
- Other Route
- Haul Route
- Highway 101
- Milepost Markers
- Distance Indicator
- Gate
- Rock Pit
- Open Water

To the Harvest Units:
From Forks WA travel approximately 13 miles south on Hwy 101 to the Upper Hoh Rd and turn left. Travel 1.4 miles to the H-3100 and turn left. Continue 0.2 miles to the H-3102 and turn left. Travel 1 mile to the H-3200 and turn right. Continue 1.8 miles to the H-3220 and turn left. Travel 0.5 miles on the H-3220 to unit 1. Continue 0.3 miles to Unit 2, another 0.9 miles to unit 3, another 0.6 miles to unit 4, another 0.2 miles to unit 5, and a final 0.4 miles to unit 6.

To the Pits:
Continue on Hwy 101 past the Upper Hoh Rd approximately 2.5 miles to the Hoh-Clearwater Mainline and turn left. Continue 1.6 miles to the entrances of the Winfield Pits (left for the North pit and right for the South pit). Continue on the mainline for 3.7 miles to the H-1040 and turn left. Travel 1.2 miles to the H-1043 and turn left. Continue 0.6 miles to the H-1044 and turn Left. Red Creek Quarry is 0.5 miles up the H-1044.

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Prepared By: kale490

Modification Date: kale490 11/4/2019

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

BILL OF SALE AND CONTRACT FOR FOREST PRODUCTS

Export Restricted Lump Sum AGREEMENT NO. 30-099196

SALE NAME: OL STRINGER

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 into a Bill of Sale and Contract for Forest Products with the State for the right to harvest and remove forest products from the timber sale area.

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

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

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

G-011 Right to Remove Forest Products and Contract Area

Purchaser was the successful bidder on March 25, 2020 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 trees except trees with a band of blue paint or bounded out by leave tree area tags, timber that has been on the ground for five years or more shall be left undisturbed and not yarded, (five years is defined by more than 1.5 inches of sap rot), in no instance shall downed red cedar be removed from the sale area, bounded by timber sale boundary tags and the H-3220 in Unit 1,2,3,4, 5 and 6; all timber bounded out by right-of-way boundary tags, located on approximately 168 acres on part(s) of Sections 10, 11, and 14 all in Township 27 North, Range 12 West W.M. in Jefferson County(s) as designated on the sale area and as shown on the attached timber sale map.

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

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

G-020 Inspection By Purchaser

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

G-025 Schedules

The following attached schedules are hereby incorporated by reference:

Schedule	Title
A	SLASH PILING SPECS
B	GREEN TREE RETENTION PLAN

G-031 Contract Term

Purchaser shall complete all work required by this contract prior to October 31, 2023.

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 $761.00 per acre per annum for the acres on which an operating release has not been issued .

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

g. Extension payments are non-refundable.

G-053 Surveys - Sensitive, Threatened, Endangered Species

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

G-060 Exclusion of Warranties

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

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

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

c. The ACREAGE contained within any sale area. Any acreage descriptions appearing in the timber notice of sale, timber sale contract, or other documents are estimates only, provided solely for administrative and identification purposes.

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

e. The CORRECTNESS OF ANY SOIL OR SURFACE CONDITIONS, PRE-SALE CONSTRUCTION APPRAISALS, INVESTIGATIONS, AND ALL

OTHER PRE-BID DOCUMENTS PREPARED BY OR FOR THE STATE. These documents have been prepared for the State's appraisal purposes only.

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

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

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

G-062 Habitat Conservation Plan

The State has entered into a Habitat Conservation Plan (HCP) with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (the Services) to address state trust land management issues relating to compliance with the Federal Endangered Species Act. The activities to be carried out under this contract are located within the State's HCP area and are subject to the terms and conditions of the HCP, and the Services' Incidental Take Permit Nos. TE812521-1 and 1168 (collectively referred to as ITP), or as amended hereafter by the Services. The ITP authorizes the incidental take of certain federally listed threatened and endangered species, as specified in the ITP conditions. All HCP materials, including the ITP, are available for review at the State's Regional Offices and the administrative headquarters in Olympia, Washington.

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

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

G-063 Incidental Take Permit Notification Requirements

a. Purchaser shall immediately notify the Contract Administrator of new locations of permit species covered by the Incidental Take Permits (ITP) that

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

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

c. Purchaser shall refer to a specific ITP number, ITP TE812521-1 or ITP 1168 (copies which are located in the region office) in all correspondence and reports concerning permit activities.

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

G-064 Permits

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

G-065 Regulatory Disclaimer

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

G-066 Governmental Regulatory Actions

a. Risk

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

b. Sale Area

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

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

c. Adjustment of Price

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

G-070 Limitation on Damage

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

G-080 Scope of State Advice

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

under the contract. Purchaser retains the final responsibility for its operations under this contract and State shall not be liable for any injuries resulting from Purchaser's reliance on any State advice regarding the method or manner of performance.

G-091 Sale Area Adjustment

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

G-101 Forest Products Not Designated

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

Contract Item	Appraised Price	Overbid Factor	Price	Fees	Contract Payment Rate
Douglas fir	$180.78	0	$0.00	$9.00	$9.00
Hemlock	$143.83	0	$0.00	$9.00	$9.00
Red alder	$137.98	0	$0.00	$9.00	$9.00
Red cedar	$279.10	0	$0.00	$9.00	$9.00
Silver fir	$147.54	0	$0.00	$9.00	$9.00
Spruce	$84.50	0	$0.00	$9.00	$9.00
Other	$187.44	0	$0.00	$9.00	$9.00

G-106 Adding Naturally Damaged Forest Products

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

G-111 Title and Risk of Loss

Title to the forest products under this contract passes to the Purchaser after they are removed from the sale area, if adequate advance payment or payment security has been provided to the State under this contract. Purchaser bears all risk of loss of, or damage to, and has an insurable interest in, the forest products described in this contract from

the time the sale is confirmed under RCW 79.15.120. Breach of this contract shall have no effect on this provision.

G-116 Sustainable Forestry Initiative® (SFI) Certification

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

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

G-120 Responsibility for Work

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

G-121 Exceptions

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

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

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

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

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

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

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

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

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

G-140 Indemnity

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

G-150 Insurance

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

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

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

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

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

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

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

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

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

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

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

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

that include, but are not limited to, fire suppression expenses, accidental timber trespasses, and wildfire property damage with limits of not less than $2,000,000.00 each occurrence.

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

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

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

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

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

G-160 Agents

The State's rights and duties will be exercised by the Region Manager at Forks, Washington. The Region Manager will notify Purchaser in writing who is responsible for administering the contract. The Region Manager has sole authority to waive,

modify, or amend the terms of this contract in the manner prescribed in clause G-180. No agent, employee, or representative of the State has any authority to bind the State to any affirmation, representation, or warranty concerning the forest products conveyed beyond the terms of this contract.

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

G-170 Assignment and Delegation

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

G-180 Modifications

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

G-190 Contract Complete

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

G-200 Notice

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

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; H-3100, H-3102, H-3200, H-3204, H-3204.1, H-3204.3, H-3220, H-3223, H-3223.1, H-3223.3, H-3224, H-3225, H-3226, H-3227, H-3229, Hoh-Clearwater Mainline, H-1040, H-1043, and the H-1044. The State may authorize in writing the use of other roads subject to fees, restrictions, and prior rights.

G-330 Pre-work Conference

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

G-340 Preservation of Markers

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

G-360 Road Use Reservation

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

G-380 Road Easement and Road Use Permit Requirements

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

Easement 55-000467-Bert Cole

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 $127,946.00. The total contract price consists of a $0.00 contract bid price plus $127,946.00 in fees. Fees collected shall be retained by the state unless the contract is adjusted via the G-066 clause. Purchaser shall be liable for the entire purchase price, and will not be entitled to any refunds or offsets unless expressly stated in this contract.

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

P-045 Guarantee of Payment

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

P-050 Billing Procedure

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

P-080 Payment Account Refund

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

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

P-090 Performance Security

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

P-100 Performance Security Reduction

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

Section H: Harvesting Operations

H-001 Operations Outside the Sale Boundaries

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

H-013 Reserve Tree Damage Definition

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

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

a. A reserve tree has one or more scars on its trunk exposing the cambium layer, which in total exceeds 100 square inches.

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

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

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

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

H-017 Preventing Excessive Soil Disturbance

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

H-035 Fall Trees Into Sale Area

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

H-040 Purchaser Harvest Plan

Purchaser shall, as part of the plan of operations, prepare an acceptable harvest plan for utilizing rubber tired skidders in the sale area. The plan shall address the location and timing of desired use, which are part(s) of this contract. The harvest plan shall be approved by the Contract Administrator prior to beginning the harvest operation. Purchaser shall not deviate from the harvest plan without prior written approval by the Contract Administrator.

H-051 Branding and Painting

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

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

H-080 Snags Not to be Felled

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

H-120 Harvesting Equipment

Forest products sold under this contract shall be harvested and removed using ground based and cable methods with rubber tire skidders only being allowed if rutting and

skidding requirements can be met and a harvest plan is submitted and approved. Authority to use other equipment or to operate outside the equipment specifications detailed above must be approved in writing by the State.

H-125 Log Suspension Requirements

Lead-end suspension is required for all yarding activities.

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

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

2. While felling timber one Warning sign must be posted on the H-3200.

3. Yarding equipment shall not cross live streams without an FPHP.

4. The Purchaser shall notify all employees and contractors working on this sale that any danger tree, marked or unmarked, may be felled. Any felled marked danger tree shall be replaced with a suitable tree of similar size and species as approved by the Contract Administrator.

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

H-142 Wildlife Timing Restrictions

The following wildlife timing restrictions apply to this contract and shall be in place in the locations shown on the attached timber sale map.

On the H-3220, Stations 0+00 - 9+00 and the H-3204, Stations 9+00- 29+00, right- of- way timber falling and yarding and operation of heavy equipment must be performed during the limited operating period (two hours after sunrise to two hours before sunset) during the murrelet nesting season (April 1 through September 23).

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

H-190 Completion of Settings

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

H-220 Protection of Residual or Adjacent Trees

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

H-230 Tops and Limbs Outside the Sale Boundary

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

Section C: Construction and Maintenance

C-040 Road Plan

Road construction and associated work provisions of the Road Plan for this sale, dated 1/9/2020 are hereby made a part of this contract.

C-050 Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on H-3102, H-3200, H-3204, H-3204.1, H-3204.3, H-3220, H-3223, H-3223.1, H-3223.3, H-3224, H-3225, H-3226, H-3227 and H-3229. All work shall be completed to the specifications detailed in the Road Plan.

C-060 Designated Road Maintainer

If required by the State, Purchaser shall perform maintenance and replacement work as directed by the Contract Administrator on Winfield North and South Pit access roads, H-3100, H-1040, H-1043, H-1044 and all other roads not listed in clause C-050. Purchaser shall furnish a statement in a form satisfactory to the State showing the costs incurred while performing this work. Costs shall be based on the rates set forth in the equipment rate schedule on file at the Region office or Engineering Division in Olympia. The State shall reimburse Purchaser for said costs within 30 days of receipt and approval of the statement.

C-140 Water Bars

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

Section S: Site Preparation and Protection

S-001 Emergency Response Plan

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

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

S-010 Fire Hazardous Conditions

Purchaser acknowledges that operations under this Contract may increase the risk of fire. Purchaser shall conduct all operations under this agreement following the

requirements of WAC 332-24-005 and WAC 332-24-405 and further agrees to use the highest degree of care to prevent uncontrolled fires from starting.

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

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

S-030 Landing Debris Clean Up

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

S-050 Cessation of Operations for Low Humidity

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

S-060 Pump Truck or Pump Trailer

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

S-100 Stream Cleanout

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

S-110 Resource Protection

No equipment may operate within 30' of any typed water. Equipment movement and pass through within 30 feet of type water shall be limited to that which is necessary for timber felling and yarding, unless authority is granted in writing by the Contract Administrator.

S-120 Stream Protection

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

S-130 Hazardous Materials

a. Hazardous Materials and Waste - Regulatory Compliance

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

and waste disposal. Purchaser shall be responsible for restoring the site in the event of a spill.

b. Hazardous Materials Spill Prevention

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

c. Hazardous Materials Spill Containment, Control and Cleanup

If safe to do so, Purchaser shall take immediate action to contain and control all hazardous material spills. Purchaser shall ensure that enough quick response spill kits capable of absorbing 10 gallons of oil, coolant, solvent or contaminated water are available on site to quickly address potential spills from any piece of equipment at all times throughout active operations. If large quantities of bulk fuel/other hazardous materials are stored on site, Purchaser must be able to effectively control a container leak and contain & recover a hazmat spill equal to the largest single on site storage container volume. (HAZWOPER reg. 29CFR 1910.120 (j) (1) (vii)).

d. Hazardous Material Release Reporting

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

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

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

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

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

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

S-131 Refuse Disposal

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

Section D: Damages

D-013 Liquidated Damages or Failure to Perform

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

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

D-041 Reserve Tree Excessive Damage

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

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

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

_____	_____
Purchaser	Mona Griswold
_____	Olympic Region Manager
Print Name	
Date: _____	Date: _____
Address:	

CORPORATE ACKNOWLEDGEMENT
(Required for both LLC and Inc. Entities)

STATE OF _____)
)
COUNTY OF _____)

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

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

_____
Notary Public in and for the State of

_____

My appointment expires _____

Schedule A
SLASH PILING SPECS

Specifications for Slash Piling

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

1. Piles shall be a minimum of 12 feet tall by 8 feet wide to a maximum of 30 feet tall and 16 feet wide. Piles shall be cone shaped and stable.

2. Piles shall be free of topsoil, large rotten logs and large stumps. No material larger than 8 inches in diameter shall be piled. Any burnable material shall be well scattered.

3. Piles shall not be placed on large stumps or logs.

4. Piles shall be stacked a minimum of 50 feet from all unit boundaries, Riparian Management Zones, leave tree areas and any standing timber; a minimum of 100 feet from any public roads and highways; and a minimum of 200 feet from any structures.

5. Piling shall be completed using an approved hydraulic shovel and grapples.

6. Slash and displaced soil shall be removed from swales and natural drainage channels concurrent with yarding.

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

8. Slash generated during cable yarding shall be stacked in dirt free piles and shall not block roads or interfere with functioning of drainage structures, ditches, or stream channels.

Schedule B
GREEN TREE RETENTION PLAN

Leave the following as directed by the Contract Administrator:

1. All trees marked with a blue band of paint and all leave tree area clumps shall remain standing.
The perimeter of the leave tree clumps are designated by Leave Tree Area tags. The tags face outward from the leave tree clumps.

Unit #	# of Individually Marked Trees	# of Clumps	# of Trees Clumped	Total # of Leave Trees
1	0	1	16	16
2	12	4	772	784
3	19	2	229	248
4	0	1	48	48
5	0	4	176	176
6	0	1	56	56

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

FOREST EXCISE TAX ROAD SUMMARY SHEET

Region: Olympic

Timber Sale Name: Ol Stringer

Application Number: 30- 099196

EXCISE TAX APPLICABLE ACTIVITIES

Construction: 570 **linear feet**
Road to be constructed (optional and required) but not abandoned

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

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

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

Pre-Haul Maintenance: 24,590 **linear feet**
Existing road to receive maintenance work (optional and required) prior to haul

EXCISE TAX EXEMPT ACTIVITIES

Temporary Construction: **linear feet**
Roads to be constructed (optional and required) and then abandoned

Temporary Reconstruction: **linear feet**
Roads to be reconstructed (optional and required) and then abandoned

All parties must make their own assessment of the taxable or non-taxable status of any work performed under the timber sale contact. The Department of Revenue bears responsibility for determining forest road excise taxes. The Department of Natural Resources developed this form to help estimate the impact of forest excise taxes. However, the information provided may not precisely calculate the actual amount of taxes due. The Department of Revenue is available for consultation by calling 1.800.548.8829.
(Revised 9/18)

PRE-CRUISE NARRATIVE

Sale Name: **Ol Stringer**	Region: **Olympic**
Agreement #: **30-099196**	District: Coast
Contact Forester: Kevin Alexander Phone / Location: 360-640-5506	County(s): Choose a county, Jefferson
Alternate Contact: Click here to enter text. Phone / Location: Click here to enter text.	Other information: Trust: 03 = 96% Trust: 07 = 4%

Type of Sale: Lump Sum	
Harvest System: Ground based	10%
Harvest System: Uphill Cable	90%

UNIT ACREAGES AND METHOD OF DETERMINATION:

Unit # Harvest R/W or RMZ WMZ	Legal Description (Enter only one legal for each unit) Sec/Twp/Rng	Grant or Trust	Gross Proposal Acres	Deductions from Gross Acres (No harvest acres)				Net Harvest Acres	Acreage Determination (List method and error of closure if applicable)
				RMZ/ WMZ Acres	Leave Tree Acres	Existing Road Acres	Other Acres (describe)		
Unit 1	Sec 14 T27N R12W	03/07	2		<1	0		2	GPS (Garmin)
Unit 2	Sec 10,11, 14 T27N R12W	03	107		3.7	3.3		100	GPS (Garmin)
Unit 3	Sec 10, T27N R12W	03	32		1.3	1.1		30	GPS (Garmin)
Unit 4	Sec 10, T27N R12W	03	6.3		0.3	<1		6	GPS (Garmin)
Unit 5	Sec 10, T27N R12W	03	22		1.1	0.9		20	GPS (Garmin)
Unit 6	Sec 10, T27N R12W	03	7.3		0.3	<1		7	GPS (Garmin)
RoW	Sec 10, T27N R12W	03/07	9.3			4.7		4.6	String Box & Laser
TOTAL ACRES			185.9		6.7	10		169.6	

Revised 03/15/2010 (FRCD)

HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Leave, take, paint color, tags, flagging etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
1	**Unit Boundaries**: are marked with white unit boundary tags, red flashers, pink ribbon, and blue paint; and by roads. **Leave Tree Areas**: are marked with yellow Leave Tree Area tags, red flashers, pink ribbon and blue paint. **Individual Leave Trees**: are marked with blue paint line and a spot on the stump.		Individual Leave trees = 0 Trees in LTA's = 17
2	**Unit Boundaries**: are marked with white unit boundary tags, red flashers, pink ribbon, and blue paint; and by roads. **Leave Tree Areas**: are marked with yellow Leave Tree Area tags, red flashers, pink ribbon and blue paint. **Individual Leave Trees**: are marked with blue paint line and a spot on the stump.		Individual Leave trees = 12 Trees in LTA's = 788
3	**Unit Boundaries**: are marked with white unit boundary tags, red flashers, pink ribbon, and blue paint; and by roads. **Leave Tree Areas**: are marked with yellow Leave Tree Area tags, red flashers, pink ribbon and blue paint. **Individual Leave Trees**: are marked with blue paint line and a spot on the stump.		Individual Leave trees = 19 Trees in LTA's = 242
4	**Unit Boundaries**: are marked with white unit boundary tags, red flashers, pink ribbon, and blue paint; and by roads. **Leave Tree Areas**: are marked with yellow Leave Tree Area tags, red		Individual Leave trees = 0 Trees in LTA's = 52

	flashers, pink ribbon and blue paint. **Individual Leave Trees**: are marked with blue paint line and a spot on the stump.		
5	**Unit Boundaries**: are marked with white unit boundary tags, red flashers, pink ribbon, and blue paint; and by roads. **Leave Tree Areas**: are marked with yellow Leave Tree Area tags, red flashers, pink ribbon and blue paint. **Individual Leave Trees**: are marked with blue paint line and a spot on the stump.		Individual Leave trees = 6 Trees in LTA's = 153
6	**Unit Boundaries**: are marked with white unit boundary tags, red flashers, pink ribbon, and blue paint; and by roads. **Leave Tree Areas**: are marked with yellow Leave Tree Area tags, red flashers, pink ribbon and blue paint. **Individual Leave Trees**: are marked with blue paint line and a spot on the stump.		Individual Leave trees = 0 Trees in LTA's = 53
RoW	Boundaries are marked with Orange Right-of-Way tags, orange pant and orange ribbon.		Count / cruise may be the best option due to the inconsistency of merchantable timber in the RoW and the length of RoW.

OTHER PRE-CRUISE INFORMATION:

Unit #	Primary,secondary Species / Estimated Volume (MBF)	Access information (Gates, locks, etc.)	Photos, traverse maps required
All	DF/WH	The H-3220 road is deactivated and is not drivable. It is nearly a 2 mile walk to the farthest unit. The use of an ATV provides access to units 1-3. The remaining units require walk in.	Cruise Map
RoW	DF/WH/RA	Acres are approximate and based on an average 32 foot road prism.	Cruise Map
TOTAL MBF	5 mmbf sale volume		

REMARKS:

Harvest acres are subject to adjustment based on pending ownership boundary surveys. Individual Leave Trees were distributed to meet spacing requirements. Adjustment in leave tree amounts due to acreage changes will done by expanding or contracting current leave tree areas.

Prepared By: Kevin Alexander **Date: 5/3/2019**	**Title: Unit Coordinator**	**CC:**

Cruise Narrative

Sale Name: Ol Stringer	**Region:** Olympic
Agreement #: 30-099196	**District**: Coast
Lead Cruiser: Kevin Peterson	**Completion Date**: 09/18/2019 Revised 11/6/2019
Other Cruisers: none	

Unit acreage specifications:

Unit #	Cruised Acres	Cruised acres agree with sale acres? Y/N	If acres do not agree explain why.
1	2	Y	
2	98	Y	
3	31	Y	
4	6	Y	
5	21	Y	
6	7	Y	
7 R/W	3	Y	
Total	168	Y	

Unit cruise specifications:

Unit #	Sample Type (VP,FP,ITS,100%)	Expansion Factor (baf,full/half)	Sighting Height (4.5', 16')	Grid Size (plot spacing)	Plot Ratio (cruise/count)	Number of plots
1	VP	54.44/40	4.5'	290 X 290	All	1
2	VP	54.44/40	4.5'	290 X 290	2:1	46
3	VP	54.44/40	4.5'	290 X 290	1:1	15
4	VP	54.44/40	4.5'	290 X 290	All	3
5	VP	54.44/40	4.5'	290 X 290	1:1	10
6	VP	54.44/40	4.5'	290 X 290	All	4
7 R/W	VP	20	4.5'	Random	All	3

Sale/Cruise Description:

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

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

Field Observations:

Ol Stringer is a 6 unit sale located north of the H-3200 on the decommissioned H-3220 Rd. The road is assessable by foot or ATV to get to the units.

The sale has a total volume of 4,921 MBF and is comprised of 57% Douglas-fir, 39% Western Hemlock, 2% Pacific Silver-fir and 2% Red Alder; with traces of Sitka Spruce and Western Red Cedar. The average DF has a DBH of 17.1" and a bole height of 68'. The average WH has a DBH of 13.8 and a bole height of 60'. Common defects were sweep, spike knots and a bit of butt rot.

This sale is 90% uphill cable harvest and 10% ground based, no keys are needed to access the units.

Grants: 03, 07

Prepared By: Kevin Peterson – Olympic Region Cruiser

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T000 R000 S00 TyROW
THRU
T000 R000 S00 TyU6

Project: **OL**

Acres **168.00**

Page **1**
Date **11/6/2019**
Time **6:43:37AM**

Spp	S T	So Gr rt ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 4-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
WH	D	2S	10	2.8	1,200	1,166	196			84	16	10			90	37	13	218	1.70	5.4
WH	D	3S	73	.9	8,510	8,431	1,416	51	49					14	86	38	7	82	0.67	102.3
WH	D	4S	16	2.5	1,810	1,766	297	100				44	24	13	19	21	5	22	0.30	78.7
WH	D	UT	1		95	95	16	100				50			50	10	5	3	0.09	36.6
WH	**Totals**		39	1.4	11,615	11,457	1,925	54	36	9	2	8	4	13	75	27	6	51	0.57	222.9
DF	CU	CU		100.0	125											8	7		0.00	13.7
DF	D	2S	39	4.6	6,939	6,617	1,112			97	3				100	40	13	240	1.76	27.5
DF	D	3S	45	3.5	7,846	7,575	1,273	27	73				0	7	93	39	8	92	0.77	82.4
DF	D	4S	11	.6	1,873	1,861	313	89	11			20	11	18	51	28	5	32	0.39	58.2
DF	D	UT	5		686	686	115	5		95		5			95	14	6	28	0.63	24.3
DF	**Totals**		57	4.2	17,469	16,740	2,812	22	34	42	1	2	1	5	91	31	8	81	0.83	206.1
SF	D	2S	32		182	182	31			100					100	40	12	200	1.28	.9
SF	D	3S	58		321	321	54	100							100	40	7	68	0.55	4.7
SF	D	4S	10		55	55	9	100				100				16	5	15	0.20	3.8
SF	**Totals**		2		558	558	94	67		33		10			90	30	7	59	0.57	9.4
RA	D	4S	81	.5	372	370	62	53	47			38	48	12	2	26	7	41	0.48	9.1
RA	D	UT	19		86	86	15	100				86	14			13	5	11	0.22	7.9
RA	**Totals**		2	.4	459	457	77	62	38			47	42	10	1	20	6	27	0.40	17.0
RC	D	3S	81	10.0	35	32	5		100						100	36	9	90	1.01	.4
RC	D	4S	19		7	7	1	100					100			22	5	20	0.29	.4
RC	**Totals**		0	8.3	42	39	7	18	82				18		82	29	7	55	0.74	.7
SS	D	4S	100		42	42	7	100						100		35	5	40	0.40	1.0
SS	**Totals**		0		42	42	7	100						100		35	5	40	0.40	1.0
Totals				3.0	30,185	29,293	4,921	36	34	28	1	5	3	8	83	29	7	64	0.69	457.2

TC PSTATS

PROJECT STATISTICS

PROJECT OL

PAGE 1
DATE 11/6/2019

TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
000	000	00	STRING	ROW	THR	168.00	82	449	S	W
000	000	00	STRING	U6						

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	82	449	5.5		
CRUISE	39	208	5.3	39,243	.5
DBH COUNT					
REFOREST					
COUNT	43	241	5.6		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	98	114.6	13.8	60	32.0	118.8	11,615	11,457	3,467	3,467
DOUG FIR	93	103.4	17.1	68	39.9	164.8	17,469	16,740	5,321	5,282
R ALDER	12	9.5	11.0	44	1.9	6.3	459	457	136	136
PS FIR	3	4.7	13.7	67	1.3	4.8	558	558	161	161
WR CEDAR	1	.4	16.0	62	0.1	.5	42	39	15	15
S SPRUCE	1	1.0	11.0	42	0.2	.7	42	42	15	15
TOTAL	*208*	*233.6*	*15.2*	*63*	*75.8*	*295.8*	*30,185*	*29,293*	*9,114*	*9,075*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL 68.1	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	95.2	10.5	103	115	127			
DOUG FIR	82.5	9.1	94	103	113			
R ALDER	432.5	47.8	5	9	14			
PS FIR	443.2	48.9	2	5	7			
WR CEDAR	905.5	100.0	0	0	1			
S SPRUCE	905.5	100.0	0	1	2			
TOTAL	*31.8*	*3.5*	*225*	*234*	*242*	*40*	*21*	*10*

CL 68.1	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	85.9	9.5	108	119	130			
DOUG FIR	74.7	8.2	151	165	178			
R ALDER	442.8	48.9	3	6	9			
PS FIR	419.8	46.4	3	5	7			
WR CEDAR	905.5	100.0	0	0	1			
S SPRUCE	905.5	100.0	0	1	1			
TOTAL	*25.6*	*2.8*	*287*	*296*	*304*	*26*	*13*	*7*

CL 68.1	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	84.6	9.3	10,387	11,457	12,528			
DOUG FIR	75.5	8.3	15,343	16,740	18,136			
R ALDER	451.2	49.8	229	457	684			
PS FIR	411.7	45.5	305	558	812			
WR CEDAR	905.5	100.0	0	39	78			
S SPRUCE	905.5	100.0	0	42	84			
TOTAL	*28.8*	*3.2*	*28,360*	*29,293*	*30,226*	*33*	*17*	*8*

CL 68.1	COEFF		**V_BAR/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK			87	96	105			
DOUG FIR			93	102	110			
R ALDER	176.2	19.5	37	73	109			
PS FIR	260.5	28.8	63	116	168			

TC PSTATS

PROJECT STATISTICS

PROJECT **OL**

DATE 11/6/2019

TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
000	000	00	STRING	ROW	THR	168.00	82	449	S	W
000	000	00	STRING	U6						

CL	68.1	COEFF		V_BAR/ACRE			# OF PLOTS REQ.		INF. POP.
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10
WR CEDAR		905.5	100.0	0	79	158			
S SPRUCE		905.5	100.0	0	61	121			
TOTAL		*26.4*	*2.9*	*96*	*99*	*102*	*28*	*14*	*7*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: OL

Date 11/6/2019

Time 6:43:37AM

T000 R000 S00 TU1

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
000	000	00	STRING	U1	2.00	1	5	S	W

T000 R000 S00 TU1

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
WH		D	2S	22	8.3	5,989	5,490	11			100					100	40	13	220	1.55	25.0
WH		D	3S	65	2.2	15,993	15,647	31	36	64						100	40	8	102	0.80	153.1
WH		D	4S	13		3,008	3,008	6	100				20		34	46	24	5	23	0.31	128.1
WH	**Totals**			77	3.4	24,990	24,145	48	36	41	23		2		4	93	33	7	79	0.72	306.2
DF		CU	CU															6		0.00	27.6
DF		D	2S	76		5,530	5,530	11			100					100	40	12	200	1.38	27.6
DF		D	3S	24		1,659	1,659	3	100							100	40	6	60	0.49	27.6
DF	**Totals**			23		7,189	7,189	14	23		77					100	27	8	87	0.93	82.9
Type Totals					2.6	32,179	31,334	63	33	32	35		2		3	95	32	7	81	0.76	389.1

TC TSTATS

STATISTICS

PROJECT **OL**

DATE 11/6/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
000	**000**	**00**	**STRING**	**U1**	2.00	1	5	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	1	5	5.0		
CRUISE	1	5	5.0	361	1.4
DBH COUNT					
REFOREST					
COUNT					
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	4	153.1	16.1	70	54.2	217.8	24,990	24,145	7,398	7,398
DOUG FIR	1	27.6	19.0	87	12.5	54.4	7,189	7,189	2,066	2,066
TOTAL	*5*	*180.7*	*16.6*	*73*	*66.8*	*272.2*	*32,179*	*31,334*	*9,464*	*9,464*

CONFIDENCE LIMITS OF THE SAMPLE

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

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: OL

Date 11/6/2019

Time 6:43:37AM

T000 R000 S00 TU2

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
000	000	00	STRING	U2	98.00	46	82	S	W

T000 R000 S00 TU2

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		CU	CU		100.0	102											10	7		0.00	9.8
DF		D	2S	38	2.9	6,927	6,728	659			100					100	40	13	239	1.72	28.2
DF		D	3S	44	3.6	8,100	7,807	765	27	73					8	92	39	8	93	0.78	84.0
DF		D	4S	15	.8	2,612	2,591	254	87	13			16	8	21	55	29	5	34	0.41	75.8
DF		D	UT	3		423	423	41	11		89		11			89	13	6	16	0.39	26.9
DF	**Totals**			60	3.4	18,163	17,549	1,720	25	34	40		3	1	7	90	31	7	78	0.79	224.7
WH		D	2S	4		466	466	46			100		41			59	30	13	170	1.53	2.7
WH		D	3S	80	1.1	8,259	8,170	801	52	48					15	85	38	7	82	0.66	99.8
WH		D	4S	14		1,457	1,457	143	100				49	29	7	15	20	5	21	0.28	68.1
WH		D	UT	2		125	125	12	100				34			66	11	5	3	0.11	40.0
WH	**Totals**			35	.9	10,307	10,218	1,001	57	38	5		9	4	13	74	27	6	49	0.54	210.7
RA		D	4S	80		522	522	51	46	54			46	54			24	7	41	0.51	12.7
RA		D	UT	20		127	127	12	100				100				13	5	10	0.22	12.7
RA	**Totals**			2		649	649	64	56	44			56	44			18	6	26	0.41	25.4
SF		D	2S	32		313	313	31			100					100	40	12	200	1.28	1.6
SF		D	3S	58		550	550	54	100							100	40	7	68	0.55	8.1
SF		D	4S	10		95	95	9	100				100				16	5	15	0.20	6.5
SF	**Totals**			3		957	957	94	67		33		10			90	30	7	59	0.57	16.1
SS		D	4S	100		72	72	7	100						100		35	5	40	0.40	1.8
SS	**Totals**			0		72	72	7	100						100		35	5	40	0.40	1.8
Type Totals					2.3	30,148	29,445	2,886	38	35	27		6	3	9	82	29	7	62	0.66	478.7

