



TIMBER NOTICE OF SALE

SALE NAME: T3 KALALOCH WEST

AGREEMENT NO: 30-102259

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

COUNTY: Jefferson

SALE LOCATION: Sale located approximately 35 miles south of Forks WA

PRODUCTS SOLD AND SALE AREA:

All timber, except trees marked with a band of blue paint or bounded out by leave tree area tags; bounded by timber sale boundary tags, timber type change, prescription boundary (trees marked with orange paint), the K-1100 Road and the K-1104.1 Road in Unit 1; timber sale boundary tags, prescription boundary (trees marked with orange paint), timber type change, and the K-1000 Road in Unit 2; timber sale boundary tags, the K-1100 Road and the K-1105 Road in Unit 3; timber sale boundary tags and the K-1105 Road in Units 4 and 5; timber sale boundary tags, timber type change and the K-1031 Road in Unit 6; timber sale boundary tags, timber type change, the K-1000 Road and the K-1031 Road in Unit 7; timber sale boundary tags and the K-1000 Road in Unit 8; timber sale boundary tags and special management area boundary tags in Unit 9; timber sale boundary tags and the K-1050 Road in Unit 10; timber sale boundary tags and the K-1050 Road in Unit 11; prescription boundary (trees marked with orange paint), the K-1000 Road, K-1005 Road and the 3+00 spur in Unit 12; timber sale boundary tags, timber type changer, prescription boundary (trees marked with orange paint), the K-1000 Road, K-1005 Road, K-1007 Road and the 3+40 spur in Unit 13; timber sale boundary tags and the K-1005 Road in Unit 14; timber sale boundary tags, timber type change and the K-1000 Road in Unit 15.

All timber, except trees described in Schedule C, bounded by timber sale boundary tags and special management unit boundary tags in Units 16 and 17.

All timber bounded by right of way boundary tags.

All forest products above located on part(s) of Sections 14, 22, 23 and 27 all in Township 25 North, Range 13 West, W.M., containing 129 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:

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

MINIMUM BID: \$42,000.00

BID METHOD: Sealed Bids

PERFORMANCE SECURITY:

\$8,400.00

SALE TYPE: Lump Sum



## TIMBER NOTICE OF SALE

**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 - 30%/Uphill Cable - 70%. 30' Equipment Limitation Zones on all typed waters. Rubber tired skidders will not be allowed unless skidding and rutting requirements can be met and a harvest plan is submitted and approved by the Contract Administrator.

**ROADS:** 1.00 stations of required reconstruction. 23.00 stations of optional construction. 26.00 stations of optional reconstruction. 523.15 stations of required prehaul maintenance. 123.85 stations of optional prehaul maintenance. 13.60 stations of decommissioning. Bridge removals and installations are restricted from October 1 through June 30 - see road plan for details and locations. No road activities, including haul Road construction will not be permitted from October 15 to April 15 unless authorized in writing by the Contract Administrator on the K-1031 (stations 0+00 - 25+00). On portions of the K-1000, K-1100 and N-1100 Roads (see road plan for locations), any 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. This restriction does not apply to hauling timber, rock or equipment.

### ACREAGE DETERMINATION

**CRUISE METHOD:** Sale acreage was 99% GPS'd and 1% estimated. Sale units were cruised using a variable plot sample.

**FEES:** Within seven days of auction, Purchaser must provide the DNR with a cashiers check made payable to Bavarian Timber 2015, LLC in the amount of \$1,199.72, for a Road Use Permit. \$46,886.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

**SPECIAL REMARKS:** There are locked gates located on the North and South Winfield Pits - contact the Olympic Region Dispatch Center at 360-374-2800 to obtain a AA-1 key.

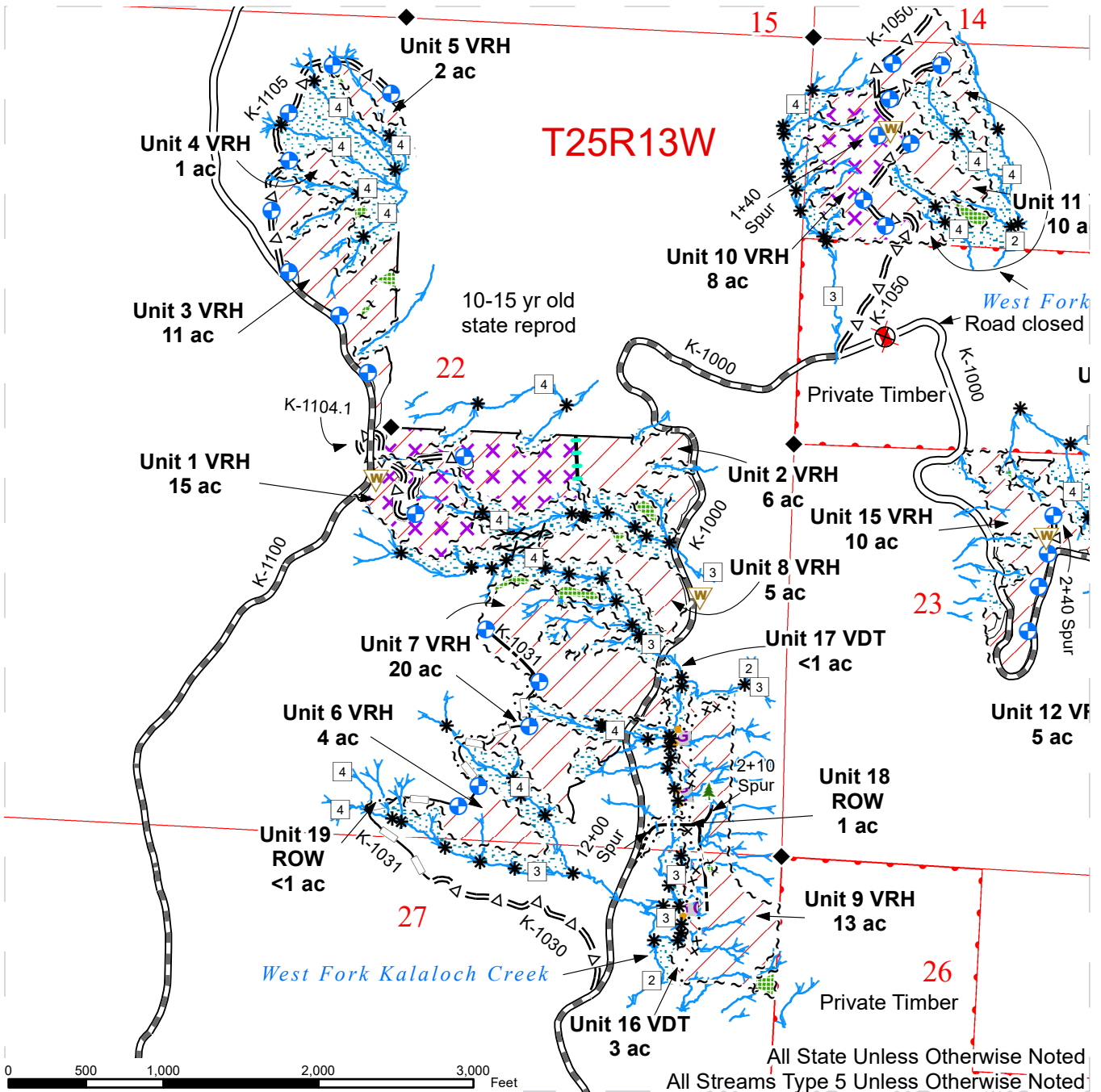
Trees which have been marked with a yellow paint ring at dbh are part of an ongoing T3 research project. These trees are to be high stumped - high stumps should be at least 4.5 feet. The trees with yellow paint are typically a small diameter tree.

THIS SALE DOES NOT HAVE THE OPTION OF BEING EXTENDED.

# TIMBER SALE MAP

**SALE NAME:** T3 KALALOCH WEST  
**AGREEMENT#:** 30-102259  
**TOWNSHIP(S):** T25R13W, T26R12W, T27R11W, T27R12W  
**TRUST(S):** Common School and Indemnity (3)

**REGION:** Olympic Region  
**COUNTY(S):** Jefferson  
**ELEVATION RGE:** 180'-920'

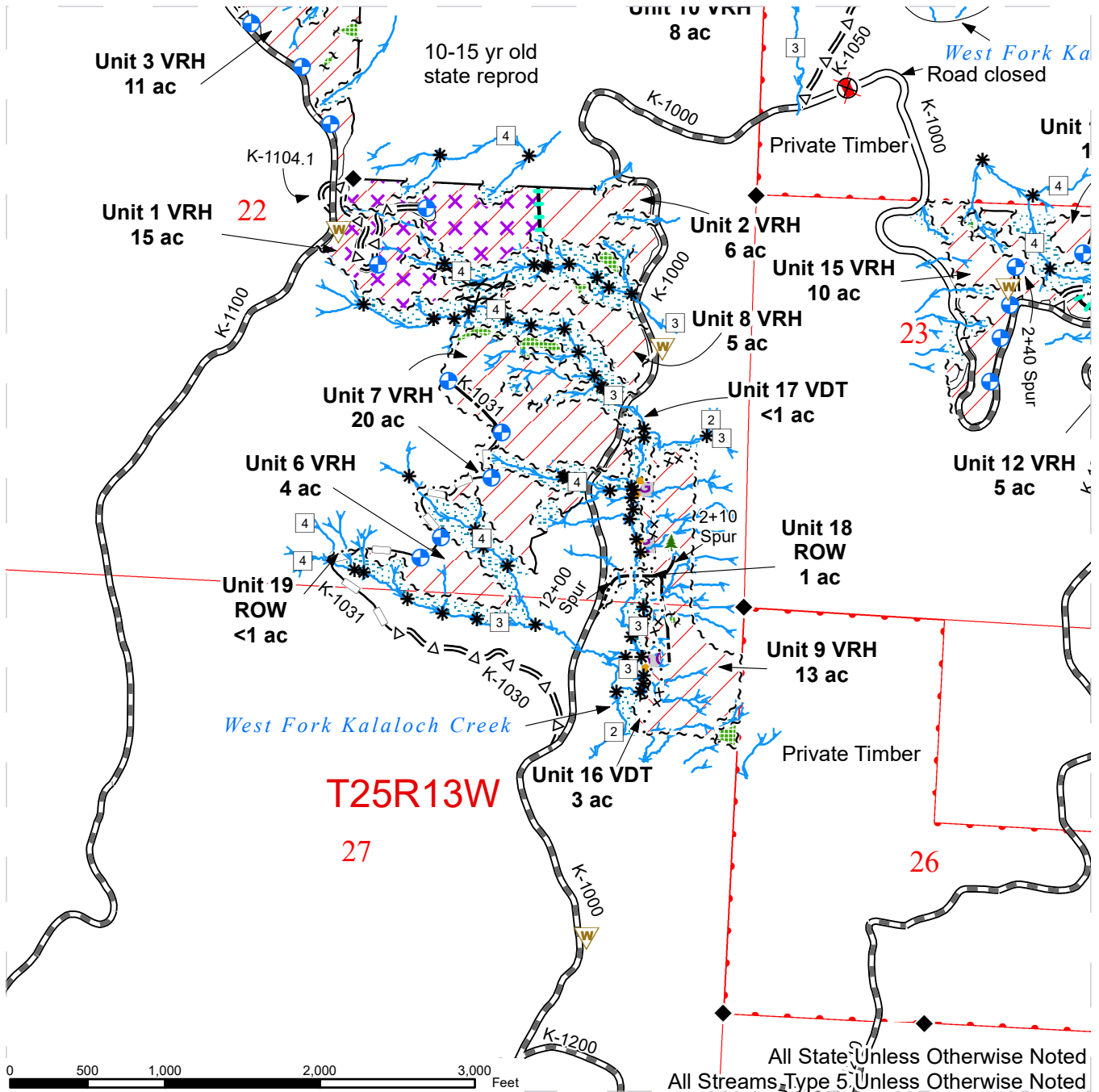


◆ Survey Monument	~ ~ ~ Right of Way Tags	▬ Required Pre-haul Maintenance	▬ Variable Density Thinning
□ Stream Type	~ ~ ~ Sale Boundary Tags	▬ Optional Construction	<b>Public Land Survey</b>
* Stream Break	• • • x Special Mgmt Area Tags	▬ Optional Reconstruction	□ Sections
⊗ Bridge Closed	— Timber Type Change	▬ Gap	▬ Townships
🌲 Leave Tree Area <1/4-acre	● ● ● Gap Last Tree Tags	▬ Leave Tree Area	▬ DNR Managed Lands
📍 Proposed Landing	▬ Unstable Slope Boundary Flag Line	▬ Riparian Mgt Zone	
🗑 Waste Area	▬ Prescription Boundary	✂ Slash Manipulation	
🌊 Streams	▬ Existing Road	<b>Harvest Type</b>	
🌲 Leave Tree Area Tags	▬ Optional Pre-haul Maintenance	▬ Variable Retention Harvest	

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🌲 Leave Tree Area Tags	▬ Optional Pre-haul Maintenance	▨ Variable Retention Harvest	

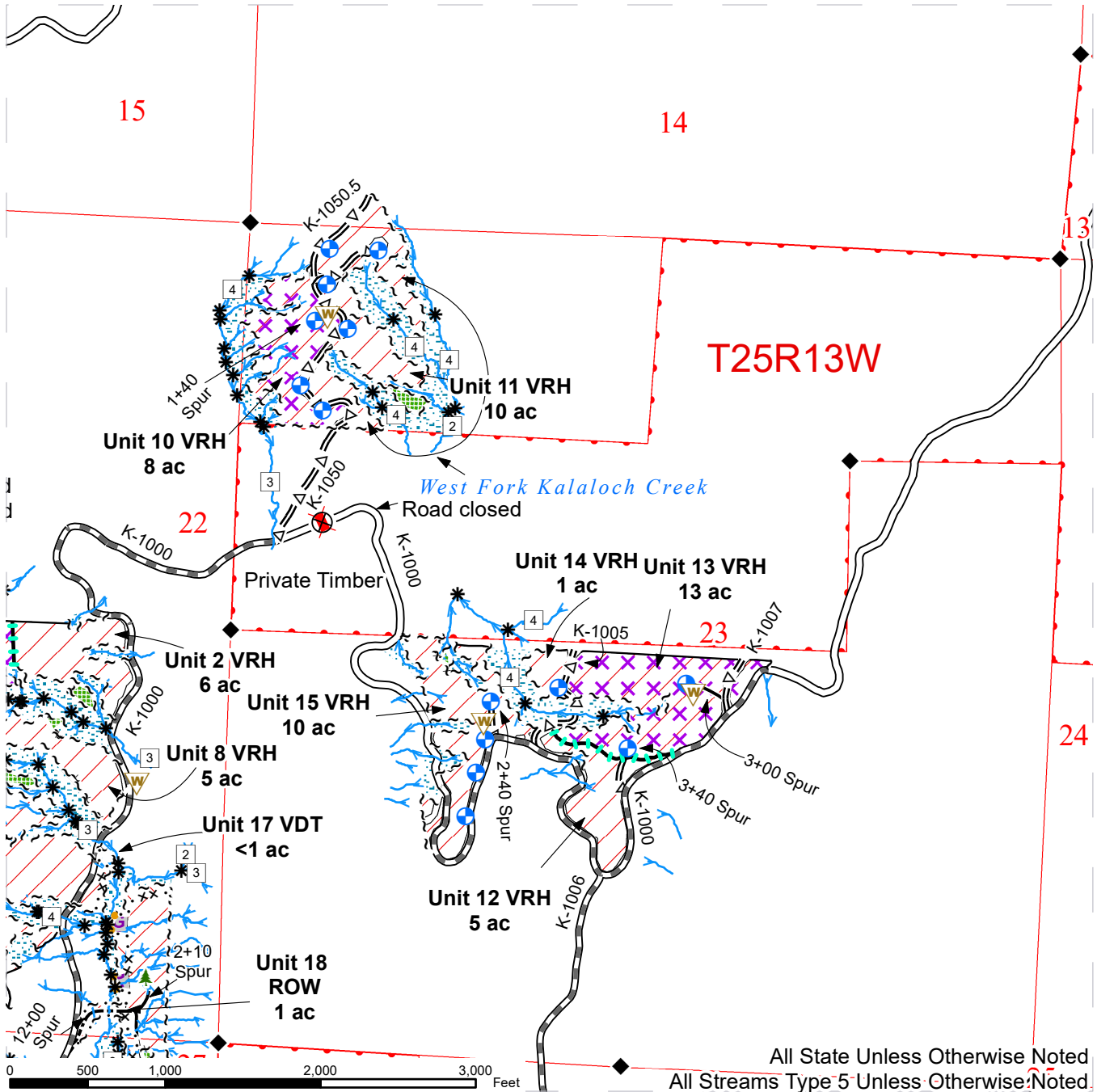




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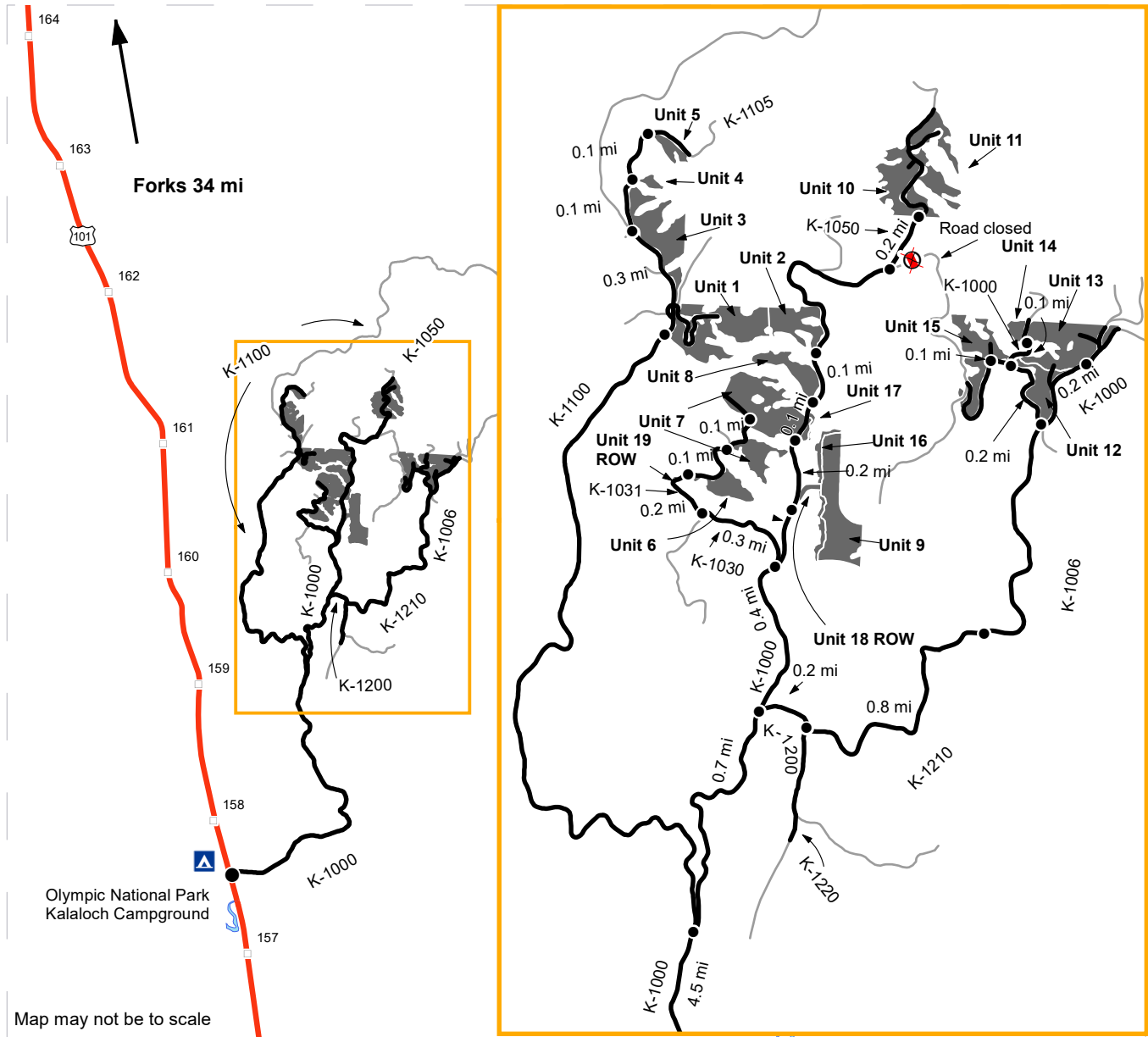
All State Unless Otherwise Noted  
 All Streams Type 5 Unless Otherwise Noted

◆ Survey Monument	~ ~ ~ Right of Way Tags	— Optional Construction	<b>Public Land Survey</b>
□ Stream Type	~ ~ ~ Sale Boundary Tags	⊞ Gap	□ Sections
* Stream Break	... x Special Mgmt Area Tags	▨ Leave Tree Area	▭ Townships
⊗ Bridge Closed	— Timber Type Change	▨ Riparian Mgt Zone	▭ DNR Managed Lands
🌲 Leave Tree Area <1/4-acre	— Gap Last Tree Tags	✕ Slash Manipulation	
📍 Proposed Landing	▨ Prescription Boundary	<b>Harvest Type</b>	
W Waste Area	— Existing Road	▨ Variable Retention Harvest	
🌊 Streams	⊞ Optional Pre-haul Maintenance	▨ Variable Density Thinning	
⊞ Leave Tree Area Tags	▨ Required Pre-haul Maintenance		

# DRIVING MAP 1

**SALE NAME:** T3 KALALOCH WEST  
**AGREEMENT#:** 30-102259  
**TOWNSHIP(S):** T25R13W, T26R12W, T27R11W, T27R12W  
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Map may not be to scale

- Milepost Markers
- Distance Indicator
- ⊘ Bridge Closed
- Highway
- Haul Route
- Other Roads
- Sale Area

## **DRIVING DIRECTIONS:**

Unit 1: From Forks WA, drive South on HWY 101 for 34 miles. Turn left on K-1000 and continue for 4.5 miles. Turn left on K-1100 and continue for 2.3 miles.  
 Unit 3: From Unit 1 continue on K-1100 for 0.3 miles.  
 Unit 4: From Unit 3 continue on K-1100 for 0.1 miles.  
 Unit 5: From Unit 4 continue on K-1100 for 0.1 miles.  
 Unit 6 & Unit 19 ROW: From the K-1100 and K-1000 junction continue on K-1000 for 1.1 miles. Turn left on K-1030 and continue for 0.3 miles. Turn right on K-1031 and continue for 0.2 miles.  
 Unit 7: From Unit 6 continue on K-1031 for 0.1 miles.  
 Unit 9 & Unit 16: From Unit 18 ROW travel by foot over Kalaloch Creek following the orange ribbon. Unit 16 is a riparian treatment in Unit 9.  
 Unit 17: From Unit 18 ROW continue on K-1000 for 0.1 miles to nit 7. Unit 17 is a riparian treatment in Unit 7.  
 Unit 8: From Unit 7 continue on K-1000 for 0.1 miles.  
 Unit 2: From Unit 8 continue on K-1000 for 0.1 miles.

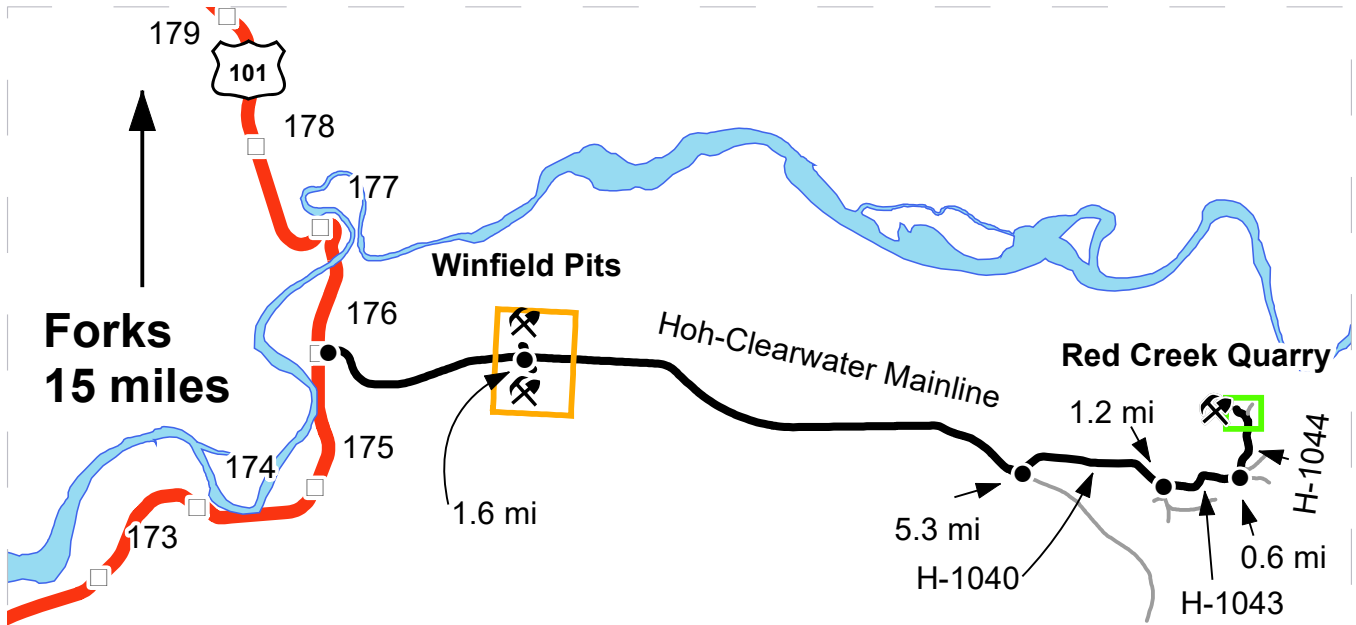
**Continued on Driving Directions pg. 2**



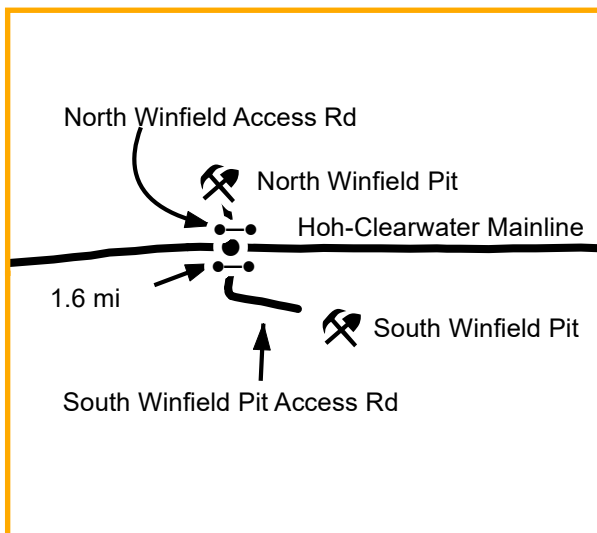
# DRIVING MAP 2

SALE NAME: T3 Kalaloch West  
 AGREEMENT#: 30-102259  
 TOWNSHIP(S): T25R13W, T26R12W, T27R11W, T27R12W  
 TRUST(S): Common School and Indemnity (3)

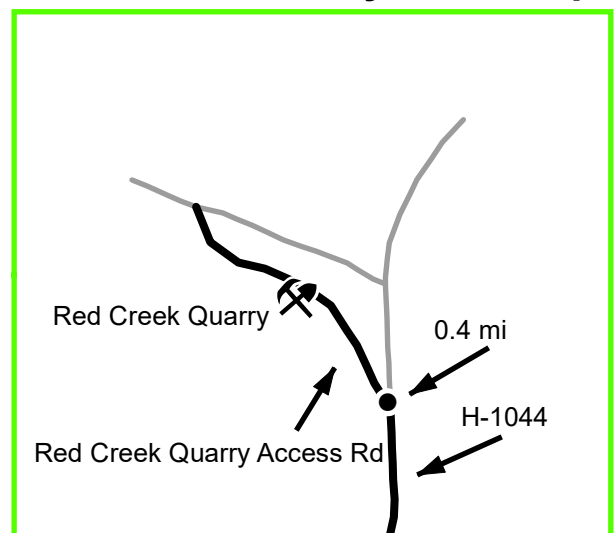
REGION: Olympic Region  
 COUNTY(S): Jefferson



**Winfield Pits Inset Map**



**Red Creek Quarry Inset Map**



Map may not be to scale

- Milepost Markers
- Distance Indicator
- Gate (<<AA-1>>)
- ⚒ Rock Pit
- Haul Route
- Other Road
- Open Water

**Driving Directions:**

**Winfield Pits:** From Forks, WA drive 15 miles South on Hwy 101. Turn left on Hoh-Clearwater Mainline and continue for 1.6 miles.  
 --Turn left to access Winfield North Pit.  
 --Turn right to access Winfield South Pit.

**Red Creek Quarry:** From Winfield Pits, continue on Hoh-Clearwater Mainline for 5.3 miles. Turn left on H-1040 and continue for 1.2 miles. Turn left on H-1043 and continue for 0.6 miles. Turn left on H-1044 and continue for 0.4 miles. Turn left on Red Creek Quarry access road.



## Driving Directions pg. 2

Unit 10 & 11: From Unit 2 continue on K-1000 for 0.6 miles. Turn left on K-1050 and continue for 0.2 miles.

Unit 12: From the K-1000 and K-1100 junction continue on K-1000 for 0.7 miles. Turn right on K-1200 and continue for 0.2 miles. Turn left on K-1210 and continue for 0.8 miles. Merge on K-1006 and continue for 0.7 miles.

Unit 13: From Unit 13 turn right on K-1000 and continue for 0.2 miles.

Unit 14: From Unit 13 turn left on K-1000 and continue for 0.2 miles. Turn right on K-1005 and continue for 0.1 miles.

Unit 15: From the K-1000 and K-1005 junction continue on the K-1000 for 0.1 miles.

**STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES**

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

**Export Restricted Lump Sum AGREEMENT NO. 30-0102259**

**SALE NAME: T3 KALALOCH WEST**

**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; bounded by timber sale boundary tags, timber type change, prescription boundary (trees marked with orange paint), the K-1100 Road and the K-1104.1 Road in Unit 1; timber sale boundary tags, prescription boundary (trees marked with orange paint), timber type change, and the K-1000 Road in Unit 2; timber sale boundary tags, the K-1100 Road and the K-1105 Road in Unit 3; timber sale boundary tags and the K-1105 Road in Units 4 and 5; timber sale boundary tags, timber type change and the K-1031 Road in Unit 6; timber sale boundary tags, timber type change, the K-1000 Road and the K-1031 Road in Unit 7; timber sale boundary tags and the K-1000 Road in Unit 8; timber sale boundary tags and special management area boundary tags in Unit 9; timber sale boundary tags and the K-1050 Road in Unit 10; timber sale boundary tags and the K-1050 Road in Unit 11; prescription boundary (trees marked with orange paint), the K-1000 Road, K-1005 Road and the 3+00 spur in Unit 12; timber sale boundary tags, timber type changer, prescription boundary (trees marked with orange paint), the K-1000 Road, K-1005 Road, K-1007 Road and the 3+40 spur in Unit 13; timber sale boundary tags and the K-1005 Road in Unit 14; timber sale boundary tags, timber type change and the K-1000 Road in Unit 15.

All timber, except trees described in Schedule C, bounded by timber sale boundary tags and special management unit boundary tags in Units 16 and 17.

All timber bounded by right of way boundary tags.

All forest products above located on approximately 129 acres on part(s) of Sections 14, 22, 23, and 27 all in Township 25 North, Range 13 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-106 Adding Naturally Damaged Forest Products

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

G-111 Title and Risk of Loss

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

G-116 Sustainable Forestry Initiative® (SFI) Certification

Forest products purchased under this contract are certified as being in conformance with the Sustainable Forestry Initiative program Standard under certificate number: 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; K-1000, K-1100, K-1200, K-1030, K-1031, K-1050, K1210, K-1206, K-1007, K-1005, K-1104.1, N-1000, N-1100, Upper Hoh Rd, H-3500, 3+00 spur, 2+10 spur, 12+00 spur, 1+40 spur, North and South

Winfield Pit Access roads, Red Creek Quarry Access 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-370 Blocking Roads

Purchaser shall not block the K-1000, K-1100, and K-1200 Roads, unless authority is granted in writing by the Contract Administrator.

G-380 Road Easement and Road Use Permit Requirements

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

55-104627 Bavarian Timber

55-104687 Olympic National Park

G-430 Open Fires

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

## Section P: Payments and Securities

## P-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 \$71,708.00. The total contract price consists of a \$0.00 contract bid price plus \$71,708.00 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 \$8,400.00. The Security provided shall



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

P-100 Performance Security Reduction

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

Section H: Harvesting Operations

H-001 Operations Outside the Sale Boundaries

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

H-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-015 Skid Trail Requirements

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

Purchaser shall comply with the following during the yarding operation:

- a. Skid trails will not exceed 12 feet in width, including rub trees.
- b. Skid trails shall not cover more than 15 percent of the total acreage on one unit.
- c. Skid trail location will be pre-approved by the Contract Administrator.
- d. Except for rub trees, skid trails shall be felled and yarded prior to the felling of adjacent timber.
- e. Rub trees shall be left standing until all timber tributary to the skid trail has been removed.
- f. Excessive soil damage is not permitted. Excessive soil damage is described in clause H-017.
- g. Skid trails will be water barred at the time of completion of yarding, if required by the Contract Administrator.

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

#### H-017 Preventing Excessive Soil Disturbance

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

#### H-050 Rub Trees

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

#### H-051 Branding and Painting

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

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

H-060 Skid Trail Locations

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

H-080 Snags Not to be Felled

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

H-120 Harvesting Equipment

Forest products sold under this contract shall be harvested and removed using ground and cable methods with rubber tired skidders only allowed if skidding and rutting requirements can be met and a harvest plan is submitted and approved by the Contract Administrator. 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. Purchaser shall immediately repair all gate damage resulting from operations to an equal or better condition than existed at the time of the sale.
2. While felling timber, two warning signs must be posted on the K-1000, and K-1100 road(s).
3. Yarding equipment shall not cross live streams without an FPHA.
4. Timber cut for yarding corridors outside of sale boundaries shall not be yarded, processed or removed from the site.
5. Purchaser shall fully suspend one end of logs during logging operations.
6. 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.

Special Requirements Associated with the T3 Research Project:

1. Areas designated in Units 1,10, and 13 for slash manipulation require 10-20 tree tops (minimum 5 inches in diameter) cut and left prior to yarding. Tops are to be distributed evenly across the unit: they are to average at least 15 tops per acre, not to exceed 20 tops on any given acre, and not be less than 10 on any given acre. Tops cut are to be left in the slash manipulation area and are not to be piled. Whole trees of

merchantable size may be substituted for tops at a rate of 5 trees to 20 tops (or a 1:4 ratio). Substitution trees are to be a minimum of 10 inches in diameter at the large.

2. Within the riparian thinning in Unit 16 & 17; 3 log jams are to be placed within the stream channel in each of the stream adjacent gaps. Each log jam is to consist of 3 to 5 trees (preferably with root ball intact) and have a portion of each tree in contact with the stream water or channel as approved by the Contract Administrator. Prior to log jams placement, a 24 hour notice must be given to the contract administrator so that they can be on site for the wood placement.

3. Trees marked with yellow paint in Units 1, 10, and 13 (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.

4. 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.

5. 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.

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

7. Yarding corridors between Units 1 and 8 are limited to 2 roads and are required to be installed between the designated boundary flag. All timber cut for yarding corridors must remain in place.

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

#### H-142 Wildlife Timing Restrictions

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

On portions of the K-1000, K-1100 and N-1100 Roads (see road plan for locations), any 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. 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 3/9/2023 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, North and South Winfield Pit Access roads, Red Creek Quarry Access road, H-1040, H-1043, and H-1044. 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-080 Landing Locations Approved Prior to Construction

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

C-140 Water Bars

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

Section S: Site Preparation and Protection

S-001 Emergency Response Plan

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

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

S-010 Fire Hazardous Conditions

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

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

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

S-030 Landing Debris Clean Up

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

S-100 Stream Cleanout

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

S-120 Stream Protection

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

S-130 Hazardous Materials

a. Hazardous Materials and Waste - Regulatory Compliance

Purchaser is responsible for understanding and complying with all applicable local, state, and federal hazardous material/waste laws and regulations for operations conducted under this contract. Such regulations pertain to, but may



not be limited to, hazardous material storage, handling and transport, personnel protection, release notification and emergency response, cleanup, and waste disposal.

Purchaser shall be responsible for restoring the site in the event of a spill 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-040 Leave Tree Excessive Damage

When Purchaser's operations exceed the damage limits set forth in clause H-012, Leave Tree Damage Definition, the trees damaged result in substantial injury to the State. The value of the damaged leave trees at the time of the breach is not readily ascertainable. Therefore, Purchaser agrees to pay the State as liquidated damages at the rate of \$500.00 per tree for all damaged trees in Units 16 & 17.

## D-041 Reserve Tree Excessive Damage

When Purchaser's operations exceed the damage limits set forth in clause H-013, Reserve Tree Damage Definition, and when the Contract Administrator determines that a suitable replacement for a damaged reserve tree is not possible, the damaged trees result in substantial injury to the State. The value of the damaged reserve trees at the time of the breach is not readily ascertainable. Therefore, the Purchaser agrees to pay the State as liquidated damages at the rate of \$1,000.00 per tree for all damaged reserve trees that are not replaced in Units 1 - 15.

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

\_\_\_\_\_  
Print Name

Olympic Region Manager

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.

Unit #	# of Individually Marked Trees	# of Clumps	# of Trees Clumped	Total # of Leave Trees
1	180	0	0	180
2	0	1	48	48
3	17	4	71	88
4	8	0	0	8
5	0	1	16	16
6	32	0	0	32
7	76	2	84	160
8	0	2	40	40
9	17	3	87	104
10	96	0	0	96
11	0	1	80	80
12	40	0	0	40
13	133	0	23	156
14	8	0	0	8
15	80	0	0	80

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

1. Leave trees are defined as follows:
  - a. All trees greater than or equal to 20 inches in diameter at a 12 inch stump height.
  - b. Trees greater than or equal to 16 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).
  - c. All trees less than 16 inches in diameter at a 12 inch stump height needed to achieve relative densities as shown in the Unit Target Table (Schedule D).
  - d. All trees within the non-operational areas, i.e., wetland and skip areas as shown on the timber sale map.
  
2. Leave trees shall be well distributed at the relative density and spacing shown in the Unit Target Table (Schedule 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. Smaller Diameter Limbs
3. Leave trees will be identified by comparing their characteristics with other trees in the stand. Spacing will be varied to ensure the best trees available are left as leave trees. Felling of trees shall not result in creating an opening in the stand greater than 36 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).
  
  4. When a selection must be made between different trees species of similar diameter, the preferred species to leave in order of preference are: a. western red cedar, b. cottonwood, c. Douglas fir, d. western hemlock, e. red alder, f. big leaf maple, g. all other species.

