



**TIMBER NOTICE OF SALE**

**SALE NAME:** T3 KALALOCH EAST

**AGREEMENT NO:** 30-102258

**AUCTION:** June 14, 2023 starting at 10:00 a.m.,  
Olympic Region Office, Forks, WA

**COUNTY:** Jefferson

**SALE LOCATION:** Sale located approximately 39 miles south of Forks

**PRODUCTS SOLD  
AND SALE AREA:**

All timber, except trees marked with a band of blue paint or bounded out by leave tree area tags, downed red cedar, or timber that has been down for five years or more (five years is defined by more than 1.5 inches of sap rot); timber sale boundary tags, the K-1240.1 in Unit 1; timber sale boundary tags, the C-2100, C-2170 and the C-2175 in Unit 3; timber sale boundary tags, the C-2100, C-2100.2, C-2100.4, C-2100.11, C-2100.7 and private timber in Unit 4; timber sale boundary tags in Unit 5.

All timber as described in Schedule D except as described in Schedule C bounded by timber sale boundary tags and special management area tags in Unit 6.

All timber bounded by right-of-way tags

All forest products above located on part(s) of Sections 25 all in Township 25 North, Range 13 West, Sections 19, 20 and 30 all in Township 25 North, Range 12 West, W.M., containing 171 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
Hemlock	13.1	6	3,408						182	2,207	899	121
Douglas fir	18.5		729						402	263	56	7
Spruce	14.9		339						80	218	38	3
Red alder	11.1		171								166	5
Redcedar	11.9		23							11	13	
Sale Total			4,670									

**MINIMUM BID:** \$40,000.00

**BID METHOD:** Sealed Bids

**PERFORMANCE  
SECURITY:**

\$8,000.00

**SALE TYPE:** Lump Sum

**EXPIRATION DATE:** October 31, 2025

**ALLOCATION:** Export Restricted

**BID DEPOSIT:** \$5,000.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

**HARVEST METHOD:** Ground 20% Uphill Cable 80% Shovel logging and cable assist/tethered logging will only be allowed if rutting and skidding requirements can be met and a harvest plan is submitted and approved by the contract administrator. A 30' equipment limitation zone on all typed waters. Falling and Yarding will not be permitted from April 1 to September



## TIMBER NOTICE OF SALE

23 unless authorized in writing by the Contract Administrator. All Falling and Yarding in Unit 3 and 4, performed during the marbled murrelet nesting season (April 1 through September 23) is restricted to two hours after sunrise to two hours before sunset. This restriction does not apply to hauling timber, rock or equipment.

### **ROADS:**

19.35 stations of optional construction. 436.80 stations of optional prehaul maintenance. Any road work, right-of-way timber falling and yarding, rock pit operations or operation of heavy equipment on the C-2175 and the C-2175.2 (see road plan for stations) performed during the marbled murrelet nesting season (April 1 through September 23) is restricted to two hours after sunrise to two hours before sunset. This restriction does not apply to hauling timber, rock or equipment.

All new construction/reconstruction is not permitted from October 15 through April 15 on the C-2100.2.

### **ACREAGE DETERMINATION**

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

**FEES:** \$79,390.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

**SPECIAL REMARKS:** This timber sale is associated with the T3 research experiment (a collaboration with the University of Washington), see the H-140 clause for contract requirements.

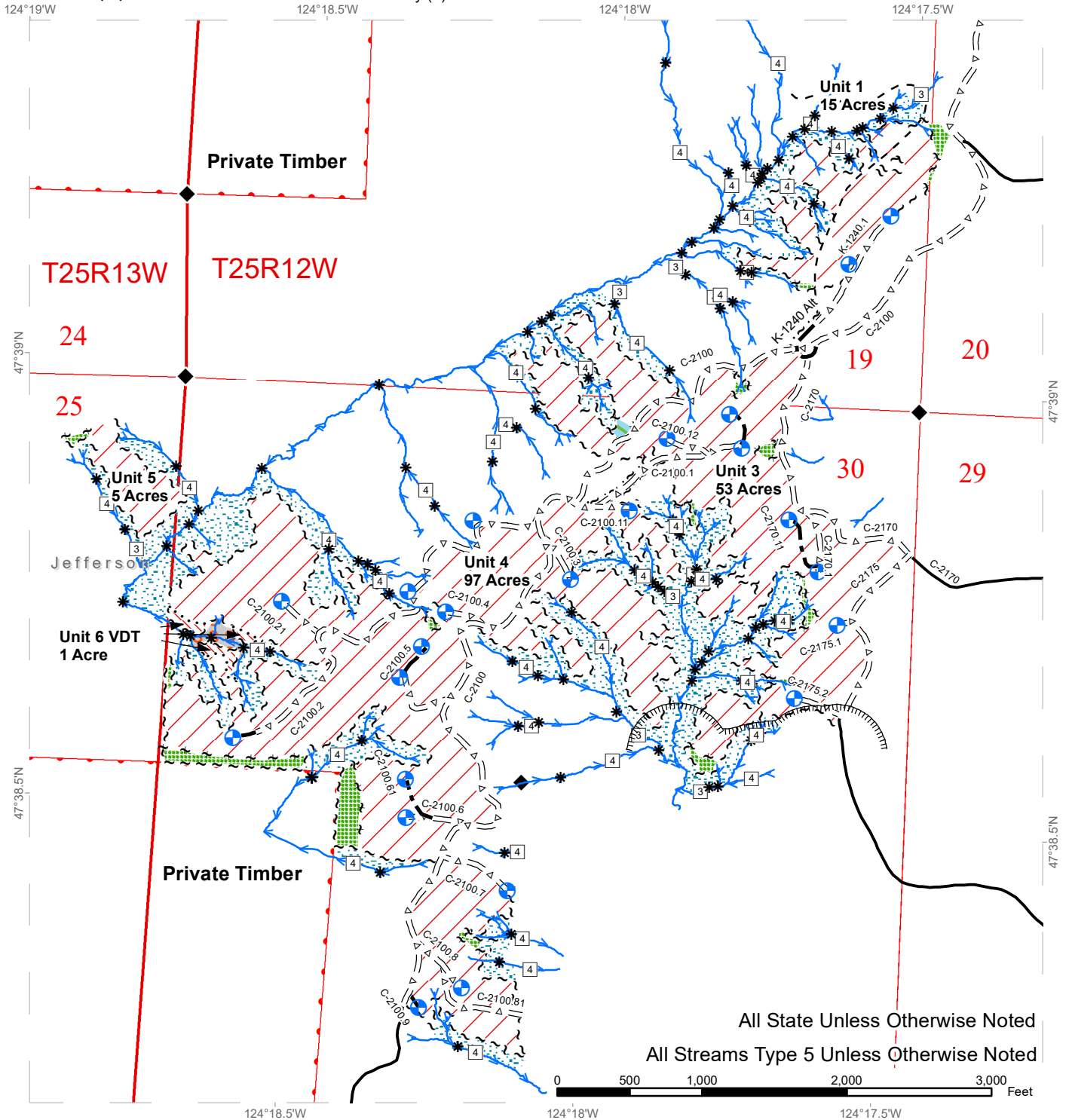
A contract term extension will not be considered for this timber sale.

There is no Unit 2 associated with this sale.

# TIMBER SALE MAP

**SALE NAME:** T3 KALALOCH EAST  
**AGREEMENT #:** 30-102258  
**TOWNSHIP(S):** T25R12W, T25R13W  
**TRUST(S):** Common School and Indemnity (3)

**REGION:** Olympic Region  
**COUNTY(S):** Jefferson  
**ELEVATION RGE:** 300' - 1090'



All State Unless Otherwise Noted  
 All Streams Type 5 Unless Otherwise Noted

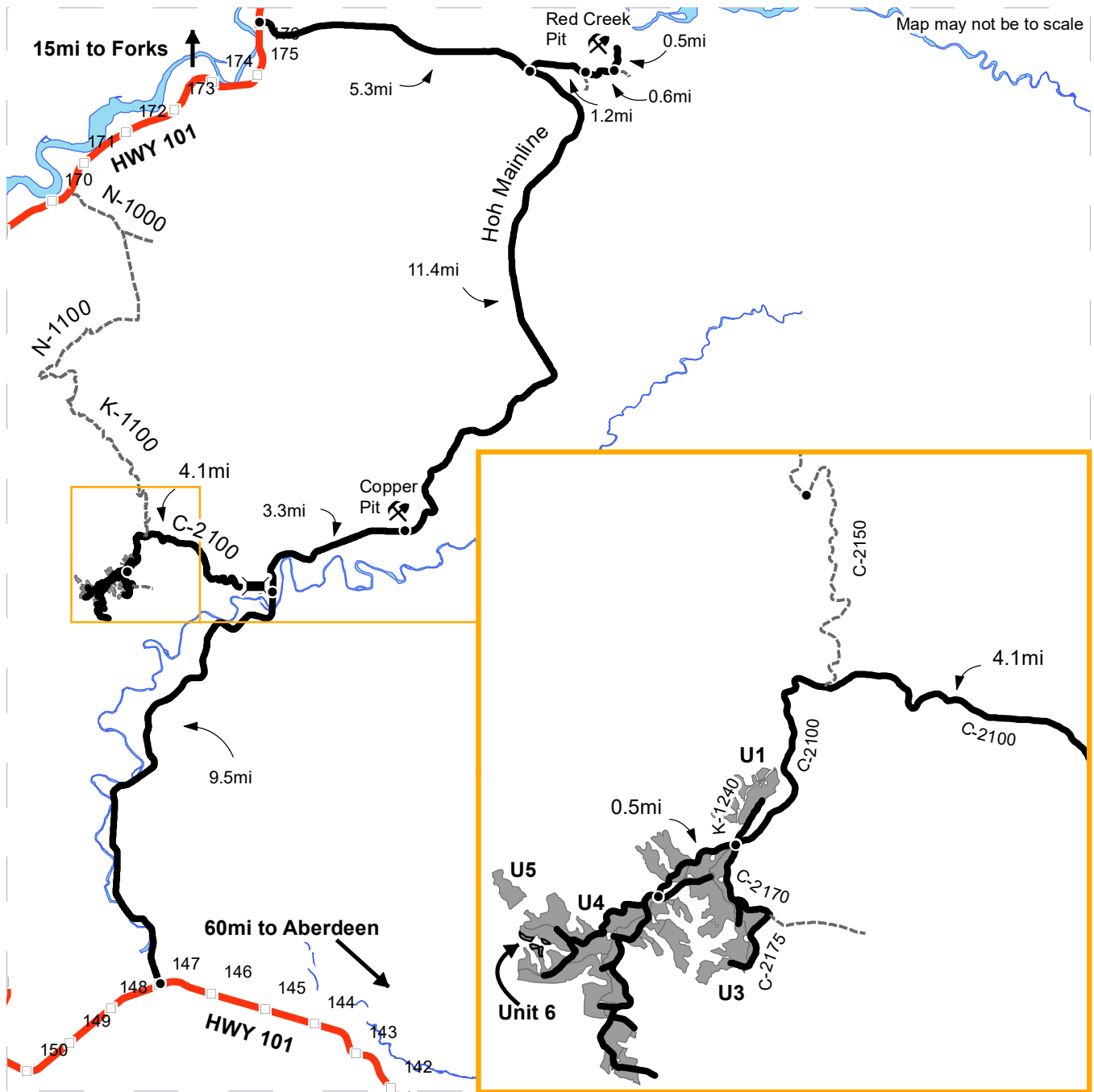
Variable Retention Harvest	Streams	Opt. Pre-haul Maintenance
Variable Density Thinning	Stream Type	Sale Boundary Tags
Skip	Stream Type Break	Special Mgmt Area
Non-Tradeable Leave Clump	Proposed Landing	Leave Tree Tags
Leave Tree Area	Existing Road	Right of Way Tags
Riparian Mgt Zone	Non-drivable Road	Survey Monument
Timing Restriction	Opt. New Construction	Property Line



# DRIVING MAP

**SALE NAME:** T3 KALALOCH EAST  
**AGREEMENT#:** 30-102258  
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**TRUST(S):** Common School and Indemnity (3)

**REGION:** Olympic Region  
**COUNTY(S):** Jefferson  
**ELEVATION RGE:** 300' - 1090'



Map may not be to scale

	Timber Sale Unit
	Open Water
	Highway
	Haul Route
	Other Road
	Bridge
	Culvert
	Distance Indicator
	Rock Pit
	Milepost Markers

**DRIVING DIRECTIONS:**

**Red Creek Pit:** Drive south from Forks, WA for 15mi. Turn left onto Hoh mainline. Drive for 5.3mi and turn left onto H-1040. Drive 1.2mi and turn left onto H-1043. Drive 0.6mi and turn left onto H-1044. Drive 0.5mi and arrive at Red Creek pit.

**Copper Pit:** Continue on Hoh Mainline for 11.4 from junction H-1040. Arrive at Copper pit.

**Unit 3:** Continue on Hoh Mainline for 3.3mi from Copper pit. Turn right onto C-2100. Continue for 4.1mi and arrive at unit 3 and junction C-2100/C-2170/K1240.

**Unit 1:** From unit 3, drive north on K-1240 for 400ft.

**Unit 4:** From unit 3, Drive west on C-2100 for 0.5mi.

**Unit 5:** Cross East Kalaloch Creek on foot from northeast corner of unit 4.

**Unit 6:** Located in RMZ of unit 4.



**STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES**

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

**Export Restricted Lump Sum AGREEMENT NO. 30-0102258**

**SALE NAME: T3 KALALOCH EAST**

**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 June 14, 2023 and the sale was confirmed on \_\_\_\_\_. The State, as owner, agrees to sell to Purchaser, and Purchaser agrees to purchase as much of the following forest products as can be cut and removed during the term of this contract: All timber, except trees marked with a band of blue paint or bounded out by leave tree area tags, downed red cedar, or timber that has been down for five years or more (five years is defined by more than 1.5 inches of sap rot); timber sale boundary tags, the K-1240.1 in Unit 1; timber sale boundary tags, the C-2100, C-2170 and the C-2175 in Unit 3; timber sale boundary tags, the C-2100, C-2100.2, C-2100.4, C-2100.11, C-2100.7 and private timber in Unit 4; timber sale boundary tags in Unit 5.

All timber as described in Schedule D except as described in Schedule C bounded by timber sale boundary tags and special management area tags in Unit 6.

All timber bounded by right-of-way tags

All forest products above located on approximately 171 acres on part(s) of Section 25 in Township 25 North, Range 13 West, Sections 19, 20, and 30 all in Township 25 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
C	LEAVE TREE SELECTION CRITERIA
D	UNIT TARGET TABLE

G-031 Contract Term

Purchaser shall complete all work required by this contract prior to October 31, 2025.

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-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-061 Inadvertent Discovery of Cultural Resources**

Purchaser acknowledges that cultural resources as defined in WAC 222-16-010 may exist within the timber sale area and that the existence and location of such resources



may be unknown at the time this contract is executed. Purchaser has a duty to exercise due care in its operations and in the event any human skeletal remains are discovered by the Purchaser or the State during the course of operations Purchaser shall immediately halt operations and notify local law enforcement in the most expeditious manner possible then notifying the Contract Administrator. In the event cultural resources are discovered by the Purchaser or the State during the course of operations Purchaser shall immediately halt operations and notify the Contract Administrator. Any potential resources shall not be removed or disturbed. Purchaser shall resume operations as directed in writing by the Contract Administrator.

#### 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.

The pricing schedule has not been set for the sale.

**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: PwC-SFIFM-513.

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.

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.

Road is defined as the road bed, including but not limited to its component parts, such as cut and fill slopes, 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.

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 Operations**

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; Hoh-Clearwater Mainline, C-2100, C-2100.1, C-2100.11, C-2100.12, C-2100.2, C-2100.21, C-2100.3, C-2100.4, C-2100.5, C-2100.6, C-2100.61, C-2100.7, C-2100.8, C-2100.81, C-2100.9, C-2170, C-2170.1, C-2170.11, C-2175.1, C-2175.2, K-1240.1, K-1240 Alt., Copper Pit road, H-1040, H-1043, H-1044, Red Creek Quarry 1 Road, and Red Creek Quarry 2 Road. 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:

55-000001-Rayonier Easement

55-000465-Key Timber Co. Easement

55-000467-Bert Cole Easement

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 \$121,420.00. The total contract price consists of a \$0.00 contract bid price plus \$121,420.00 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 \$8,000.00. 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-011 Certification of Fallers and Yarder Operators

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

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

Excessive damage for reserve trees is defined in clause H-013.

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

When leave tree damage exceeds the limits set forth in clause H-012,

Purchaser shall be subject to liquidated damages (clause D-040)

When reserve tree damage exceeds the limits set forth in clause H-013,

Purchaser shall be subject to liquidated damages (clause D-041).

H-012 Leave Tree Damage Definition

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

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

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

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

#### H-013 Reserve Tree Damage Definition

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

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

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

If the Contract Administrator determines that a reserve tree has been cut or damaged, the Purchaser shall provide a replacement reserve tree of like condition, size, and species within the sale 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 '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 locations and timing of the desired area, 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 and cable based methods. Shovel logging and cable assist/tethered logging will not be allowed unless skidding and rutting 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-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

1. While felling timber one Warning sign must be posted on the C-2100.
2. Full suspension cable yarding shall be required when yarding timber across the RMZ and unstable slopes associated within Unit 5 in order to minimize damage to standing trees.
3. Yarding equipment shall not cross live steams 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.

5. Special requirements associated with the T3 research project:

A. Trees marked with yellow paint (acoustic monitoring plot centers associated with the T3 experiment) are to be cut to a minimum stump height of 4.5 ft. or higher when safe to do so.

B. Researchers (DNR and/or non-DNR staff) may be on site as observers and data recorders and/or may leave recording devices during the harvest and shipping of timber within the research areas.

C. Documentation (a simple form will be provided) may be required for the accounting of daily activities and projected costs. Data collected and stored by logging equipment (such as but not limited to processors and feller bunchers) are required to be made available upon request.

D. Provide removal volume and species information upon request for designated research areas

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.

All road work, right-of-way timber, falling and yarding, rock pit operations or operation of heavy equipment performed during the marbled murrelet nesting season (April 1 through September 23) is restricted to two hours after sunrise to two hours before sunset in Unit 3 and Unit 4. This restriction does not apply to hauling timber, rock, or equipment.

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 2/21/2023 are hereby made a part of this contract.

**C-050** Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on all roads listed in the Road Plan, authorized in clause G-310, and not listed in clause C-060. 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 Hoh-Clearwater Mainline, C-2100 (0+00 to C-2150 Junction) H-1040, H-1043, H-1044, Copper Pit Access Road (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-035 Logging Debris Clean Up

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

S-050 Cessation of Operations for Low Humidity

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

S-060 Pump Truck or Pump Trailer

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

S-100 Stream Cleanout

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

S-110 Resource Protection

No equipment may operate within 30' of all typed waters unless authority is granted in writing by the Contract Administrator.

S-130 Hazardous Materials

a. Hazardous Materials and Waste - Regulatory Compliance

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

personnel protection, release notification and emergency response, cleanup, and waste disposal.

Purchaser shall be responsible for restoring the site in the event of a spill or other releases of hazardous material/waste during operations conducted under this contract.

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 covered in part a., the Purchaser is responsible for immediately notifying all the following:

- Department of Emergency Management at 1-800-258-5990
- National Response Center at 1-800-424-8802
- Appropriate Department of Ecology (ECY) at 1-800-645-7911
- DNR Contract Administrator

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.

SIGNATURES

This agreement may be executed in any number of counterparts (including by electronic mail in portable document format (.pdf), or by facsimile) each of which shall be deemed an original but all of which, when taken together, shall constitute one and the same Agreement binding on all parties.

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**

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.

<u>Unit #</u>	<u># of Individually Marked Trees</u>	<u># of Clumps</u>	<u># of Trees Clumped</u>	<u>Total # of Leave Trees</u>
1	0	3	120	120
3	58	7	368	460
4	64	5	728	792
5	0	1	47	47

**Schedule C**  
**LEAVE TREE SELECTION CRITERIA**

1. Leave trees are defined as:

- a. All trees greater than or equal to 28 inches in diameter at a 12 inch stump height.
- b. Trees greater than or equal to 24 inches in diameter at a 12 inch stump height, with good form, shall only be felled if leaving them results in a residual stand of higher relative density than shown in the Unit Target Table (Schedule D)

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

Best form is defined as follows:

- a. Tallest trees
- b. Straightest boles
- c. Species:  
Douglas Fir, Western Red Cedar, Western Hemlock or True Fir.

3. Leave trees will be identified by comparing their characteristics with other trees in the stand. Spacing will be varied to insure the best trees available are left as leave trees. Felling of trees shall not result in creating an opening in the stand greater than 38 feet in diameter. If openings in the stand approach this diameter, then sufficient trees shall be left on the perimeter of the opening to maintain the target density or spacing (Unit Target Table - Schedule D).

**Schedule D**  
**UNIT TARGET TABLE**

<u>Unit</u>	<u>Acres</u>	<u>Approx. Stems/acre</u>	<u>Approx. Spacing</u>
6	1	30	38'



## WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

### FOREST EXCISE TAX ROAD SUMMARY SHEET

**Region:**

**Timber Sale Name:**

**Application Number:**

#### EXCISE TAX APPLICABLE ACTIVITIES

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

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

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

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

**Pre-Haul Maintenance:** **linear feet**  
*Existing road to receive maintenance work (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 contract. The Department of Revenue bears responsibility for determining forest road excise taxes. The Department of Natural Resources developed this form to help estimate the impact of forest excise taxes. However, the information provided may not precisely calculate the actual amount of taxes due. The Department of Revenue is available for consultation by calling 1.800.548.8829.  
(Revised 9/18)

## Timber Sale Cruise Report T3 Kalaoch East

**Sale Name:** T3 KALALOCH EAST

**Sale Type:** LUMP SUM

**Region:** OLYMPIC

**District:** COAST

**Lead Cruiser:** Kevin Peterson

**Other Cruisers:**

**Cruise Narrative:**

**Location:**

This sale is located in the Clearwater block on the C-2100. All units are pretty easily accessed

**Cruise Design:**

I used a 54.44/40 BAF combo for all units on the this sale.

Merch height was determined at 40% of the diameter at 16'. All logs were cruised in 40' lengths, except for RC which was cruised in 36' lengths.

**Timber Quality:**

This sale is mostly 50 year old WH with some DF, SS, RA and RC mixed throughout. Some of the units have been PCT'd and others have not.

Most the WH is pretty clean and common defects are sweep and forked tops.

**Logging and Stand Conditions:**

This sale will be 20% ground based harvest and 80% uphill cable harvest. Walking through the units is pretty easy and brush free, just pretty steep.

**General Remarks:**

I cruised this sale including the LTA's to help capture the leave tree volume.

### Timber Sale Notice Volume (MBF)

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WH	13.1	5.7		3,394	181	2,198	895	120
DF	18.5			725	400	261	56	7
SS	14.9			338	80	216	38	3
RA	11.2			171			166	5
RC	11.9			23		11	12	
ALL	13.5	5.8		4,651	662	2,686	1,167	135

### Timber Sale Notice Weight (tons)

Sp	Tons by Grade				
	All	2 Saw	3 Saw	4 Saw	Utility

Sp	Tons by Grade				
	All	2 Saw	3 Saw	4 Saw	Utility
WH	34,856	1,775	22,652	8,730	1,699
DF	6,608	3,439	2,511	508	150
SS	2,904	667	1,885	286	66
RA	1,771			1,666	104
RC	209		92	117	
ALL	46,347	5,880	27,140	11,307	2,020

### Timber Sale Overall Cruise Statistics (Cut + Leave Trees)

BA (sq ft/acre)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR SE (%)	Net Vol (bf/acre)	Vol SE (%)
251.2	2.0	108.2	1.2	27,162	2.4

### Timber Sale Unit Cruise Design

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
T3 KALALOCH EAST U1	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	15.2	15.1	8	4	0
T3 KALALOCH EAST U 3 DA K	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	12.1	12.1	6	3	0
T3 KALALOCH EAST U3 DA CM	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	5.8	6.3	3	2	0
T3 KALALOCH EAST U3 DP	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	26.3	26.4	13	7	0
KALALOCH EAST U3	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	10.5	10.5	5	3	0
T3 KALALOCH EAST U4 DP K	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	26.3	26.7	14	7	0
T3 KALALOCH EAST U4 DP CM	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	15.9	15.6	8	4	0
T3 KALALOCH EAST U4 EVDP	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	19.1	15.4	10	5	0
T3 KALALOCH EAST U4 POLYCULTURE	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count	18.3	21.7	10	5	0

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
	Plots, Sighting Ht = 4.5 ft					
KALALOCH EAST U4	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	21.2	21.6	11	7	0
T3 KALALOCH EAST U5	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	5.6	5.6	3	2	0
T3 KALALOCH EAST U6	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	1.2	1.2	1	1	0
All		177.5	178.2	92	50	0

### Timber Sale Log Grade x Sort Summary

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
DF	LIVE	2 SAW	Domestic	13.3	40	2,356	2,255	4.3	3,439.1	400.3
DF	LIVE	3 SAW	Domestic	8.0	39	1,521	1,471	3.3	2,511.0	261.1
DF	LIVE	4 SAW	Domestic	5.2	26	316	314	0.5	507.7	55.8
DF	LIVE	UTILITY	Pulp	2.1	14	41	41	0.0	150.3	7.3
RA	LIVE	4 SAW	Domestic	5.6	36	947	933	1.5	1,666.3	165.6
RA	LIVE	UTILITY	Pulp	2.1	13	30	30	0.0	104.3	5.2
RC	LIVE	3 SAW	Domestic	6.5	36	60	60	0.0	92.0	10.6
RC	LIVE	4 SAW	Domestic	5.3	32	70	70	0.0	116.9	12.4
SS	LIVE	2 SAW	Domestic	13.0	40	465	452	2.8	666.4	80.3
SS	LIVE	3 SAW	Domestic	7.6	39	1,240	1,219	1.7	1,884.7	216.4
SS	LIVE	4 SAW	Domestic	5.1	20	216	216	0.0	286.1	38.4
SS	LIVE	UTILITY	Pulp	2.1	20	17	17	0.0	66.2	3.0
WH	LIVE	2 SAW	Domestic	13.3	40	1,097	1,021	7.0	1,774.7	181.2
WH	LIVE	3 SAW	Domestic	8.4	40	12,565	12,384	1.4	22,652.3	2,198.2
WH	LIVE	4 SAW	Domestic	5.2	28	5,056	5,042	0.3	8,729.9	895.0
WH	LIVE	UTILITY	Pulp	2.3	17	676	676	0.0	1,699.0	120.0

### Timber Sale Log Sort x Diameter Bin Summary

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
DF	< 5	LIVE	Pulp	2.1	14	41	0.0	150.3	7.3
DF	5 - 8	LIVE	Domestic	6.1	33	1,195	1.4	2,096.1	212.1
DF	9 - 11	LIVE	Domestic	11.0	40	591	5.5	922.6	104.9
DF	12 - 14	LIVE	Domestic	12.8	40	1,756	3.2	2,723.3	311.7
DF	15 - 19	LIVE	Domestic	15.2	40	499	7.7	715.7	88.6

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
RA	< 5	LIVE	Pulp	2.1	13	30	0.0	104.3	5.2
RA	5 - 8	LIVE	Domestic	5.6	37	933	1.5	1,666.3	165.6
RC	5 - 8	LIVE	Domestic	5.8	34	129	0.0	208.9	23.0
SS	< 5	LIVE	Pulp	2.1	20	17	0.0	66.2	3.0
SS	5 - 8	LIVE	Domestic	6.2	30	809	2.5	1,265.9	143.5
SS	9 - 11	LIVE	Domestic	9.1	40	627	0.0	904.9	111.3
SS	12 - 14	LIVE	Domestic	13.0	40	452	2.8	666.4	80.3
WH	< 5	LIVE	Pulp	2.1	16	314	0.0	1,129.4	55.7
WH	5 - 8	LIVE	Pulp	5.1	29	61	0.0	111.7	10.8
WH	5 - 8	LIVE	Domestic	6.1	32	12,265	0.6	22,580.9	2,177.1
WH	9 - 11	LIVE	Domestic	10.0	40	5,161	2.3	8,801.3	916.1
WH	9 - 11	LIVE	Pulp	10.2	40	301	0.0	458.0	53.4
WH	12 - 14	LIVE	Domestic	12.8	40	896	6.6	1,552.7	159.0
WH	15 - 19	LIVE	Domestic	15.4	40	125	9.9	222.0	22.2