TC TSTATS

STATISTICS

PROJECT OL

DATE 11/6/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
000	000	00	STRING	U2	98.00	46	259	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	46	259	5.6		
CRUISE	15	82	5.5	24,535	.3
DBH COUNT					
REFOREST					
COUNT	31	177	5.7		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	40	119.7	16.5	65	43.7	177.5	18,163	17,549	5,571	5,537
WHEMLOCK	36	108.1	13.5	60	29.3	107.7	10,307	10,218	3,068	3,068
R ALDER	2	12.7	11.2	45	2.6	8.7	649	649	190	190
PS FIR	3	8.1	13.7	67	2.2	8.3	957	957	276	276
S SPRUCE	1	1.8	11.0	42	0.4	1.2	72	72	25	25
TOTAL	*82*	*250.4*	*14.9*	*62*	*78.6*	*303.4*	*30,148*	*29,445*	*9,130*	*9,096*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	71.9	10.6	107	120	132			
WHEMLOCK	96.2	14.2	93	108	123			
R ALDER	398.8	58.8	5	13	20			
PS FIR	326.7	48.2	4	8	12			
S SPRUCE	678.2	100.0	0	2	4			
TOTAL	*22.8*	*3.4*	*242*	*250*	*259*	*21*	*11*	*5*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	70.1	10.3	159	178	196			
WHEMLOCK	91.4	13.5	93	108	122			
R ALDER	398.8	58.8	4	9	14			
PS FIR	308.8	45.5	5	8	12			
S SPRUCE	678.2	100.0	0	1	2			
TOTAL	*20.8*	*3.1*	*294*	*303*	*313*	*17*	*9*	*4*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	72.0	10.6	15,686	17,549	19,411			
WHEMLOCK	91.7	13.5	8,837	10,218	11,600			
R ALDER	398.8	58.8	267	649	1,031			
PS FIR	302.5	44.6	530	957	1,384			
S SPRUCE	678.2	100.0	0	72	143			
TOTAL	*25.5*	*3.8*	*28,336*	*29,445*	*30,554*	*26*	*13*	*7*

CL: 68.1 %	COEFF		**V-BAR/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR			88	99	109			
WHEMLOCK			82	95	108			
R ALDER	92.7	13.7	31	75	119			
PS FIR	184.2	27.2	64	116	167			
S SPRUCE	678.2	100.0	0	61	121			
TOTAL	*313.0*	*46.1*	*93*	*97*	*101*	*3,919*	*1,999*	*980*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: OL

Date 11/6/2019

Time 6:43:37AM

T000 R000 S00 TU3

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
000	000	00	STRING	U3	31.00	15	45	S	W

T000 R000 S00 TU3

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		CU	CU		100.0	356											9	7		0.00	34.2
DF		D	2S	45	8.8	8,936	8,146	253			92	8				100	40	13	239	1.84	34.1
DF		D	3S	42	4.0	7,589	7,284	226	25	75					4	96	40	8	98	0.84	74.7
DF		D	4S	5		950	950	29	100				21	28	16	35	26	5	28	0.34	33.6
DF		D	UT	8		1,346	1,346	42			100					100	40	14	290	2.17	4.6
DF	**Totals**			56	7.6	19,177	17,726	550	16	31	50	4	1	2	3	95	32	8	98	1.00	181.2
WH		D	2S	21	3.7	3,034	2,923	91			79	21				100	40	13	243	1.80	12.0
WH		D	3S	62		8,481	8,481	263	43	57					18	82	38	7	85	0.67	99.3
WH		D	4S	16	6.7	2,272	2,121	66	100				32	26	29	12	23	5	26	0.34	81.6
WH		D	UT	1		76	76	2	100				100				10	5	2	0.05	36.4
WH	**Totals**			43	1.9	13,863	13,601	422	43	35	17	5	6	4	16	74	28	7	59	0.63	229.3
RC		D	3S	81	10.0	191	172	5		100						100	36	9	90	1.01	1.9
RC		D	4S	19		38	38	1	100					100			22	5	20	0.29	1.9
RC	**Totals**			1	8.3	229	210	7	18	82				18		82	29	7	55	0.74	3.8
Type Totals					5.2	33,269	31,537	978	28	33	35	4	3	3	8	86	30	7	76	0.80	414.4

TC TSTATS

STATISTICS

PROJECT OL

DATE 11/6/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
000	000	00	STRING	U3	31.00	15	83	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	15	83	5.5		
CRUISE	8	45	5.6	6,037	.7
DBH COUNT					
REFOREST COUNT	7	38	5.4		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	22	78.2	19.8	77	37.5	166.9	19,177	17,726	5,791	5,687
WHEMLOCK	22	114.7	14.5	63	34.4	130.7	13,863	13,601	4,050	4,050
WR CEDAR	1	1.9	16.0	62	0.7	2.7	229	210	82	82
TOTAL	*45*	*194.8*	*16.8*	*69*	*73.2*	*300.3*	*33,269*	*31,537*	*9,923*	*9,819*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	70.0	18.7	64	78	93			
WHEMLOCK	83.6	22.3	89	115	140			
WR CEDAR	387.3	103.5		2	4			
TOTAL	*28.5*	*7.6*	*180*	*195*	*210*	*35*	*18*	*9*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	66.9	17.9	137	167	197			
WHEMLOCK	66.4	17.8	107	131	154			
WR CEDAR	387.3	103.5		3	5			
TOTAL	*13.8*	*3.7*	*289*	*300*	*311*	*8*	*4*	*2*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	67.5	18.1	14,525	17,726	20,927			
WHEMLOCK	62.9	16.8	11,315	13,601	15,887			
WR CEDAR	387.3	103.5		210	428			
TOTAL	*15.8*	*4.2*	*30,201*	*31,537*	*32,872*	*11*	*5*	*3*

CL: 68.1 %	COEFF		**V-BAR/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR			87	106	125			
WHEMLOCK			87	104	122			
WR CEDAR	387.3	103.5		79	160			
TOTAL	*163.9*	*43.8*	*101*	*105*	*109*	*1,152*	*588*	*288*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: OL

Date 11/6/2019

Time 6:43:37AM

T000 R000 S00 TU4

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
000	000	00	STRING	U4	6.00	3	16	S	W

T000 R000 S00 TU4

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
WH		D	2S	19	5.4	3,940	3,727	22			49	51				100	40	14	290	2.10	12.9
WH		D	3S	61	1.1	11,526	11,396	68	41	59					27	73	37	8	88	0.74	129.2
WH		D	4S	18	12.2	3,799	3,336	20	100				36	8	43	12	22	5	24	0.34	139.4
WH		D	UT	2		231	231	1	100				100				12	5	10	0.20	23.1
WH	**Totals**			60	4.1	19,496	18,691	112	44	36	10	10	8	1	24	66	28	7	61	0.66	304.6
DF		CU	CU															8		0.00	17.5
DF		D	2S	66	6.1	8,936	8,392	50			81	19				100	40	14	257	1.92	32.6
DF		D	3S	34		4,229	4,229	25	39	61				9	9	82	37	7	72	0.65	58.6
DF	**Totals**			40	4.1	13,165	12,620	76	13	20	54	12		3	3	94	32	9	116	1.13	108.7
Type Totals					4.1	32,660	31,311	188	32	30	28	11	5	2	16	77	29	7	76	0.80	413.3

TC TSTATS

STATISTICS

PROJECT OL

DATE 11/6/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
000	000	00	STRING	U4	6.00	3	16	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	3	16	5.3		
CRUISE	3	16	5.3	1,187	1.3
DBH COUNT					
REFOREST					
COUNT					
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	10	152.3	14.8	62	47.2	181.5	19,496	18,691	5,674	5,674
DOUG FIR	6	45.6	20.9	80	23.8	108.9	13,165	12,620	3,903	3,903
TOTAL	*16*	*197.9*	*16.4*	*66*	*71.7*	*290.3*	*32,660*	*31,311*	*9,577*	*9,577*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	73.2	50.7	75	152	230			
DOUG FIR	110.1	76.2	11	46	80			
TOTAL	*36.1*	*25.0*	*148*	*198*	*247*	*75*	*38*	*19*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	45.8	31.7	124	181	239			
DOUG FIR	100.0	69.3	33	109	184			
TOTAL	*10.8*	*7.5*	*269*	*290*	*312*	*7*	*3*	*2*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	32.1	22.2	14,538	18,691	22,844			
DOUG FIR	103.8	71.9	3,549	12,620	21,691			
TOTAL	*24.4*	*16.9*	*26,014*	*31,311*	*36,608*	*34*	*18*	*9*

CL: 68.1 %	COEFF		**V-BAR/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	32.1	22.2	80	103	126			
DOUG FIR	103.8	71.9	33	116	199			
TOTAL	*24.4*	*16.9*	*90*	*108*	*126*	*34*	*18*	*9*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: OL

Date 11/6/2019

Time 6:43:37AM

T000 R000 S00 TU5

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
000	000	00	STRING	U5	21.00	10	27	S	W

T000 R000 S00 TU5

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		CU	CU															8		0.00	4.4
DF		D	2S	30	4.7	5,095	4,857	102			100					100	40	13	252	1.81	19.3
DF		D	3S	56	2.8	9,135	8,877	186	27	73					5	95	39	8	88	0.72	101.3
DF		D	4S	6		1,028	1,028	22	100				55	17		28	22	5	22	0.31	45.9
DF		D	UT	8		1,129	1,129	24	4		96		4			96	13	6	25	0.57	45.7
DF	**Totals**			57	3.0	16,387	15,891	334	22	41	37		4	1	3	92	29	7	73	0.77	216.5
WH		D	2S	6		832	832	17			100					100	40	12	200	1.48	4.2
WH		D	3S	76	1.1	9,297	9,198	193	61	39					7	93	39	7	77	0.65	118.9
WH		D	4S	18		2,160	2,160	45	100				50	19		31	20	5	21	0.28	104.6
WH		D	UT														9	5		0.00	35.1
WH	**Totals**			43	.8	12,289	12,190	256	63	30	7		9	3	6	82	27	6	46	0.53	262.8
Type Totals					2.1	28,675	28,081	590	40	36	24		6	2	4	88	28	7	59	0.65	479.3

TC TSTATS

STATISTICS

PROJECT OL

DATE 11/6/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
000	000	00	STRING	U5	21.00	10	53	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	10	53	5.3		
CRUISE	5	27	5.4	5,060	.5
DBH COUNT					
REFOREST					
COUNT	5	26	5.2		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	12	101.3	16.6	69	37.4	152.4	16,387	15,891	4,942	4,942
WHEMLOCK	15	139.7	13.4	59	37.2	136.1	12,289	12,190	3,824	3,824
TOTAL	*27*	*241.0*	*14.8*	*63*	*75.0*	*288.5*	*28,675*	*28,081*	*8,766*	*8,766*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	87.5	29.1	72	101	131			
WHEMLOCK	96.5	32.1	95	140	185			
TOTAL	*30.9*	*10.3*	*216*	*241*	*266*	*42*	*22*	*11*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	73.0	24.3	115	152	189			
WHEMLOCK	88.9	29.6	96	136	176			
TOTAL	*12.7*	*4.2*	*276*	*289*	*301*	*7*	*4*	*2*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	74.3	24.7	11,959	15,891	19,823			
WHEMLOCK	88.7	29.6	8,588	12,190	15,793			
TOTAL	*12.7*	*4.2*	*26,891*	*28,081*	*29,271*	*7*	*4*	*2*

CL: 68.1 %	COEFF		**V-BAR/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR			78	104	130			
WHEMLOCK	38.4	12.8	63	90	116			
TOTAL	*182.9*	*60.9*	*93*	*97*	*101*	*1,484*	*757*	*371*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: OL

Date 11/6/2019

Time 6:43:37AM

T000 R000 S00 TU6

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
000	000	00	STRING	U6	7.00	4	22	S	W

T000 R000 S00 TU6

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		CU	CU															8		0.00	4.7
DF		D	2S	30	4.7	5,458	5,204	36			100					100	40	13	252	1.81	20.7
DF		D	3S	56	2.8	9,787	9,511	67	27	73					5	95	39	8	88	0.72	108.5
DF		D	4S	6		1,102	1,102	8	100				55	17		28	22	5	22	0.31	49.2
DF		D	UT	8		1,209	1,209	8	4		96		4			96	13	6	25	0.57	49.0
DF	**Totals**			59	3.0	17,557	17,026	119	22	41	37		4	1	3	92	29	7	73	0.77	232.0
WH		D	2S	10		1,248	1,248	9			100					100	40	12	200	1.48	6.2
WH		D	3S	70	1.7	8,465	8,317	58	59	41					12	88	38	7	80	0.69	103.5
WH		D	4S	20		2,328	2,328	16	100				40	17		43	21	5	23	0.31	102.6
WH		D	UT														9	5		0.00	32.1
WH	**Totals**			41	1.2	12,040	11,893	83	61	29	10		8	3	9	80	27	6	49	0.56	244.4
Type Totals					2.3	29,597	28,919	202	38	36	26		6	2	5	87	28	7	61	0.67	476.4

TC TSTATS

STATISTICS

PROJECT OL

DATE 11/6/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
000	000	00	STRING	U6	7.00	4	22	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	4	22	5.5		
CRUISE	4	22	5.5	1,702	1.3
DBH COUNT					
REFOREST					
COUNT					
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	12	108.5	16.6	69	40.1	163.3	17,557	17,026	5,295	5,295
WHEMLOCK	10	134.7	13.6	57	36.9	136.1	12,040	11,893	3,771	3,771
TOTAL	*22*	*243.1*	*15.0*	*62*	*77.2*	*299.4*	*29,597*	*28,919*	*9,066*	*9,066*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	106.1	60.7	43	108	174			
WHEMLOCK	124.3	71.1	39	135	230			
TOTAL	*43.0*	*24.6*	*183*	*243*	*303*	*97*	*49*	*24*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	72.0	41.2	96	163	231			
WHEMLOCK	105.8	60.5	54	136	218			
TOTAL	*10.5*	*6.0*	*281*	*299*	*317*	*6*	*3*	*1*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	75.4	43.1	9,689	17,026	24,363			
WHEMLOCK	104.5	59.8	4,785	11,893	19,000			
TOTAL	*9.7*	*5.5*	*27,322*	*28,919*	*30,516*	*5*	*2*	*1*

CL: 68.1 %	COEFF		**V-BAR/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	75.4	43.1	59	104	149			
WHEMLOCK	104.5	59.8	35	87	140			
TOTAL	*9.7*	*5.5*	*91*	*97*	*102*	*5*	*2*	*1*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: OL

Date 11/6/2019

Time 6:43:37AM

T000 R000 S00 TROW **T000 R000 S00 TROW**

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
000	000	00	STRING	ROW	3.00	3	11	S	W

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
RA		D	4S	84	2.7	3,784	3,683	11	88	12				22	69	9	33	5	38	0.39	96.0
RA		D	UT	16		698	698	2	100					100			24	5	28	0.25	25.3
RA	**Totals**			86	2.3	4,482	4,381	13	90	10				34	58	8	31	5	36	0.37	121.4
WH		D	3S	80		573	573	2		100						100	40	9	120	0.92	4.8
WH		D	4S	20		143	143	0	100					100			26	5	30	0.29	4.8
WH	**Totals**			14		716	716	2	20	80				20		80	33	7	75	0.67	9.5
Type Totals					1.9	5,198	5,097	15	80	20				32	50	18	32	5	39	0.39	130.9

TC TSTATS

STATISTICS

PROJECT **OL**

DATE 11/6/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
000	**000**	**00**	**STRING**	**ROW**	3.00	3	11	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	3	11	3.7		
CRUISE	3	11	3.7	360	3.1
DBH COUNT					
REFOREST					
COUNT					
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
R ALDER	10	115.1	10.3	42	20.8	66.7	4,482	4,381	1,406	1,406
WHEMLOCK	1	4.8	16.0	68	1.7	6.7	716	716	211	211
TOTAL	*11*	*119.9*	*10.6*	*43*	*22.5*	*73.3*	*5,198*	*5,097*	*1,618*	*1,618*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
R ALDER	34.9	24.2	87	115	143			
WHEMLOCK	173.2	120.0		5	11			
TOTAL	*31.8*	*22.0*	*94*	*120*	*146*	*58*	*30*	*15*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
R ALDER	17.3	12.0	59	67	75			
WHEMLOCK	173.2	120.0		7	15			
TOTAL	*15.7*	*10.9*	*65*	*73*	*81*	*14*	*7*	*4*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
R ALDER	23.8	16.5	3,659	4,381	5,103			
WHEMLOCK	173.2	120.0		716	1,575			
TOTAL	*18.8*	*13.0*	*4,434*	*5,097*	*5,760*	*20*	*10*	*5*

CL: 68.1 %	COEFF		**V-BAR/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
R ALDER	23.8	16.5	55	66	77			
WHEMLOCK	173.2	120.0		107	236			
TOTAL	*18.8*	*13.0*	*60*	*70*	*79*	*20*	*10*	*5*

TC PSPCTLTCM

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

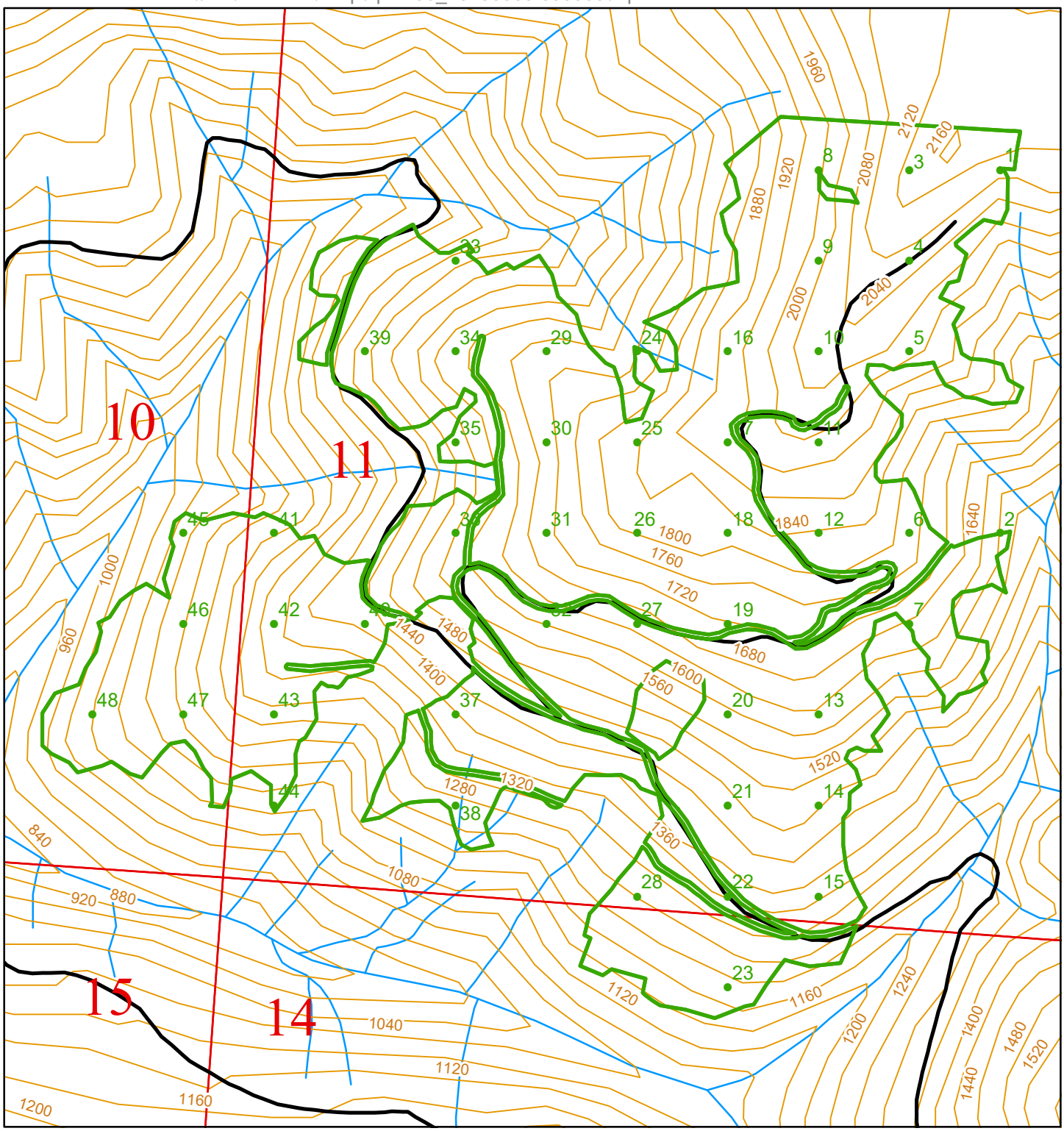
T000 R000 S00 TyROW	3.0
T000 R000 S00 TyU1	2.0
T000 R000 S00 TyU6	7.0

Project OL
Acres 168.00

Page No 1
Date: 11/6/2019
Time 6:43:38AM

Species	S T	Total Trees	Total Logs	Total Tons	Net Cubic Ft/ Tree	Net Cubic Ft/ Log	CF/ LF	Total CCF Gross	Total CCF Net	Total MBF Gross	Total MBF Net
DOUG FIR		17,371	32,329	25,476	51.08	27.45	0.84	8,939	8,873	2,935	2,812
WHEMLOCK		19,256	37,451	18,636	30.24	15.55	0.57	5,824	5,824	1,951	1,925
PS FIR		791	1,583	774	34.15	17.08	0.57	270	270	94	94
R ALDER		1,589	2,851	628	14.38	8.01	0.41	228	228	77	77
S SPRUCE		176	176	64	13.94	13.94	0.40	24	24	7	7
WR CEDAR		59	118	59	42.68	21.34	0.74	25	25	7	7
Totals		39,243	74,507	45,638	38.85	20.46	0.70	15,311	15,246	5,071	4,921

Wood Type Species	Total Trees	Total Logs	Total Tons	Net Cubic Ft/ Tree	Net Cubic Ft/ Log	CF/ LF	Total CCF Gross	Total CCF Net	Total MBF Gross	Total MBF Net
C	37,654	71,656	45,009	39.88	20.96	0.70	15,083	15,017	4,994	4,844
H	1,589	2,851	628	14.38	8.01	0.41	228	228	77	77
Totals	39,243	74,507	45,638	38.85	20.46	0.70	15,311	15,246	5,071	4,921



Cruiser Sample Point Locations

LAYER NAME:	ol_stringer	Township:	T27R12W
POLY ID:	1	Total Sample Points:	48
Acres:	99	Spacing Between Points:	Width: 300 Height: 300
		Point Rotation Degrees:	0

N

0 162.5 325 650 975 1,300 Feet

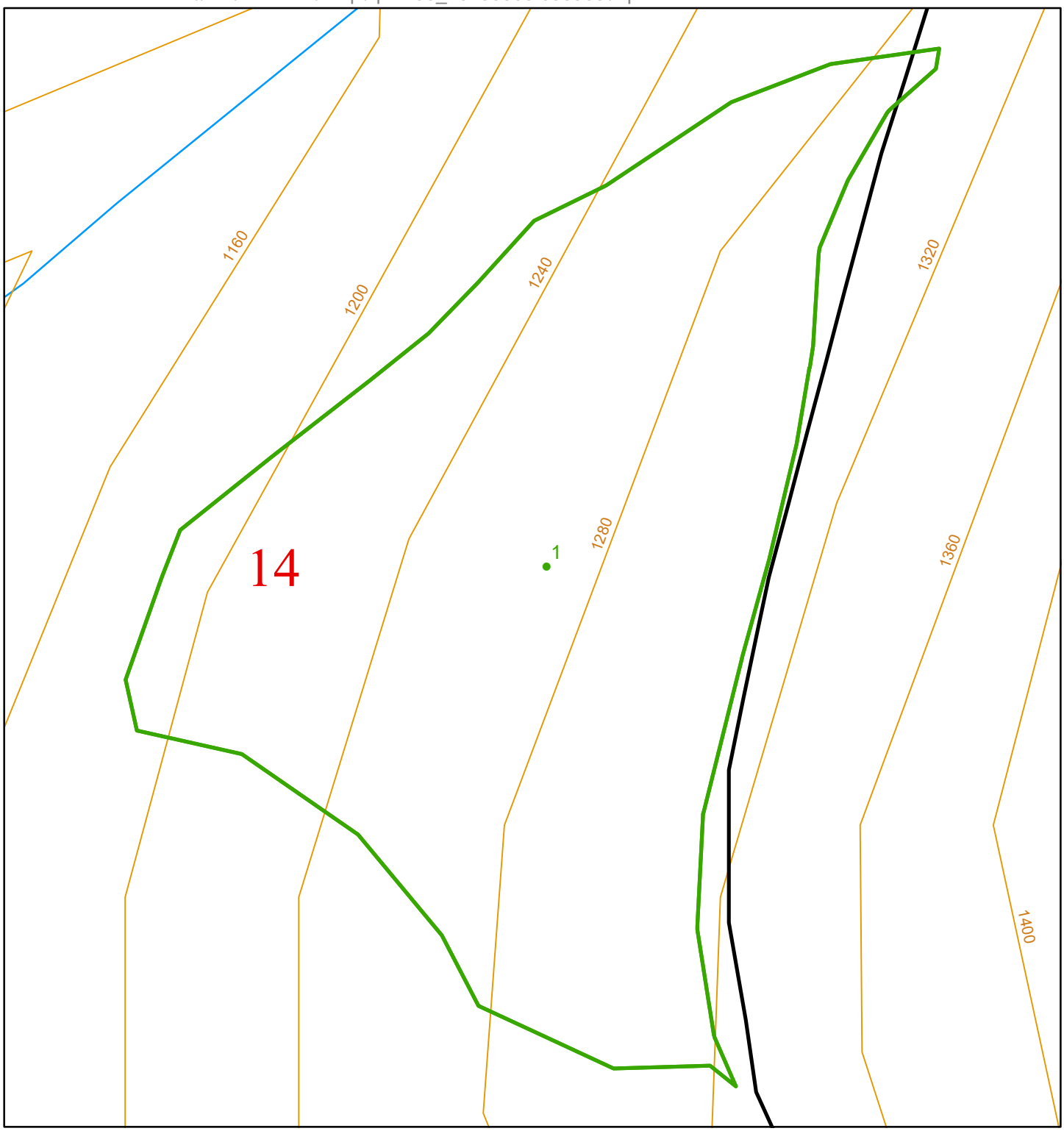
Scale 1:5,600

Legend

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

Washington State Department of Natural Resources
Hilary Franz, Commissioner of Public Lands

Sep 03, 2019 09:07 AM



Cruiser Sample Point Locations

LAYER NAME:	ol_stringer	Township:	T27R12W
POLY ID:	1	Total Sample Points:	1
Acres:	2	Spacing Between Points:	300
		Point Rotation Degrees:	0

N

0 20 40 80 120 160 Feet

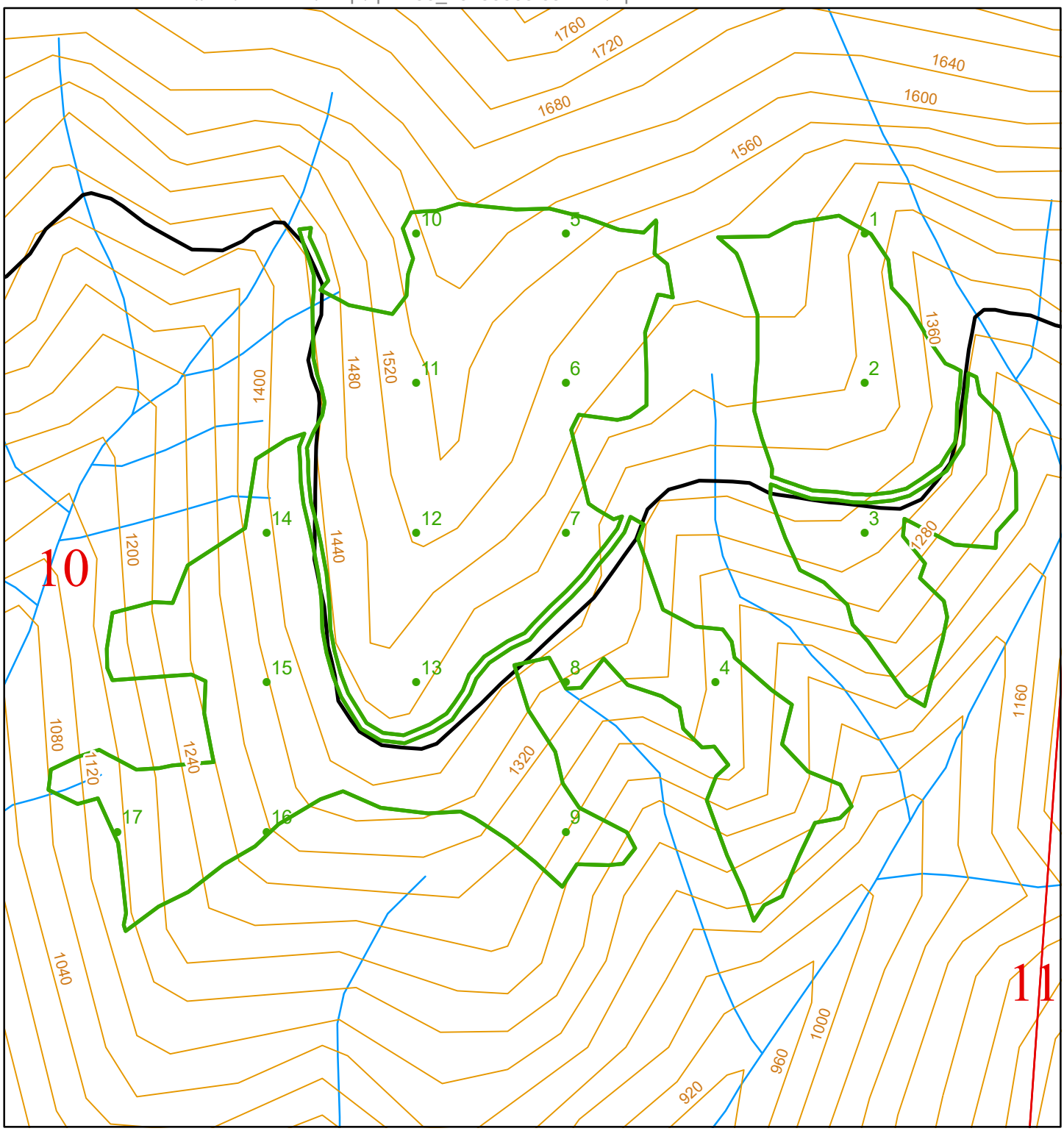
Scale 1:800

Legend

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

Washington State Department of Natural Resources
Hilary Franz, Commissioner of Public Lands

Sep 03, 2019 09:09 AM



Cruiser Sample Point Locations

LAYER NAME:	ol_stringer	Township:	T27R12W
POLY ID:	1	Total Sample Points:	17
Acres:	31	Spacing Between Points:	Width: 300 Height: 300
		Point Rotation Degrees:	0