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

Unit	Acres	Stems/acre	Basal Area	Approx. Spacing
16 RMZ	4	65	140	21'

1. Leave trees will consist of the largest, best formed trees available. The largest and best formed trees are defined as trees exhibiting a combination of the following characteristics: largest diameters, tallest heights, fullest crowns, straightest boles, smallest diameter limbs, and the least amount of defects. Best formed trees will be identified by comparing their characteristics with adjacent trees of similar diameter.
2. Spacing may be varied as necessary to ensure the largest diameter and best formed trees available are left on site.
3. Felling trees shall not result in creating an opening in the stand greater than 34 feet in diameter. If openings in the stand approach this diameter, then a sufficient number of trees shall be left on the perimeter of the opening to maintain the basal area target.
4. When a selection must be made between different tree species of similar diameter, the preferred species to leave in order of preference are: a. western red cedar, b. cottonwood, c. Douglas fir, d. western hemlock, e. red alder, f. big leaf maple, g. all other species.
5. Snags shall be cut unless necessary for operational or safety reasons. If snags must be cut, they shall be left on site and not yarded. Snags will not be counted towards meeting the post thin basal area target.





## 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)

## PRE-CRUISE NARRATIVE

Sale Name: <b>T3 Kalaloch West</b>	Region: <b>Olympic</b>
Agreement #: <b>30-102259</b>	District: <b>Coast</b>
Contact Forester: Michael Case Phone / Location: 360-460-4343	County(s): <b>Jefferson</b>
Alternate Contact: Mike Potter Phone / Location: 360-460-0722	Other information: This sale is part of the T3 Research. See T3 Consultation Memo.

Type of Sale: Lump Sum	% of harvest
Harvest System: Ground based	31
Harvest System: Uphill Cable	69

### UNIT ACREAGES AND METHOD OF DETERMINATION:

Unit # Harvest R/W or RMZ WMZ	Legal Description  (Enter only one legal for each unit) Sec/Twp/Rng	Grant or Trust	Gross Proposal Acres	Deductions from Gross Acres (No harvest acres)				Net Harvest Acres	Acreage Determinatio n  (List method and error of closure if applicable)
				RMZ/ WMZ Acres	Leave Tree Acres	Existin g Road Acres	Other Acres		
1 CES	S22 T25R13W	03	23.2	7.4	0.0	1.1	-	14.7	GPS (Garmin)
2	S22 T25R13W	03	10.1	3.1	0.1	0.3	-	6.6	GPS (Garmin)
3	S22 T25R13W	03	17.8	4.8	0.7	0.8	-	11.5	GPS (Garmin)
4	S22 T25R13W	03	3.6	2.6	0.0	0.0	-	1.0	GPS (Garmin)
5	S22 T25R13W	03	5.3	2.9	0.1	0.2	-	2.1	GPS (Garmin)

6	S22 T25R13W	03	9.6	5.2	0.0	0.2	-	4.2	GPS (Garmin)
7	S22 T25R13W	03	8.3	3.7	0.0	0.0	-	4.6	GPS (Garmin)
8	S22 T25R13W	03	20.7	5.2	0.5	0.3	-	14.7	GPS (Garmin)
9	S22 T25R13W	03	11.4	5.6	0.4	0.1	-	5.3	GPS (Garmin)
10	S27 T25R13W	03	18.2	3.9	0.4	0.0	-	13.9	GPS (Garmin)
11 CES	S23 T25R13W	03	13.6	4.9	0.0	0.5	-	8.2	GPS (Garmin)
12	S23 T25R13W	03	12.1	1.2	0.0	0.7	-	10.2	GPS (Garmin)
13	S23 T25R13W	03	6.2	0.1	0.0	0.9	-	5.2	GPS (Garmin)
14 CES	S23 T25R13W	03	15.1	1.5	0.0	0.8	-	12.8	GPS (Garmin)
15	S23 T25R13W	03	3.2	1.7	0.0	0.1	-	1.4	GPS (Garmin)
16	S23 T25R13W	03	15.2	4.3	0.1	1.2	-	9.6	GPS (Garmin)
17	S22 T25R13W	03	3.2	0.0	0.0	0.0	-	3.2	GPS (Garmin)
18	S22 T25R13W	03	0.4	0.0	0.0	0.0	-	0.4	GPS (Garmin)
ROW 1	S22 T25R13W	03	0.7	0.0	0.0	0.0	-	0.7	GPS (Garmin)

TOTAL ACRES			197.9	58.1	2.3	7.2	-	130.3	
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**HARVEST PLAN AND SPECIAL CONDITIONS:**

Unit #	Harvest Prescription: (Leave, take, paint color, tags, flagging etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
1 CES	<b>Harvest Boundaries:</b> Timber sale boundary tags, pink flagging, red flashers, blue paint, timber type change, and roads. <b>Individual Leave Trees:</b> Blue paint. <b>Road Boundaries:</b> K-1100, K-1104.1	None	<b>Individual Leave Trees: 180</b> <b>Clumped Leave Trees: 0</b> <b>Total Leave Trees: 180</b>
2	<b>Harvest Boundaries:</b> Timber sale boundary tags, pink flagging, red flashers, blue paint, timber type change, and roads. <b>Leave Tree Areas:</b> Leave tree area tags, pink flagging, red flashers, and blue paint. <b>Individual Leave Trees:</b> Blue paint. <b>Road Boundaries:</b> K-1000	None	<b>Individual Leave Trees: 0</b> <b>Clumped Leave Trees: 50</b> <b>Total Leave Trees: 50</b>
3	<b>Harvest Boundaries:</b> Timber sale boundary tags, pink flagging, red flashers, blue paint, timber type change, and roads. <b>Leave Tree Areas:</b> Leave tree area tags, pink flagging, red flashers, and blue paint. <b>Individual Leave Trees:</b> Blue paint. <b>Road Boundaries:</b> K-1105, K-1100, K-1104	None	<b>Individual Leave Trees: 21</b> <b>Clumped Leave Trees: 71</b> <b>Total Leave Trees: 90</b>
4	<b>Harvest Boundaries:</b> Timber sale boundary tags, pink flagging, red flashers, blue paint, and roads. <b>Individual Leave Trees:</b> Blue paint. <b>Road Boundaries:</b> K-1105	None	<b>Individual Leave Trees: 10</b> <b>Clumped Leave Trees: 0</b> <b>Total Leave Trees: 10</b>

5	<p><b>Harvest Boundaries:</b> Timber sale boundary tags, pink flagging, red flashers, blue paint, and roads.</p> <p><b>Leave Tree Areas:</b> Leave tree area tags, pink flagging, red flashers, and blue paint.</p> <p><b>Road Boundaries:</b> K-1105</p>	None	<p><b>Individual Leave Trees: 0</b></p> <p><b>Clumped Leave Trees: 16</b></p> <p><b>Total Leave Trees: 16</b></p>
6	<p><b>Harvest Boundaries:</b> Timber sale boundary tags, pink flagging, red flashers, blue paint, and roads.</p> <p><b>Individual Leave Trees:</b> Blue paint.</p> <p><b>Road Boundaries:</b> K-1031</p>	None	<p><b>Individual Leave Trees: 34</b></p> <p><b>Clumped Leave Trees: 0</b></p> <p><b>Total Leave Trees: 34</b></p>
7	<p><b>Harvest Boundaries:</b> Timber sale boundary tags, pink flagging, red flashers, blue paint, timber type change, and roads.</p> <p><b>Individual Leave Trees:</b> Blue paint.</p> <p><b>Road Boundaries:</b> K-1031</p>	None	<p><b>Individual Leave Trees: 40</b></p> <p><b>Clumped Leave Trees: 0</b></p> <p><b>Total Leave Trees: 40</b></p>
8	<p><b>Harvest Boundaries:</b> Timber sale boundary tags, pink flagging, red flashers, blue paint, timber type change, and roads.</p> <p><b>Leave Tree Areas:</b> Leave tree area tags, pink flagging, red flashers, and blue paint.</p> <p><b>Individual Leave Trees:</b> Blue paint.</p> <p><b>Road Boundaries:</b> K-1031</p>	None	<p><b>Individual Leave Trees: 34</b></p> <p><b>Clumped Leave Trees: 84</b></p> <p><b>Total Leave Trees: 115</b></p>
9	<p><b>Harvest Boundaries:</b> Timber sale boundary tags, pink flagging, red flashers, blue paint and roads.</p> <p><b>Leave Tree Areas:</b> Leave tree area tags, pink flagging, red flashers, and blue paint.</p> <p><b>Road Boundaries:</b> K-1000</p>	None	<p><b>Individual Leave Trees: 0</b></p> <p><b>Clumped Leave Trees: 45</b></p> <p><b>Total Leave Trees: 45</b></p>
10	<p><b>Harvest Boundaries:</b> Timber sale boundary tags, pink flagging, red flashers, blue paint, and roads.</p>	Unit includes RMZ Gaps.	<p><b>Individual Leave Trees: 25</b></p>

	<p><b>Leave Tree Areas:</b> Leave tree area tags, pink flagging, red flashers, and blue paint.</p> <p><b>Individual Leave Trees:</b> Blue paint.</p>		<p><b>Clumped Leave Trees: 87</b></p> <p><b>Total Leave Trees: 109</b></p>
11 CES	<p><b>Harvest Boundaries:</b> Timber sale boundary tags, pink flagging, red flashers, blue paint, and roads.</p> <p><b>Individual Leave Trees:</b> Blue paint.</p> <p><b>Road Boundaries:</b> K-1050</p>	None	<p><b>Individual Leave Trees: 101</b></p> <p><b>Clumped Leave Trees: 0</b></p> <p><b>Total Leave Trees: 101</b></p>
12	<p><b>Harvest Boundaries:</b> Timber sale boundary tags, pink flagging, red flashers, blue paint, timber type change, and roads.</p> <p><b>Leave Tree Areas:</b> Leave tree area tags, pink flagging, red flashers, and blue paint.</p> <p><b>Road Boundaries:</b> K-1050, K-1050.5</p>	None	<p><b>Individual Leave Trees: 0</b></p> <p><b>Clumped Leave Trees: 82</b></p> <p><b>Total Leave Trees: 82</b></p>
13	<p><b>Harvest Boundaries:</b> Timber sale boundary tags, pink flagging, red flashers, blue paint, timber type change, and roads.</p> <p><b>Individual Leave Trees:</b> Blue paint.</p> <p><b>Road Boundaries:</b> K-1000, K-1005, 3+40 Spur</p>	None	<p><b>Individual Leave Trees: 42</b></p> <p><b>Clumped Leave Trees: 0</b></p> <p><b>Total Leave Trees: 36</b></p>
14 CES	<p><b>Harvest Boundaries:</b> Timber sale boundary tags, pink flagging, red flashers, blue paint, timber type change, and roads.</p> <p><b>Individual Leave Trees:</b> Blue paint.</p> <p><b>Road Boundaries:</b> K-1000, K-1005, K-1007, 3+40 Spur</p>	None	<p><b>Individual Leave Trees: 154</b></p> <p><b>Clumped Leave Trees: 0</b></p> <p><b>Total Leave Trees: 148</b></p>
15	<p><b>Harvest Boundaries:</b> Timber sale boundary tags, pink flagging, red flashers, blue paint, timber type change, and roads.</p> <p><b>Individual Leave Trees:</b> Blue paint.</p> <p><b>Road Boundaries:</b> K-1000, K-1005, K-1007</p>	None	<p><b>Individual Leave Trees: 12</b></p> <p><b>Clumped Leave Trees: 0</b></p> <p><b>Total Leave Trees: 12</b></p>

16	<p><b>Harvest Boundaries:</b> Timber sale boundary tags, pink flagging, red flashers, blue paint, and roads.</p> <p><b>Leave Tree Areas:</b> Leave tree area tags, pink flagging, red flashers, and blue paint.</p> <p><b>Individual Leave Trees:</b> Blue paint.</p> <p><b>Road Boundaries:</b> K-1000, K-1000 27485</p>	None	<p><b>Individual Leave Trees: 71</b></p> <p><b>Clumped Leave Trees: 0</b></p> <p><b>Total Leave Trees: 70</b></p>
17	<p><b>Harvest Boundaries:</b> Timber sale boundary tags, Special Management tags, pink flagging, red flashers, blue paint, yellow paint.</p>	RMZ Thinning w/ Gaps	<p><b>Thin the RMZ to RD 35</b></p> <p><b>Cruise gaps separately</b></p>
18	<p><b>Harvest Boundaries:</b> Timber sale boundary tags, Special Management tags, pink flagging, red flashers, blue paint.</p>	RMZ Thinning	<p><b>Thin the RMZ to RD 35</b></p>
ROW 1	<p><b>Harvest Boundaries:</b> Right of Way boundary tags, orange flagging, red flashers, orange paint.</p>	None	-

**OTHER PRE-CRUISE INFORMATION:**

Unit #	Primary, secondary Species	Estimated Volume (MBF)	Access information (Gates, locks, etc.)	Photos, traverse maps required
1 CES	Western Hemlock, Douglas Fir	248.2		See Cruise Maps
2	Western Hemlock, Douglas Fir	105.4		See Cruise Maps
3	Western Hemlock, Douglas Fir	183.6		See Cruise Maps
4	Western Hemlock, Douglas Fir	17		See Cruise Maps
5	Western Hemlock, Douglas Fir	34		See Cruise Maps
6	Western Hemlock, Douglas Fir	71.4		See Cruise Maps
7	Western Hemlock, Douglas Fir	78.2		See Cruise Maps
8	Western Hemlock, Douglas Fir	231.2		See Cruise Maps

9	Western Hemlock, Douglas Fir	85		See Cruise Maps
10	Western Hemlock, Douglas Fir	227.8	Access by walking over West Fork Kalaloch Creek	See Cruise Maps
11 CES	Western Hemlock, Douglas Fir	139.4		See Cruise Maps
12	Western Hemlock, Douglas Fir	166.6		See Cruise Maps
13	Western Hemlock, Douglas Fir	71.4	Bad Condition Bridge on the K-1000 route marked on the map. Don't Use. Take the K-1006 route from the south.	See Cruise Maps
14 CES	Western Hemlock, Douglas Fir	205.7		
15	Western Hemlock, Douglas Fir	23.8		
16	Western Hemlock, Douglas Fir	146.2		
17	Western Hemlock, Red Alder	54.4	Access by walking over West Fork Kalaloch Creek	See Cruise Maps
18	Western Hemlock, Red Alder	6.8		See Cruise Maps
ROW 1	Western Hemlock, Douglas Fir	5	Unit goes over a type 3 creek	See Cruise Maps
<b>TOTAL MBF</b>	→→→→→→→→→	<b>2101.1</b>		

**REMARKS:**

- K:\dist\_coast\fy2023\T3 Kalaloch West\suma\_kalaloch\_west\SourceData.gdb\LRM shapefiles\  
(Gaps & Net Acres)
- Monitoring site tree marked with yellow paint ring for CES units
- No physical marking separating split units (13 & 14, 1 & 2), use shapes provided.
- All unit acres and Gaps need to be cruised separately.

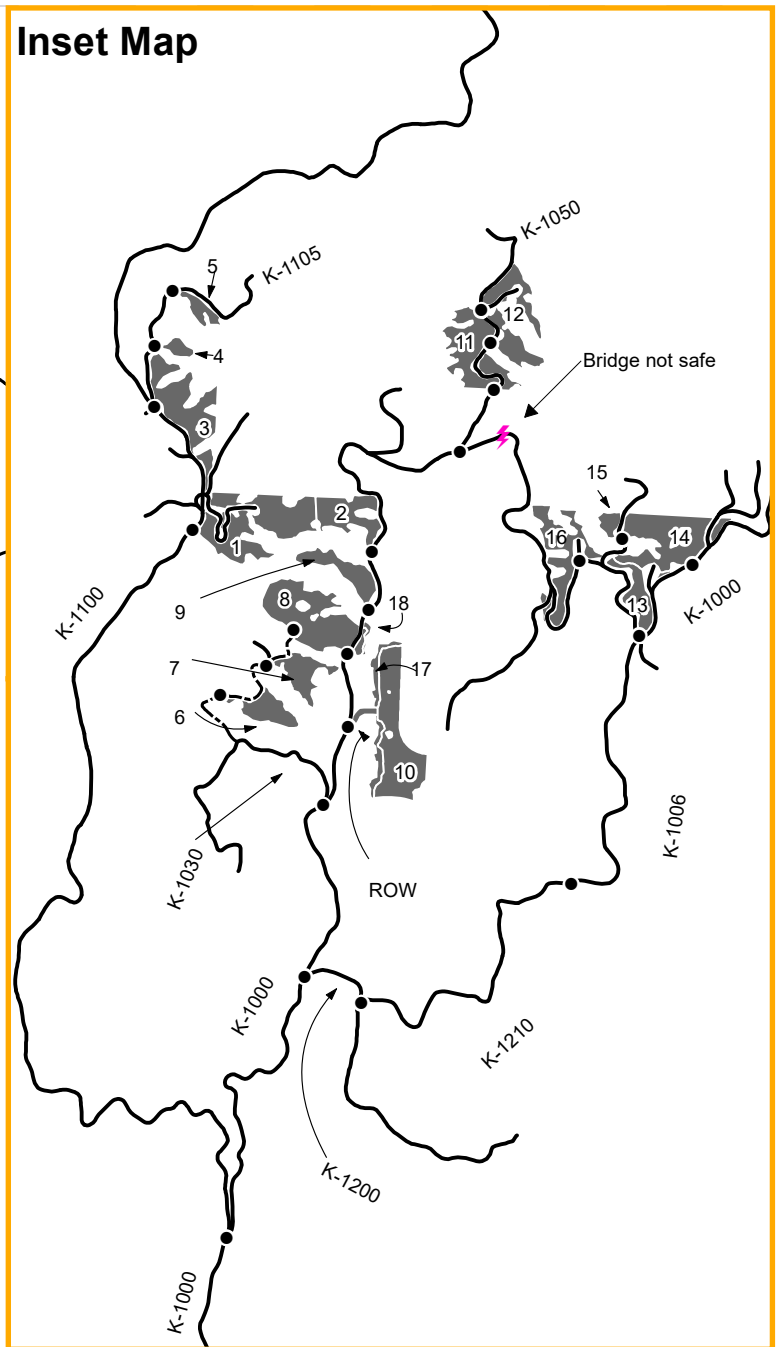
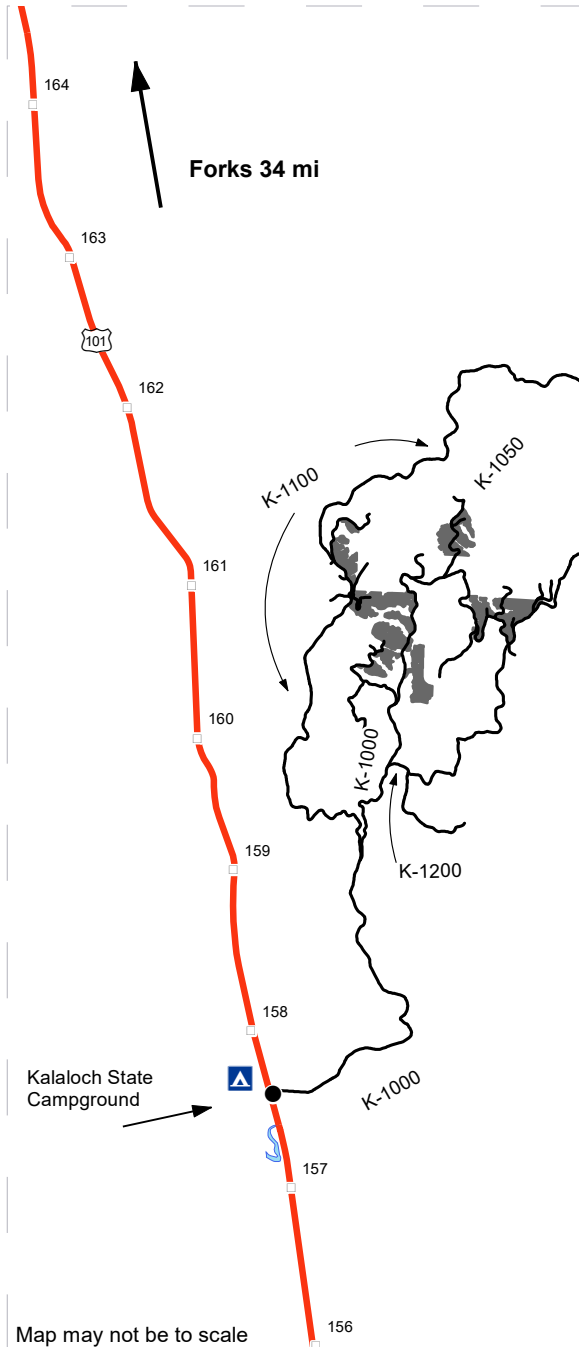
<b>Prepared By:</b> Michael Case	<b>Title:</b> Forester	<b>CC:</b>
<b>Date:</b> 1/3/2023		



# DRIVING MAP

**SALE NAME:** T3 KALALOCH WEST  
**AGREEMENT#:** 30-102259  
**TOWNSHIP(S):** T25R13W  
**TRUST(S):** Common School and Indemnity (3)

**REGION:** Olympic Region  
**COUNTY(S):** Jefferson  
**ELEVATION RGE:** 180'-920'



- Distance Indicator
- Milepost Markers
- Highway
- Existing Road
- - - Walk In Road
- Timber Sale Unit

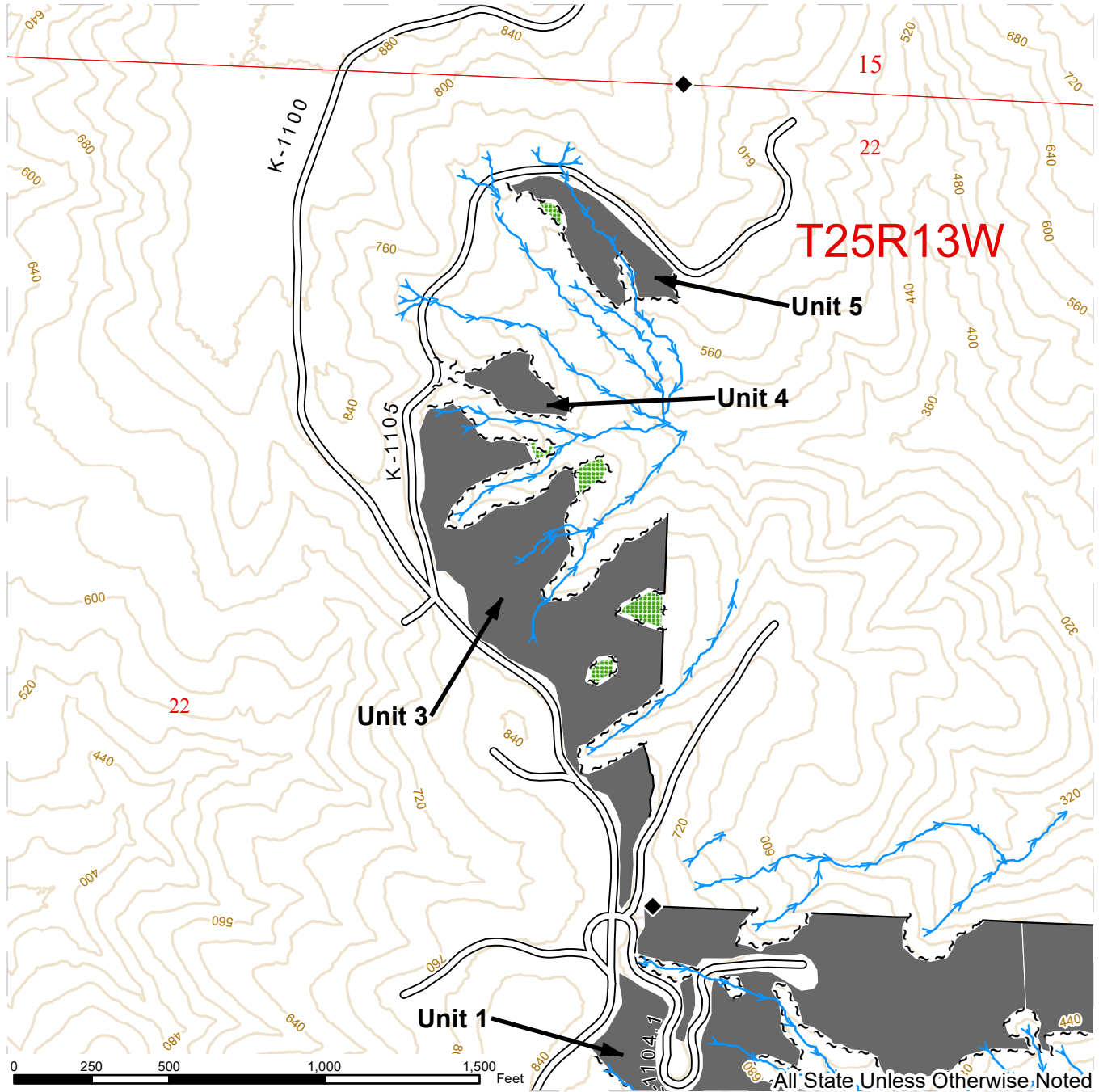
**DRIVING DIRECTIONS:**  
 From Forks WA, drive South on US 101 for 34 miles. Turn left onto the K-1000.  
 Continue for 2.3 miles and turn left on K-1100 to access units 1, 3, 4, and 5.  
 Continue past the K-1100 on the K-1000 to access units 2, 6, 7, 8, 9, 10, 17, 18 and ROW 1. Units 10, 17, 18, and part of ROW 1 are accessed by foot across West Fork Kalaloch Creek. (Easy crossing marked on the unit maps).  
 Continue on the K-1000 for 0.5 miles and turn left on K-1050 to access units 11 and 12.  
 Due to Bridge out - Return to the K1000 and travel back approx. 0.8 miles to the K-1200. Turn Left and continue for 0.2 miles. Turn left on the K-1210 and continue for 0.8 miles. The K-1210 turns into the K-1006, continue for 0.7 miles the K-100 for access units 13, 14, 15, and 16.



# PRE-CRUISE MAP

**SALE NAME:** T3 KALALOCH WEST  
**AGREEMENT #:** 30-102259  
**TOWNSHIP(S):** T25R13W  
**TRUST(S):** Common School and Indemnity (3)

**REGION:** Olympic Region  
**COUNTY(S):** Jefferson  
**ELEVATION RGE:** 180'-920'

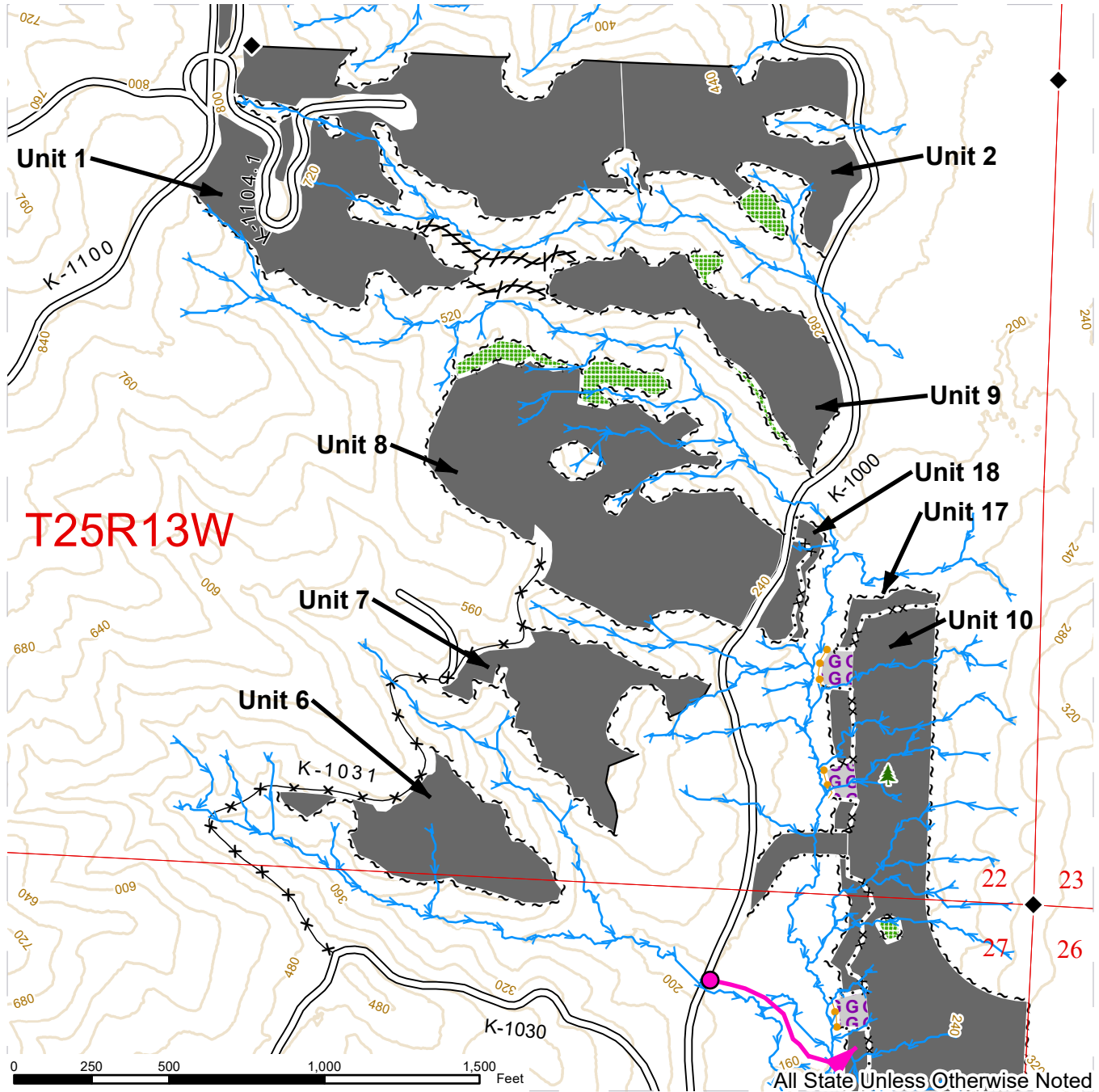


◆ Survey Monument	■ Timber Sale Unit
— Contours 40 ft	▒ Leave Tree Area
— Timber Type Change	□ Section Lines
~ ~ ~ Sale Boundary Tags	□ Township Lines
+ + + Leave Tree Area Tags	□ DNR-Managed Lands
/// Unstable Slope Flag Line	
— Existing Road	

# PRE-CRUISE MAP

**SALE NAME:** T3 KALALOCH WEST  
**AGREEMENT #:** 30-102259  
**TOWNSHIP(S):** T25R13W  
**TRUST(S):** Common School and Indemnity (03)

**REGION:** Olympic Region  
**COUNTY(S):** Jefferson  
**ELEVATION RGE:** 180'-920'

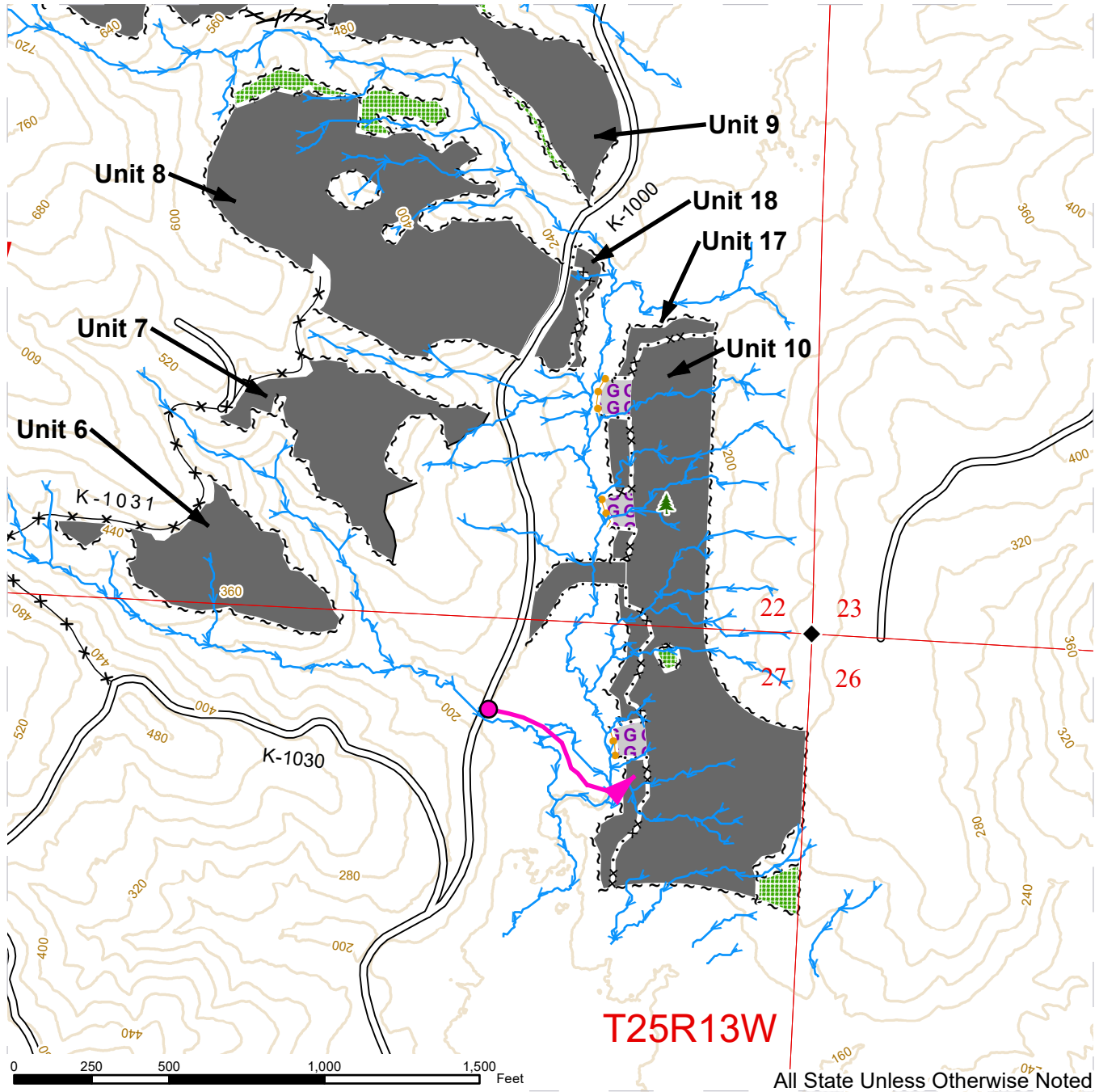


Leave Tree Area <1/4-acre	Right of Way Tags	Leave Tree Area
Survey Monument	Last Tree in Gap	Section Lines
Contours 40 ft	Unstable Slope Flag Line	Township Lines
Timber Type Change	Existing Road	Easy walk in route
Sale Boundary Tags	Walk In Road	
Special Mgmt Area Tags	Sale Area	
Leave Tree Area Tags	Gap	

# PRE-CRUISE MAP

**SALE NAME:** T3 KALALOCH WEST  
**AGREEMENT #:** 30-102259  
**TOWNSHIP(S):** T25R13W  
**TRUST(S):** Common School and Indemnity (03)

**REGION:** Olympic Region  
**COUNTY(S):** Jefferson  
**ELEVATION RGE:** 180'-920'



Leave Tree Area <1/4-acre	Right of Way Tags	Leave Tree Area
Survey Monument	Last Tree in Gap	Section Lines
Contours 40 ft	Unstable Slope Flag Line	Township Lines
Timber Type Change	Existing Road	Easy walk in route
Sale Boundary Tags	Walk In Road	
Special Mgmt Area Tags	Sale Area	
Leave Tree Area Tags	Gap	

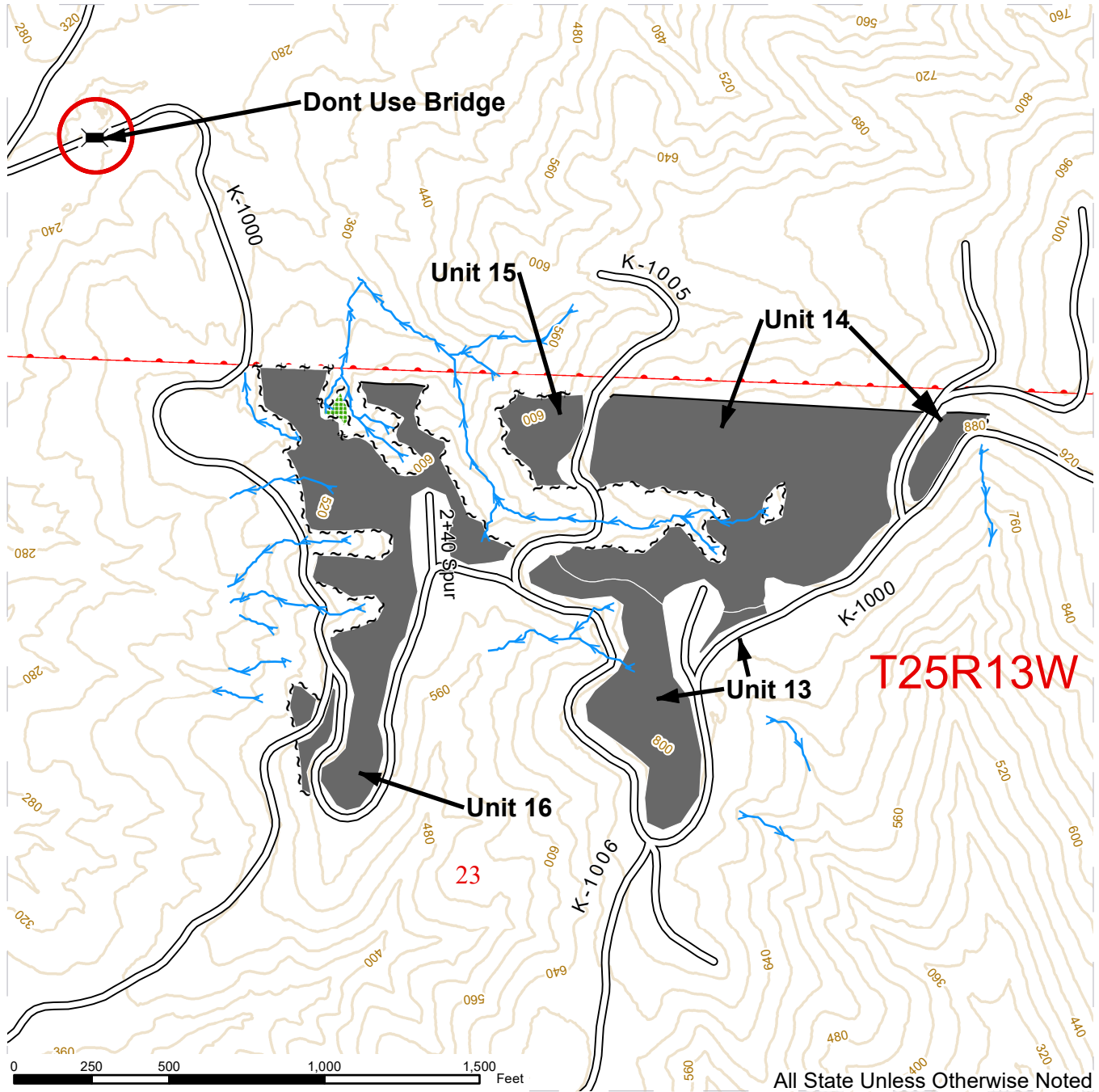




# PRE-CRUISE MAP

**SALE NAME:** T3 KALALOCH WEST  
**AGREEMENT #:** 30-102259  
**TOWNSHIP(S):** T25R13W  
**TRUST(S):** Common School and Indemnity (3)

**REGION:** Olympic Region  
**COUNTY(S):** Jefferson  
**ELEVATION RGE:** 180'-920'



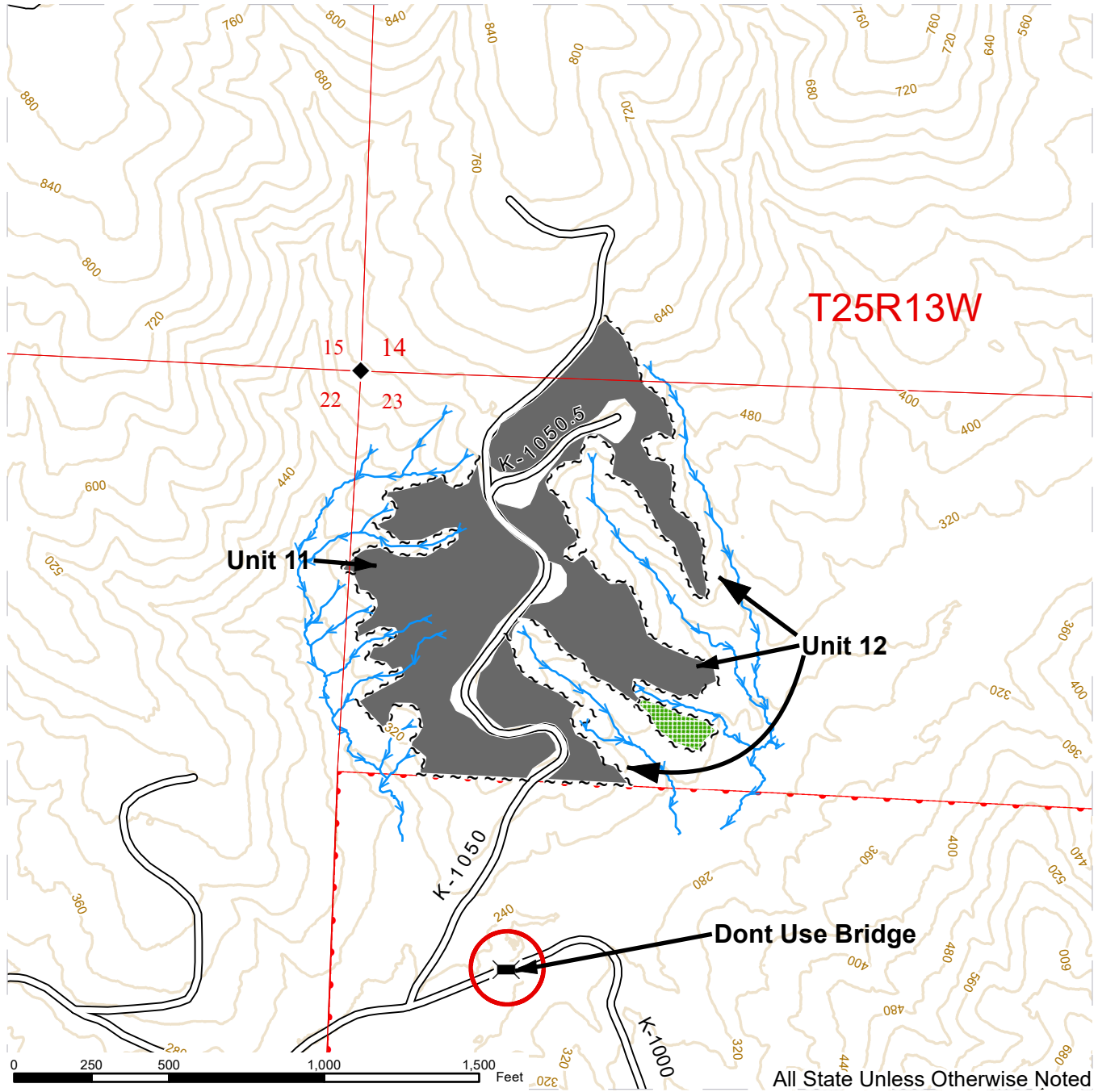
Bridge	Leave Tree Area
Contours 40 ft	Survey - Section Lines
Timber Type Change	Survey - Township Lines
Sale Boundary Tags	DNR-Managed Lands
Leave Tree Area Tags	
Existing Road	
Timber Sale Unit	



# PRE-CRUISE MAP

**SALE NAME:** T3 KALALOCH WEST  
**AGREEMENT #:** 30-102259  
**TOWNSHIP(S):** T25R13W  
**TRUST(S):** Common School and Indemnity (3)

**REGION:** Olympic Region  
**COUNTY(S):** Jefferson  
**ELEVATION RGE:** 180'-920'



	Bridge		Leave Tree Area
	Survey Monument		Section Lines
	Contours 40 ft		Township Lines
	Sale Boundary Tags		DNR-Managed Lands
	Leave Tree Area Tags		
	Existing Road		
	Timber Sale Unit		



## Timber Sale Cruise Report T3 Kalaoch West

**Sale Name:** T3 KALALOCH WEST

**Sale Type:** LUMP SUM

**Region:** OLYMPIC

**District:** COAST

**Lead Cruiser:** Kevin Peterson

**Other Cruisers:**

**Cruise Narrative:**

**Location:**

This sale is located off of the K-1000 road system, not gate keys are needed.