## Cruise Unit Report T3 KALALOCH EAST U1

### Unit Sale Notice Volume (MBF): T3 KALALOCH EAST U1

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WH	12.6			244		179	60	5
DF	21.1			87	68	18		1
SS	13.9			55	17	34	3	1
RA	10.9			12			12	0
ALL	13.3			397	85	230	75	7

### Unit Cruise Design: T3 KALALOCH EAST U1

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	15.2	15.1	8	4	0

### Unit Cruise Summary: T3 KALALOCH EAST U1

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	11	22	2.8	0
DF	3	7	0.9	0
SS	3	5	0.6	0
RA	2	2	0.3	0
ALL	19	36	4.5	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH EAST U1

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	149.7	32.2	11.4	107.3	9.9	3.0	16,058	33.7	11.8
DF	47.6	95.4	33.7	119.7	4.1	2.4	5,703	95.5	33.8
SS	34.0	82.8	29.3	105.7	17.5	10.1	3,597	84.6	31.0
RA	10.0	282.8	100.0	78.7	9.6	6.8	787	283.0	100.2
ALL	241.4	11.2	3.9	108.3	13.8	3.2	26,145	17.7	5.1

**Unit Summary: T3 KALALOCH EAST U1**

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	3	ALL	21.1	80	101	5,902	5,703	3.4	19.6	47.6	10.4	86.7
RA	LIVE	CUT	2	ALL	10.9	49	59	787	787	0.0	15.4	10.0	3.0	12.0
SS	LIVE	CUT	3	ALL	13.9	63	79	3,692	3,597	2.6	32.3	34.0	9.1	54.7
WH	LIVE	CUT	11	ALL	12.6	66	81	16,268	16,058	1.3	172.9	149.7	42.2	244.1
ALL	LIVE	CUT	19	ALL	13.6	65	81	26,648	26,145	1.9	240.2	241.4	64.7	397.4
ALL	ALL	ALL	19	ALL	13.6	65	81	26,648	26,145	1.9	240.2	241.4	64.7	397.4

## Cruise Unit Report T3 KALALOCH EAST U 3 DA K

### Unit Sale Notice Volume (MBF): T3 KALALOCH EAST U 3 DA K

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WH	12.9			194		154	37	3
DF	21.7			67	53	14		0
SS	16.5			48	22	22	4	0
RA	10.9			13			12	1
ALL	13.7			321	75	189	53	5

### Unit Cruise Design: T3 KALALOCH EAST U 3 DA K

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	12.1	12.1	6	3	0

### Unit Cruise Summary: T3 KALALOCH EAST U 3 DA K

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	8	16	2.7	0
DF	2	5	0.8	0
SS	2	4	0.7	0
RA	2	2	0.3	0
ALL	14	27	4.5	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH EAST U 3 DA K

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	145.2	30.6	12.5	110.6	7.5	2.7	16,061	31.5	12.8
DF	45.4	90.3	36.9	121.1	5.0	3.5	5,496	90.5	37.0
SS	36.3	77.5	31.6	108.6	23.2	16.4	3,940	80.9	35.6
RA	13.3	244.9	100.0	78.7	9.6	6.8	1,049	245.1	100.2
ALL	240.2	11.1	4.5	110.5	14.5	3.9	26,546	18.3	6.0

**Unit Summary: T3 KALALOCH EAST U 3 DA K**

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	2	ALL	21.7	81	102	5,780	5,496	4.9	17.7	45.4	9.7	66.5
RA	LIVE	CUT	2	ALL	10.9	49	59	1,049	1,049	0.0	20.6	13.3	4.0	12.7
SS	LIVE	CUT	2	ALL	16.5	68	85	4,093	3,940	3.7	24.4	36.3	8.9	47.7
WH	LIVE	CUT	8	ALL	12.9	67	83	16,340	16,061	1.7	160.0	145.2	40.4	194.3
ALL	LIVE	CUT	14	ALL	14.1	66	82	27,262	26,546	2.6	222.7	240.2	63.1	321.2
ALL	ALL	ALL	14	ALL	14.1	66	82	27,262	26,546	2.6	222.7	240.2	63.1	321.2

## Cruise Unit Report T3 KALALOCH EAST U3 DA CM

### Unit Sale Notice Volume (MBF): T3 KALALOCH EAST U3 DA CM

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WH	14.6			143	14	102	26	1
SS	15.0			12		10	2	
DF	20.0			11	9	3		0
ALL	15.0			166	23	114	28	1

### Unit Cruise Design: T3 KALALOCH EAST U3 DA CM

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	5.8	6.3	3	2	0

### Unit Cruise Summary: T3 KALALOCH EAST U3 DA CM

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	8	12	4.0	0
SS	1	1	0.3	0
DF	1	1	0.3	0
ALL	10	14	4.7	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH EAST U3 DA CM

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	217.8	0.0	0.0	113.1	11.1	3.9	24,627	11.1	3.9
SS	18.1	173.2	100.0	114.1	0.0	0.0	2,070	173.2	100.0
DF	18.1	173.2	100.0	107.7	0.0	0.0	1,954	173.2	100.0
ALL	254.1	12.4	7.1	112.8	10.0	3.2	28,651	15.9	7.8

### Unit Summary: T3 KALALOCH EAST U3 DA CM

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	1	ALL	20.0	78	98	2,121	1,954	7.8	8.3	18.1	4.1	11.3
SS	LIVE	CUT	1	ALL	15.0	66	83	2,070	2,070	0.0	14.8	18.1	4.7	12.0

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	8	ALL	14.6	68	84	24,893	24,627	1.1	187.3	217.8	57.0	142.8
ALL	LIVE	CUT	10	ALL	14.9	68	84	29,084	28,651	1.5	210.4	254.1	65.7	166.2
ALL	ALL	ALL	10	ALL	14.9	68	84	29,084	28,651	1.5	210.4	254.1	65.7	166.2

## Cruise Unit Report T3 KALALOCH EAST U3 DP

### Unit Sale Notice Volume (MBF): T3 KALALOCH EAST U3 DP

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WH	12.9	5.7		492	25	305	122	40
DF	18.2			75	32	36	6	1
SS	15.0			50		42	9	
RA	11.3			23			23	0
RC	13.0			5		5		
ALL	13.3	5.7		645	57	387	160	41

### Unit Cruise Design: T3 KALALOCH EAST U3 DP

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	26.3	26.4	13	7	0

### Unit Cruise Summary: T3 KALALOCH EAST U3 DP

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	18	43	3.3	3
DF	4	9	0.7	0
SS	1	4	0.3	0
RA	3	4	0.3	0
RC	1	1	0.1	0
ALL	27	61	4.7	3

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH EAST U3 DP

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	180.1	45.2	12.5	109.0	14.4	3.4	19,627	47.4	13.0
DF	37.7	160.2	44.4	113.0	9.5	4.8	4,258	160.5	44.7
SS	16.8	204.9	56.8	114.1	0.0	0.0	1,911	204.9	56.8
RA	12.3	277.8	77.1	71.3	15.8	9.1	877	278.3	77.6
RC	3.1	360.6	100.0	61.8	0.0	0.0	190	360.6	100.0
ALL	249.9	19.7	5.5	107.5	18.8	3.6	26,863	27.2	6.5

**Unit Summary: T3 KALALOCH EAST U3 DP**

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	4	ALL	18.2	72	91	2,999	2,838	5.4	13.9	25.1	5.9	74.7
DF	LIVE	LEA	3	ALL	9.4	43	52	1,499	1,419	5.4	26.1	12.6	4.1	37.3
RA	LIVE	CUT	3	ALL	11.3	47	56	927	877	5.4	17.7	12.3	3.7	23.1
RC	LIVE	CUT	1	ALL	13.0	45	55	190	190	0.0	3.3	3.1	0.9	5.0
SS	LIVE	CUT	1	ALL	15.0	65	81	1,911	1,911	0.0	13.7	16.8	4.3	50.3
WH	LIVE	CUT	18	ALL	12.9	61	75	19,026	18,714	1.6	189.2	171.7	47.8	492.2
WH	LIVE	LEA	2	ALL	15.5	72	89	928	913	1.6	6.4	8.4	2.1	24.0
ALL	LIVE	CUT	27	ALL	13.3	61	75	25,054	24,531	2.1	237.8	229.0	62.5	645.2
ALL	LIVE	LEA	5	ALL	10.9	49	60	2,428	2,332	3.9	32.5	20.9	6.2	61.3
ALL	ALL	ALL	32	ALL	13.0	59	73	27,481	26,863	2.2	270.3	249.9	68.8	706.5



## Cruise Unit Report KALALOCH EAST U3

### Unit Sale Notice Volume (MBF): KALALOCH EAST U3

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WH	13.9			219	22	146	49	2
DF	20.0			37	29	5	3	0
SS	15.3			36	10	20	6	0
RA	12.0			14			14	0
ALL	14.5			305	61	171	71	3

### Unit Cruise Design: KALALOCH EAST U3

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	10.5	10.5	5	3	0

### Unit Cruise Summary: KALALOCH EAST U3

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	9	17	3.4	0
DF	2	3	0.6	0
SS	3	3	0.6	0
RA	1	2	0.4	0
ALL	15	25	5.0	0

### Unit Cruise Statistics (Cut + Leave Trees): KALALOCH EAST U3

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	185.1	33.5	15.0	112.4	17.4	5.8	20,814	37.8	16.1
DF	32.7	91.3	40.8	108.2	0.6	0.4	3,533	91.3	40.8
SS	32.7	149.1	66.7	104.5	10.7	6.2	3,414	149.5	67.0
RA	16.0	136.9	61.2	82.8	0.0	0.0	1,324	136.9	61.2
ALL	266.4	3.0	1.3	109.2	15.8	4.1	29,085	16.1	4.3

**Unit Summary: KALALOCH EAST U3**

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	2	ALL	20.0	78	99	3,683	3,533	4.1	15.0	32.7	7.3	37.1
RA	LIVE	CUT	1	ALL	12.0	51	62	1,324	1,324	0.0	20.4	16.0	4.6	13.9
SS	LIVE	CUT	3	ALL	15.3	63	79	3,414	3,414	0.0	25.6	32.7	8.4	35.8
WH	LIVE	CUT	9	ALL	13.9	64	79	21,015	20,814	1.0	175.7	185.1	49.6	218.5
ALL	LIVE	CUT	15	ALL	14.4	64	79	29,435	29,085	1.2	236.7	266.4	69.9	305.4
ALL	ALL	ALL	15	ALL	14.4	64	79	29,435	29,085	1.2	236.7	266.4	69.9	305.4

## Cruise Unit Report T3 KALALOCH EAST U4 DP K

### Unit Sale Notice Volume (MBF): T3 KALALOCH EAST U4 DP K

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WH	13.2	5.8		417	46	235	100	37
DF	16.7			194	75	98	18	2
SS	15.0			47		39	8	
RA	11.3			21			21	0
RC	11.0			3			3	
ALL	13.8	5.8		682	121	371	150	39

### Unit Cruise Design: T3 KALALOCH EAST U4 DP K

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	26.3	26.7	14	7	0

### Unit Cruise Summary: T3 KALALOCH EAST U4 DP K

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	16	38	2.7	4
DF	9	17	1.2	0
SS	1	4	0.3	0
RA	3	4	0.3	0
RC	1	1	0.1	0
ALL	30	64	4.6	4

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH EAST U4 DP K

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	147.8	56.8	15.2	110.2	14.7	3.7	16,283	58.6	15.6
DF	66.1	117.3	31.3	118.5	10.1	3.4	7,835	117.7	31.5
SS	15.6	213.9	57.2	114.1	0.0	0.0	1,774	213.9	57.2
RA	11.4	288.9	77.2	71.3	15.8	9.1	815	289.3	77.7
RC	2.9	374.2	100.0	43.9	0.0	0.0	126	374.2	100.0
ALL	243.7	26.8	7.2	110.1	20.3	3.7	26,832	33.6	8.1

**Unit Summary: T3 KALALOCH EAST U4 DP K**

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	9	ALL	16.7	72	90	7,479	7,374	1.4	40.9	62.2	15.2	193.9
DF	LIVE	LEA	1	ALL	19.0	74	93	467	461	1.4	2.0	3.9	0.9	12.1
RA	LIVE	CUT	3	ALL	11.3	47	56	861	815	5.4	16.4	11.4	3.4	21.4
RC	LIVE	CUT	1	ALL	11.0	32	37	126	126	0.0	4.3	2.9	0.9	3.3
SS	LIVE	CUT	1	ALL	15.0	65	81	1,774	1,774	0.0	12.7	15.6	4.0	46.7
WH	LIVE	CUT	16	ALL	13.2	60	74	16,165	15,854	1.9	151.4	143.9	39.6	417.0
WH	LIVE	LEA	1	ALL	15.0	69	86	437	428	1.9	3.2	3.9	1.0	11.3
ALL	LIVE	CUT	30	ALL	13.8	61	75	26,406	25,943	1.8	225.7	235.9	63.1	682.3
ALL	LIVE	LEA	2	ALL	16.7	71	89	904	889	1.7	5.2	7.8	1.9	23.4
ALL	ALL	ALL	32	ALL	13.9	61	76	27,310	26,832	1.8	230.9	243.7	65.0	705.7

## Cruise Unit Report T3 KALALOCH EAST U4 DP CM

### Unit Sale Notice Volume (MBF): T3 KALALOCH EAST U4 DP CM

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WH	14.8			303	49	193	58	3
SS	15.3			34	10	19	5	0
RA	11.7			30			29	1
DF	20.5			23	18	5		0
RC	13.0			6		6		
ALL	14.6			395	77	223	92	4

### Unit Cruise Design: T3 KALALOCH EAST U4 DP CM

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	15.9	15.6	8	4	0

### Unit Cruise Summary: T3 KALALOCH EAST U4 DP CM

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	10	25	3.1	0
SS	3	3	0.4	0
RA	3	5	0.6	0
DF	2	2	0.3	0
RC	1	1	0.1	0
ALL	19	36	4.5	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH EAST U4 DP CM

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	170.1	46.6	16.5	116.6	7.9	2.5	19,845	47.3	16.7
SS	20.4	198.4	70.1	104.5	10.7	6.2	2,134	198.7	70.4
RA	25.0	119.0	42.1	74.2	10.0	5.8	1,855	119.5	42.5
DF	13.6	185.2	65.5	107.9	0.2	0.2	1,468	185.2	65.5
RC	5.0	282.8	100.0	70.5	0.0	0.0	353	282.8	100.0
ALL	234.2	26.2	9.3	109.6	17.4	4.0	25,654	31.5	10.1

**Unit Summary: T3 KALALOCH EAST U4 DP CM**

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	2	ALL	20.5	77	97	1,635	1,468	10.2	5.9	13.6	3.0	23.3
RA	LIVE	CUT	3	ALL	11.7	49	59	1,855	1,855	0.0	33.5	25.0	7.3	29.5
RC	LIVE	CUT	1	ALL	13.0	51	63	353	353	0.0	5.4	5.0	1.4	5.6
SS	LIVE	CUT	3	ALL	15.3	63	79	2,134	2,134	0.0	16.0	20.4	5.2	33.9
WH	LIVE	CUT	10	ALL	14.8	70	87	19,396	19,051	1.8	136.7	163.3	42.5	302.9
WH	LIVE	LEA	1	ALL	21.0	86	109	808	794	1.8	2.8	6.8	1.5	12.6
ALL	LIVE	CUT	19	ALL	14.5	65	81	25,372	24,861	2.0	197.5	227.3	59.4	395.3
ALL	LIVE	LEA	1	ALL	21.0	86	109	808	794	1.8	2.8	6.8	1.5	12.6
ALL	ALL	ALL	20	ALL	14.6	66	81	26,180	25,654	2.0	200.3	234.2	60.9	407.9

## Cruise Unit Report T3 KALALOCH EAST U4 EVDP

### Unit Sale Notice Volume (MBF): T3 KALALOCH EAST U4 EVDP

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WH	13.0			416	25	249	134	8
DF	19.9			38	21	15	2	0
RA	10.5			29			28	1
SS	13.6			23	10	12		1
RC	11.0			5			5	
ALL	13.3			511	57	277	168	10

### Unit Cruise Design: T3 KALALOCH EAST U4 EVDP

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	19.1	15.4	10	5	0

### Unit Cruise Summary: T3 KALALOCH EAST U4 EVDP

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	15	38	3.8	0
DF	3	3	0.3	0
RA	2	5	0.5	0
SS	2	2	0.2	0
RC	1	1	0.1	0
ALL	23	49	4.9	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH EAST U4 EVDP

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	205.4	37.0	11.7	108.9	18.8	4.8	22,369	41.5	12.7
DF	16.3	161.0	50.9	122.8	9.2	5.3	2,005	161.3	51.2
RA	20.0	141.4	44.7	75.3	13.4	9.5	1,507	142.1	45.7
SS	10.9	210.8	66.7	112.6	14.0	9.9	1,226	211.3	67.4
RC	4.0	316.2	100.0	59.1	0.0	0.0	236	316.2	100.0
ALL	256.6	21.2	6.7	106.5	21.6	4.5	27,344	30.2	8.1

**Unit Summary: T3 KALALOCH EAST U4 EVDP**

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	3	ALL	19.9	81	103	2,086	2,005	3.9	7.6	16.3	3.7	38.3
RA	LIVE	CUT	2	ALL	10.5	51	62	1,507	1,507	0.0	33.3	20.0	6.2	28.8
RC	LIVE	CUT	1	ALL	11.0	48	59	236	236	0.0	6.1	4.0	1.2	4.5
SS	LIVE	CUT	2	ALL	13.6	64	80	1,286	1,226	4.7	10.8	10.9	3.0	23.4
WH	LIVE	CUT	15	ALL	13.0	64	78	21,976	21,776	0.9	217.0	200.0	55.5	415.9
WH	LIVE	LEA	1	ALL	14.0	71	88	598	593	0.9	5.1	5.4	1.5	11.3
ALL	LIVE	CUT	23	ALL	13.0	62	77	27,092	26,751	1.3	274.8	251.2	69.5	510.9
ALL	LIVE	LEA	1	ALL	14.0	71	88	598	593	0.9	5.1	5.4	1.5	11.3
ALL	ALL	ALL	24	ALL	13.0	62	77	27,690	27,344	1.3	279.9	256.6	70.9	522.3



## Cruise Unit Report T3 KALALOCH EAST U4 POLYCULTURE

### Unit Sale Notice Volume (MBF): T3 KALALOCH EAST U4 POLYCULTURE

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WH	12.3			395		272	113	10
DF	13.6			90	32	34	23	2
SS	14.0			10		8	2	0
ALL	12.6			495	32	314	138	12

### Unit Cruise Design: T3 KALALOCH EAST U4 POLYCULTURE

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	18.3	21.7	10	5	0

### Unit Cruise Summary: T3 KALALOCH EAST U4 POLYCULTURE

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	17	37	3.7	0
DF	5	8	0.8	0
SS	1	1	0.1	0
ALL	23	46	4.6	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH EAST U4 POLYCULTURE

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	201.4	33.8	10.7	107.2	12.9	3.1	21,593	36.2	11.1
DF	43.6	98.6	31.2	113.2	13.8	6.2	4,931	99.6	31.8
SS	5.4	316.2	100.0	100.1	0.0	0.0	545	316.2	100.0
ALL	250.4	21.0	6.6	108.1	12.9	2.7	27,070	24.6	7.2

### Unit Summary: T3 KALALOCH EAST U4 POLYCULTURE

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	5	ALL	13.6	57	71	5,034	4,931	2.0	43.2	43.6	11.8	90.2
SS	LIVE	CUT	1	ALL	14.0	65	82	565	545	3.6	5.1	5.4	1.5	10.0

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	17	ALL	12.3	63	77	22,066	21,593	2.1	244.1	201.4	57.4	395.2
ALL	LIVE	CUT	23	ALL	12.5	62	77	27,664	27,070	2.1	292.4	250.4	70.7	495.4
ALL	ALL	ALL	23	ALL	12.5	62	77	27,664	27,070	2.1	292.4	250.4	70.7	495.4

## Cruise Unit Report KALALOCH EAST U4

### Unit Sale Notice Volume (MBF): KALALOCH EAST U4

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WH	12.5			394		239	147	9
DF	20.4			91	55	32	3	1
SS	13.6			24	11	12		1
RA	10.5			23			22	1
RC	11.0			5			5	
ALL	13.1			536	65	283	177	11

### Unit Cruise Design: KALALOCH EAST U4

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	21.2	21.6	11	7	0

### Unit Cruise Summary: KALALOCH EAST U4

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	13	41	3.7	0
DF	4	7	0.6	0
SS	2	2	0.2	0
RA	2	4	0.4	0
RC	1	1	0.1	0
ALL	22	55	5.0	0

### Unit Cruise Statistics (Cut + Leave Trees): KALALOCH EAST U4

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	202.9	34.1	10.3	104.4	17.6	4.9	21,184	38.4	11.4
DF	34.6	127.1	38.3	123.4	7.6	3.8	4,275	127.4	38.5
SS	9.9	222.5	67.1	112.6	14.0	9.9	1,115	222.9	67.8
RA	14.5	185.4	55.9	75.3	13.4	9.5	1,096	185.9	56.7
RC	3.6	331.7	100.0	59.1	0.0	0.0	215	331.7	100.0
ALL	265.6	18.7	5.6	105.0	20.7	4.4	27,886	27.9	7.2

**Unit Summary: KALALOCH EAST U4**

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	4	ALL	19.8	82	103	4,500	4,275	5.0	16.2	34.6	7.8	90.6
RA	LIVE	CUT	2	ALL	10.5	51	62	1,096	1,096	0.0	24.2	14.5	4.5	23.2
RC	LIVE	CUT	1	ALL	11.0	48	59	215	215	0.0	5.5	3.6	1.1	4.6
SS	LIVE	CUT	2	ALL	13.6	64	80	1,169	1,115	4.7	9.8	9.9	2.7	23.6
WH	LIVE	CUT	13	ALL	12.3	63	77	18,652	18,601	0.3	215.9	178.2	50.8	394.3
WH	LIVE	LEA	0	ALL	15.9			2,591	2,583	0.3	17.9	24.7	6.2	54.8
ALL	LIVE	LEA	0	ALL	15.9			2,591	2,583	0.3	17.9	24.7	6.2	54.8
ALL	LIVE	CUT	22	ALL	12.8	63	77	25,632	25,302	1.3	271.6	240.9	66.9	536.4
ALL	ALL	ALL	22	ALL	13.0	63	77	28,223	27,886	1.2	289.5	265.6	73.1	591.2

## Cruise Unit Report T3 KALALOCH EAST U5

### Unit Sale Notice Volume (MBF): T3 KALALOCH EAST U5

Sp	DBH	Rings/In	Age	MBF Volume by Grade				Utility
				All	2 Saw	3 Saw	4 Saw	
WH	12.6			149		106	41	2
DF	20.0			12	9	3		0
RA	12.0			6			6	0
ALL	13.0			167	9	109	47	2

### Unit Cruise Design: T3 KALALOCH EAST U5

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	5.6	5.6	3	2	0

### Unit Cruise Summary: T3 KALALOCH EAST U5

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	8	14	4.7	0
DF	1	1	0.3	0
RA	1	1	0.3	0
ALL	10	16	5.3	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH EAST U5

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	254.1	24.7	14.3	104.8	16.2	5.7	26,616	29.6	15.4
DF	18.1	173.2	100.0	116.9	0.0	0.0	2,121	173.2	100.0
RA	13.3	173.2	100.0	84.0	0.0	0.0	1,120	173.2	100.0
ALL	285.5	12.7	7.3	104.6	16.2	5.1	29,857	20.6	9.0

### Unit Summary: T3 KALALOCH EAST U5

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	1	ALL	20.0	80	101	2,146	2,121	1.2	8.3	18.1	4.1	11.9
RA	LIVE	CUT	1	ALL	12.0	55	67	1,120	1,120	0.0	17.0	13.3	3.8	6.3

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	8	ALL	12.6	63	78	27,061	26,616	1.6	293.4	254.1	71.6	149.0
ALL	LIVE	CUT	10	ALL	12.8	63	78	30,327	29,857	1.6	318.7	285.5	79.5	167.2
ALL	ALL	ALL	10	ALL	12.8	63	78	30,327	29,857	1.6	318.7	285.5	79.5	167.2

## Cruise Unit Report T3 KALALOCH EAST U6

### Unit Sale Notice Volume (MBF): T3 KALALOCH EAST U6

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	3 Saw	4 Saw	Utility
WH	12.1			28	19	8	1
ALL	12.1			28	19	8	1

### Unit Cruise Design: T3 KALALOCH EAST U6

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	1.2	1.2	1	1	0

### Unit Cruise Summary: T3 KALALOCH EAST U6

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF		1	1.0	0
WH	4	4	4.0	0
ALL	4	5	5.0	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH EAST U6

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	54.4	0.0	0.0						
WH	217.8	0.0	0.0	107.2	18.7	9.3	23,341	18.7	9.3
ALL	272.2	0.0	0.0	107.2	18.7	9.3	29,177	18.7	9.3

### Unit Summary: T3 KALALOCH EAST U6

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	LEA	1	ALL	20.0	78	98				25.0	54.4	12.2	
WH	LIVE	CUT	4	ALL	12.1	64	78	23,341	23,341	0.0	272.7	217.8	62.6	28.0
ALL	LIVE	LEA	1	ALL	20.0	78	98				25.0	54.4	12.2	
ALL	LIVE	CUT	4	ALL	12.1	64	78	23,341	23,341	0.0	272.7	217.8	62.6	28.0
ALL	ALL	ALL	5	ALL	13.0	65	80	23,341	23,341	0.0	297.7	272.2	74.8	28.0



# Forest Practices Application/Notification Notice of Decision

FPA/N No: 2617837

Effective Date: 3/30/2023

Expiration Date: 3/30/2026

Shut Down Zone: 650

EARR Tax Credit:  Eligible     Non-eligible

Reference: Dept. of Natural Resources

T3 Kalaloch East

### Decision

- Notification Accepted**    Operations shall not begin before the effective date.
- Approved**    This Forest Practices Application is subject to the conditions listed below.
- Disapproved**    This Forest Practices Application is disapproved for the reasons listed below.
- Withdrawn**    Applicant has withdrawn the Forest Practices Application/Notification (FPA/N).
- Closed**    All forest practices obligations are met.

### FPA/N Classification

- Class II     Class III     Class IVG     Class IVS

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

- 4 years     5 years

### Conditions on Approval/Reasons for Disapproval

Issued By: Jenny Garstang

Region: Olympic

Title: Forest Practices Forester

Date: 3/30/2023

Copies to:     Landowner, Timber Owner and Operator

Issued in person:     LO  TO  OP    By: Krista Pagel *Kr Pagel*

Date: 3/30/2023



**Appeal Information**

You have thirty (30) days to *file* (i.e., *actually deliver*) an appeal in writing of this Decision and any related State Environmental Policy Act (SEPA) determinations to the Pollution Control Hearings Board, the Attorney General's Office, and the Department of Natural Resources' region office. See [RCW 76.09.205](#). The appeal period starts when the applicant receives this decision, which usually happens electronically on the date indicated below.

**You must file your appeal at all three addresses below:**

<b>Pollution Control Hearings Board</b>	<b>Office of the Attorney General Natural Resources Division</b>	<b>Department Of Natural Resources Olympic Region</b>
<u>Physical Address</u> 1111 Israel Road, SW Suite 301 Tumwater, WA 98501  <u>Mailing address</u> Post Office Box 40903 Olympia, WA 98504-0903	<u>Physical Address</u> 1125 Washington Street, SE Olympia, WA 98504  <u>Mailing Address</u> Post Office Box 40100 Olympia, WA 98504-0100	<u>Physical &amp; Mailing Address</u> 411 Tillicum Lane Forks, WA 98331

Information regarding the Pollution Control Hearings Board can be found at: <http://elaho.wa.gov/>

**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 <https://www.dnr.wa.gov/programs-and-services/forest-practices/review-applications-fpars/forest-practices-forms-and>. Notify DNR of new Operators within 48 hours.

**Continuing Forestland 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 forestland 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 and 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 forestland obligation, the seller must pay the buyer's costs related to continuing forestland obligations, including all legal costs and reasonable attorneys' fees incurred by the buyer in enforcing the continuing forestland obligation against the seller.

Failure by the seller to send the required notice to 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 forestland obligation prior to sale.

**DNR Declaration of Mailing**

I, Choose an item., caused the Notice of Decision for FPA/N No. Click or tap here to enter text. to be placed in the United States mail at Forks, WA, postage paid. I declare under penalty of perjury of the laws of the State of Washington, that the foregoing is true and correct.

Click or tap to enter  
a date.