N

0 95 190 380 570 760 Feet

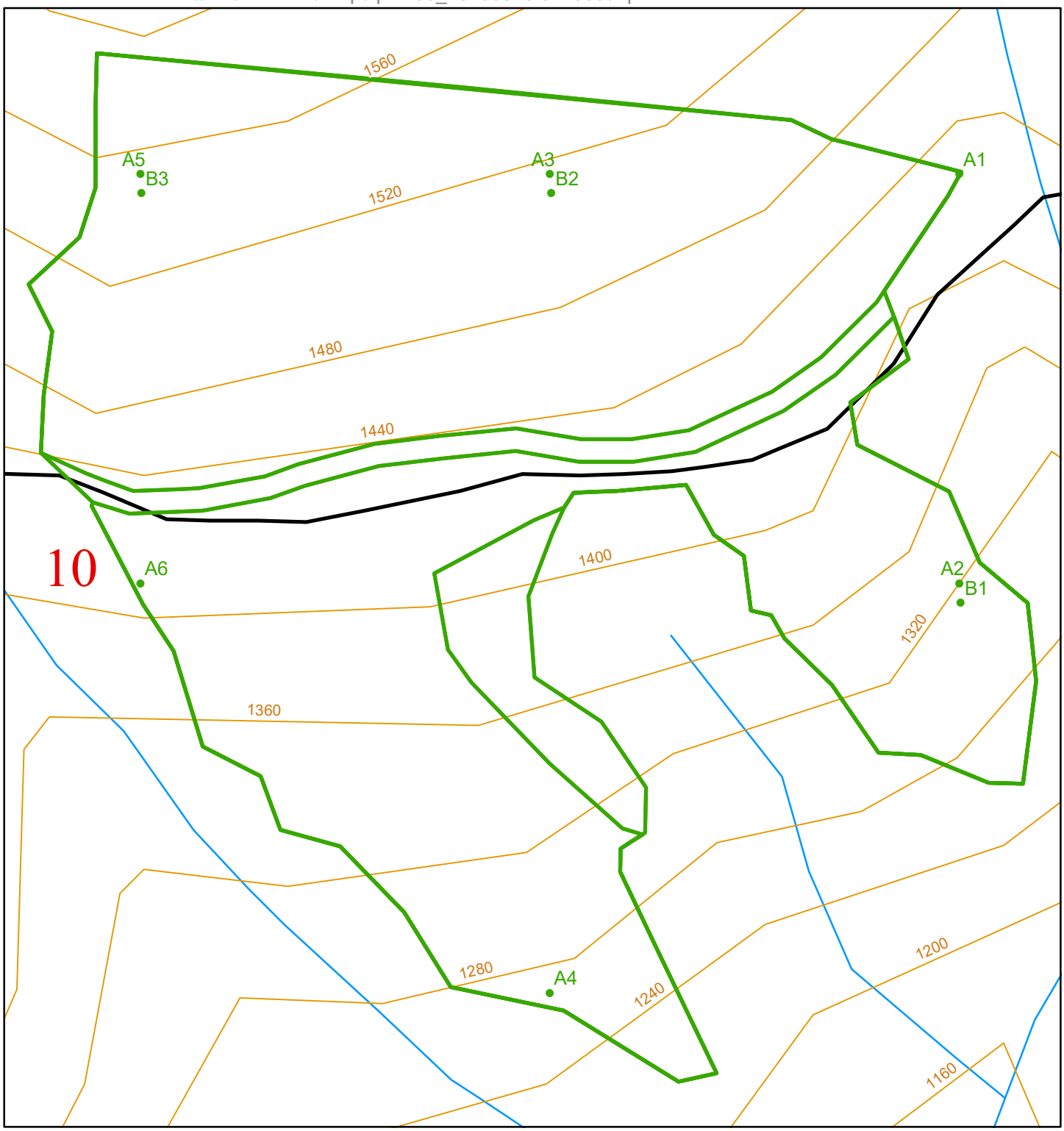
Scale 1:3,400

Legend

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

Washington State Department of Natural Resources
Hilary Franz, Commissioner of Public Lands

Sep 03, 2019 09:11 AM



Cruiser Sample Point Locations

LAYER NAME:	ol_stringer	Township:	T27R12W
POLY ID:	2	Total Sample Points:	3
Acres:	6	Spacing Between Points:	Width: 290 Height: 290
		Point Rotation Degrees:	0

N

0 30 60 120 180 240 Feet

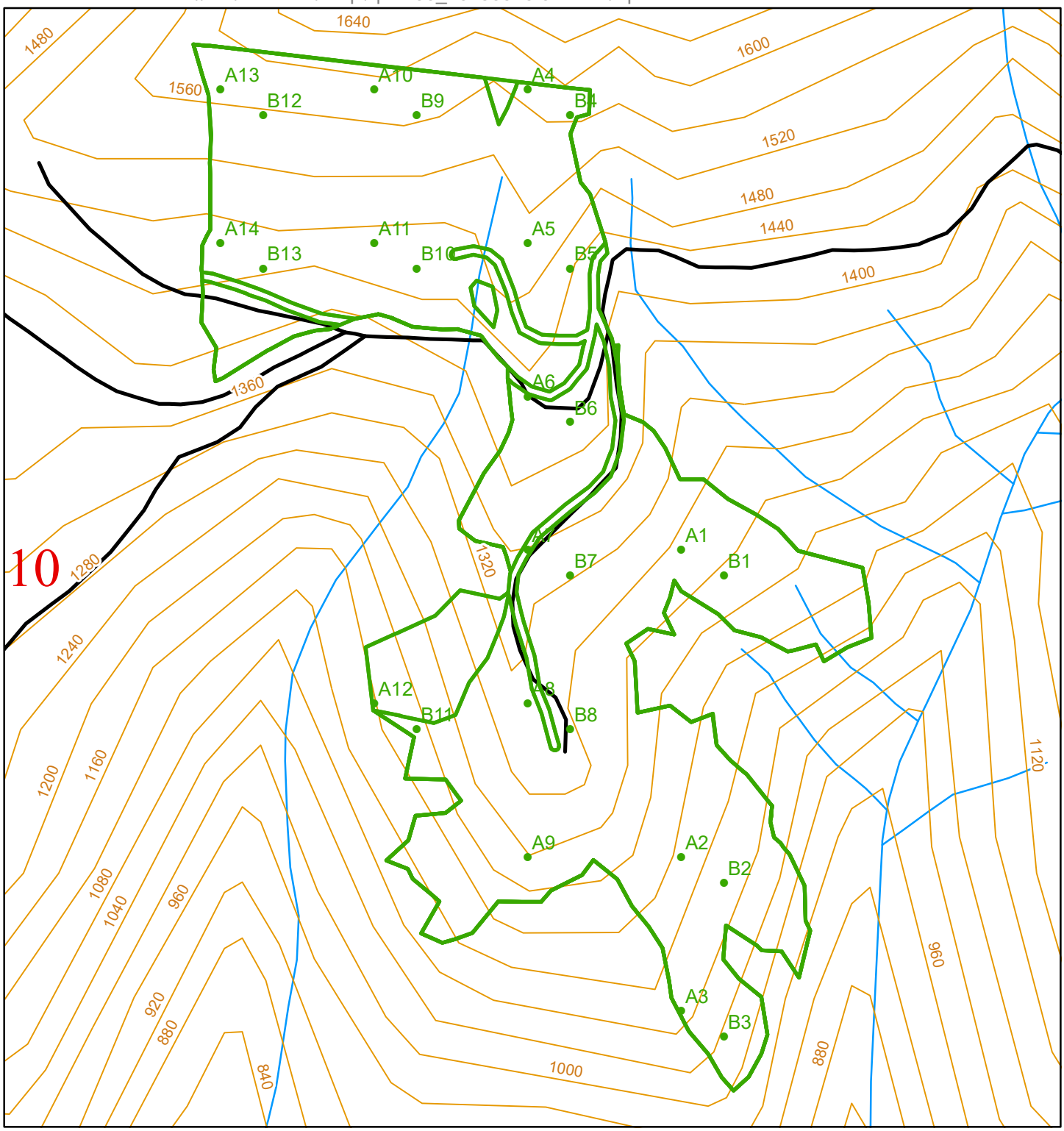
Scale 1:1,200

Legend

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

Washington State Department of Natural Resources
Hilary Franz, Commissioner of Public Lands

Sep 16, 2019 07:47 AM



Cruiser Sample Point Locations

LAYER NAME:	ol_stringer	Township:	T27R12W
POLY ID:	2	Total Sample Points:	13
Acres:	21	Spacing Between Points:	Width: 290 Height: 290
		Point Rotation Degrees:	0

N

0 90 180 360 540 720 Feet

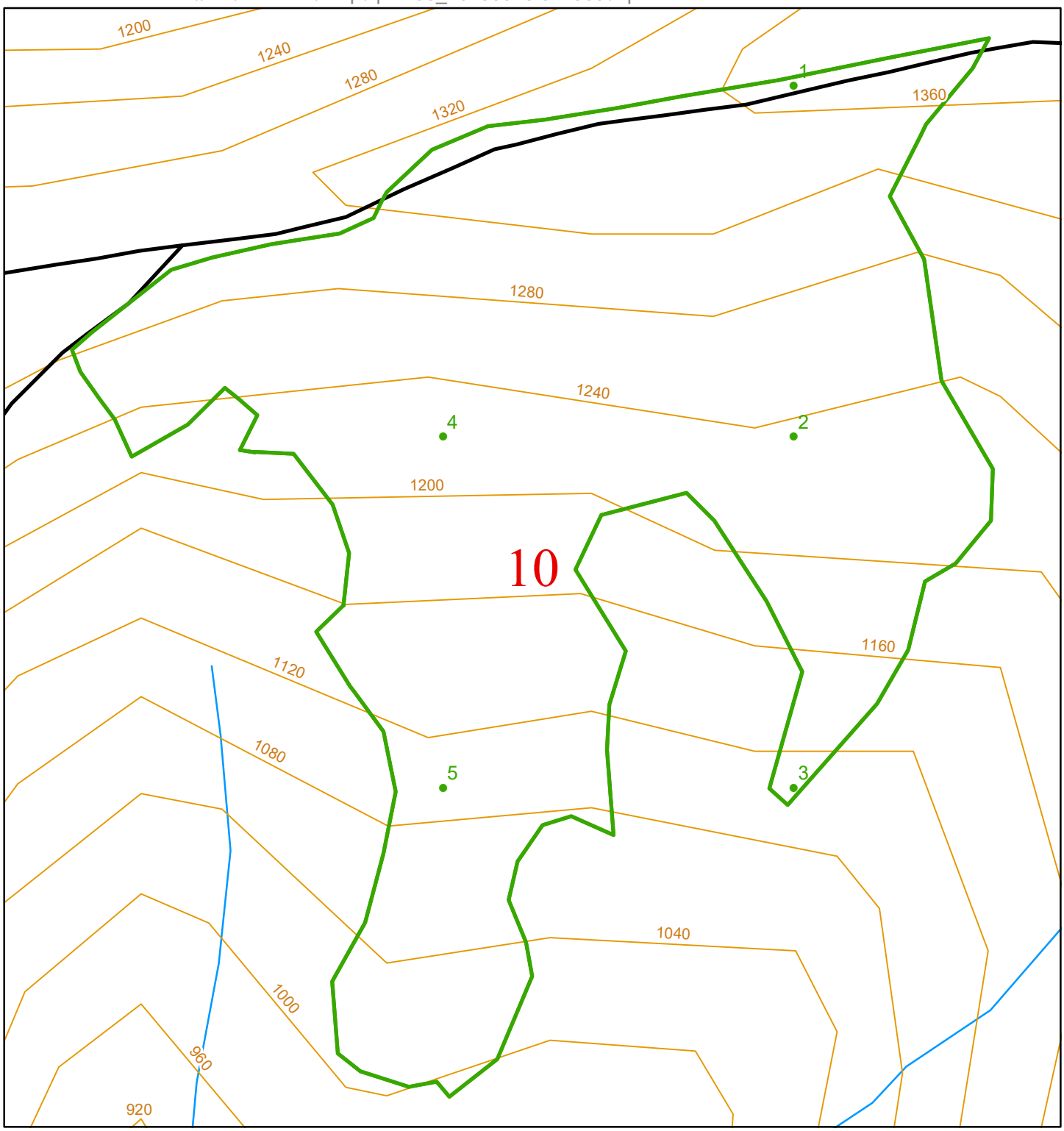
Scale 1:3,200

Legend

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

Washington State Department of Natural Resources
Hilary Franz, Commissioner of Public Lands

Sep 16, 2019 07:48 AM



Cruiser Sample Point Locations

LAYER NAME:	ol_stringer	Township:	T27R12W
POLY ID:	1	Total Sample Points:	5
Acres:	7	Spacing Between Points:	Width: 290 Height: 290
		Point Rotation Degrees:	0

N

0 40 80 160 240 320 Feet

Scale 1:1,400

Legend

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

Washington State Department of Natural Resources
Hilary Franz, Commissioner of Public Lands

Sep 16, 2019 07:50 AM

FPA/N No:	2616270
Effective Date:	12/20/2019
Expiration Date:	12/20/2022
Shut Down Zone:	652SW
EARR Tax Credit:	[X] Eligible [ ] Non-eligible
Reference:	DNR
	OI Stringer

Forest Practices Application/Notification
Notice of Decision

Decision

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

FPA/N Classification

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

Number of Years Granted on Multi-Year Request

[ ] 4 years [ ] 5 years

Conditions on Approval / Reasons for Disapproval

Timing Limitations on Type S and Type F waters: All work below the ordinary high water line shall only occur between July 1 and September 30.

[Note to office: proponent self-conditioned for MM timing restrictions.]

Issued By: Elliot Mann **Region:** Olympic

Title: Forest Practice Forester **Date:** 12/20/2019

Copies to: **[ ] Landowner, Timber Owner and Operator.**

Issued in person: **[X] Landowner [ ]Timber Owner [ ] Operator By:** Kate Kerschner

Appeal Information

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

Office of the Attorney General
Natural Resources Division
1125 Washington Street SE
PO Box 40100
Olympia, WA 98504-0100

And

Department Of Natural Resources
Olympic Region
411 Tillicum Lane
Forks, WA 98331

Other Applicable Laws

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

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

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

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

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

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

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

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

DNR affidavit of mailing:

On this day_____, I placed in the United States mail at Forks, WA,
(date) (post office location)
postage paid, a true and accurate copy of this document. Notice of Decision FPA # 2616270

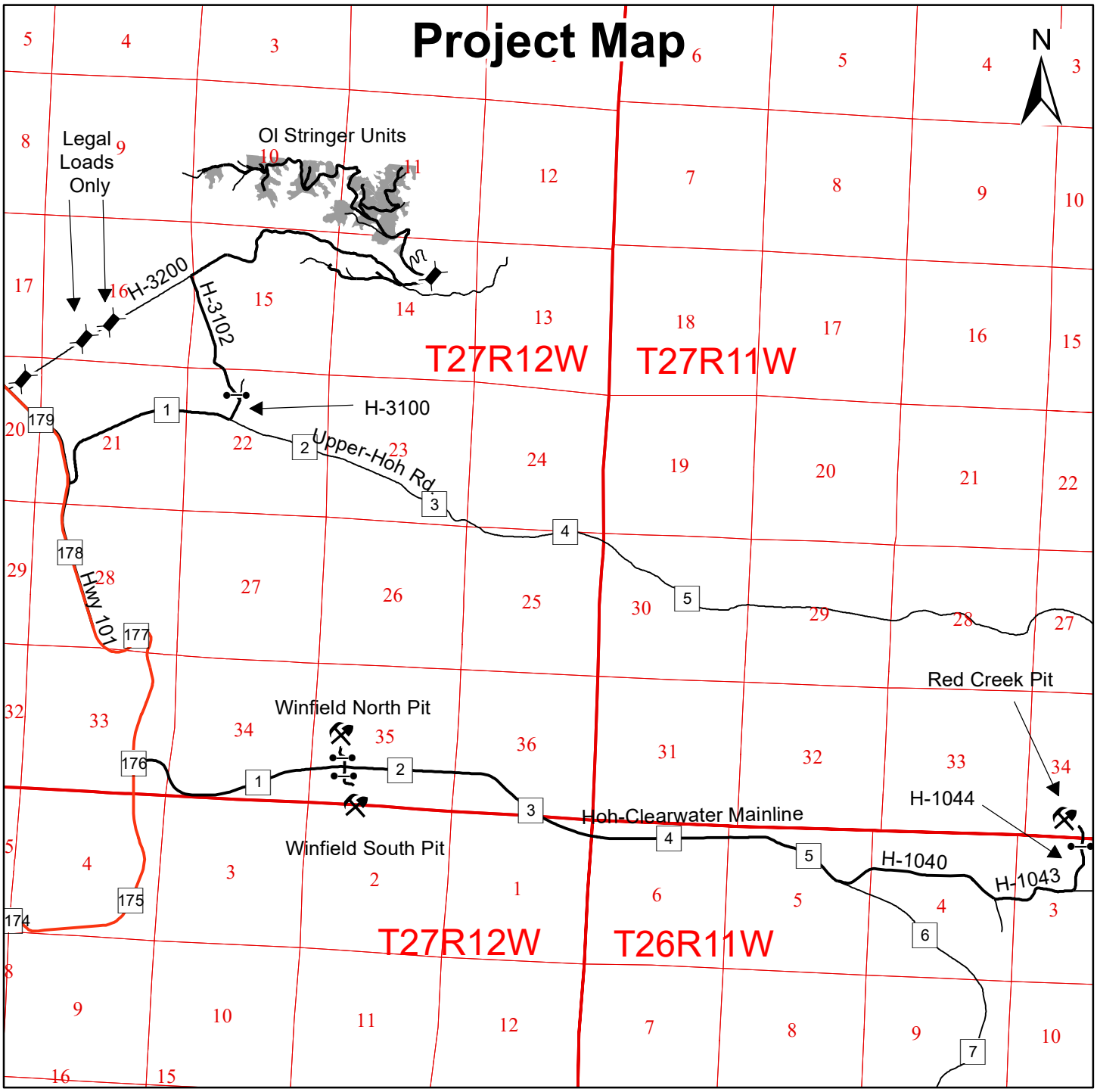
_____ _____
(Printed name) (Signature)

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

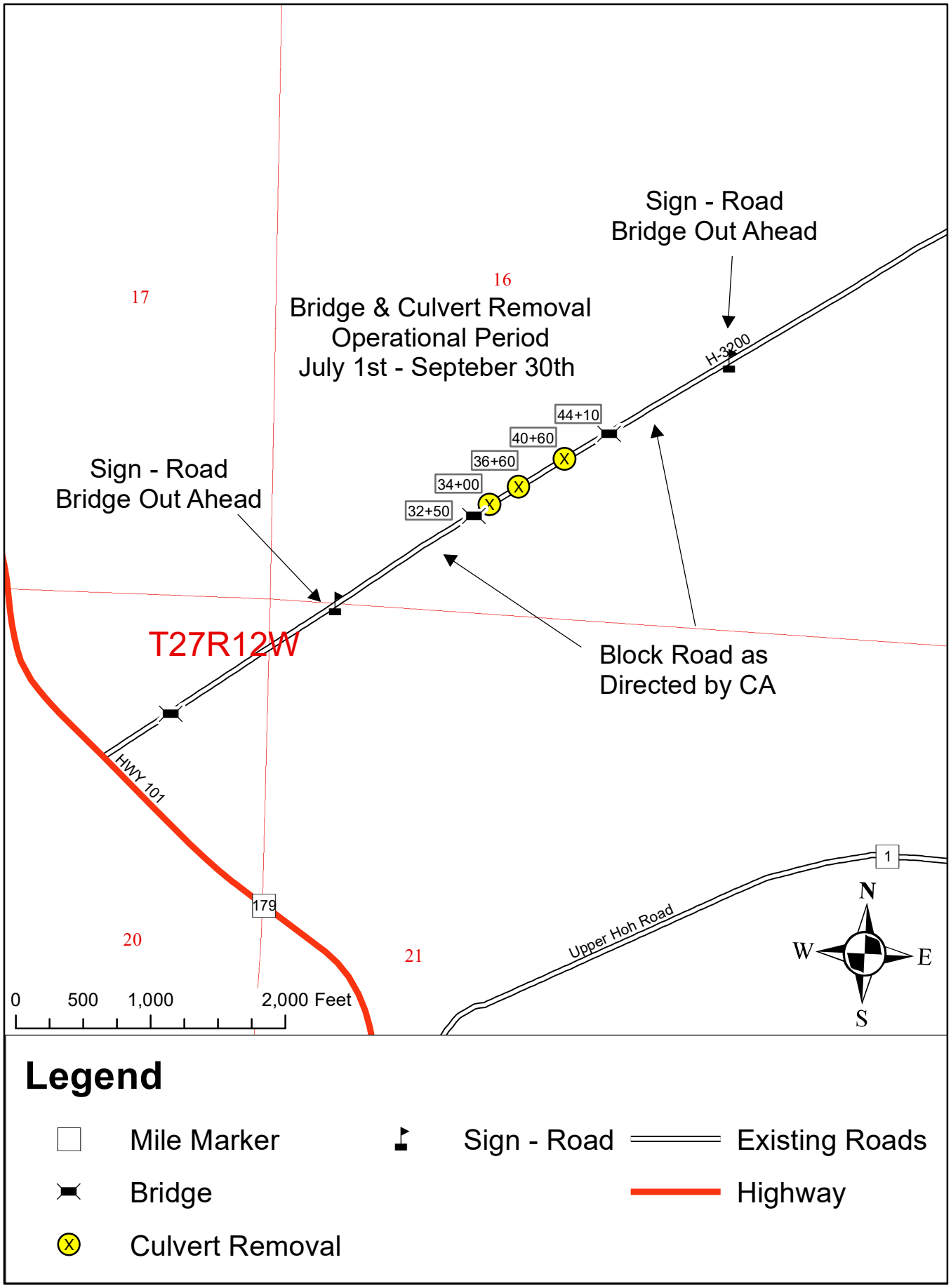
OL STRINGER TIMBER SALE ROAD PLAN
JEFFERSON COUNTY
COAST DISTRICT

AGREEMENT NO.: 30-099196 DISTRICT ENGINEER: BILL MEHL

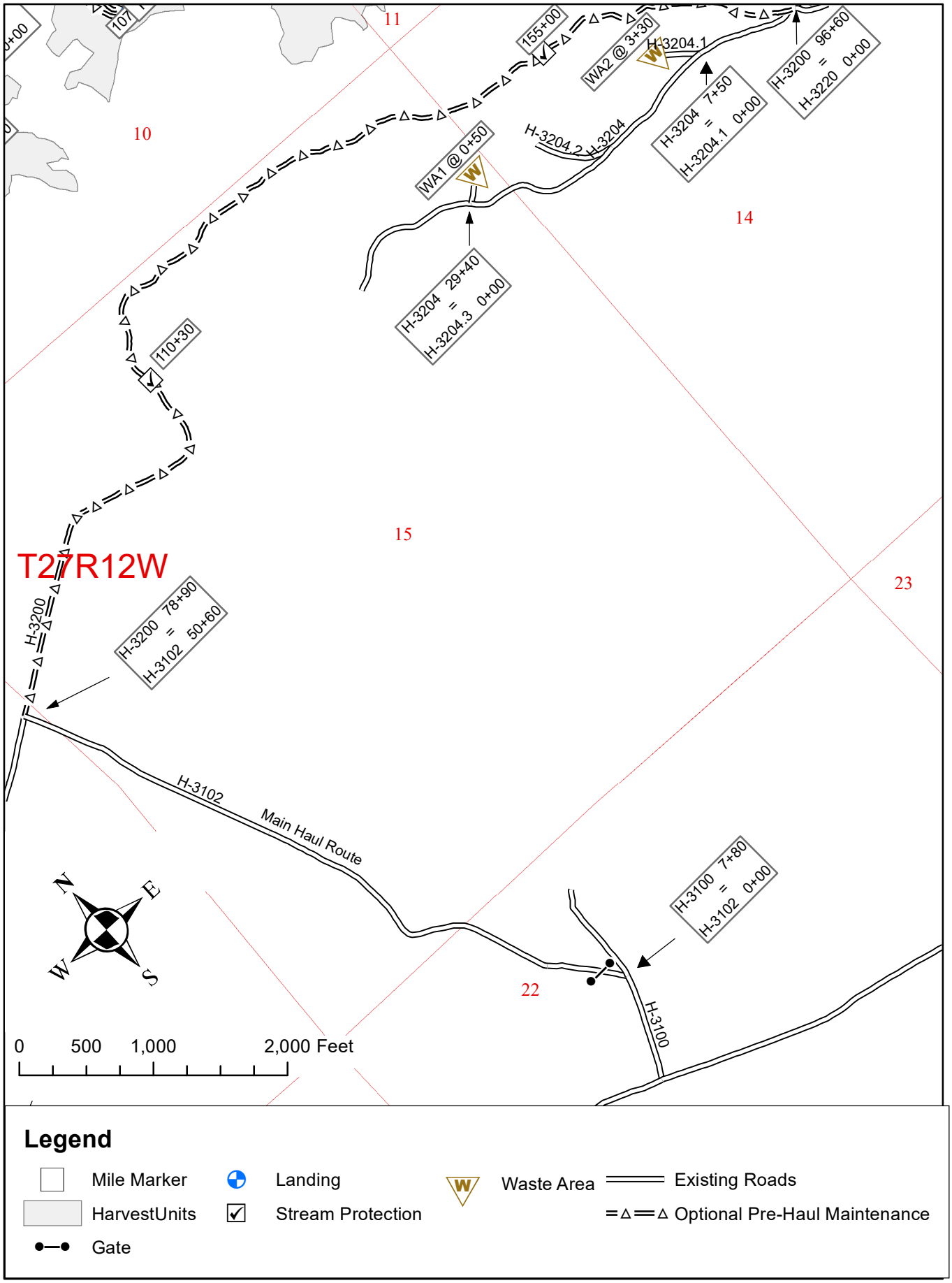
DATE: 9 January 2020 DRAWN AND COMPILED BY: KEVIN ALEXANDER



Bridge and Culvert Removal Map



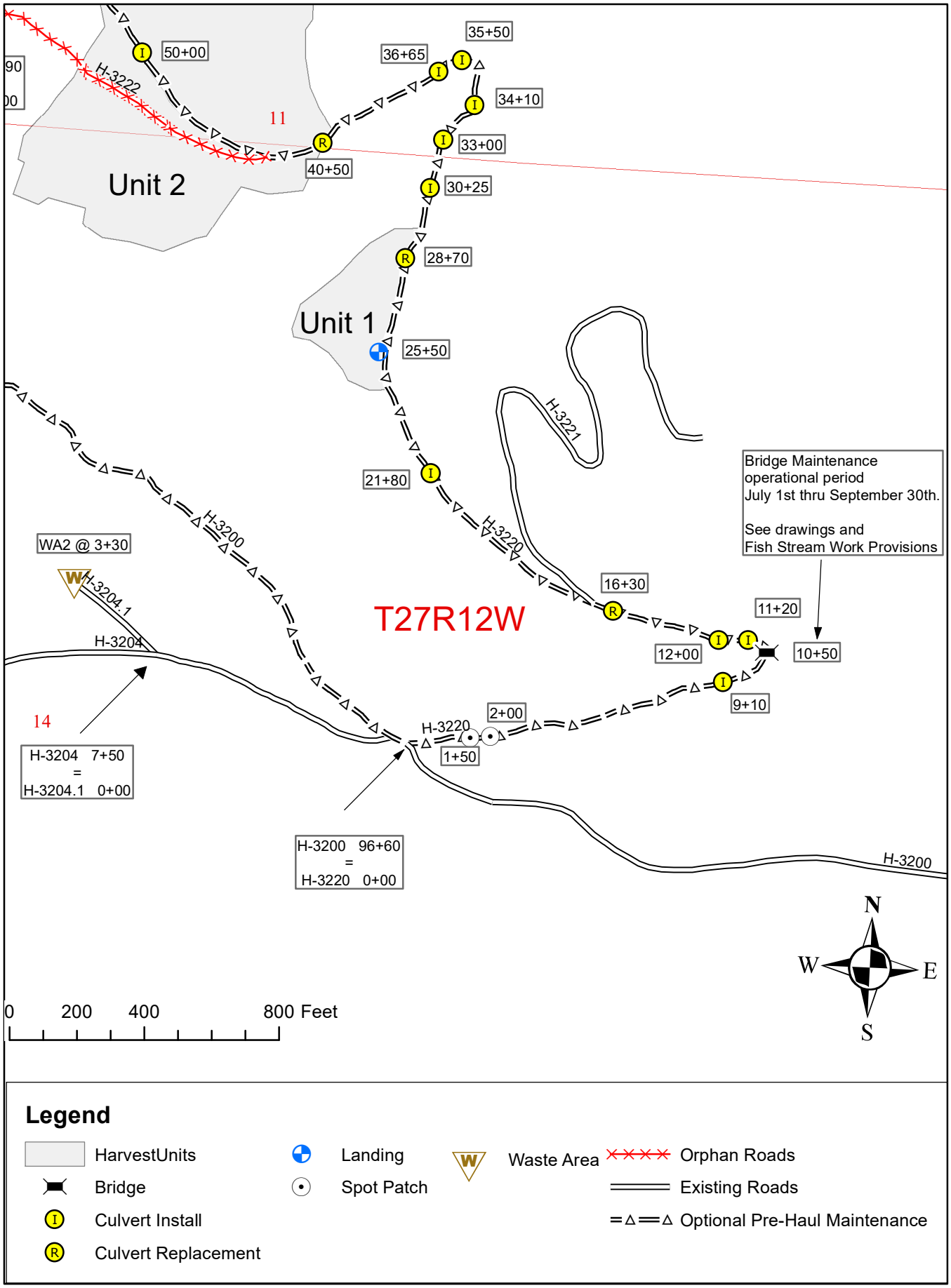
Maintenance Map



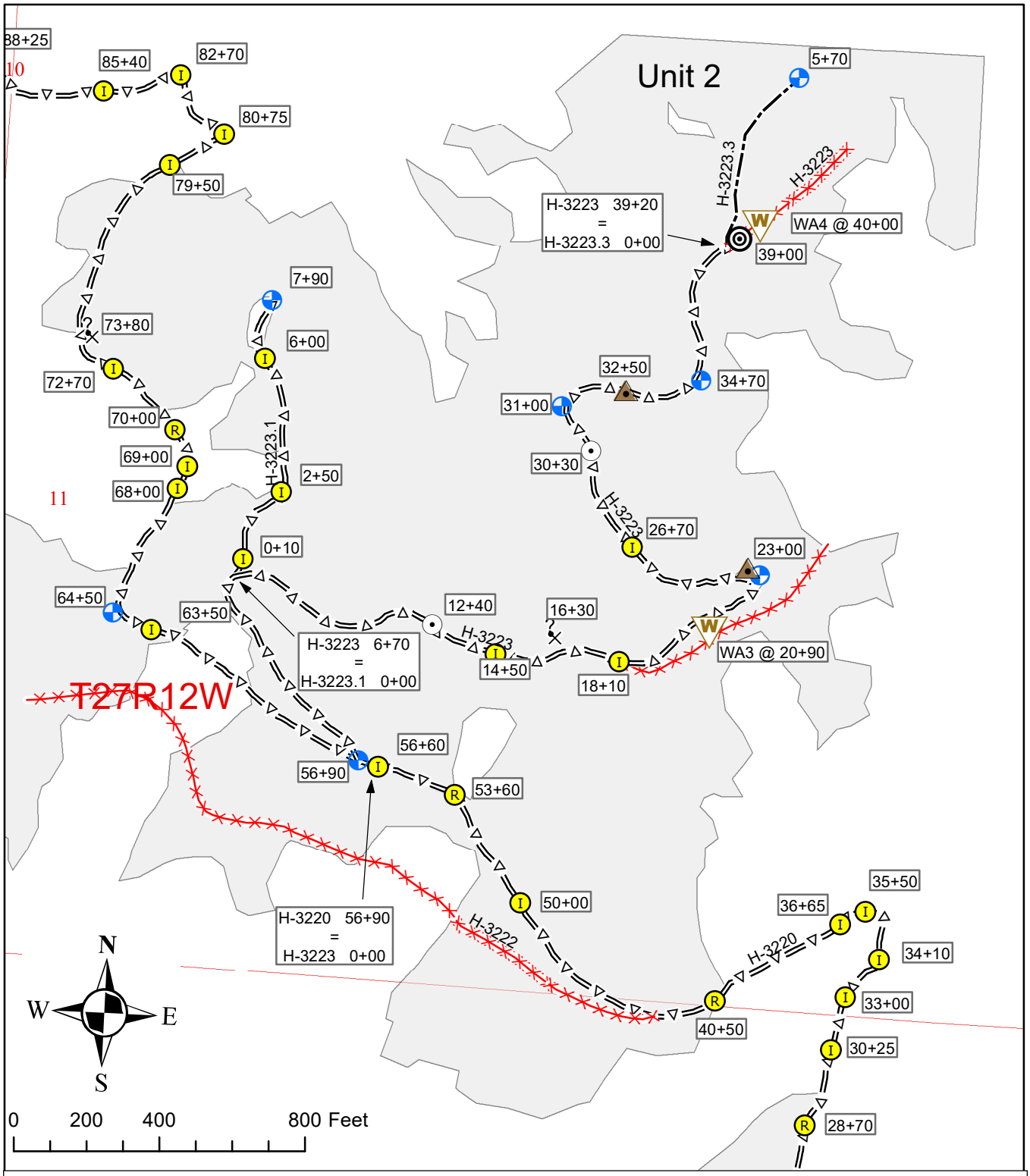
Legend

- Mile Marker
- HarvestUnits
- Gate
- Landing
- Stream Protection
- Waste Area
- Existing Roads
- Optional Pre-Haul Maintenance