**Cruise Design:**

I used multiple BAF combinations, please refer to cruise design table.

Merch height was determined at 40% of the diameter at 16'. All logs were cruised in 40' lengths.

**Timber Quality:**

This sale is mostly a mixture of 50 year old DF and WH with some areas with SS and RA. Most of the timber was free of defect, but I did find some sweep and forked tops.

**Logging and Stand Conditions:**

This sale is 30% ground based harvest and 70% uphill cable harvest.

Some of the units were thinned recently, some have patched of brush that make walking difficult.

### Timber Sale Notice Volume (MBF)

Sp	DBH	Rings/In	Age	MBF Volume by Grade				Utility
				All	2 Saw	3 Saw	4 Saw	
DF	15.0	6.0		1,402	347	723	332	
WH	15.0	5.3		1,086	356	499	232	
SS	19.3			192	84	92	15	
RA	14.0			78		7	69	2
ALL	15.1	5.6		2,758	788	1,321	647	2

### Timber Sale Notice Weight (tons)

Sp	Tons by Grade				
	All	2 Saw	3 Saw	4 Saw	Utility
DF	14,047	3,374	7,588	3,086	
WH	12,071	3,756	5,731	2,584	
SS	1,930	732	1,049	149	
RA	877		65	795	16
ALL	28,925	7,862	14,432	6,614	16

**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 (%)
234.4	2.4	90.9	1.1	21,277	2.7

**Timber Sale Unit Cruise Design**

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
T3 KALALOCH WEST U1 CES	B1C: VR, 1 BAF (40) Measure/Count Plots, Sighting Ht = 4.5 ft	14.7	14.7	9	7	0
T3 KALALOCH WEST U2	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	6.6	6.6	5	5	0
T3 KALALOCH WEST U3	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	11.5	11.5	6	6	0
T3 KALALOCH WEST U4	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	1.0	1.0	1	1	0
T3 KALALOCH WEST U5	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	2.1	2.1	2	2	0
T3 KALALOCH WEST U6	B1C: VR, 1 BAF (40) Measure/Count Plots, Sighting Ht = 4.5 ft	4.2	4.2	3	3	0
T3 KALALOCH WEST U7	B1C: VR, 1 BAF (40) Measure/Count Plots, Sighting Ht = 4.5 ft	20.6	20.6	11	8	0
T3 KALALOCH WEST U8	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	5.3	5.3	3	3	0
T3 KALALOCH WEST U9	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	13.9	13.9	7	5	0
T3 KALALOCH WEST U10 CES	B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	8.2	8.2	5	5	0
T3 KALALOCH WEST U11	B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	10.2	10.2	6	6	0
KALALOCH WEST U12	B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	5.2	5.2	4	4	0
T3 KALALOCH WEST U13 CES	B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	12.8	12.8	7	7	0
T3 KALALOCH WEST U14	B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	1.4	1.4	1	1	0
T3 KALALOCH WEST U15	B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	9.6	9.6	7	7	0



Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
T3 KALALOCH WEST U16	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 0 ft	2.4	3.2	2	2	0
T3 KALALOCH WEST U16 GAPS	B2C: VR, 2 BAF (54.44, 40 for some species) Measure/Count Plots, Sighting Ht = 0 ft	0.8		2	2	0
T3 KALALOCH WEST U17	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	0.4	0.4	1	1	0
T3 KALALOCH WEST ROW 1	B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	0.7	0.7	1	1	0
T3 KALALOCH WEST ROW 2	B1: VR, 1 BAF (20) Measure All, Sighting Ht = 4.5 ft	0.1	0.1	1	1	0
All		131.7	131.8	84	77	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	13.1	40	2,921	2,638	9.7	3,373.9	347.4
DF	LIVE	3 SAW	Domestic	8.2	39	5,711	5,490	3.9	7,587.5	723.0
DF	LIVE	4 SAW	Domestic	5.2	27	2,544	2,521	0.9	3,085.9	332.0
RA	LIVE	3 SAW	Domestic	10.3	40	59	52	10.5	65.1	6.9
RA	LIVE	4 SAW	Domestic	6.9	36	566	521	7.9	795.1	68.6
RA	LIVE	UTILITY	Pulp	5.1	25	15	15	0.0	16.3	2.0
SS	LIVE	2 SAW	Domestic	14.5	40	677	639	5.6	731.8	84.2
SS	LIVE	3 SAW	Domestic	8.7	39	763	700	8.3	1,048.7	92.2
SS	LIVE	4 SAW	Domestic	6.0	17	116	116	0.0	149.2	15.3
WH	LIVE	2 SAW	Domestic	13.2	40	2,899	2,704	6.7	3,756.5	356.1
WH	LIVE	3 SAW	Domestic	8.6	39	3,991	3,787	5.1	5,730.7	498.8
WH	LIVE	4 SAW	Domestic	5.3	29	1,786	1,758	1.5	2,584.3	231.5

### Timber Sale Log Sort x Diameter Bin Summary

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
DF	5 - 8	LIVE	Domestic	5.9	31	5,608	1.1	7,546.6	738.5
DF	9 - 11	LIVE	Domestic	10.3	40	2,403	7.0	3,126.8	316.4
DF	12 - 14	LIVE	Domestic	13.1	40	2,264	10.1	2,990.5	298.2
DF	15 - 19	LIVE	Domestic	15.5	40	373	6.8	383.4	49.2
RA	5 - 8	LIVE	Pulp	5.1	25	15	0.0	16.3	2.0
RA	5 - 8	LIVE	Domestic	6.4	36	355	7.6	564.0	46.8

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
RA	9 - 11	LIVE	Domestic	9.5	38	218	9.0	296.2	28.7
SS	5 - 8	LIVE	Domestic	6.6	26	357	4.6	575.0	47.0
SS	9 - 11	LIVE	Domestic	10.1	40	459	9.2	622.9	60.5
SS	12 - 14	LIVE	Domestic	13.4	40	334	6.1	419.0	44.0
SS	15 - 19	LIVE	Domestic	16.1	40	305	5.1	312.9	40.2
WH	5 - 8	LIVE	Domestic	5.8	32	3,194	2.4	4,916.8	420.7
WH	9 - 11	LIVE	Domestic	10.4	40	2,351	6.1	3,398.1	309.6
WH	12 - 14	LIVE	Domestic	12.9	40	2,421	6.3	3,406.9	318.9
WH	15 - 19	LIVE	Domestic	16.2	40	283	9.9	349.7	37.2

## Cruise Unit Report T3 KALALOCH WEST U1 CES

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

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
SS	18.9			141	60	69	12
WH	15.3			70	7	49	13
ALL	17.5			210	67	118	25

### Unit Cruise Design: T3 KALALOCH WEST U1 CES

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (40) Measure/Count Plots, Sighting Ht = 4.5 ft	14.7	14.7	9	7	0

### Unit Cruise Summary: T3 KALALOCH WEST U1 CES

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
SS	17	28	3.1	0
WH	10	13	1.4	0
ALL	27	41	4.6	0

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

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 (%)
SS	124.4	61.1	20.4	79.7	28.7	7.0	9,921	67.5	21.5
WH	57.8	115.4	38.5	88.9	19.1	6.0	5,138	117.0	38.9
ALL	182.2	31.3	10.4	82.6	25.4	4.9	15,058	40.3	11.5

### Unit Summary: T3 KALALOCH WEST U1 CES

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
SS	LIVE	CUT	17	ALL	18.9	57	70	10,225	9,566	6.4	61.6	120.0	27.6	140.6
SS	LIVE	LEA	0	ALL	24.0			379	354	6.4	1.4	4.4	0.9	5.2
WH	LIVE	CUT	10	ALL	15.3	59	73	4,831	4,743	1.8	41.8	53.3	13.6	69.7
WH	LIVE	LEA	0	ALL	14.0			403	395	1.8	4.2	4.4	1.2	5.8
ALL	LIVE	CUT	27	ALL	17.5	58	71	15,056	14,309	5.0	103.4	173.3	41.2	210.3

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
ALL	LIVE	LEA	0	ALL	17.1			781	750	4.1	5.6	8.9	2.1	11.0
ALL	ALL	ALL	27	ALL	17.5	58	71	15,837	15,058	4.9	109.0	182.2	43.3	221.4

## Cruise Unit Report T3 KALALOCH WEST U2

### Unit Sale Notice Volume (MBF): T3 KALALOCH WEST U2

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
DF	14.2			42	8	22	12
WH	12.9			28	5	12	12
ALL	13.6			70	13	34	23

### Unit Cruise Design: T3 KALALOCH WEST U2

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	6.6	6.6	5	5	0

### Unit Cruise Summary: T3 KALALOCH WEST U2

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	9	9	1.8	0
WH	7	7	1.4	0
ALL	16	16	3.2	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST U2

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	72.0	24.8	11.1	88.3	26.4	8.8	6,354	36.3	14.2
WH	56.0	39.1	17.5	76.7	22.3	8.4	4,293	45.0	19.4
ALL	128.0	26.1	11.7	83.2	25.3	6.3	10,647	36.4	13.3

### Unit Summary: T3 KALALOCH WEST U2

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	9	ALL	14.2	56	70	6,667	6,354	4.7	65.5	72.0	19.1	41.9
WH	LIVE	CUT	7	ALL	12.9	52	63	4,775	4,293	10.1	61.7	56.0	15.6	28.3
ALL	LIVE	CUT	16	ALL	13.6	54	67	11,442	10,647	7.0	127.2	128.0	34.7	70.3
ALL	ALL	ALL	16	ALL	13.6	54	67	11,442	10,647	7.0	127.2	128.0	34.7	70.3

## Cruise Unit Report T3 KALALOCH WEST U3

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

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
DF	17.9			98	44	42	12
WH	14.0			94	13	57	24
ALL	15.7			192	58	98	36

### Unit Cruise Design: T3 KALALOCH WEST U3

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	11.5	11.5	6	6	0

### Unit Cruise Summary: T3 KALALOCH WEST U3

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	13	13	2.2	0
WH	12	12	2.0	0
ALL	25	25	4.2	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST 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 (%)
DF	86.7	34.7	14.2	97.8	14.4	4.0	8,478	37.6	14.7
WH	80.0	44.7	18.3	102.2	12.9	3.7	8,177	46.5	18.6
ALL	166.7	23.6	9.6	99.9	13.6	2.7	16,655	27.2	10.0

### Unit Summary: T3 KALALOCH WEST U3

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	13	ALL	17.9	69	86	9,109	8,478	6.9	49.6	86.7	20.5	97.5
WH	LIVE	CUT	12	ALL	14.0	58	72	8,349	8,177	2.1	74.8	80.0	21.4	94.0
ALL	LIVE	CUT	25	ALL	15.7	63	77	17,457	16,655	4.6	124.4	166.7	41.9	191.5
ALL	ALL	ALL	25	ALL	15.7	63	77	17,457	16,655	4.6	124.4	166.7	41.9	191.5

## Cruise Unit Report T3 KALALOCH WEST U4

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

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
DF	15.1			11	3	4	3
WH	18.0			8	4	4	1
ALL	16.0			19	7	8	4

### Unit Cruise Design: T3 KALALOCH WEST U4

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	1.0	0.9	1	1	0

### Unit Cruise Summary: T3 KALALOCH WEST U4

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	3	3	3.0	0
WH	2	2	2.0	0
ALL	5	5	5.0	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST 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 (%)
DF	120.0	0.0	0.0	87.9	23.0	13.3	10,545	23.0	13.3
WH	80.0	0.0	0.0	104.4	1.7	1.2	8,350	1.7	1.2
ALL	200.0	0.0	0.0	94.5	17.9	8.0	18,895	17.9	8.0

### Unit Summary: T3 KALALOCH WEST U4

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	3	ALL	15.1	62	77	11,545	10,545	8.7	96.5	120.0	30.9	10.5
WH	LIVE	CUT	2	ALL	18.0	71	87	9,015	8,350	7.4	45.3	80.0	18.9	8.3
ALL	LIVE	CUT	5	ALL	16.1	65	81	20,560	18,895	8.1	141.8	200.0	49.7	18.9
ALL	ALL	ALL	5	ALL	16.1	65	81	20,560	18,895	8.1	141.8	200.0	49.7	18.9

## Cruise Unit Report T3 KALALOCH WEST U5

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

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
DF	15.4			19	4	10	5
WH	12.4			16	3	7	6
ALL	13.8			35	7	17	10

### Unit Cruise Design: T3 KALALOCH WEST U5

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	2.1	2.1	2	2	0

### Unit Cruise Summary: T3 KALALOCH WEST U5

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	5	5	2.5	0
WH	4	4	2.0	0
ALL	9	9	4.5	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST 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 (%)
DF	100.0	28.3	20.0	88.9	17.4	7.8	8,890	33.2	21.5
WH	80.0	0.0	0.0	95.4	10.9	5.5	7,631	10.9	5.5
ALL	180.0	15.7	11.1	91.8	14.3	4.8	16,521	21.2	12.1

### Unit Summary: T3 KALALOCH WEST U5

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	5	ALL	15.4	63	79	9,573	8,890	7.1	77.3	100.0	25.5	18.7
WH	LIVE	CUT	4	ALL	12.4	51	62	7,814	7,631	2.3	95.4	80.0	22.7	16.0
ALL	LIVE	CUT	9	ALL	13.8	56	70	17,387	16,521	5.0	172.7	180.0	48.2	34.7
ALL	ALL	ALL	9	ALL	13.8	56	70	17,387	16,521	5.0	172.7	180.0	48.2	34.7



## Cruise Unit Report T3 KALALOCH WEST U6

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

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
WH	14.0			69	25	26	19
DF	20.6			48	34	14	1
ALL	15.8			118	59	39	19

### Unit Cruise Design: T3 KALALOCH WEST U6

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (40) Measure/Count Plots, Sighting Ht = 4.5 ft	4.2	4.2	3	3	0

### Unit Cruise Summary: T3 KALALOCH WEST U6

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	12	12	4.0	0
DF	4	8	2.7	0
ALL	16	20	6.7	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST 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 (%)
WH	160.0	66.1	38.2	103.2	20.4	5.9	16,513	69.2	38.6
DF	106.7	114.6	66.1	108.1	18.7	9.4	11,534	116.1	66.8
ALL	266.7	22.9	13.2	105.2	19.5	4.9	28,046	30.1	14.1

### Unit Summary: T3 KALALOCH WEST U6

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	4	ALL	20.6	75	95	12,442	11,534	7.3	46.1	106.7	23.5	48.4
WH	LIVE	CUT	12	ALL	14.0	57	70	17,448	16,513	5.4	149.7	160.0	42.8	69.4
ALL	LIVE	CUT	16	ALL	15.8	61	75	29,890	28,046	6.2	195.8	266.7	66.3	117.8
ALL	ALL	ALL	16	ALL	15.8	61	75	29,890	28,046	6.2	195.8	266.7	66.3	117.8

## Cruise Unit Report T3 KALALOCH WEST U7

### Unit Sale Notice Volume (MBF): T3 KALALOCH WEST U7

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
WH	15.5			253	101	111	41
DF	16.0			164	76	65	23
SS	14.9			9		8	1
ALL	15.7			426	177	184	64

### Unit Cruise Design: T3 KALALOCH WEST U7

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (40) Measure/Count Plots, Sighting Ht = 4.5 ft	20.6	20.6	11	8	0

### Unit Cruise Summary: T3 KALALOCH WEST U7

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	24	33	3.0	0
DF	11	22	2.0	0
SS	2	3	0.3	0
ALL	37	58	5.3	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST U7

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	120.0	66.7	20.1	105.6	17.4	3.6	12,674	68.9	20.4
DF	80.0	94.9	28.6	99.4	24.9	7.5	7,953	98.1	29.6
SS	10.9	331.7	100.0	56.7	8.5	6.0	619	331.8	100.2
ALL	210.9	28.2	8.5	100.7	22.5	3.7	21,246	36.1	9.3

### Unit Summary: T3 KALALOCH WEST U7

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	11	ALL	16.0	62	77	8,479	7,953	6.2	57.3	80.0	20.0	163.8
SS	LIVE	CUT	2	ALL	14.9	52	64	480	413	14.0	6.0	7.3	1.9	8.5

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
SS	LIVE	LEA	0	ALL	27.0			240	206	14.0	0.9	3.6	0.7	4.3
WH	LIVE	CUT	24	ALL	15.5	62	76	13,073	12,290	6.0	88.8	116.4	29.6	253.2
WH	LIVE	LEA	0	ALL	20.0			409	384	6.0	1.7	3.6	0.8	7.9
ALL	LIVE	CUT	37	ALL	15.7	62	76	22,032	20,655	6.2	152.1	203.6	51.4	425.5
ALL	LIVE	LEA	0	ALL	22.7			649	590	9.0	2.6	7.3	1.5	12.2
ALL	ALL	ALL	37	ALL	15.8	62	76	22,680	21,246	6.3	154.7	210.9	53.0	437.7

## Cruise Unit Report T3 KALALOCH WEST U8

### Unit Sale Notice Volume (MBF): T3 KALALOCH WEST U8

Sp	DBH	Rings/In	Age	MBF Volume by Grade		
				All	3 Saw	4 Saw
DF	12.7			33	20	13
WH	11.6			26	11	15
ALL	12.2			59	31	28

### Unit Cruise Design: T3 KALALOCH WEST U8

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	5.3	5.3	3	3	0

### Unit Cruise Summary: T3 KALALOCH WEST U8

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	6	6	2.0	0
WH	5	5	1.7	0
ALL	11	11	3.7	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST U8

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	80.0	0.0	0.0	78.6	24.4	10.0	6,285	24.4	10.0
WH	66.7	34.6	20.0	72.2	18.0	8.1	4,816	39.1	21.6
ALL	146.7	15.7	9.1	75.7	21.4	6.5	11,101	26.6	11.2

### Unit Summary: T3 KALALOCH WEST U8

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	6	ALL	12.7	53	65	6,645	6,285	5.4	90.9	80.0	22.4	33.3
WH	LIVE	CUT	5	ALL	11.6	50	60	5,146	4,816	6.4	90.8	66.7	19.6	25.5
ALL	LIVE	CUT	11	ALL	12.2	51	62	11,791	11,101	5.9	181.7	146.7	42.0	58.8
ALL	ALL	ALL	11	ALL	12.2	51	62	11,791	11,101	5.9	181.7	146.7	42.0	58.8

## Cruise Unit Report T3 KALALOCH WEST U9

### Unit Sale Notice Volume (MBF): T3 KALALOCH WEST U9

Sp	DBH	Rings/In	Age	MBF Volume by Grade				Utility
				All	2 Saw	3 Saw	4 Saw	
DF	18.4	6.0		179	105	68	6	
WH	16.6	6.0		171	119	33	19	
SS	21.8			38	23	14	2	
RA	14.6			35		7	26	2
ALL	17.5	6.0		422	247	122	52	2

### Unit Cruise Design: T3 KALALOCH WEST U9

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	13.9	13.9	7	5	0

### Unit Cruise Summary: T3 KALALOCH WEST U9

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	11	15	2.1	1
WH	6	13	1.9	1
SS	3	3	0.4	0
RA	5	5	0.7	0
ALL	25	36	5.1	2

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST U9

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	116.7	56.7	21.4	110.3	13.9	4.2	12,867	58.4	21.8
WH	101.1	72.4	27.4	121.3	18.6	7.6	12,266	74.8	28.4
SS	23.3	183.6	69.4	118.0	8.3	4.8	2,754	183.8	69.6
RA	28.6	264.6	100.0	87.2	12.5	5.6	2,490	264.9	100.2
ALL	269.7	18.0	6.8	112.7	17.3	3.5	30,378	24.9	7.6

**Unit Summary: T3 KALALOCH WEST U9**

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	11	ALL	18.4	75	94	13,725	12,867	6.2	63.2	116.7	27.2	178.9
RA	LIVE	CUT	5	ALL	14.6	59	72	2,754	2,490	9.6	24.6	28.6	7.5	34.6
SS	LIVE	CUT	3	ALL	21.8	72	90	2,920	2,754	5.7	9.0	23.3	5.0	38.3
WH	LIVE	CUT	6	ALL	16.6	70	87	12,532	12,266	2.1	67.3	101.1	24.8	170.5
ALL	LIVE	CUT	25	ALL	17.4	70	88	31,932	30,378	4.9	164.1	269.7	64.5	422.3
ALL	ALL	ALL	25	ALL	17.4	70	88	31,932	30,378	4.9	164.1	269.7	64.5	422.3

## Cruise Unit Report T3 KALALOCH WEST U10 CES

### Unit Sale Notice Volume (MBF): T3 KALALOCH WEST U10 CES

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
DF	13.6	6.0		131	13	77	41
WH	14.7	5.0		64	14	34	15
RA	14.0			4			4
ALL	13.9	5.5		198	28	111	60

### Unit Cruise Design: T3 KALALOCH WEST U10 CES

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	8.2	8.2	5	5	0

### Unit Cruise Summary: T3 KALALOCH WEST U10 CES

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	18	18	3.6	1
WH	8	8	1.6	1
RA	1	1	0.2	0
ALL	27	27	5.4	2

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST U10 CES

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	196.0	24.8	11.1	81.4	13.8	3.3	15,953	28.4	11.6
WH	87.1	34.2	15.3	89.1	13.0	4.6	7,760	36.6	16.0
RA	8.0	223.6	100.0	60.8	0.0	0.0	486	223.6	100.0
ALL	291.1	20.8	9.3	83.1	14.8	2.8	24,200	25.5	9.7

### Unit Summary: T3 KALALOCH WEST U10 CES

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	18	ALL	13.6	56	68	16,509	15,953	3.4	194.3	196.0	53.1	130.8
RA	LIVE	CUT	1	ALL	14.0	52	63	539	486	9.7	7.5	8.0	2.1	4.0

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	8	ALL	14.7	60	73	8,264	7,760	6.1	73.9	87.1	22.7	63.6
ALL	LIVE	CUT	27	ALL	13.9	57	70	25,312	24,200	4.4	275.7	291.1	78.0	198.4
ALL	ALL	ALL	27	ALL	13.9	57	70	25,312	24,200	4.4	275.7	291.1	78.0	198.4



## Cruise Unit Report T3 KALALOCH WEST U11

### Unit Sale Notice Volume (MBF): T3 KALALOCH WEST U11

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
DF	13.3	6.0		166	14	94	59
WH	14.9	5.0		76	15	44	17
RA	14.0			4			4
ALL	13.7	5.5		246	29	138	80

### Unit Cruise Design: T3 KALALOCH WEST U11

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	10.2	10.2	6	6	0

### Unit Cruise Summary: T3 KALALOCH WEST U11

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	22	22	3.7	1
WH	9	9	1.5	1
RA	1	1	0.2	0
ALL	32	32	5.3	2

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST U11

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	199.6	22.3	9.1	81.5	13.3	2.8	16,271	26.0	9.5
WH	81.7	36.5	14.9	91.2	13.7	4.6	7,445	39.0	15.6
RA	6.7	244.9	100.0	60.8	0.0	0.0	405	244.9	100.0
ALL	287.9	19.0	7.7	83.8	15.0	2.6	24,122	24.2	8.2

### Unit Summary: T3 KALALOCH WEST U11

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	22	ALL	13.3	55	68	16,827	16,271	3.3	206.9	199.6	54.7	166.0
RA	LIVE	CUT	1	ALL	14.0	52	63	449	405	9.7	6.2	6.7	1.8	4.1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	9	ALL	14.9	60	74	7,923	7,445	6.0	67.4	81.7	21.2	75.9
ALL	LIVE	CUT	32	ALL	13.7	56	69	25,198	24,122	4.3	280.5	287.9	77.7	246.0
ALL	ALL	ALL	32	ALL	13.7	56	69	25,198	24,122	4.3	280.5	287.9	77.7	246.0

## Cruise Unit Report KALALOCH WEST U12

### Unit Sale Notice Volume (MBF): KALALOCH WEST U12

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
DF	12.8	6.0		78		50	28
WH	14.3	5.0		43	11	21	11
RA	14.0			3			3
ALL	13.3	5.5		124	11	71	42

### Unit Cruise Design: KALALOCH WEST U12

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	5.2	5.2	4	4	0

### Unit Cruise Summary: KALALOCH WEST U12

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	14	14	3.5	1
WH	7	7	1.8	1
RA	1	1	0.3	0
ALL	22	22	5.5	2

### Unit Cruise Statistics (Cut + Leave Trees): KALALOCH WEST U12

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	190.5	36.9	18.4	78.7	14.2	3.8	14,999	39.5	18.8
WH	95.3	28.6	14.3	86.6	11.5	4.3	8,248	30.8	14.9
RA	10.0	200.0	100.0	60.8	0.0	0.0	608	200.0	100.0
ALL	295.8	23.2	11.6	80.6	14.6	3.1	23,856	27.4	12.0

### Unit Summary: KALALOCH WEST U12

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	14	ALL	12.8	54	66	15,323	14,999	2.1	213.2	190.5	53.3	78.0
RA	LIVE	CUT	1	ALL	14.0	52	63	674	608	9.7	9.4	10.0	2.7	3.2

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	7	ALL	14.3	59	72	8,878	8,248	7.1	85.4	95.3	25.2	42.9
ALL	LIVE	CUT	22	ALL	13.3	55	68	24,874	23,856	4.1	308.0	295.8	81.1	124.1
ALL	ALL	ALL	22	ALL	13.3	55	68	24,874	23,856	4.1	308.0	295.8	81.1	124.1

## Cruise Unit Report T3 KALALOCH WEST U13 CES

### Unit Sale Notice Volume (MBF): T3 KALALOCH WEST U13 CES

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
DF	13.6	6.0		212	22	123	67
WH	14.9	5.0		82	16	47	18
RA	12.9			8			8
ALL	13.8	5.5		302	38	170	94

### Unit Cruise Design: T3 KALALOCH WEST U13 CES

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	12.8	12.8	7	7	0

### Unit Cruise Summary: T3 KALALOCH WEST U13 CES

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	26	26	3.7	1
WH	9	9	1.3	1
RA	2	2	0.3	0
ALL	37	37	5.3	2

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST U13 CES

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	202.2	20.4	7.7	82.1	12.4	2.4	16,595	23.8	8.1
WH	70.0	58.8	22.2	91.2	13.7	4.6	6,382	60.4	22.7
RA	11.4	170.8	64.5	55.2	14.3	10.1	631	171.4	65.3
ALL	283.6	18.0	6.8	83.2	15.6	2.6	23,608	23.9	7.3

### Unit Summary: T3 KALALOCH WEST U13 CES

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	26	ALL	13.6	56	69	17,200	16,595	3.5	200.4	202.2	54.8	212.4
RA	LIVE	CUT	2	ALL	12.9	51	62	698	631	9.5	12.6	11.4	3.2	8.1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	9	ALL	14.9	60	74	6,791	6,382	6.0	57.8	70.0	18.1	81.7
ALL	LIVE	CUT	37	ALL	13.9	57	70	24,689	23,608	4.4	270.8	283.6	76.1	302.2
ALL	ALL	ALL	37	ALL	13.9	57	70	24,689	23,608	4.4	270.8	283.6	76.1	302.2

## Cruise Unit Report T3 KALALOCH WEST U14

### Unit Sale Notice Volume (MBF): T3 KALALOCH WEST U14

Sp	DBH	Rings/In	Age	MBF Volume by Grade		
				All	3 Saw	4 Saw
DF	12.5	6.0		31	21	10
WH	14.0			5	5	1
ALL	12.7	6.0		36	25	11

### Unit Cruise Design: T3 KALALOCH WEST U14

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	1.4	1.4	1	1	0

### Unit Cruise Summary: T3 KALALOCH WEST U14

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	5	5	5.0	1
WH	1	1	1.0	0
ALL	6	6	6.0	1

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST U14

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	272.2	0.0	0.0	80.5	7.6	3.4	21,902	7.6	3.4
WH	54.4	0.0	0.0	71.1	0.0	0.0	3,871	0.0	0.0
ALL	326.6	0.0	0.0	78.9	8.4	3.4	25,773	8.4	3.4

### Unit Summary: T3 KALALOCH WEST U14

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	5	ALL	12.5	51	62	22,351	21,902	2.0	319.4	272.2	77.0	30.7
WH	LIVE	CUT	1	ALL	14.0	59	72	4,431	3,871	12.6	50.9	54.4	14.5	5.4
ALL	LIVE	CUT	6	ALL	12.7	52	64	26,782	25,773	3.8	370.3	326.6	91.5	36.1
ALL	ALL	ALL	6	ALL	12.7	52	64	26,782	25,773	3.8	370.3	326.6	91.5	36.1

## Cruise Unit Report T3 KALALOCH WEST U15

### Unit Sale Notice Volume (MBF): T3 KALALOCH WEST U15

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
DF	13.7	6.0		173	17	103	53
WH	14.9	5.0		61	12	36	14
RA	12.9			6			6
ALL	13.9	5.5		240	29	139	73

### Unit Cruise Design: T3 KALALOCH WEST U15

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	9.6	9.6	7	7	0

### Unit Cruise Summary: T3 KALALOCH WEST U15

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	26	28	4.0	1
WH	9	9	1.3	1
RA	2	2	0.3	0
ALL	37	39	5.6	2

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST U15

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	217.8	20.4	7.7	82.8	12.3	2.4	18,021	23.8	8.1
WH	70.0	58.8	22.2	91.2	13.7	4.6	6,382	60.4	22.7
RA	11.4	170.8	64.5	55.2	14.3	10.1	631	171.4	65.3
ALL	299.2	14.7	5.5	83.7	15.5	2.6	25,034	21.3	6.1

### Unit Summary: T3 KALALOCH WEST U15

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	26	ALL	13.7	56	69	18,760	18,021	3.9	212.7	217.8	58.8	173.0
RA	LIVE	CUT	2	ALL	12.9	51	62	698	631	9.5	12.6	11.4	3.2	6.1



Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	9	ALL	14.9	60	74	6,791	6,382	6.0	57.8	70.0	18.1	61.3
ALL	LIVE	CUT	37	ALL	13.9	57	70	26,248	25,034	4.6	283.1	299.2	80.1	240.3
ALL	ALL	ALL	37	ALL	13.9	57	70	26,248	25,034	4.6	283.1	299.2	80.1	240.3

## Cruise Unit Report T3 KALALOCH WEST U16

### Unit Sale Notice Volume (MBF): T3 KALALOCH WEST U16

Sp	DBH	Rings/In	Age	MBF Volume by Grade		
				All	3 Saw	4 Saw
RA	13.7			10		10
DF	14.0			4	4	
WH	10.0			3		3
ALL	12.8			18	4	14

### Unit Cruise Design: T3 KALALOCH WEST U16

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 = 0 ft	2.4	3.2	2	2	0

### Unit Cruise Summary: T3 KALALOCH WEST U16

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
SS		1	0.5	0
WH	1	3	1.5	0
DF	1	3	1.5	0
RA	3	3	1.5	0
ALL	5	10	5.0	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST U16

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 (%)
SS	27.2	141.4	100.0						
WH	74.4	38.0	26.9	67.8	0.0	0.0	5,050	38.0	26.9
DF	81.7	47.1	33.3	60.8	0.0	0.0	4,966	47.1	33.3
RA	60.0	47.1	33.3	71.5	33.8	19.5	4,288	58.0	38.6
ALL	243.3	8.4	5.9	66.2	26.7	12.0	16,106	28.0	13.3

**Unit Summary: T3 KALALOCH WEST U16**

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	1	ALL	14.0	55	68	1,833	1,655	9.7	25.5	27.2	7.3	4.0
DF	LIVE	LEA	2	ALL	20.0	77	97	3,667	3,310	9.7	25.0	54.4	12.2	7.9
RA	LIVE	CUT	3	ALL	13.7	53	65	4,390	4,288	2.3	58.6	60.0	16.2	10.3
SS	LIVE	LEA	1	ALL	18.0	70	88				15.4	27.2	6.4	
WH	LIVE	CUT	1	ALL	10.0	45	54	1,357	1,357	0.0	36.7	20.0	6.3	3.3
WH	LIVE	LEA	2	ALL	19.9	77	96	3,693	3,693	0.0	25.2	54.4	12.2	8.9
ALL	LIVE	LEA	5	ALL	19.5	75	94	7,360	7,004	4.8	65.6	136.1	30.8	16.8
ALL	LIVE	CUT	5	ALL	12.8	51	62	7,581	7,300	3.7	120.8	107.2	29.8	17.5
ALL	ALL	ALL	10	ALL	15.5	60	74	14,941	14,304	4.3	186.4	243.3	60.6	34.3

## Cruise Unit Report T3 KALALOCH WEST U16 GAPS

### Unit Sale Notice Volume (MBF): T3 KALALOCH WEST U16 GAPS

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
DF	17.3			6	2	4	0
WH	14.9			6	4	1	2
RA	13.7			3			3
SS	18.0			3		2	0
ALL	15.5			18	6	6	6

### Unit Cruise Design: T3 KALALOCH WEST U16 GAPS

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 = 0 ft	0.8		2	2	0

### Unit Cruise Summary: T3 KALALOCH WEST U16 GAPS

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	3	3	1.5	0
DF	3	3	1.5	0
RA	3	3	1.5	0
SS	1	1	0.5	0
ALL	10	10	5.0	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST U16 GAPS

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	74.4	38.0	26.9	101.4	26.4	15.2	7,549	46.3	30.9
DF	81.7	47.1	33.3	91.6	29.1	16.8	7,476	55.4	37.3
RA	60.0	47.1	33.3	71.5	33.8	19.5	4,288	58.0	38.6
SS	27.2	141.4	100.0	118.8	0.0	0.0	3,235	141.4	100.0
ALL	243.3	8.4	5.9	92.7	28.1	8.9	22,549	29.3	10.7

**Unit Summary: T3 KALALOCH WEST U16 GAPS**

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	3	ALL	17.3	66	82	8,410	7,476	11.1	50.0	81.7	19.6	6.0
RA	LIVE	CUT	3	ALL	13.7	53	65	4,390	4,288	2.3	58.6	60.0	16.2	3.4
SS	LIVE	CUT	1	ALL	18.0	70	88	3,235	3,235	0.0	15.4	27.2	6.4	2.6
WH	LIVE	CUT	3	ALL	14.9	58	71	7,967	7,549	5.3	61.5	74.4	19.3	6.0
ALL	LIVE	CUT	10	ALL	15.5	60	74	24,003	22,549	6.1	185.5	243.3	61.5	18.0
ALL	ALL	ALL	10	ALL	15.5	60	74	24,003	22,549	6.1	185.5	243.3	61.5	18.0

## Cruise Unit Report T3 KALALOCH WEST U17

### Unit Sale Notice Volume (MBF): T3 KALALOCH WEST U17

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
DF	20.0			4	1	2	0
WH	20.3			4	2	2	0
SS	22.0			2	2		0
ALL	20.5			9	4	4	1

### Unit Cruise Design: T3 KALALOCH WEST U17

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	0.4	0.4	1	1	0

### Unit Cruise Summary: T3 KALALOCH WEST U17

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	2	2	2.0	0
WH	2	2	2.0	0
SS	1	1	1.0	0
ALL	5	5	5.0	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST U17

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	80.0	0.0	0.0	115.2	7.9	5.6	9,220	7.9	5.6
WH	80.0	0.0	0.0	112.1	6.2	4.4	8,969	6.2	4.4
SS	40.0	0.0	0.0	101.9	0.0	0.0	4,075	0.0	0.0
ALL	200.0	0.0	0.0	111.3	7.1	3.2	22,264	7.1	3.2

### Unit Summary: T3 KALALOCH WEST U17

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	76	96	9,622	9,220	4.2	36.7	80.0	17.9	3.7
SS	LIVE	CUT	1	ALL	22.0	64	80	4,075	4,075	0.0	15.2	40.0	8.5	1.6
WH	LIVE	CUT	2	ALL	20.3	74	93	9,499	8,969	5.6	35.6	80.0	17.8	3.6

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
ALL	LIVE	CUT	5	ALL	20.5	73	92	23,196	22,264	4.0	87.5	200.0	44.2	8.9
ALL	ALL	ALL	5	ALL	20.5	73	92	23,196	22,264	4.0	87.5	200.0	44.2	8.9

## Cruise Unit Report T3 KALALOCH WEST ROW 1

### Unit Sale Notice Volume (MBF): T3 KALALOCH WEST ROW 1

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
WH	13.9			7	4	1	3
DF	23.0			4	3	1	
RA	13.5			4			4
ALL	14.8			16	7	2	6

### Unit Cruise Design: T3 KALALOCH WEST ROW 1

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2: VR, 2 BAF (54.44, 40 for some species) Measure All, Sighting Ht = 4.5 ft	0.7	0.7	1	1	0

### Unit Cruise Summary: T3 KALALOCH WEST ROW 1

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	2	2	2.0	0
DF	1	1	1.0	0
RA	2	2	2.0	0
ALL	5	5	5.0	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST ROW 1

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	108.9	0.0	0.0	94.9	44.3	31.3	10,331	44.3	31.3
DF	54.4	0.0	0.0	116.5	0.0	0.0	6,340	0.0	0.0
RA	80.0	0.0	0.0	67.9	1.0	0.7	5,428	1.0	0.7
ALL	243.3	0.0	0.0	90.8	32.5	14.5	22,100	32.5	14.5

### Unit Summary: T3 KALALOCH WEST ROW 1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	1	ALL	23.0	87	110	7,057	6,340	10.2	18.9	54.4	11.4	4.4
RA	LIVE	CUT	2	ALL	13.5	53	65	5,428	5,428	0.0	80.5	80.0	21.8	3.8
WH	LIVE	CUT	2	ALL	13.9	59	72	10,929	10,331	5.5	103.3	108.9	29.2	7.2



Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
ALL	LIVE	CUT	5	ALL	14.8	59	73	23,415	22,100	5.6	202.7	243.3	62.3	15.5
ALL	ALL	ALL	5	ALL	14.8	59	73	23,415	22,100	5.6	202.7	243.3	62.3	15.5

## Cruise Unit Report T3 KALALOCH WEST ROW 2

### Unit Sale Notice Volume (MBF): T3 KALALOCH WEST ROW 2

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
WH	16.7			0	0	0	0
DF	13.3			0		0	0
ALL	14.7			1	0	1	0

### Unit Cruise Design: T3 KALALOCH WEST ROW 2

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (20) Measure All, Sighting Ht = 4.5 ft	0.1	0.1	1	1	0

### Unit Cruise Summary: T3 KALALOCH WEST ROW 2

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	2	2	2.0	0
DF	2	2	2.0	0
ALL	4	4	4.0	0

### Unit Cruise Statistics (Cut + Leave Trees): T3 KALALOCH WEST ROW 2

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	40.0	0.0	0.0	103.2	2.9	2.1	4,128	2.9	2.1
DF	40.0	0.0	0.0	83.7	5.9	4.2	3,349	5.9	4.2
ALL	80.0	0.0	0.0	93.5	12.5	6.3	7,477	12.5	6.3

### Unit Summary: T3 KALALOCH WEST ROW 2

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	2	ALL	13.3	58	72	3,349	3,349	0.0	41.5	40.0	11.0	0.3
WH	LIVE	CUT	2	ALL	16.7	67	82	4,128	4,128	0.0	26.3	40.0	9.8	0.4
ALL	LIVE	CUT	4	ALL	14.7	61	76	7,477	7,477	0.0	67.8	80.0	20.8	0.7
ALL	ALL	ALL	4	ALL	14.7	61	76	7,477	7,477	0.0	67.8	80.0	20.8	0.7



Forest Practices Application/Notification
Notice of Decision

FPA/N No: 2617838

Effective Date: 3/30/2023

Expiration Date: 3/30/2026

Shut Down Zone: 650

EARR Tax Credit: [X] Eligible [ ] Non-eligible

Reference: WA Dept. Natural Resources

T3 Kalaloch West

Decision

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

FPA/N Classification

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

Number of Years Granted on Multi-Year Request

[ ] 4 years [ ] 5 years

Conditions on Approval/Reasons for Disapproval

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

Material cleaned off bridge at crossing C21 shall not be allowed to enter the stream.