(Date)

Forks, Washington

(City & State where signed)

(Signature)

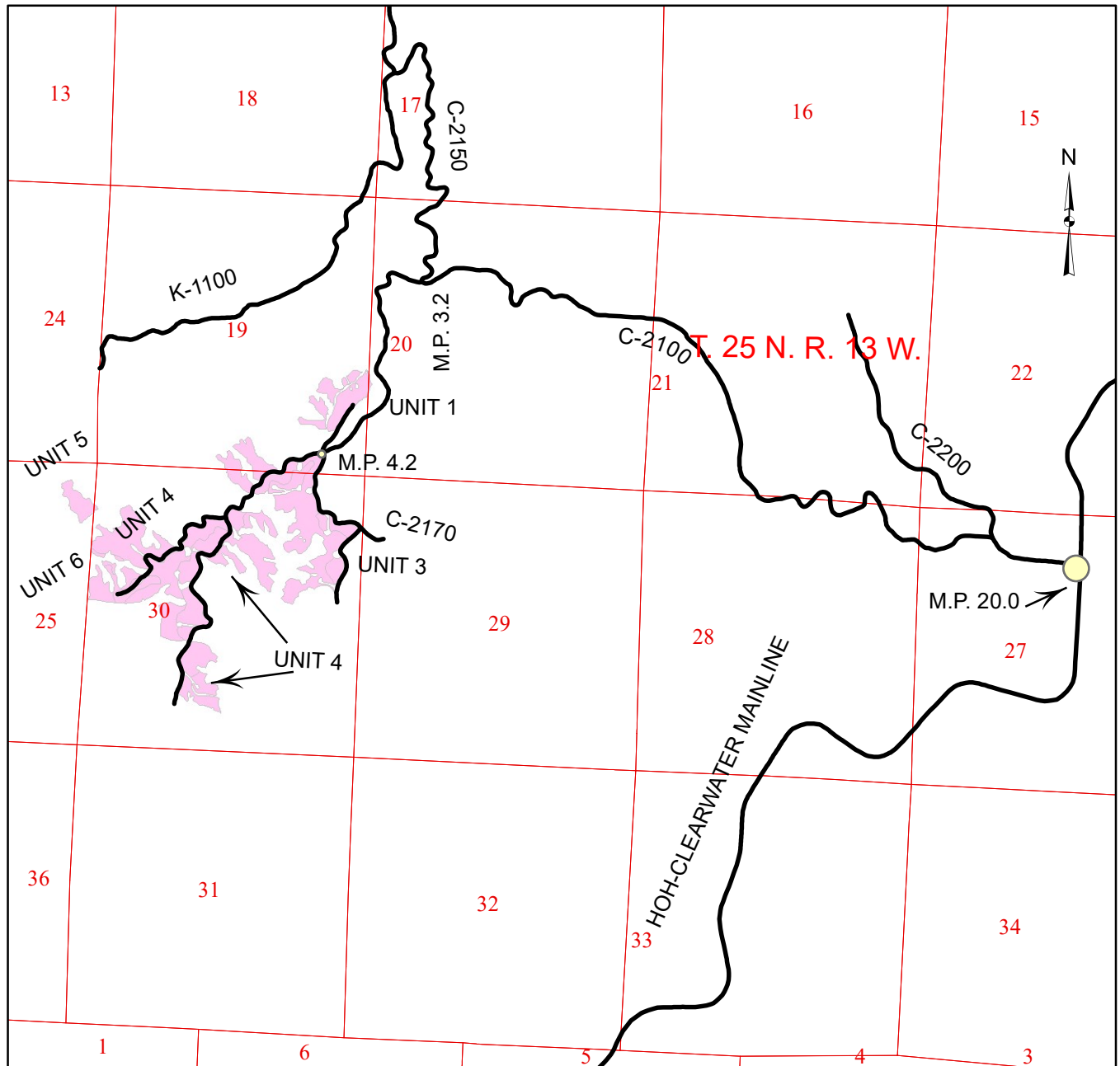
STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES  
T3 KALALOCH EAST TIMBER SALE ROAD PLAN  
JEFFERSON COUNTY  
COAST DISTRICT

AGREEMENT NO.: 30-102258

DISTRICT ENGINEER: BILL MEHL

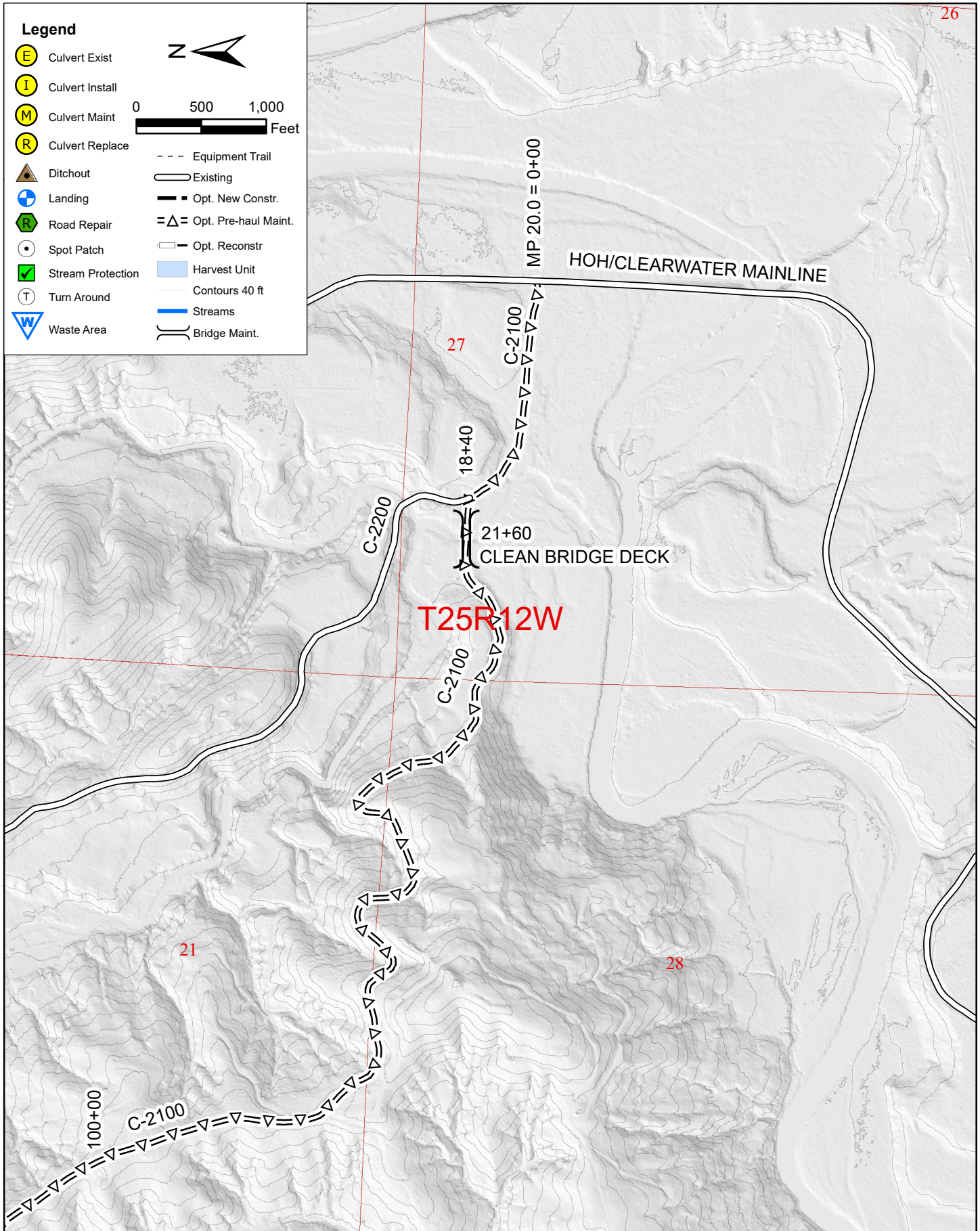
DATE: 12 APRIL 2023

DRAWN AND COMPILED BY: KEITH WYATT

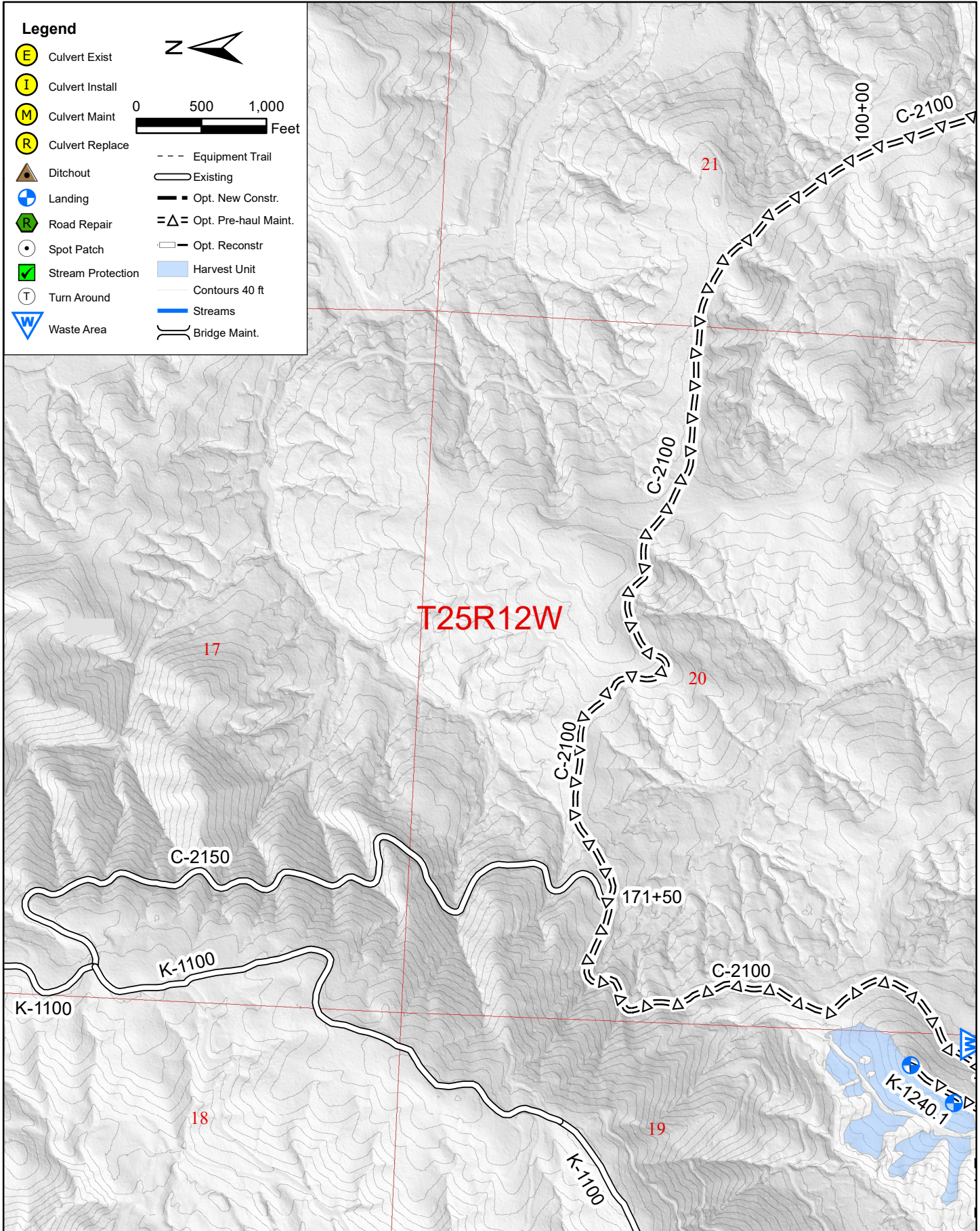


0 1,500 3,000 6,000  
Feet

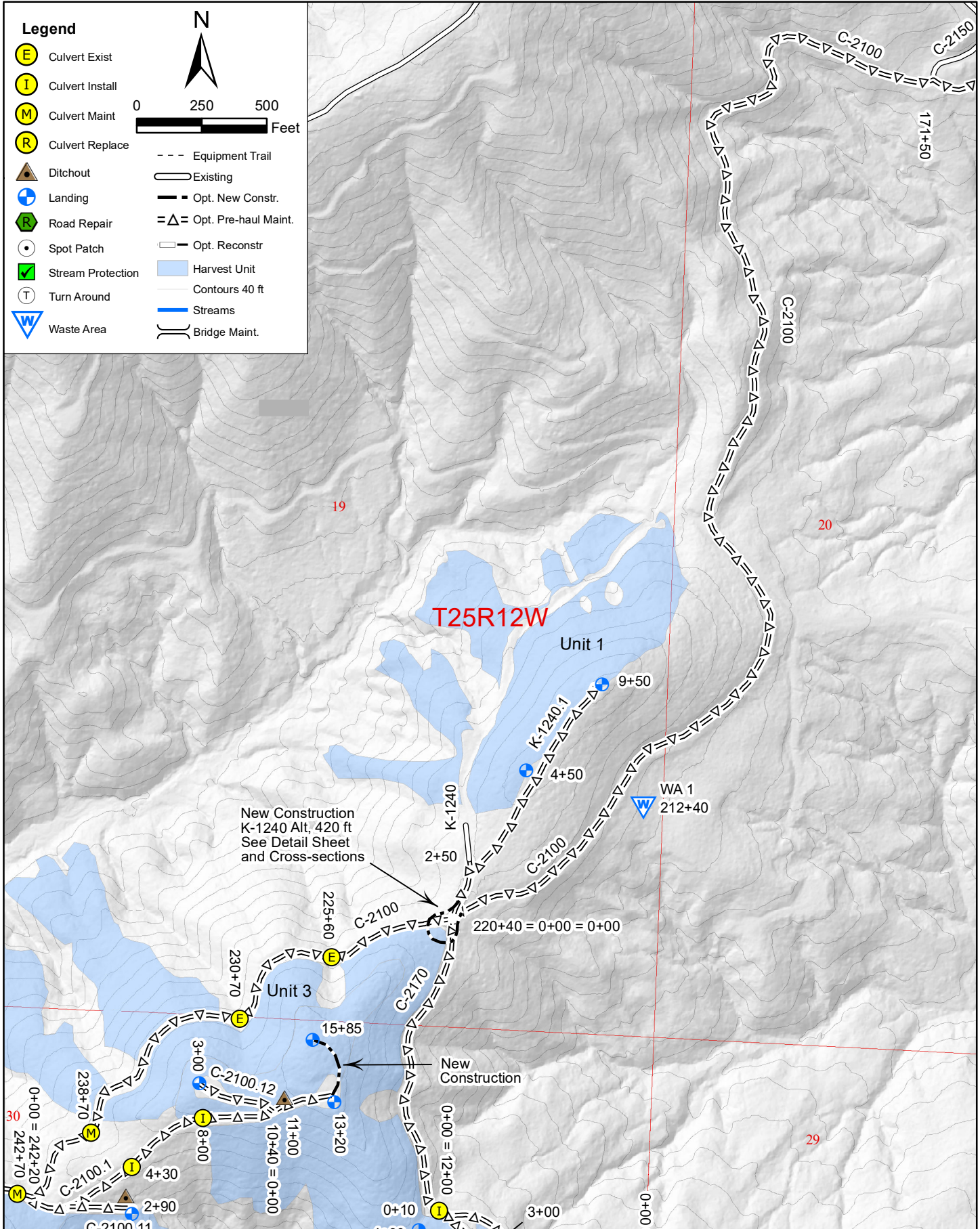
# Pre-Haul Maintenance



# Pre-Haul Maintenance

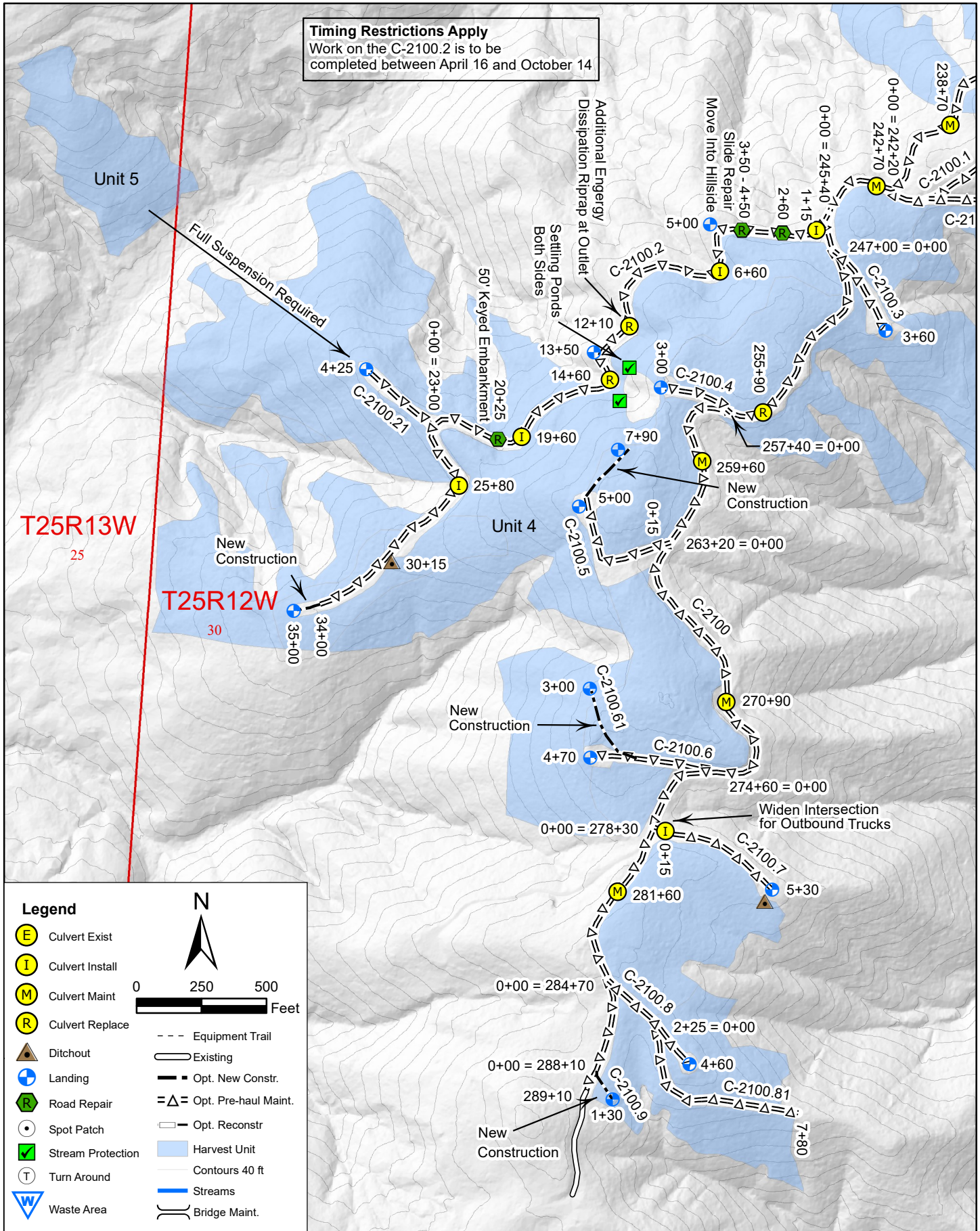


# Unit 1 Pre-Haul Maintenance





# Unit 4 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.

### 0-3 OPTIONAL ROADS

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

<u>Road</u>	<u>Stations</u>	<u>Type</u>
C-2100	289.10	Pre-Haul Maintenance
C-2100.1	13.20	Pre-Haul Maintenance
C-2100.1	2.65	Construction
C-2100.11	2.90	Pre-Haul Maintenance
C-2100.12	3.00	Pre-Haul Maintenance
C-2100.2	34.00	Pre-Haul Maintenance
C-2100.2	1.00	Construction
C-2100.21	4.25	Pre-Haul Maintenance
C-2100.3	3.60	Pre-Haul Maintenance
C-2100.4	3.00	Pre-Haul Maintenance
C-2100.5	5.00	Pre-Haul Maintenance
C-2100.5	2.90	Construction
C-2100.6	4.70	Pre-Haul Maintenance
C-2100.61	3.00	Construction
C-2100.7	5.30	Pre-Haul Maintenance
C-2100.8	4.60	Pre-Haul Maintenance
C-2100.81	7.80	Pre-Haul Maintenance
C-2100.9	1.30	Construction
C-2170	21.30	Pre-Haul Maintenance
C-2170.1	5.25	Pre-Haul Maintenance
C-2170.11	4.30	Construction
C-2175	13.60	Pre-Haul Maintenance
C-2175.1	0.70	Pre-Haul Maintenance
C-2175.2	3.50	Pre-Haul Maintenance
K-1240	2.50	Pre-Haul Maintenance
K-1240.1	9.50	Pre-Haul Maintenance
K-1240 Alt Loop	4.20	Construction

### 0-4 CONSTRUCTION

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
C-2100.1	13+20 – 15+85	See Below
C-2100.2	34+00 – 35+00	See Below
C-2100.5	5+00 – 7+90	See Below
C-2100.61	0+00 – 3+00	See Below
C-2100.9	0+00 – 1+30	See Below
C-2170.11	0+00 – 4+30	See Below
K-1240 Alt Loop	0+00 – 4+20	See Below
<b>Total:</b>	<b>19.35 Sta</b>	

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:

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
C-2100	0+00 – 220+40	Conduct bridge maintenance in accordance with Clause 7-30 and associated drawings. Maintain culverts in accordance with Clause 2-6 and Culvert List. Grade and shape road in accordance with Clause 2-5. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
C-2100	220+40 – 289+10	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Maintain culverts in accordance with Clause 2-6 and Culvert List. Replace culverts in accordance with Clause 5-5, Clause 9-3, and Culvert List. Dispose of waste material in accordance with Clause 4-36 and Clause 4-38. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List. Grade and shape road in accordance with Clause 2-5.
C-2100.1	0+00 – 13+20	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Install culverts in accordance with Clause 5-5 and Culvert List. Clean out and/or construct ditches in accordance with Clause 2-7. Construct ditch outs in accordance with Clause 4-29 and 4-38. Dispose of waste material in accordance with Clause 4-36 and Clause 4-38. End haul waste in accordance with Clause 4-37. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
C-2100.11	0+00 – 2+90	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Clean out and/or construct ditches in accordance with Clause 2-7. Construct ditch outs in accordance with Clause 4-29 and 4-38. Dispose of waste material in accordance with Clause 4-36 and Clause 4-38. End haul waste in accordance with Clause 4-37. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
C-2100.12	0+00 – 3+00	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Clean out and/or construct ditches in accordance with Clause 2-7. Dispose of waste material in accordance with Clause 4-36 and Clause 4-38. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
C-2100.2	0+00 – 34+00	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Install and replace culverts in accordance with Clause 5-5, Clause 9-3, and Culvert List. Install keyed embankment in accordance with Clause 4-11 and Typical Embankment Key Detail. Clean out and/or construct ditches in accordance with Clause 2-7. Install sediment control structures in accordance with 8-1

		and 2-7. Construct ditch outs in accordance with Clause 4-29 and 4-38. Dispose of waste material in accordance with Clause 4-36 and Clause 4-38. End haul waste in accordance with Clause 4-37. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
C-2100.21	0+00 – 4+25	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
C-2100.3	0+00 – 3+60	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Clean out and/or construct ditches in accordance with Clause 2-7. Dispose of waste material in accordance with Clause 4-36 and Clause 4-38. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
C-2100.4	0+00 – 3+00	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Clean out and/or construct ditches in accordance with Clause 2-7. Dispose of waste material in accordance with Clause 4-36 and Clause 4-38. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
C-2100.5	0+00 – 5+00	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Clean out and/or construct ditches in accordance with Clause 2-7. Dispose of waste material in accordance with Clause 4-36 and Clause 4-38. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
C-2100.6	0+00 – 4+70	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Clean out and/or construct ditches in accordance with Clause 2-7. Dispose of waste material in accordance with Clause 4-36 and Clause 4-38. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
C-2100.7	0+00 – 5+30	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Install culverts in accordance with Clause 5-5 and Culvert List. Clean out and/or construct ditches in accordance with Clause 2-7. Construct ditch outs in accordance with Clause 4-29 and 4-38. Dispose of waste material in accordance with Clause 4-36 and Clause 4-38. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
C-2100.8	0+00 – 4+60	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
C-2100.81	0+00 – 7+80	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Clean out and/or

		construct ditches in accordance with Clause 2-7. Dispose of waste material in accordance with Clause 4-36 and Clause 4-38. End haul waste in accordance with Clause 4-37. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
C-2170	0+00 – 21+30	Grade and shape road in accordance with Clause 2-5. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
C-2170.1	0+00 – 5+25	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Clean out and/or construct ditches in accordance with Clause 2-7. Dispose of waste material in accordance with Clause 4-36 and Clause 4-38. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
C-2175	0+00 – 13+60	Grade and shape road in accordance with Clause 2-5. Install culverts in accordance with Clause 5-5 and Culvert List. Dispose of waste material in accordance with Clause 4-36 and Clause 4-38. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
C-2175.1	0+00 – 0+70	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Clean out and/or construct ditches in accordance with Clause 2-7. Dispose of waste material in accordance with Clause 4-36 and Clause 4-38. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
C-2175.2	0+00 – 3+50	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Clean out and/or construct ditches in accordance with Clause 2-7. Construct ditch outs in accordance with Clause 4-29 and 4-38. Dispose of waste material in accordance with Clause 4-36 and Clause 4-38. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
K-1240	0+00 – 2+50	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
K-1240.1	0+00 – 9+50	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1 and Brushing Detail. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
<b>Total:.</b>	<b>436.80 Sta</b>	

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.

**1-7 TEMPORARY ROAD CLOSURE**

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

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

The Purchaser is responsible for the repair or replacement of all materials, roadway infrastructure, and road components damaged during roadwork or operation activities. Repairs and replacements shall be directed by the Contract Administrator. Repairs to structural

materials will be made according to the manufacturer's recommendation, and shall not begin without written approval from the Contract Administrator.

**1-9 DAMAGED METALLIC COATING**

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

**1-10 WSDOT STANDARD SPECIFICATION REFERENCE**

References in this road plan to "WSDOT Standard Specifications" mean the Washington State Department of Transportation's Standard Specifications for Road, Bridge, and Municipal Construction 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.

<u>FPA Crossing Identifier</u>	<u>Road</u>	<u>Stations</u>	<u>Work Type</u>
C1	C-2100.2	14+60	Replace Culvert

**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

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

Culvert and fill replacement work is currently scheduled to take place on the Hoh/Clearwater Mainline sometime during the hydraulic seasons of 2023 through 2024, which will result in the road being closed for up to 2 weeks at a time. State shall give at least 2 weeks notice to Purchaser before closure begins.

**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. Reconstruction of existing road grades must conform to the original location except where construction staked or designed.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
C-2100.1	13+20 – 15+85	Construction Centerline
C-2100.5	5+00 – 7+90	Construction Centerline
C-2100.61	0+00 – 3+00	Construction Centerline
C-2100.9	0+00 – 1+30	Construction Centerline
C-2170.11	0+00 – 4+30	Construction Centerline
K-1240 Alt Loop	0+00 – 4+20	Construction Centerline and Slope Stakes

**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 3 calendar days before work begins.

**1-23 ROAD WORK PHASE APPROVAL**

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

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

**SUBSECTION RESTRICTIONS**

**1-25 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.

<u>Road</u>	<u>Stations</u>	<u>Activity</u>	<u>Closure Period</u>
C-2100.2	ALL	New Construction / Pre-haul Maintenance	October 15 <sup>th</sup> – April 15 <sup>th</sup>

**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 LIMITED OPERATING PERIOD 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 operating period if implemented during the nesting season. The limited operating period runs from two hours after sunrise to two hours before sunset from April 1 through September 23. This restriction does not apply to the hauling of timber, rock, or equipment.

<u>Road</u>	<u>Stations</u>
C-2175	12+85 – 13+60
C-2175.2	0+00 – 1+25

**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:

- Weather is such that satisfactory results cannot be obtained in an area of operations.
- 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

**1-41 REQUIREMENTS FOR PAVED ROAD APPROACHES**

Requirements for the paved road approaches:

Purchaser shall build up approaches to allow a smooth grade transition. The top of the rock road surfacing must be kept level with the surface of the paved roads at all times.

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**

<u>Road</u>	<u>Stations</u>
C-2100	0+00 – 171+50 (Mainline to C-2150 Junction)
H-1040	0+00 – 62+70
H-1043	0+00 – 31+60
H-1044	0+00 – 29+40
Copper Pit Access Road	ALL
Red Creek Quarry Access Road	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.