Unit Map


Unit 2
Unit 1
H-3222
H-3221
H-3220
H-3200
H-3204.1
H-3204
11
14
50+00
40+50
36+65
35+50
34+10
33+00
30+25
28+70
25+50
21+80
16+30
12+00
11+20
10+50
9+10
2+00
1+50
WA2 @ 3+30
T27R12W
Bridge Maintenance
operational period
July 1st thru September 30th.
See drawings and
Fish Stream Work Provisions
H-3204 7+50
=
H-3204.1 0+00
H-3200 96+60
=
H-3220 0+00
0 200 400 800 Feet
N
W
E
S
Legend
HarvestUnits
Bridge
Culvert Install
Culvert Replacement
Landing
Spot Patch
Waste Area
Orphan Roads
Existing Roads
Optional Pre-Haul Maintenance

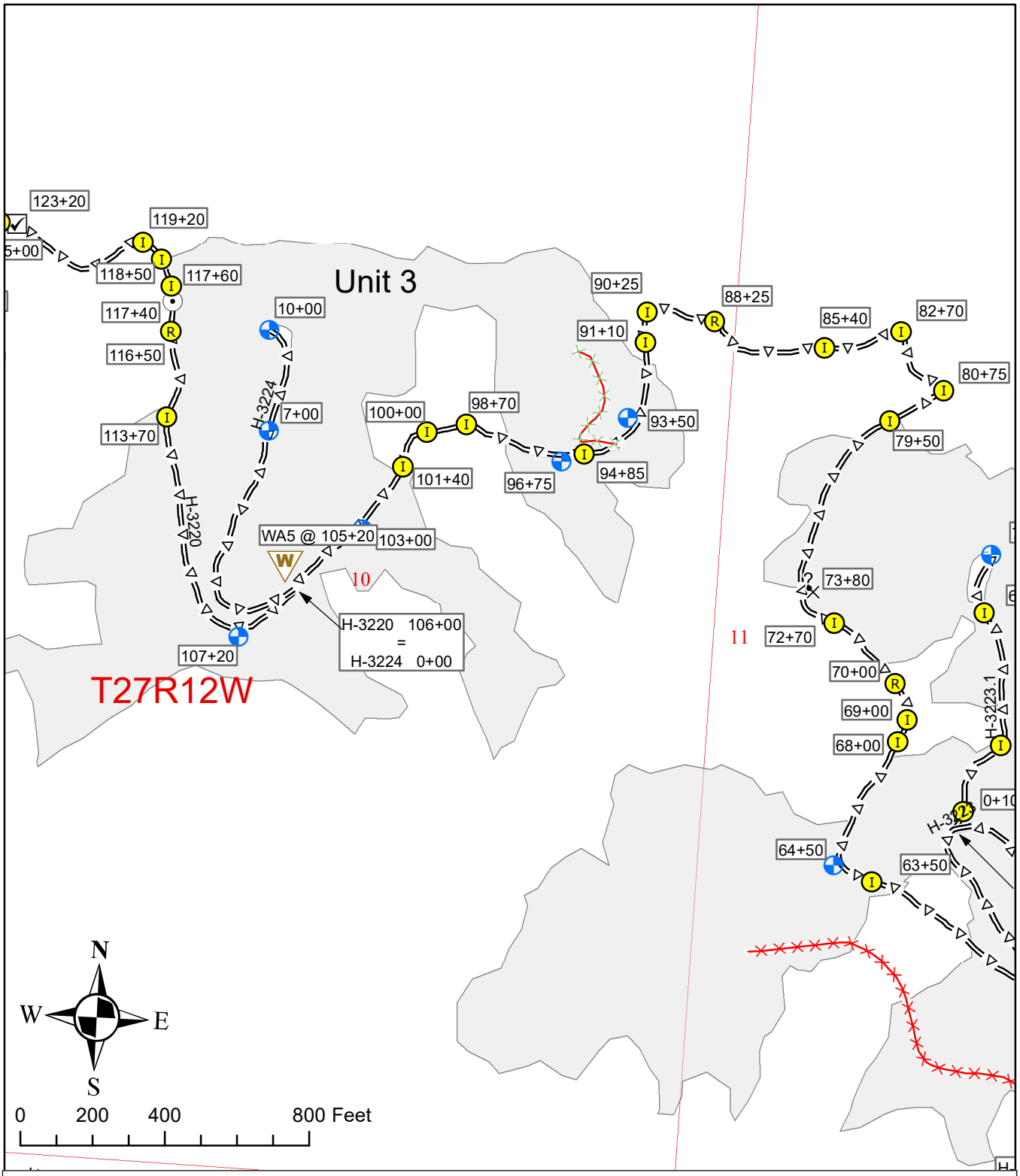
Unit Map



Legend

- HarvestUnits
- Culvert Install
- Culvert Replacement
- Rolling Dip
- Borrow Source
- Ditch Out
- Landing
- Spot Patch
- Stream Protection
- Waste Area
- Orphan Roads
- Existing Roads
- Optional Construction
- Optional Pre-Haul Maintenance

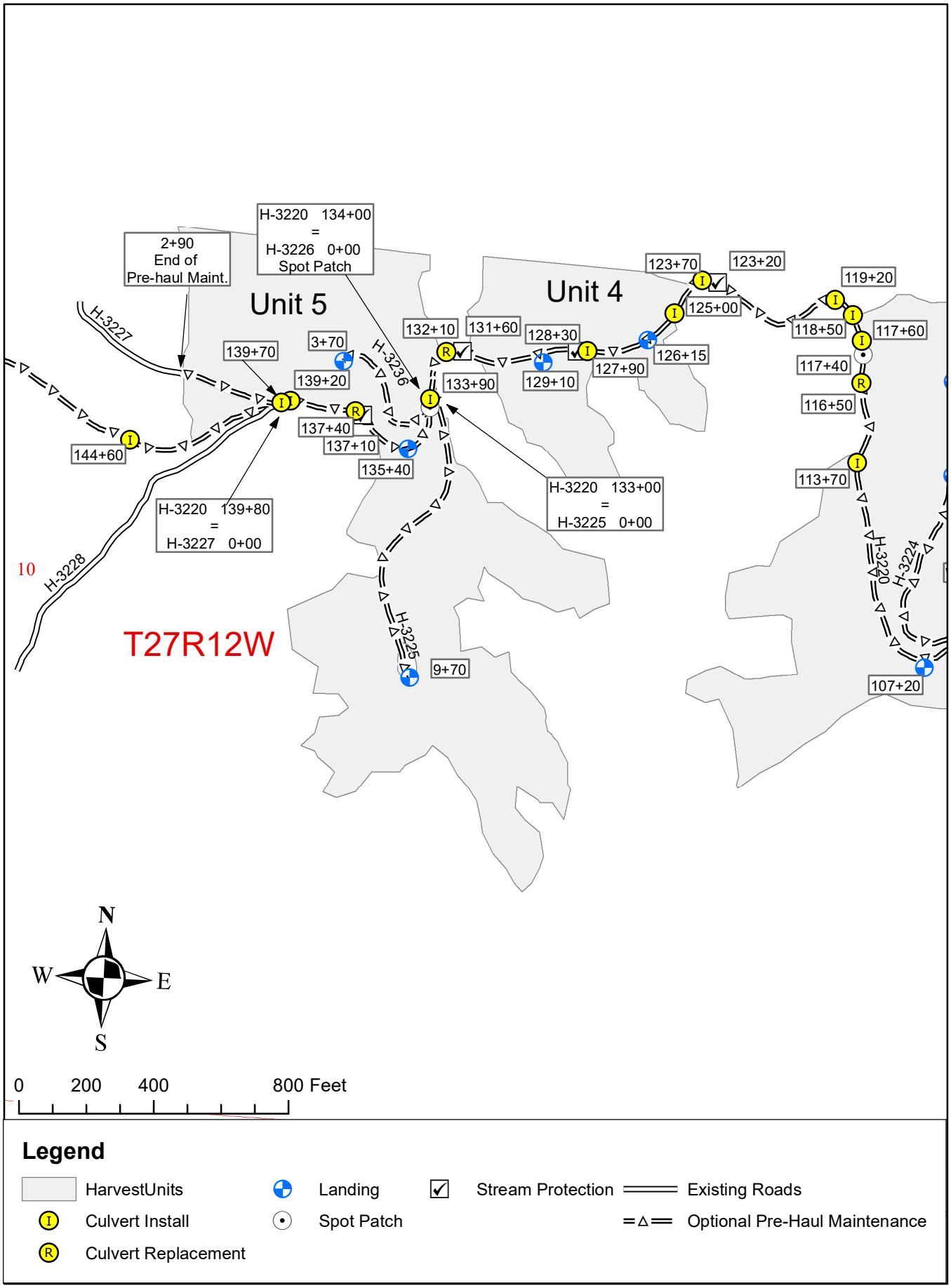
Unit Map



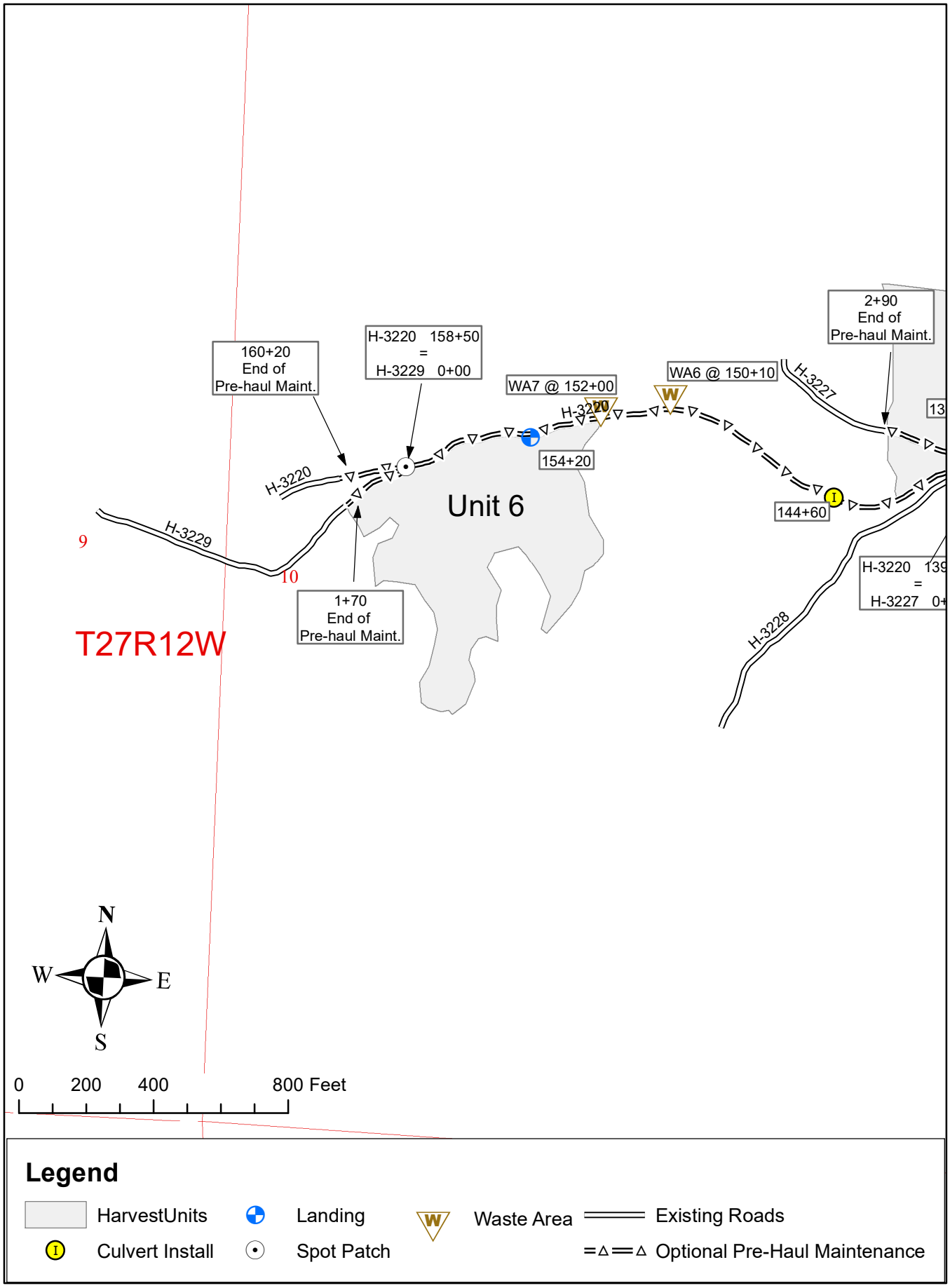
Legend

- HarvestUnits
- Culvert Install
- Culvert Replacement
- Borrow Source
- Landing
- Spot Patch
- Stream Protection
- Waste Area
- Orphan Roads
- Designated Skid Trail
- Existing Roads
- Optional Pre-Haul Maintenance

Unit Map


Unit 5
Unit 4
2+90
End of
Pre-haul Maint.
H-3220 134+00
=
H-3226 0+00
Spot Patch
H-3227
H-3236
H-3228
H-3225
H-3220
H-3224
139+70
3+70
139+20
137+40
137+10
135+40
144+60
132+10
131+60
133+90
128+30
129+10
127+90
126+15
125+00
123+70
123+20
119+20
118+50
117+60
117+40
116+50
113+70
107+20
9+70
H-3220 139+80
=
H-3227 0+00
H-3220 133+00
=
H-3225 0+00
10
T27R12W
N
W
E
S
0
200
400
800 Feet
Legend
HarvestUnits
Landing
Stream Protection
Existing Roads
Culvert Install
Spot Patch
Optional Pre-Haul Maintenance
Culvert Replacement

Unit Map


160+20
End of
Pre-haul Maint.
H-3220 158+50
=
H-3229 0+00
WA7 @ 152+00
WA6 @ 150+10
2+90
End of
Pre-haul Maint.
H-3227
H-3220
H-3229
154+20
Unit 6
144+60
9
10
1+70
End of
Pre-haul Maint.
T27R12W
H-3228
N
W
E
S
0
200
400
800 Feet
Legend
HarvestUnits
Landing
Waste Area
Existing Roads
Culvert Install
Spot Patch
Optional Pre-Haul Maintenance

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.

Road	Stations	Type
H-3200	32+50, 34+00, 36+60, 40+60, & 44+10	Culvert and Bridge Removal

0-3 OPTIONAL ROADS

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

Road	Stations	Type
H-3100	0+00 - 7+80	Post-Haul Maintenance
H-3102	0+00 - 50+60	Post-Haul Maintenance
H-3200	79+00 - 96+60	Pre-Haul Maintenance
H-3204	0+00 - 29+40	Post-Haul Maintenance
H-3204.1	0+00 - 3+30	Post-Haul Maintenance
H-3204.3	0+00 - 0+50	Post-Haul Maintenance
H-3220	0+00 - 160+20	Pre-Haul Maintenance
H-3223	0+00 - 32+20	Pre-Haul Maintenance
H-3223.1	0+00 - 7+90	Pre-Haul Maintenance
H-3223.3	0+00 - 5+70	Construction
H-3224	0+00 - 10+00	Pre-Haul Maintenance
H-3225	0+00 - 9+70	Pre-Haul Maintenance
H-3226	0+00 - 3+70	Pre-Haul Maintenance
H-3227	0+00 - 2+90	Pre-Haul Maintenance
H-3229	0+00 - 1+70	Pre-Haul Maintenance

0-4 CONSTRUCTION

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

Road	Stations	Requirements
H-3223.3	0+00 - 5+70	See Below
Total	**5.70**	

Construction includes, but is not limited to:
Clearing, grubbing, right-of-way debris disposal, excavation and/or embankment to subgrade, end hauling material for construction, compacting road surfaces, constructing ditchlines, constructing ditchouts, constructing turnouts and turnarounds, curve widening, acquisition and installation of drainage structures, application of rock, spreading grass seed and hay.

0-6 PRE-HAUL MAINTENANCE

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

Road	Stations	Requirements
H-3200	32+50, 34+00, 36+60, 40+60, & 44+10	Bridge and culvert removal in accordance with drawings
H-3200	79+00 - 96+60	Grade, shape and compact road in accordance with Clause 2-5 Maintain culverts in accordance with culvert list and Clause 2-6 Clean/construct ditch lines as directed by the Contract Administrator in accordance with Clause 2-7 and 4-38 Maintain erosion control structures in accordance with Clause 2-8 and as directed by Contract Administrator. Apply rock in accordance with Rock list Compact rock in accordance with Compaction List
H-3220	0+00 - 160+20	Grade, shape and compact road in accordance with Clause 2-5 Clean/construct ditch lines in accordance with Clause 2-7 and 4-38 Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clauses 2-9 and 3-23 Curve widening in accordance with Clause 4-8 Install keyed embankment in accordance with Clause 4-11 and Typical Embankment Key Detail Conduct bridge maintenance in accordance with Clause 7-30 and associated drawings. Install sediment traps in accordance with Clause 8-1 and remove material in accordance with Clause 8-11

		Apply rock in accordance with Rock list Compact rock in accordance with Compaction List Install/replace/maintain culverts in accordance with Culvert list
H-3223	0+00 - 39+20	Grade, shape and compact road in accordance with Clause 2-5 Clean/construct ditch lines in accordance with Clause 2-7 and 4-38 Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clauses 2-9 and 3-23 Construct ditchouts in accordance with Clause 4-29 Install sediment traps in accordance with Clause 8-1 and remove material in accordance with Clause 8-11 Install/replace/maintain culverts in accordance with Culvert list Apply rock in accordance with Rock list Compact rock in accordance with Compaction List
H-3223.1	0+00 - 7+90	Grade, shape and compact road in accordance with Clause 2-5 Clean/construct ditch lines in accordance with Clause 2-7 and 4-38 Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clauses 2-9 and 3-23 Install/replace/maintain culverts in accordance with Culvert list Apply rock in accordance with Rock list Compact rock in accordance with Compaction List

H-3224	0+00 - 10+00	Grade, shape and compact road in accordance with Clause 2-5 Clean/construct ditch lines in accordance with Clause 2-7 and 4-38 Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clauses 2-9 and 3-23 Apply rock in accordance with Rock list Compact rock in accordance with Compaction List
H-3225	0+00 - 9+70	Grade, shape and compact road in accordance with Clause 2-5 Clean/construct ditch lines in accordance with Clause 2-7 and 4-38 Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clauses 2-9 and 3-23 Apply rock in accordance with Rock list Compact rock in accordance with Compaction List
H-3226	0+00 - 3+70	Grade, shape and compact road in accordance with Clause 2-5 Clean/construct ditch lines in accordance with Clause 2-7 and 4-38 Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clauses 2-9 and 3-23 Apply rock in accordance with Rock list Compact rock in accordance with Compaction List
H-3227	0+00 - 2+90	Grade, shape and compact road in accordance with Clause 2-5 Clean/construct ditch lines in accordance with Clause 2-7 and 4-38

		Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clauses 2-9 and 3-23 Apply rock in accordance with Rock list Compact rock in accordance with Compaction List
H-3229	0+00 - 1+70	Grade, shape and compact road in accordance with Clause 2-5 Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clauses 2-9 and 3-23 Apply rock in accordance with Rock list Compact rock in accordance with Compaction List
Total	**252.90**	

Maintenance includes, but is not limited to:
Brushing right-of-way, right-of-way debris disposal, cleaning ditches, constructing ditches, installing additional culverts, widening road segments, constructing headwalls, cleaning culvert inlets and outlets, cross drain culvert replacement, installing erosion control materials and sediment removal structures, spot rocking, grading and shaping existing road surface and turnouts, constructing additional turnouts, compaction of road surface, application of rock, acquisition and application of grass seed and hay.

0-7 POST-HAUL MAINTENANCE

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

0-13 STRUCTURES

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

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

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

1-3 ROAD DIMENSIONS

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

1-5 DESIGN DATA

Design data is available upon request at the Department of Natural Resources Olympic Region Office in Forks, WA.

1-6 ORDER OF PRECEDENCE

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

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

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

1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS

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

1-9 DAMAGED METALLIC COATING

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

1-10 WSDOT STANDARD SPECIFICATION REFERENCE

References in this road plan to “WSDOT Standard Specifications” mean the Washington State Department of Transportation’s Standard Specifications for Road, Bridge, and Municipal Construction 2018 (M41-10).

1-11 FPHP REQUIREMENTS

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

FPA Crossing Identifier	Road	Stations	Work Type
C1	H-3220	10+50	Bridge Maintenance and Stream Realignment
C4	H-3220	35+50	Np Culvert Installation and Stream Realignment
C12	H-3220	98+70	Np Culvert Installation and Keyed Embankment Installation
C13	H-3220	100+00	Ns Culvert Installation and Keyed Embankment Installation
C22	H-3200	32+50	Log Stringer Bridge Removal
C21	H-3200	44+10	Log Stringer Bridge Removal

1-12 SURVEY MONUMENTS

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

SUBSECTION ROAD MARKING

1-15 ROAD MARKING

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

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

1-16 CONSTRUCTION STAKES SET BY STATE

Purchaser shall perform work on the following road(s) in accordance with the construction stakes and reference points set in the field for grade and alignment.

Road	Stations	Type
H-3220	10+50	Bridge Maintenance and Stream Realignment
H-3220	35+50	Np Culvert Installation and Stream Realignment
H-3220	98+70	Np Culvert Installation and Keyed Embankment Installation
H-3220	100+00	Ns Culvert Installation and Keyed Embankment Installation
H-3200	32+50	Log Stringer Bridge Removal
H-3200	44+10	Log Stringer Bridge Removal

1-18 REFERENCE POINT DAMAGE

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

SUBSECTION TIMING

1-20 COMPLETE BY DATE

Purchaser shall complete pre-haul road work before the start of timber haul.

1-21 HAUL APPROVAL

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

1-22 WORK NOTIFICATIONS

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

1-23 ROAD WORK PHASE APPROVAL

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

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

SUBSECTION RESTRICTIONS

1-25 ACTIVITY TIMING RESTRICTION

On the following road(s), the specified activities are not permitted during the listed closure period(s) unless authorized in writing by the Contract Administrator.

Road	Stations	Activity	Closure Period
H-3220	10+50	Bridge Maintenance	October 1st - June 30th
H-3220	0+00 – 160+20	Road Maintenance Activities	October 15th – April 15th
H-3200	32+50 & 44+10	Bridge Removals	October 1st – June 30th

1-26 OPERATING DURING CLOSURE PERIOD

If permission is granted to operate during a closure period listed in Clause 1-25 Activity Timing Restriction, the Purchaser shall provide a maintenance plan to include further protection of State resources. The Contract Administrator must approve the maintenance plan in writing, and preventative measures shall be put in place, before operation in the closure period. The Purchaser shall be required to maintain all haul roads at their own expense including those listed in Contract Clause C-060 Designated Road Maintainer. If other operators are using, or desire to use these designated maintainer roads, a joint operating plan shall be developed. All parties shall follow this plan.

1-27 TIMING RESTRICTION FOR MARBLED MURRELET

On the following road(s), any road work, right-of-way timber falling and yarding, rock pit operations, or operation of heavy equipment must be performed during the limited operational period (two hours after sunrise to two hours before sunset) during the murrelet nesting season (April 1st through September 23rd).

Road	Stations
H-3220	0+00 – 9+00
H-3204	9+00 – 29+00

1-29 SEDIMENT RESTRICTION

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

1-30 CLOSURE TO PREVENT DAMAGE

In accordance with Contract Clause G-220 State Suspends Operation, the Contract Administrator shall suspend road work or hauling of right-of-way timber, forest products, or rock under the following conditions:

- In the opinion of the Contract Administrator excessive road damage or rutting may occur.

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

1-32 BRIDGE AND ASPHALT SURFACE RESTRICTION

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

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

1-33 SNOW PLOWING RESTRICTION

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

SUBSECTION OTHER INFRASTRUCTURE

1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS

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

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

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

Road Name
Upper Hoh Road
US 101

SECTION 2 – MAINTENANCE

2-1 GENERAL ROAD MAINTENANCE

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

2-2 ROAD MAINTENANCE – PURCHASER MAINTENANCE

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

2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER

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

C-060 Designated Roads

Road	Stations
H-3100	0+00 – 7+80
Winfield North Pit Access	0+00 – 4+80
Winfield South Pit Access	0+00 – 3+60
H-1040	All
H-1043	All
H1044	All

2-4 PASSAGE OF LIGHT VEHICLES

Purchaser shall maintain the following road(s) in a condition that will allow the passage of light administrative vehicles.

Road	Stations
H-3100	0+00 – 7+80
H-3102	0+00 – 50+60
H-3200	78+90 - 96+60

2-5 MAINTENANCE GRADING – EXISTING ROAD

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

Road	Stations	Requirements
H-3100	0+00 – 7+80	Grade, shape, compact, and remove shoulder and surface vegetation
H-3102	0+00 – 50+60	Grade, shape, compact, and remove shoulder and surface vegetation
H-3200	78+90 - 96+60	Grade, shape, compact, and remove shoulder and surface vegetation
H-3204	0+00 – 29+40	Grade, shape, compact, and remove shoulder and surface vegetation
H-3204.1	0+00 – 3+30	Grade, shape, compact, and remove shoulder and surface vegetation
H-3204.3	0+00 – 0+50	Grade, shape, compact, and remove shoulder and surface vegetation
H-3220	0+00 – 160+20	Grade, shape, compact, and remove shoulder and surface vegetation
H-3223	0+00 – 39+20	Grade, shape, compact, and remove shoulder and surface vegetation
H-3223.1	0+00 – 7+90	Grade, shape, compact, and remove shoulder and surface vegetation
H-3224	0+00 – 10+00	Grade, shape, compact, and remove shoulder and surface vegetation

H-3225	0+00 – 9+70	Grade, shape, compact, and remove shoulder and surface vegetation
H-3226	0+00 – 3+70	Grade, shape, compact, and remove shoulder and surface vegetation
H-3227	0+00 – 2+90	Grade, shape, compact, and remove shoulder and surface vegetation
H-3229	0+00 – 1+70	Grade, shape, compact, and remove shoulder and surface vegetation

2-6 CLEANING CULVERTS

As directed by Contact Administrator, inlets and outlets of culverts shall be cleaned before the start of timber haul and maintained during the life of the contract. Acceptance shall be subject to the written approval of the Contract Administrator.

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

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

Road	Stations	Description	Left or Right
H-3200	110+30	Construct 3 Catch Basins with Silt Fence	Right
H-3200	155+00	Construct 3 Catch Basins with Silt Fence	Right
H-3220	0+00 – 160+20	Ditching	Right
H-3220	123+20	Construct 3 Catch Basins with Silt Fence	Right
H-3220	128+30	Construct 3 Catch Basins with Silt Fence	Right
H-3220	131+60	Construct 3 Catch Basins with Silt Fence	Right
H-3220	137+10	Construct 3 Catch Basins with Silt Fence	Right
H-3223	0+00 – 34+70	Ditching	Both
H-3223.1	0+00 – 7+90	Ditching	Right
H-3224	0+00 – 3+00	Ditching	Right
H-3225	0+00 – 5+80	Ditching	Right
H-3226	0+00 – 3+70	Ditching	Right
H-3227	0+00 – 2+90	Ditching	Right

2-8 MAINTAINING EROSION CONTROL STRUCTURES

On the following road(s), Purchaser shall clean and maintain all erosion control devices. Work shall be completed before the start of timber haul and shall be done in accordance with all pertaining clauses contained in this Road Plan. Excavated material shall be disposed of in accordance with Clause 4-35 through Clause 4-38.

Road	Stations	Work Needed
H-3200	All	As Directed

2-9 REMOVING VEGETATIVE MATERIAL

On the following road(s), Purchaser shall remove all vegetative material, dirt, mud, and other debris on the existing road surface with a minimum loss of rock. Material removed shall be disposed of in accordance with Clause 3-21 through Clause 3-25 and Clause 4-36 through Clause 4-38.

Road	Stations
H-3220	0+00 – 160+20
H-3223	0+00 – 32+20

H-3223.1	0+00 - 7+90
H-3224	0+00 – 10+00
H-3225	0+00 – 9+70
H-3226	0+00 – 3+70
H-3227	0+00 – 2+90
H-3229	0+00 - 1+70

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

SUBSECTION BRUSHING

3-3 BRUSH REMOVAL

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

SUBSECTION CLEARING

3-5 CLEARING

Purchaser shall fall all vegetative material larger than 5 inches DBH or over 15 feet high between the marked right-of-way boundaries or if not marked in the field, between the clearing limits specified on the TYPICAL SECTION SHEET. Clearing must be completed before starting excavation and embankment.

3-7 RIGHT-OF-WAY DECKING

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

3-8 PROHIBITED DECKING AREAS

Right-of-way timber shall not be decked in the following areas:

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

SUBSECTION GRUBBING

3-10 GRUBBING

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

3-12 STUMP PLACEMENT

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

3-14 STUMPS WITHIN DESIGNATED WASTE AREAS

In the following waste area(s), the removal of stumps is not required within waste areas if they are cut flush with the ground.

Road	Waste Area	FPA Identifier
H-3204.1	@ Station 3+30	WA2
H-3204.3	@ Station 0+50	WA1

SUBSECTION ORGANIC DEBRIS

3-20 ORGANIC DEBRIS DEFINITION

Organic debris is defined as all vegetative material not eligible for removal by Contract Clauses G-010 Products Sold And Sale Area or G-011 Right To Remove Forest Products And Contract Area, that is larger than one cubic foot in volume within the grubbing Typical Section Sheet.

3-21 DISPOSAL COMPLETION

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

3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

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

Road	Stations	Waste Area Location	FPA Identifier
All	As needed	H-3220 @ 150+10	WA6
All	As needed	H-3220 @ 152+00	WA7

3-23 PROHIBITED DISPOSAL AREAS

Organic debris shall not be deposited in the following areas:

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

3-24 BURYING ORGANIC DEBRIS RESTRICTED

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

3-25 SCATTERING ORGANIC DEBRIS

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

SUBSECTION PILE

3-31 PILING

Organic debris shall be piled no closer than 20 feet from standing timber and no higher than 20 feet in areas specified in Clause 3-22 Designated Waste Area for Organic Debris. Piles shall be free of rock and soil.

3-32 END HAULING ORGANIC DEBRIS

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

Road	Stations
H-3223	6+70 – 18+10

SECTION 4 – EXCAVATION

4-1 EXCAVATOR CONSTRUCTION

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

4-2 PIONEERING

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

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

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

The following road grade and alignment standards shall be followed:

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

4-4 SWITCHBACK STANDARDS

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

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

4-5 CUT SLOPE RATIO

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

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

4-6 EMBANKMENT SLOPE RATIO

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

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

4-7 SHAPING CUT AND FILL SLOPE

Excavation and embankment slopes shall be constructed to a uniform line and left rough for easier revegetation.

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

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

4-9 EMBANKMENT WIDENING

The minimum embankment widening is:

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

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

4-11 KEYED EMBANKMENT

On the following road(s), embankments shall be keyed into the native slope in accordance with the Typical Embankment Key Detail Sheet.