Issued By: Jenny Garstang

Region: Olympic

Title: Forest Practices Forester

Date: 3/30/2023

Copies to: [X] Landowner, Timber Owner and Operator

Issued in person: [X] LO [X] TO [X] OP By: Krista Pagel

[Handwritten signature]

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://eluh0.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

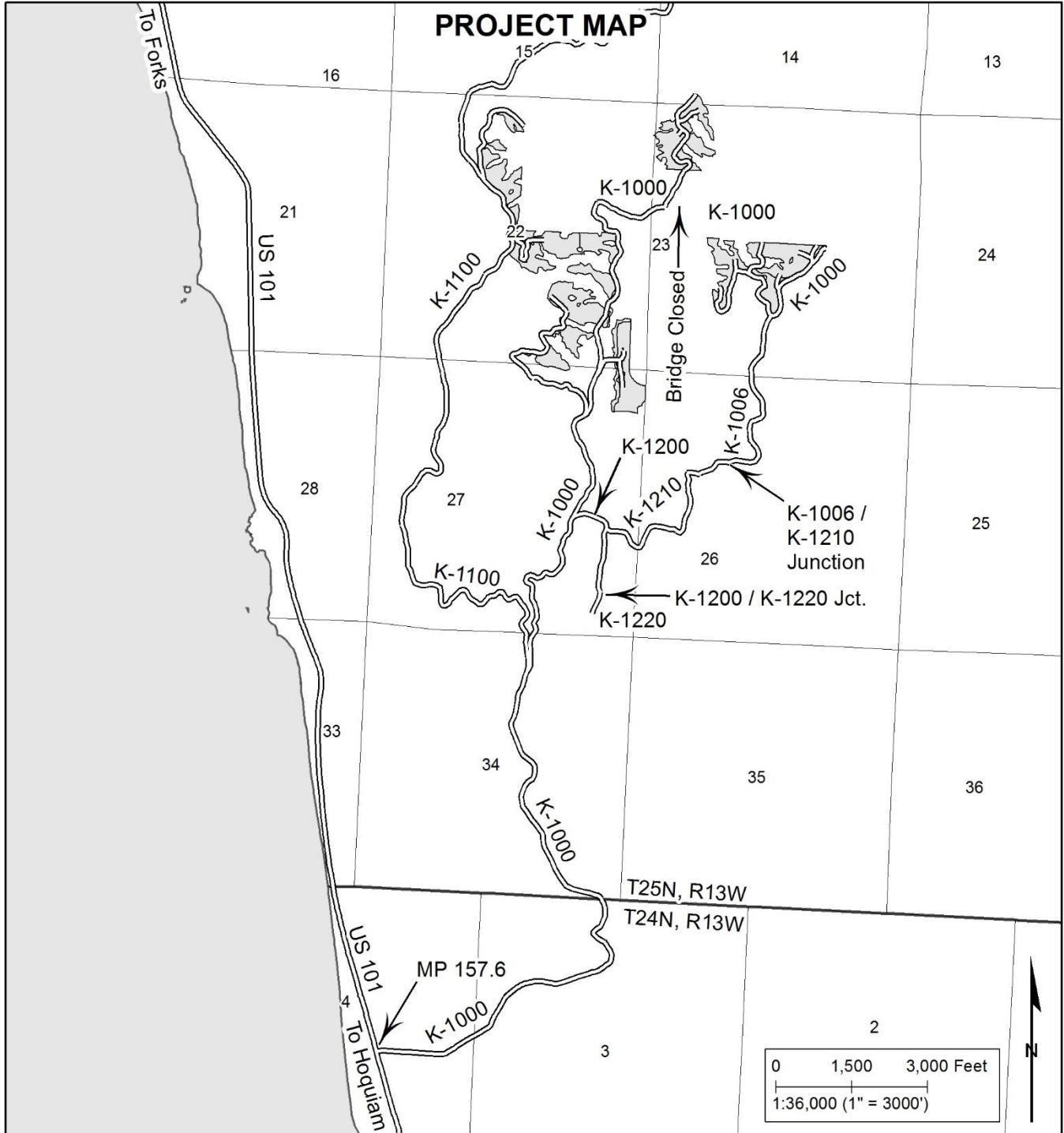
T3 KALALOCH WEST TIMBER SALE ROAD PLAN  
JEFFERSON COUNTY  
COAST DISTRICT

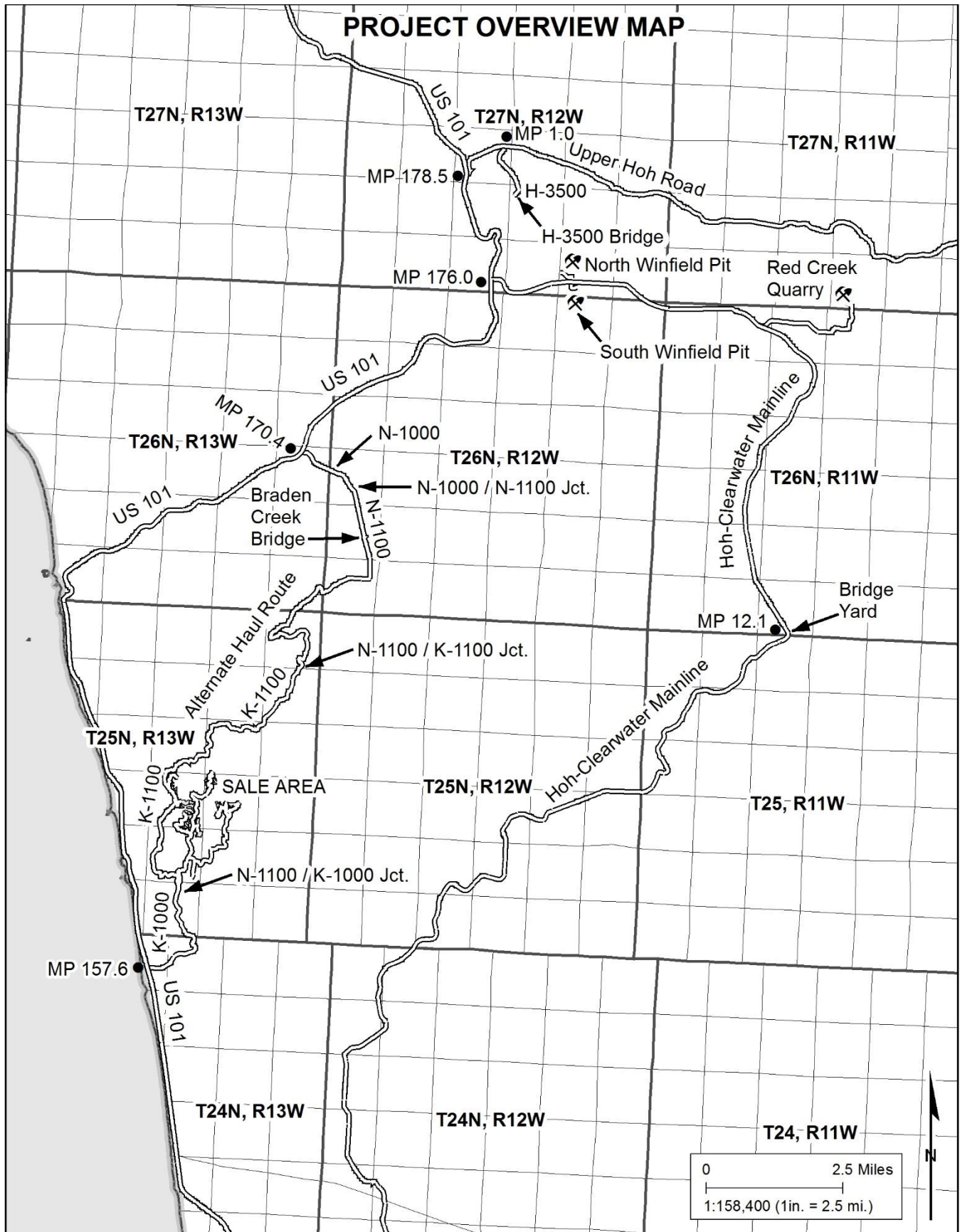
AGREEMENT NO.: 30-102259

DISTRICT ENGINEER: BILL MEHL

DATE: APRIL 12, 2023

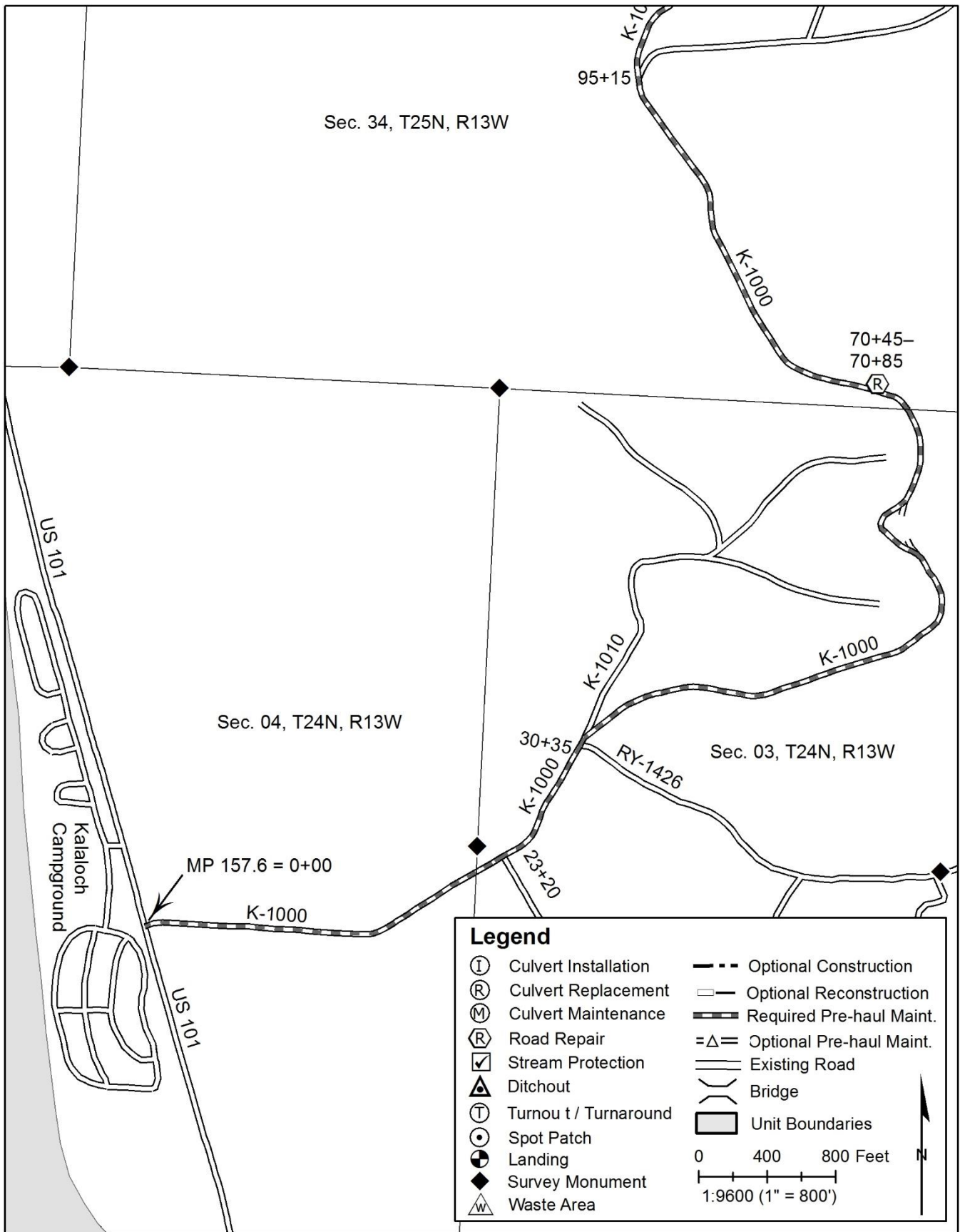
DRAWN & COMPILED BY: CRAIG MAGNUSON



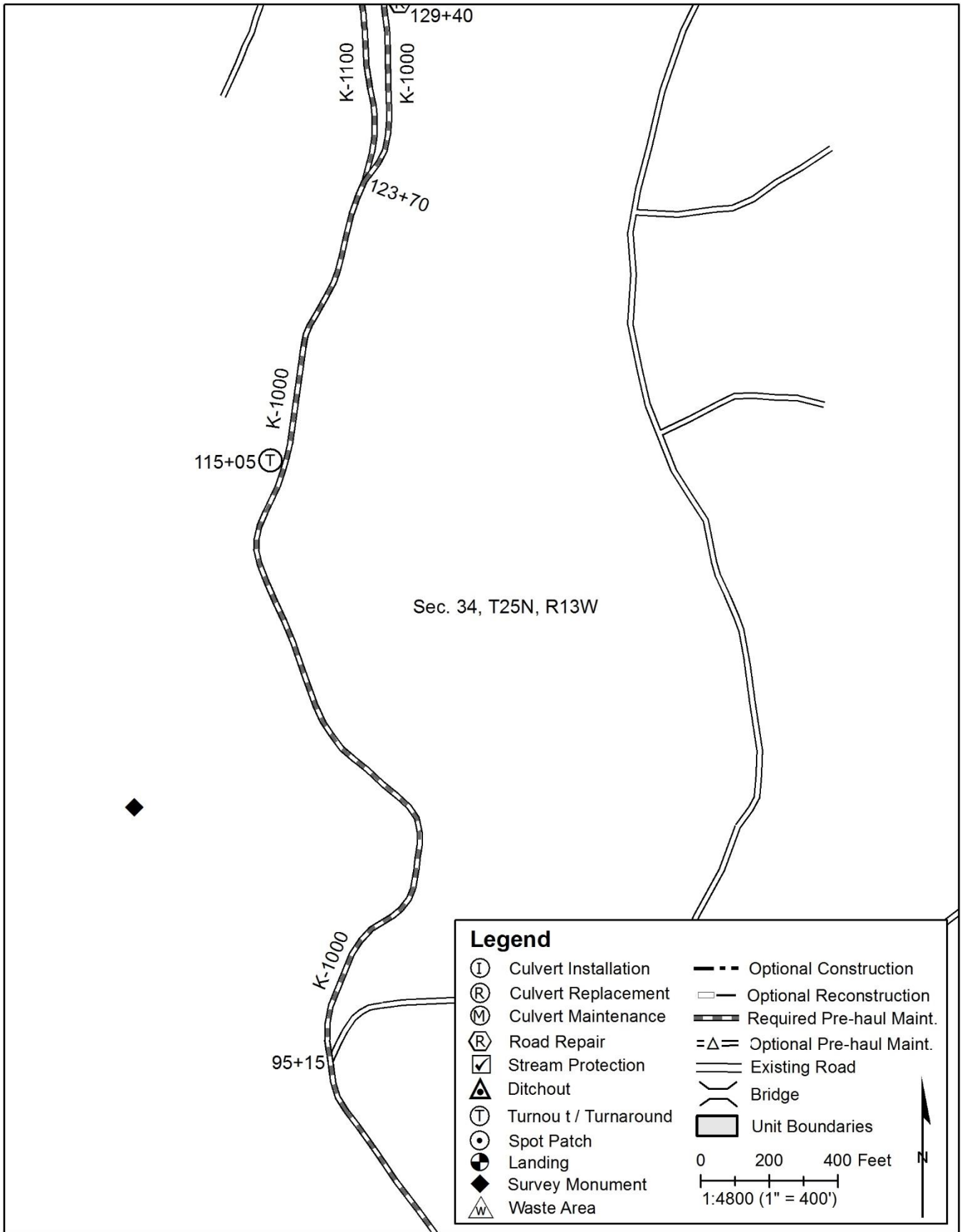




# PLAN VIEW

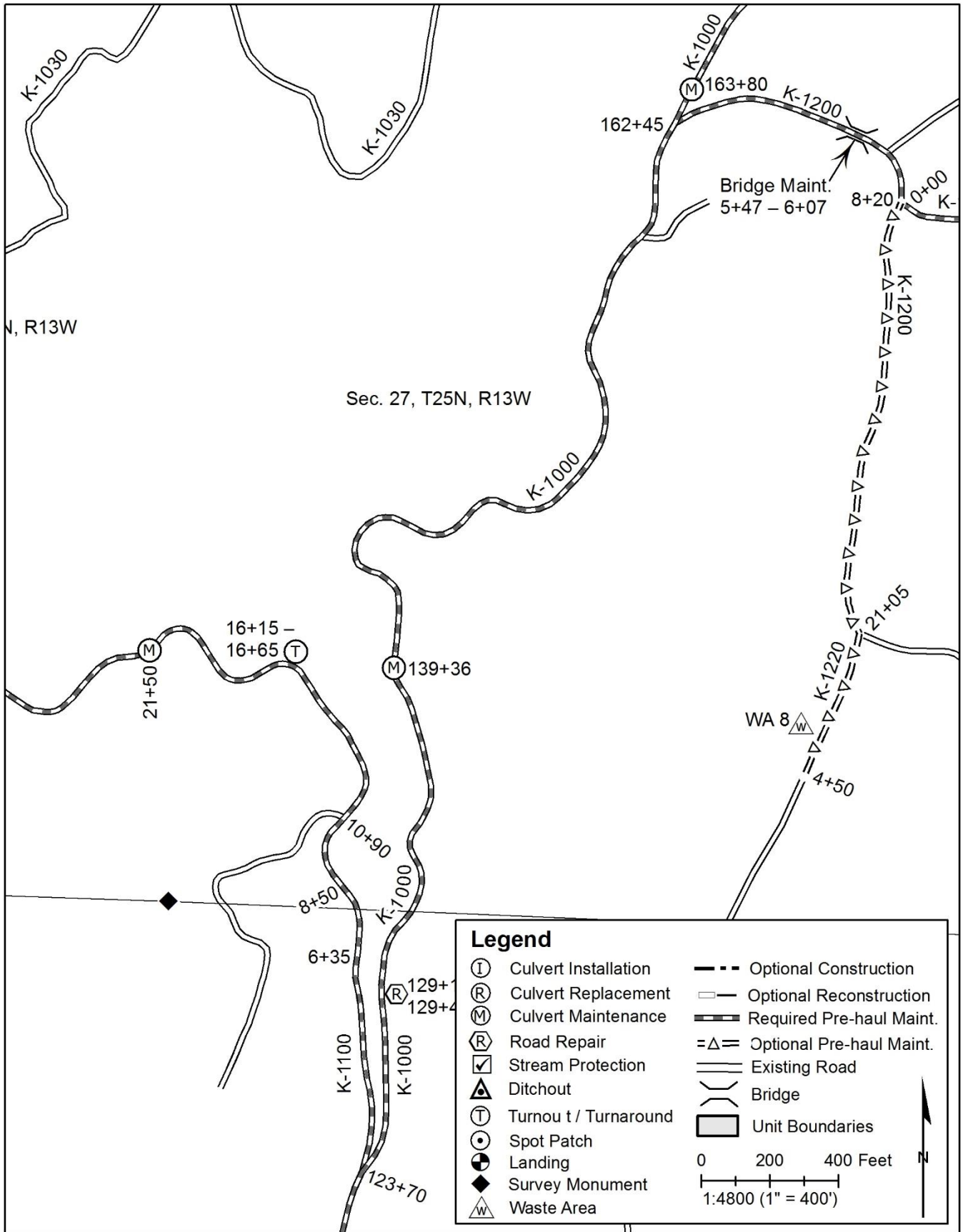


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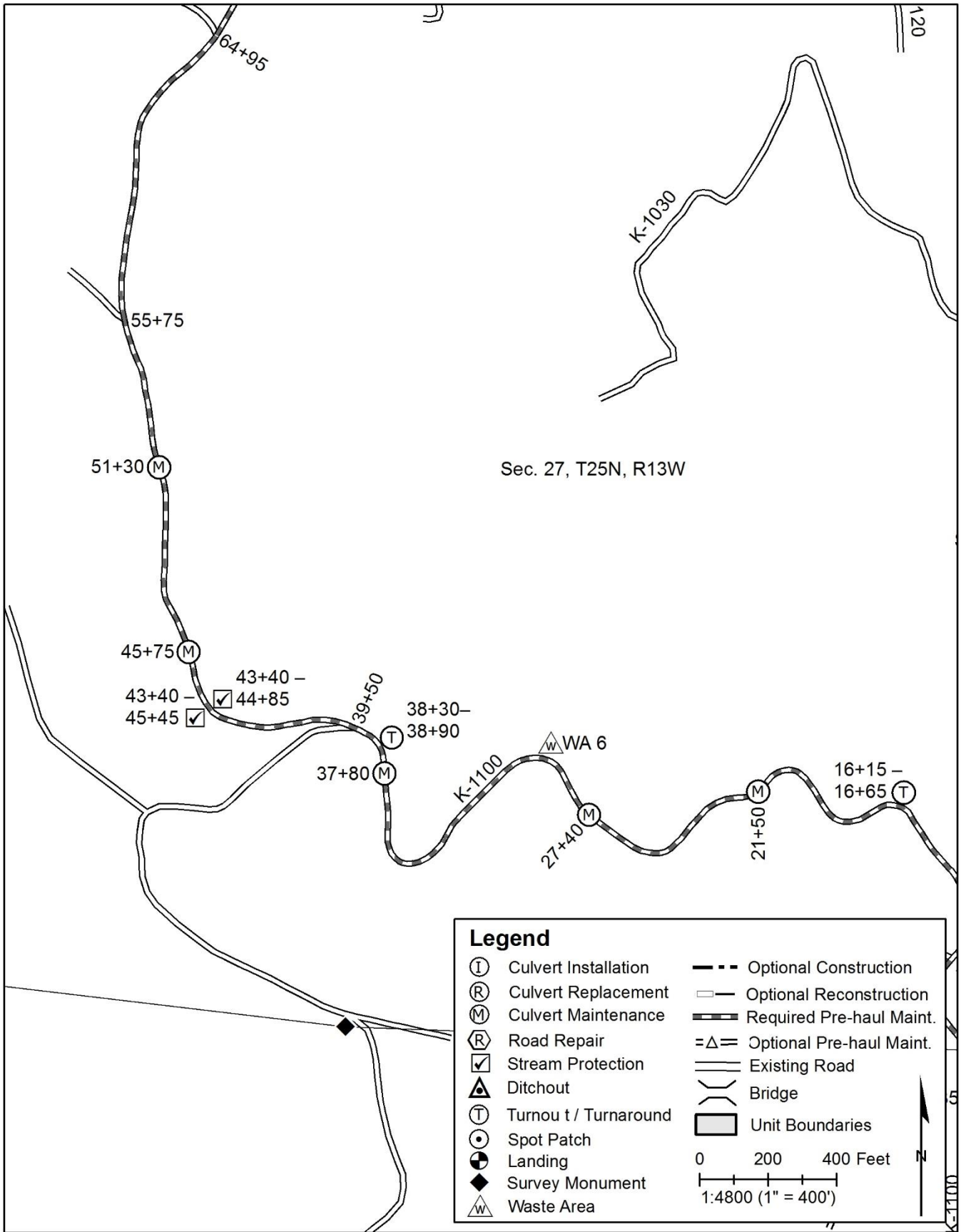




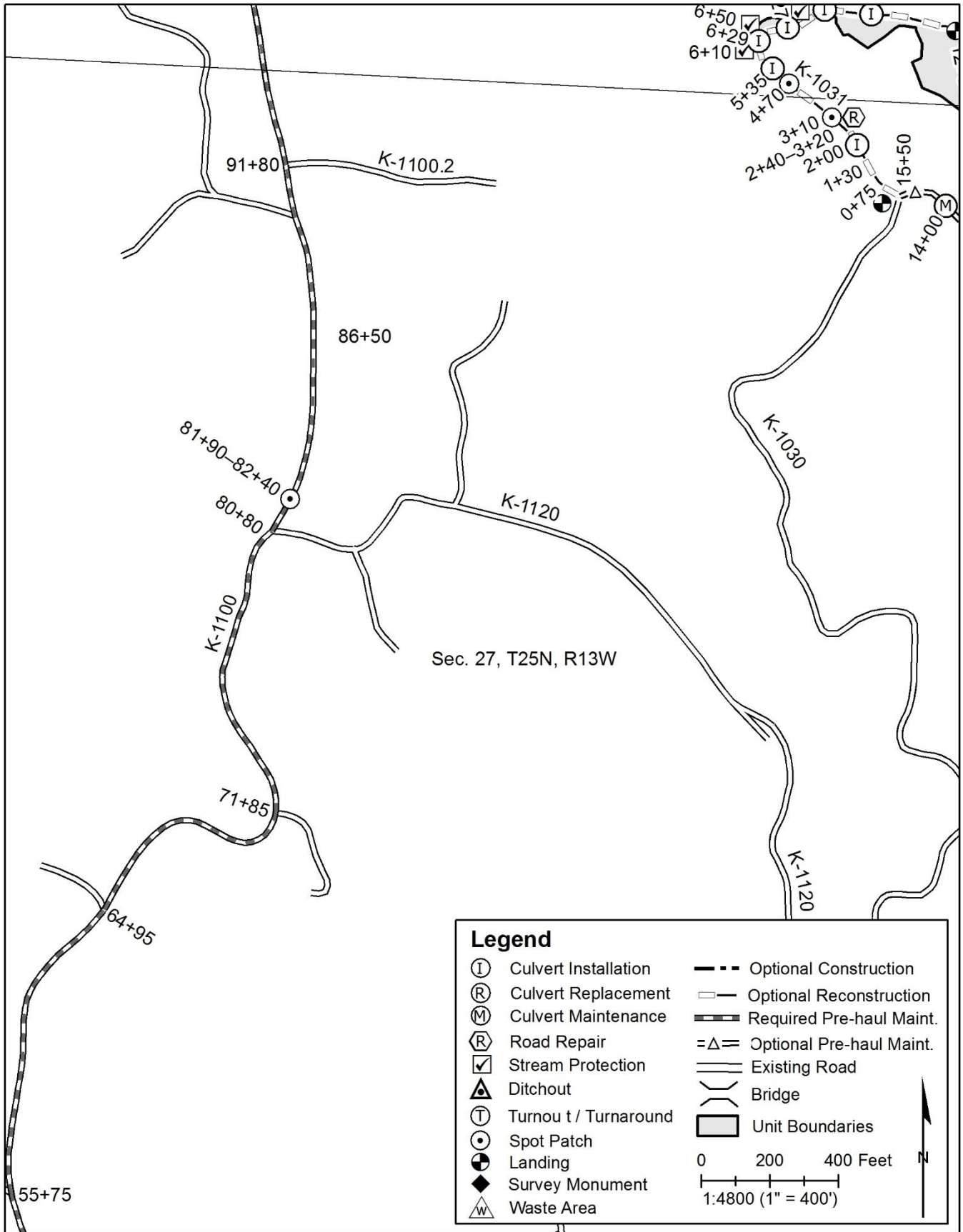
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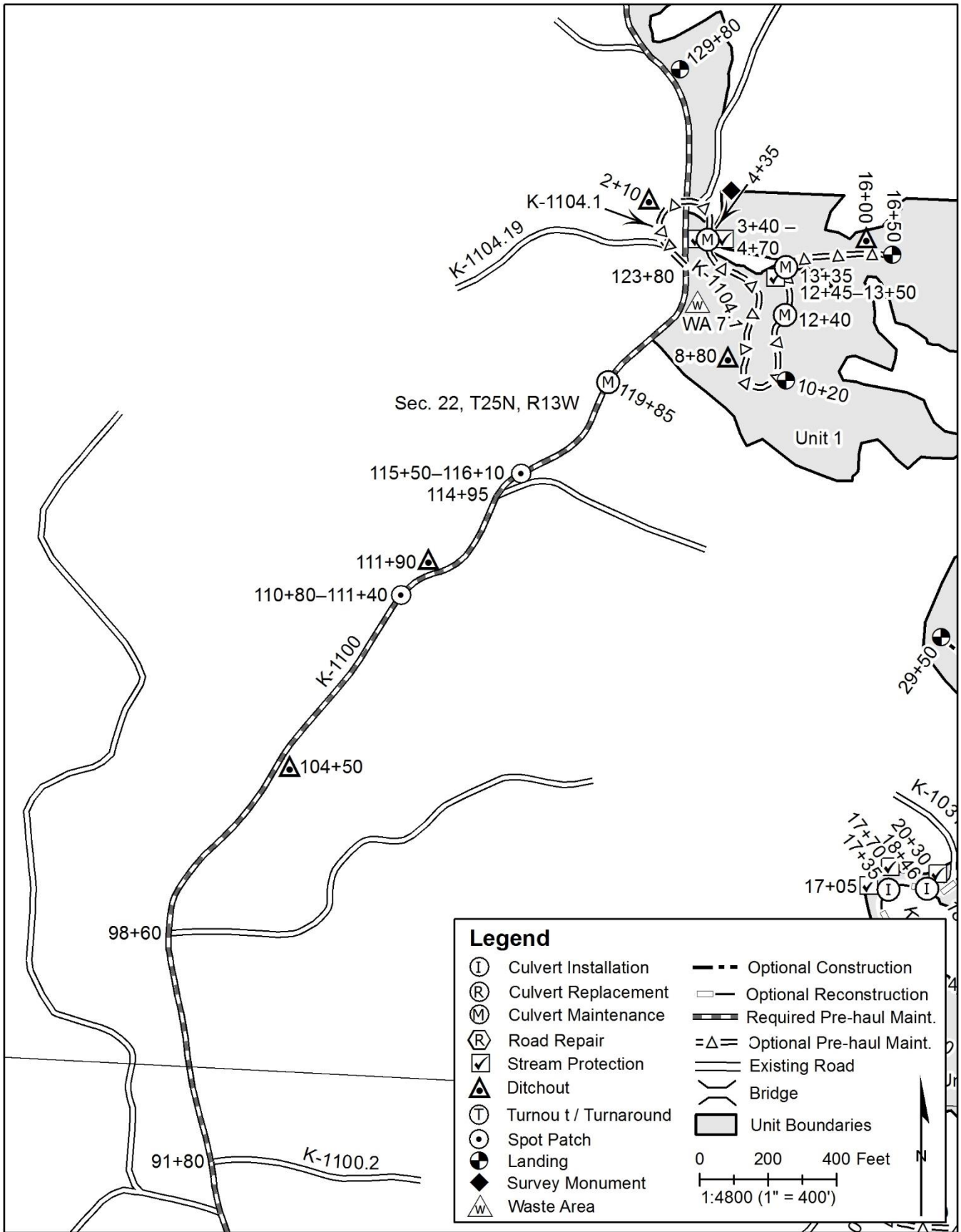
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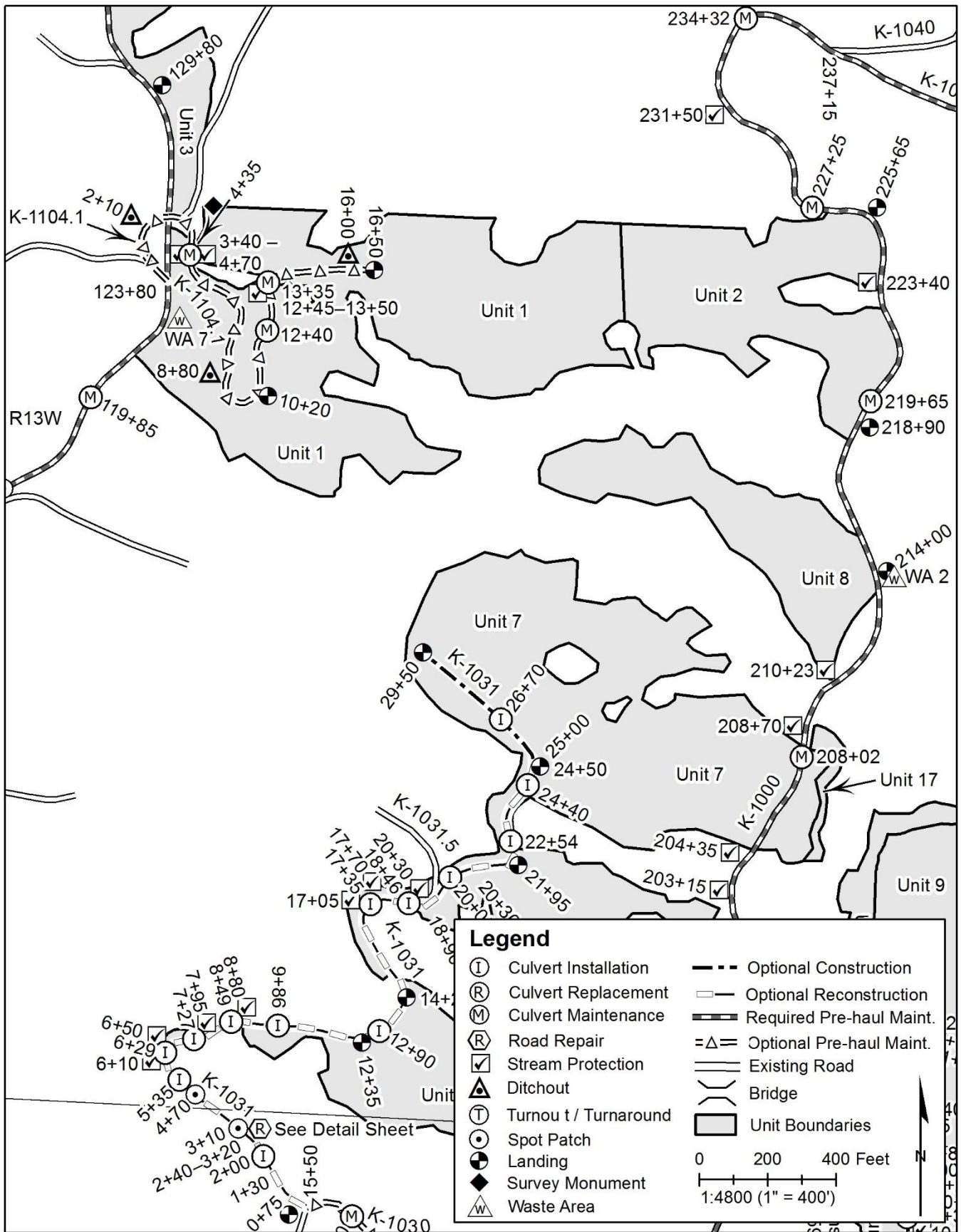