<u>Road</u>	<u>Stations</u>
C-2100	0+00 – 220+40

**2-5 MAINTENANCE GRADING – EXISTING ROAD**

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
C-2100	0+00 – 289+10	Grade/shape/compact
C-2170	0+00 – 21+30	Grade/shape/compact
C-2175	0+00 – 13+60	Grade/shape/compact

**2-6 CLEANING CULVERTS**

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

<u>Road</u>	<u>Stations</u>
C-2100	See Culvert List

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

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

<u>Road</u>	<u>Stations</u>	<u>Left or Right</u>	<u>Comments</u>
C-2100.1	1+00 – 12+00	L	Estimated End Haul 440 cy
C-2100.11	0+00 – 2+90	L	Estimated End Haul 400 cy



C-2100.12	0+00 – 2+50	L	
C-2100.2	1+50 – 3+50	L	Estimated End Haul 500 cy
C-2100.2	3+50 – 4+50	L	Estimated End Haul 500 cy
C-2100.2	4+50 – 30+15	L	Estimated End Haul 6,500 cy
C-2100.3	0+00 – 3+60	R	
C-2100.4	0+00 – 3+00	R	
C-2100.5	0+00 – 5+00	R	
C-2100.6	0+00 – 4+70	R	
C-2100.7	0+00 – 5+30	R	
C-2100.81	0+00 – 7+80	L	Estimated End Haul 40 cy (5+00 – 6+00)
C-2170.1	0+00 – 5+25	R	
C-2175.1	0+00 – 0+70	L and R	
C-2175.2	0+00 – 3+50	R	
	<b>Total Estimated</b>	<b>End Haul:</b>	<b>8,380 cy</b> * Does not include K-1240 Alt Loop end haul. See clause 4-37

## 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. Roads to be shaped in accordance with Typical Sheet specifications.

<u>Road</u>	<u>Stations</u>
C-2100	220+40 – 289+10
C-2100.1	0+00 – 13+20
C-2100.11	0+00 – 2+90
C-2100.12	0+00 – 3+00
C-2100.2	0+00 – 34+00
C-2100.21	0+00 – 4+25
C-2100.3	0+00 – 3+60
C-2100.4	0+00 – 3+00
C-2100.5	0+00 – 5+00
C-2100.6	0+00 – 4+70
C-2100.7	0+00 – 5+30
C-2100.8	0+00 – 4+60
C-2100.81	0+00 – 7+80
C-2170.1	0+00 – 4+50
C-2175	0+00 – 13+60
C-2175.1	0+00 – 0+70
C-2175.2	0+00 – 3+50
K-1240	0+00 – 2+50
K-1240.1	0+00 – 9+50

## SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

### SUBSECTION BRUSHING

#### 3-1 BRUSHING

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

<u>Road</u>	<u>Stations</u>
C-2100	220+40 – 289+10
C-2100.1	0+00 – 13+20
C-2100.11	0+00 – 2+90
C-2100.12	0+00 – 3+00
C-2100.2	0+00 – 34+00
C-2100.21	0+00 – 4+25
C-2100.3	0+00 – 3+60
C-2100.4	0+00 – 3+00
C-2100.5	0+00 – 5+00
C-2100.6	0+00 – 4+70
C-2100.7	0+00 – 5+30
C-2100.8	0+00 – 4+60
C-2100.81	0+00 – 7+80
C-2170.1	0+00 – 4+50
C-2175.1	0+00 – 0+70
C-2175.2	0+00 – 3+50
K-1240	0+00 – 2+50
K-1240.1	0+00 – 9+50

**3-2 BRUSHING RESTRICTION**

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

**3-3 BRUSH REMOVAL**

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

**SUBSECTION CLEARING**

**3-5 CLEARING**

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

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

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

**3-8 PROHIBITED DECKING AREAS**

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

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

## SUBSECTION GRUBBING

### 3-10 GRUBBING

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

### 3-12 STUMP PLACEMENT

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

### 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.

<u>Road</u>	<u>Waste Area</u>	<u>Station</u>
C-2100	WA 1	212+40

## SUBSECTION ORGANIC DEBRIS

### 3-20 ORGANIC DEBRIS DEFINITION

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

### 3-21 DISPOSAL COMPLETION

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

### 3-23 PROHIBITED DISPOSAL AREAS

Organic debris shall not be deposited in the following areas:

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

### 3-24 BURYING ORGANIC DEBRIS RESTRICTED

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

### 3-25 SCATTERING ORGANIC DEBRIS

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

## SUBSECTION PILE

### 3-31 PILING

Organic debris shall be piled no closer than 20 feet from standing timber and no higher than 20 feet.

## 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.

Grade limitations and alignment are modified as follows:

### 4-4 SWITCHBACK STANDARDS

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

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

### 4-5 CUT SLOPE RATIO

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

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

**4-6 EMBANKMENT SLOPE RATIO**

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

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

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

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

**4-8 CURVE WIDENING**

The minimum widening placed on the inside of curves is:

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

**4-9 EMBANKMENT WIDENING**

The minimum embankment widening is:

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

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

**4-11 KEYED EMBANKMENT**

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

<u>Road</u>	<u>Stations</u>
C-2100.2	20+00 – 20+50 (50')
K-1240 Alt Loop	0+90 – 1+40 (65')
	3+10 – 3+60 (65')

**SUBSECTION INTERSECTIONS, TURNOUTS AND TURNAROUNDS**

**4-21 TURNOUTS**

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

**4-22 TURNAROUNDS**

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

**SUBSECTION DITCH CONSTRUCTION**

**4-25 DITCH CONSTRUCTION AND RECONSTRUCTION**

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

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

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

**4-28 DITCH DRAINAGE**

Ditches must drain to cross-drain culverts or ditchouts.

**4-29 DITCHOUTS**

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

<u>Road</u>	<u>Stations</u>
C-2100.1	11+00 L
C-2100.11	2+90 L
C-2100.2	30+15 L
C-2100.7	5+30 R
C-2175.2	3+50 R

**SUBSECTION WASTE MATERIAL (SOIL)**

**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.

<u>Waste Area Designation</u>	<u>Waste Area Location</u>	<u>Waste Generated From Road</u>	<u>Estimated Volume</u>	<u>Waste Area Permitted Vol.</u>
WA 1	212+40	C-2100.1	440 cy	20,000 cy
		C-2100.11	400 cy	
		C-2100.2	7,500 cy	
		C-2100.81	40 cy	
		C-2170.1	40 cy	
		K-1240 Alt Loop	2,850 cy	
		<b>Total Estimated Volume:</b>	<b>11,270 cy</b>	

#### **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

#### **4-45 SELECT BORROW**

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

#### **4-46 COMMON BORROW**

Common borrow shall consist of soil, and/or aggregate that is non-plastic and shall contain no more than 5% clay, organic debris, or trash by volume. The material is considered non-plastic if the fines (passes the U.S. #40 sieve) in the sample cannot be rolled between the hand and a smooth surface into a thread at any moisture content.

#### **4-47 NATIVE MATERIAL**

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

#### **4-48 BORROW MATERIAL**

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

### SUBSECTION SHAPING

#### **4-55 ROAD SHAPING**

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

#### **4-56 DRY WEATHER SHAPING**

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

## SUBSECTION COMPACTION

### **4-60 FILL COMPACTION**

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

### **4-61 SUBGRADE COMPACTION**

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

### **4-62 DRY WEATHER COMPACTION**

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

### **4-63 EXISTING SURFACE COMPACTION**

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

### **4-64 WASTE MATERIAL COMPACTION**

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

### **4-65 CULVERT BACKFILL COMPACTION**

Culvert backfills 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

### **5-4 PUNCHEON RESTRICTED**

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

## SUBSECTION CULVERTS

### **5-5 CULVERTS**

Culverts shall be installed as part of this contract. Culverts shall be installed concurrently with subgrade work and shall be installed before subgrade compaction and rock application. Culvert locations and the minimum requirements for culvert length and diameter are designated on the Culvert List. Culvert, downspout, and flume lengths shall be adjusted to fit as-built conditions and shall not terminate directly on unprotected soil. Culverts shall be new and meet the material specifications in Clauses 10-15 through 10-24.



**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 shall be transported by the Purchaser to the storage yard at the DNR Sawmill, along the Hoh-Clearwater Mainline, by MP 12, or as directed by the Contract Administrator prior to contract expiration.

<u>Road</u>	<u>Size</u>	<u>Quantity</u>
As Directed by C/A	18" x 30'	2

**SUBSECTION CULVERT INSTALLATION**

**5-15 CULVERT INSTALLATION**

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

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

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

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

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

**5-18 CULVERT DEPTH OF COVER**

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

**SUBSECTION ENERGY DISSIPATERS**

**5-20 ENERGY DISSIPATERS**

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

**5-21 DOWNSPOUTS AND FLUMES**

Downspouts and flumes longer than 10 feet shall be staked on both sides at maximum intervals of 10 feet with 6-foot heavy-duty steel posts or 1 ½" X 3/16" angle iron, and fastened securely to

the posts with No. 10 galvanized smooth wire, or bolted using minimum 5/16" bolts and 2 washers per bolt, in accordance with the Culvert Installation Typical Details Page.

**SUBSECTION CATCH BASINS, HEADWALLS, AND ARMORING**

**5-25 CATCH BASINS**

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

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

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

**SUBSECTION ROCK SOURCE**

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

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

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
Red Creek Pit	T27N R11W Sec. 34	Riprap, Oversize
Copper Pit	T27N R12W Sec. 13	Pitrun, 1 ½" Crushed, 4" Jaw Run

**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 300 cubic yards of 1 ½" minus crushed rock or more that 3,025 cubic yards of 4" jaw run unless authorized by the Contract Administrator.

<u>Source</u>	<u>Location</u>	<u>Quantity (yd<sup>3</sup>)</u>
1 ½" Minus Crushed	Copper Pit	300 yd <sup>3</sup>
4" Jaw Run	Copper Pit	3,025 yd <sup>3</sup>

**6-5 ROCK FROM COMMERCIAL SOURCE**

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

**SUBSECTION ROCK SOURCE DEVELOPMENT**

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

All rock source development and use shall be in accordance with a written Rock Source Development and Reclamation Plan prepared by the State and included in this Road Plan. Rock source operations shall be conducted as directed by the Contract Administrator and in accordance with the plan. Upon completion of operations, the rock source shall be left in the condition specified in the Rock Source Development and Reclamation Plan, and approved in

writing by the Contract Administrator. The Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before starting any operations in the rock source.

**6-12 ROCK SOURCE SPECIFICATIONS**

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

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

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

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

**6-29 1 ½-INCH MINUS CRUSHED ROCK**

% Passing 1 ½" square sieve	100%
% Passing 1" square sieve	50 - 85%
% Passing U.S. #4 sieve	30 - 50%
% Passing U.S. #40 sieve	16% maximum
% Passing U.S. #200 sieve	5% maximum

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

**6-40 4-INCH JAW RUN ROCK**

% Passing 4" in one dimension	100%
% Passing 2" square sieve	45 - 65%

**6-50 LIGHT LOOSE RIP RAP**

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

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

**6-52 OVERSIZE**

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

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

**SUBSECTION ROCK MEASUREMENT**

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

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

**6-67 ROCK STOCKPILE SPECIFICATIONS**

Rock stockpiles approved in writing by the Contract Administrator 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.

<u>Road</u>	<u>Stations</u>	<u>Amount</u>
C-2100	0+00 – 289+10	160 cy
C-2100.2	0+00 – 13+50	To be distributed over listed roads per Contract Administrator
C-2170	0+00 – 21+30	
C-2175	0+00 – 13+60	

**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 BRIDGE MAINTENANCE

**7-30 BRIDGE MAINTENANCE**

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

<u>Road</u>	<u>Station</u>	<u>Requirements</u>
C-2100	21+60	Keep bridge deck clean of dirt and gravel

SECTION 8 – EROSION CONTROL

**8-1 SEDIMENT CONTROL STRUCTURES**

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

<u>Road</u>	<u>Stations</u>	<u>Comments</u>
C-2100.2	14+60	Construct Settling Ponds from Both Directions

**8-2 PROTECTION FOR EXPOSED SOIL**

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

SUBSECTION REVEGETATION

**8-15 REVEGETATION**

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

**8-16 REVEGETATION SUPPLY**

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

**8-17 REVEGETATION TIMING**

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

**8-18 PROTECTION FOR SEED**

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

**8-19 ASSURANCE FOR SEEDED AREA**

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

SUBSECTION SEED, FERTILIZER, AND MULCH

**8-25 GRASS SEED**

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

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

Grass seed shall meet the following specifications:

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

SECTION 9 – POST-HAUL ROAD WORK

SUBSECTION STRUCTURES

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

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

## SUBSECTION POST-HAUL MAINTENANCE

### 9-5 POST-HAUL MAINTENANCE

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

<u>Road</u>	<u>Stations</u>	<u>Additional Requirements</u>
ALL	ALL	Clean culverts, ditches and bridge, grade roads, shape and compact as directed by the Contract Administrator
C-2100	0+00 – 289+10	Apply post haul rock as per Clause 6-72.
C-2100.2	0+00 – 13+50	
C-2170	0+00 – 21+30	
C-2175	0+00 – 13+60	

## SUBSECTION POST-HAUL LANDING MAINTENANCE

### 9-10 LANDING DRAINAGE

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

### 9-11 LANDING EMBANKMENT

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

## SECTION 10 MATERIALS

### SUBSECTION GEOTEXTILES

### 10-6 GEOTEXTILE FOR TEMPORARY SILT FENCE

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

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

### SUBSECTION CULVERTS

### 10-15 CORRUGATED STEEL CULVERT

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

### 10-16 CORRUGATED ALUMINUM CULVERT

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

**10-17 CORRUGATED PLASTIC CULVERT**

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

**10-20 FLUME AND DOWNSPOUT**

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

**10-21 METAL BAND**

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

**10-22 PLASTIC BAND**

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

**10-23 RUBBER CULVERT GASKETS**

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

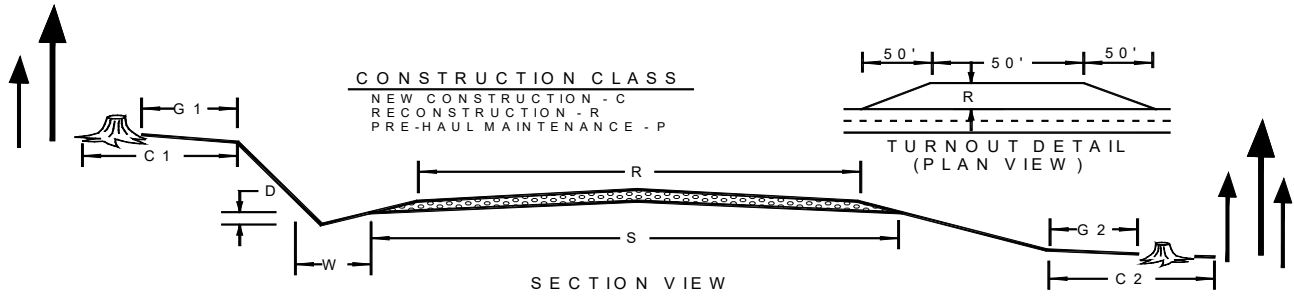
**10-24 GAGE AND CORRUGATION**

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

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

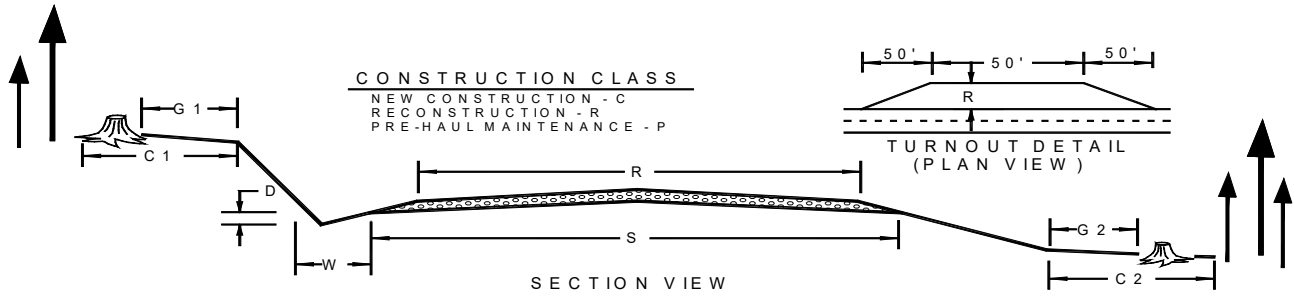


# TYPICAL SECTION SHEET



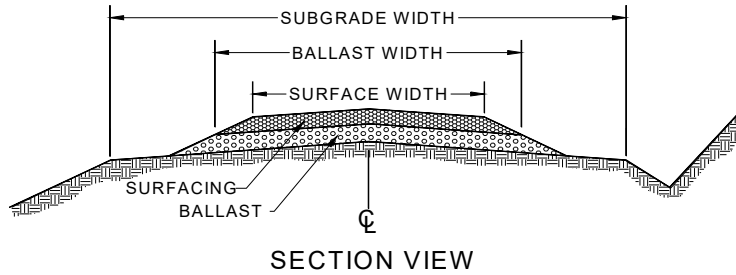
ROAD NAME	START STATION	END STATION	CONSTRUCTION CLASS	SUBGRADE WIDTH (S)	ROAD WIDTH (R)	CROWN AT CL (in)	DITCH WIDTH (W)	DITCH DEPTH (D)	GRUBBING CUT BANK (G1)	GRUBBING FILL TOE (G2)	ROAD CUT CLEARING (C1)	ROAD FILL CLEARING (C2)
C-2100	0+00	220+40	P		16'	3"	3'	1'				
C-2100	220+40	289+10	P		12'	3"	3'	1'	5'	5'	10'	5'
C-2100.1	0+00	13+20	P		12'	3"	3'	1'	5'	5'	10'	5'
C-2100.1	13+20	15+85	C	17'	12'	3"	3'	1'	5'	5'	10'	5'
C-2100.11	0+00	2+90	P		12'	3"	3'	1'	5'	5'	10'	5'
C-2100.12	0+00	3+00	P		12'	3"	3'	1'	5'	5'	10'	5'
C-2100.2	0+00	34+00	P		12'	3"	3'	1'	5'	5'	10'	5'
C-2100.2	34+00	35+00	C	17'	12'	3"	3'	1'	5'	5'	10'	5'
C-2100.21	0+00	4+25	P		12'	3"/-3"	3'	1'	5'	5'	10'	5'
C-2100.3	0+00	3+60	P		12'	3"	3'	1'	5'	5'	10'	5'
C-2100.4	0+00	3+00	P		12'	3"	3'	1'	5'	5'	10'	5'
C-2100.5	0+00	5+00	P		12'	3"	3'	1'	5'	5'	10'	5'
C-2100.5	5+00	7+90	C		12'	3"	3'	1'	5'	5'	10'	5'
C-2100.6	0+00	4+70	P		12'	3"	3'	1'	5'	5'	10'	5'
C-2100.61	0+00	3+00	C	17'	12'	3"	3'	1'	5'	5'	10'	5'
C-2100.7	0+00	5+30	P		12'	3"	3'	1'	5'	5'	10'	5'
C-2100.8	0+00	4+60	P		12'	3"	3'	1'	5'	5'	10'	5'
C-2100.81	0+00	7+80	P		12'	3"	3'	1'	5'	5'	10'	5'
C-2100.9	0+00	1+30	C	17'	12'	3"	3'	1'	5'	5'	10'	5'
C-2170	0+00	21+30	P		12'	3"	3'	1'	5'	5'	10'	5'
C-2170.1	0+00	5+25	P		12'	3"	3'	1'	5'	5'	10'	5'
C-2170.11	0+00	4+30	C	17'	12'	3"	3'	1'	5'	5'	10'	5'

## TYPICAL SECTION SHEET CONTINUED



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)
C-2175	0+00	13+60	P		12'	3"	3'	1'	5'	5'	10'	5'
C-2175.1	0+00	0+70	P		12'	3"	3'	1'	5'	5'	10'	5'
C-2175.2	0+00	3+50	P		12'	3"	3'	1'	5'	5'	10'	5'
K-1240	0+00	2+50	P		12'	3"	3'	1'	5'	5'	10'	5'
K-1240.1	0+00	9+50	P		12'	3"	3'	1'	5'	5'	10'	5'
K-1240 Alt Loop	0+00	4+20	C	20'	17'	3"/-3"	3'	1'	5'	5'	10'	5'

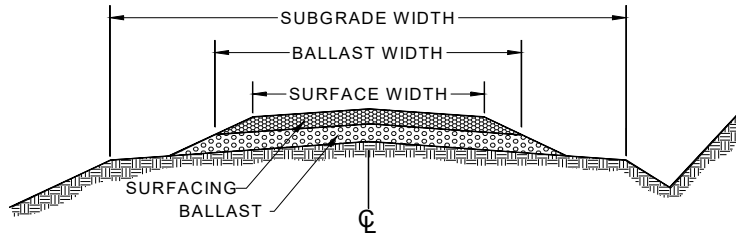
## ROCK LIST SHEET



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

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd <sup>3</sup> /sta)	Pitrun SUBTOTAL(yd <sup>3</sup> )	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd <sup>3</sup> /sta)	Crushed Subtotal(yd <sup>3</sup> )	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd <sup>3</sup> )
<b>C-2100</b>															
Misc. Pre-Haul	0+00	220+40							3				100		
Lift	220+40	289+10		2	12	6	35	2,405							
Culvert	255+90			1				30						4	10
Misc. Post Haul	0+00	220+40							3				100		
<b>C-2100.1</b>															
Lift	0+00	13+20		1	12	12	70	925							
Lift	13+20	15+85	17	1		18	110	290							
Culvert	4+30			1				20						4	5
Culvert	8+00			1				20						4	5
Landing	13+20			1				50							
Landing	15+85			1				50							
<b>C-2100.11</b>															
Lift	0+00	2+90		1	12	12	70	205							
Landing	2+90			1				50							
<b>C-2100.12</b>															
Lift	0+00	3+00		1	12	12	70	210							
Landing	3+00			1				50							
<b>Sheet Totals:</b>	Pitrun: 1,900 Jaw Run: 2,405								1 ½” Crushed: 200			Oversize: 20			

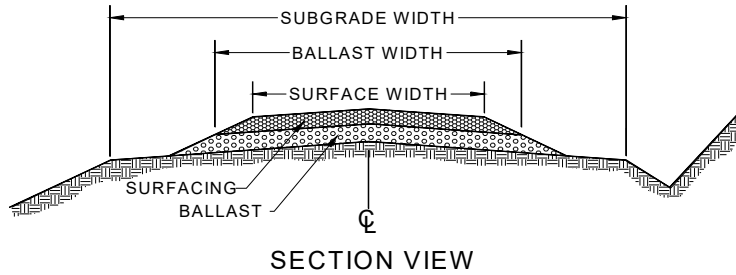
## ROCK LIST SHEET CONTINUED



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6. Rock sources= 1: Copper Pit Pit Run, 2: Copper Pit 4" Jaw Run, 3: Copper Pit 1½" minus, 4: Red Creek Pit Oversize  
5: Red Creek Pit Light Loose Riprap

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd <sup>3</sup> /sta)	Pitrun SUBTOTAL(yd <sup>3</sup> )	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd <sup>3</sup> /sta)	Crushed Subtotal(yd <sup>3</sup> )	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd <sup>3</sup> )
<b>C-2100.2</b>															
Lift	0+00	34+00		1	12	12	70	2,380							
Lift	34+00	35+00	17	1		18	110	110							
Culvert	1+15			1				20						4	5
Landing	5+00			1				50							
Culvert	6+60			1				20						4	5
Culvert	12+10			1				20						5	10
Landing	13+50			1				50							
Culvert	14+60			1				20						4	5
Culvert	19+60			1				20						4	5
50' Keyed Embankment	20+25			1				150						5	30
Culvert	25+80			1				20						4	5
Landing	35+00			1				50							
Misc. Post Haul	0+00	13+50							3				20		
<b>C-2100.21</b>															
Lift	0+00	4+25		1	12	12	70	300							
Landing	4+25			1				50							
<b>C-2100.3</b>															
Lift	0+00	3+60		1	12	12	70	250							
Landing	3+60			1				50							
<b>Sheet Totals:</b>	Pitrun: 3,560								1 ½" Crushed: 20				Oversize: 25 Riprap: 40		

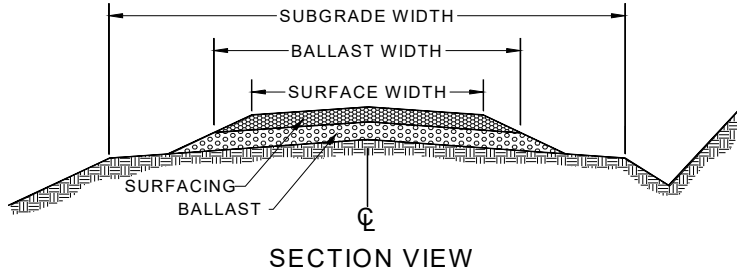
## ROCK LIST SHEET CONTINUED



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6. Rock sources= 1: Copper Pit Pit Run, 2: Copper Pit 4" Jaw Run, 3: Copper Pit 1½" minus, 4: Red Creek Pit Oversize  
5: Red Creek Pit Light Loose Riprap

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd³/sta)	Pitrun SUBTOTAL(yd³)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd³/sta)	Crushed Subtotal(yd³)	Oversize/ Rip Rap Source	Oversize/Rip Rap Quantity(yd³)
<b>C-2100.4</b>															
Lift	0+00	3+00		1	12	12	70	210							
Landing	3+00			1				50							
<b>C-2100.5</b>															
Lift	0+00	5+00		1	12	12	70	350							
Lift	5+00	7+90		1	12	18	110	320							
Landing	5+00			1				50							
Landing	7+90			1				50							
<b>C-2100.6</b>															
Lift	0+00	4+70		1	12	12	70	330							
Landing	4+70			1				50							
<b>C-2100.61</b>															
Lift	0+00	3+00	17	1	12	18	110	330							
Landing	3+00			1				50							
<b>C-2100.7</b>															
Lift	0+00	5+30		2	12	6	35	185							
Culvert	0+15			1				30						4	5
Landing	5+30			1				50							
<b>C-2100.8</b>															
Lift	0+00	4+60		2	12	6	35	160							
Landing				1				50							
<b>Sheet Totals:</b>								Pitrun: 1,920 Jaw Run: 345					1 ½" Crushed: 0	Oversize: 5	

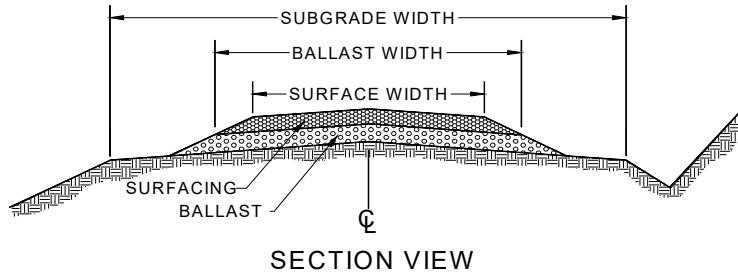
## ROCK LIST SHEET CONTINUED



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5: Red Creek Pit Light Loose Riprap

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd <sup>3</sup> /sta)	Pitrun SUBTOTAL(yd <sup>3</sup> )	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd <sup>3</sup> /sta)	Crushed Subtotal(yd <sup>3</sup> )	Oversize/ Rip Rap Source	Oversize/Rip Rap Quantity(yd <sup>3</sup> )
<b>C-2100.81</b>															
Lift	0+00	7+80		2	12	6	35	275							
<b>C-2100.9</b>															
Lift	0+00	1+30	17	1	12	18	110	145							
Landing	1+30			1				50							
<b>C-2170</b>															
Misc Pre-Haul	0+00	21+30							3				20		
Misc Post-Haul	0+00	21+30							3				20		
<b>C-2170.1</b>															
Lift	0+00	5+25		1	12	12	70	370							
Culvert	0+10			1				40						4	5
Culvert	3+00			1				20						4	5
Landing	5+25			1				50							
<b>C-2170.11</b>															
Lift	0+00	4+30	17	1	12	18	110	475							
Landing	4+30			1				50							
<b>Sheet Totals:</b>							Pitrun: 1,200 Jaw Run: 275						1 ½" Crushed: 40		Oversize: 10