Road	Stations
H-3220	98+70 and 100+00

4-12 FULL BENCH CONSTRUCTION

Where side slopes exceed 45%, Purchaser shall use full bench construction for the entire subgrade width. Purchaser shall end haul waste material to the location specified in Clause 4-37 WASTE AREA LOCATION.

4-13 DAYLIGHT EXCAVATION ON EXISTING ROADS

On the following road(s), the outside shoulder shall be excavated to daylight.

Road	Stations
H-3223.3	0+00 – 5+70

SUBSECTION INTERSECTIONS, TURNOUTS AND TURNAROUNDS

4-20 SUBGRADE DIMENSIONS FOR INTERSECTIONS

Purchaser shall construct the subgrade to the dimensions shown on the Intersection Detail.

4-21 TURNOUTS

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

4-22 TURNAROUNDS

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

SUBSECTION DITCH CONSTRUCTION

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

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

4-27 DITCH WORK – MATERIAL USE PROHIBITED

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

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

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

Road	Stations
H-3223	23+00 (R) and 32+50 (L)

SUBSECTION WASTE MATERIAL (DIRT)

4-35 WASTE MATERIAL DEFINITION

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

4-36 DISPOSAL OF WASTE MATERIAL

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

4-37 WASTE AREA LOCATION

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

Waste Area Location	FPA Identifier	Waste Generated From Road	Estimated Volume	Waste Area Permitted Vol.
H-3204.1 @ 3+30	WA2	H-3220	520	8,000
H-3204.3 @ 0+50	WA1	H-3220	As Needed	8,000
H-3223 @ 20+90	WA3	H-3223	140	800
H-3223 @ 40+00	WA4	H-3223.3	5,000	5,000
H-3220 @ 105+20	WA5	H-3224	450	2,000
H-3220 @ 150+10	WA6	As needed	As needed	100
H-3220 @ 152+00	WA7	As needed	As needed	100

4-38 PROHIBITED WASTE DISPOSAL AREAS

Waste material shall not be deposited in the following areas:

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

4-39 WASTE AREA COMPACTION

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

SUBSECTION BORROW

4-48 BORROW MATERIAL

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

4-49 BORROW SOURCE

Borrow may be obtained from the listed borrow source(s). Development of the borrow source shall be in accordance with Borrow Source Detail.

Source	Location	Yards
H-3220	73+80	300
H-3223	16+30	400

SUBSECTION SHAPING

4-55 ROAD SHAPING

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

4-56 DRY WEATHER SHAPING

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

SUBSECTION COMPACTION

4-60 FILL COMPACTION

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

4-61 SUBGRADE COMPACTION

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

4-62 DRY WEATHER COMPACTION

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

4-63 EXISTING SURFACE COMPACTION

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

4-64 WASTE MATERIAL COMPACTION

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

4-65 CULVERT BACKFILL COMPACTION

Culvert backfills shall be accomplished by using a jumping jack compactor, performing at least 2 passes per lift, in lifts not to exceed 8 inches.

4-66 COMPACTION BY METHOD

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

SECTION 5 – DRAINAGE

SUBSECTION CULVERTS

5-4 PUNCHEON RESTRICTED

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

5-5 CULVERTS

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

5-8 BEVELED ENDS

The following culverts shall have their ends beveled as specified below.

Road	Stations	Bevel Type
H-3220	34+10 and 35+50	1½ : 1

5-11 UNUSED MATERIALS STATE PROPERTY

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

5-12 CONTINGENCY CULVERTS

The following culverts will be supplied by the Purchaser and will be available for installation on any road listed in the TYPICAL SECTION SHEET as directed by the Contract Administrator. Unused culverts will be delivered to the Forks office by the end of the contract period.

Road	Size
As Directed By C/A	Two: 18” by 26’

SUBSECTION CULVERT INSTALLATION

5-15 CULVERT INSTALLATION

Installation shall be in accordance with the Typical Cross Drain Culvert Installation Detail, Typical Type Ns Np Culvert Installation Detail**,** the National Corrugated Metal Pipe Association’s "Installation Manual for Corrugated Steel Drainage Structures"**,** and the Corrugated Polyethylene Pipe Association’s “Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings”. Corrugated Polyethylene pipe shall be installed in a manner consistent with the manufacturer’s recommendations.

5-16 APPROVAL FOR LARGER CULVERT INSTALLATION

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

5-17 CROSS DRAIN SKEW AND SLOPE

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

5-18 CULVERT DEPTH OF COVER

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

5-19 ABOVE GROUND CULVERTS

At locations listed below, an above ground perforated culvert shall be installed. Culvert shall be bolted to the cross drain outlet with a 45º to 90º elbow. All junctions, including bands, elbows, and flared inlets, shall be sealed with duct tape for at least 1ft from the end of the band or junction. Culvert slope shall be no greater than 10%. Culvert shall be approved in writing by the District Engineer or their designee. See attached typical drawing for additional details.

Road	Stations
H-3220	33+00
H-3220	36+65
H-3220	91+10
H-3220	101+40

SUBSECTION ENERGY DISSIPATERS

5-20 ENERGY DISSIPATERS

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

5-21 DOWNSPOUTS AND FLUMES

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

5-23 STAKING ABOVE GROUND CULVERTS

Culverts shall be staked on both the outlet and inlet. In addition, no more than 10ft of culvert shall be allowed without being staked. Staking shall consist of driving two heavy duty steel fence posts, or 1 ½" X 3/16" angle iron, at least 2 feet into the ground at each point, and attaching them to the culvert using No.10 or larger galvanized smooth wire.

SUBSECTION CATCH BASINS, HEADWALLS, AND ARMORING

5-25 CATCH BASINS

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

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

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

5-27 ARMORING FOR STREAM CROSSING CULVERTS

At the following culvert(s), rip rap shall be set in place immediately following construction of the embankment. Rock shall be placed on shoulders, slopes, and around culvert inlets and outlets as designated on the Typical Type Ns Np Culvert Installation Detail as directed by the Contract Administrator. Rock shall not restrict the flow of water into culvert inlets or catch basins. Rock shall be set in place by machine. Placement shall be by zero-drop-height method only. No placement by end dumping or dropping of rock shall be allowed.

Road	Stations	Rock Type	yd^3
H-3220	34+10	Light Loose Rip Rap	1
H-3220	35+50	Light Loose Rip Rap	2
H-3220	80+75	Light Loose Rip Rap	1
H-3220	82+70	Light Loose Rip Rap	1
H-3220	90+25	Light Loose Rip Rap	1
H-3220	98+70	Light Loose Rip Rap	1
H-3220	119+20	Light Loose Rip Rap	20

SUBSECTION SURFACE DRAINAGE

5-31 ROLLING DIP CONSTRUCTION

Purchaser shall construct rolling dips in accordance with the ROLLING DIP DETAIL and as marked in the field. Rolling dips must be installed concurrently with construction of the subgrade and must be maintained in an operable condition.

SECTION 6 – ROCK AND SURFACING

SUBSECTION ROCK SOURCE

6-2 ROCK SOURCE ON STATE LAND

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

Source	Location	Rock Type
South Winfield Pit	T27N R12W Sec. 35	Pit Run
North Winfield Pit	T27N R12W Sec. 35	Crushed
Red Creek Quarry	T27N R11W Sec. 34	Light Loose Rip Rap

6-3 ROCK SOURCE STATE LAND, EXISTING STOCKPILE

Rock used in accordance with the quantities on the Rock List may be obtained from the following existing stockpile(s) on state land at no charge to the Purchaser. Purchaser shall remove no more than 360 cubic yards of 1¼” minus crushed rock, unless authorized by the Contract Administrator.

Source	Location	Quantity (yd^3)
North Winfield Pit	T27N R12W Sec. 35	500 yd^3

6-5 ROCK FROM COMMERCIAL SOURCE

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

SUBSECTION ROCK SOURCE DEVELOPMENT

6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE

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

6-12 ROCK SOURCE SPECIFICATIONS

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

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

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

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

SUBSECTION ROCK GRADATIONS

6-28 1 ¼-INCH MINUS CRUSHED ROCK

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

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

6-50 LIGHT LOOSE RIP RAP

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

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

6-52 OVERSIZE

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

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

SUBSECTION ROCK MEASUREMENT

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

Measurement of specified rock depths are defined as the compacted depth(s) using the compaction methods required in this Road Plan. Estimated quantities specified in the Rock List are estimated truck yards. Purchaser shall apply adequate amounts of rock to meet the specified rock depths. Specified rock depths are minimum requirements and are not subject to reduction.

SUBSECTION ROCK STOCKPILE

6-67 ROCK STOCKPILE SPECIFICATIONS

Rock stockpiles shall meet the following specifications:

- Before placing aggregates upon the stockpile site, the site shall be cleared of vegetation, trees, stumps, brush, rocks or other debris and the ground leveled to a smooth, firm, uniform surface.
- When completed, the stockpile shall be neat and regular in shape.
- The stockpile height shall be limited to a maximum of 30 feet.
- Stockpiles in excess of 500 cubic yards shall be built up in layers not more than 8 feet in depth. Stockpile layers shall be constructed by trucks, clamshells, or other methods approved, in writing, by the Contract Administrator.
- Each layer shall be completed over the entire area of the pile before depositing aggregates in the next layer. The aggregates shall not be dumped so that they run down and over the lower layers in the stockpile. The method of dropping from a bucket or spout in one location so as to form a cone shaped pile will not be permitted.
- Stockpiles of different types or sizes of aggregate shall be spaced far enough apart, or separated by suitable walls or partitions, to prevent the mixing of the aggregates.

SUBSECTION ROCK APPLICATION

6-70 APPROVAL BEFORE ROCK APPLICATION

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

6-71 ROCK APPLICATION

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

6-72 ROCK APPLICATION AFTER HAULING

On the following road(s), upon completion of all hauling operations, Purchaser shall apply 1 $^{1}/_{2}$" minus crushed rock in accordance with the quantities shown on the Rock List.

Road	Stations	Amount
As Needed	As Needed	250yd^3

6-73 ROCK FOR WIDENED PORTIONS

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

6-78 ROCK FOR SPOT PATCHING

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

SECTION 7 – STRUCTURES

SUBSECTION SIGNS

7-2 SIGN INSTALLATION (NON-HIGHWAY)

The Purchaser shall be responsible for the purchase, installation, and maintenance of the following road signs. Signs shall be installed a minimum of 7 days before start of work. Signs shall be at least 2 feet in any direction, and shall be orange with black lettering.

Road	Station	Sign
Upper-Hoh Road	Approx. MP 1.2 & 1.6	Trucks Entering Roadway (warning both directions)
H-3200	Approx. Stations 22+00 and 55+00	Bridge Out (warning both directions)

SUBSECTION STREAM CROSSING STRUCTURES GENERAL

7-5 STRUCTURE DEBRIS

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

7-6 STREAM CROSSING INSTALLATION

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

7-7 BANK PROTECTION FOR STREAM CROSSING STRUCTURES

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

SUBSECTION ACCEPTANCE

7-20 REQUIRED NOTIFICATION AND APPROVAL

Purchaser shall provide the District engineer or their designee 3 day notification prior to beginning road work on Bridge Maintenance or Removals. Purchaser shall receive approval for completed road work on the Bridge Maintenance and Removals from the District engineer or their designee prior to log haul on associated roads.

SUBSECTION BRIDGE MAINTENANCE

7-30 BRIDGE MAINTENANCE

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

Road	Station	Requirements	Detail Sheet
H-3220	10+50	Remove slide material from road, bridge, and stream prisms Replace unusable stringers Chain link & Typar Retie bridge Install bull rails and delineators Add rock as per the Rock List and Retie Drawing	Bridge Repair Bridge Surfacing and Shear Rail Details

SUBSECTION LARGE CULVERTS

7-55 LARGE CULVERT INSTALLATION

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

Road	H-3220	H-3220	H-3220	H-3220	H-3220
Station	34+10	35+50	80+75	82+70	90+25
Type	Pipe	Pipe	Pipe	Pipe	Pipe
Material and Coating Type*	CMP	CMP	CMP	CMP	CMP
Dia (in.)	48	72	60	60	48
Length (ft.)	60	60	60	60	60
Depth of Cover Material (ft.)	36”	36”	36”	36”	36”
End design	Beveled Inlet	Beveled Inlet	Beveled Inlet	Beveled Inlet	Standard
Corrugations	3” x 1”	5” x 1”	5” x 1”	5” x 1”	3” x 1”
Gauge	12	10	10	10	12
Detail Sheet	Standard Np/Ns	Drawings	Standard Np/Ns	Standard Np/Ns	Standard Np/Ns

* See Clause10-15 Corrugated Steel Culvert or Clause 10-18 Corrugated Steel Structural Plate.

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

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

7-57 CULVERT SHAPE CONTROL

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

SUBSECTION GATE CLOSURE

7-70 GATE CLOSURE

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

Road	Station	Gate No.	Comment
Winfield North Access Rd.	0+30	103	

SECTION 8 – EROSION CONTROL

8-1 SEDIMENT CONTROL STRUCTURES

On the following road(s), Purchaser shall install sediment control structures as listed below.

Road	Stations	Comments
H-3200	109+70 – 110+30	Silt Fence and 3 Catch Basins Right
H-3200	154+50 – 155+00	Silt Fence and 3 Catch Basins Right
H-3220	123+20 – 124+20	Silt Fence and 3 Catch Basins Right
H-3220	127+80 – 128+30	Silt Fence and 3 Catch Basins Right
H-3220	131+60 – 132+40	Silt Fence and 3 Catch Basins Right
H-3220	137+10 – 137+60	Silt Fence and 3 Catch Basins Right
H-3223	39+00	Rolling Dip

8-2 PROTECTION FOR EXPOSED SOIL

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

SUBSECTION SLOPE STABILIZATION

8-10 STABILIZE SLOPES – ROCK APPLICATION

On the following road(s), Purchaser shall stabilize embankment slopes by applying rock as specified below.

Road	Stations	Rock Type	Purpose
H-3220	10+50	Clean Native	Pack the tertiary channel in conjunction with the creek rechanneling above the bridge retie See Attached Drawings

SUBSECTION REVEGETATION

8-15 REVEGETATION

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

8-16 REVEGETATION SUPPLY

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

8-17 REVEGETATION TIMING

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

8-18 PROTECTION FOR SEED

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

8-19 ASSURANCE FOR SEEDED AREA

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

SUBSECTION SEED, FERTILIZER, AND MULCH

8-25 GRASS SEED

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

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

Grass seed shall meet the following specifications:

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

SECTION 9 – POST-HAUL ROAD WORK

SUBSECTION STRUCTURES

9-3 REMOVAL OF CULVERT MATERIAL FROM STATE LAND

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

SUBSECTION POST-HAUL MAINTENANCE

9-5 POST-HAUL MAINTENANCE

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

Road	Stations	Additional Requirements
All	All	Clean culverts, clean ditches, grade road shape and compact, apply post-haul rock as directed by the Contract Administrator.

SUBSECTION POST-HAUL LANDING MAINTENANCE

9-10 LANDING DRAINAGE

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

9-11 LANDING EMBANKMENT

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

SECTION 10 MATERIALS

SUBSECTION GEOTEXTILES

10-2 GEOTEXTILE FOR SEPARATION

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

	ASTM Test	Requirements
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

10-6 GEOTEXTILE FOR TEMPORARY SILT FENCE

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

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

SUBSECTION CULVERTS

10-15 CORRUGATED STEEL CULVERT

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

10-16 CORRUGATED ALUMINUM CULVERT

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

10-17 CORRUGATED PLASTIC CULVERT

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

10-20 FLUME AND DOWNSPOUT

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

10-21 METAL BAND

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

10-22 PLASTIC BAND

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

10-23 RUBBER CULVERT GASKETS

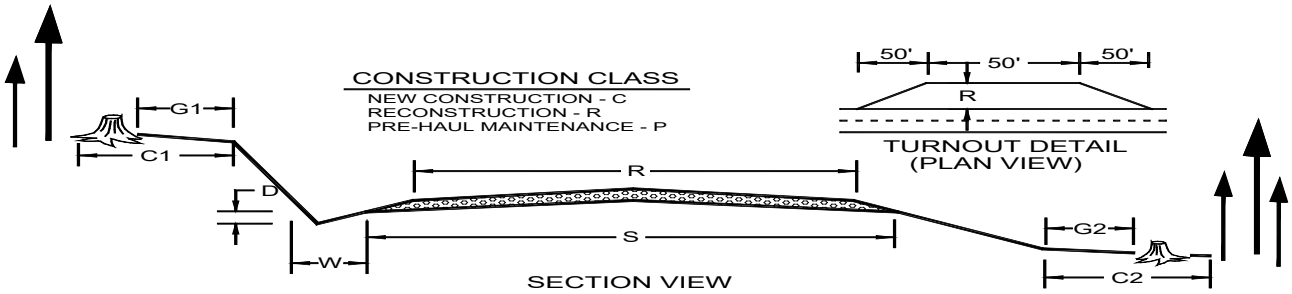
Rubber gaskets must be continuous closed cell, synthetic expanded rubber gaskets conforming to the requirements of ASTM D 1056. Rubber gaskets must be used with all corrugated metal pipe coupling bands.

10-24 GAGE AND CORRUGATION

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

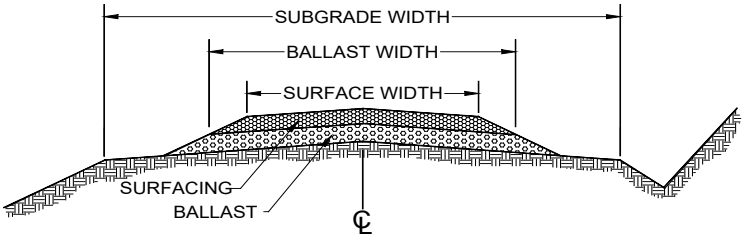
Diameter	Gage	Corrugation
18"	16 (0.064”)	2 $^{2}/_{3}$" X $^{1}/_{2}$"
24" to 42"	14 (0.079”)	2 $^{2}/_{3}$" X $^{1}/_{2}$"
48” to 54”	12	3” X 1”
60” +	10	5” X 1”

TYPICAL SECTION SHEET



ROAD NAME	START STATION	END STATION	CONSTRUCTION CLASS		SUBGRADE WIDTH (S)	ROAD WIDTH (R)	CROWN AT CL (in)	DITCH WIDTH (W)	DITCH DEPTH (D)	GRUBBING CUT BANK (G1)	GRUBBING FILL TOE (G2)	ROAD CUT CLEARING (C1)	ROAD FILL CLEARING (C2)
H-3100						16	3”	3’	1’				
H-3102						16	3”	3’	1’				
H-3200	79+00	96+60	P			16	3”	3’	1’				
H-3220	0+00	160+20	P			12’	3”	3’	1’				
H-3223	0+00	32+20	P			12’	3”	3’	1’				
H-3223.1	0+00	7+90	P			12’	3”	3’	1’				
H-3223.3	0+00	5+70	C		17’	12’	3”	3’	1’	5’	5’	10’	5’
H-3224	0+00	10+00	P			12’	3”	3’	1’				
H-3225	0+00	9+70	P			12’	3”	3’	1’				
H-3226	0+00	3+70	P			12’	3”	3’	1’				
H-3227	0+00	2+90	P			12’	3”	3’	1’				
H-3229	0+00	1+70	P			12’	3”	3’	1’				

ROCK LIST SHEET



SECTION VIEW

1. Rock quantities, subtotals and totals are “truck measure” estimates. Rock shall be applied to at least the depths listed.
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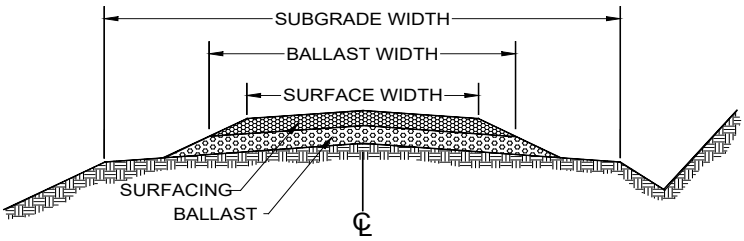
ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd^3/sta)	Pitrun SUBTOTAL(yd^3)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd^3/sta)	Crushed Subtotal(yd^3)	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd^3)
H-3220	0+00	160+20		2	12	6	35	5,610							
Landings (11 ea.)				2				550							
Culvert	9+10			2				20						4	1
Culvert	11+20			2				30						4	1
Culvert	12+00			2				20						4	1
Culvert	16+30			2				20							
Culvert	21+80			2				20						4	1
Culvert	28+70			2				20						4	1
Culvert	30+25			2				20						4	1
Culvert	33+00			2				20							
Culvert	34+10			2				200						4	1
Culvert	35+50			2				300						4	2
Culvert	36+65			2				30							
Culvert	40+50			2				20						4	1
Culvert	50+00			2				20						4	1
Culvert	53+60			2				30						4	1
Culvert	56+60			2				20						4	1
Culvert	63+50			2				20						4	1
Culvert	68+00			2				20						4	1
Culvert	69+00			2				30							
Culvert	70+00			2				30							
Sheet Totals								7,050							15

ROCK LIST SHEET CONTINUED



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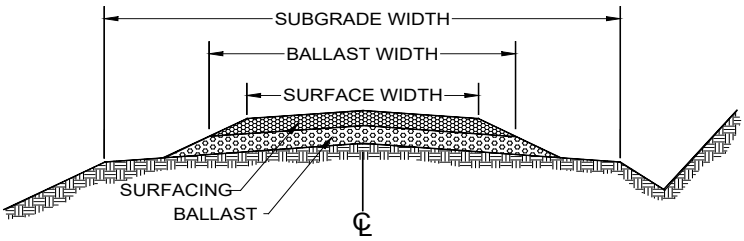
ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd^3/sta)	Pitrun SUBTOTAL(yd^3)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd^3/sta)	Crushed Subtotal(yd^3)	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd^3)
Culvert	72+70			2				20						4	1
Culvert	79+50			2				20						4	1
Culvert	80+75			2				150						4	1
Culvert	82+70			2				300						4	1
Culvert	85+40			2				20						4	1
Culvert	88+25			2				30							
Culvert	90+25			2				300							
Culvert	91+10			2				20							
Culvert	94+85			2				20						4	1
Culvert & Keyed Fill	98+70			2				100						4	200
	98+70			3				200							
Culvert & Keyed Fill	100+00			2				100						4	100
	100+00			3				100							
Culvert	101+40			2				20							
Culvert	113+70			2				20						4	1
Culvert	116+50			2				20						4	1
Culvert	117+60			2				30							
Culvert	118+50			2				20						4	1
Culvert	119+20			2				110						4	20
Culvert	123+70			2				100							
Culvert	125+00			2				20						4	1
Culvert	127+90			2				30						4	1
Sheet Totals								1,750							331

ROCK LIST SHEET CONTINUED



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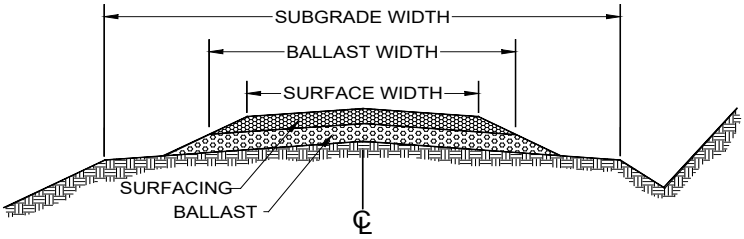
ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd^3/sta)	Pitrun SUBTOTAL(yd^3)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd^3/sta)	Crushed Subtotal(yd^3)	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd^3)
Culvert	132+10			2				30						4	1
Culvert	133+90			2				20						4	1
Culvert	137+40			2				30						4	1
Culvert	139+20			2				90						4	1
Culvert	139+70			2				20						4	1
Culvert	144+60			2				20						4	1
H-3223	0+00	39+20		2	12	6	35	1130							
Landings (3 ea.)				2				150							
Culvert	14+50			2				20						4	1
Culvert	18+10			2				20						4	1
Culvert	26+70			2				20						4	1
H-3223.1	0+00	7+90		2	12	6	35	280							
Landing (1 ea.)				2				50							
Culvert	0+10			2				20						4	1
Culvert	2+50			2				20						4	1
Culvert	6+00			2				20						4	1
H-3223.3	0+00	5+70	15	3	16	12	70	400							
	0+00	5+70		2	12	6	35	200							
	0+00	3+00							1	12	4	20	60		
Landing (1 ea.)				2				50							
Sheet Totals								2,830					60		12

ROCK LIST SHEET CONTINUED



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ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd^3/sta)	Pitrun SUBTOTAL(yd^3)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd^3/sta)	Crushed Subtotal(yd^3)	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd^3)
H-3224	0+00	10+00							1	12	4	20	200		
Landings (2 ea.)				2				100							
H-3225	0+00	9+70		2	12	6	35	340							
Landing (1 ea.)				2				50							
H-3226	0+00	3+70		2	12	6	35	130							
Approach	0+00			2				40							
Landing (1 ea.)				2				50							
H-3227	0+00	2+90		2	12	6	35	110							
H-3229	0+00	1+70		2	12	6	35	60							
Approach	0+00			2				40							
Contingency Culverts				2				50						4	10
Post Haul				2				200	1				100		
Misc.				2				250						4	2
Sheet Totals								1,420					300		15
Rock Totals								**13,050**					**360**		**370**

CULVERT LIST

ROAD NAME	STATION	CULVERT DIAMETER (in)	CULVERT LENGTH (ft)	FLUME LENGTH (ft)	PERFERATED PIPE (ft)	RIP RAP - INLET (cy)	RIP RAP – OUTLET (cy)	BACKFILL MATERIAL	NOTES
H-3220	9+10	18	26				1	PR	Installation
	11+20	24	30				1	PR	*Installation
	12+00	18	26				1	PR	Installation
	16+30	18	30	10			1	PR	Replacement
	21+80	18	26				1	PR	Installation
	28+70	18	26				1	PR	Replacement
	30+25	18	26				1	PR	Installation
	33+00	18	26		40			PR	Installation
	34+10	48	60				1	PR	*Installation w/ beveled inlet
	35+50	72	60				2	PR	*Installation w/ beveled inlet
	36+65	24	30		40			PR	Installation
	40+50	18	26				1	PR	Replacement
	50+00	18	26				1	PR	Installation
	53+60	24	30				1	PR	*Replacement
	56+60	18	26				1	PR	Installation
	63+50	18	26				1	PR	Installation
	68+00	18	26				1	PR	Installation
	69+00	24	30	30			1	PR	*Installation
	70+00	24	30	30			1	PR	*Replacement
	72+70	18	26				1	PR	Installation
	79+50	18	26				1	PR	Installation
	80+75	60	60				1	PR	*Installation w/ beveled inlet
	82+70	60	60				1	PR	*Installation w/ beveled inlet
	85+40	18	26				1	PR	Installation
	88+25	24	30	30			1	PR	*Replacement
	90+25	48	60	30			1	PR	*Installation
	91+10	18	26		30			PR	Installation
	94+85	18	30				1	PR	Installation

All rip rap shall be Oversize unless specified in the Rock List, or in the field.
All backfill shall be native material (NT) unless specified otherwise. CR= 1 ¼”- crushed rock, PR = pit run. * indicates typed water crossing.

CULVERT LIST Continued

ROAD NAME	STATION	CULVERT DIAMETER (in)	CULVERT LENGTH (ft)	FLUME LENGTH (ft)	PERFERATED PIPE (ft)	RIP RAP - INLET (cy)	RIP RAP – OUTLET (cy)	BACKFILL MATERIAL	NOTES
H-3220	98+70	36	40	60			1	PR	*Installation
	100+00	24	40	60			1	PR	*Installation
	101+40	18	26		30			PR	Installation
	113+70	18	26				1	PR	Installation
	116+50	18	26				1	PR	Replacement
	117+60	24	30	30				PR	*Installation
	118+50	18	26				1	PR	Installation
	119+20	36	40				20	PR	*Installation
	123+70	24	30	40				PR	*Installation
	125+00	18	26				1	PR	Installation
	127+90	24	30				1	PR	*Installation
	132+10	30	40				1	PR	*Replacement
	133+90	18	40				1	PR	Installation
	137+40	24	30				1	PR	*Replacement
	139+20	24	30				1	PR	*Installation
	139+70	18	26				1	PR	Installation
H-3220	144+60	18	26				1	PR	Installation
H-3223	14+50	18	26				1	PR	Installation
	18+10	18	26				1	PR	Installation
H-3223	26+70	18	26				1	PR	Installation
H-3223.1	0+10	18	26				1	PR	Installation
	2+50	18	26				1	PR	Installation
H-3223.1	6+00	18	26				1	PR	Installation
Contingency	TBD	18	26						Contingency
Contingency	TBD	18	26						Contingency

All rip rap shall be Oversize unless specified in the Rock List, or in the field.
All backfill shall be native material (NT) unless specified otherwise. CR= 1 ¼”- crushed rock, PR = pit run. * indicates typed water crossing.

FISH STREAM WORK PROVISIONS

1. TIMING LIMITATIONS: The fish culvert project may begin July 1 and shall be completed by September 30.

2. Work shall conform to plans and specifications in the road plan.

3. Prior to the commencement of in-stream work, the Purchaser shall isolate the work area in a manner that fish cannot enter the work area, capture and safely move fish and other fish life from the work area. The Purchaser shall have fish capture and transportation equipment ready and on the job site. Captured fish shall be immediately and safely transferred to free-flowing water downstream of the work area.

TEMPORARY STREAM FLOW BYPASS

4. All in-stream work shall be conducted in the dry or in isolation from the stream flow by the installation of a bypass flume/pipe or by pumping the flow around the work area, back into the stream below the work area. Waste water pumped from within the work area shall terminate on the forest floor, sufficient distance from the stream to filter sediment prior to entering the stream.

5. The temporary bypass to divert flow around the work area shall be in place prior to initiation of other work in the wetted perimeter.

6. A sandbag revetment or similar device shall be installed at the bypass inlet to divert the entire flow through the bypass.

7. The bypass shall be of sufficient size to pass all flows and debris for the duration of the project.

8. If a pump is used for diverting water from the stream where fish are present, as per RCW 77.57.010 and 77.57.070, the pump intake shall be equipped with a fish guard to prevent passage of fish into the diversion pump. The pump intake shall be screened with 1/8 inch mesh to prevent fish from entering the pump. Velocity through the screened intake shall be less than 0.4 feet per second. Screens shall be maintained to prevent injury or entrapment of juvenile fish.