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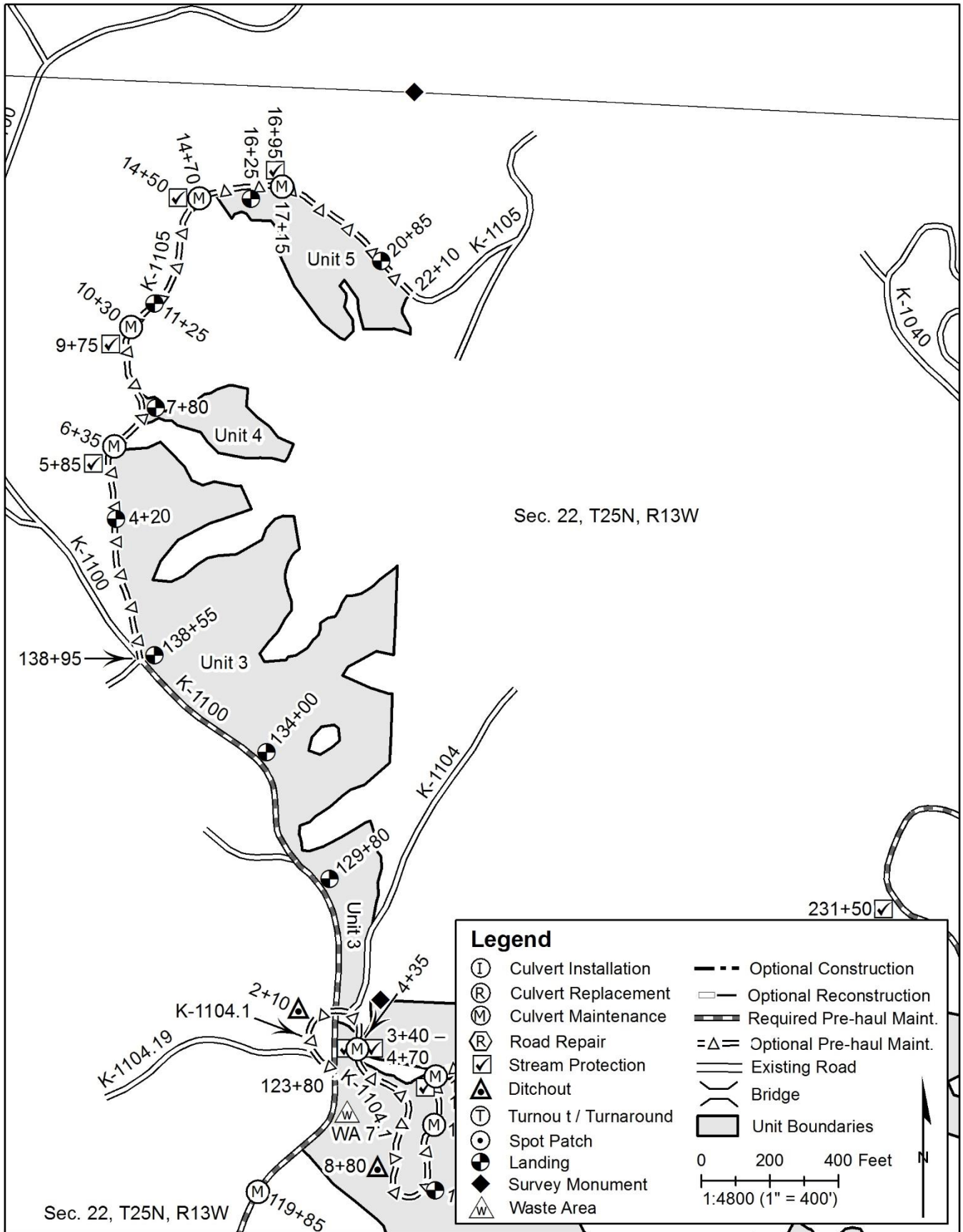




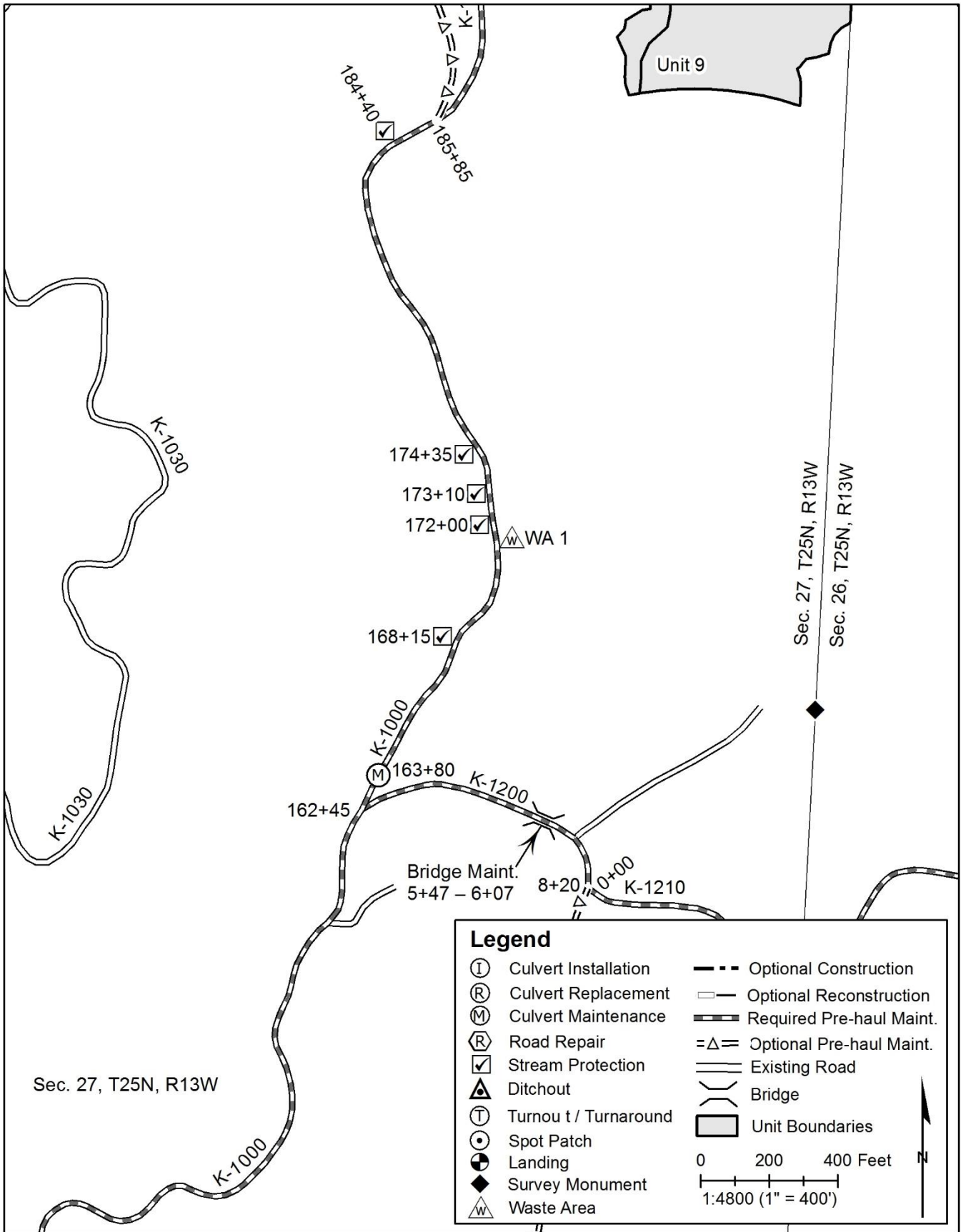
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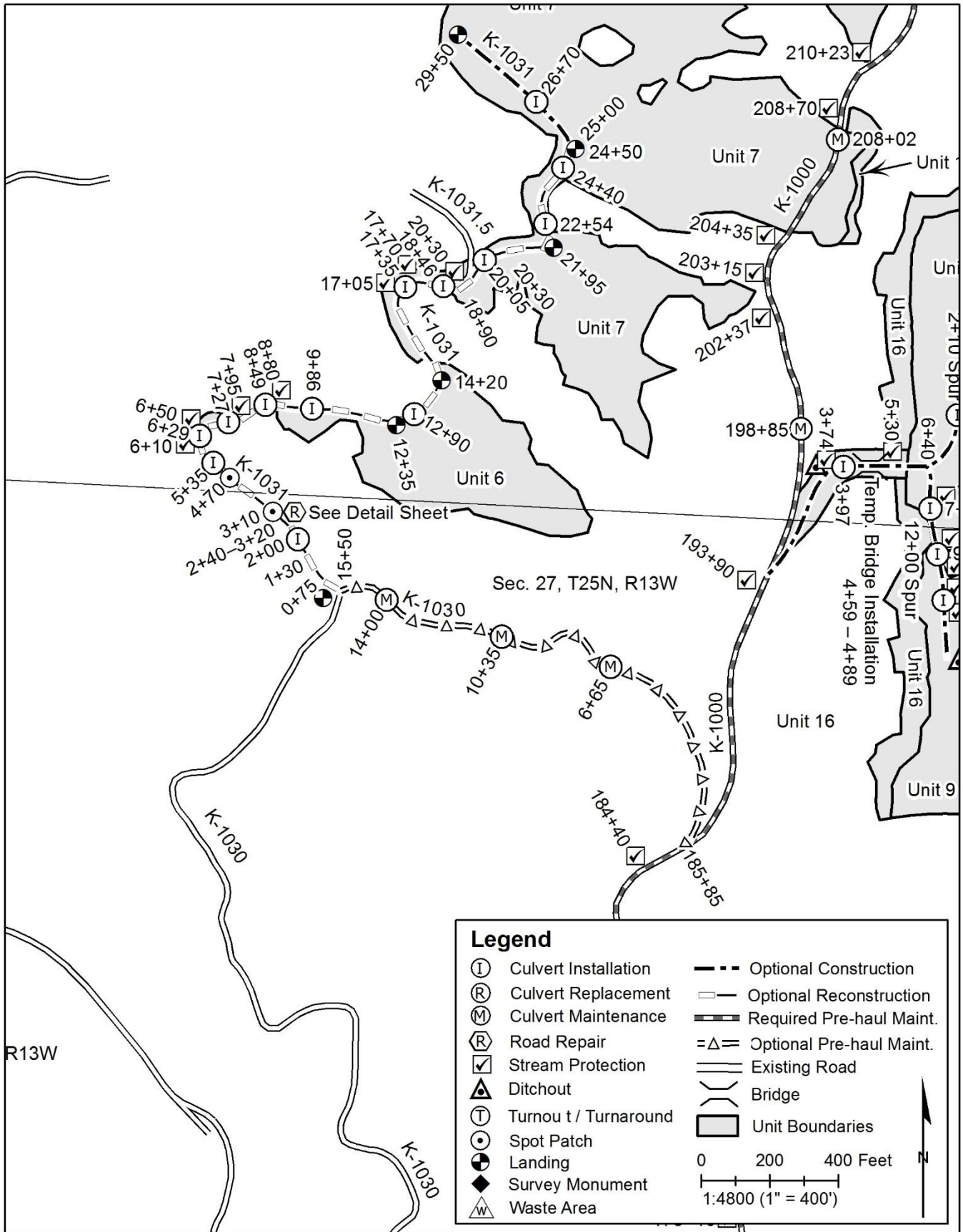


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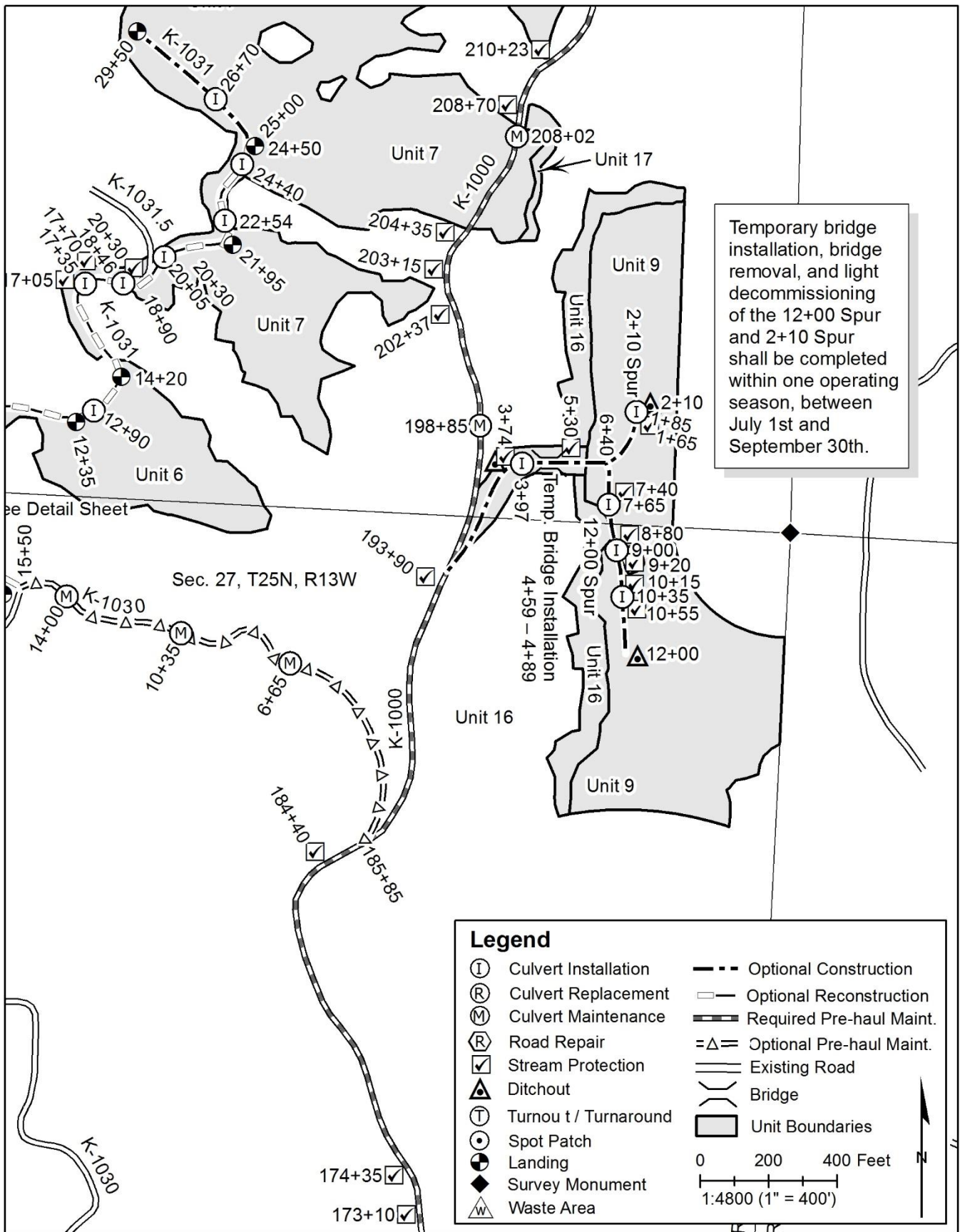


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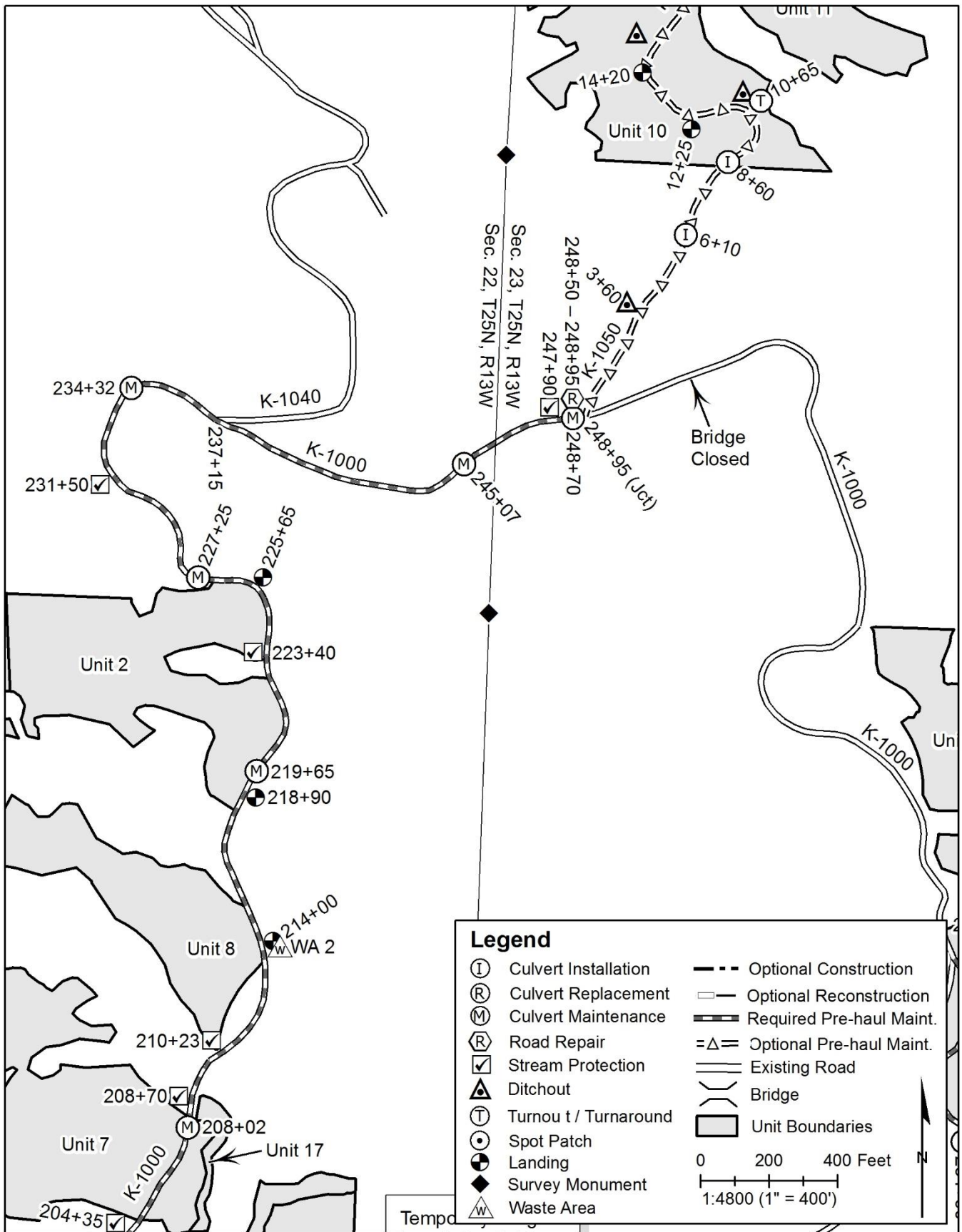




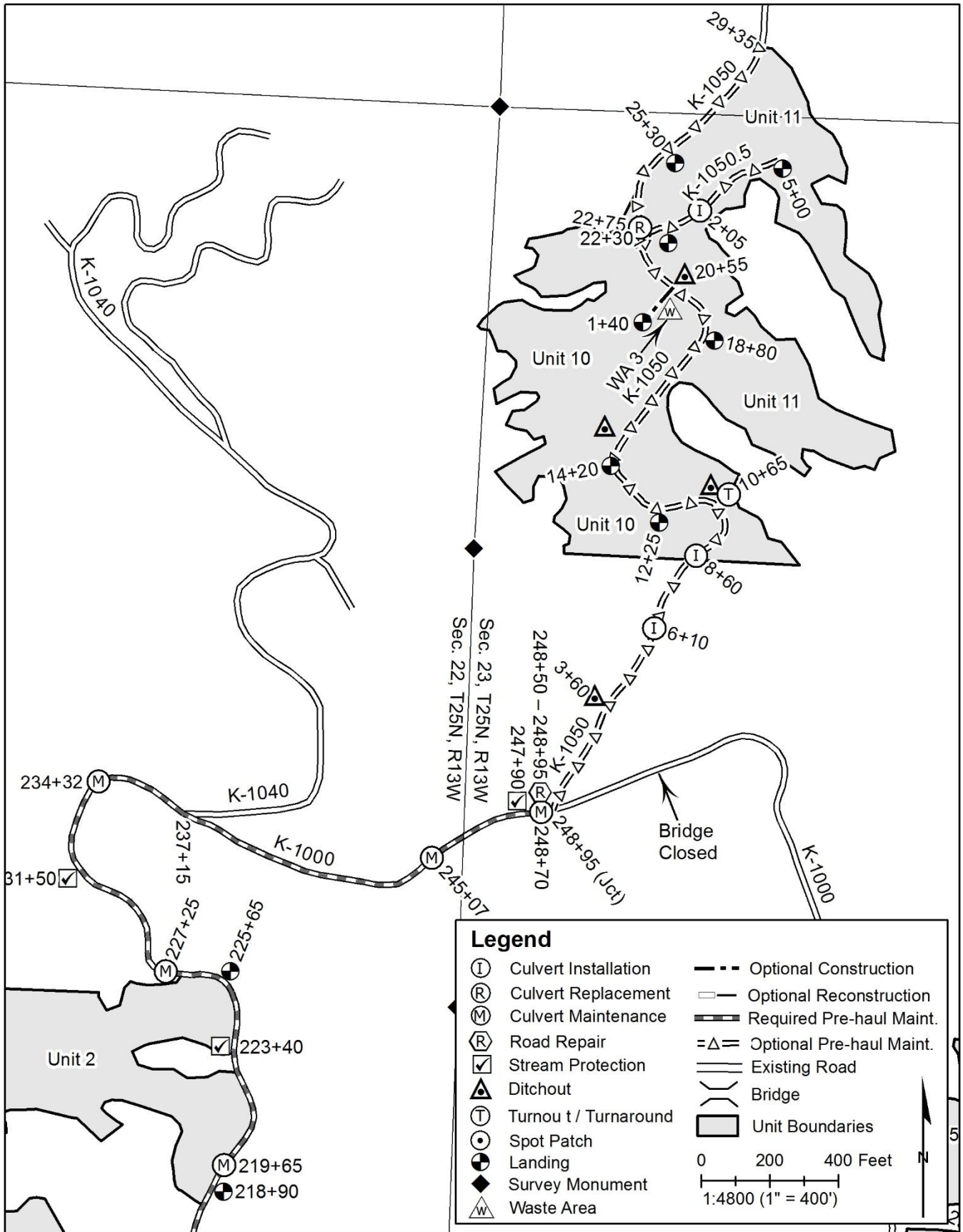
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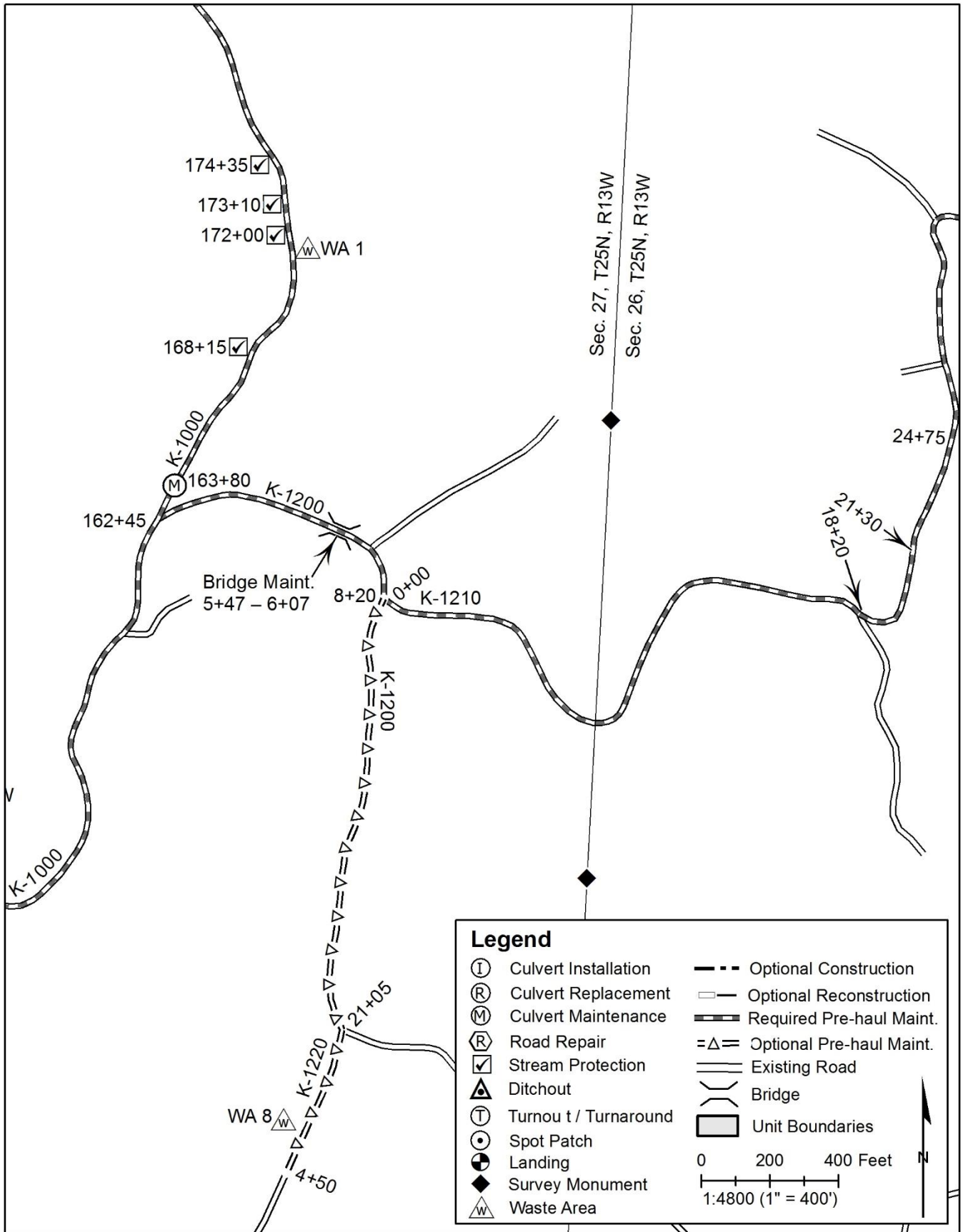
# PLAN VIEW



**Legend**

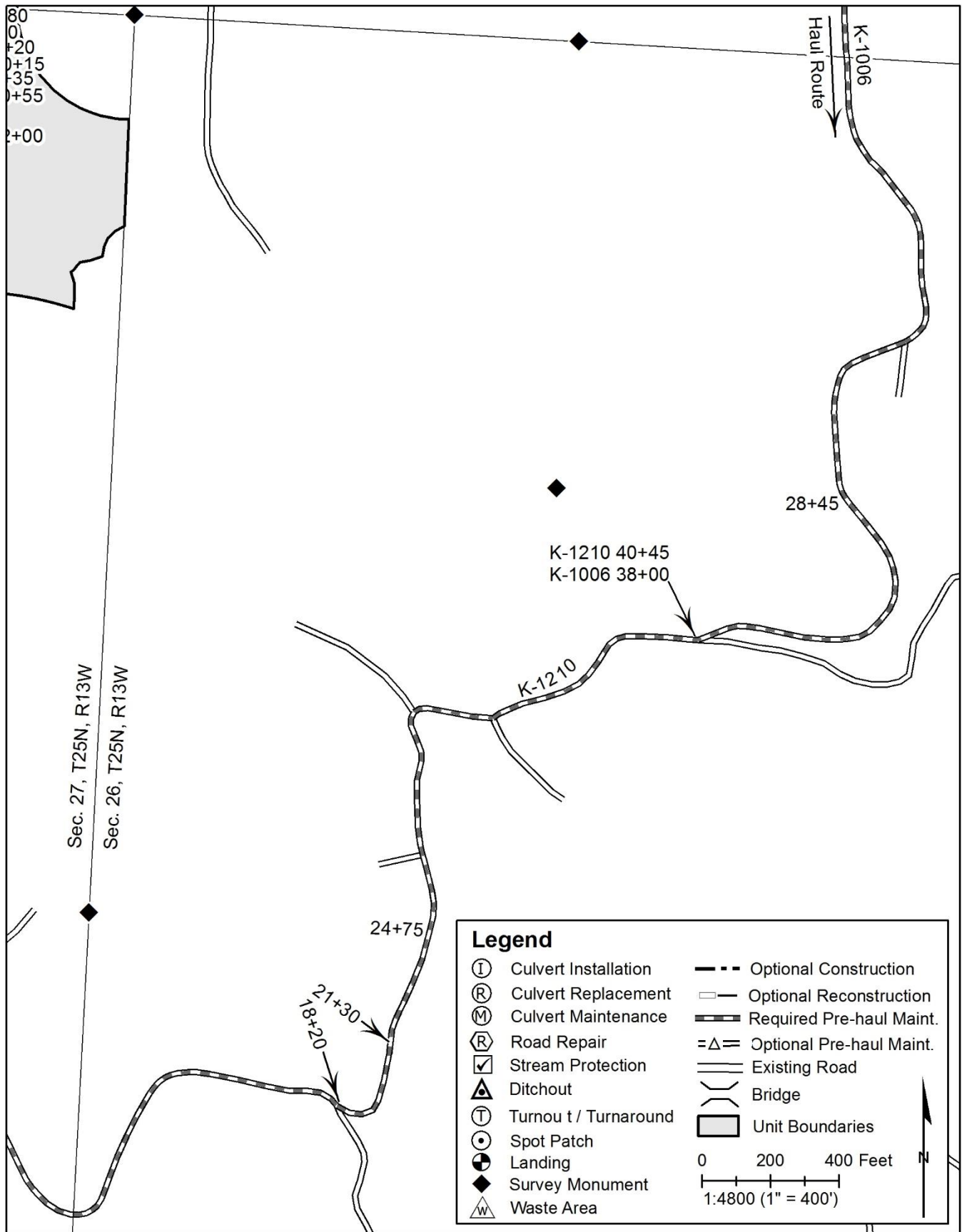
Ⓢ	Culvert Installation	---	Optional Construction
Ⓡ	Culvert Replacement	—	Optional Reconstruction
Ⓜ	Culvert Maintenance	▬	Required Pre-haul Maint.
Ⓡ	Road Repair	=Δ=	Optional Pre-haul Maint.
☑	Stream Protection	—	Existing Road
△	Ditchout	⌋	Bridge
Ⓣ	Turnout / Turnaround	▭	Unit Boundaries
⊙	Spot Patch	0 200 400 Feet	
⊙	Landing	1:4800 (1" = 400')	
◆	Survey Monument		
Ⓜ	Waste Area		

# PLAN VIEW

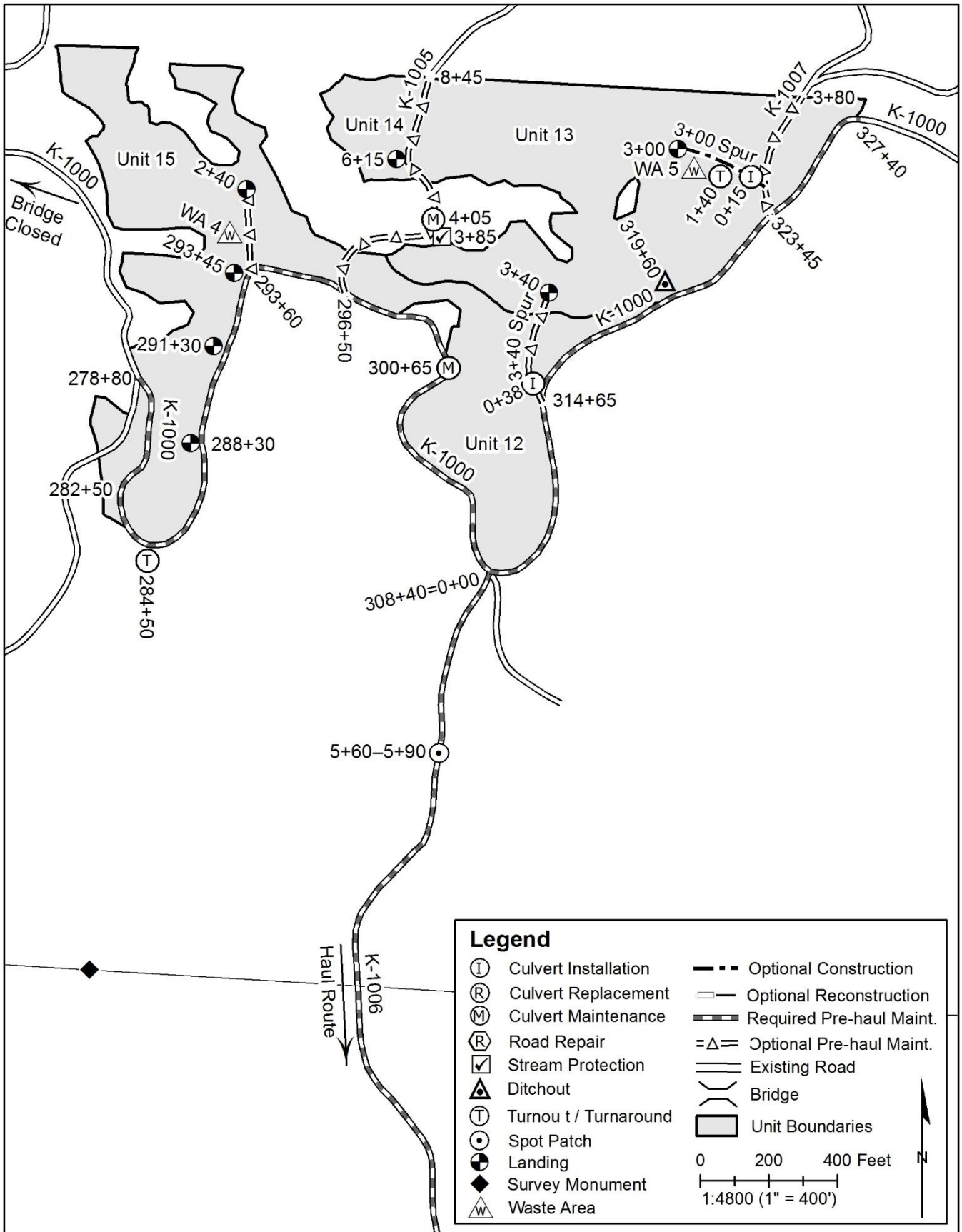




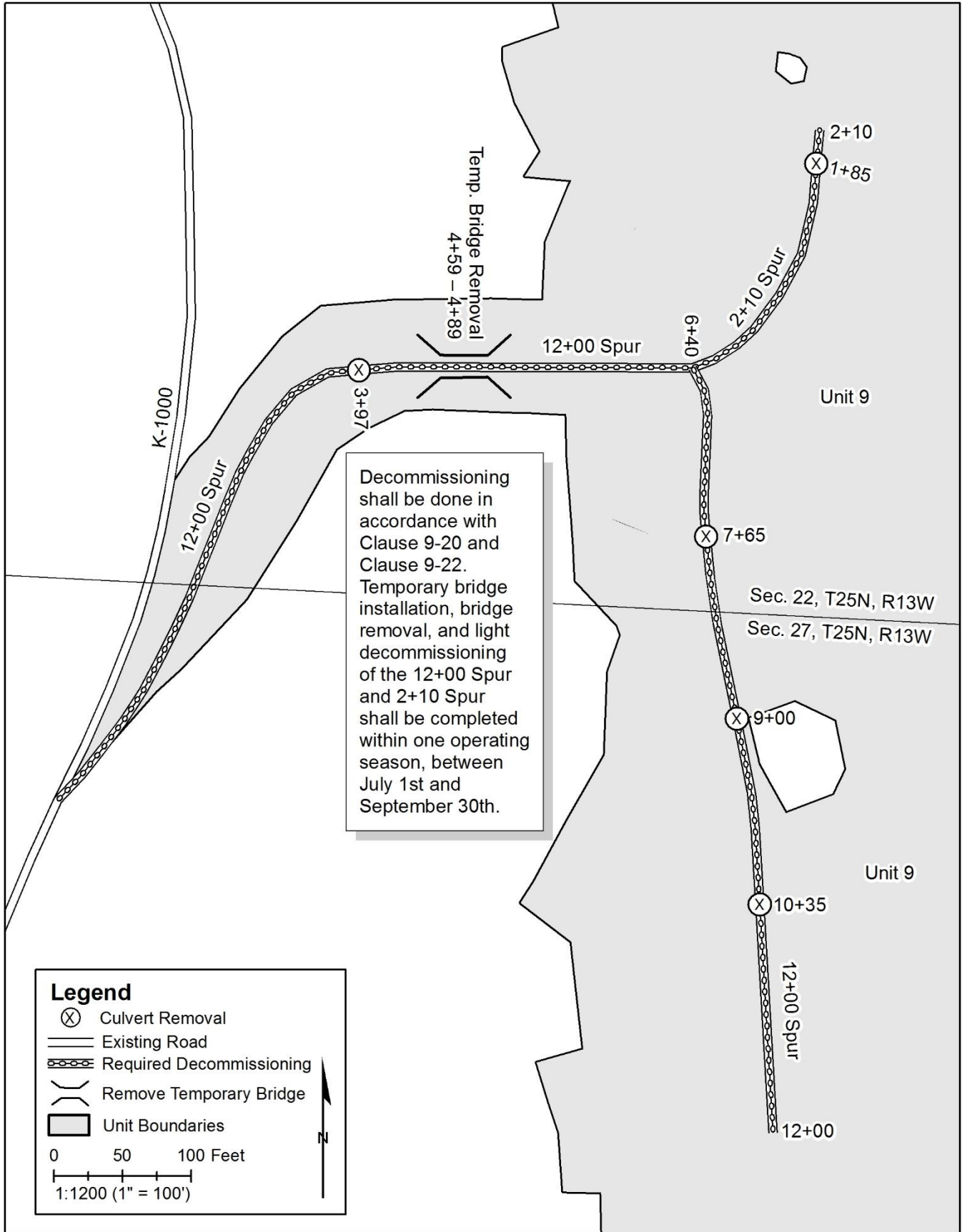
# PLAN VIEW



# PLAN VIEW



# LIGHT DECOMMISSIONING



Decommissioning shall be done in accordance with Clause 9-20 and Clause 9-22. Temporary bridge installation, bridge removal, and light decommissioning of the 12+00 Spur and 2+10 Spur shall be completed within one operating season, between July 1st and September 30th.

## SECTION 0 – SCOPE OF PROJECT

### 0-1 ROAD PLAN SCOPE

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

### 0-2 REQUIRED ROADS

The specified work on the following roads is required.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
K-1000	297.55	Pre-haul Maintenance
K-1100	138.95	Pre-haul Maintenance
K-1200	8.20	Pre-haul Maintenance
K-1210	40.45	Pre-haul Maintenance
K-1006	38.00	Pre-haul Maintenance
N-1100	1.00	Reconstruction (Bridge Replacement)

### 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>
K-1030	15.50	Pre-haul Maintenance
K-1031	25.00	Reconstruction
K-1031	4.50	Construction
12+00 Spur	12.00	Construction
2+10 Spur	2.10	Construction
12+00 Spur	11.50	Light Decommissioning
2+10 Spur	2.10	Light Decommissioning
K-1050	29.35	Pre-haul Maintenance
1+40 Spur	1.40	Construction
K-1050.5	5.00	Pre-haul Maintenance
2+40 Spur	2.40	Pre-haul Maintenance
K-1005	8.45	Pre-haul Maintenance
3+40 Spur	3.40	Pre-haul Maintenance
K-1007	3.80	Pre-haul Maintenance
K-1104.1	16.50	Pre-haul Maintenance
K-1105	22.10	Pre-haul Maintenance
K-1200	12.85	Pre-haul Maintenance
K-1220	4.50	Pre-haul Maintenance
3+00 Spur	3.00	Construction
H-3500	1.00	Reconstruction

### 0-4 CONSTRUCTION

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
K-1031	25+00 – 29+50	See below.
12+00 Spur	0+00 -12+00	See below. Install and remove temporary State supplied bridge, for temporary stream crossing, in accordance with Clause 7-46, Clause 7-48,



		Clause 7-49, Clause 7-51, and Bridge Detail Drawings.
2+10 Spur	0+00 – 2+10	See below.
1+40 Spur	0+00 – 1+40	See below.
3+00 Spur	0+00 – 3+00	See below.
Total:	23.00	

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.