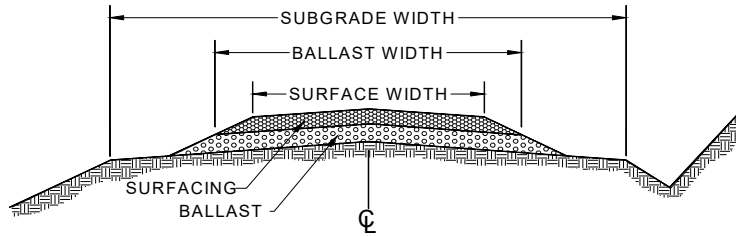
## ROCK LIST SHEET CONTINUED



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3. Rock slopes shall be 1½ (H) : 1 (V).
4. All rock sources are subject to approval by the Contract Administrator.
5. Pitrun is defined as pitrun or ballast per Line 6. Crushed is defined as any crushed rock from ¼" minus to 4" minus per Line 6. Oversize is defined as oversize, quarry spalls, light loose rip rap, or heavy loose rip rap per Line 6.
6. Rock sources= 1: Copper Pit Pit Run, 2: Copper Pit 4" Jaw Run, 3: Copper Pit 1½" minus, 4: Red Creek Pit Oversize  
5: Red Creek Pit Light Loose Riprap

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd³/sta)	Pitrun SUBTOTAL(yd³)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd³/sta)	Crushed Subtotal(yd³)	Oversize/ Rip Rap Source	Oversize/Rip Rap Quantity(yd³)
<b>C-2175</b>															
Misc Pre-Haul	0+00	13+6 0							3				20		
Misc Post-Haul	0+00	13+6 0							3				20		
Culvert	5+75			1				30						4	5
Culvert	13+00			1				20						4	5
<b>C-2175.1</b>															
Lift	0+00	0+70		1	12	12	70	50							
Landing	0+70			1				50							
<b>C-2175.2</b>															
Lift	0+00	3+50		1	12	12	70	245							
Landing	3+50			1				50							
<b>K-1240</b>															
Lift	0+00	2+50		1	12	12	70	175							
<b>K-1240.1</b>															
Lift	0+00	9+50		1	12	12	70	665							
Landing	4+50			1				50							
Landing	9+50			1				50							
<b>K-1240 Alt Loop</b>															
Lift	0+00	4+20	20		16	18	110	460							
Contingency	Culverts	(x2)						40						4	10
<b>Sheet Totals:</b>								Pitrun: 1,385	1 ½" Crushed: 40			Oversize: 10			

## ROCK LIST SHEET CONTINUED



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

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd <sup>3</sup> /sta)	Pitrun SUBTOTAL(yd <sup>3</sup> )	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd <sup>3</sup> /sta)	Crushed Subtotal(yd <sup>3</sup> )	Oversize/ Rip Rap Source	Oversize/Rip Rap Quantity(yd <sup>3</sup> )
<b>K-1240 Alt Loop</b>															
Lift	0+00	4+20	20	1	17	18	110	460							
Keyed Embankment	1+10													5	50
Keyed Embankment	3+40													5	50
<b>Contingency</b>	Culvert	(x2)			1			40						4	10
<b>Sheet Totals:</b>	Pitrun: 500							1 ½" Crushed: 0				Oversize: 110			

## ROCK LIST SHEET GRAND TOTAL

Source	Quantity (yd <sup>3</sup> )
1: Copper Pit Pit Run	10,465
1: Copper Pit 4" Jaw Run	3,025
2: Copper Pit 1 ½" Crushed	300
3: Red Creek Pit Oversize	80
4: Red Creek Pit Light Loose Riprap	140



## CULVERT LIST

ROAD NAME	STATION	CULVERT DIAMETER (in)	CULVERT LENGTH (ft)	FLUME LENGTH (ft)	DOWNSPOUT LENGTH (ft)	RIP RAP - INLET (cy)	RIP RAP - OUTLET (cy)	BACKFILL MATERIAL	NOTES
C-2100	238+70	18							Clean Inlet
	242+70	18							Clean Inlet
	255+90	18	40			3	7	PR	Replace Culvert
	259+60	18							Clean Inlet
	270+90	18							Clean Inlet
	281+60	18							Clean Inlet
C-2100.1	4+30	18	30			2	3	PR	New Culvert Install
	8+00	18	30			2	3	PR	New Culvert Install
C-2100.2	1+15	18	30			2	3	PR	New Culvert Install
	6+60	18	30			2	3	PR	New Culvert Install
	12+10	18	30			2	8	PR	Replace Culvert
	* 14+60	24	30			2	3	PR	Replace Culvert (C1)*
	19+60	18	26			2	3	PR	New Culvert Install
	25+80	18	26			2	3	PR	New Culvert Install
C-2100.7	0+15	18	40			2	3	PR	New Culvert Install
C-2170.1	0+10	18	50			2	3	PR	New Culvert Install
	3+00	18	30			2	3	PR	New Culvert Install
C-2175	5+75	18	40			2	3	PR	New Culvert Install
	13+00	18	26			2	3	PR	New Culvert Install
Contingency	(x2)	18	30			4	6	PR	New Culvert Install

**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.**

## COMPACTION LIST

Road	Stations	Type	Max Depth per Lift (In)	Equipment Type	Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)
Construction	All	Culvert Backfills	6	Jumping Jack	N/A	3	N/A
Construction	All	Subgrade, Embankment	6	Vibratory Smooth Drum Roller*	6,000	3	3
Construction	All	Rock Placement	6				
Pre-haul Maintenance	All	Existing Pre-haul Surface	6				
Pre-haul Maintenance, Post-haul Maintenance	All	Rock Lifts	6				
Pre-haul Maintenance	All	Culvert Backfills	6	Jumping Jack	N/A	3	N/A
Waste Areas	See Clause 4-37	Waste Material	24	Excavation Equipment	See Clause 4-39		

DEPARTMENT OF NATURAL RESOURCES

SUMMARY - Road Development Costs

SALE NAME: T3 Kalaloch East Timber Sale

REGION: Olympic

DISTRICT: Coast

CONTRACT#: 30-102258

LEGAL DESCRIPTION: T25R12W Sec 30

Date: 04/12/2023

ROAD NAME:	C-2100.1	C-2100.2	C-2100.5	C-2100.61	C-2100.9	C-2170.11	K-1240 Alt	C-2100	C-2100.1	C-2100.11	C-2100.12	TOTAL:	TOTAL SHEET #2-4
ROAD TYPE:	Construction	Construction	Construction	Construction	Construction	Construction	Construction	Prehaul	Prehaul	Prehaul	Prehaul		
NUMBER OF STATIONS:	2.65	1.00	2.90	3.00	1.30	4.30	4.20	289.10	13.20	2.90	3.00	327.55	486.10
SIDESLOPE:	20%	10%	20%	20%	10%	10%	30%	30%	30%	25%	15%		
CLEARING AND GRUBBING:	\$369	\$86	\$289	\$342	\$148	\$429	\$637	\$0	\$0	\$0	\$0	\$2,299	\$0
ROAD BRUSHING:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,242	\$238	\$52	\$54	\$1,586	\$1,666
EXCAVATION AND FILL:	\$599	\$170	\$655	\$678	\$220	\$729	\$28,187	\$0	\$0	\$0	\$800	\$32,038	\$55,000
ROAD GRADING:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,430	\$0	\$0	\$0	\$1,430	\$2,428
DITCH CLEANING/CONSTRUCTION:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$515	\$113	\$117	\$745	\$3,444
ROCK TOTALS (Cu. Yds.)/ROCK COSTS:													
Ballast:	13,480	13,490	342	380	193	523	462	2,435	1,014	253	260	6,390	7,050 CY
Surface:	300	300	\$5,720	\$6,004	\$3,092	\$8,216	\$7,480	\$37,467	\$15,251	\$3,714	\$3,913	\$98,600	\$109,034
Oversize:	220	220	\$0	\$0	\$0	\$0	\$0	\$1,514	\$0	\$0	\$0	\$1,514	\$2,949
CULVERTS AND FLUMES:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$238	\$234	\$0	\$0	2,732	\$2,189
STRUCTURES:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,232	\$1,848	\$0	\$0	\$3,080	\$11,195
MISC. EXPENSES:	\$36	\$26	\$17	\$18	\$8	\$25	\$25	\$1,657	\$97	\$319	\$310	\$2,536	\$4,791
OVERHEAD:	\$556	\$256	\$601	\$634	\$312	\$846	\$3,473	\$3,582	\$1,455	\$336	\$415	\$12,467	\$15,612
TOTAL COSTS:	\$6,736	\$3,104	\$7,282	\$7,675	\$3,780	\$10,245	\$42,059	\$48,363	\$19,637	\$4,534	\$5,609	\$159,026	\$208,308
COST PER STATION:	\$2,542	\$3,104	\$2,511	\$2,558	\$2,908	\$2,383	\$10,014	\$167	\$1,488	\$1,564	\$1,870	\$486	\$447

MOBILIZATION: \$6,400

ROAD DEACTIVATION AND ABANDONMENT COSTS:

Pit Work \$0

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

Plans to be furnished by: DNR

Road Standard	Const.	Reconst.	Prehaul	Posthaul	Closure	TOTAL (All Roads) =
Total Costs =	\$83,016	\$0	\$283,945	\$9,400	\$0	\$373,733
Total Sta. =	19.4	0.0	436.8	436.8		SALE VOLUME MBF = 4,670
Cost per Sta. =	\$4,290	#DIV/0!	\$650	\$22		TOTAL COST PER MBF = \$80
Compiled by:	K. Wyatt					TOTAL COST PER STATION = \$471
						Sheet 1 of 3

SUMMARY - Road Development Costs  
 SALE NAME: T3 Kalaloch East Timber Sale CONTRACT#: 30-102258 REGION: Olympic  
 LEGAL DESCRIPTION: T25R12W Sec.30

DISTRICT: Coast Date: 04/12/2023

ROAD NAME:	C-2100.2	C-2100.21	C-2100.3	C-2100.4	C-2100.5	C-2100.6	C-2100.7	C-2100.8	C-2100.81	C-2170	C-2170.1	C-2175	C-2175.1	C-2175.2	K-1240	K-1240.1
ROAD TYPE:	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul
NUMBER OF STATIONS:	34.00	4.25	3.60	3.00	5.00	4.70	5.30	4.60	7.80	21.30	5.25	13.60	0.70	3.50	2.50	9.50
SIDESLOPE:	35%	10%	10%	10%	15%	10%	25%	10%	30%	40%	30%	15%	20%	10%	30%	15%
CLEARING AND GRUBBING:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
ROAD BRUSHING:	\$612	\$77	\$65	\$54	\$90	\$85	\$95	\$83	\$140	\$0	\$0	\$245	\$13	\$63	\$45	\$0
EXCAVATION AND FILL:	\$55,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
ROAD GRADING:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$138	\$34	\$0	\$0	\$0	\$0	\$62
DITCH CLEANING/CONSTRUCTION:	\$1,326	\$0	\$140	\$117	\$195	\$183	\$207	\$179	\$304	\$0	\$0	\$630	\$27	\$137	\$98	\$0
ROCK TOTALS (Cu. Yds./)ROCK COSTS:																
Ballast:	2,750	348	302	260	400	379	266	211	273	0	478	50	99	295	175	765
	\$44,825	\$5,522	\$4,436	\$3,908	\$6,132	\$5,958	\$4,221	\$2,802	\$4,469	\$0	\$6,809	\$753	\$1,436	\$4,443	\$2,396	\$10,924
Surface:	0	0	0	0	0	0	0	0	0	20	0	20	0	0	0	0
Oversize:	65	0	0	0	0	0	5	0	0	\$274	\$0	\$296	\$0	\$0	\$0	\$0
	\$1,606	\$0	\$0	\$0	\$0	\$0	\$122	\$0	\$0	\$0	\$227	\$235	\$0	\$0	\$0	\$0
	\$5,466	\$0	\$0	\$0	\$0	\$0	\$1,232	\$0	\$0	\$0	\$2,464	\$2,033	\$0	\$0	\$0	\$0
CULVERTS AND FLUMES:																
STRUCTURES:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
MISC. EXPENSES:	\$951	\$232	\$21	\$18	\$29	\$27	\$51	\$475	\$425	\$363	\$31	\$80	\$4	\$20	\$35	\$56
OVERHEAD:	\$8,783	\$466	\$373	\$328	\$516	\$500	\$474	\$283	\$427	\$62	\$765	\$334	\$118	\$373	\$206	\$883
TOTAL COSTS:	\$118,569	\$6,296	\$5,036	\$4,424	\$6,962	\$6,754	\$6,402	\$3,822	\$5,766	\$837	\$10,330	\$4,505	\$1,598	\$5,036	\$2,779	\$11,925
COST PER STATION:	\$3,487	\$1,481	\$1,399	\$1,475	\$1,392	\$1,437	\$1,208	\$831	\$739	\$39	\$1,968	\$331	\$2,283	\$1,439	\$1,111	\$1,255

Total  
 Costs \$201,040  
 Stations 128.60  
 Cost/station \$1,563.30

Sheet 2 of 3

SALE NAME: T3 Kalaloch East Timber Sale  
 LEGAL DESCRIPTION: T25R12W Sec 30

CONTRACT#: 30-102258  
 REGION: Olympic

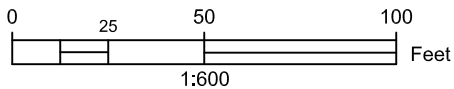
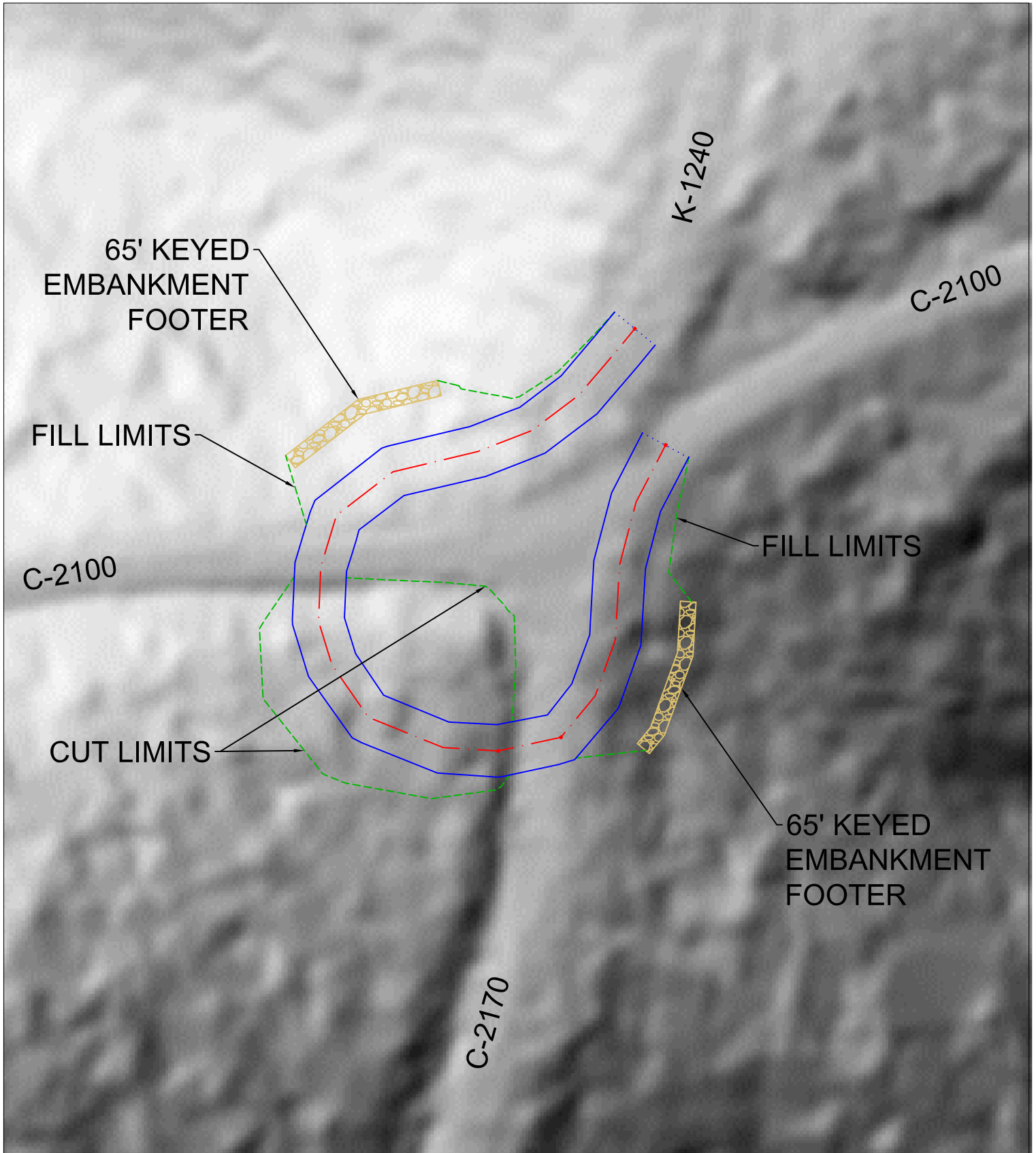
DISTRICT: Coast

Date: 04/12/2023

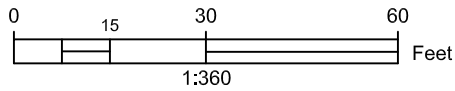
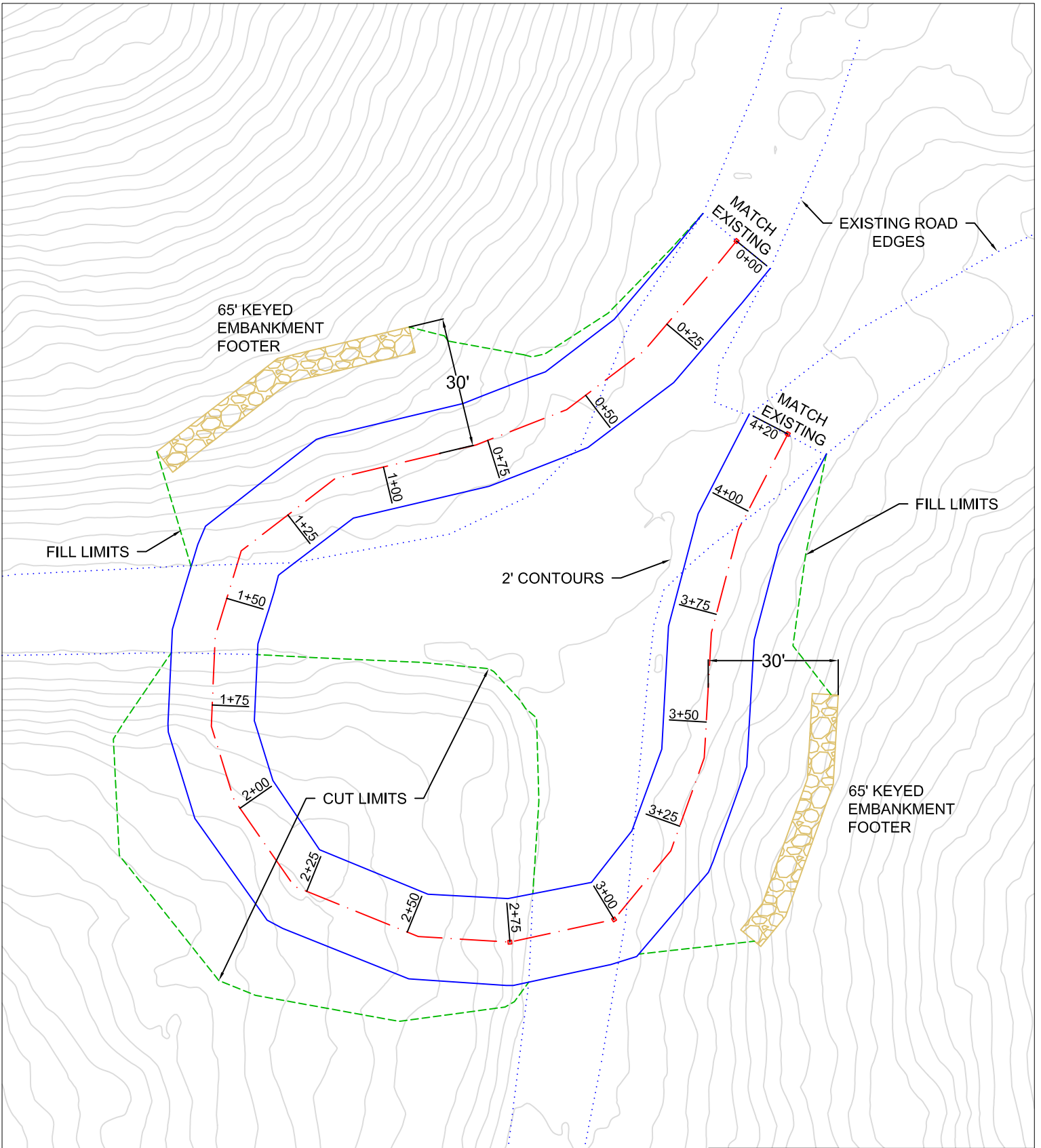
**SUMMARY - Road Development Costs**

ROAD NAME:	Contingency	C-2100	C-2100.2	C-2170	C-2175
ROAD TYPE:	Prehaul	Posthaul	Posthaul	Posthaul	Posthaul
NUMBER OF STATIONS:	0.00	289.10	13.50	21.30	13.60
SIDESLOPE:	10%	30%	35%	40%	30%
CLEARING AND GRUBBING:	\$0	\$0	\$0	\$0	\$0
ROAD BRUSHING:	\$0	\$0	\$0	\$0	\$0
EXCAVATION AND FILL:	\$0	\$0	\$0	\$0	\$0
ROAD GRADING:	\$0	\$1,879	\$88	\$138	\$88
DITCHING:	\$0	\$0	\$0	\$0	\$0
ROCK TOTALS (Cu. Yds.)/ROCK COSTS:	\$0	\$0	\$0	\$0	\$0
Ballast:	40	0	0	0	0
	\$338	\$0	\$0	\$0	\$0
Surface:	0	100	20	20	20
	\$0	\$1,514	\$321	\$270	\$274
Oversize:	10	0	0	0	0
	\$247	\$0	\$0	\$0	\$0
CULVERTS AND FLUMES:	\$1,848	\$0	\$0	\$0	\$0
STRUCTURES:	\$0	\$0	\$0	\$0	\$0
MISC. EXPENSES:	\$0	\$1,691	\$79	\$125	\$80
OVERHEAD:	\$195	\$559	\$54	\$59	\$49
TOTAL COSTS:	\$2,628	\$5,644	\$541	\$592	\$490
COST PER STATION:	#DIV/0!	\$20	\$40	\$28	\$36

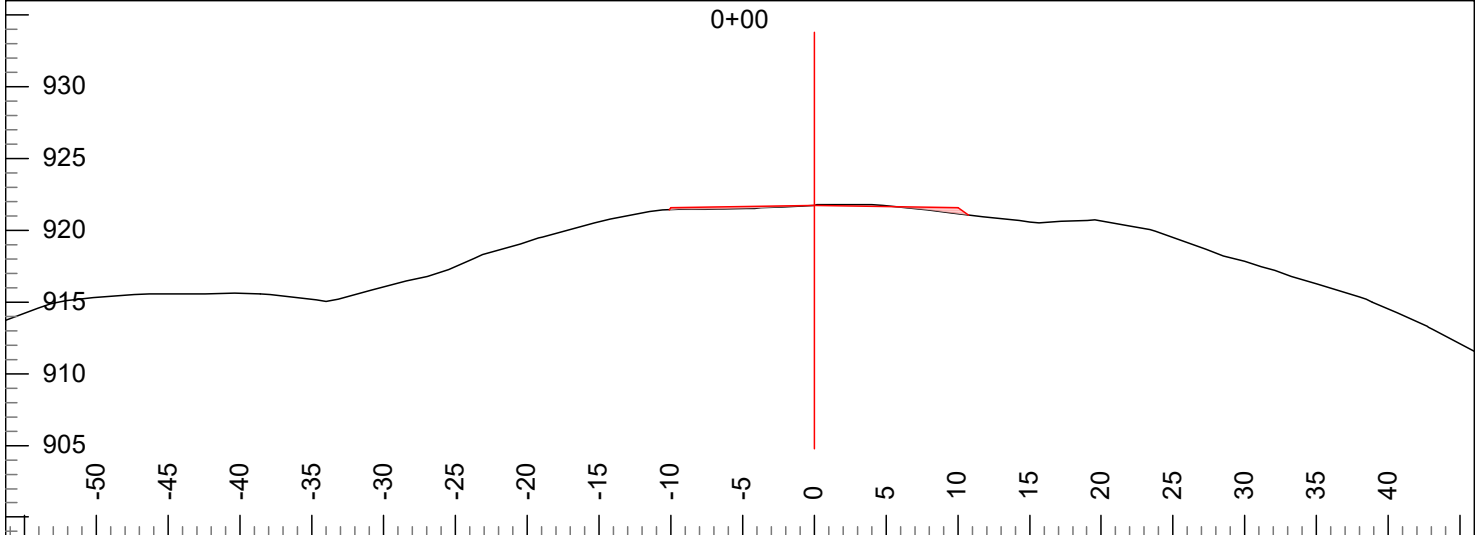
Total  
 Costs \$9,895  
 Stations 337.50  
 Cost/station \$29.32



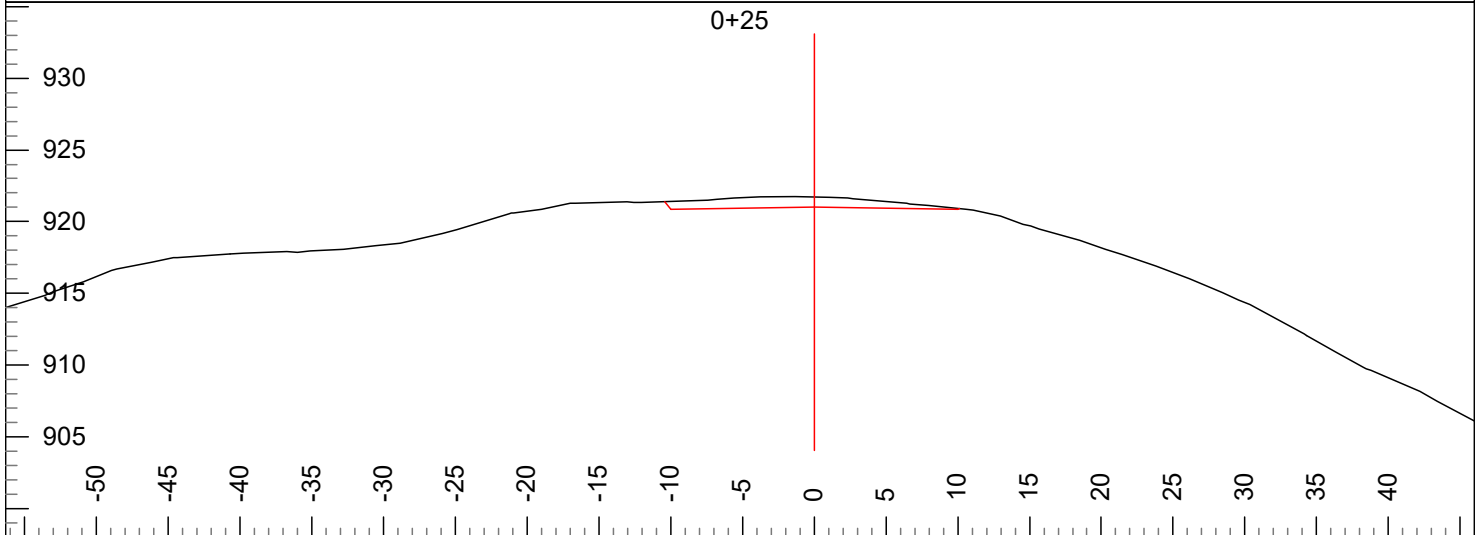
K-1240 ALT LOOP	
Designed By:	B. Mehl
Drawn By:	K. Wyatt
Date:	02/21/2023
Sheet 1 of 2	