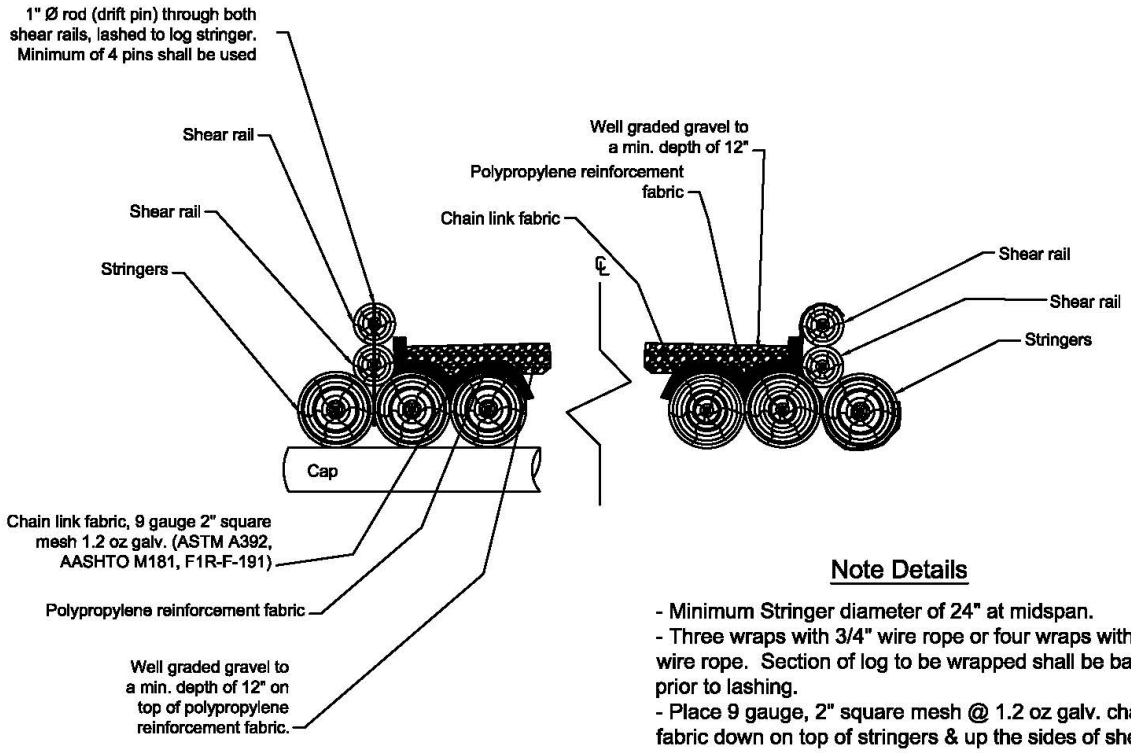
WATER QUALITY

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

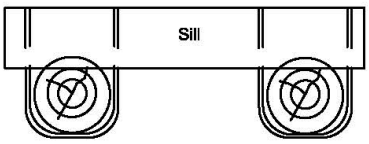
COMPACTION LIST

Road	Stations	Type	Max Depth Per Lift (inches)	Equipment Type	Minimum Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)
All	All	Culvert Backfill	8	Jumping Jack		3	
Waste Area	All	Waste Area	24	Excavation / Dozer	6000	2	3
Construction	All	Subgrade	6	Vibratory Smooth Drum Roller	6000	2	3
Pre-Haul Maintenance		Pre-haul Surface					
Construction, Pre-Haul Maintenance, Post-Haul Maintenance		Rock					
Post-Haul Maintenance		Post-haul Surfaces					

Bridge Surfacing & Shear Rail Details



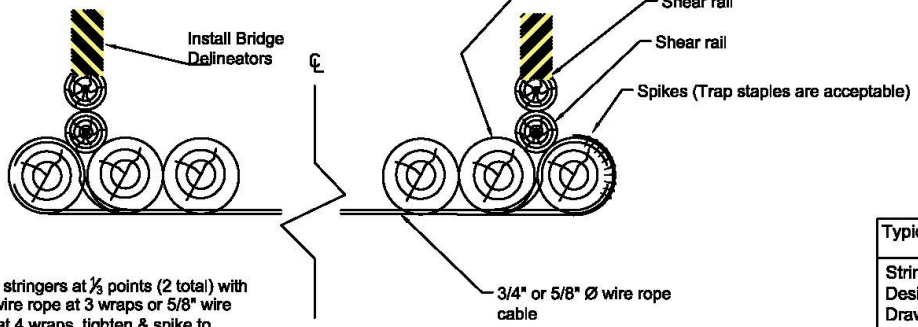
Lashing Detail



Note Details

- Minimum Stringer diameter of 24" at midspan.
- Three wraps with 3/4" wire rope or four wraps with 5/8" wire rope. Section of log to be wrapped shall be barked prior to lashing.
- Place 9 gauge, 2" square mesh @ 1.2 oz galv. chain link fabric down on top of stringers & up the sides of shear rails by min. 9" and over the ends to the top of the cap.
- After placement of chain link fabric, place polypropylene reinforcement fabric over the chain link fabric.
- Place well graded gravel over the polypropylene reinforcement fabric to a min. depth of 12". Finished surface elevation shall transition smoothly to road surface.
- Rail logs shall be selected and placed so that at least 15" are free and above the top of the gravel surfacing.

Bridge Stringer Tie Details



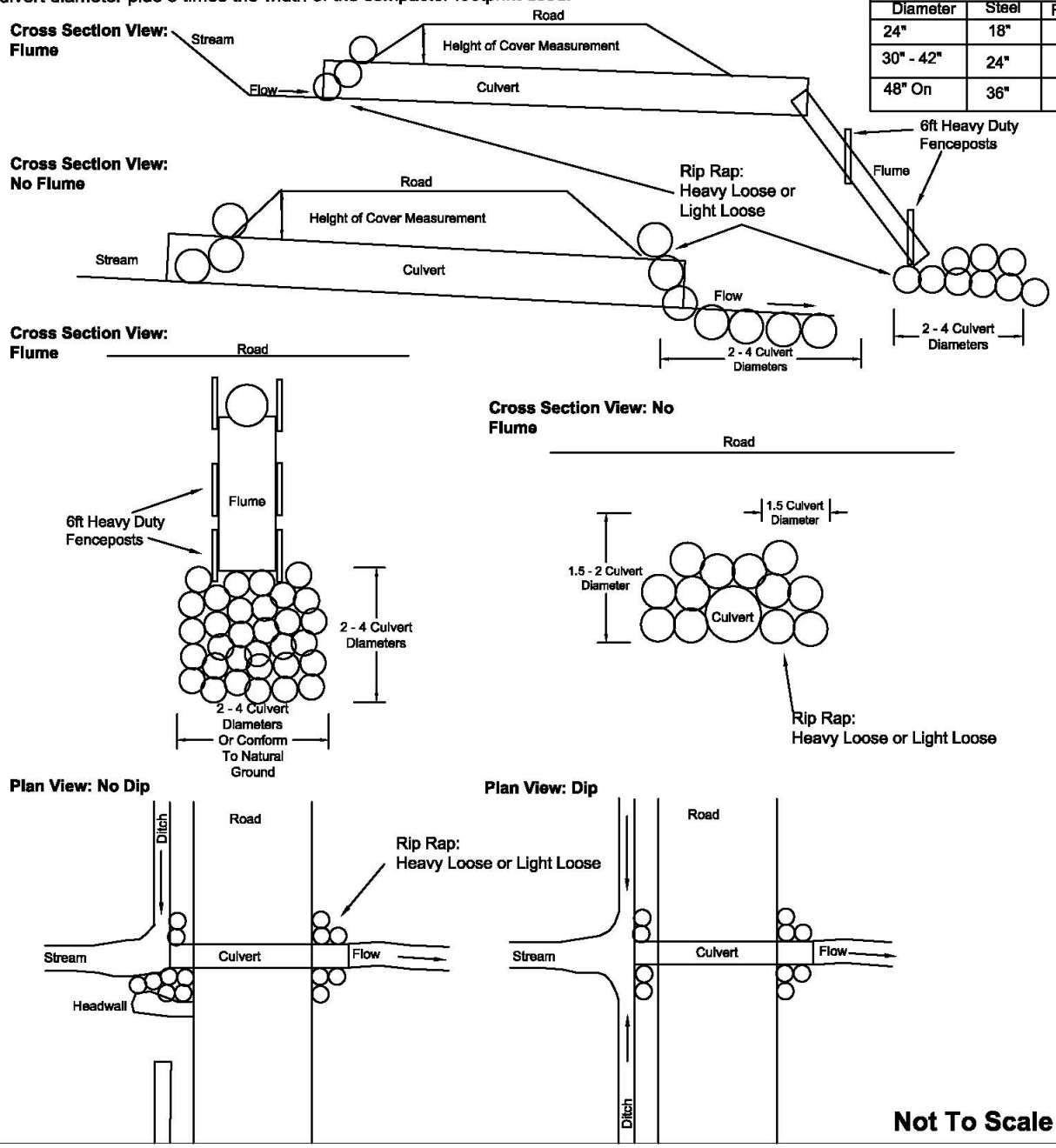
Wrap stringers at ⅓ points (2 total) with 3/4" wire rope at 3 wraps or 5/8" wire rope at 4 wraps, tighten & spike to stringers.

Typical Stringer Bridge
Stringer and Rail Details Designed By: Jed Nowak Drawn By: Jed Nowak Date: 10/30/2018

Typical Type Ns, Np Culvert Installation Detail Sheet.

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

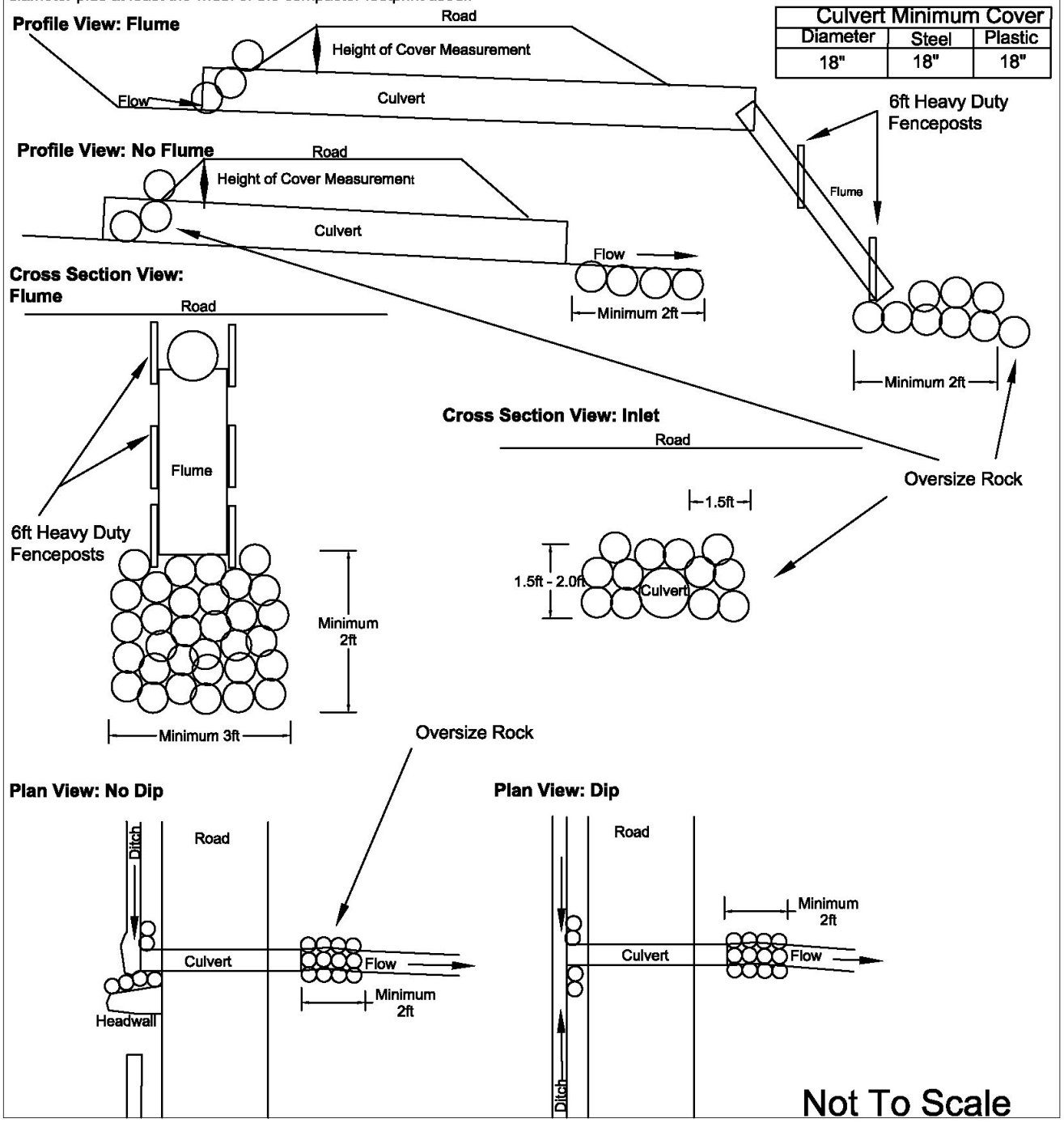
Culvert Minimum Cover		
Diameter	Steel	Plastic
24"	18"	24"
30" - 42"	24"	24"
48" On	36"	36"



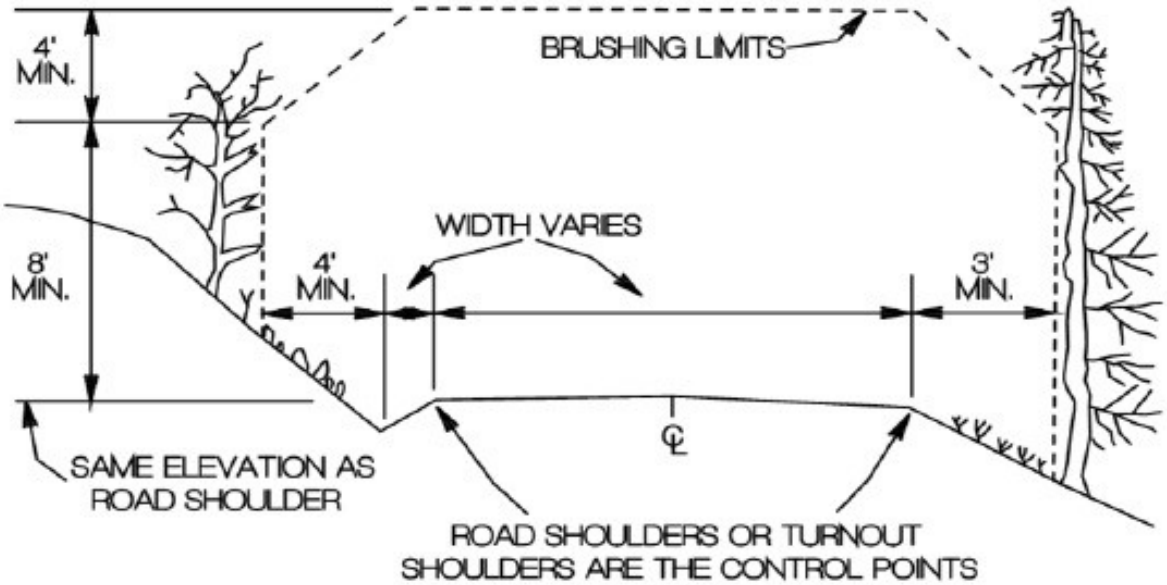
Typical Cross Drain Culvert Installation Detail Sheet

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

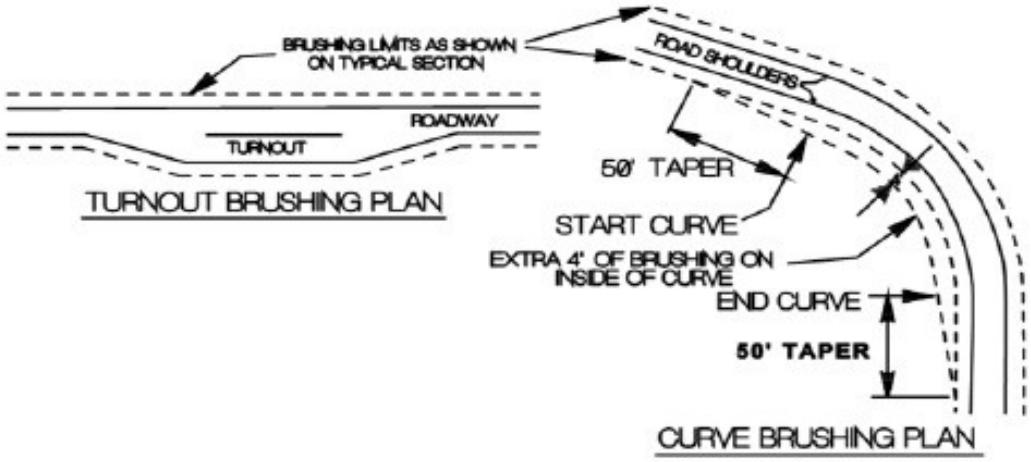
Culvert Minimum Cover		
Diameter	Steel	Plastic
18"	18"	18"



BRUSHING DETAIL



TYPICAL BRUSHING LIMITS SECTION

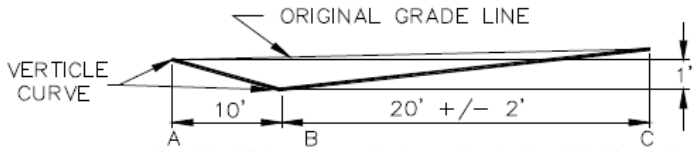


TURNOUT BRUSHING PLAN

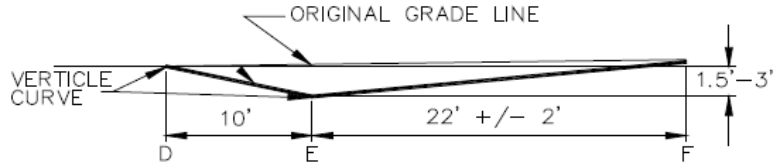
CURVE BRUSHING PLAN

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

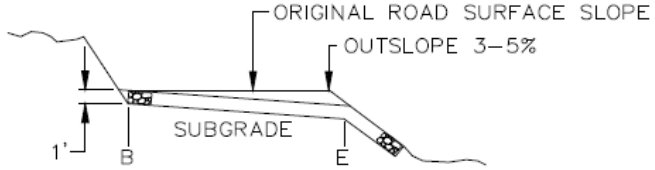
ROLLING DIP DETAIL



ROAD PROFILE ALONG A–B–C OF DRAIN DIP

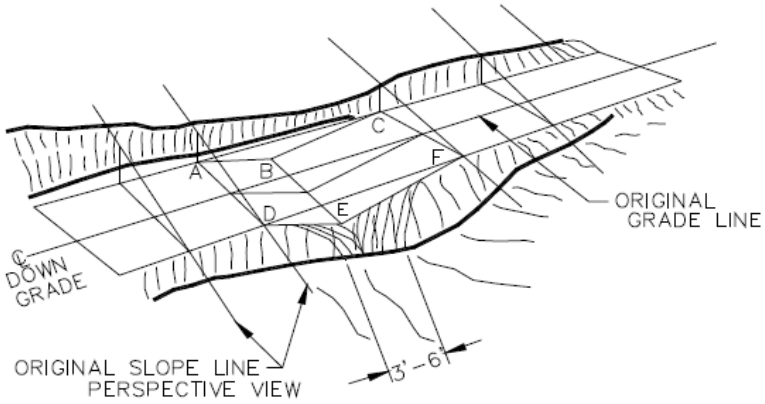


ROAD PROFILE ALONG D–E–F OF DRAIN DIP



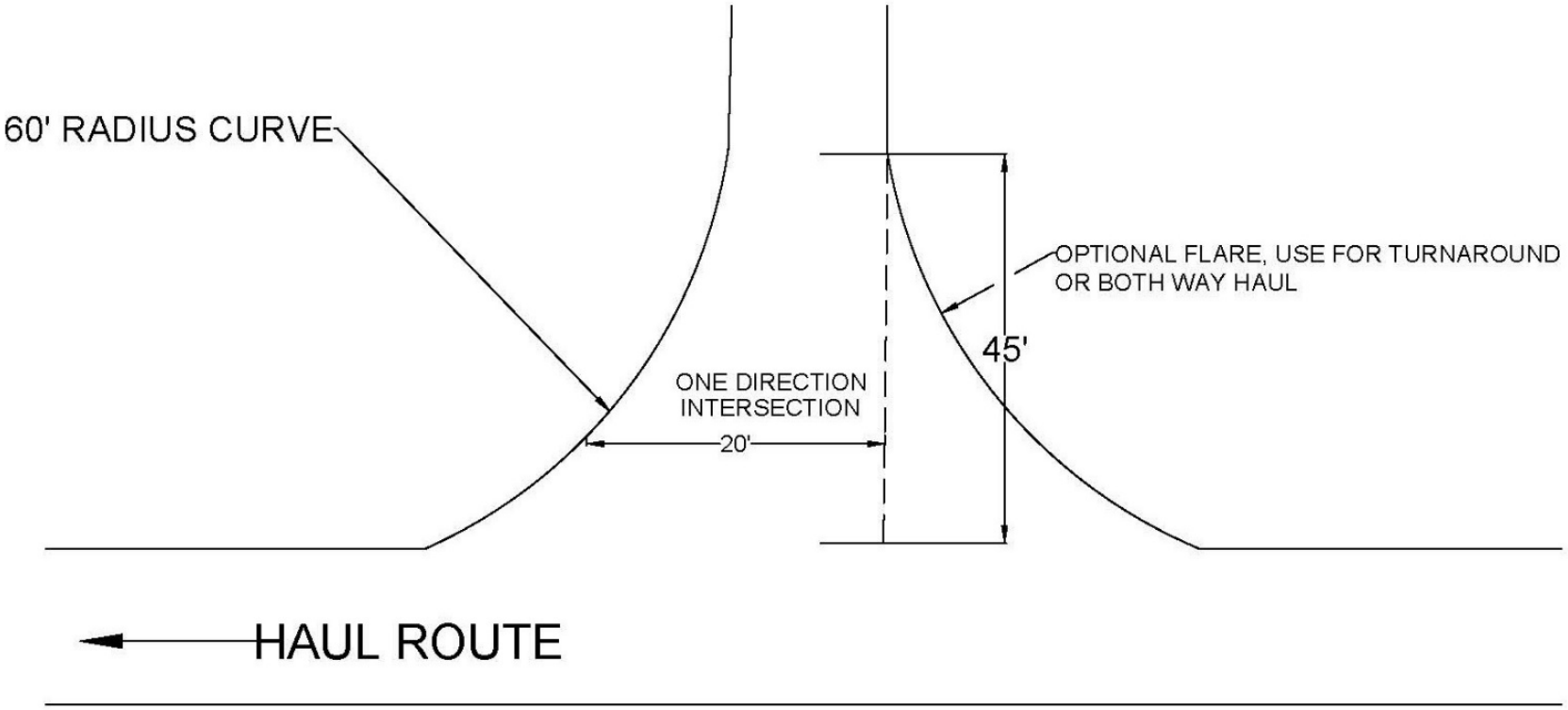
OUTLET OF DIP TO BE CLEAR OF OBSTRUCUTIONS TO ALLOW WATER TO FLOW FREELY. IF SOILS ARE ERODABLE, TOE OF DIP TO BE ARMORED WITH NATIVE ROCK.

NOTE: PLAN OF DIP SHOWN IS FOR OUTSLOPED ROLLING DIP, DIPS MAY BE EITHER INSLOPED OR OUTSLOPED. WHEN INSLOPED, DIPS SHALL DRAIN FREELY INTO DITCHES OR CULVERT INLETS. WHEN OUTLSLOPED, THEY SHALL DRAIN FREELY ONTO NATURAL GROUND. WHERE SOILS ARE ERODABLE, OUTLET SHALL BE ARMORED WITH NATIVE ROCK. THE MINIMUM CROSS GRADE FROM "B" TO "E" IS 4% GREATER THAN THE ROAD SURFACE SLOPE. SKEW LINE B–E TO FIT LOW POINT IN DRAW, IF LOCATED IN NATURAL DRAIN.