## 0-5 RECONSTRUCTION

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
K-1031	0+00 – 25+00	See below. Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Clean out and/or construct ditches in accordance with Clause 2-7. Construct excavation and/or embankment slopes to subgrade in accordance with Clause 4-5 and Clause 4-6. Construct curve widening in accordance with Clause 4-8 and embankment widening in accordance with Clause 4-9. Construct keyed embankment in accordance with Clause 4-11 and K-1031 Embankment Key Detail. Construct ditches and ditchouts in accordance with Clause 4-25. End haul waste in accordance with Clause 4-37. Compact fill in accordance with Clause 4-60, Clause 4-61, and Compaction List. Install culverts in accordance with Clause 5-5 through Clause 5-18 and culvert list. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List. Install sediment controls in accordance with Clause 8-1. Maintain sediment controls in accordance with Clause 2-8.
N-1100	46+20 – 47+20	Replace existing bridge with State supplied bridge to be installed in accordance with Clause 7-46, Clause 7-48, Clause 7-49, Clause 7-51, and Bridge Detail Drawings.
H-3500	54+30 – 55+30	Temporarily remove and reinstall State supplied bridge, for temporary use on the 12+00 Spur, in accordance with Clause 7-46, Clause 7-48, Clause 7-49, Clause 7-51, and Bridge Detail Drawings.
Total:	27.00	

Reconstruction includes, but is not limited to:

Installing additional culverts, realigning road segments, application of rock, removing culvert.

## 0-6 PRE-HAUL MAINTENANCE

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
K-1000	0+00 – 248+95	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1. Clean

		out and/or construct ditches in accordance with Clause 2-7. Clean out and maintain culverts in accordance with Clause 2-6 and Culvert List. Dispose of waste material in accordance with Clause 4-36 and Clause 4-38. End haul waste in accordance with Clause 4-37. Construct keyed embankments in accordance with Clause 4-11 and Typical Embankment Key Detail. Repair road embankment at STA 248+50 – 248+95 in accordance with K-1000 Road Repair Detail. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List. Grade, shape, and compact existing road surface in accordance with Clause 2-5. Maintain sediment controls in accordance with Clause 2-8. Install sediment controls in accordance with Clause 8-1.
K-1000	278+80 – 327+40	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1. Clean out and/or construct ditches in accordance with Clause 2-7. Construct ditchout in accordance with Clause 4-29. Clean out and maintain culverts in accordance with Clause 2-6 and Culvert List. 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. Grade, shape, and compact existing road surface in accordance with Clause 2-5. Maintain sediment controls in accordance with Clause 2-8. Install sediment controls in accordance with Clause 8-1.
K-1030	0+00 – 15+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. Clean out and/or construct ditches in accordance with Clause 2-7. Clean out and maintain culverts in accordance with Clause 2-6 and Culvert List. 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. Grade, shape, and compact existing road surface in accordance with Clause 2-5.
K-1050	0+00 – 29+35	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1. Clean out and/or construct ditches in accordance with Clause 2-7. Construct ditchouts in accordance with Clause 4-29. Install and replace culverts in accordance with Clause 5-5 through Clause 5-18 and Culvert List. 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.
K-1050.5	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. Clean out and/or construct ditches in accordance with Clause 2-7. Install culverts in accordance with Clause 5-5 through Clause 5-18 and Culvert List. 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.
2+40 Spur	0+00 – 2+40	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
K-1005	0+00 – 8+45	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1. Clean out and maintain culvert in accordance with Clause 2-6 and Culvert List. Dispose of waste material in accordance with Clause 4-36 and Clause 4-38. End haul waste in accordance with Clause 4-37. Grade, shape, and compact existing road surface in accordance with Clause 2-5. Maintain sediment controls in accordance with Clause 2-8. Install sediment controls in accordance with Clause 8-1.
K-1006	0+00 – 38+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. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List. Grade, shape, and compact existing road surface in accordance with Clause 2-5.
3+40 Spur	0+00 – 3+40	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Install culvert in accordance with Clause 5-5 and Culvert List. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List.
K-1007	0+00 – 3+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. Grade, shape, and compact existing road surface in accordance with Clause 2-5.
K-1100	0+00 – 138+95	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Clean out and/or construct ditches in accordance with Clause 2-7. Construct ditchouts in accordance with Clause 4-29. Clean out and maintain culverts in accordance with Clause 2-6 and Culvert List. 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. Grade, shape, and compact existing road surface in accordance with Clause 2-5. Maintain sediment controls in accordance with Clause 2-8.
K-1104.1	0+00 – 16+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. Clean out and/or construct ditches in accordance with Clause 2-7. Construct ditchouts in accordance with Clause 4-29. Clean out and maintain culverts in accordance with Clause 2-6 and Culvert List. 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. Grade, shape, and compact existing road surface in accordance with Clause 2-5. Maintain sediment controls in accordance with Clause 2-8.
K-1105	0+00 – 22+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. Clean out and/or construct ditches in accordance with Clause 2-7. Clean out and maintain culverts in accordance with Clause 2-6 and Culvert List. 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. Grade, shape, and compact existing road surface in accordance with Clause 2-5. Maintain sediment controls in accordance with Clause 2-8. Install sediment controls in accordance with Clause 8-1.
K-1200	0+00 – 8+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. Apply rock in accordance with Rock List. Compact rock in accordance with Clause 4-66 and Compaction List. Grade, shape, and compact existing road surface in accordance with Clause 2-5. Perform bridge maintenance in accordance with Clause 7-30.
K-1200	8+20 – 21+05	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Grade, shape, and compact existing road surface in accordance with Clause 2-5.
K-1210	0+00 – 40+45	Remove vegetative material with a minimum loss of rock in accordance with Clause 2-9 and dispose of in accordance with Clause 3-23. Brush road in accordance with Clause 3-1. Clean out and/or construct ditches in accordance with Clause 2-7. 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. Grade, shape, and compact existing road surface in accordance with Clause 2-5.
K-1220	0+00 – 4+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. Grade, shape, and compact existing road surface in accordance with Clause 2-5.
Total:	647.00	

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.

**0-9 DECOMMISSIONING**

This project includes, but is not limited to decommissioning listed in Clause 9-20 ROAD DECOMMISSIONING.

**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.

<u>Road</u>	<u>Number of Allowable Closed Days</u>
K-1000	3
K-1100	3
N-1100	3

**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	N-1100	46+50 – 46+90	<b>Bridge Replacement</b> Remove existing 40’ bridge / install other similar 40’ bridge during the same operating season.
C2	12+00 Spur	4+59 – 4+89	<b>Temporary Bridge Installation</b> Install 30’ bridge / remove bridge during same operating season.
C3	K-1000	248+50 – 248+95	Road Repair add riprap above existing riprap at culvert inlet. Repair road embankment with pitrun fill.
C20	H-3500	54+65 – 54+95	<b>Temporary Bridge Removal</b> Remove existing 30’ bridge / reinstall same 30’ bridge during the same operating season.
C21	K-1200	5+07 – 6+07	<b>Bridge Cleaning</b> Clean off all moss, organic matter, and dirt accumulations from all concrete surfaces.

**1-12 SURVEY MONUMENTS**

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

## SUBSECTION ROAD MARKING

### 1-15 ROAD MARKING

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

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

### 1-16 CONSTRUCTION STAKES SET BY STATE

Purchaser shall perform work on the following road(s) in accordance with the construction stakes and reference points set in the field for grade and alignment. 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>
K-1031	5+17 – 8+49	Road reconstruction realignment.
K-1031	15+41 – 18+46	Road reconstruction realignment.
K-1031	20+04 – 24+40	Road reconstruction realignment.
12+00 Spur	4+59 – 4+89	Temporary State supplied bridge installation.
H-3500	54+65 – 54+95	Temporary State supplied bridge removal and replacement / installation.
N-1100	46+50 – 46+90	State supplied bridge replacement / Installation.

### 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>
K-1031	0+00 – 25+00	All	October 15 <sup>th</sup> – April 15 <sup>th</sup>
12+00 Spur	4+59 – 4+89	Temporary State supplied bridge installation and removal within only one season, between July 1 <sup>st</sup> and September 30 <sup>th</sup> .	October 1 <sup>st</sup> – June 30 <sup>th</sup>
H-3500	54+65 – 54+95	Temporary State supplied bridge removal and replacement / installation within only one season, between July 1 <sup>st</sup> and September 30 <sup>th</sup> .	October 1 <sup>st</sup> – June 30 <sup>th</sup>
N-1100	46+50 – 46+90	State supplied bridge replacement / installation	October 1 <sup>st</sup> – June 30 <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 TIMING RESTRICTION FOR MARBLED MURRELET

On portions of the below listed Roads; Any 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. This restriction does not apply to hauling timber, rock or equipment.

<u>Road</u>	<u>Stations</u>
K-1000	265+50 – 284+60
K-1000	210+30 – 213+70
K-1100	203+00 – 206+50
K-1100	262+00 – 288+00
K-1100	292+00 – 332+50
N-1100	23+00 – 56+00
N-1100	150+50 – 182+00

### 1-29 SEDIMENT RESTRICTION

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

### 1-30 CLOSURE TO PREVENT DAMAGE

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

- In the opinion of the Contract Administrator excessive road damage or rutting may occur, when weather is such that satisfactory results cannot be obtained.



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

**1-32 BRIDGE AND ASPHALT SURFACE RESTRICTION**

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

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

**1-33 SNOW PLOWING RESTRICTION**

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

SUBSECTION OTHER INFRASTRUCTURE

**1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS**

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

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

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

<u>Road Name</u>
US 101
Upper Hoh County Road

**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>
Hoh-Clearwater Mainline	0+00 – 279+00
H-1040	0+00 – 62+80
H-1043	0+00 – 31+80
H-1044	0+00 – 25+30
Red Creek Quarry Access 1	0+00 – 6+80
Red Creek Quarry Access 2	0+00 – 4+60
North Winfield Pit Access	0+00 – 16+00
South Winfield Pit Access	0+00 – 12+00
K-1000	0+00 – 162+45
K-1100	0+00 – 138+95
K-1200	0+00 – 8+20

**2-4 PASSAGE OF LIGHT VEHICLES**

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

**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>
K-1000	0+00 – 244+50	Grade and shape and compact existing road surface of 27 unpaved segments, which total 155.15 stations of 244+50 stations (63% of total length). 0+00 – 23+45, 31+75 – 32+30, 35+15 – 35+70, 39+00 – 39+50, 41+75 – 41+90, 45+65 – 46+50, 55+65 – 63+00, 70+40 – 70+80, 73+65 – 74+45, 78+60 – 79+05, 84+60 – 86+25, 90+30 – 91+50, 93+50 – 94+20, 95+50 – 99+50, 104+30 – 105+15, 105+90 – 107+50, 112+20 – 113+50, 121+45 – 123+70, 127+55 – 131+25, 133+45 – 134+60, 135+20 – 138+15, 138+45 – 145+40, 147+30 – 148+90, 151+25 – 151+95, 154+75 – 156+20, 157+10 – 158+50, 162+00 – 244+50.
K-1000	296+50 – 327+40	Grade and shape and compact existing road surface.
K-1030	0+00 – 15+50	Grade and shape and compact existing road surface.
K-1005	0+00 – 8+45	Grade and shape and compact existing road surface.
K-1006	0+00 – 38+00	Grade and shape and compact existing road surface.
K-1007	0+00 – 3+80	Grade and shape and compact existing road surface.
K-1100	0+00 – 138+95	Grade and shape and compact existing road surface.
K-1104.1	0+00 – 16+50	Grade and shape and compact existing road surface.
K-1105	0+00 – 22+10	Grade and shape and compact existing road surface.
K-1200	0+00 – 8+20	Grade and shape and compact existing road surface.

K-1210	0+00 – 40+45	Grade and shape and compact existing road surface.
K-1220	0+00 – 4+50	Grade and shape and compact existing road surface.

## 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>
K-1000	139+36
K-1000	163+80
K-1000	198+85
K-1000	208+02
K-1000	219+65
K-1000	227+25
K-1000	245+07
K-1030	6+65
K-1030	10+35
K-1030	14+00
K-1005	4+05
K-1100	21+50
K-1100	27+40
K-1100	37+80
K-1100	45+75
K-1100	51+30
K-1100	119+85
K-1104.1	4+35
K-1104.1	12+40
K-1104.1	13+35
K-1105	6+35
K-1105	10+30
K-1105	14+70
K-1105	17+15

## 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>
K-1000	223+55 – 227+25	Left	Scatter waste in accordance with Clause 4-38.
K-1000	228+90 – 230+30	Left	Scatter waste in accordance with Clause 4-38.
K-1000	230+80 – 231+50	Left	Scatter waste in accordance with Clause 4-38.
K-1000	237+50 – 245+07	Left	Scatter waste in accordance with Clause 4-38.
K-1000	278+80 – 288+30	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1030	0+10 – 3+80	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1030	3+80 – 5+00	Left	Scatter waste in accordance with Clause 4-38.
K-1030	5+00 – 15+50	Left	End haul waste to designated waste area in accordance with Clause 4-37.

K-1031	0+75 – 6+20	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1031	6+40 – 11+80	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1031	11+80 – 12+50	Left	Scatter waste in accordance with Clause 4-38.
K-1031	12+50 – 13+80	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1031	13+80 – 14+70	Left	Scatter waste in accordance with Clause 4-38.
K-1031	14+70 – 17+20	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1031	17+40 – 18+90	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1031	19+50 – 24+40	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1031	24+40 – 25+00	Left	Scatter waste in accordance with Clause 4-38.
K-1050	3+60 – 8+60	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1050	8+60 – 11+10	Left	Scatter waste in accordance with Clause 4-38.
K-1050	11+10 – 12+60	Right	Scatter waste in accordance with Clause 4-38.
K-1050	12+60 – 13+90	Right	End haul waste to designated waste area in accordance with Clause 4-37.
K-1050	13+90 – 15+50	Right	Scatter waste in accordance with Clause 4-38.
K-1050	15+50 – 20+30	Left	Scatter waste in accordance with Clause 4-38.
K-1050	20+55 – 22+30	Right	Scatter waste in accordance with Clause 4-38.
K-1050	22+75 – 24+00	Right	End haul waste to designated waste area in accordance with Clause 4-37.
K-1050	24+00 – 25+00	Right	Scatter waste in accordance with Clause 4-38.
K-1050	26+00 – 29+35	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1050.5	0+10 – 1+60	Left	Scatter waste in accordance with Clause 4-38.
K-1050.5	1+60 – 4+50	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1050.5	4+50 – 5+00	Left	Scatter waste in accordance with Clause 4-38.
K-1100	6+35 – 8+50	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1100	16+15 – 16+70	Left	Scatter waste in accordance with Clause 4-38.
K-1100	16+70 – 17+45	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1100	18+45 – 21+25	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1100	22+00 – 22+80	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1100	111+90 – 116+35	Left	Scatter waste in accordance with Clause 4-38.
K-1104.1	0+00 – 0+90	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1104.1	1+30 – 2+10	Left	Scatter waste in accordance with Clause 4-38.
K-1104.1	3+40 – 8+00	Right	End haul waste to designated waste area in accordance with Clause 4-37.
K-1104.1	8+00 – 8+80	Right	Scatter waste in accordance with Clause 4-38.
K-1104.1	9+20 – 16+00	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1105	0+50 – 9+90	Left	End haul waste to designated waste area in accordance with Clause 4-37.

K-1105	10+80 – 14+70	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1210	3+30 – 9+20	Left	Scatter waste in accordance with Clause 4-38.
K-1210	8+80 – 16+30	Right	Scatter waste in accordance with Clause 4-38.
K-1210	14+75 – 16+00	Left	Scatter waste in accordance with Clause 4-38.
K-1210	16+00 – 18+50	Left	End haul waste to designated waste area in accordance with Clause 4-37.
K-1210	18+50 – 21+30	Left	Scatter waste in accordance with Clause 4-38.

## 2-8 MAINTAINING EROSION CONTROL STRUCTURES

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

<u>Road</u>	<u>Stations</u>	<u>Work Needed</u>
K-1000	168+15 – 168+23	Maintain existing sediment catch basin.
K-1000	172+00 – 172+15	Maintain existing sediment catch basin.
K-1000	173+10 – 173+20	Maintain existing sediment catch basin.
K-1000	174+35 – 174+45	Maintain existing sediment catch basin.
K-1000	184+40 – 184+50	Maintain existing sediment catch basin.
K-1000	193+90 – 194+00	Maintain existing sediment catch basin.
K-1000	202+37 – 202+47	Maintain existing sediment catch basin.
K-1000	203+15 – 203+25	Maintain existing sediment catch basin.
K-1000	204+35 – 204+45	Maintain existing sediment catch basin.
K-1000	208+70 – 208+80	Maintain existing sediment catch basin.
K-1000	210+23 – 210+33	Maintain existing sediment catch basin.
K-1000	223+40 – 223+50	Maintain existing sediment catch basin.
K-1000	231+50 – 231+60	Maintain existing sediment catch basin.
K-1000	247+90	Maintain silt fence installed in ditch, on left.
K-1005	3+85	Maintain silt fence installed in ditch, on right.
K-1100	43+40 – 45+45	Maintain rock shoulder berm on left.
K-1100	43+40 – 44+85	Maintain existing conveyor belt berm on right.
12+00 Spur	3+74	Maintain silt fence installed in ditch, on left.
12+00 Spur	5+30	Maintain silt fence installed in ditch, on left.
12+00 Spur	7+40	Maintain silt fence installed in ditch, on left.
12+00 Spur	8+80	Maintain silt fence installed in ditch, on left.
12+00 Spur	9+20	Maintain silt fence installed in ditch, on left.
12+00 Spur	10+15	Maintain silt fence installed in ditch, on left.
12+00 Spur	10+55	Maintain silt fence installed in ditch, on left.
2+10 Spur	1+65	Maintain silt fence installed in ditch, on right.
K-1031	6+10	Maintain silt fence installed in ditch, on left.
K-1031	6+50	Maintain silt fence installed in ditch, on left.
K-1031	7+95	Maintain silt fence installed in ditch, on left.
K-1031	8+80	Maintain silt fence installed in ditch, on left.
K-1031	17+05	Maintain silt fence installed in ditch, on left.
K-1031	17+70	Maintain silt fence installed in ditch, on left.
K-1031	20+05	Maintain silt fence installed in ditch, on left.
K-1104.1	3+40 – 4+45	Stake up and maintain existing conveyor belt berm on right.
K-1104.1	4+15 – 4+70	Stake up and maintain existing conveyor belt berm on left.
K-1104.1	12+45 – 13+50	Stake up and maintain existing conveyor belt berm on left.
K-1105	5+85	Maintain silt fence installed in ditch, on left.

K-1105	9+75	Maintain silt fence installed in ditch, on left.
K-1105	14+50	Maintain silt fence installed in ditch, on left.
K-1105	16+95	Maintain silt fence installed in ditch, on left.

**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.

<u>Road</u>	<u>Stations</u>
K-1000	0+00 – 248+95
K-1000	282+50 – 327+40
K-1030	0+00 – 15+50
K-1031	0+00 – 25+00
K-1050	0+00 – 29+35
K-1050.5	0+00 – 5+00
2+40 Spur	0+00 – 2+40
K-1005	0+00 – 8+45
3+40 Spur	0+00 – 3+40
K-1006	0+00 – 38+00
K-1007	0+00 – 3+80
K-1100	0+00 – 138+95
K-1104.1	0+00 – 16+50
K-1105	0+00 – 22+10
K-1200	0+00 – 21+05
K-1210	0+00 – 40+45
K-1220	0+00 – 4+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>
K-1000	237+15 – 248+95
K-1000	278+80 – 327+40
K-1030	0+00 – 15+50
K-1050	0+00 – 8+40
K-1005	0+00 – 8+45
K-1104.1	0+00 – 16+50
2+40 Spur	0+00 – 2+40
K-1105	0+00 – 22+10
K-1006	0+00 – 38+00
K-1007	0+00 – 3+80
K-1210	0+00 – 40+45

**3-2 BRUSHING RESTRICTION**

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

**3-3 BRUSH REMOVAL**

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

SUBSECTION CLEARING

**3-5 CLEARING**

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

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

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

**3-8 PROHIBITED DECKING AREAS**

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

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

SUBSECTION GRUBBING

**3-10 GRUBBING**

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

**3-12 STUMP PLACEMENT**

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

SUBSECTION ORGANIC DEBRIS

**3-20 ORGANIC DEBRIS DEFINITION**

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

**3-21 DISPOSAL COMPLETION**

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

**3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS**

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

<u>Road</u>	<u>Stations</u>	<u>Waste Area Location</u>
K-1031	6+29 – 13+00	WA 8 K-1220 2+00 – 4+50
K-1031	15+00 – 24+40	WA 8 K-1220 2+00 – 4+50

**3-23 PROHIBITED DISPOSAL AREAS**

Organic debris shall not be deposited in the following areas:

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

**3-24 BURYING ORGANIC DEBRIS RESTRICTED**

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

**3-25 SCATTERING ORGANIC DEBRIS**

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

SUBSECTION PILE

**3-31 PILING**

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

**3-32 END HAULING ORGANIC DEBRIS**

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

<u>Road</u>	<u>Stations</u>
K-1031	6+29 – 13+00
K-1031	15+00 – 24+40

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:

The following road(s) have specific limitations for grade and alignment and are referenced in the table below.

<u>Road</u>	<u>Stations</u>	<u>Minimum Curve Radius (ft)</u>	<u>Maximum Grade (%) Favorable Adverse</u>	<u>Maximum Vertical Grade Change per 100 ft (%)</u>
K-1031	5+17 – 6+62	45'	See above.	See above.

**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.

Curve widening specified is as follows:

<u>Road</u>	<u>Stations</u>	<u>Curve Widening (ft)</u>	<u>Road Width (ft)</u>
K-1031	5+40 – 7+15	12'	24'
K-1031	13+70 – 14+80	6'	18'
K-1031	16+50 – 18+00	6'	18'
K-1031	18+45 – 19+70	6'	18'
K-1031	21+45 – 22+30	6'	18'

#### 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. Embankment widening is modified as follows:

<u>Road</u>	<u>Stations</u>	<u>Embankment Widening (ft)</u>	<u>Apply Widening to :</u>
K-1031	5+40 – 7+15	16	On right for 12' curve widening.

#### 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>
K-1000	70+45 – 70+85
K-1000	129+10 – 129+40
K-1031	2+40 – 3+20

#### 4-12 FULL BENCH CONSTRUCTION

On any roads, where side slopes exceed 45%, Purchaser shall use full bench construction for the entire subgrade width except as construction staked or designed. If designated, Purchaser shall end haul waste material to the location specified in Clause 4-37 WASTE AREA LOCATION.

### 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>	<u>L or R</u>
K-1000	319+60	L (approx. 30')
12+00 Spur	3+74	L (approx. 20')
12+00 Spur	12+00	L (approx. 20')
2+10 Spur	2+10	R (approx. 20')
K-1050	3+60	L (approx. 30')
K-1050	11+10	R (approx. 70')
K-1050	15+50	L (approx. 30')
K-1050	20+55	R (approx. 30')
K-1100	86+50	R (approx. 40')
K-1100	104+50	R (approx. 40')
K-1100	111+90	L (approx. 20')
K-1104.1	2+10	L (approx. 20')
K-1104.1	8+80	R (approx. 30')
K-1104.1	16+00	L (approx. 20')

SUBSECTION WASTE MATERIAL (DIRT)

**4-35 WASTE MATERIAL DEFINITION**

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

**4-36 DISPOSAL OF WASTE MATERIAL**

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

**4-37 WASTE AREA LOCATION**

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

<u>Waste Area Location</u>	<u>Waste Generated From Road</u>	<u>Waste Generated At Stations</u>	<u>Estimated Volume (Cubic Yards)</u>	<u>% Permitted Waste Area Volume</u>
WA 1 K-1000 171+20 – 172+30 Permitted 1400 cy	K-1030	9+30 – 9+40	10	1%
WA 1 K-1000 171+20 – 172+30 Permitted 1400 cy	12+00 Spur	0+00 – 4+59	1250	89%
WA 2 K-1000 213+40 – 214+40 Permitted 500 cy	K-1050	0+00 – 8+60 12+60 – 15+00 16+50 – 18+00	300	60%
WA 3 K-1050 19+80 – 21+50 Permitted 500 cy	K-1050	22+75 – 24+00 26+00 – 29+35	110	22%
WA 3 K-1050 19+80 – 21+50 Permitted 500 cy	K-1050.5	1+60 – 4+50	80	16%
WA 4 2+40 Spur 0+00 – 1+90 Permitted 500 cy	K-1000	278+80 – 290+50 296+50 – 308+40	200	40%
WA 5 3+00 Spur 0+00 – 2+30 Permitted 500 cy	K-1000	319+60 – 327+40	20	4%
WA 5 3+00 Spur 0+00 – 2+30 Permitted 500 cy	K-1210	16+00 – 18+50	40	8%
WA 6 K-1100 29+00 – 29+80 Permitted 500 cy	K-1100	0+00 – 22+80	80	16%
WA 7 K-1100 122+30 – 123+80 Permitted 500 cy	K-1104.1	0+00 – 0+90 3+40 – 8+00 16+00 -9+20	90	18%
WA 7 K-1100 122+30 – 123+80 Permitted 500 cy	K-1105	0+50 – 9+90 10+80 – 14+70	90	18%

WA 8 K-1220 2+00 – 4+50 Permitted 10,000 cy	K-1031	0+00 – 26+70	5300	53%
		Estimated Total:	7570 CY	

**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.

**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 6 inches.

### 4-66 COMPACTION BY METHOD

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

## SECTION 5 – DRAINAGE

### 5-3 PUNCHEON PLACEMENT

On the following road(s), puncheon may be utilized in the subgrade on the following road. Puncheon shall consist of logs of at least 4 inches in diameter and shall be at least 17 feet long.

Road	Stations
12+00 Spur	6+40 – 12+00
2+10 Spur	0+00 – 2+10

### 5-4 PUNCHEON RESTRICTED

At no time shall puncheon be used in the subgrade, except as specified in Clause 5-3, 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.

### 5-6 USED CULVERT MATERIAL

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

<u>Road</u>	<u>Stations</u>
12+00 Spur	3+97, 7+65, 9+00, 10+35
2+10 Spur	1+85

### 5-7 TEMPORARY STREAM CULVERT INSTALLATION

On the following roads, temporary stream culverts shall be located in the natural channel of the stream. Temporary culverts shall be installed as shown in the Type Ns Np Detail. Temporary culverts shall be removed as directed by the Contract Administrator.

<u>Road</u>	<u>Stations</u>
12+00 Spur	3+97, 7+65, 9+00, 10+35
2+10 Spur	1+85

### 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 are available for installation on any road listed in the TYPICAL SECTION SHEET as directed by the Contract Administrator. In the event that culverts are not used, culverts shall be stockpiled in the storage area at the DNR sawmill, located by the junction of the Hoh-Clearwater Mainline and the C-2000 road.

<u>Road</u>	<u>Quantity</u>	<u>Size</u>
As Directed by the Contract Administrator	2	18" x 30'

## SUBSECTION CULVERT INSTALLATION

### 5-15 CULVERT INSTALLATION

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

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

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

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

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

**5-18 CULVERT DEPTH OF COVER**

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

SUBSECTION ENERGY DISSIPATERS

**5-20 ENERGY DISSIPATERS**

Energy dissipaters shall be installed to prevent erosion and are subject to approval by the Contract Administrator. Rock shall weigh at least 10 pounds and be placed by zero-drop-height method. Energy dissipater shall extend a minimum of  $\frac{3}{4}$  foot to each side of the culvert at the outlet and a minimum of 2 feet beyond the outlet.

**5-21 DOWNSPOUTS AND FLUMES**

Downspouts and flumes longer than 10 feet shall be staked on both sides at maximum intervals of 10 feet with 6-foot heavy-duty steel posts or 1  $\frac{1}{2}$ " X 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.



## 5-27 ARMORING FOR STREAM CROSSING CULVERTS

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

<u>Road</u>	<u>Stations</u>	<u>Rock Type</u>
K-1000	248+70	Light Loose Rip Rap
K-1031	6+29	Light Loose Rip Rap
K-1031	7+27	Oversize
K-1031	8+49	Oversize
K-1031	9+86	Oversize
K-1031	17+35	Light Loose Rip Rap
K-1031	20+05	Oversize

### SUBSECTION SURFACE DRAINAGE

## SECTION 6 – ROCK AND SURFACING

### SUBSECTION ROCK SOURCE

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

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

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
Winfield Pit North	Sec. 35, T27N, R12W	1½" Minus Crushed
Winfield Pit South	Sec. 35, T27N, R12W	Pitrun
Red Creek Quarry	Sec. 34, T27N, R11W	Light Loose Rip Rap, Quarry Spalls

#### 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 850 cubic yards of 1½" minus crushed rock, unless authorized by the Contract Administrator. If the 1½" minus stockpile is exhausted before all of the rock called for has been removed, then the remaining rock shall come from the 1¼" minus stockpile, but not before.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>	<u>Quantity (yd<sup>3</sup>)</u>
Winfield Pit North	Sec. 35, T27N, R12W	1½" Minus Crushed	850 yd <sup>3</sup>
Red Creek Quarry	Sec. 34, T27N, R11W	Light Loose Rip Rap	218
Red Creek Quarry	Sec. 34, T27N, R11W	Quarry Spalls	23

#### 6-5 ROCK FROM COMMERCIAL SOURCE

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

## SUBSECTION ROCK SOURCE DEVELOPMENT

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

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

### 6-12 ROCK SOURCE SPECIFICATIONS

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

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

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

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

## SUBSECTION ROCK GRADATIONS

### 6-28 1 ¼-INCH MINUS CRUSHED ROCK

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

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

**6-29 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.

**6-43 QUARRY SPALLS**

% Passing 12" square sieve	100%
% Passing 8" square sieve	10% maximum

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

**6-50 LIGHT LOOSE RIP RAP**

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

<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.

**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 (Cubic Yards)</u>
K-1000	0+00 – 248+95 (as directed by Contract Administrator)	200
K-1000	278+80 – 327+40 (as directed by Contract Administrator)	100
K-1030	0+00 – 15+50 (as directed by Contract Administrator)	30
K-1006	0+00 – 38+00 (as directed by Contract Administrator)	50
K-1007	0+00 – 3+80 (as directed by Contract Administrator)	10
K-1200	0+00 – 8+20 (as directed by Contract Administrator)	20
K-1210	0+00 – 40+45 (as directed by Contract Administrator)	60
	Total:	470

**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 STREAM CROSSING STRUCTURES GENERAL**

**7-5 STRUCTURE DEBRIS**

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

**7-6 STREAM CROSSING INSTALLATION**

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

**7-7 BANK PROTECTION FOR STREAM CROSSING STRUCTURES**

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

**SUBSECTION ACCEPTANCE**

**7-17 INSTALLATION PRODUCTION SCHEDULE**

Purchaser shall provide the District engineer or their designee with a production schedule showing projected completion dates of the following items before starting construction of structure(s).

Production schedule shall include, but is not limited to:

- a) construction staking,
- b) excavation,
- c) placement of sills/abutments/footings/structure,
- d) backfill compaction, rock application and compaction.

**7-18 INSTALLATION STAGE ACCEPTANCE**

The Purchaser shall be responsible for ensuring that all materials and procedures used during construction comply with the design. Each stage of construction, according to the production schedule listed in Clause 7-17 Installation Production Schedule, shall be accepted in writing by the District Engineer, or their designee before starting construction on the next stage. The Purchaser shall notify the District Engineer or their designee in writing when each construction stage is complete.

**7-19 INSTALLATION FINAL ACCEPTANCE**

The Purchaser shall notify the District Engineer in writing when each structure is complete.

**7-20 REQUIRED NOTIFICATION AND APPROVAL**

Purchaser shall provide the District Engineer or their designee 14 day notification prior to beginning road work involving all bridge installations or removals. The purchaser shall arrange to have the District Engineer or their designee on site during all bridge installations and removals. Purchaser shall receive approval from the District engineer or their designee upon completion of bridge installations, prior to bridge use, and upon completion of bridge removals. During temporary road closures signs shall be posted as directed by the Contract Administrator, or the District Engineer, advising of any temporary road closure.

**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>	<u>Detail Sheet</u>
K-1200	5+07 – 6+07	Clean off all moss, organic matter, and dirt accumulations from all concrete surfaces.	N/A

**7-46 STATE SUPPLIED BRIDGE**

On the following road(s), the Purchaser shall construct each bridge, listed below, in accordance with this Road Plan. Bridge(s) are available for use within the terms of the contract, without charge from the state. Refer to bridge design or specification sheets for details.

Road	Station	Length (ft)	W.B.S.R <sup>1</sup> (ft)	Type	Current Location
12+00 Spur	4+59 – 4+89	30	14	HL-93, U-80/L-90, L-500	H-3500 54+65 – 54+95
N-1100	46+50 – 46+90	40	16	U80/L-300	DNR sawmill Hoh-Clearwater Mainline at MP 12.0
H-3500	54+65 – 54+95	30	14	HL-93, U-80/L-90, L-500	Return from 12+00 Spur 4+59 – 4+89

<sup>1</sup>W.B.S.R. = Width between shear rails  
Contact: Bill Mehl, Coast District Engineer  
360-640-2129  
Bill.mehl@dnr.wa.gov

The Purchaser shall notify the District Engineer or their designee a minimum of 3 calendar days before pick up of the bridge and all associated hardware.

#### **7-48 STATE SUPPLIED BRIDGE – MOBILIZATION**

**Bridge #1** and **Bridge #2** Specifications: Both are 40' Hamilton Bridges having 2 separate halves, with each half weighing approx. 20,100 pounds.

The 40' Hamilton Bridge that is to be installed (Bridge #1) is partially assembled and ready to load for transportation to the bridge replacement jobsite on the N-1100 road. The 40' Hamilton Bridge that is to be installed is located at the Bridge Yard, at the DNR Sawmill at MP 12.1, on the Hoh-Clearwater Mainline. The Purchaser shall load, transport, and install the bridge on the N-1100 road at the location specified in Clause 7-46. The purchaser shall remove, load, and transport the bridge that is being replaced (Bridge #2) to the Bridge Yard, at the DNR Sawmill at MP 12.1, on the Hoh-Clearwater Mainline. The Purchaser is required to submit a plan of operations to the Contract Administrator or District Engineer for written approval for loading, transport, and placement of both state bridge superstructures. The plan shall include, but is not limited to, a description of the equipment and techniques to be used to lift and place bridge superstructures. Equipment used to lift superstructures shall have sufficient capacity to lift it free and clear without dragging. Purchaser will be liable for any damage to the bridge structures.

**Bridge #3** Specification: 30' Big R Bridge has 2 separate halves, with each half weighing approx. 9,820 pounds.

The 30' Big R Bridge is fully assembled and installed on the H-3500 road, at STA 54+65 – 54+95. The bridge needs to be removed, loaded, and transported to the temporary bridge installation jobsite on the 12+00 Spur. When the bridge is removed, the Purchaser shall block the H-3500 road (near STA 54+50) with stump root wads or by other means approved by the Contract Administrator. The Purchaser shall load, transport, and temporarily install the bridge on the 12+00 Spur at the location specified in Clause 7-46. After temporary bridge use, the purchaser shall remove, load, transport, and reinstall the bridge back at the same location from where it was obtained on the H-3500 road, at STA 54+65 – 54+95. The Purchaser is required to submit a plan of operations to the Contract Administrator or District Engineer for written approval for loading, transport, and placement of the state provided bridge superstructure. The plan shall include, but is not limited to, a description of the equipment and techniques to be used to lift and place the bridge superstructure. Equipment used to lift the superstructure shall have sufficient capacity to lift it free and clear without dragging. Purchaser will be liable for any damage to the bridge structure.

#### **7-49 RETURN OF TEMPORARY STATE SUPPLIED BRIDGE**

Temporary bridges that have been supplied by the state for this contract shall be returned, offloaded, and reinstalled on the H-3500 road, at STA 54+65 – 54+95, at the expense of the Purchaser.

#### **7-51 EMBANKMENT RETENTION**

Embankment retention methods shall be provided to ensure that bridge approach embankments are stable, contained, and do not encroach on the stream channel. Methods of embankment retention shall be submitted to the District Engineer or their designee for consideration and approval.

### SUBSECTION LARGE CULVERTS

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

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

**7-57 CULVERT SHAPE CONTROL**

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

**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>
12+00 Spur	3+74	Install silt fence in ditch, on left.
12+00 Spur	5+30	Install silt fence in ditch, on left.
12+00 Spur	7+40	Install silt fence in ditch, on left.
12+00 Spur	8+80	Install silt fence in ditch, on left.
12+00 Spur	9+20	Install silt fence in ditch, on left.
12+00 Spur	10+15	Install silt fence in ditch, on left.
12+00 Spur	10+55	Install silt fence in ditch, on left.
2+10 Spur	1+65	Install silt fence in ditch, on right.
K-1031	6+10	Install silt fence in ditch, on left.
K-1031	6+50	Install silt fence in ditch, on left.
K-1031	7+95	Install silt fence in ditch, on left.
K-1031	8+80	Install silt fence in ditch, on left.
K-1031	17+05	Install silt fence in ditch, on left.
K-1031	17+70	Install silt fence in ditch, on left.
K-1031	20+30	Install silt fence in ditch, on left.
K-1000	247+90	Install silt fence in ditch, on left.
K-1005	3+85	Install silt fence in ditch, on right.
K-1105	5+85	Install silt fence in ditch, on left.
K-1105	9+75	Install silt fence in ditch, on left.
K-1105	14+50	Install silt fence in ditch, on left.
K-1105	16+95	Install silt fence in ditch, on left.

**8-2 PROTECTION FOR EXPOSED SOIL**

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

**SUBSECTION REVEGETATION**

**8-15 REVEGETATION**

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

**8-16 REVEGETATION SUPPLY**

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

**8-17 REVEGETATION TIMING**

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

**8-18 PROTECTION FOR SEED**

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

**8-19 ASSURANCE FOR SEEDED AREA**

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

SUBSECTION SEED, FERTILIZER, AND MULCH

**8-25 GRASS SEED**

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

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

Grass seed shall meet the following specifications:

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

SECTION 9 – POST-HAUL ROAD WORK

SUBSECTION STRUCTURES

**9-2 CULVERT REMOVAL FROM LIVE STREAM**

On the following road(s), Purchaser shall remove existing culverts from live streams and leave the resulting channel open with excavation slope and excavated channel width as specified. Excavated material shall be deposited as shown on the Typical Culvert Removal Detail Sheet. Culvert removal from live streams shall be in accordance with the Typical Culvert Removal Detail Sheet.