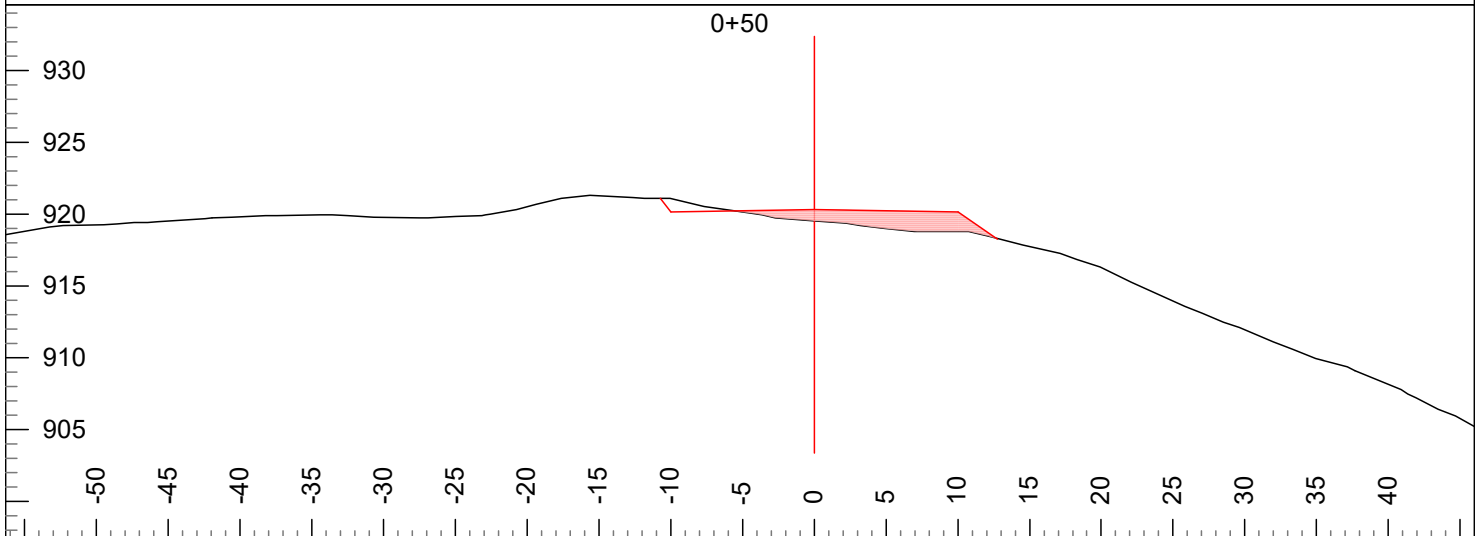
**K-1240 ALT LOOP**  
 Designed By: B. Mehl  
 Drawn By: K. Wyatt  
 Date: 02/21/2023  
 Sheet 2 of 2



L-Stn : 0+00 Grd.Nxt.: -2.8 L-Ssl: -3.3 Super L: -2.0 F Slope L: -133  
 Cut Dp: 0 Grd.Lst: n/a L-Ssr: -6.2 Super R: -2.0 F Slope R: -67

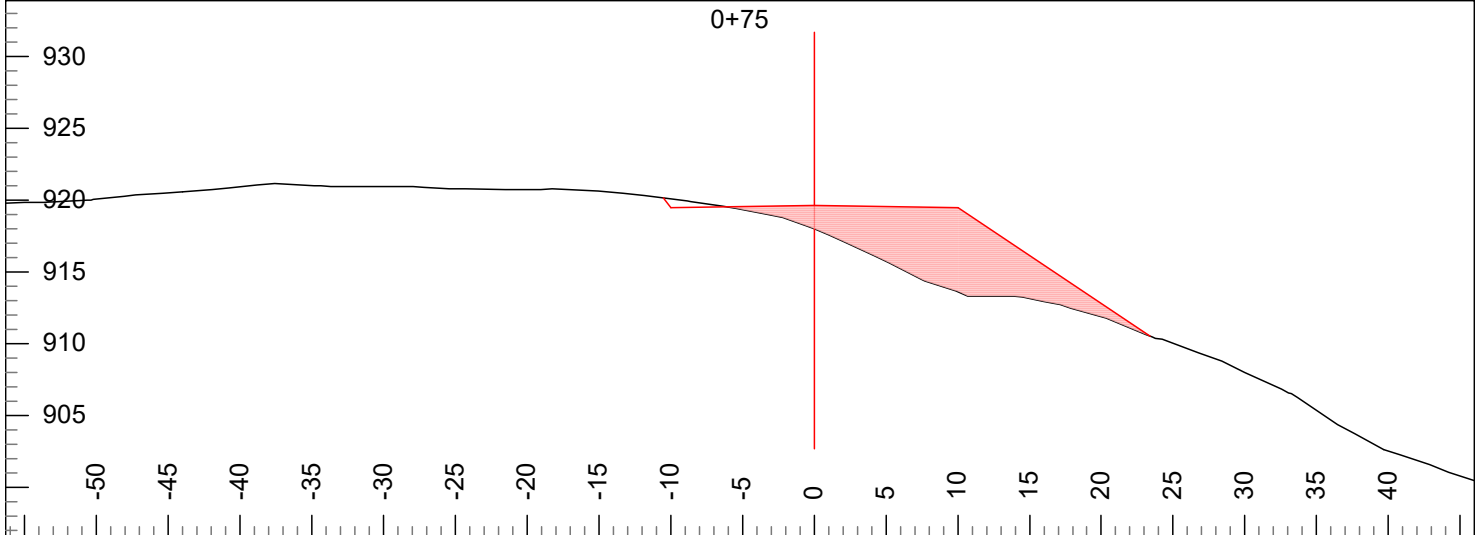


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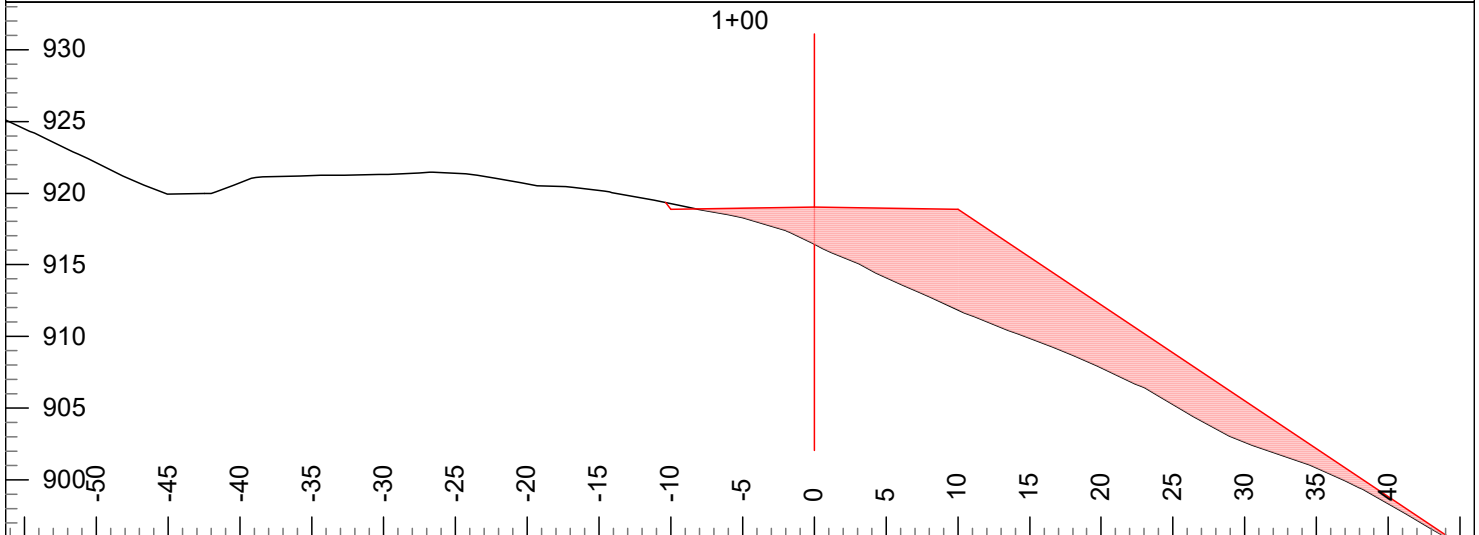


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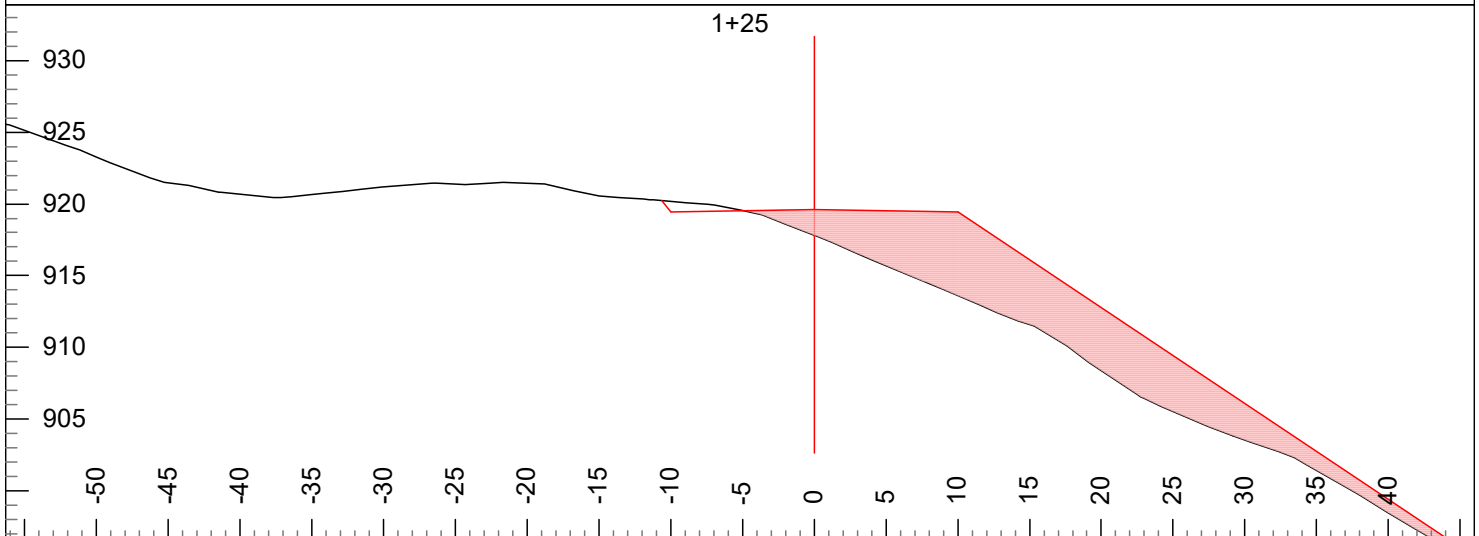




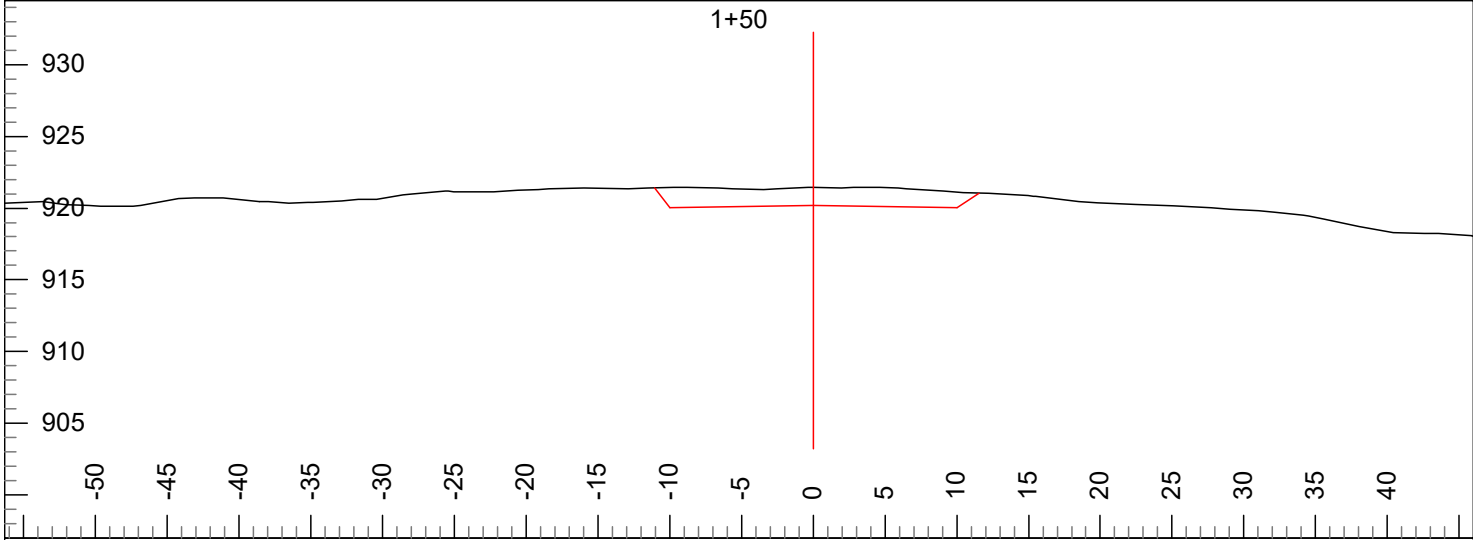
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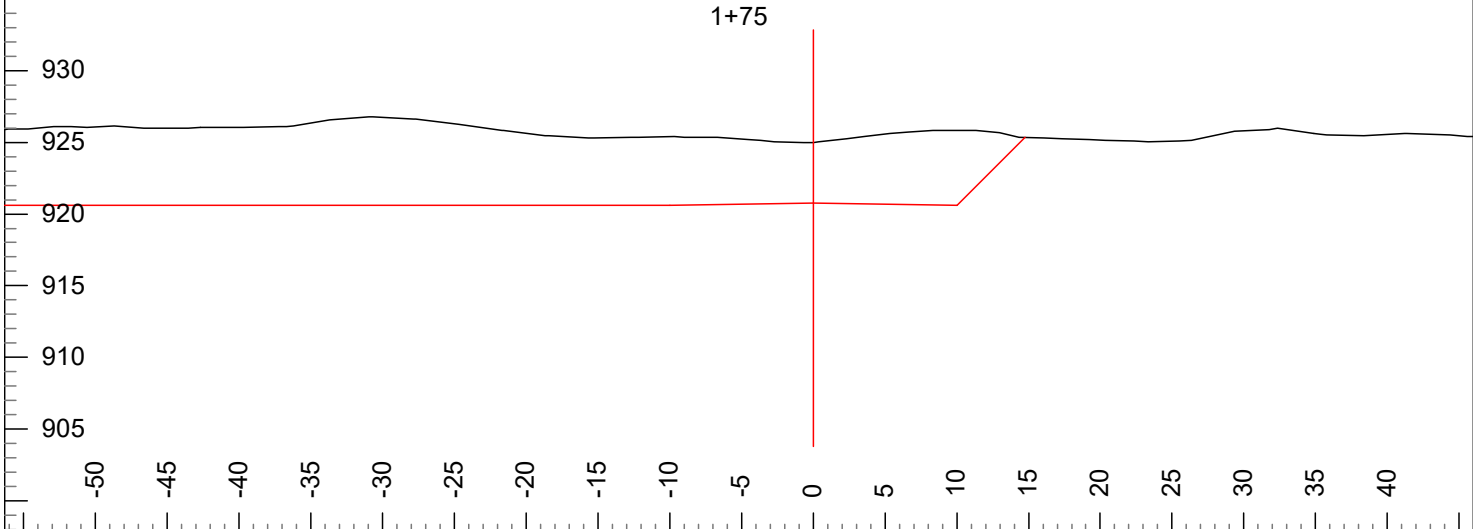
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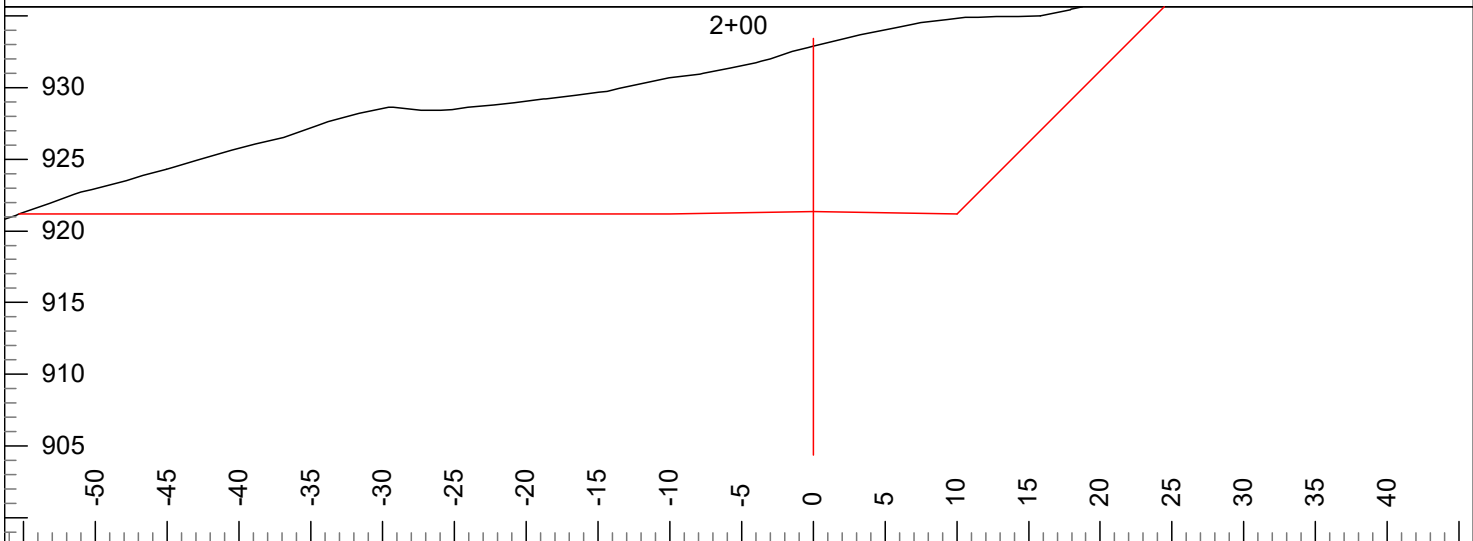
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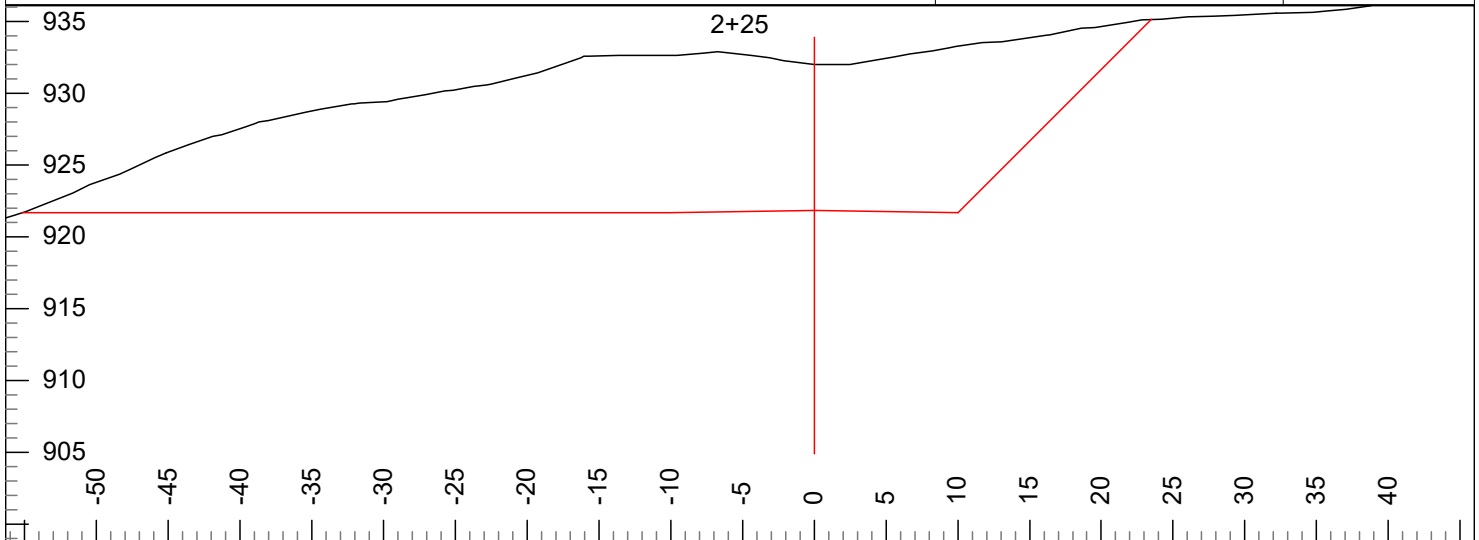
L-Stn : 1+50 Grd.Nxt.: 2.3 L-Ssl: -0.1 Super L: -2.0 F Slope L: 133  
 Cut Dp: 1 Grd.Lst: 2.3 L-Ssr: -3.2 Super R: -2.0 F Slope R: 67



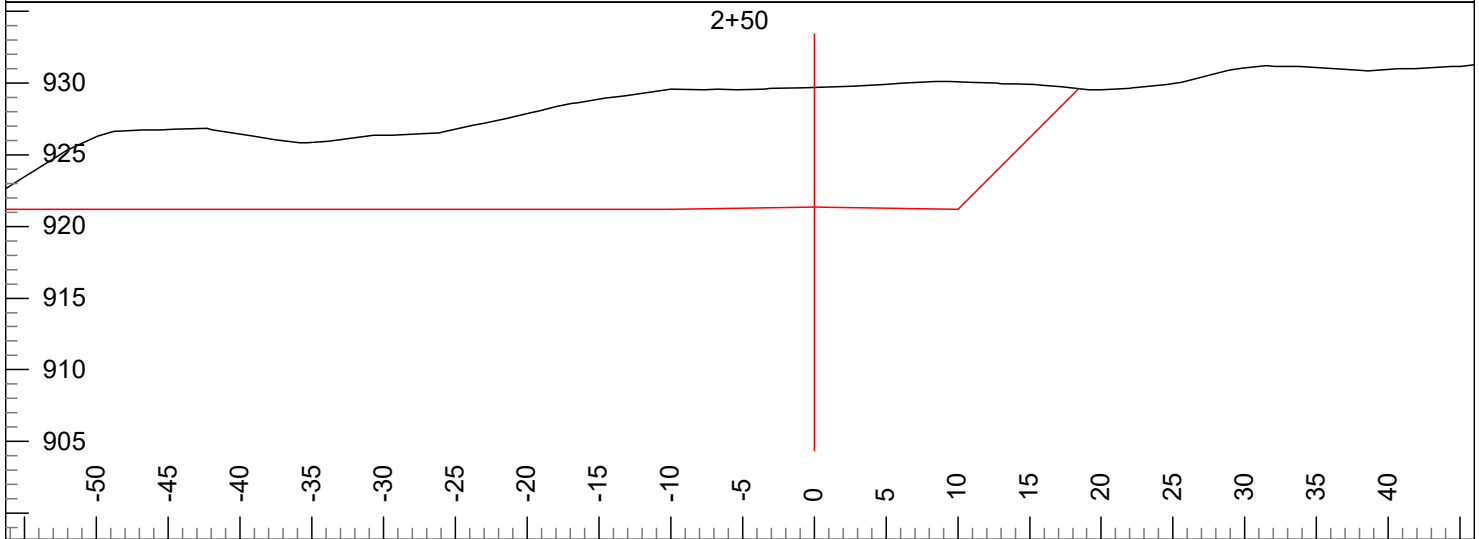
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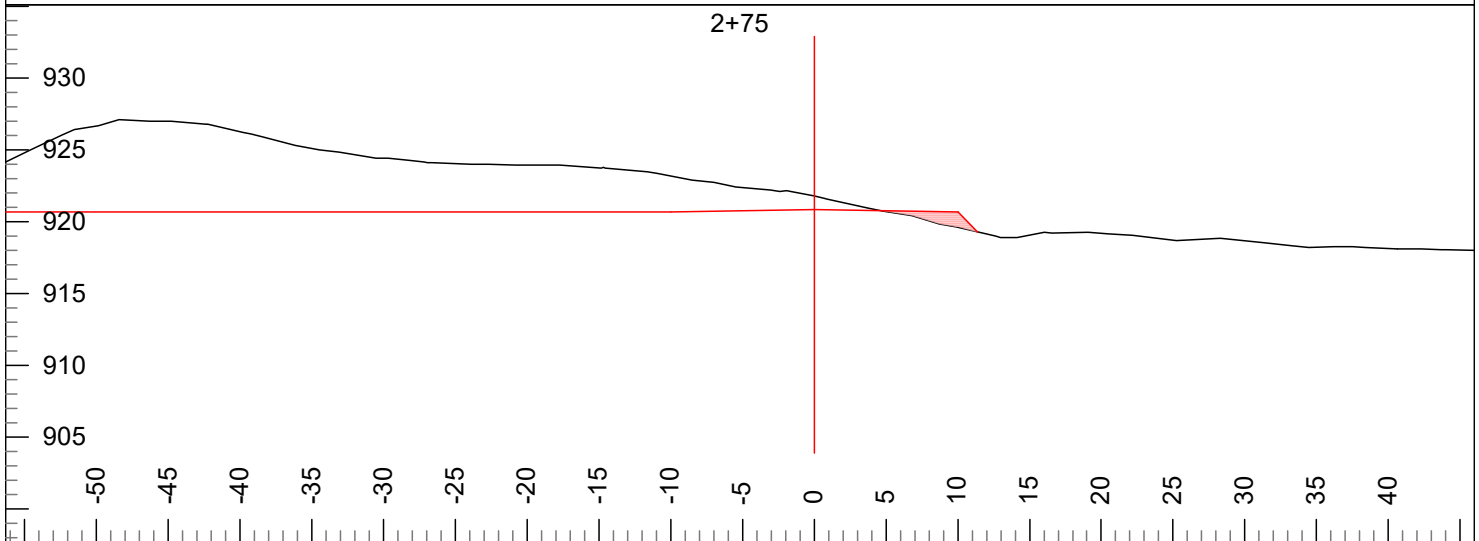
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 Cut Dp: 11 Grd.Lst: 2.3 L-Ssr: 19.6 Super R: -2.0 F Slope R: 100