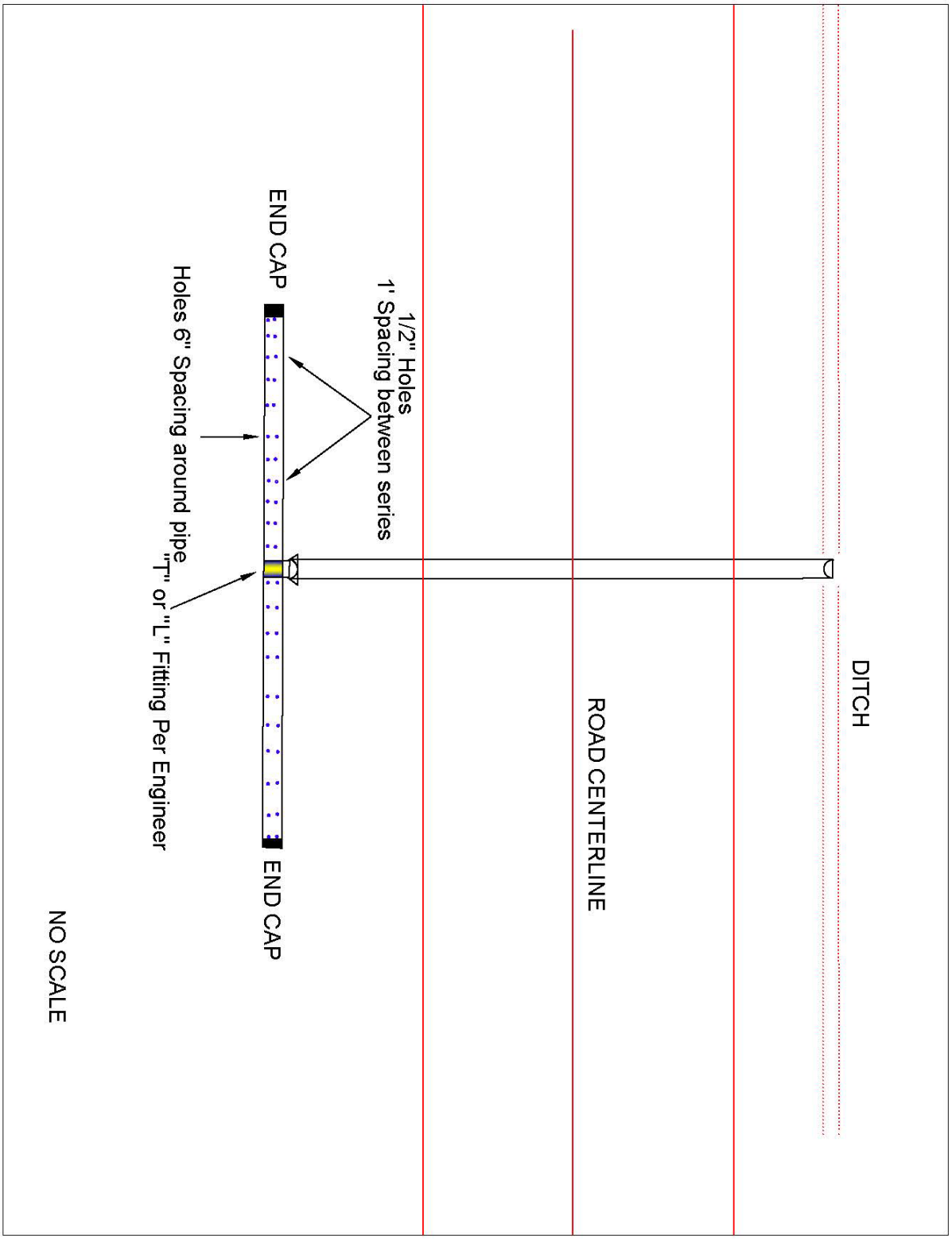
PERSPECTIVE VIEW

TYPICAL INTERSECTION



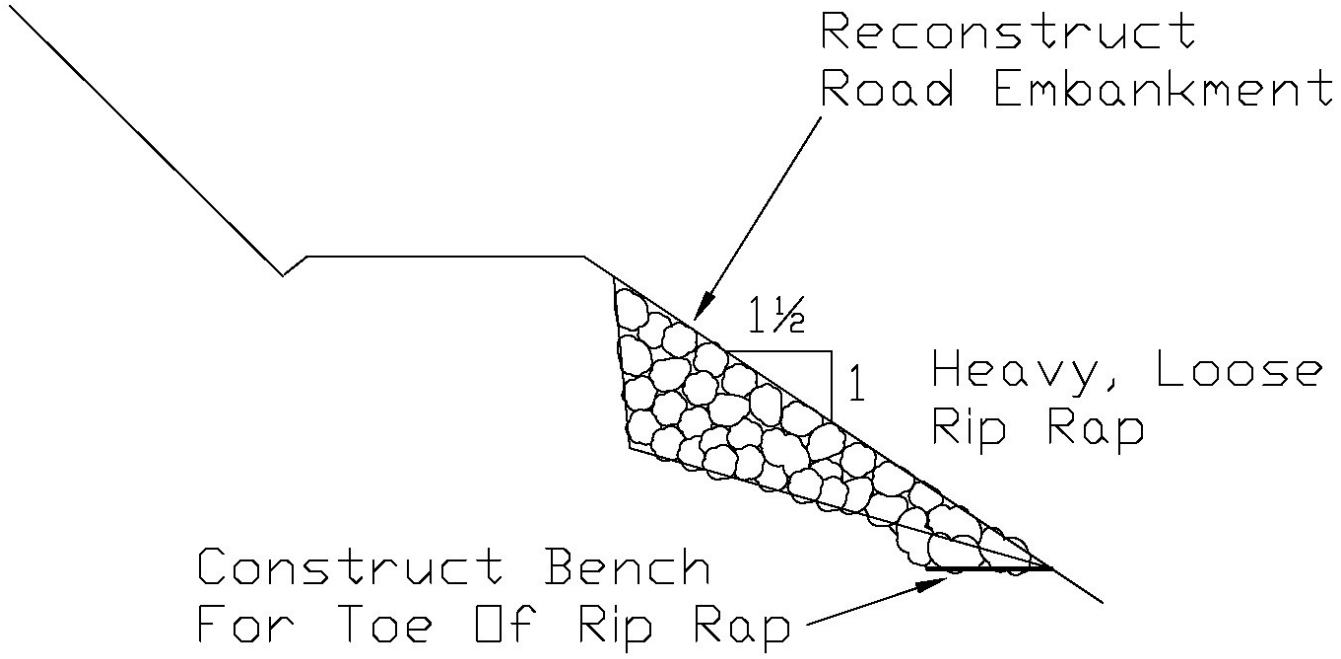
NOT TO SCALE

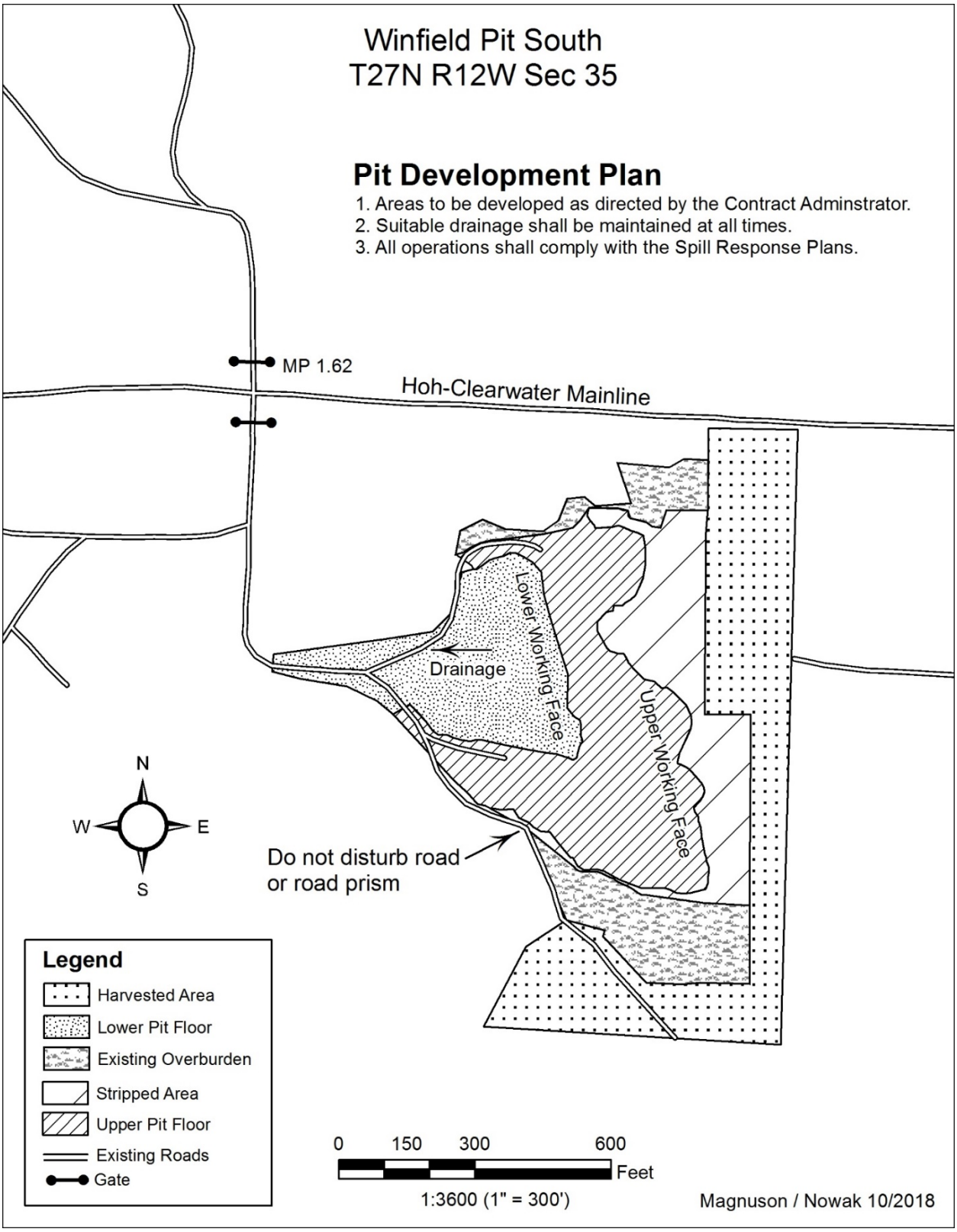
TYPICAL PERFORATED PIPE INSTALLATION

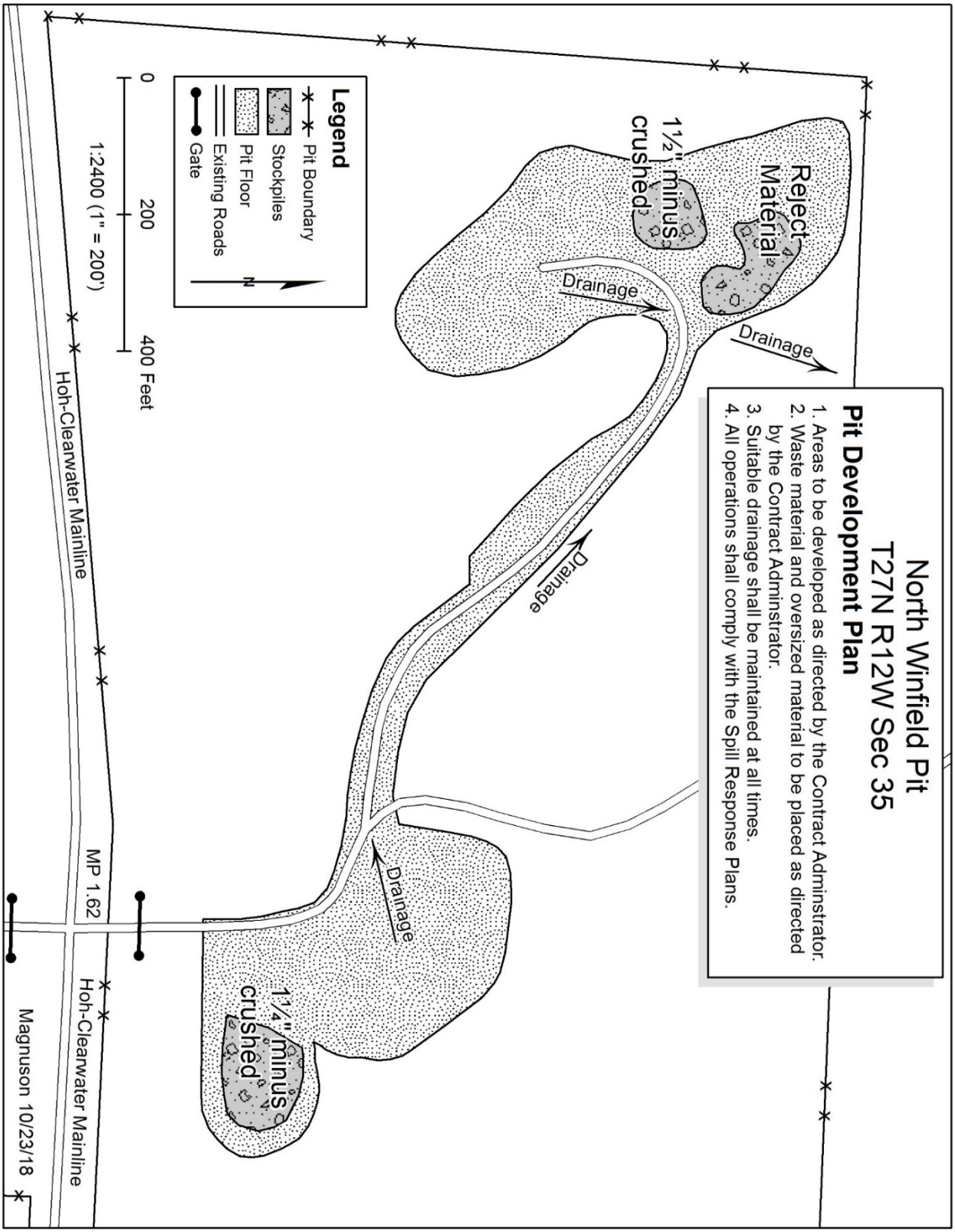


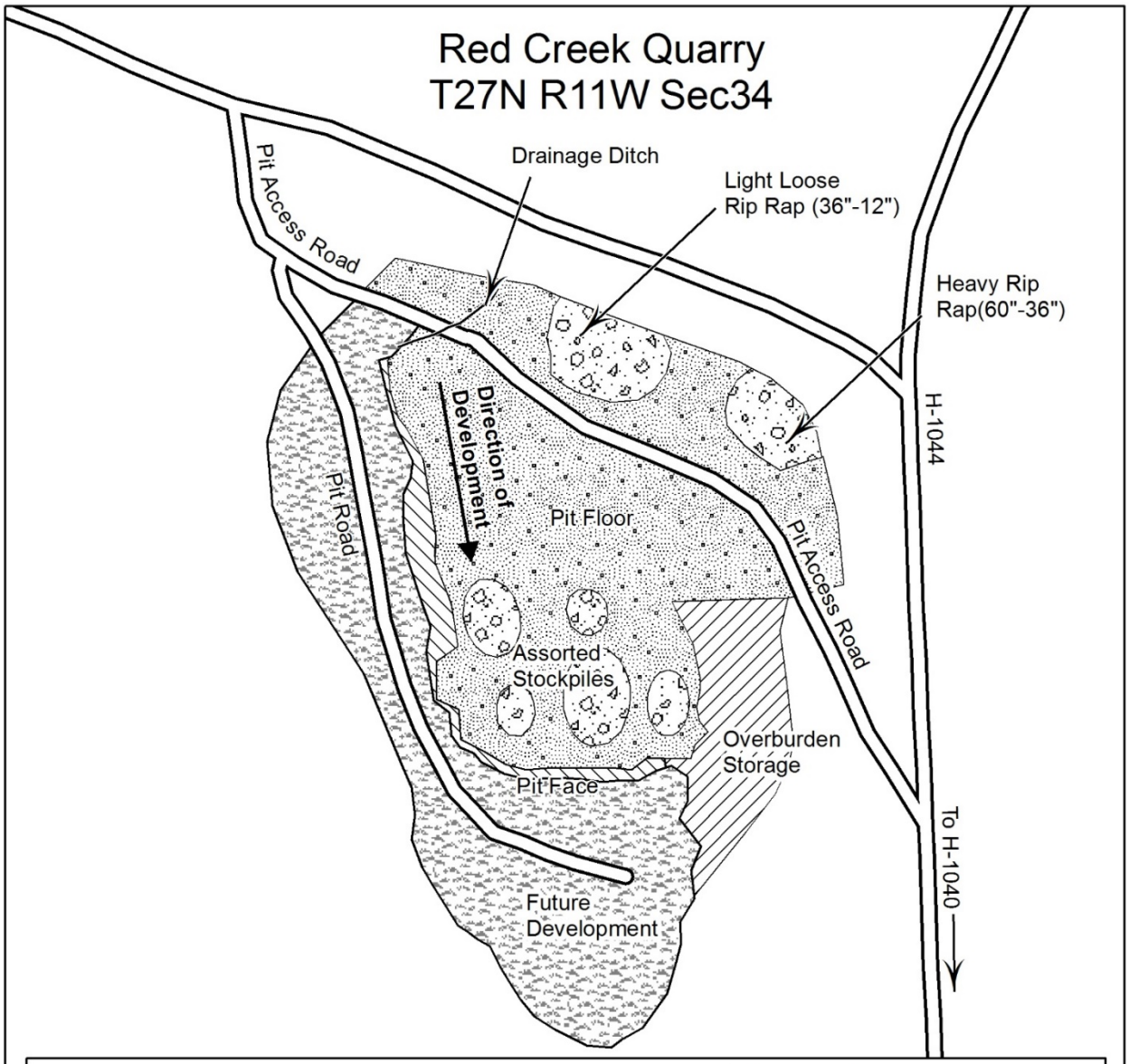
Typical Embankment Key Detail

Except where designed otherwise, road reconstruction with rip rap keyed toe and embankment.




Winfield Pit South
T27N R12W Sec 35
Pit Development Plan
1. Areas to be developed as directed by the Contract Adminstrator.
2. Suitable drainage shall be maintained at all times.
3. All operations shall comply with the Spill Response Plans.
MP 1.62
Hoh-Clearwater Mainline
Lower Working Face
Drainage
Upper Working Face
N
W
E
S
Do not disturb road
or road prism
Legend
Harvested Area
Lower Pit Floor
Existing Overburden
Stripped Area
Upper Pit Floor
Existing Roads
Gate
0
150
300
600
Feet
1:3600 (1" = 300')
Magnuson / Nowak 10/2018


North Winfield Pit
T27N R12W Sec 35
Pit Development Plan
1. Areas to be developed as directed by the Contract Adminstrator.
2. Waste material and oversized material to be placed as directed by the Contract Adminstrator.
3. Suitable drainage shall be maintained at all times.
4. All operations shall comply with the Spill Response Plans.
Reject Material
1½" minus crushed
1¼" minus crushed
Drainage
Drainage
Drainage
Drainage
Legend
Pit Boundary
Stockpiles
Pit Floor
Existing Roads
Gate
N
0
200
400 Feet
1:2400 (1" = 200')
Hoh-Clearwater Mainline
MP 1.62
Hoh-Clearwater Mainline
Magnuson 10/23/18



Rock Source Development Plan

1. Areas to be developed as directed by the Contract Administrator.
2. Waste material and oversize material shall be placed as directed by the Contract Administrator.
3. Suitable drainage shall be maintained at all times.
4. Pit floor shall slope down 2% toward pit entrance.
5. Removal from existing stockpiles shall be as directed by the Contract Administrator.

0 100 200 Feet

1:1200 (1" = 100')

10/23/18

Legend

- Pit Access Road
- Stockpiles
- Pit Face
- Overburden Storage
- Unsorted Stockpile
- Future Development
- Pit Floor

N

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Cuts and Fills

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

Surface

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

Drainage

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

Preventative Maintenance

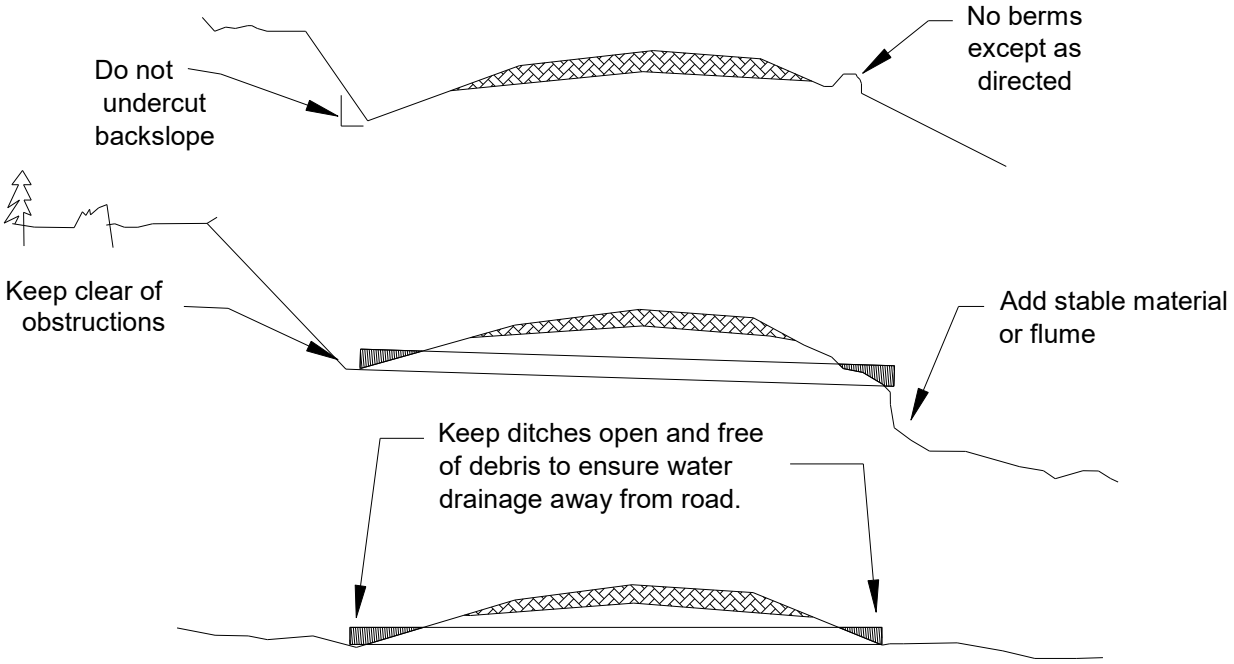
Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

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

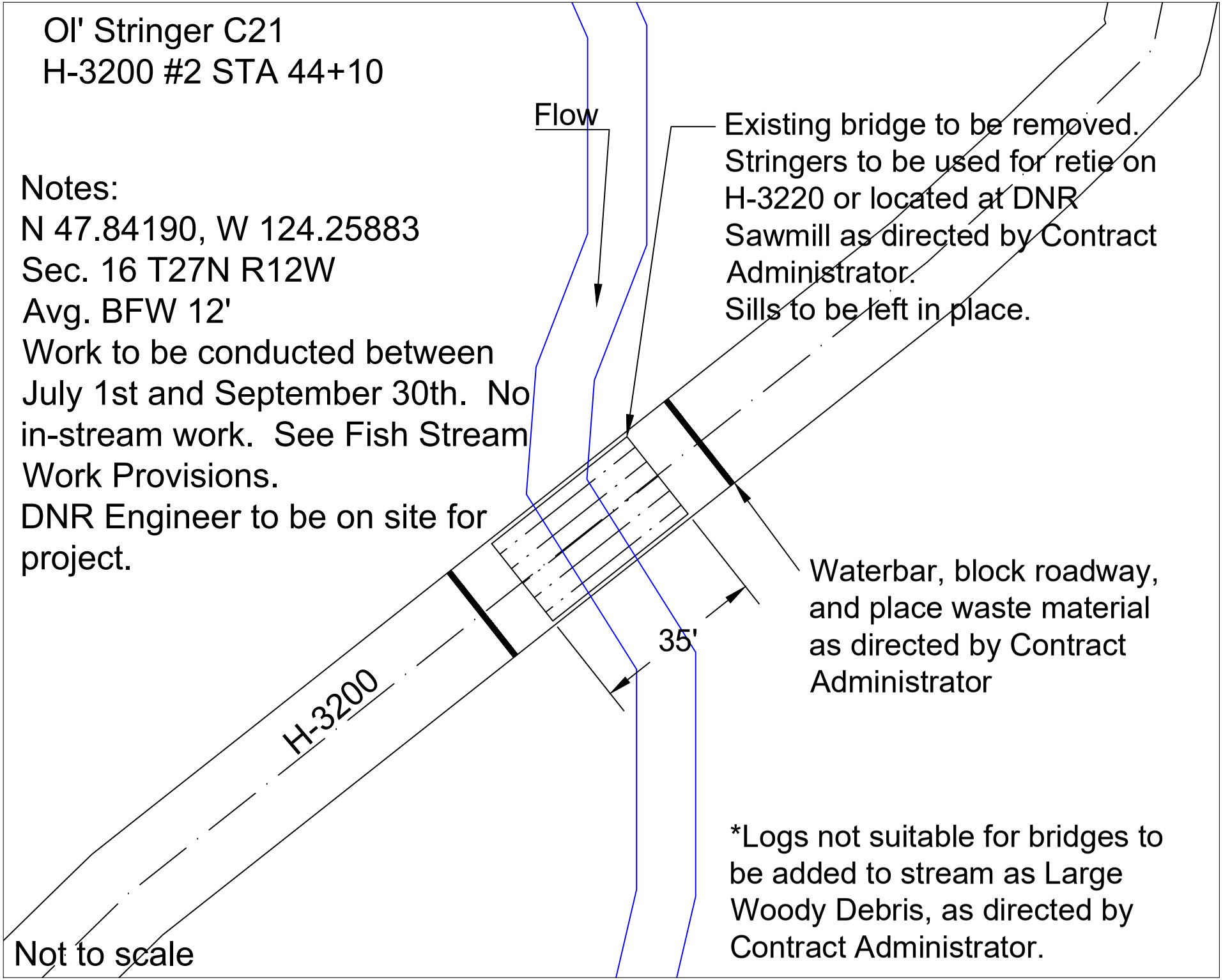
Debris

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

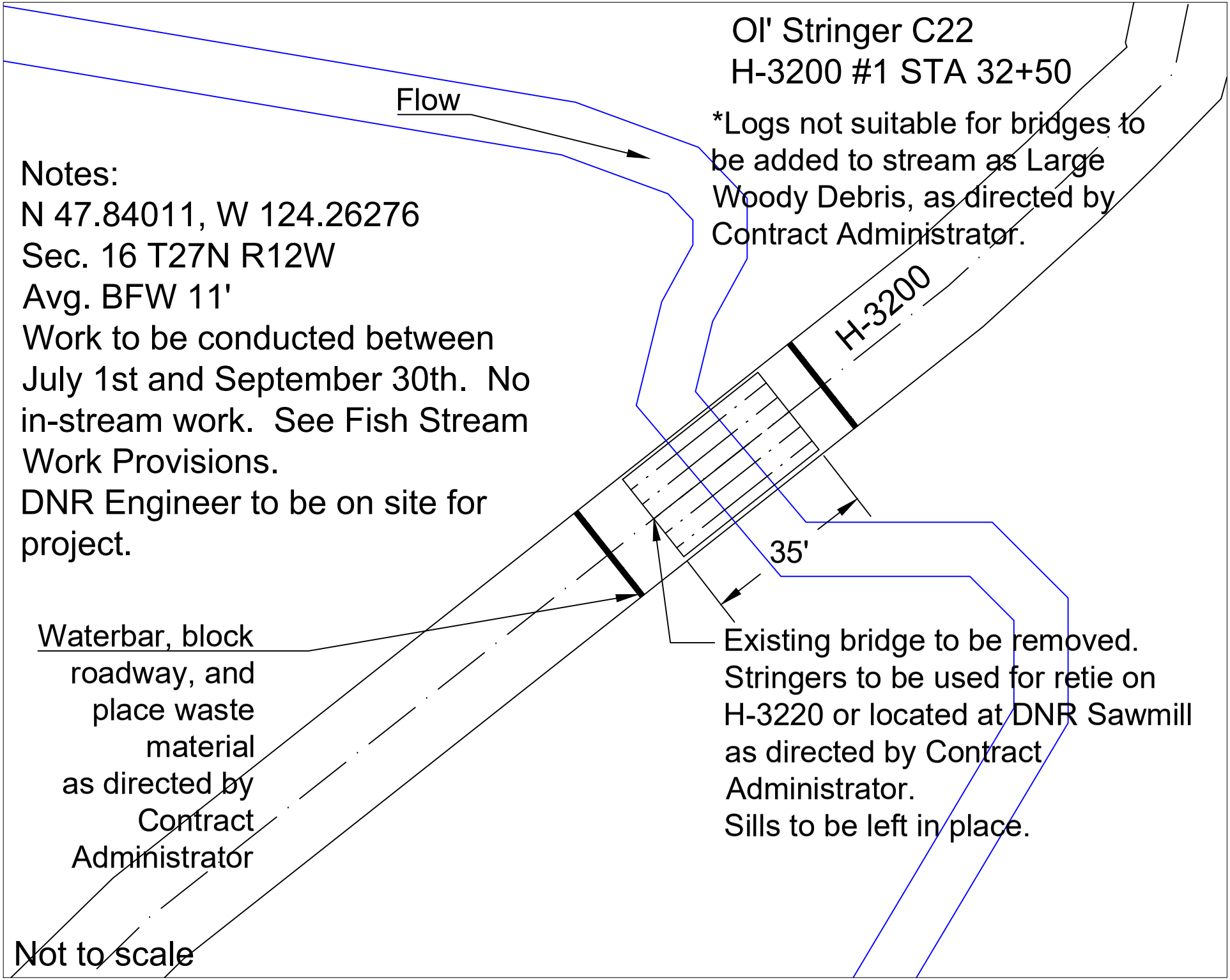


Ol' Stringer C21
H-3200 #2 STA 44+10

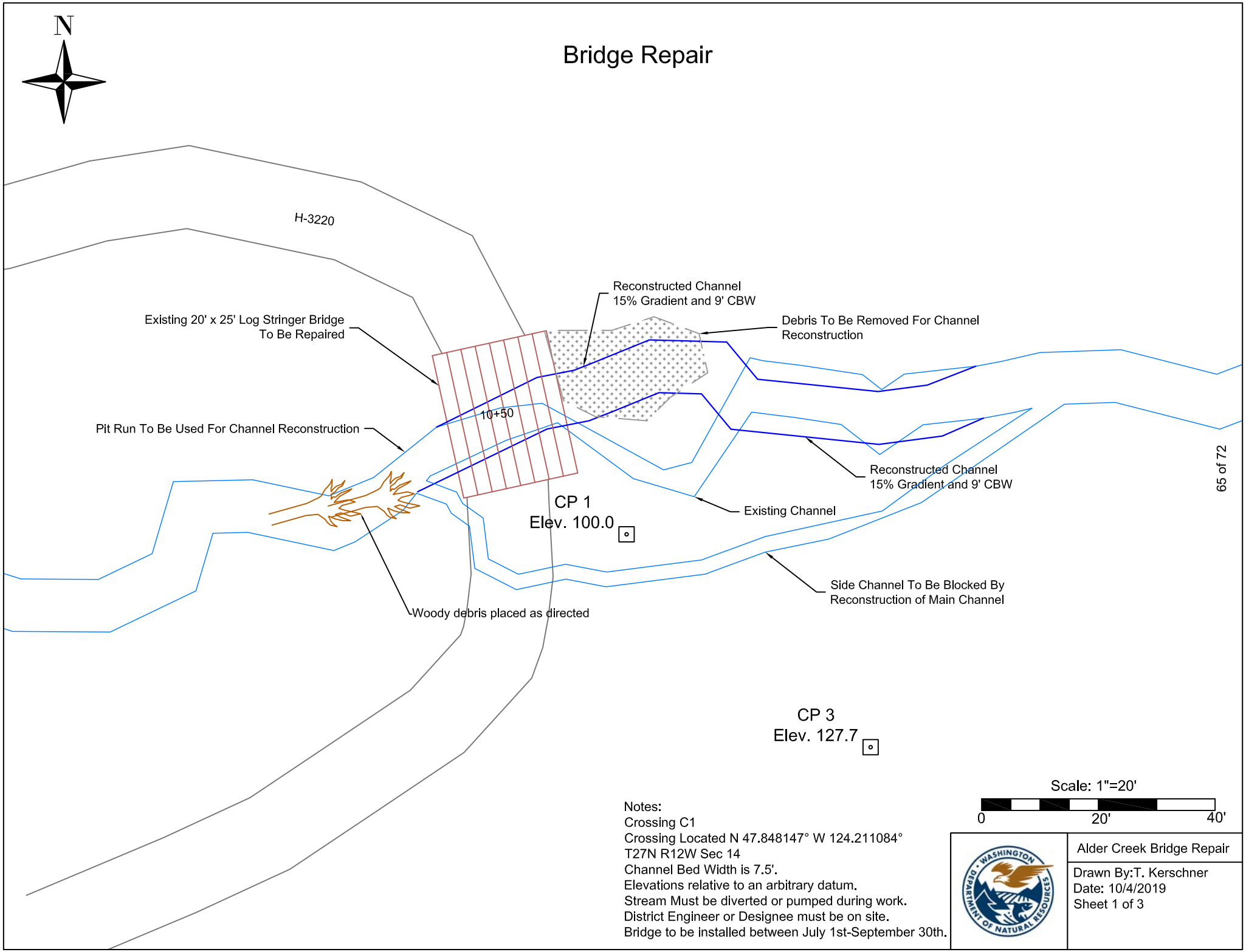
Notes:
N 47.84190, W 124.25883
Sec. 16 T27N R12W
Avg. BFW 12'
Work to be conducted between July 1st and September 30th. No in-stream work. See Fish Stream Work Provisions.
DNR Engineer to be on site for project.



Not to scale


Ol' Stringer C22
H-3200 #1 STA 32+50
Flow
*Logs not suitable for bridges to be added to stream as Large Woody Debris, as directed by Contract Administrator.
Notes:
N 47.84011, W 124.26276
Sec. 16 T27N R12W
Avg. BFW 11'
Work to be conducted between July 1st and September 30th. No in-stream work. See Fish Stream Work Provisions.
DNR Engineer to be on site for project.
H-3200
35'
Waterbar, block roadway, and place waste material as directed by Contract Administrator
Existing bridge to be removed. Stringers to be used for retie on H-3220 or located at DNR Sawmill as directed by Contract Administrator.
Sills to be left in place.
Not to scale

Bridge Repair

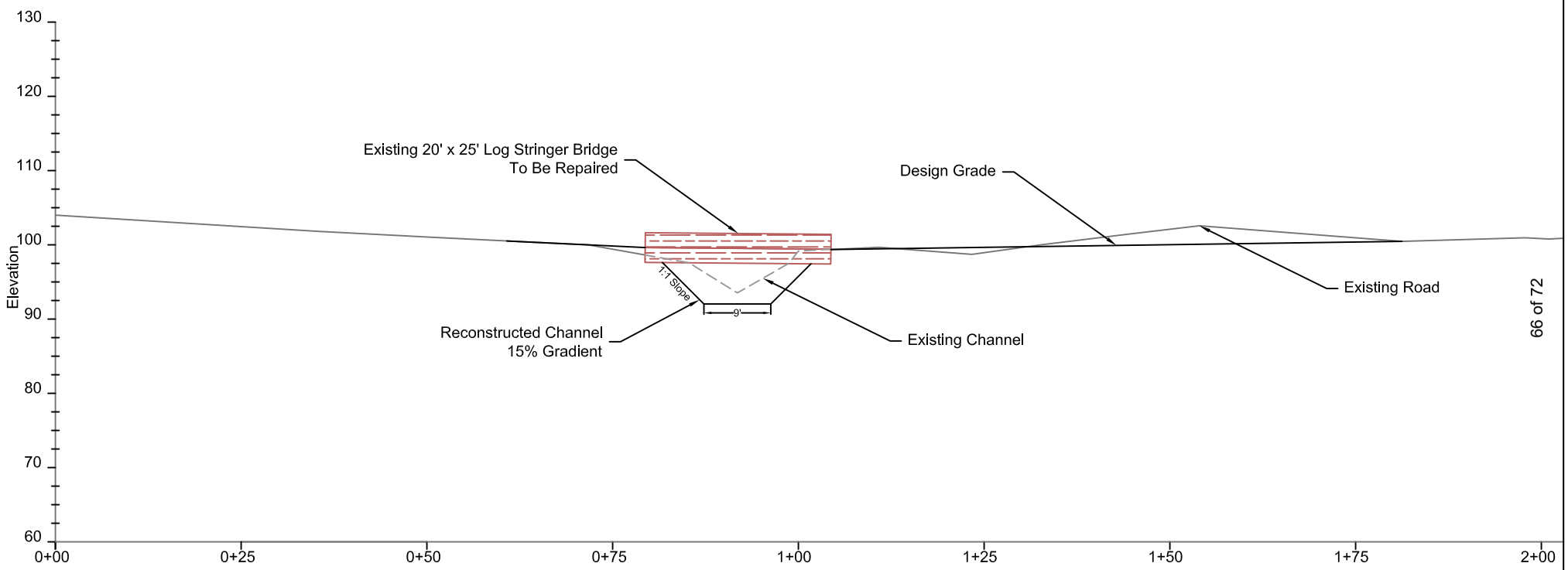


Notes:
Crossing C1
Crossing Located N 47.848147° W 124.211084°
T27N R12W Sec 14
Channel Bed Width is 7.5'.
Elevations relative to an arbitrary datum.
Stream Must be diverted or pumped during work.
District Engineer or Designee must be on site.
Bridge to be installed between July 1st-September 30th.

Alder Creek Bridge Repair

Drawn By:T. Kerschner
Date: 10/4/2019
Sheet 1 of 3

Bridge Repair



Scale: 1"=20'

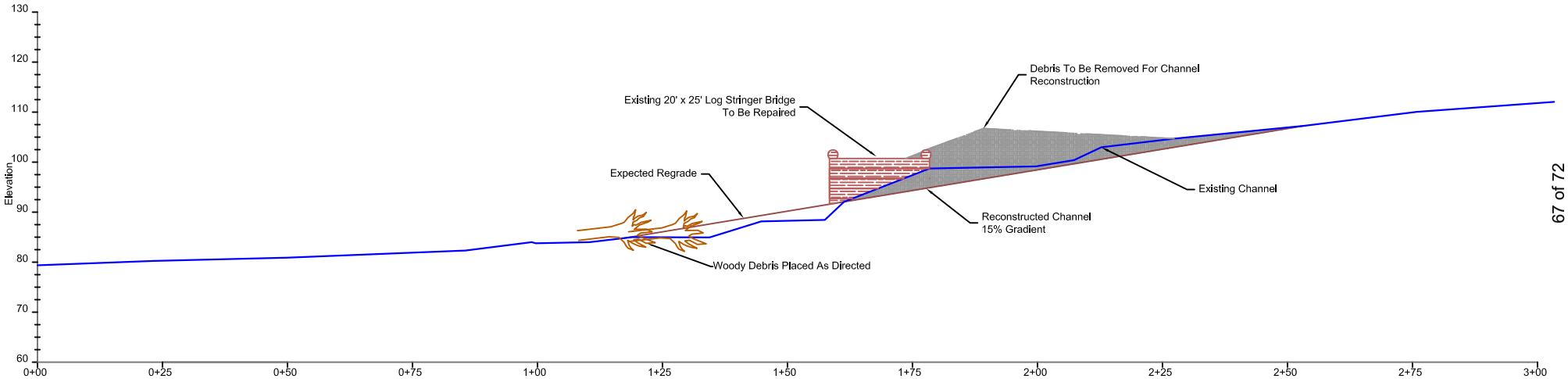
0 20' 40'

Notes:
Crossing C1
Crossing Located N 47.848147° W 124.211084°
T27N R12W Sec 14
Channel Bed Width is 7.5'.
Elevations relative to an arbitrary datum.
Stream Must be diverted or pumped during work.
District Engineer or Designee must be on site.
Bridge to be installed between July 1st-September 30th.

Alder Creek Bridge Repair

Drawn By:T. Kerschner
Date: 10/4/2019
Sheet 2 of 3

Bridge Repair



Scale: 1"=30'

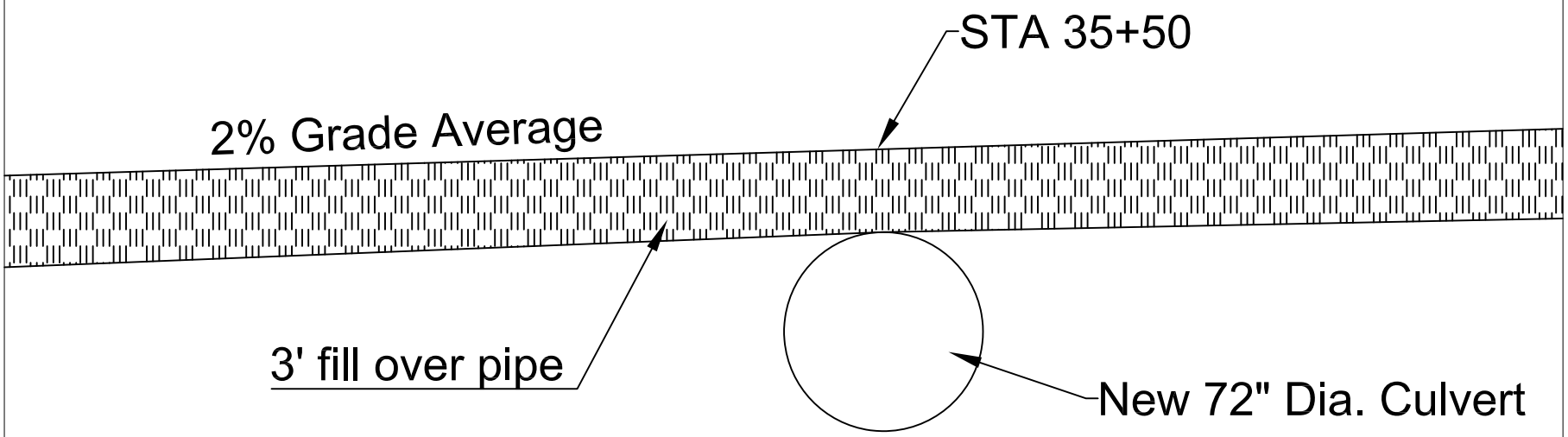
0 30' 60'

Notes:
Crossing C1
Crossing Located N 47.848147° W 124.211084°
T27N R12W Sec 14
Channel Bed Width is 7.5'.
Elevations relative to an arbitrary datum.
Stream Must be diverted or pumped during work.
District Engineer or Designee must be on site.
Bridge to be installed between July 1st-September 30th.