<u>Road</u>	<u>Stations</u>	<u>Excavated Channel Width</u>	<u>Slope Ratio</u>	<u>Comments</u>
12+00 Spur	3+97	8'	2:1	Removal of temporary culvert.
12+00 Spur	7+65	8'	2:1	Removal of temporary culvert.
12+00 Spur	9+00	8'	2:1	Removal of temporary culvert.
12+00 Spur	10+35	8'	2:1	Removal of temporary culvert.
2+10 Spur	1+85	8'	2:1	Removal of temporary culvert.

**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, clean ditches, clean bridges, grade road shape and compact as directed by the Contract Administrator.
K-1000	0+00 – 248+95	Apply post haul rock as per Clause 6-72.
K-1000	278+80 – 327+40	Apply post haul rock as per Clause 6-72.
K-1030	0+00 – 15+50	Apply post haul rock as per Clause 6-72.
K-1006	0+00 – 38+00	Apply post haul rock as per Clause 6-72.
K-1007	0+00 – 3+80	Apply post haul rock as per Clause 6-72.
K-1200	0+00 – 8+20	Apply post haul rock as per Clause 6-72.
K-1210	0+00 – 40+45	Apply post haul rock as per Clause 6-72.

SUBSECTION POST-HAUL LANDING MAINTENANCE

**9-10 LANDING DRAINAGE**

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

**9-11 LANDING EMBANKMENT**

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

SUBSECTION DECOMMISSIONING AND ABANDONMENT

**9-20 ROAD DECOMMISSIONING**

The following road(s) shall be decommissioned by the Purchaser before the termination of this contract.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
12+00 Spur	0+50 – 12+00	Light Decommissioning
2+10 Spur	0+00 – 2+10	Light Decommissioning
Total:	13.60	

## 9-22 LIGHT DECOMMISSIONING

Decommissioning shall consist of:

1. Remove Bridge and transport and reinstall at original location on the H-3500 road.
2. Remove all culverts. Resulting back slopes shall be 1:1 or shallower for cross drains and 1.5:1, or as specified in approved drawings, for all live stream culvert removals. Material removed shall be placed on the roadbed and compacted, with slopes of 2:1 or shallower, or end-hauled to designated waste areas. Culverts removed shall become the property of the Purchaser and removed from State land.
3. Construct non-drivable water bars as directed by the Contract Administrator. On grades in excess of 3%, non-drivable water bars shall be skewed 30 degrees from the perpendicular of the road centerline.
4. Restore all ditchouts to drain water.
5. Repair or construct ditchlines.
6. Remove any berms, except as directed.
7. Restoration of natural stream channels across road prism, as directed by the Contract Administrator.
8. Removing all fill material as approved by the Contract Administrator.
9. All material from fill removals, culvert removals, and bridge removals shall be placed on roadbed and compacted, except that material listed in Clause 4-37.
10. Purchaser shall furnish and apply grass seed to all areas of exposed soil, including but not limited to: water bars, waste piles, and culvert removal sites. Grass seed shall be applied at a rate of 60 pounds per acre.
11. Apply hay mulch, in accordance with Clause 8-15 and Clause 8-16, to all exposed soils around live water.
12. Block road to vehicular traffic using logs, slash, and stumps, as directed by the Contract Administrator.

## SECTION 10 MATERIALS

### 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

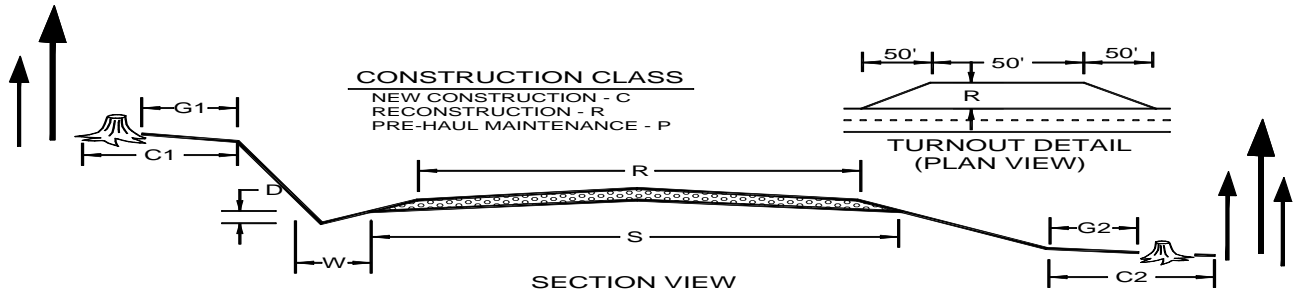
Rubber gaskets must be continuous closed cell, synthetic expanded rubber gaskets conforming to the requirements of ASTM D 1056. Rubber gaskets must be used with all corrugated metal pipe coupling bands.

### 10-24 GAGE AND CORRUGATION

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

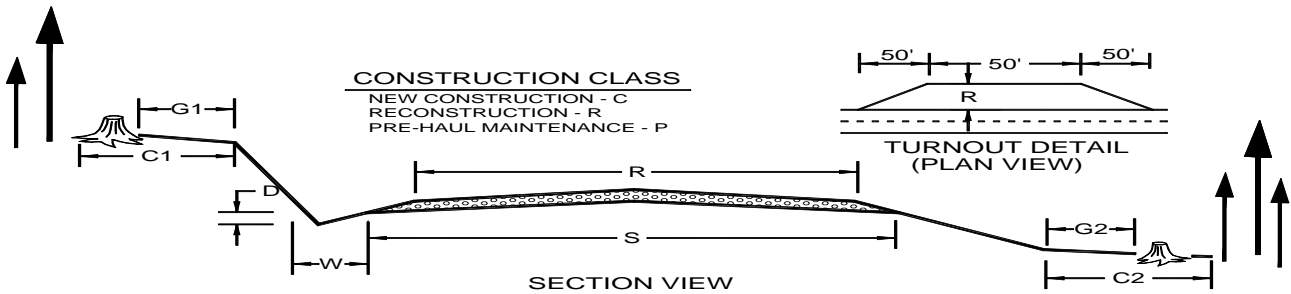
<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>
18"	16 (0.064")	2 <sup>2</sup> / <sub>3</sub> " X 1/2"
24" to 48"	14 (0.079")	2 <sup>2</sup> / <sub>3</sub> " X 1/2"
54"	12	5" X 1"
60" +	10	5" X 1"

# TYPICAL SECTION SHEET



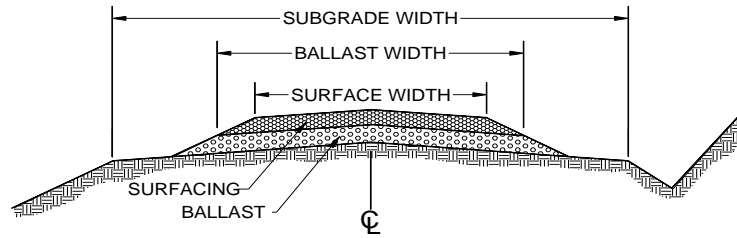
ROAD NAME	START STATION	END STATION	CONSTRUCTION CLASS	SUBGRADE WIDTH (S)	ROAD WIDTH (R)	CROWN AT CL (in)	DITCH WIDTH (W)	DITCH DEPTH (D)	GRUBBING CUT BANK (G1)	GRUBBING FILL TOE (G2)	ROAD CUT CLEARING (C1)	ROAD FILL CLEARING (C2)
K-1000	0+00	248+95	P		14'	3"	4'	2'				
K-1000	278+80	327+40	P		14'	3"	4'	2'				
K-1030	0+00	15+50	P		12'	3"	3'	1'				
K-1031	0+00	5+40	R		12'	3"	3'	1'				
K-1031	5+40	7+15	R	37'	24'	3"	3'	1'	5'	5'	10'	5'
K-1031	0+00	25+00	R		12'	3"	3'	1'				
K-1031	13+70	14+80	R		18'	3"	3'	1'				
K-1031	14+80	16+50	R		12'	3"	3'	1'				
K-1031	16+50	18+00	R	29	18'	3"	3'	1'	5'	5'	10'	5'
K-1031	18+00	18+45	R		12'	3"	3'	1'				
K-1031	18+45	19+70	R		18'	3"	3'	1'				
K-1031	19+70	21+45	R		12'	3"	3'	1'				
K-1031	21+45	22+30	R		18'	3"	3'	1'				
K-1031	22+30	25+00	R		12'	3"	3'	1'				
K-1031	25+00	29+50	C	17'	12'	3"	3'	1'	5'	5'	10'	5'
12+00 Spur	0+00	12+00	C	17'	12'	3"	3'	1'	5'	5'	10'	5'
2+10 Spur	0+00	2+10	C	17'	12'	3"	3'	1'	5'	5'	10'	5'
K-1050	0+00	29+35	P		12'	3"	3'	1'				
K-1050.5	0+00	5+00	P		12'	3"	3'	1'				
1+40 Spur	0+00	1+40	C	17'	12'	3"	3'	1'	5'	5'	10'	5'
2+40 Spur	0+00	2+40	P		12'	3"	3'	1'				
K-1005	0+00	8+45	P		12'	3"	3'	1'				
K-1006	0+00	38+00	P		12'	3"	3'	1'				
3+40 Spur	0+00	3+40	P		12'	3"	3'	1'				
K-1007	0+00	3+80	P		12'	3"	3'	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)
3+00 Spur	0+00	3+00	C	17'	12'	3"	3'	1'	5'	5'	10'	5'
K-1100	0+00	138+95	P		14'	3"	4'	2'				
K-1104.1	0+00	16+50	P		12'	3"	3'	1'				
K-1105	0+00	22+10	P		12'	3"	3'	1'				
K-1200	0+00	8+20	P		14'	3"	3'	1'				
K-1210	0+00	24+75	P		12'	3"	3'	1'			10'	5'
K-1210	24+75	40+45	P		12'	3"	3'	1'				
K-1220	0+00	4+50	P		12'	3"	3'	1'				
N-1100	46+20	47+20	R		14'	3"	3'	1'				

# ROCK LIST SHEET

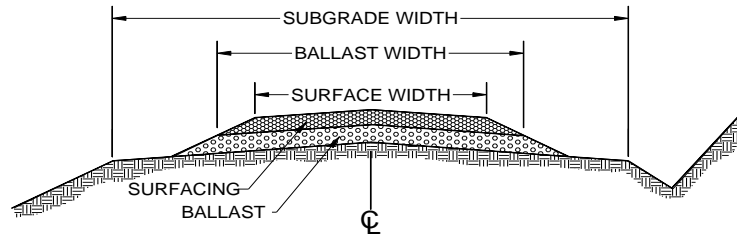


SECTION VIEW

1. Rock quantities, subtotals and totals are "truck measure" estimates. Rock shall be applied to at least the depths listed.
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: South Winfield Pitrun, 2: North Winfield Pit 1½"minus, 3: Red Creek Quarry Light Loose Rip Rap, 4: Red Creek Quarry Spalls

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-1000</b>															
Spot Patch	61+30	61+50							2				20		
Spot Patch	62+50	63+00							2				10		
Keyed Embank.	70+45	70+85		1				50						3	50
Spot Patch	73+65	74+45							2				10		
Spot Patch	84+60	86+25							2				10		
Spot Patch	93+50	94+20							2				10		
Spot Patch	98+30	99+50							2				20		
Spot Patch	105+90	107+50							2				20		
Spot Patch	112+20	113+50							2				20		
Turnaround	115+05			1				30							
Spot Patch	127+55	128+15							2				10		
Keyed Embank.	129+10	129+40		1				10						3	30
Spot Patch	137+10	137+70							2				10		
Spot Patch	139+08	139+65							2				10		
Spot Patch	142+73	143+30							2				10		
Spot Patch	144+83	145+40							2				10		
Spot Patch	148+33	148+90							2				10		
Spot Patch	157+58	158+15							2				10		
Add E.D.	163+80													4	1
Lift	208+70	209+30		1	12	6	35	20							
Landing	214+00			1				30							
Sheet Totals:								140					190		81

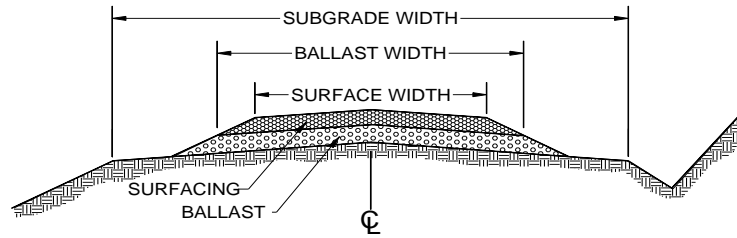
## ROCK LIST SHEET CONTINUED



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ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd <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-1000 (Cont.)</b>															
Landing	218+90			1			20								
Landing	225+65			1			30								
Lift	244+50	248+95		1	14	6	40	180							
Spot Patch	248+03	248+33		1			10								
Road Repair	248+50	248+95		1			10							3	10
Post-haul	0+00	248+95							2				200		
Lift	278+80	296+50		1	14	6	40	710							
Turnaround	284+50			1			30								
Landing	288+30			1			50								
Landing	291+30			1			50								
Landing	293+45			1			50								
Post-haul	278+80	327+40							2				100		
<b>K-1030</b>															
Post-haul									2				30		
<b>K-1031</b>															
Lift	0+00	2+40		1	12	6	35	90							
Culvert	2+00			1			20							4	1
Keyed Embank.	2+40	3+20		1			250							3	120
Lift	2+40	3+20		1	12	18	110	90							
Spot Patch	3+10			1			10								
Lift	3+20	5+40		1	12	6	35	80							
<b>Sheet Totals:</b>								1680					330		131

## ROCK LIST SHEET CONTINUED

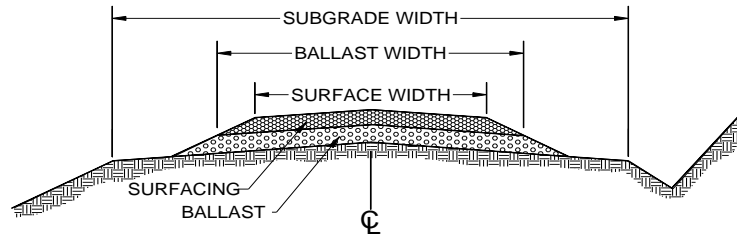


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ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd³/sta)	Pitrun SUBTOTAL(yd³)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd³/sta)	Crushed Subtotal(yd³)	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd³)
<b>K-1031 (cont.)</b>															
Spot Patch	4+70			1			10								
Culvert	5+35			1			20							4	1
Lift	5+40	8+70		1	12	18	110	360							
Curve Widening	5+40	7+15		1	12	18	110	200							
Culvert	6+29													3	5
Culvert	7+27													4	2
Culvert	8+49													4	2
Lift	8+70	12+70		1	12	12	70	280							
Culvert	9+86			1			20							4	2
Landing	12+35			1			30								
Lift	12+70	14+50		1	12	18	110	200							
Culvert	12+90													4	2
Landing	14+20			1			30								
Lift	14+50	15+70		1	12	12	70	90							
Curve Widening	13+70	14+80		1	6	12	35	40							
Lift	15+70	18+45		1	12	18	110	310							
Curve Widening	16+50	18+00		1	6	18	55	80							
Culvert	17+35													3	5
Lift	18+45	22+30		1	12	12	70	270							
Curve Widening	18+45	19+70		1	6	12	35	50							
Culvert	18+46			1			20							4	1
Sheet Totals:							2010								20



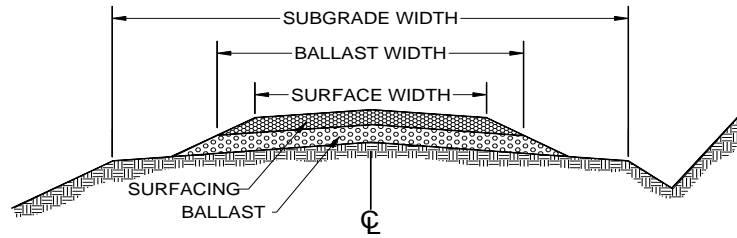
## ROCK LIST SHEET CONTINUED



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ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd <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> )
Culvert	20+05			1				20						4	3
Curve Widening	21+45	22+30		1	6	12	35	30							
Landing	21+95			1				50							
Lift	22+30	24+40		1	12	18	110	230							
Culvert	22+54													4	2
Lift	24+40	25+00		1	12	12	70	50							
Culvert	24+40			1				20						4	1
Landing	25+00			1				50							
Lift	25+00	29+50	17	1	12	18	110	500							
Culvert	26+70													4	1
Landing	29+50			1				50							
<b>12+00 Spur</b>															
Lift	0+25	4+59		1	12	18	110	480							
Curve Widening	3+18	4+00		1	6	18	55	50							
Lift	4+89	12+00		1	12	18	110	790							
<b>2+10 Spur</b>															
Lift	0+00	2+10		1	12	18	110	230							
<b>K-1050</b>															
Lift	0+00	29+35		1	12	6	35	1030							
Culvert	6+10			1				20						4	1
Culvert	8+60			1				20						4	1
Turnaround	10+80			1				50							
Sheet Totals:									3670					9	

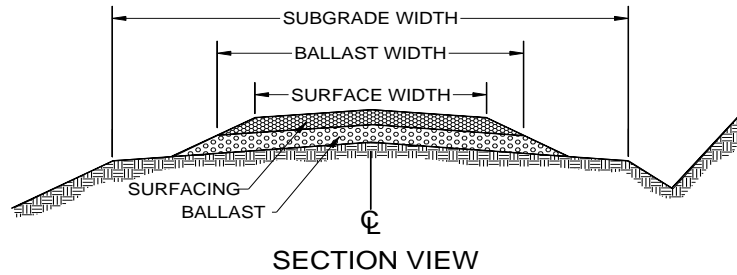
## ROCK LIST SHEET CONTINUED



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: South Winfield Pitrun, 2: North Winfield Pit 1½"minus, 3: Red Creek Quarry Light Loose Rip Rap, 4: Red Creek Quarry Spalls

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-1050 (Cont.)</b>															
Landing	12+25			1			50								
Landing	14+20			1			50								
Landing	18+80			1			50								
Culvert	22+75			1			20							4	1
Landing	25+30			1			50								
<b>1+40 Spur</b>															
Lift	0+00	1+40		1	12	18	110	160							
Approach	0+00	0+50		1			50								
Landing	1+40			1			50								
<b>K-1050.5</b>															
Lift	0+00	5+00		1	12	6	35	180							
Landing	0+55			1			50								
Culvert	2+05			1			20							4	1
Landing	4+75			1			50								
<b>2+40 Spur</b>															
Lift	0+00	2+40		1	12	12	70	170							
Approach	0+00	0+30		1			20								
Spot Patch	1+75	2+15		1			20								
Landing	2+50			1			50								
<b>K-1005</b>															
Landing	6+15			1			30								
<b>Sheet Totals:</b>								1070							2

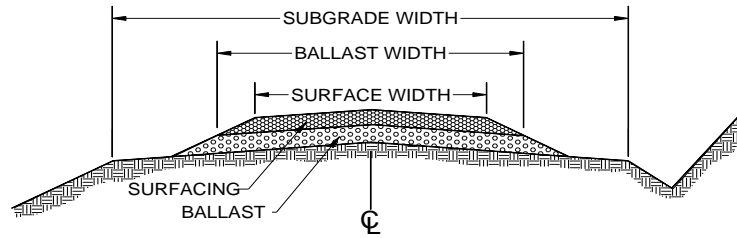
## ROCK LIST SHEET CONTINUED



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: South Winfield Pitrun, 2: North Winfield Pit 1½"minus, 3: Red Creek Quarry Light Loose Rip Rap, 4: Red Creek Quarry Spalls

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-1006</b>															
Spot Patch	5+60	5+90							2				10		
Post-haul									2				50		
<b>3+40 Spur</b>															
Lift	0+10	3+40		1	12	6	35	120							
Culvert	0+38			1				40						4	1
Landing	3+40			1				50							
<b>K-1007</b>															
Post-haul									2				10		
<b>3+00 Spur</b>															
Lift	0+00	3+00	17	1	12	18	110	330							
Culvert	0+15			1				30						4	1
Turnaround	1+40			1				50							
Landing	3+00			1				50							
<b>K-1100</b>															
Misc.	0+00	138+95							2				100		
Turnout	16+15	16+65		1				20							
Turnout	38+30	38+90		1				20							
Spot Patch	81+90	82+40							2				10		
Spot Patch	110+80	111+40							2				10		
Landing	129+80			1				30							
Landing	134+00			1				30							
<b>Sheet Totals:</b>								770					190		2

## 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: South Winfield Pitrun, 2: North Winfield Pit 1½"minus, 3: Red Creek Quarry Light Loose Rip Rap, 4: Red Creek Quarry Spalls

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-1100 (Cont.)</b>															
Landing	138+55			1				50							
<b>K-1104.1</b>															
Misc.				1				100							
Landing	10+20			1				30							
Landing	16+50			1				50							
<b>K-1105</b>															
Misc.	0+00	22+10		1				100							
Landing	4+20			1				30							
Landing	7+80			1				10							
Landing	11+25			1				10							
Landing	16+25			1				10							
Landing	20+85			1				10							
<b>K-1200</b>															
Lift	3+75	4+60							2	14	6	40	30		
Lift	6+07	6+65							2	14	6	40	20		
Lift	7+90	8+20							2	14	6	40	10		
Post-haul	0+00	8+20							2				20		
<b>K-1210</b>															
Spot Patch	23+20	23+50		1				10							
Post-haul	0+00	40+45							2				60		
Sheet Totals:								410					140		
Grand Totals:								9750					850		245

## ROCK LIST SHEET GRAND TOTAL

Source	Quantity (yd <sup>3</sup> )
1: South Winfield Pitrun	9750
2: North Winfield Pit 1½" Minus	850
3: Red Creek Quarry Light Loose Rip	220
4: Red Creek Quarry Spalls	25
5:	

## CULVERT LIST

ROAD NAME	STATION	CULVERT DIAMETER (in)	CULVERT LENGTH (ft)	FLUME LENGTH (ft)	RIP RAP - INLET (cy)	RIP RAP - OUTLET (cy)	BACKFILL MATERIAL	NOTES
K-1000	139+36	18	—					Remove vegetation and organic matter from around inlet of existing culvert.
*K-1000	163+80	24	—			1.0		Add energy dissipater.
*K-1000	198+85	24	—					Remove vegetation and organic matter from around inlet of existing culvert.
K-1000	208+02	18	—					Clean out inlet of existing culvert.
K-1000	219+65	18	—					Clean out inlet of existing culvert.
K-1000	227+25	18	—					Clean out inlet of existing culvert.
K-1000	233+95	6	—					Divert road surface flow to flared end collector on 6" flexible drain pipe.
K-1000	234+32	6	—					Divert road surface flow to flared end collector on 6" flexible drain pipe.
*K-1000	245+07	24	—					Clean out inlet of existing culvert.
*K-1000	248+70	36	40		10			Add light loose rip rap above inlet of existing culvert and backfill with 10cy pit run.
K-1000	300+65	18	—					Remove vegetation and organic matter from around inlet of existing culvert.
*K-1005	4+05	36	—					Clean debris out of inlet.
3+40 Spur	0+38	18	50		0.5	0.5	PR	Install new culvert.
3+00 Spur	0+15	18	50		0.5	0.5	PR	Install new culvert.
K-1030	6+65	18	—					Remove vegetation and organic matter from around inlet of existing culvert.
K-1030	10+35	18	—					Clean out ravel and remove vegetation from around inlet of existing culvert.

**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.**

## CULVERT LIST

ROAD NAME	STATION	CULVERT DIAMETER (in)	CULVERT LENGTH (ft)	FLUME LENGTH (ft)	RIP RAP - INLET (cy)	RIP RAP - OUTLET (cy)	BACKFILL MATERIAL	NOTES
K-1030	14+00	18	—					Remove vegetation and organic matter from around inlet of existing culvert.
K-1031	2+00	18	30		0.5	0.5	PR	Install new culvert.
K-1031	5+35	18	30		0.5	0.5	PR	Install new culvert.
*K-1031	6+29	48	80		2.0	3.0	NT	Install new culvert.
*K-1031	7+27	24	30	30	1.0	1.0	NT	Install new culvert, flume, and energy dissipater.
*K-1031	8+49	24	40	30	1.0	1.0	NT	Install new culvert, flume, and energy dissipater.
K-1031	9+86	24	30	30	1.0	1.0	PR	Install new culvert, flume, and energy dissipater.
K-1031	12+90	18	30	30	0.5	1.5	NT	Install new culvert, flume, and energy dissipater.
*K-1031	17+35	48	80		2.0	3.0	NT	Install new culvert.
K-1031	18+46	18	30		0.5	0.5	PR	Install new culvert. Ditch out right 10 feet.
K-1031	20+05	24	30	30	1.0	2.0	PR	Install new culvert, flume, and energy dissipater.
K-1031	22+54	18	30	30	0.5	1.5	NT	Install new culvert, flume, and energy dissipater.
K-1031	24+40	18	30		0.5	0.5	PR	Install new culvert. Ditch out right 10 feet.
K-1031	26+70	18	30		0.5	0.5	NT	Install new culvert.
*12+00 Spur	3+97	24	30				NT	Install temporary culvert.
*12+00 Spur	7+65	24	30				NT	Install temporary culvert.
*12+00 Spur	9+00	24	30				NT	Install temporary culvert.
*12+00 Spur	10+35	24	30				NT	Install temporary culvert.
*2+10 Spur	1+85	24	30				NT	Install temporary culvert.
K-1050	6+10	18	30		0.5	0.5	PR	Install new culvert.
K-1050	8+60	18	30		0.5	0.5	PR	Install new culvert.
K-1050	22+75	18	30		0.5	0.5	PR	Replace existing culvert.
K-1050.5	2+05	18	30		0.5	0.5	PR	Install new culvert.
K-1100	21+50	18	—					Remove vegetation and organic matter from around inlet of existing culvert.
K-1100	27+40	18	—					Remove vegetation and organic matter from around inlet of existing culvert.

**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.**

## CULVERT LIST

ROAD NAME	STATION	CULVERT DIAMETER (in)	CULVERT LENGTH (ft)	FLUME LENGTH (ft)	RIP RAP - INLET (cy)	RIP RAP - OUTLET (cy)	BACKFILL MATERIAL	NOTES
K-1100	37+80	18	—					Remove vegetation and organic matter from inlet and flume of existing culvert.
K-1100	45+75	18	—					Remove vegetation and organic matter from around inlet of existing culvert.
K-1100	51+30	18	—					Remove vegetation and organic matter from around inlet of existing culvert.
K-1100	119+85	18	—					Remove vegetation and organic matter from around inlet of existing culvert.
K-1104.1	4+35	18	—					Clean out inlet of existing culvert.
K-1104.1	12+40	18	—					Remove vegetation and organic matter from around inlet of existing culvert.
*K-1104.1	13+35	24	—					Remove vegetation and organic matter from around inlet of existing culvert.
K-1105	6+35	24	—					Remove vegetation and organic matter from around inlet of existing culvert.
*K-1105	10+30	24	—					Remove vegetation and organic matter from around inlet of existing culvert.
*K-1105	14+70	24	—					Remove vegetation and organic matter from around inlet of existing culvert.
*K-1105	17+15	24	—					Remove vegetation and organic matter from around inlet of existing culvert.

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.

## FISH STREAM WORK PROVISIONS

1. TIMING LIMITATIONS: The fish culvert project may begin July 1 and shall be completed by September 30.
2. Work shall conform to plans and specifications in the road plan.
3. Prior to the commencement of in-stream work, the Purchaser shall isolate the work area in a manner that fish cannot enter the work area, capture and safely move fish and other fish life from the work area. The Purchaser shall have fish capture and transportation equipment ready and on the job site. Captured fish shall be immediately and safely transferred to free-flowing water downstream of the work area.

### TEMPORARY STREAM FLOW BYPASS

4. All in-stream work shall be conducted in the dry or in isolation from the stream flow by the installation of a bypass flume/pipe or by pumping the flow around the work area, back into the stream below the work area. Waste water pumped from within the work area shall terminate on the forest floor, sufficient distance from the stream to filter sediment prior to entering the stream.
5. The temporary bypass to divert flow around the work area shall be in place prior to initiation of other work in the wetted perimeter.
6. A sandbag revetment or similar device shall be installed at the bypass inlet to divert the entire flow through the bypass.
7. The bypass shall be of sufficient size to pass all flows and debris for the duration of the project.
8. If a pump is used for diverting water from the stream where fish are present, as per RCW 77.57.010 and 77.57.070, the pump intake shall be equipped with a fish guard to prevent passage of fish into the diversion pump. The pump intake shall be screened with 1/8 inch mesh to prevent fish from entering the pump. Velocity through the screened intake shall be less than 0.4 feet per second. Screens shall be maintained to prevent injury or entrapment of juvenile fish.

### WATER QUALITY

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



## COMPACTION LIST

Road	Stations	Type	Max Depth per Lift (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		

## 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%.

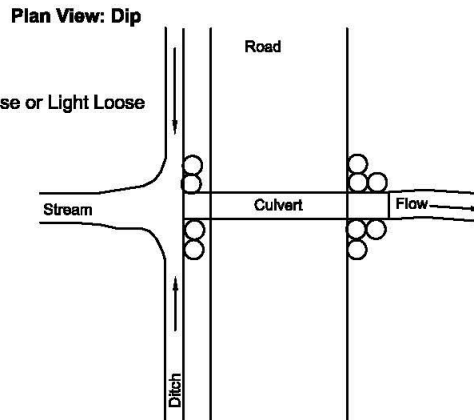
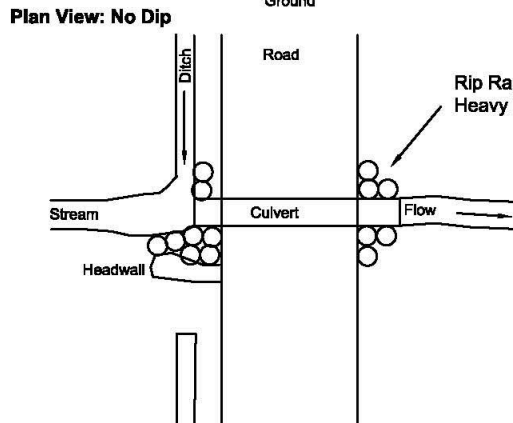
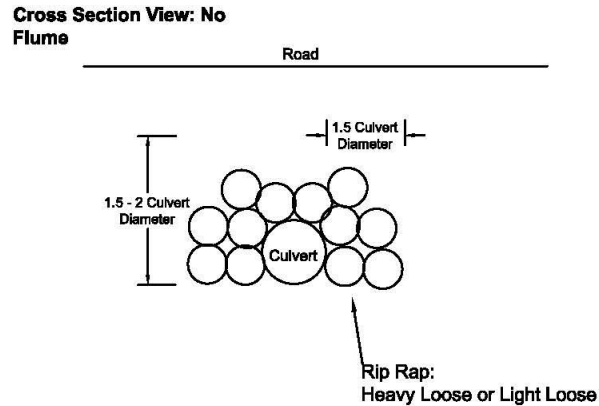
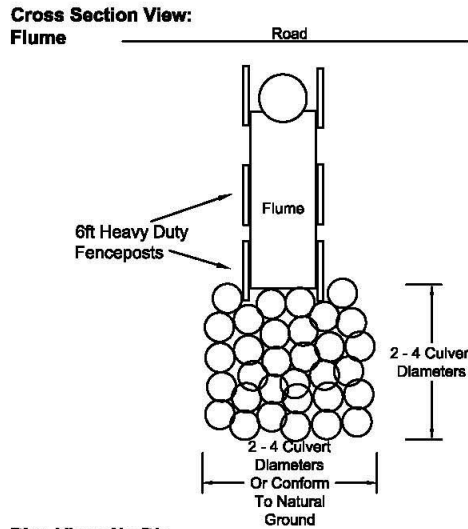
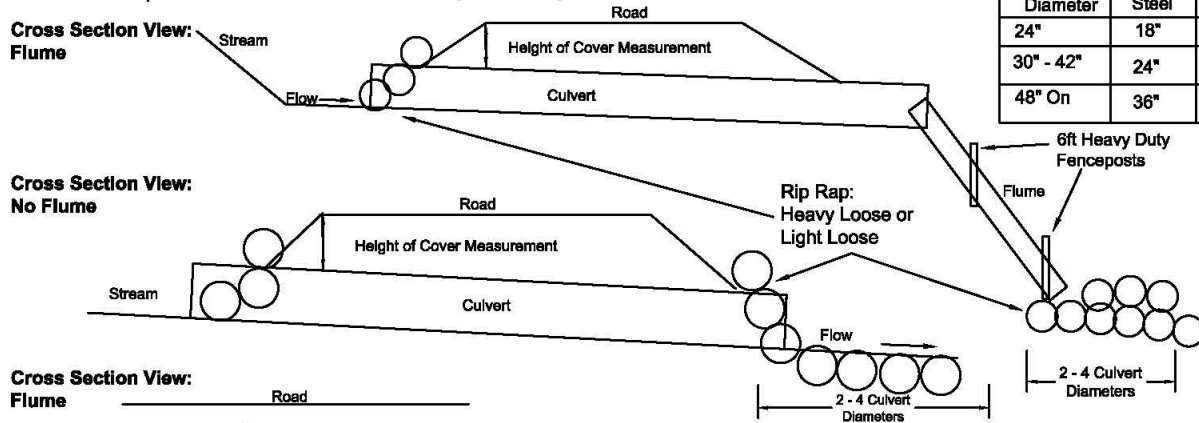
-Flumes longer than 10ft shall be staked on both sides at maximum intervals of 10ft with 6ft heavy duty steel fence posts, and fastened securely to the posts with No. 10 galvanized smooth wire or bolted to the fence posts.