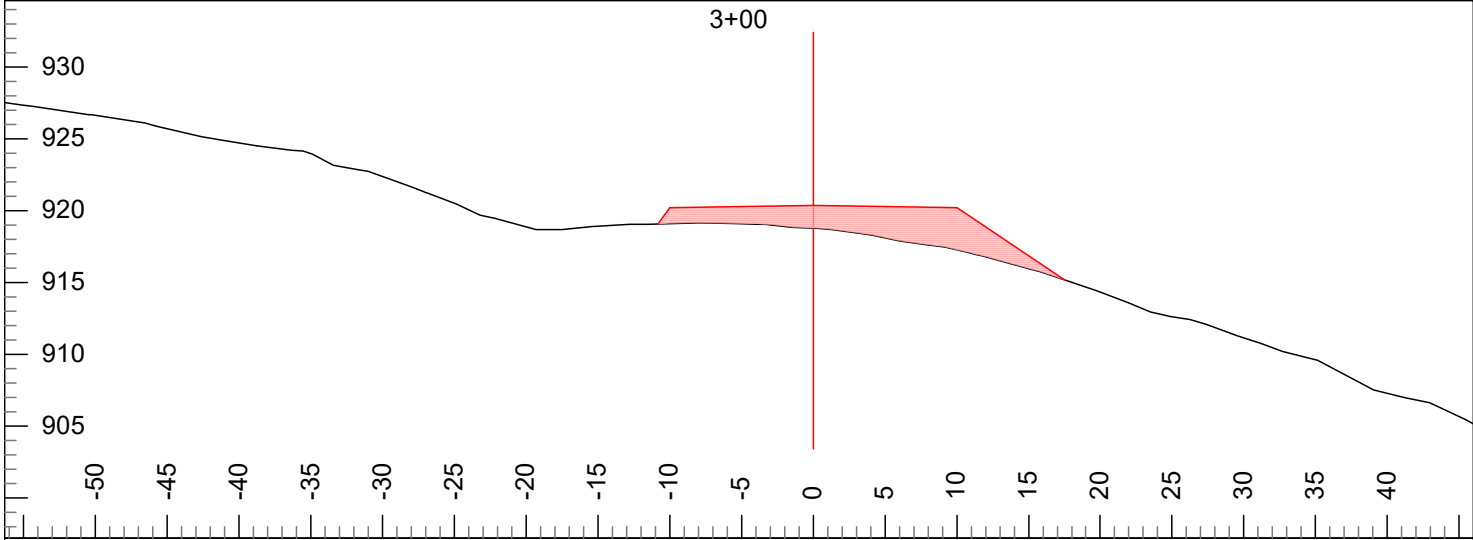
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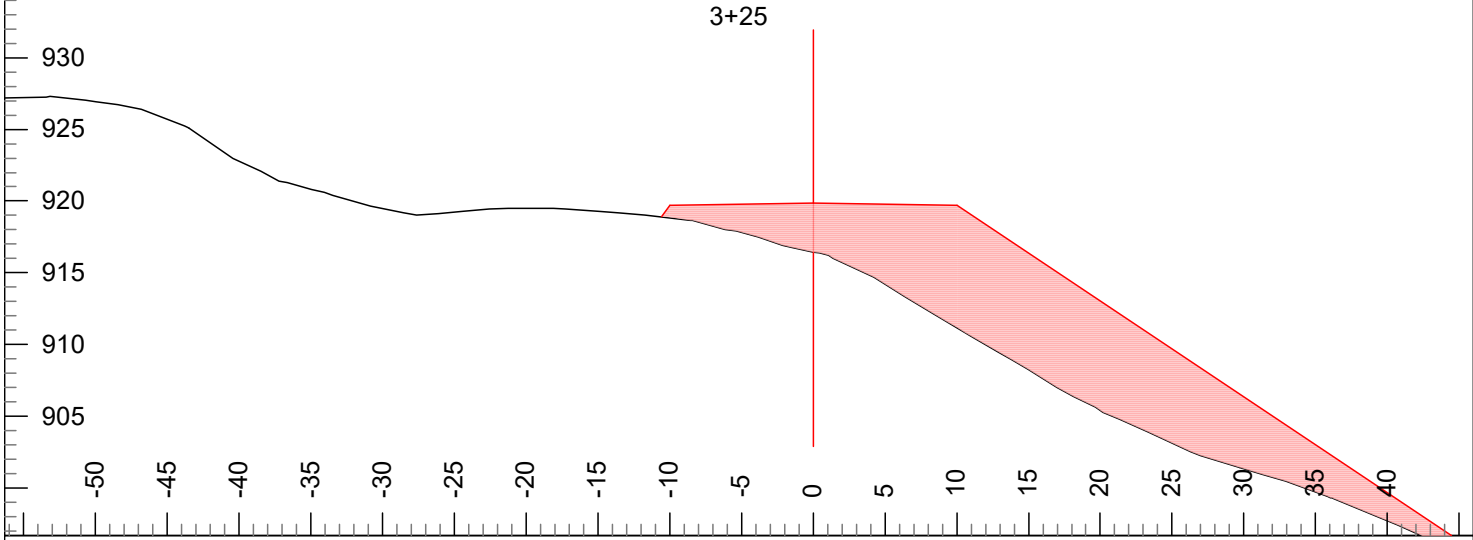
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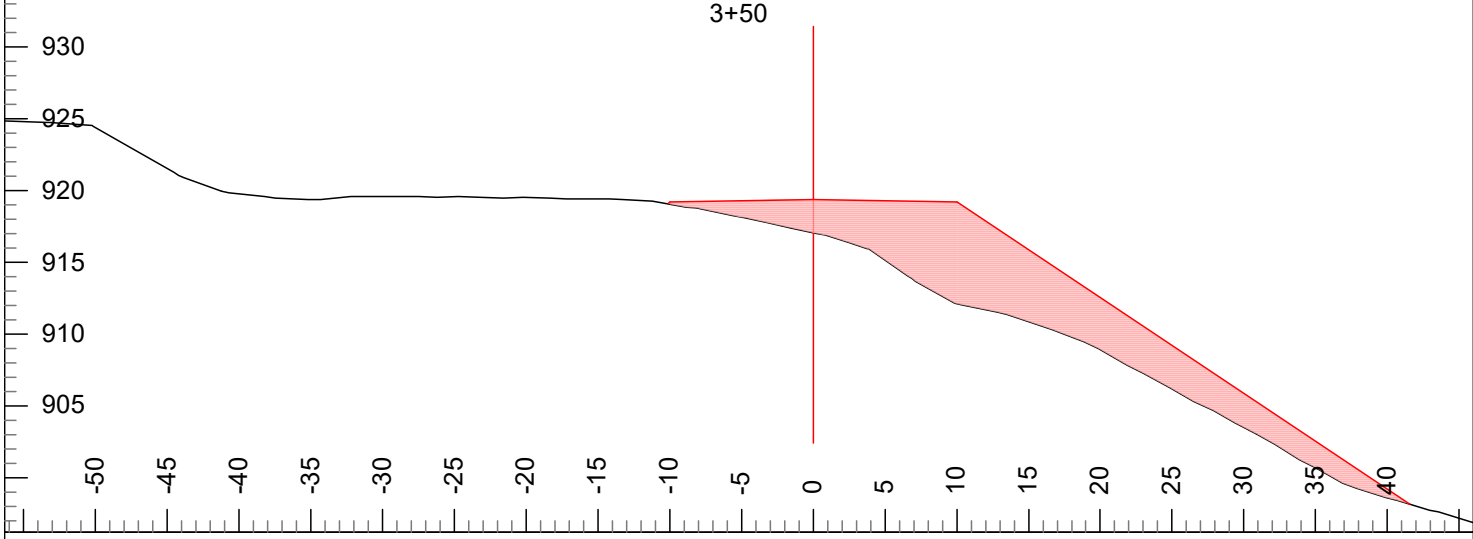
L-Stn : 2+75 Grd.Nxt.: -2.0 L-Ssl: 14.2 Super L: -2.0 F Slope L: 0  
 Cut Dp: 1 Grd.Lst: -2.0 L-Ssr: -21.6 Super R: -2.0 F Slope R: -100



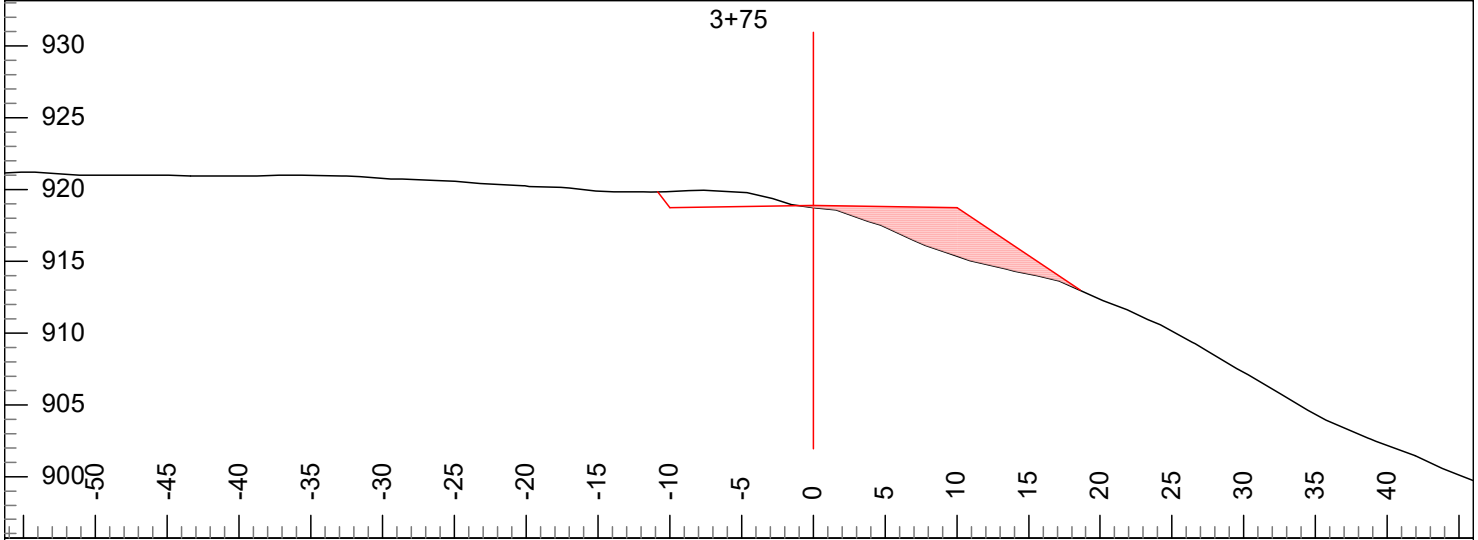
L-Stn :	3+00	Grd.Nxt.:	-2.0	L-Ssl:	2.9	Super L:	-2.0	F Slope L:	-133
Cut Dp:	-2	Grd.Lst:	-2.0	L-Ssr:	-15.3	Super R:	-2.0	F Slope R:	-67



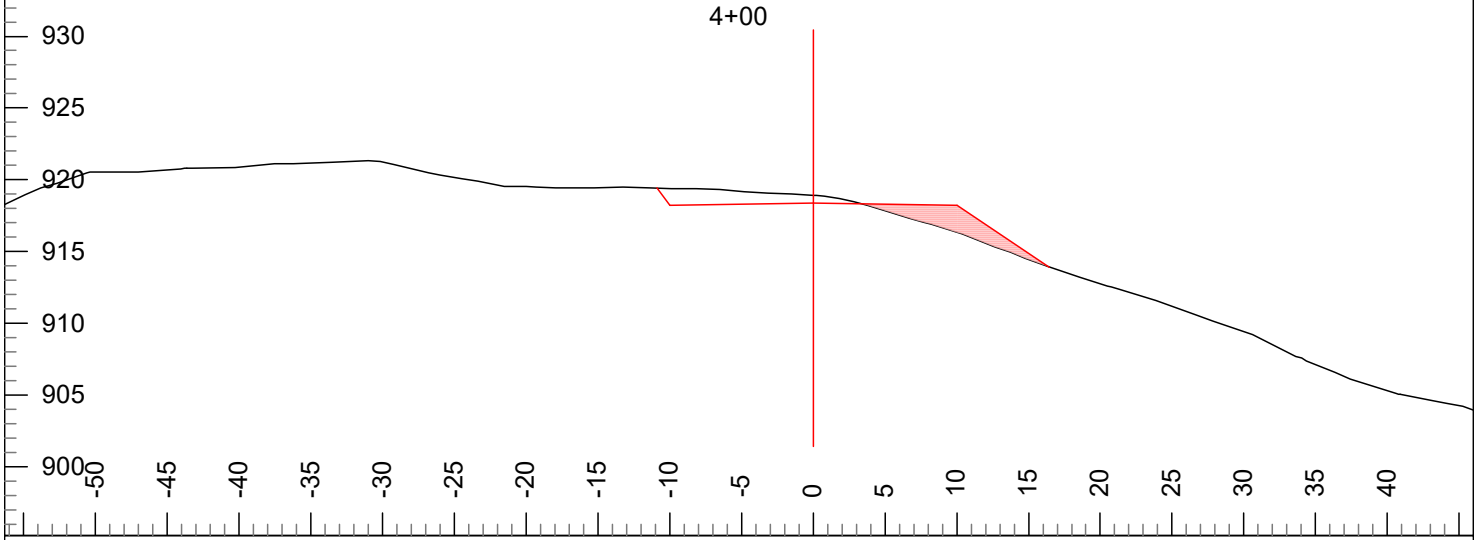
L-Stn :	3+25	Grd.Nxt.:	-2.0	L-Ssl:	23.8	Super L:	-2.0	F Slope L:	-133
Cut Dp:	-3	Grd.Lst:	-2.0	L-Ssr:	-53.0	Super R:	-2.0	F Slope R:	-67



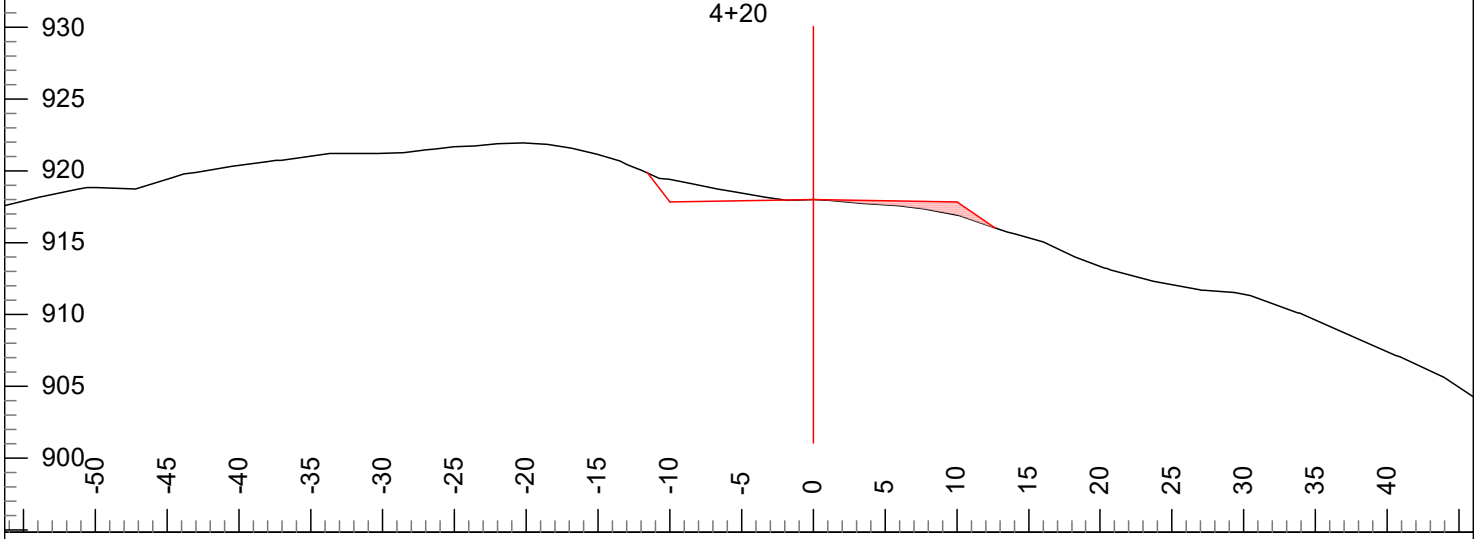
L-Stn :	3+50	Grd.Nxt.:	-2.0	L-Ssl:	20.0	Super L:	-2.0	F Slope L:	-133
Cut Dp:	-2	Grd.Lst:	-2.0	L-Ssr:	-49.5	Super R:	-2.0	F Slope R:	-67



L-Stn : 3+75 Grd.Nxt.: -2.0 L-Ssl: 11.0 Super L: -2.0 F Slope L: 133  
 Cut Dp: 0 Grd.Lst: -2.0 L-Ssr: -34.0 Super R: -2.0 F Slope R: -67



L-Stn : 4+00 Grd.Nxt.: -2.0 L-Ssl: 4.7 Super L: -2.0 F Slope L: 133  
 Cut Dp: 1 Grd.Lst: -2.0 L-Ssr: -25.9 Super R: -2.0 F Slope R: -67



L-Stn : 4+20 Grd.Nxt.: n/a L-Ssl: 14.0 Super L: -2.0 F Slope L: 133  
 Cut Dp: 0 Grd.Lst: -2.0 L-Ssr: -10.8 Super R: -2.0 F Slope R: -67

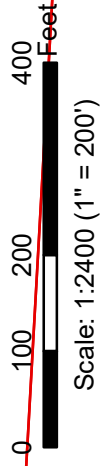
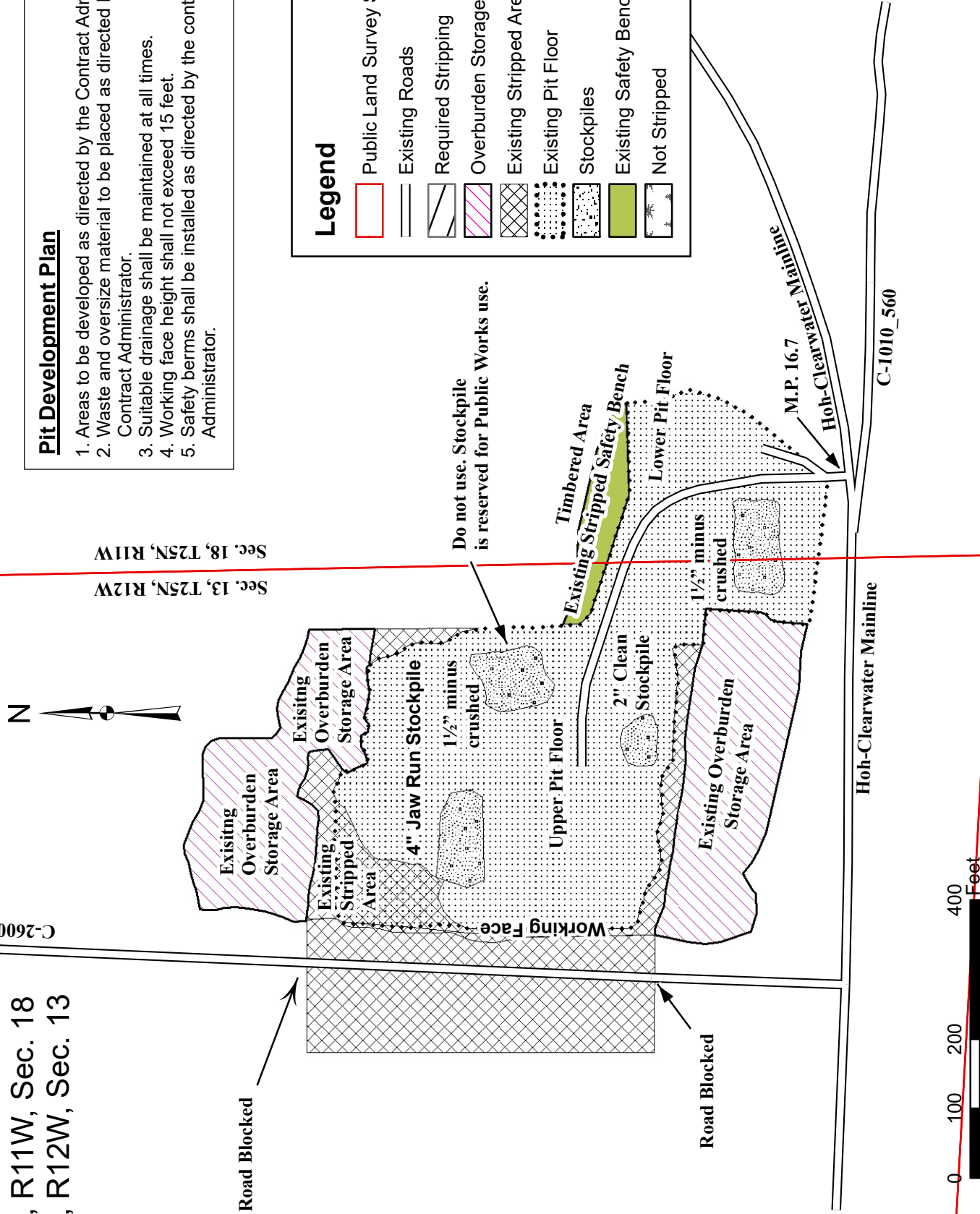
**COPPER PIT PLAN**  
**T25N, R11W, Sec. 18**  
**T25N, R12W, Sec. 13**

- Pit Development Plan**
1. Areas to be developed as directed by the Contract Administrator.
  2. Waste and oversize material to be placed as directed by the Contract Administrator.
  3. Suitable drainage shall be maintained at all times.
  4. Working face height shall not exceed 15 feet.
  5. Safety berms shall be installed as directed by the contract Administrator.

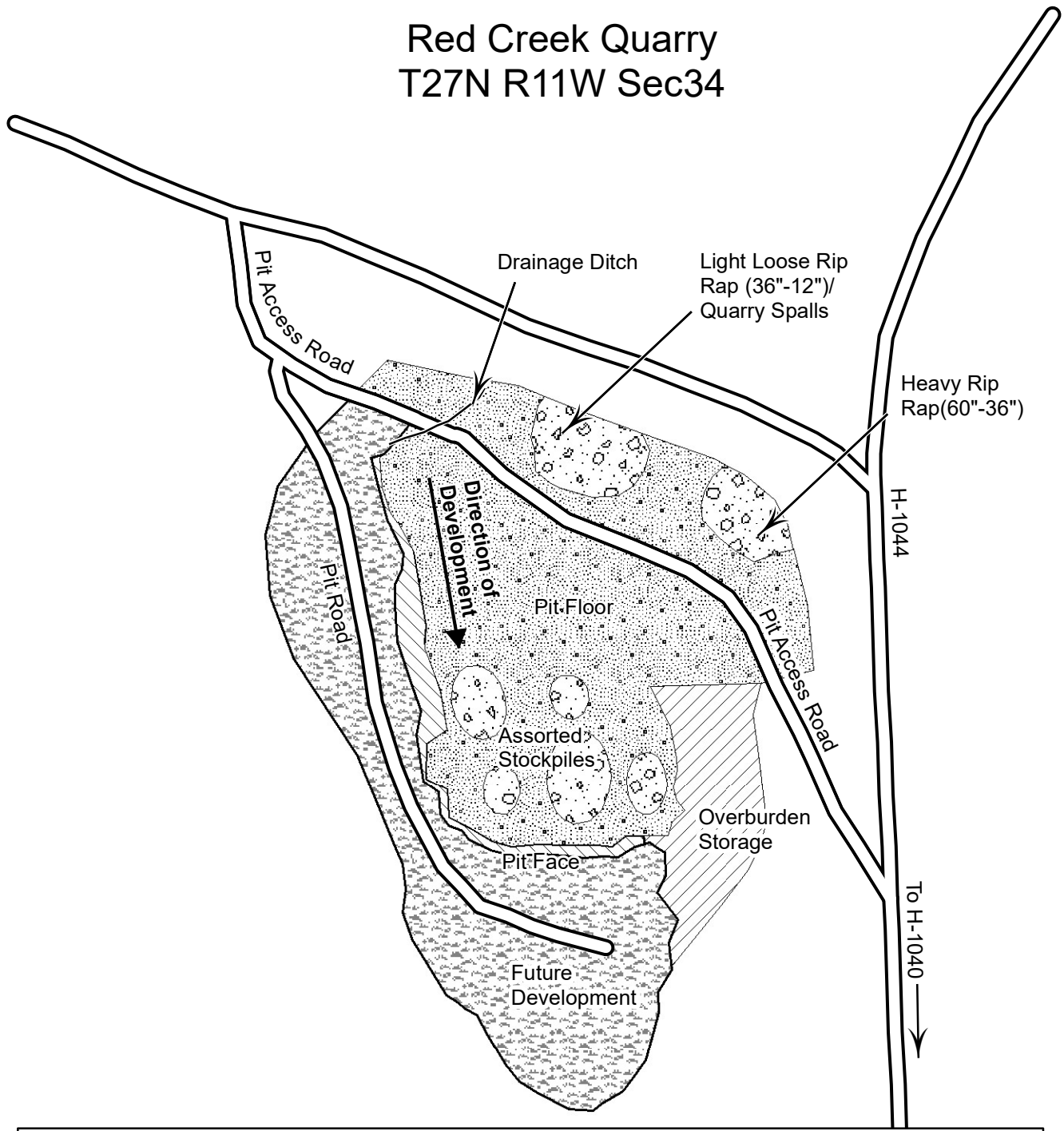
Sec. 13, T25N, R12W  
 Sec. 18, T25N, R11W

**Legend**

	Public Land Survey Sections
	Existing Roads
	Required Stripping
	Overburden Storage
	Existing Stripped Area
	Existing Pit Floor
	Stockpiles
	Existing Safety Bench
	Not Stripped

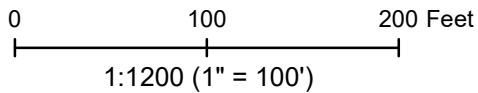


# Red Creek Quarry T27N R11W Sec34



## 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.



## Legend

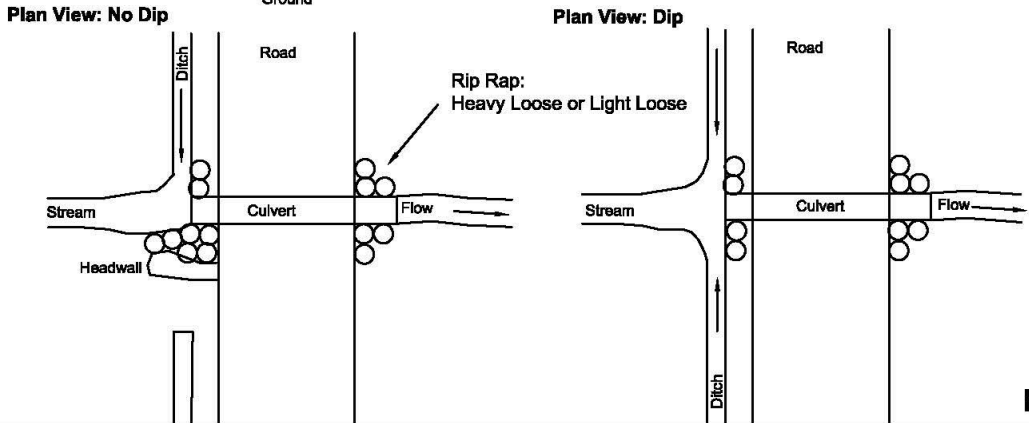
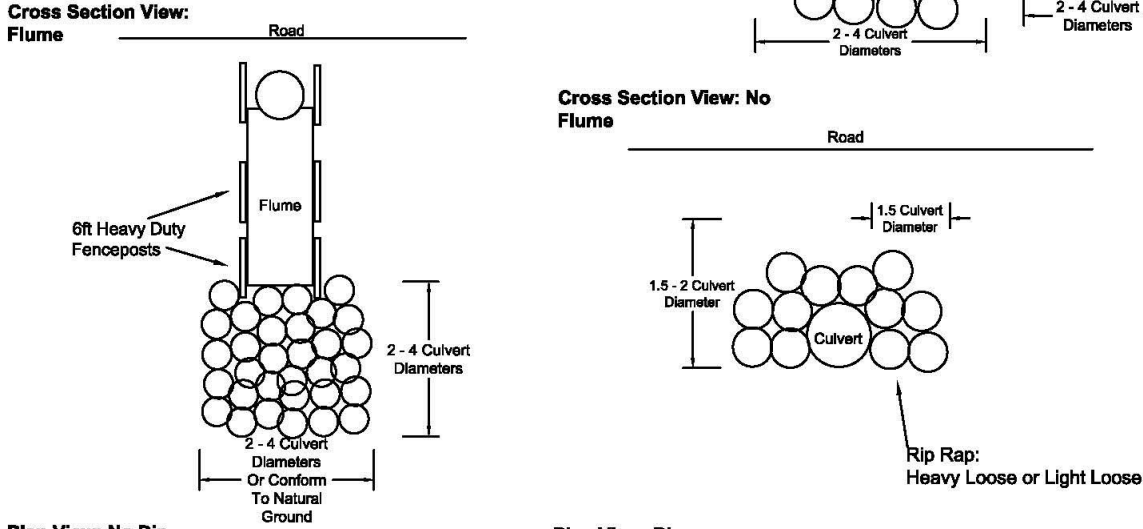
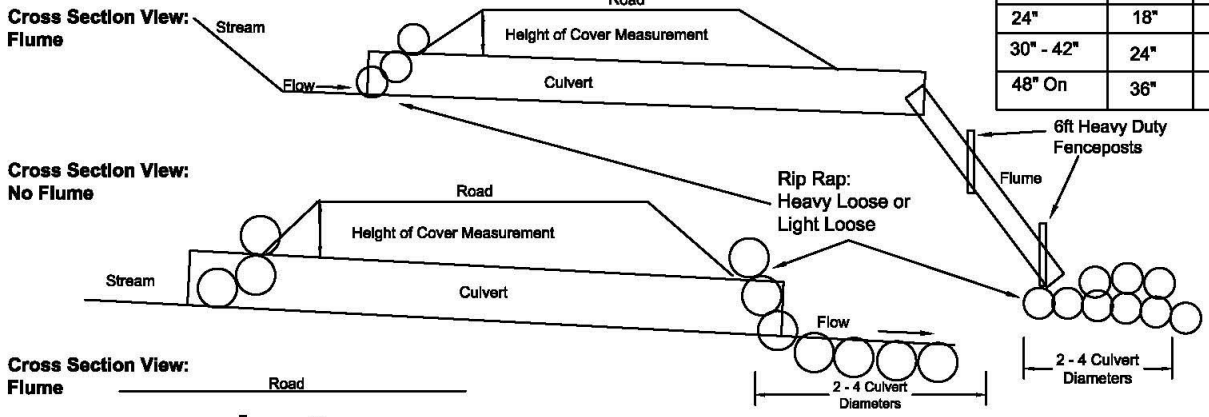
- Pit Access Road
- Stockpiles
- Pit Face
- Overburden Storage
- Unsorted Stockpile
- Future Development
- Pit Floor