Alder Creek Bridge Repair

Drawn By:T. Kerschner
Date: 10/4/2019
Sheet 3 of 3

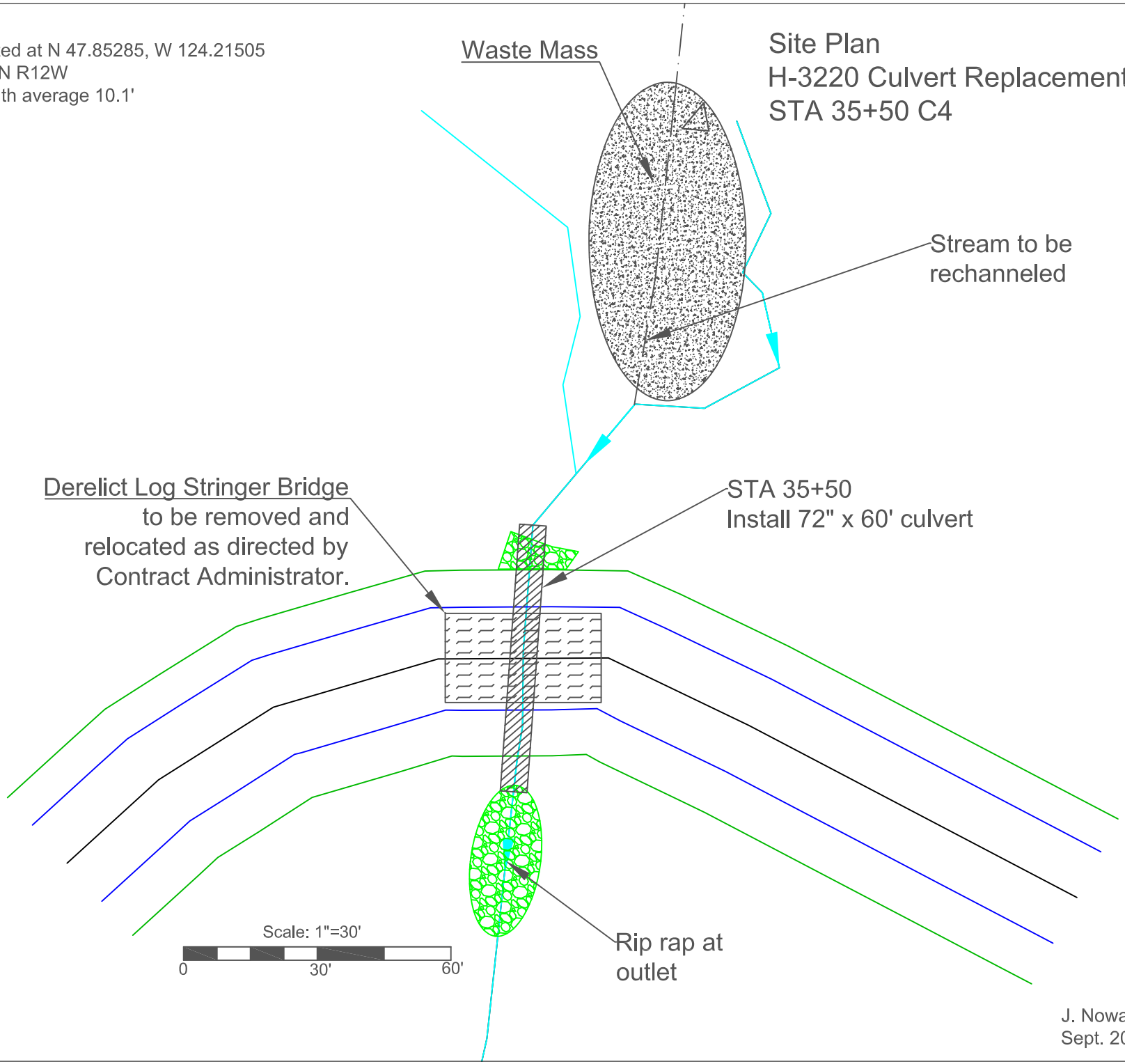
H-3220 Pipe Replacement
Looking Downstream
STA 35+50 C4



Notes
Culvert located at N 47.85285, W 124.21505
Sec. 11 T27N R12W
Bank full width average 10.1'

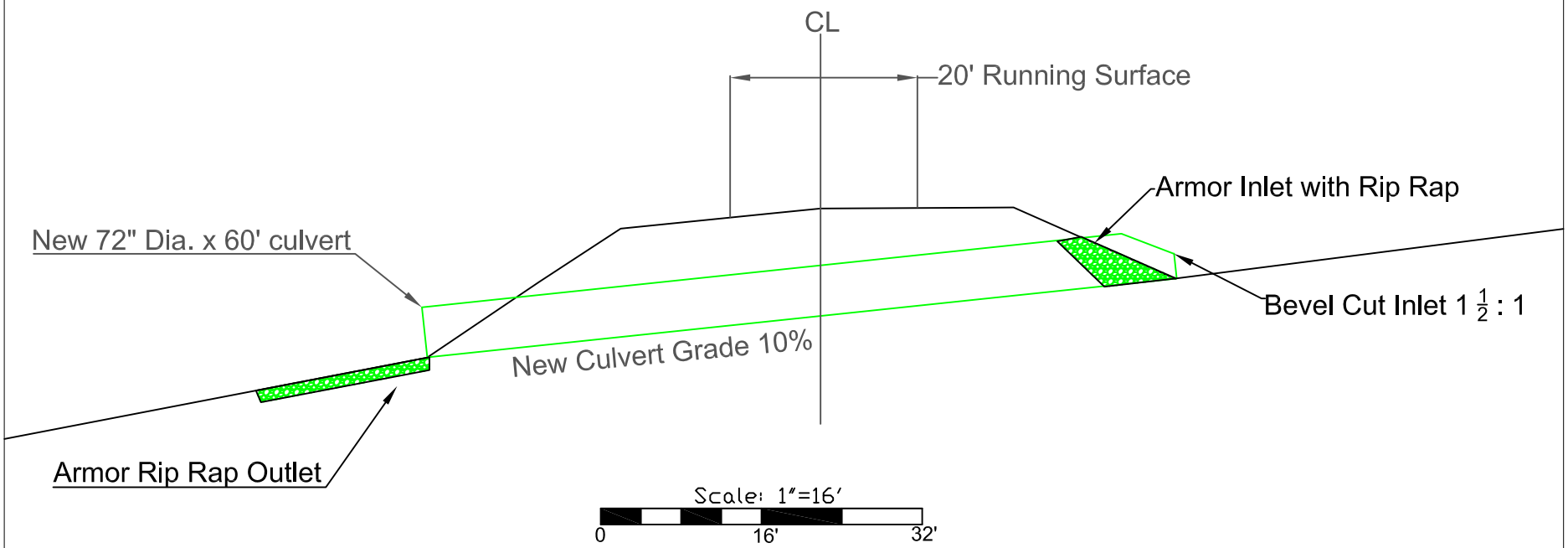
J. Nowak
Sept. 2019

Notes
Culvert located at N 47.85285, W 124.21505
Sec. 11 T27N R12W
Bank full width average 10.1'



J. Nowak
Sept. 2019

H-3220 Culvert Installation
STA 35+50 C4



Notes
Culvert located at N 47.85285, W 124.21505
Sec. 11 T27N R12W
Bank full width average 10.1'

J.Nowak
Sept. 2019

SUMMARY - Road Development Costs

SALE NAME: Ol Stringer CONTRACT#: 30-099196 REGION: Olympic DISTRICT: Coast

LEGAL DESCRIPTION: Sec: 10, 11, 14 T27N R12W

ROAD NAME:			H-3223.3	H-3200	H-3220	H-3223	H-3223.1	H-3224	H-3225	H-3226	H-3227	H-3229	Misc.	Contingency	TOTAL:	TOTAL SHEET 1 of 2
				0	0	0	0	0	0	0	0	0	0	0		
ROAD TYPE:			Construction	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul		
				0	0	0	0	0	0	0	0	0	0	0		
NUMBER OF STATIONS:			6	18	160	39	8	10	10	4	3	2	1	1	260.60	311.30
SIDESLOPE:			1	0	0	0	0	0	0	0	0	0	0	0	0.65	0%
				0	0	0	0	0	0	0	0	0	0	0	0.00	
CLEARING AND GRUBBING:			$ 1,982	0	0	0	0	0	0	0	0	0	0	0	$ 1,982	$0
ROAD BRUSHING:			$ -	0	0	0	0	0	0	0	0	0	0	0	$ -	$0
EXCAVATION AND FILL:			$ 13,161	0	0	0	0	0	0	0	0	0	0	0	$ 13,161	$0
ROAD GRADING:			$ -	114	0	0	0	0	0	0	0	0	0	0	$ 114	$2,023
DITCH CLEANING/CONSTRUCTION:			$ -	0	6,248	1,529	308	390	226	144	113	0	0	0	$ 8,958	$0
ROCK TOTALS (Cu. Yds.)/ROCK COSTS:				0	0	0	0	0	0	0	0	0	0	0		
Ballast:	13050	13,050	650	0	9,010	1,580	390	100	390	220	110	100	250	50	12850	200
		Ballast Cost		$ -	$127,942.00	$ 23,004.80	$ 5,678.40	$ 1,492.00	$ 5,959.20	$ 3,361.60	$ 1,721.50	$ 1,601.00	$3,367.50	$ 673.50		
Surface:	360	360	60	0	0	0	0	200	0	0	0	0	0	0	260	100
		Surface Cost		$ -	$ -	$ -	$ -	$ 2,934.00	$ -	$ -	$ -	$ -	$ -	$ -		
Oversize:	370	370	0	0	352	3	3	0	0	0	0	0	2	10	370	0
		Oversize Cost		$ -	$ 6,233.92	$ 54.21	$ 54.21	$ -	$ -	$ -	$ -	$ -	$ 35.42	$ 177.10		
CULVERTS AND FLUMES:			$ -	$ -	$ 85,055.34	$ 1,716.00	$ 1,144.00	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,144.00	$ 89,059	$0
				0	0	0	0	0	0	0	0	0	0	0		
STRUCTURES:			$ -	0	15,000	0	0	0	0	0	0	0	0	0	$ 15,000	$0
MISC. EXPENSES:			$ 33	50	14,509	3,320	556	2,504	683	260	204	120	0	0	$ 22,240	$1,821
OVERHEAD:			$ 2,236	13	20,399	2,370	619	586	549	301	163	138	272	160	$ 27,807	$879
				0	0	0	0	0	0	0	0	0	0	0		
TOTAL COSTS:			$ 27,085	178	275,387	31,993	8,360	7,906	7,418	4,068	2,202	1,858	3,675	2,154	$ 372,284	$8,865
				0	0	0	0	0	0	0	0	0	0	0		
COST PER STATION:			$ 4,752	10	1,719	816	1,058	791	765	1,099	759	1,093	3,675	2,154	$ 18,692	$28.48

MOBILIZATION: $7,700

ROAD DECOMMISSIONING AND ABANDONMENT COSTS: $11,000

Pit Work $0

Road Standard	Const.	Reconst.	Prehaul	Posthaul
Total Costs =	$29,652	$0	$348,383	$11,432
Total Sta. =	5.70	0.00	252.90	311.30
Cost per Sta. =	$ 5,202.09	$ -	$ 1,377.55	$ 36.72
Compiled by:	Kevin Alexander			

TOTAL (All Roads) =	$399,849
SALE VOLUME MBF =	4,921
TOTAL COST PER MBF =	$81.25
TOTAL COST PER STATION=	$699.16
Date:	9/25/2019

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

Sheet 1 of 2

Plans to be furnished by: The State

SUMMARY - Road Development Costs

SALE NAME: Ol Stringer CONTRACT#: 30-099196 REGION: Olympic DISTRICT: Coast

LEGAL DESCRIPTION: Sec: 10, 11, 14 T27N R12W

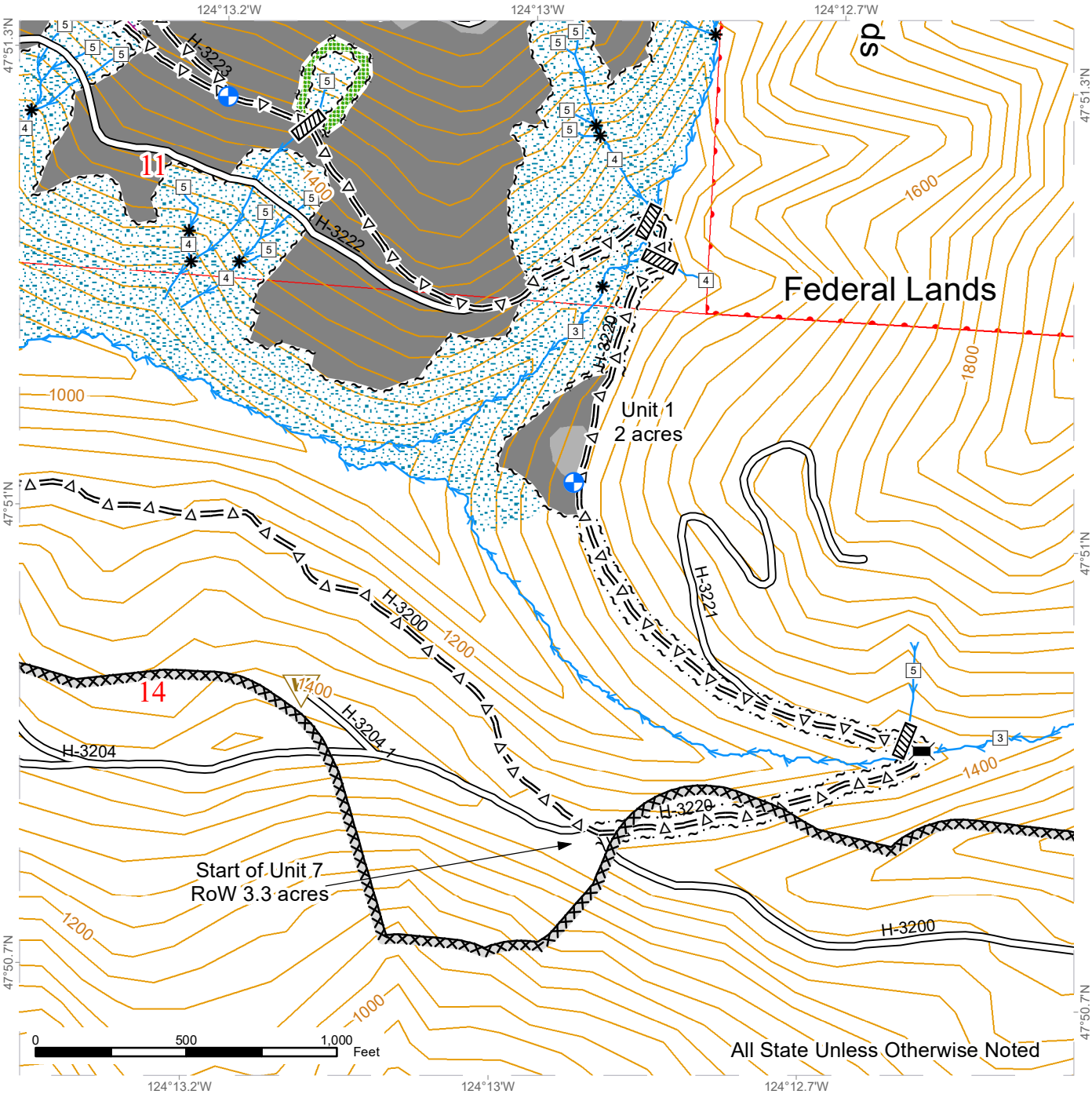
ROAD NAME:	H-3100	H-3102	H-3200	H-3220	H-3223	H-3223.1	H-3224	H-3225	H-3226	H-3227	H-3229
ROAD TYPE:	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul
	0	0	0	0	0	0	0	0	0	0	0
NUMBER OF STATIONS:	8	51	18	160	39	8	10	10	4	3	2
SIDESLOPE:	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
CLEARING AND GRUBBING:	0	0	0	0	0	0	0	0	0	0	0
ROAD BRUSHING:	0	0	0	0	0	0	0	0	0	0	0
EXCAVATION AND FILL:	0	0	0	0	0	0	0	0	0	0	0
ROAD GRADING:	51	329	114	1,041	255	51	65	63	24	19	11
DITCH CLEANING/CONSTRUCTION:	0	0	0	0	0	0	0	0	0	0	0
ROCK TOTALS (Cu. Yds.)/ROCK COSTS:	0	0	0	0	0	0	0	0	0	0	0
Ballast:	0	0	0	200	0	0	0	0	0	0	0
	$ -	$ -	$ -	$2,840.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Surface:	100	0	0	0	0	0	0	0	0	0	0
	$ 1,302.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oversize:	0	0	0	0	0	0	0	0	0	0	0
	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CULVERTS AND FLUMES:	0	0	0	0	0	0	0	0	0	0	0
STRUCTURES:	0	0	0	0	0	0	0	0	0	0	0
MISC. EXPENSES:	46	296	103	937	229	46	59	57	22	17	10
OVERHEAD:	154	69	24	530	53	11	14	13	5	4	2
TOTAL COSTS:	1,552	694	241	5,349	537	108	137	133	51	40	23
COST PER STATION:	199	14	14	33	14	14	14	14	14	14	14

	Total
Costs	$8,865
Stations	311.30
Cost/station	$28.48

LOGGING PLAN MAP

SALE NAME: OL STRINGER
AGREEMENT#: 30-099196
TOWNSHIP(S): T27R12W
TRUST(S): Capitol Grant (7), Common School and Indemnity (3)

REGION: Olympic Region
COUNTY(S): Jefferson
ELEVATION RGE: 960-2160



Bridge
Culvert
Landing - Proposed
Waste Area
Ground
Cable
DNR Managed Lands
Public Land Survey Sections
Sale Boundary Tags
Leave Tree Tags
Right of Way Tags
Property Line
Existing Roads
Optional Pre-Haul Maintenance
Streams
Stream Type
Stream Type Break

N

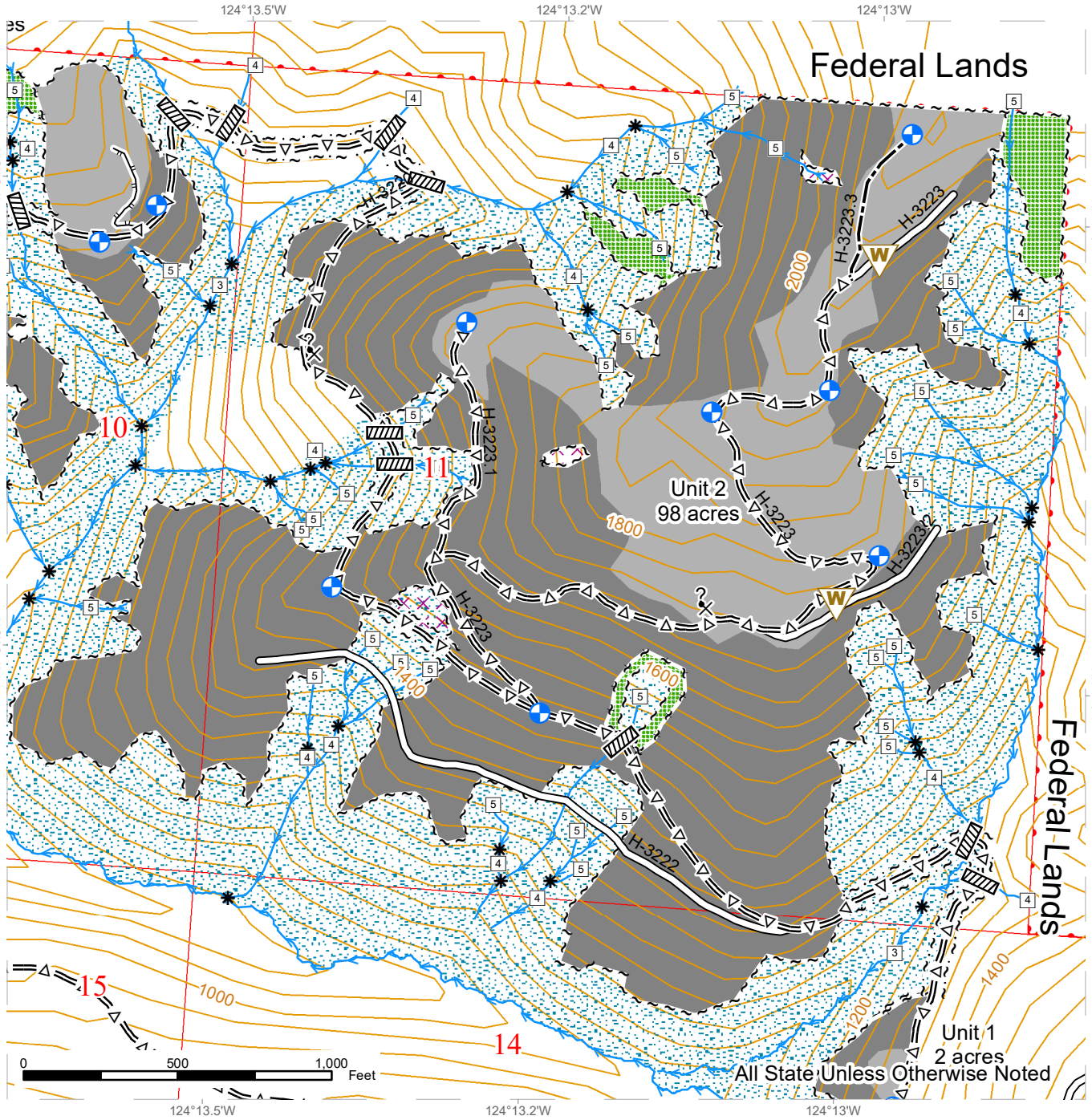
Prepared By: kale490

Modification Date: kale490 10/23/2019

LOGGING PLAN MAP

SALE NAME: OL STRINGER
AGREEMENT#: 30-099196
TOWNSHIP(S): T27R12W
TRUST(S): Capitol Grant (7), Common School and Indemnity (3)

REGION: Olympic Region
COUNTY(S): Jefferson
ELEVATION RGE: 960-2160



Culvert	DNR Managed Lands	Designated Skid Trail
Landing - Proposed	Public Land Survey Sections	Existing Roads
Potential Rock Source	Sale Boundary Tags	Optional Pre-Haul Maintenance
Waste Area	Leave Tree Tags	Optional Construction
Ground	Right of Way Tags	Streams
Cable	Property Line	Stream Type
		Stream Type Break

N

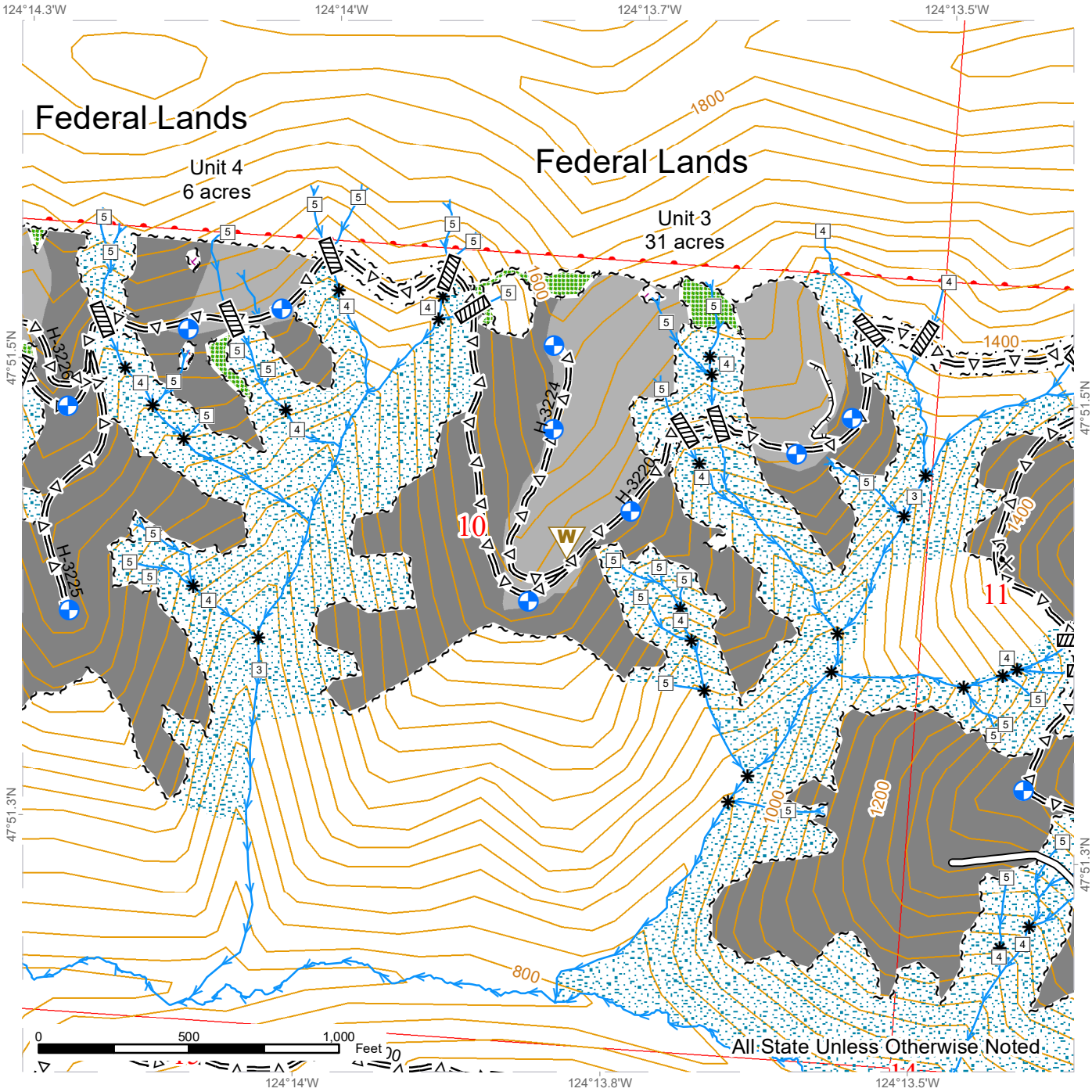
Prepared By: kale490

Modification Date: kale490 10/23/2019

LOGGING PLAN MAP

SALE NAME: OL STRINGER
AGREEMENT#: 30-099196
TOWNSHIP(S): T27R12W
TRUST(S): Capitol Grant (7), Common School and Indemnity (3)

REGION: Olympic Region
COUNTY(S): Jefferson
ELEVATION RGE: 960-2160



Culvert	DNR Managed Lands	Designated Skid Trail
Landing - Proposed	Public Land Survey Sections	Existing Roads
Potential Rock Source	Sale Boundary Tags	Optional Pre-Haul Maintenance
Waste Area	Leave Tree Tags	Streams
Ground	Right of Way Tags	Stream Type
Cable	Property Line	Stream Type Break

N

Prepared By: kale490

Modification Date: kale490 11/4/2019

LOGGING PLAN MAP

SALE NAME: OL STRINGER
AGREEMENT#: 30-099196
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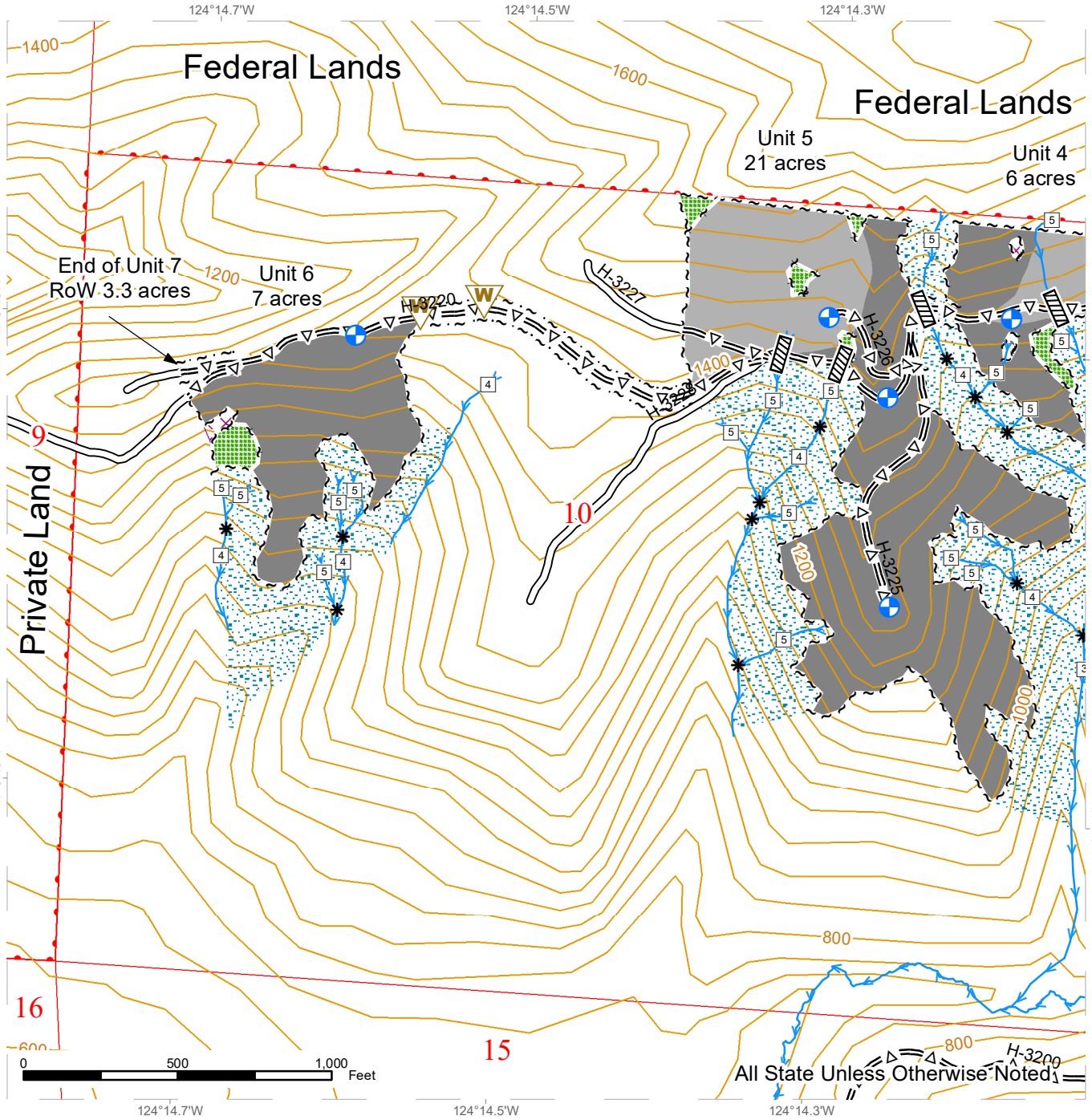

Culvert	DNR Managed Lands	Existing Roads
Landing - Proposed	Public Land Survey Sections	Optional Pre-Haul Maintenance
Waste Area	Sale Boundary Tags	Streams
Ground	Leave Tree Tags	Stream Type
Cable	Right of Way Tags	Stream Type Break
	Property Line	

N

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