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

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

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

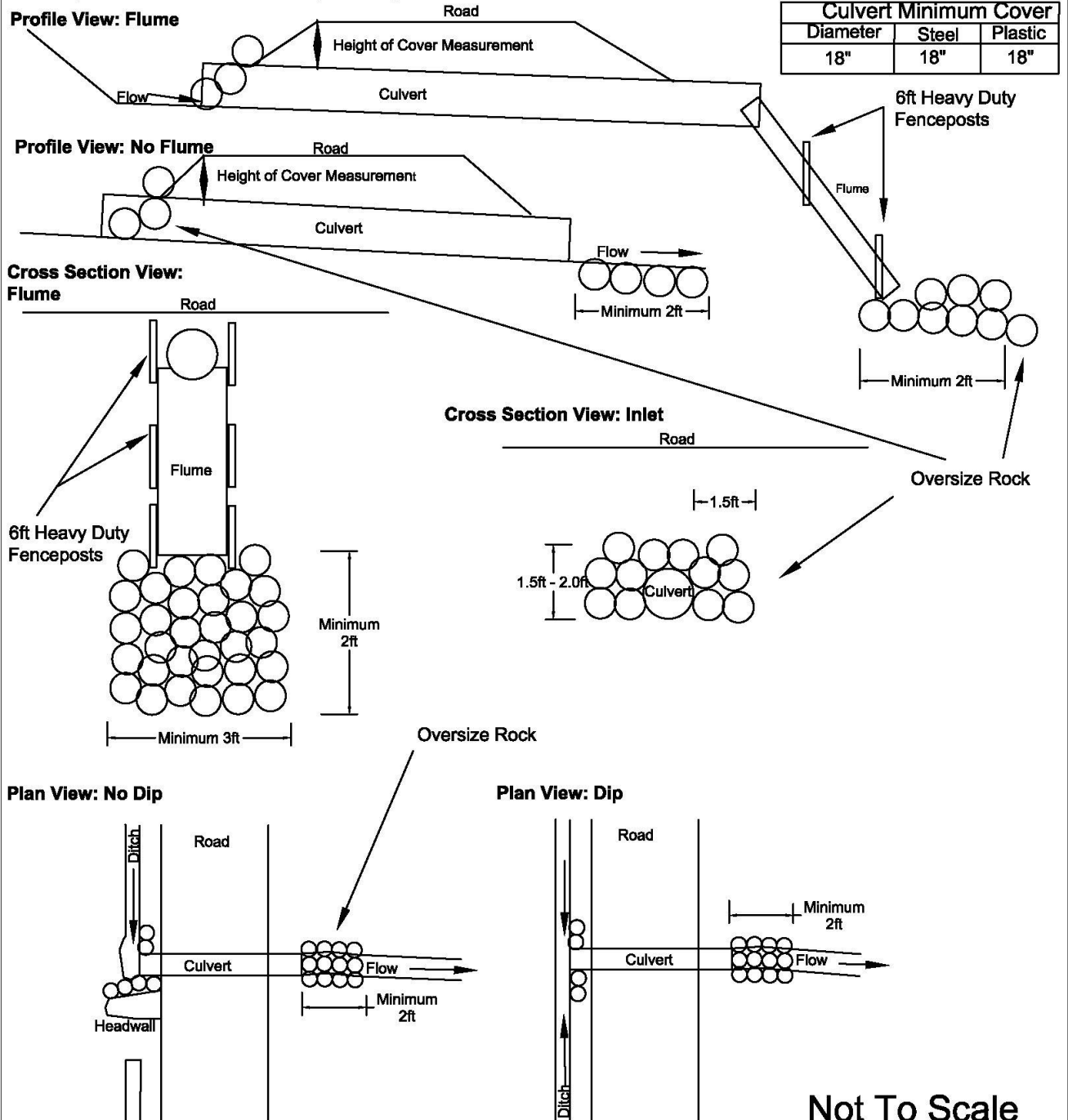


**Not To Scale**



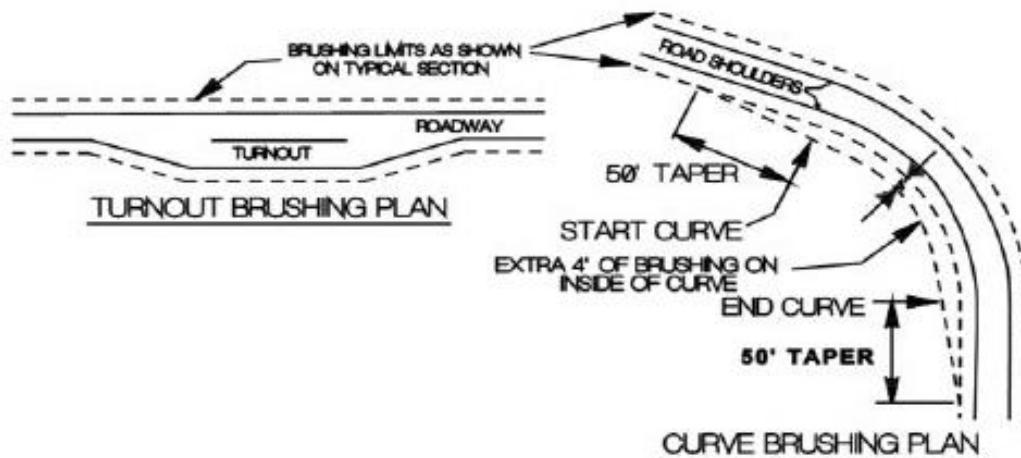
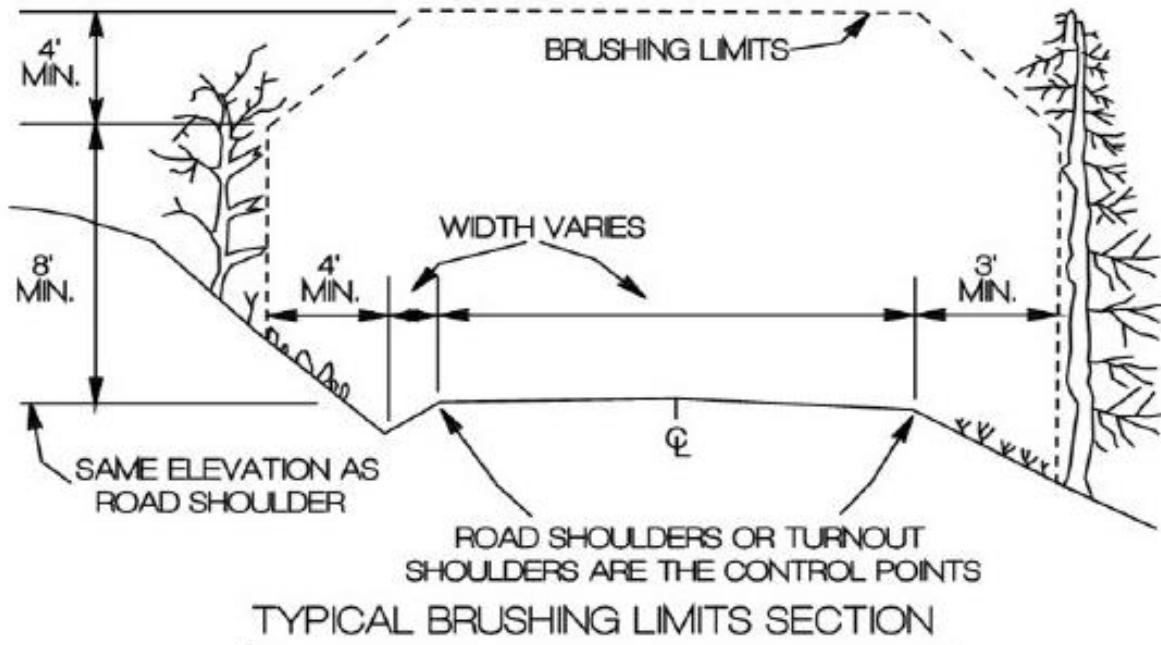
# Typical Cross Drain Culvert Installation Detail Sheet

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



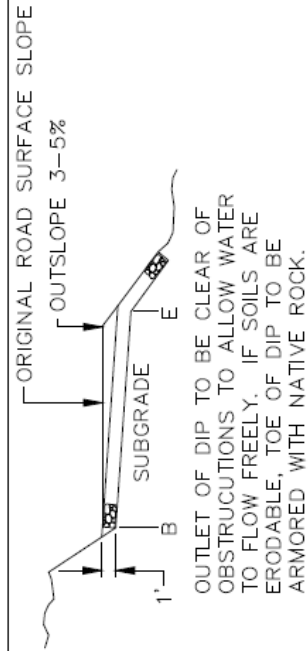
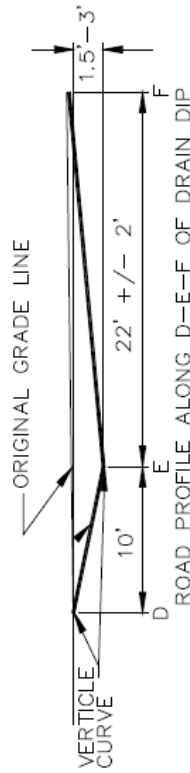
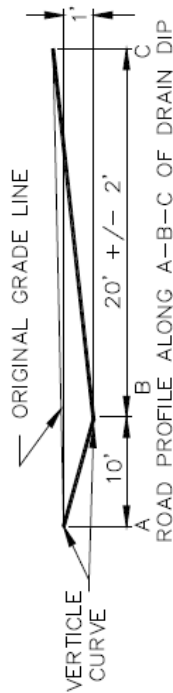
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# BRUSHING DETAIL

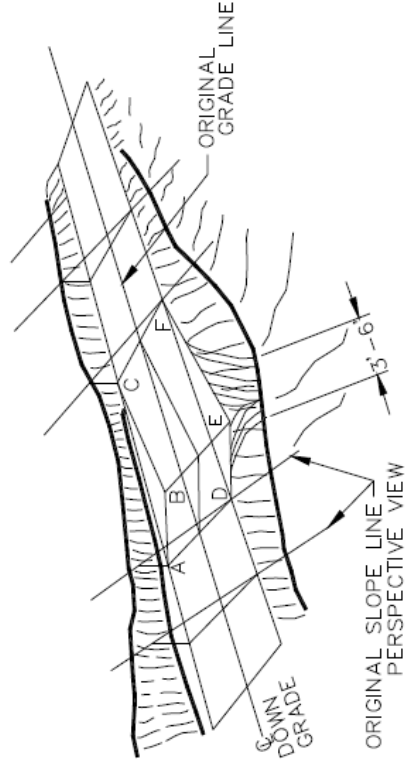


- 1) ALL VEGETATION WITHIN THE BRUSHING LIMITS SHALL BE CUT TO WITHIN 8' OF THE GROUND, UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR.
- 2) ALL BRUSH, TREES, LIMBS, ETC. SHALL BE REMOVED FROM THE ROAD SURFACE.
- 3) ALL BRUSH, TREES, LIMBS, ETC. THAT MAY RESTRICT THE FLOW OF WATER SHALL BE REMOVED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

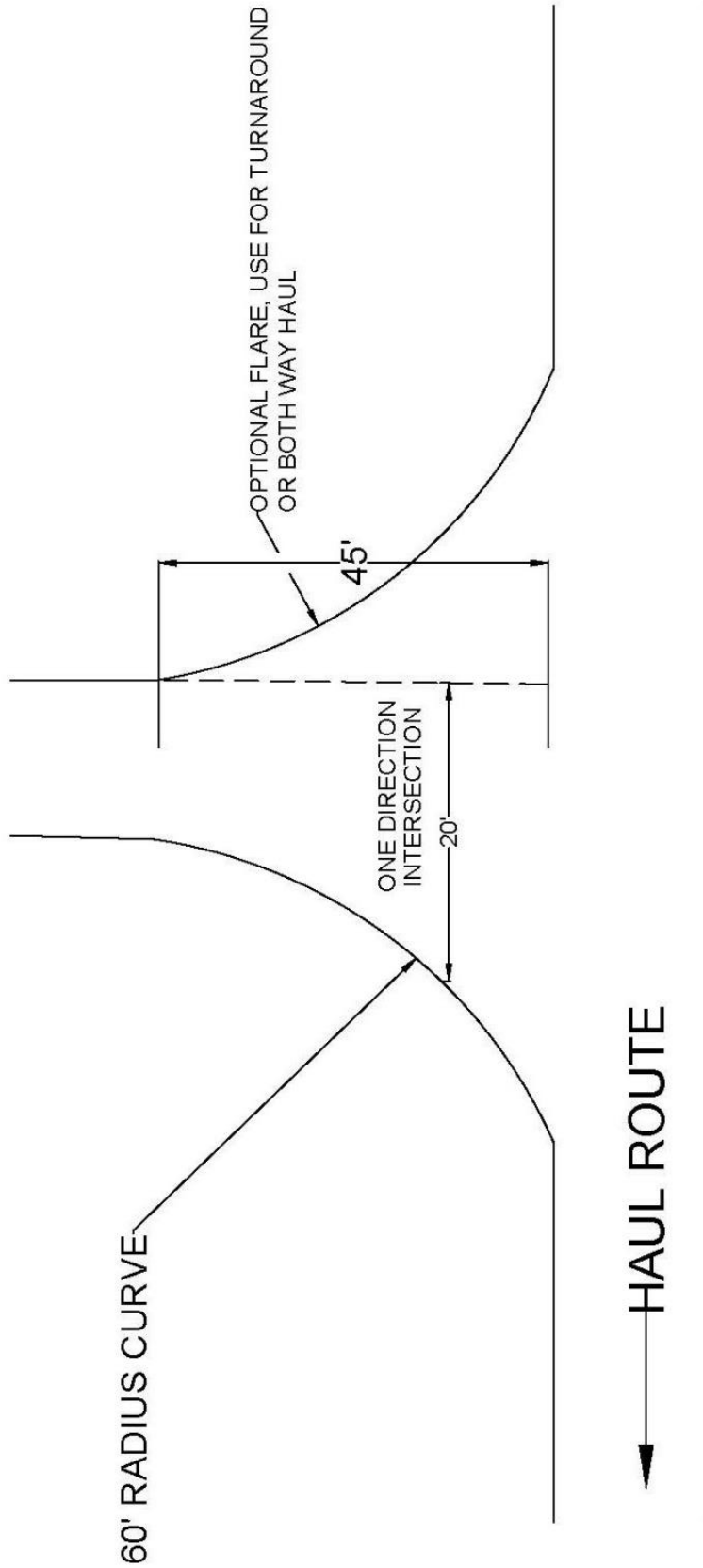
# ROLLING DIP DETAIL



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 OUTSLOPED, 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.



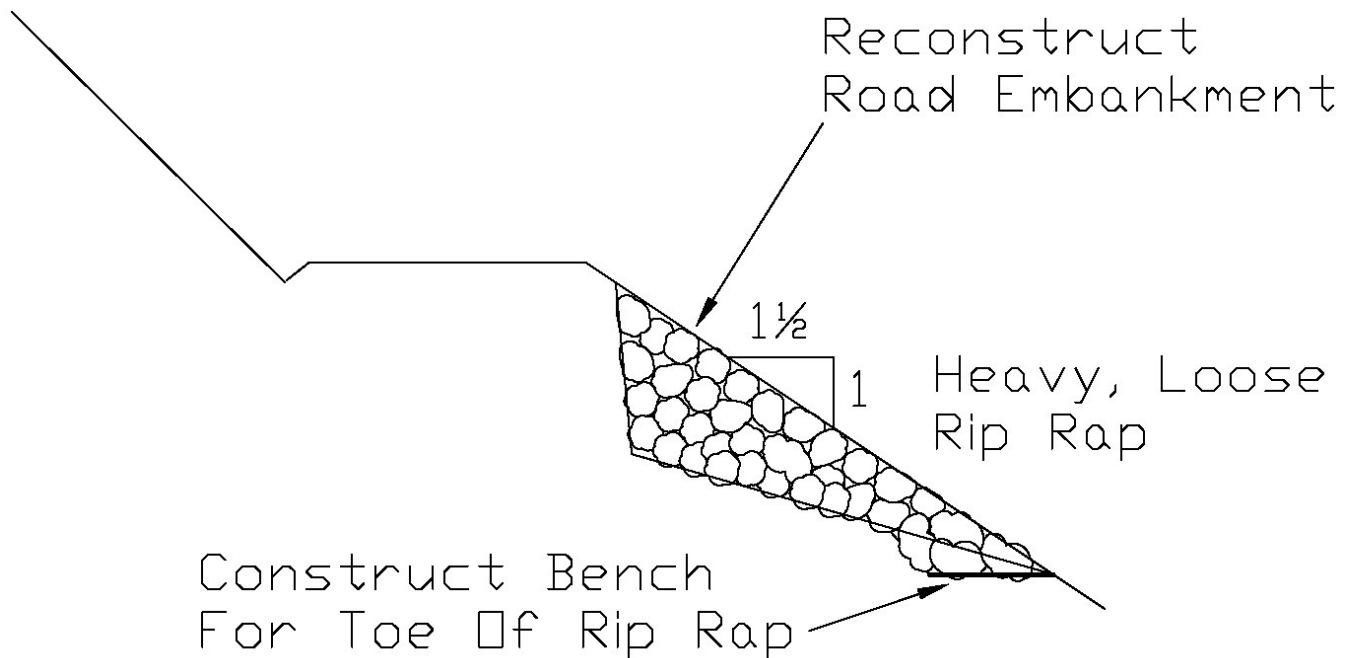
# TYPICAL INTERSECTION



NOT TO SCALE

# Typical Embankment Key Detail

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



## 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

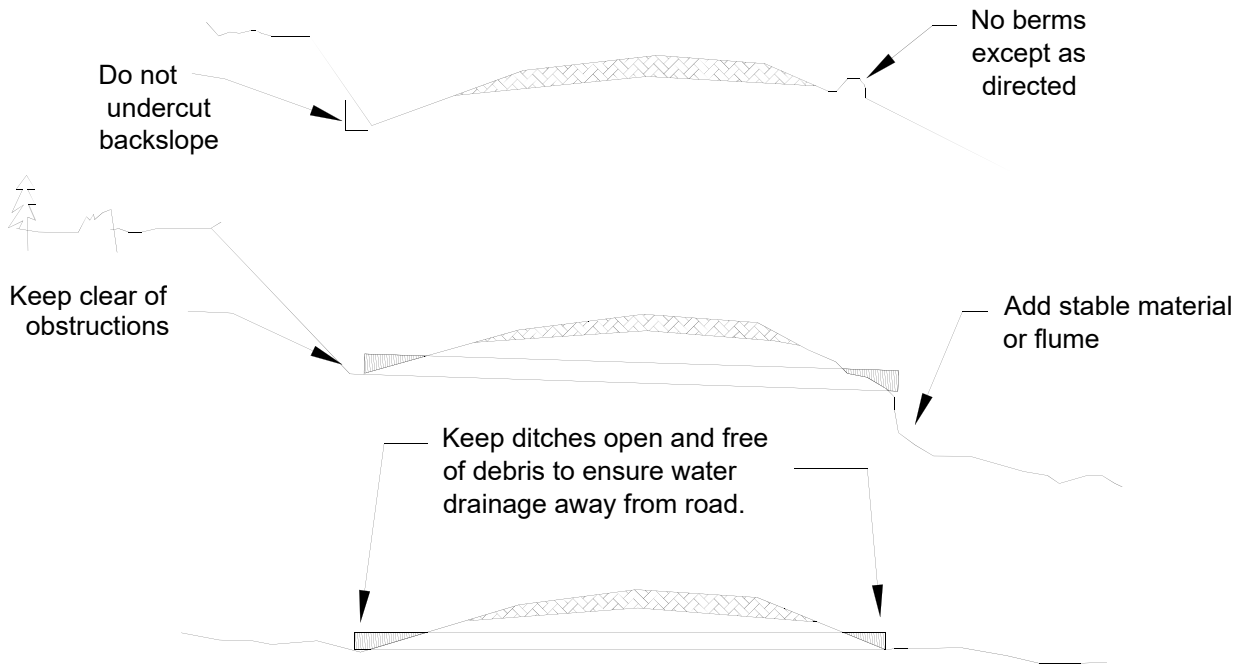
Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

### Termination of Use or End of Season

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

### Debris

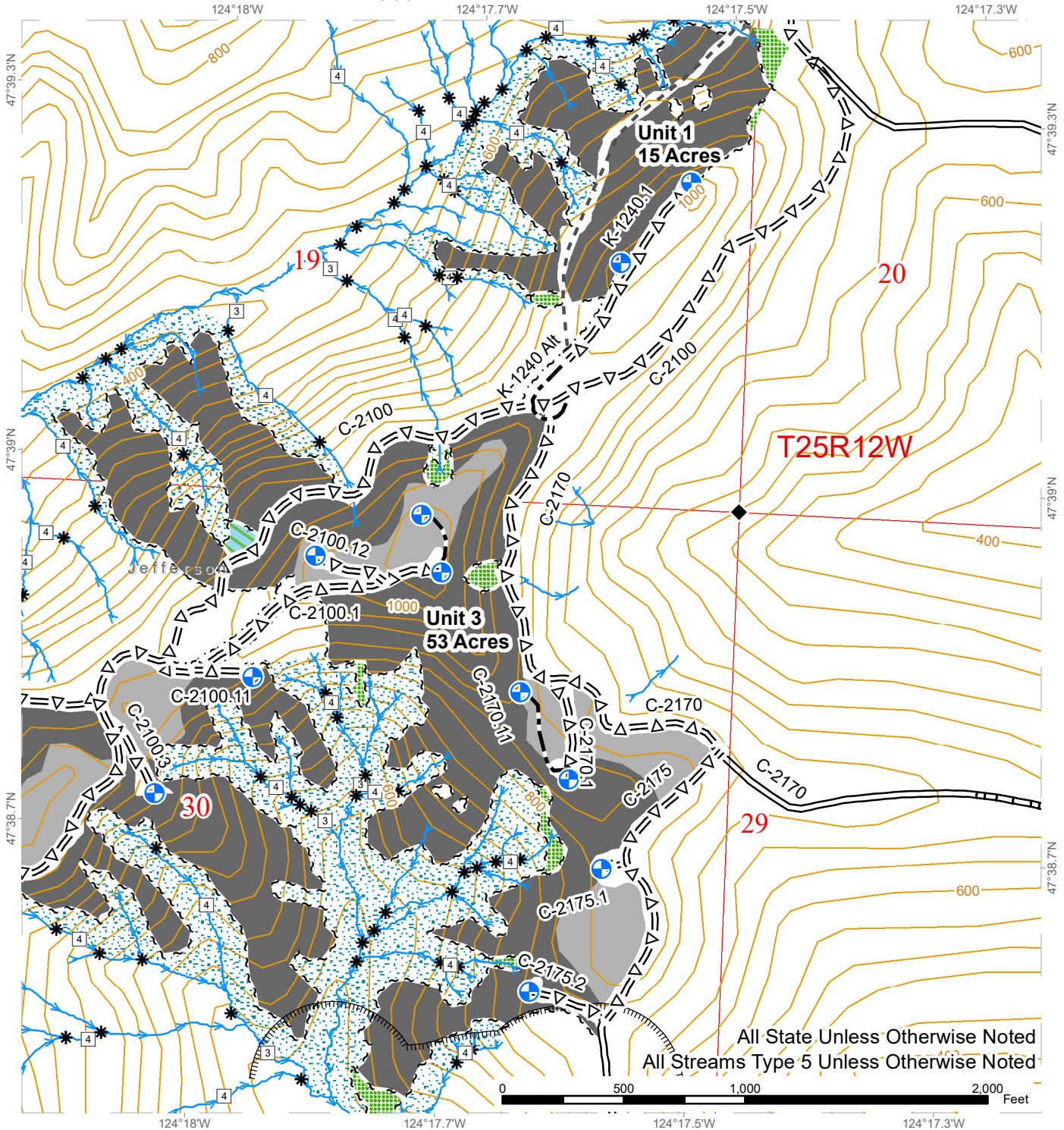
Remove fallen timber, limbs, and stumps from the slopes, roadway, ditchlines, and culvert inlets.



# LOGGING PLAN MAP

**SALE NAME:** T3 KALALOCH EAST  
**AGREEMENT#:** 30-102258  
**TOWNSHIP(S):** T25R12W, T25R13W  
**TRUST(S):** Common School and Indemnity (3)

**REGION:** Olympic Region  
**COUNTY(S):** Jefferson  
**ELEVATION RGE:** 300' - 1090'



All State Unless Otherwise Noted  
 All Streams Type 5 Unless Otherwise Noted

Ground VRH	Timing Restriction	Opt. Pre-haul Maintenance
Cable VRH	Streams	Contours 40-foot
Non-Tradeable Leave Clump	Stream Type	Survey Monument
Leave Tree Area	Stream Type Break	Property Boundary
Riparian Mgt Zone	Landing	Public Land Survey Sections
Sale Boundary Tags	Existing Road	Public Land Survey Townships
Leave Tree Tags	Non-drivable Road	
Right of Way Tags	Opt. New Construction	

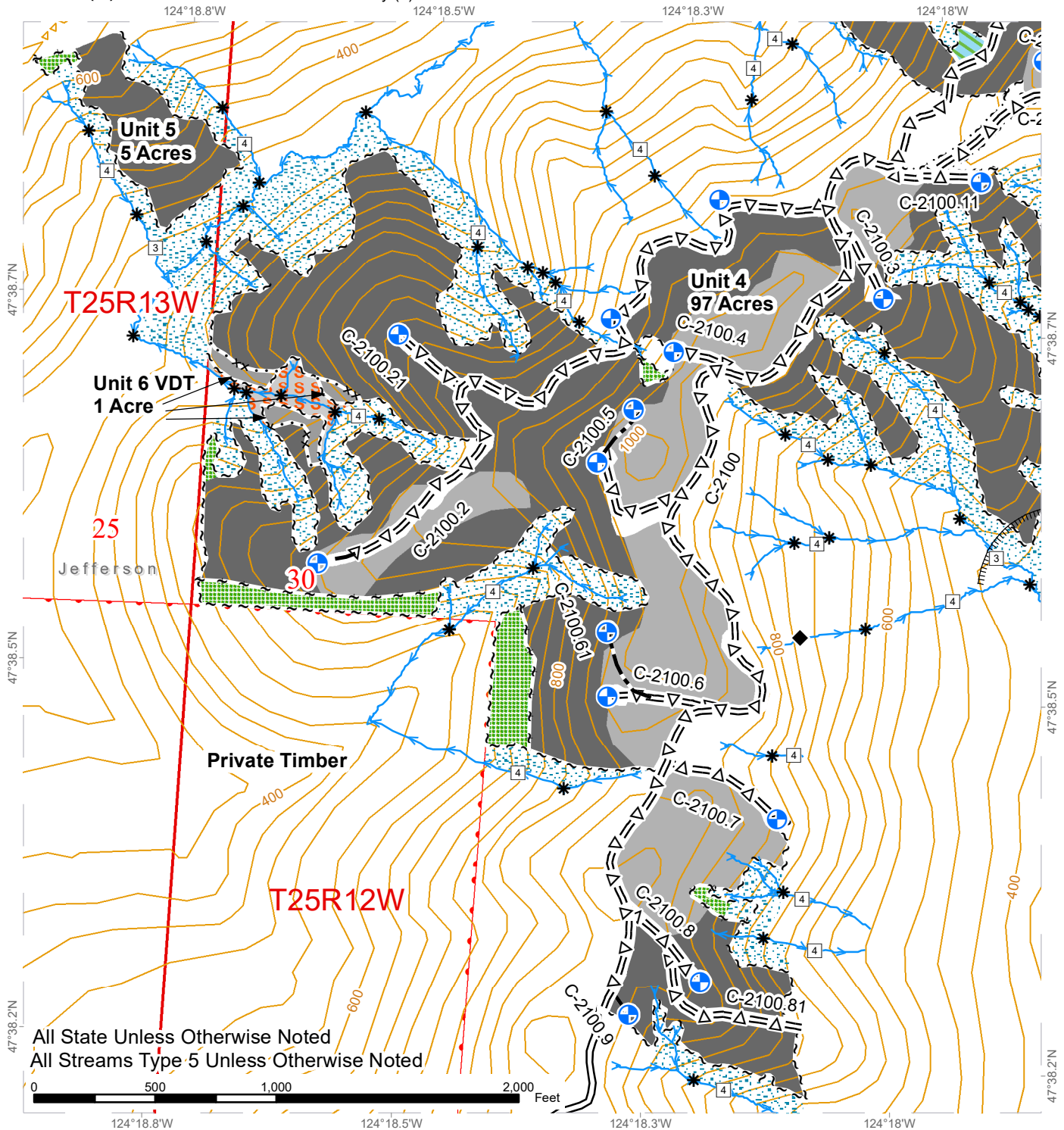




# LOGGING PLAN MAP

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All State Unless Otherwise Noted  
 All Streams Type 5 Unless Otherwise Noted

Cable VDT	Special Mgmt Area	Existing Road
Ground VRH	Leave Tree Tags	Opt. New Construction
Cable VRH	Right of Way Tags	Opt. Pre-haul Maintenance
Skip	Timing Restriction	Contours 40-foot
Non-Tradeable Leave Clump	Streams	Survey Monument
Leave Tree Area	Stream Type	Property Boundary
Riparian Mgt Zone	Stream Type Break	Public Land Survey Sections
Sale Boundary Tags	Landing	Public Land Survey Townships