-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"	38"

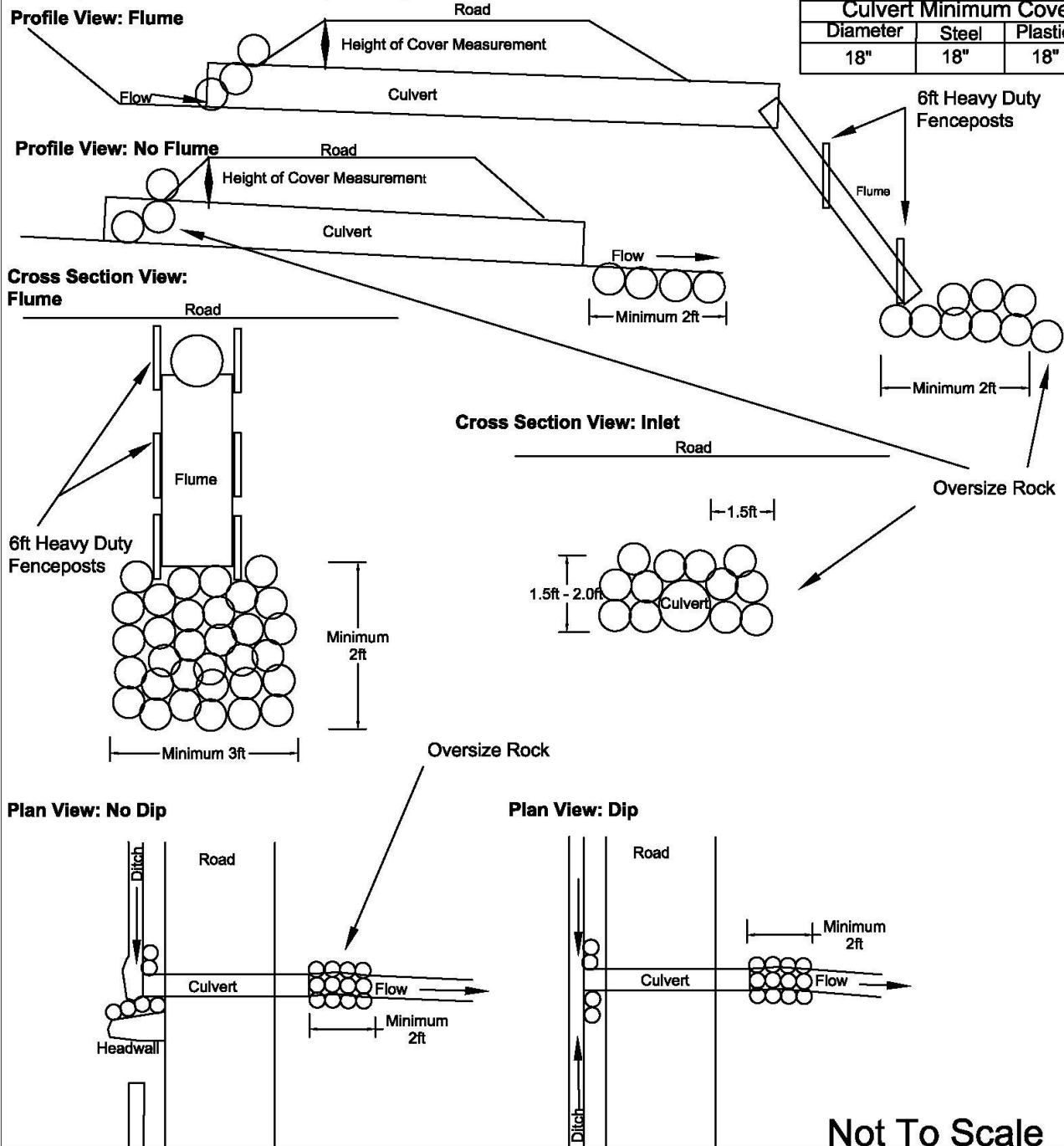


**Not To Scale**

# Typical Cross Drain Culvert Installation Detail Sheet

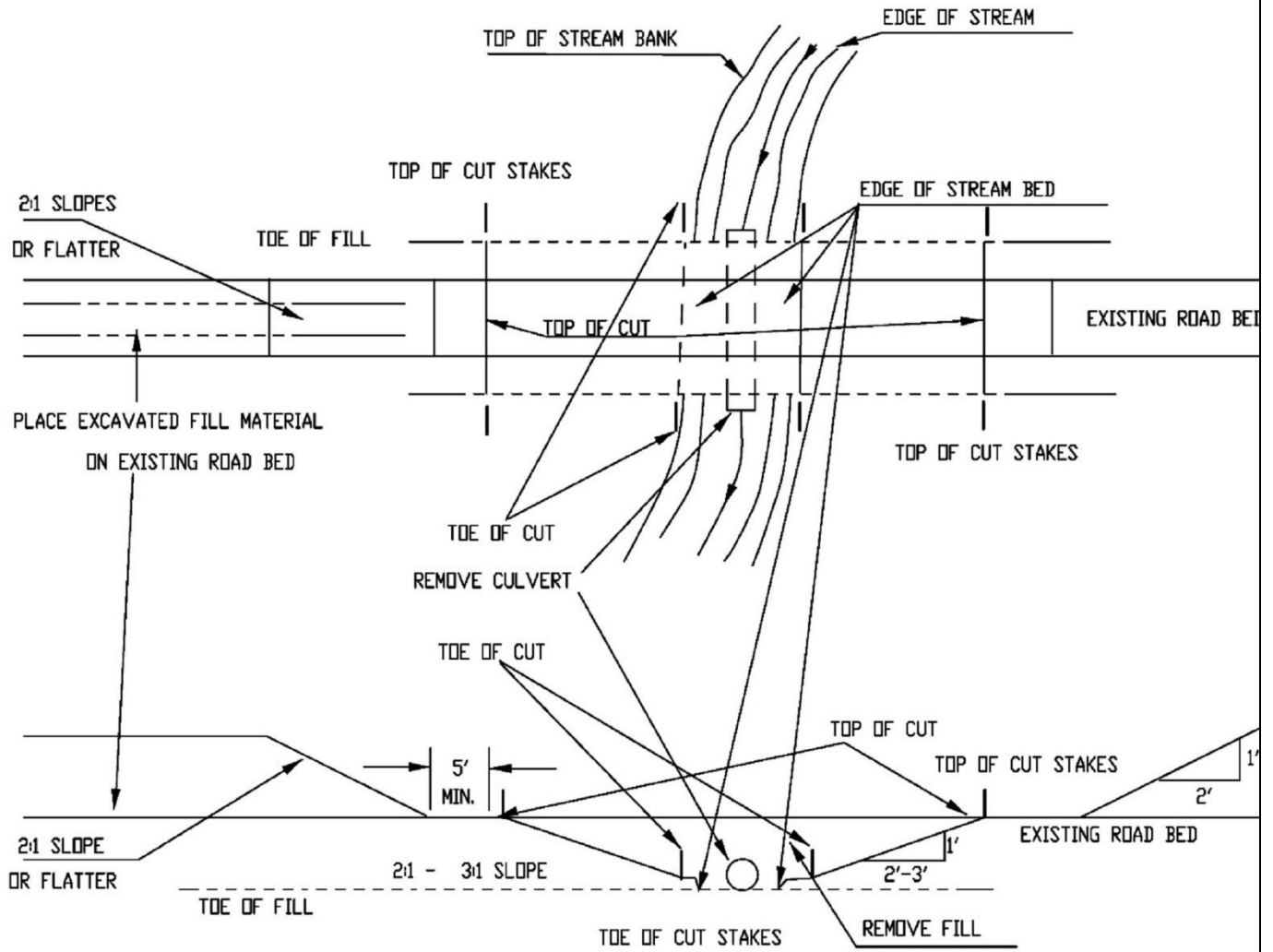
- Culvert lay shall not exceed 10%.
- Flumes longer than 10ft shall be staked on both sides at maximum intervals of 10ft with 6ft heavy duty steel fence posts, and fastened securely to the posts with No. 10 galvanized smooth wire or bolted to the fence posts.
- Oversize shall be placed using a "zero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

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



Not To Scale

# TYPICAL CULVERT REMOVAL DETAIL SHEET

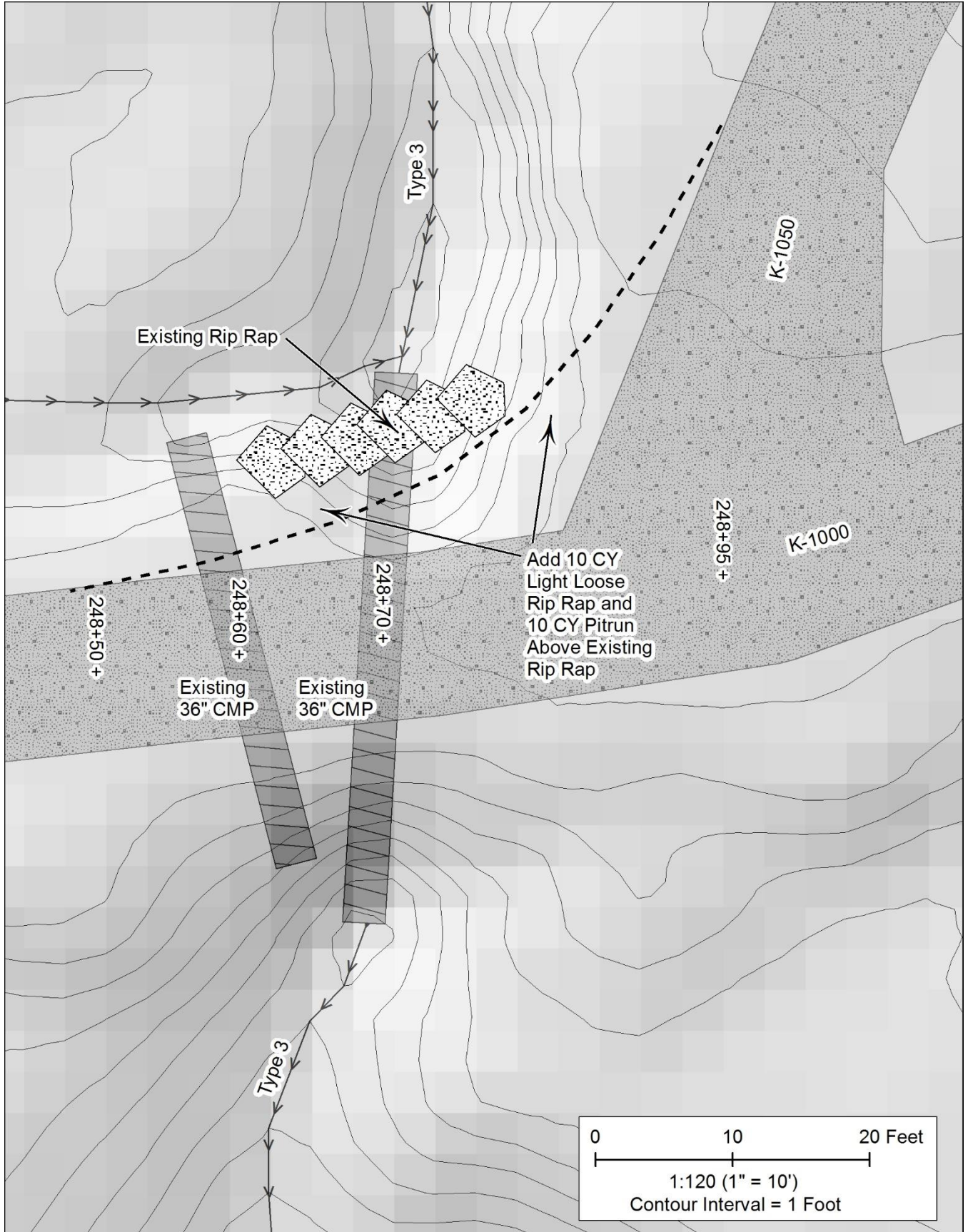


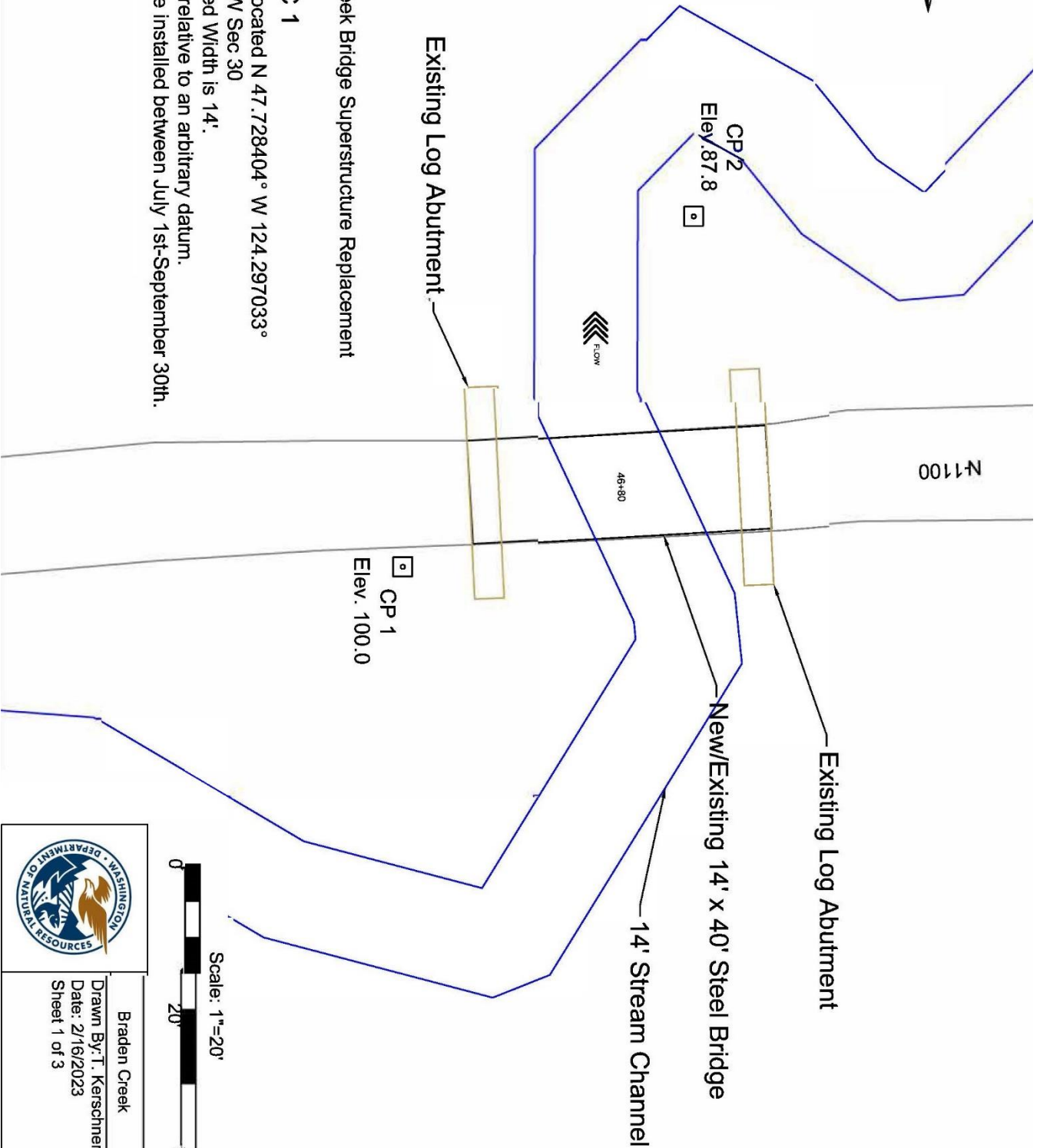
PLACE HAY MULCH ON CUT SLOPES, WASTE AREAS AND OTHER AREAS OF EXPOSED SOIL, 3" DEEP, OVER GRASS SEED

EXCAVATE FILL MATERIAL AS STAKED OR TO NATURAL GROUND AS STAKED. EXCAVATION IS TO BE TO ORIGINAL CREEK BED.

Road	Station	Minimum Stream Bed Width (Feet)	N	W
12+00 Spur	3+97	8'	N 47° 38.99267	W 124° 21.48690
12+00 Spur	7+65	8'	N 47° 38.97478	W 124° 21.42389
12+00 Spur	9+00	8'	N 47° 38.95313	W 124° 21.41692
12+00 Spur	10+35	8'	N 47° 38.93103	W 124° 21.41125
2+10 Spur	1+85	8'	N 47° 39.02001	W 124° 21.40759

# K-1000 Road Repair Detail STA 248+50 – 248+95





Notes:  
 Braden Creek Bridge Superstructure Replacement  
 Site Plan  
**Crossing C 1**  
 Crossing Located N 47.728404° W 124.297033°  
 T26N R12W Sec 30  
 Channel Bed Width is 14'.  
 Elevations relative to an arbitrary datum.  
 Bridge to be installed between July 1st-September 30th.

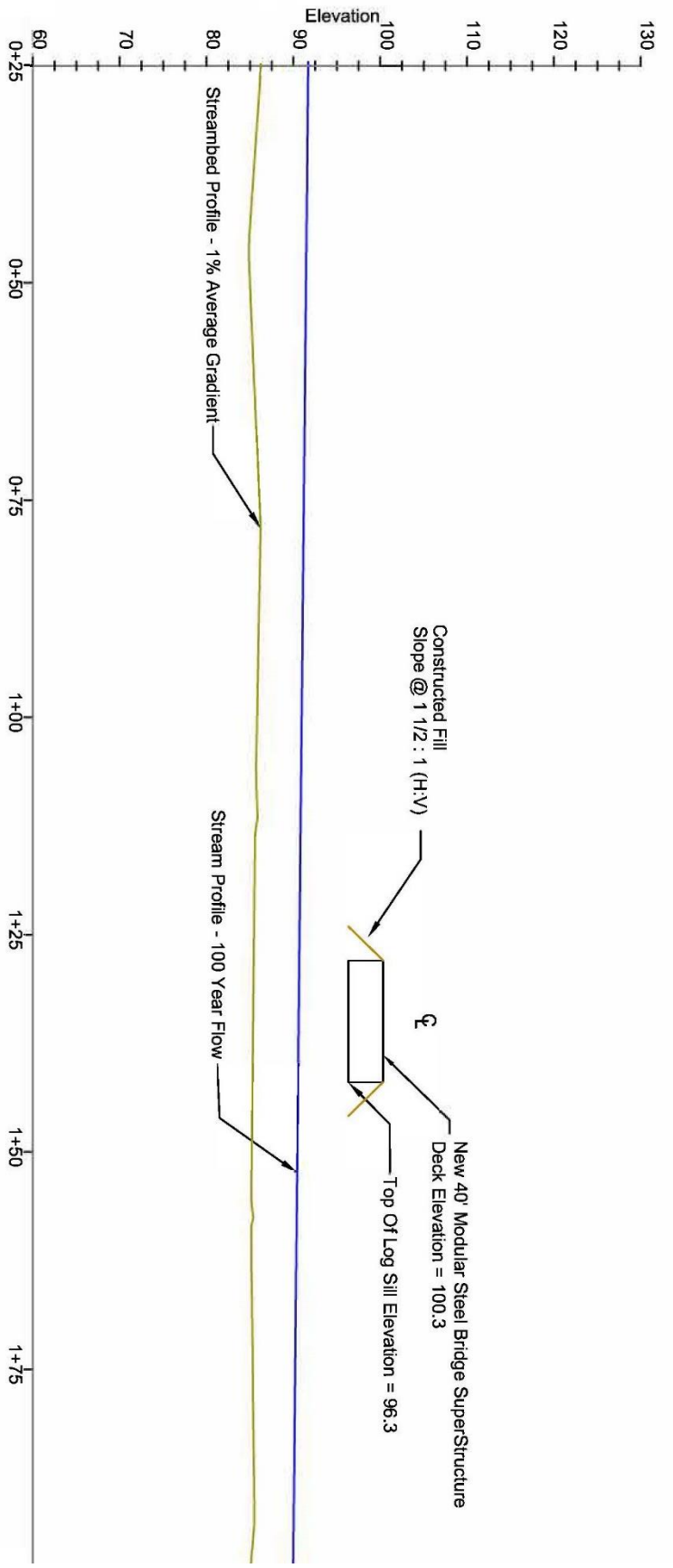
Scale: 1"=20'

0 20 40'

Washington Department of Natural Resources

Braden Creek  
 Drawn By: T. Kerschner  
 Date: 2/16/2023  
 Sheet 1 of 3

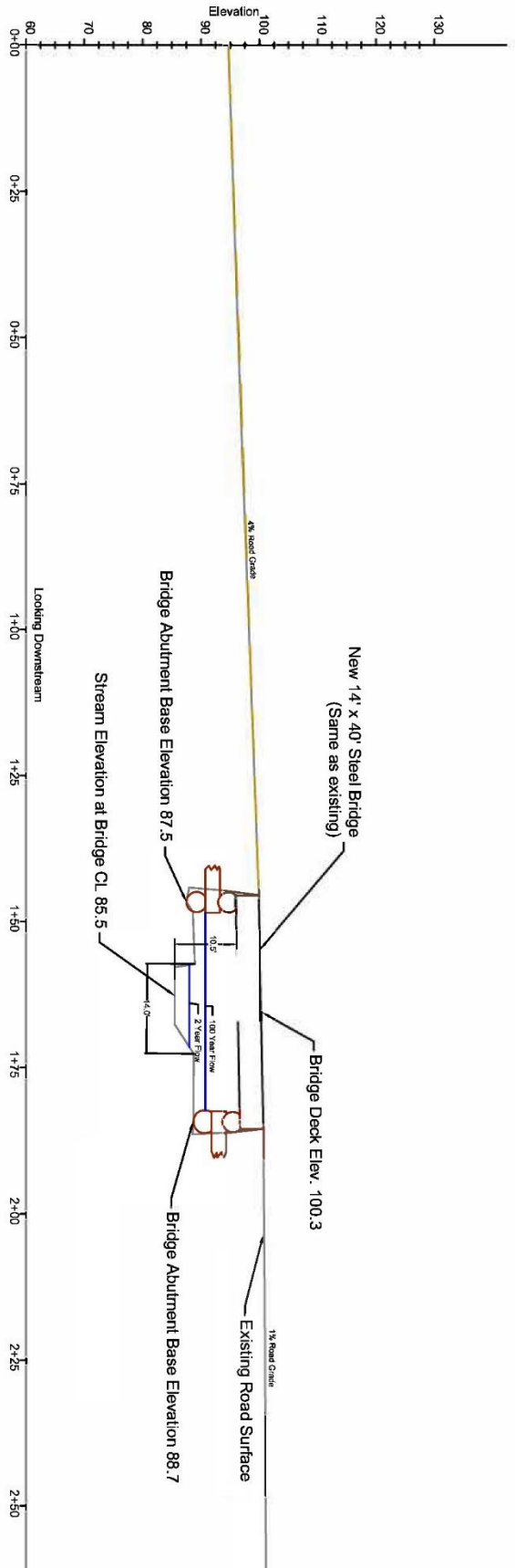




Notes:  
 Braden Creek Bridge Superstructure Replacement  
 Stream Profile  
 Crossing C1  
 Crossing Located N 47.728404° W 124.297033°  
 T26N R12W Sec 30  
 Channel Bed Width is 14'.  
 Elevations relative to an arbitrary datum.  
 Bridge to be installed between July 1st-September 30th.



	Braden Creek
	Drawn By: T. Kerschner Date: 2/16/2023 Sheet 2 of 3



Notes:  
 Braden Creek Bridge Superstructure Replacement  
 Road Profile  
 Crossing C1  
 Crossing Located N 47.728404° W 124.297033°  
 T26N R12W Sec 30  
 Channel Bed Width is 14'.  
 Elevations relative to an arbitrary datum.  
 Bridge to be installed between July 1st-September 30th.



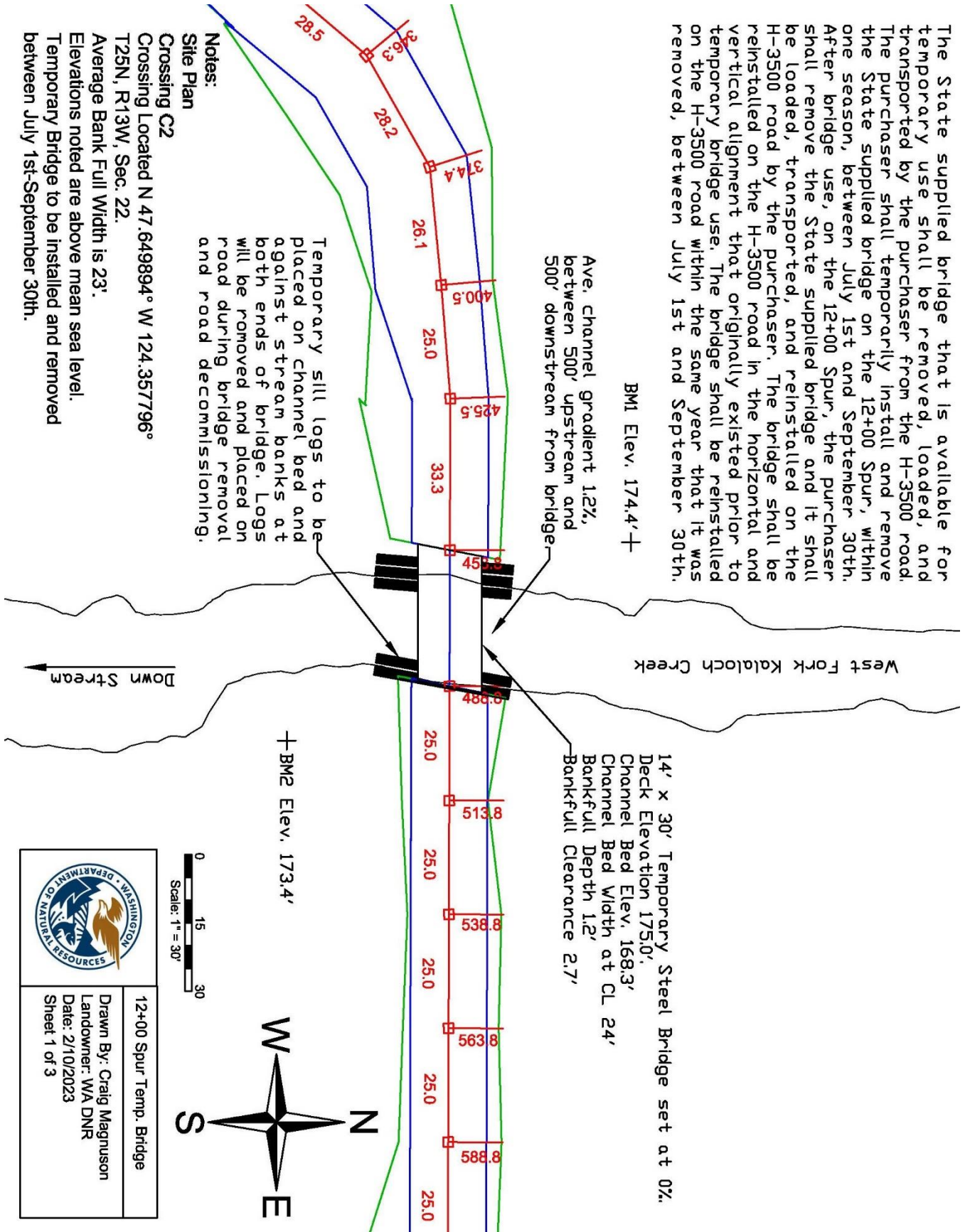
	Braden Creek
	Drawn By: T. Kerschner Date: 2/16/2023 Sheet 3 of 3



The State supplied bridge that is available for temporary use shall be removed, loaded, and transported by the purchaser from the H-3500 road. The purchaser shall temporarily install and remove the State supplied bridge on the 12+00 Spur, within one season, between July 1st and September 30th. After bridge use, on the 12+00 Spur, the purchaser shall remove the State supplied bridge and it shall be loaded, transported, and reinstalled on the H-3500 road by the purchaser. The bridge shall be reinstalled on the H-3500 road in the horizontal and vertical alignment that originally existed prior to temporary bridge use. The bridge shall be reinstalled on the H-3500 road within the same year that it was removed, between July 1st and September 30th.

BM1 Elev. 174.4'+

Ave. channel gradient 1.2%,  
between 500' upstream and  
500' downstream from bridge-

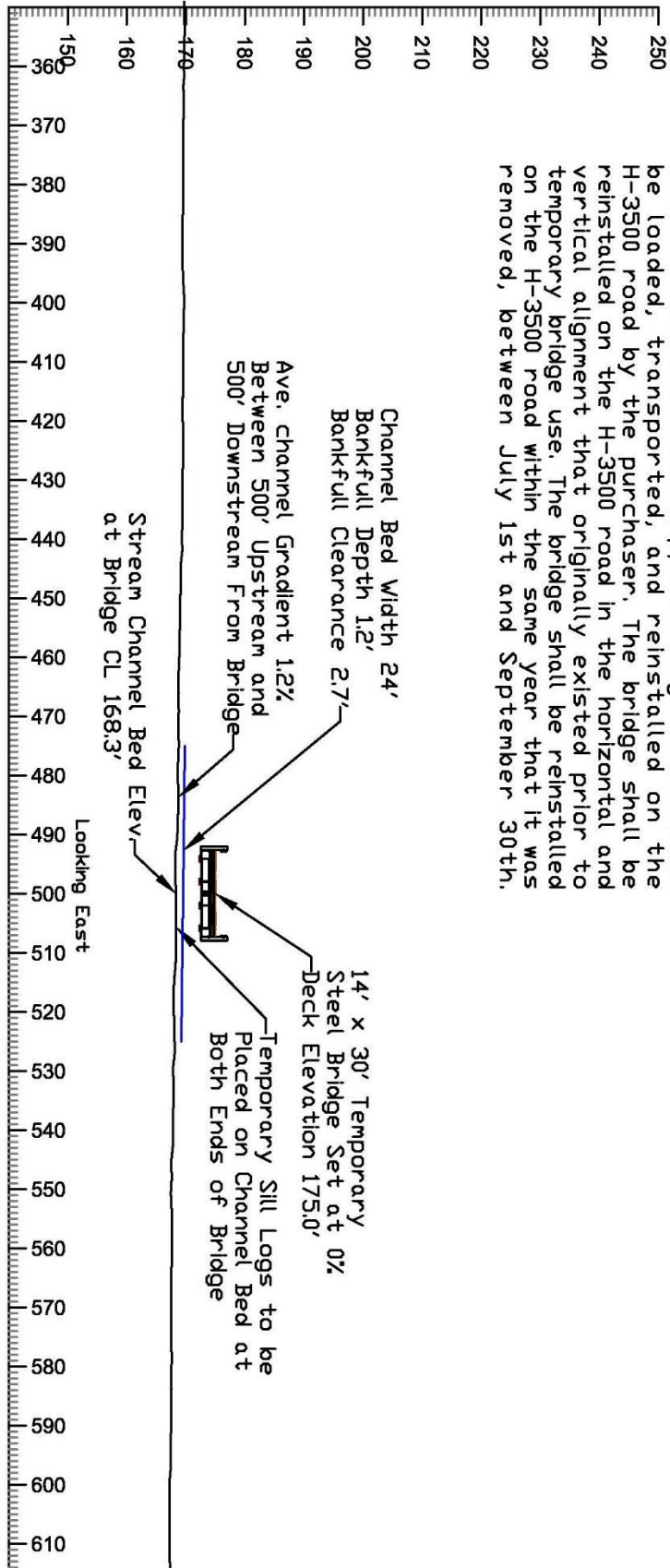


Temporary sill logs to be placed on channel bed and against stream banks at both ends of bridge. Logs will be removed and placed on road during bridge removal and road decommissioning.

- Notes:**
- Site Plan
  - Crossing Located N 47.649894° W 124.357796°
  - T25N, R13W, Sec. 22.
  - Average Bank Full Width is 23'.
  - Elevations noted are above mean sea level.
  - Temporary Bridge to be installed and removed between July 1st-September 30th.

	12+00 Spur Temp. Bridge
	Drawn By: Craig Magnuson Landowner: WA DNR Date: 2/10/2023 Sheet 1 of 3

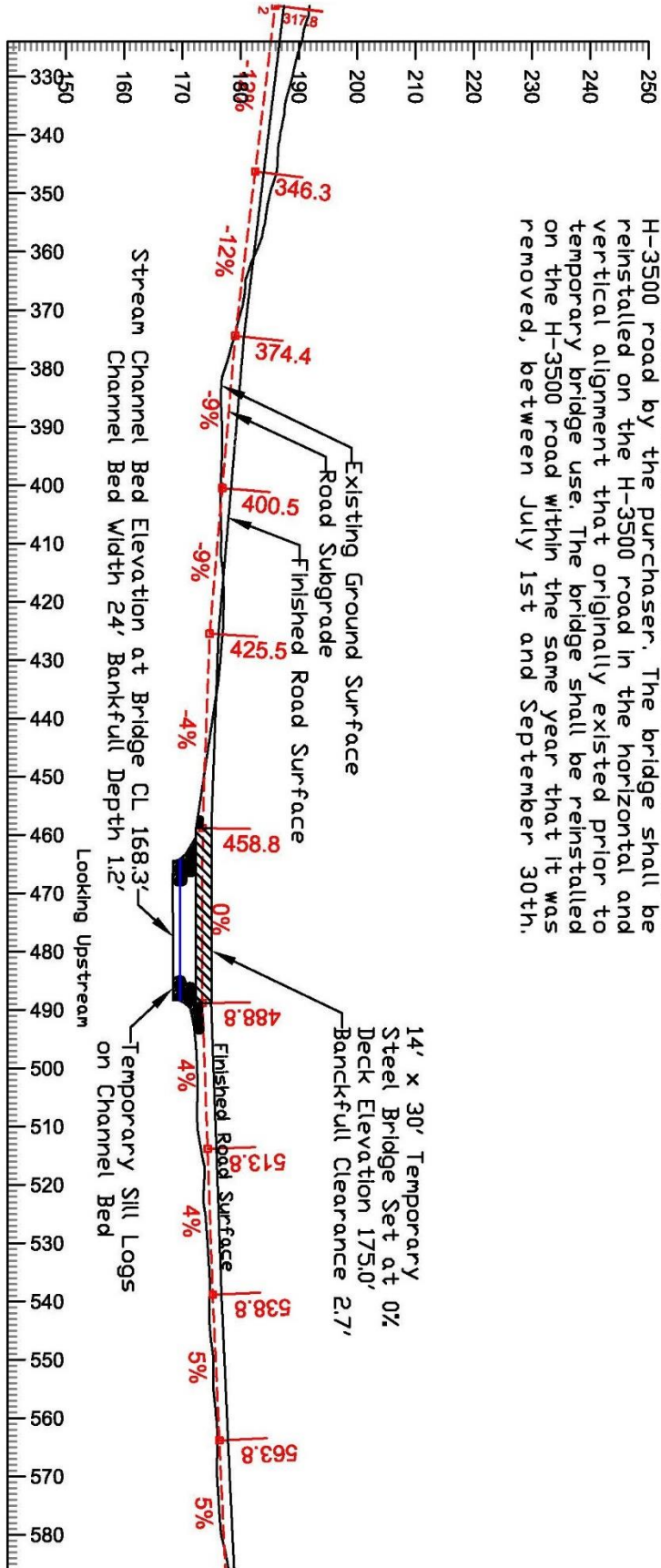
The State supplied bridge that is available for temporary use shall be removed, loaded, and transported by the purchaser from the H-3500 road. The purchaser shall temporarily install and remove the State supplied bridge on the 12+00 Spur, within one season, between July 1st and September 30th. After bridge use, on the 12+00 Spur, the purchaser shall remove the State supplied bridge and it shall be loaded, transported, and reinstalled on the H-3500 road by the purchaser. The bridge shall be reinstalled on the H-3500 road in the horizontal and vertical alignment that originally existed prior to temporary bridge use. The bridge shall be reinstalled on the H-3500 road within the same year that it was removed, between July 1st and September 30th.



Notes:  
 Stream Profile  
 Crossing C2  
 Crossing Located N 47.649894° W 124.357796°  
 T25N, R13W, Sec. 22.  
 Average Bank Full Width is 23'.  
 Elevations are above mean sea level.  
 Temporary Bridge to be installed and removed between July 1st-September 30th.

	12+00 Spur Temp. Bridge
	Drawn By: Craig Magnuson Landowner: WA DNR Date: 2/10/2023 Sheet 2 of 3

The State supplied bridge that is available for temporary use shall be removed, loaded, and transported by the purchaser from the H-3500 road. The purchaser shall temporarily install and remove the State supplied bridge on the 12+00 Spur, within one season, between July 1st and September 30th. After bridge use, on the 12+00 Spur, the purchaser shall remove the State supplied bridge and it shall be loaded, transported, and reinstalled on the H-3500 road by the purchaser. The bridge shall be reinstalled on the H-3500 road in the horizontal and vertical alignment that originally existed prior to temporary bridge use. The bridge shall be reinstalled on the H-3500 road within the same year that it was removed, between July 1st and September 30th.



Notes:  
Road Profile

Crossing Located N 47.649894° W 124.357796°  
Crossing C2  
T25N, R13W, Sec. 22.  
Average Bank Full Width is 23'.  
Elevations are above mean sea level.  
Temporary Bridge to be installed and removed between July 1st-September 30th.



	12+00 Spur Temp. Bridge
	Drawn By: Craig Magnuson Landowner: WA DNR Date: 2/10/2023 Sheet 3 of 3



**Site Plan**

**Notes:**

**Crossing C20**

**Crossing Location:**

**N 47.821156°, W 124.244006°**

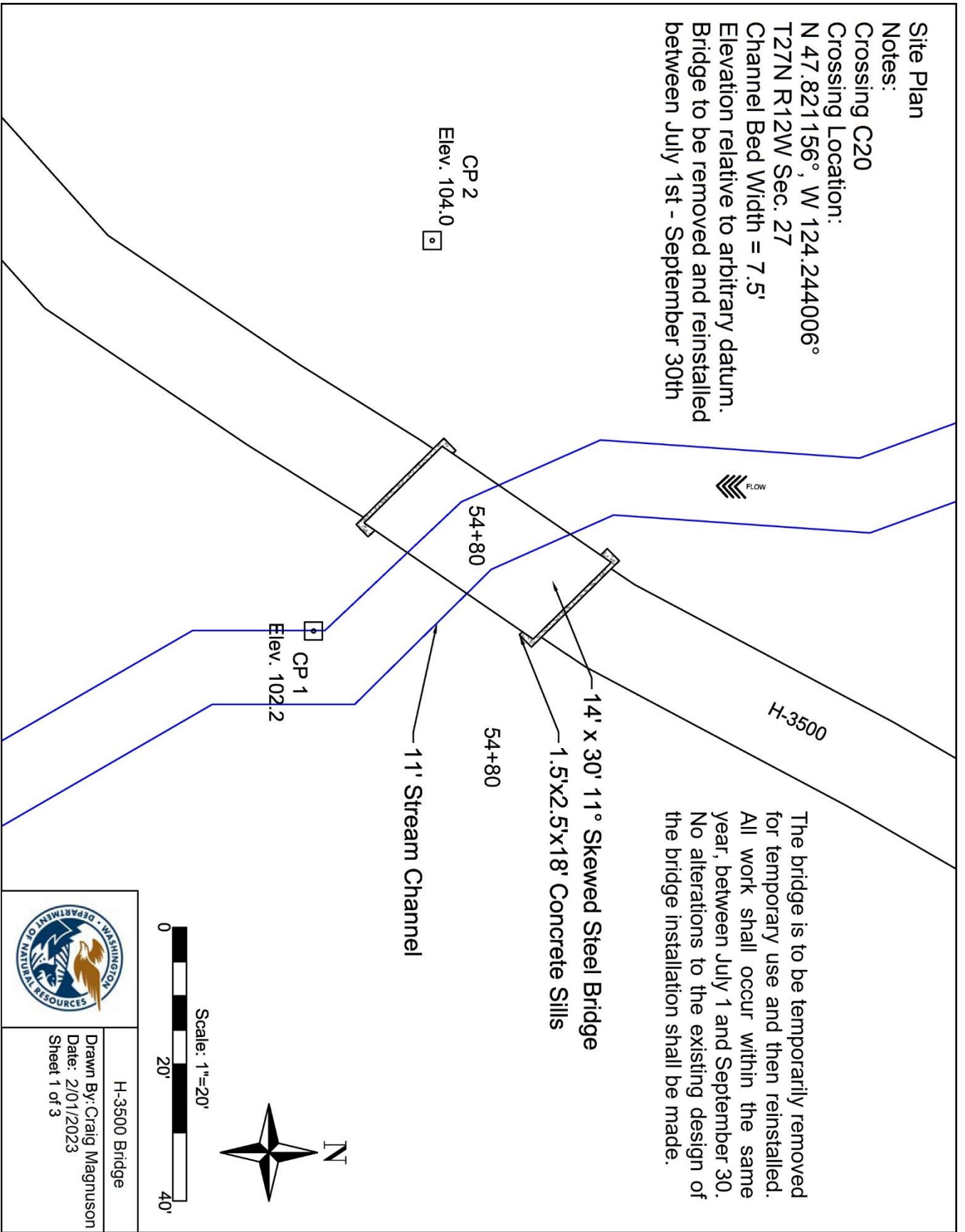
**T27N R12W Sec. 27**

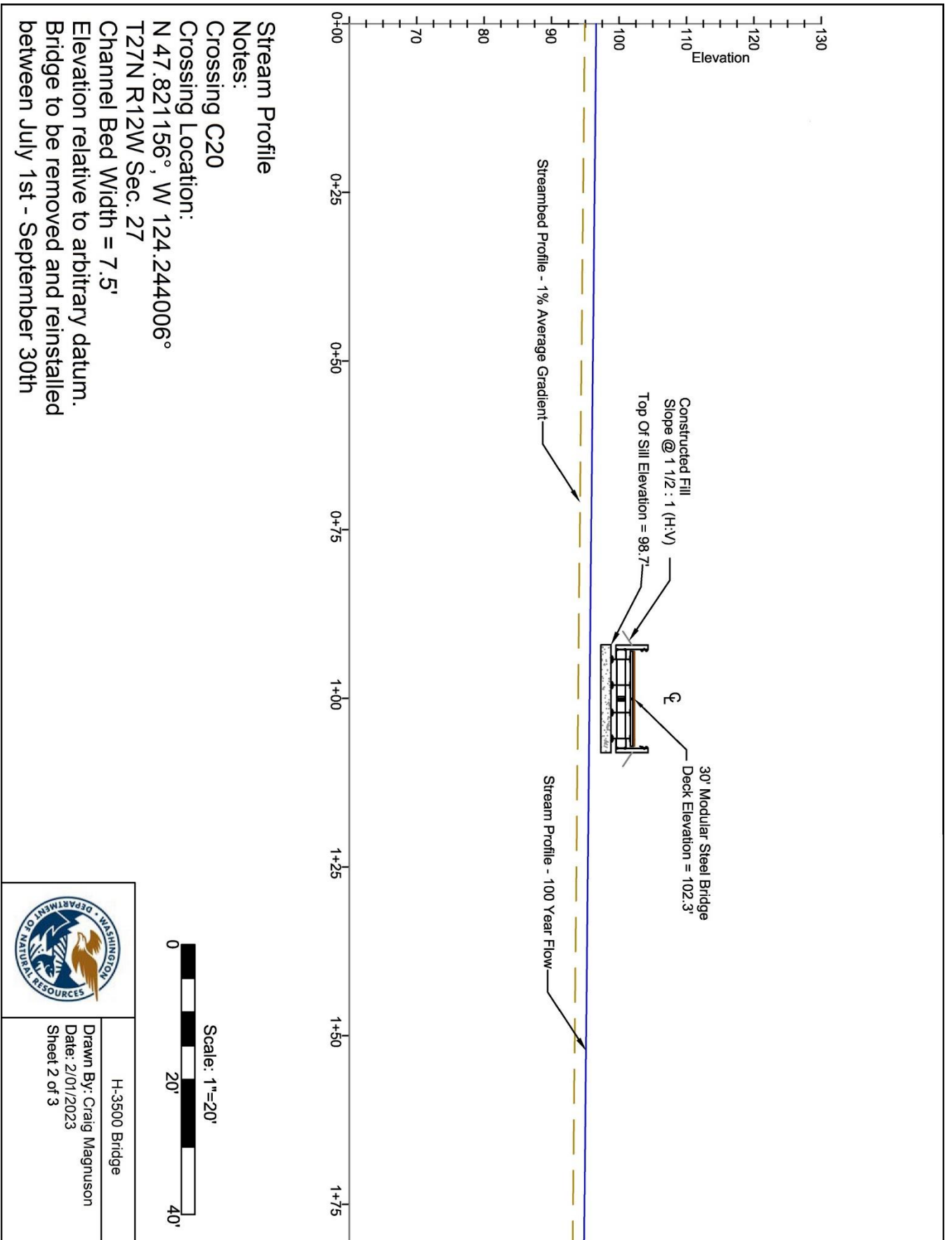
**Channel Bed Width = 7.5'**

**Elevation relative to arbitrary datum.**

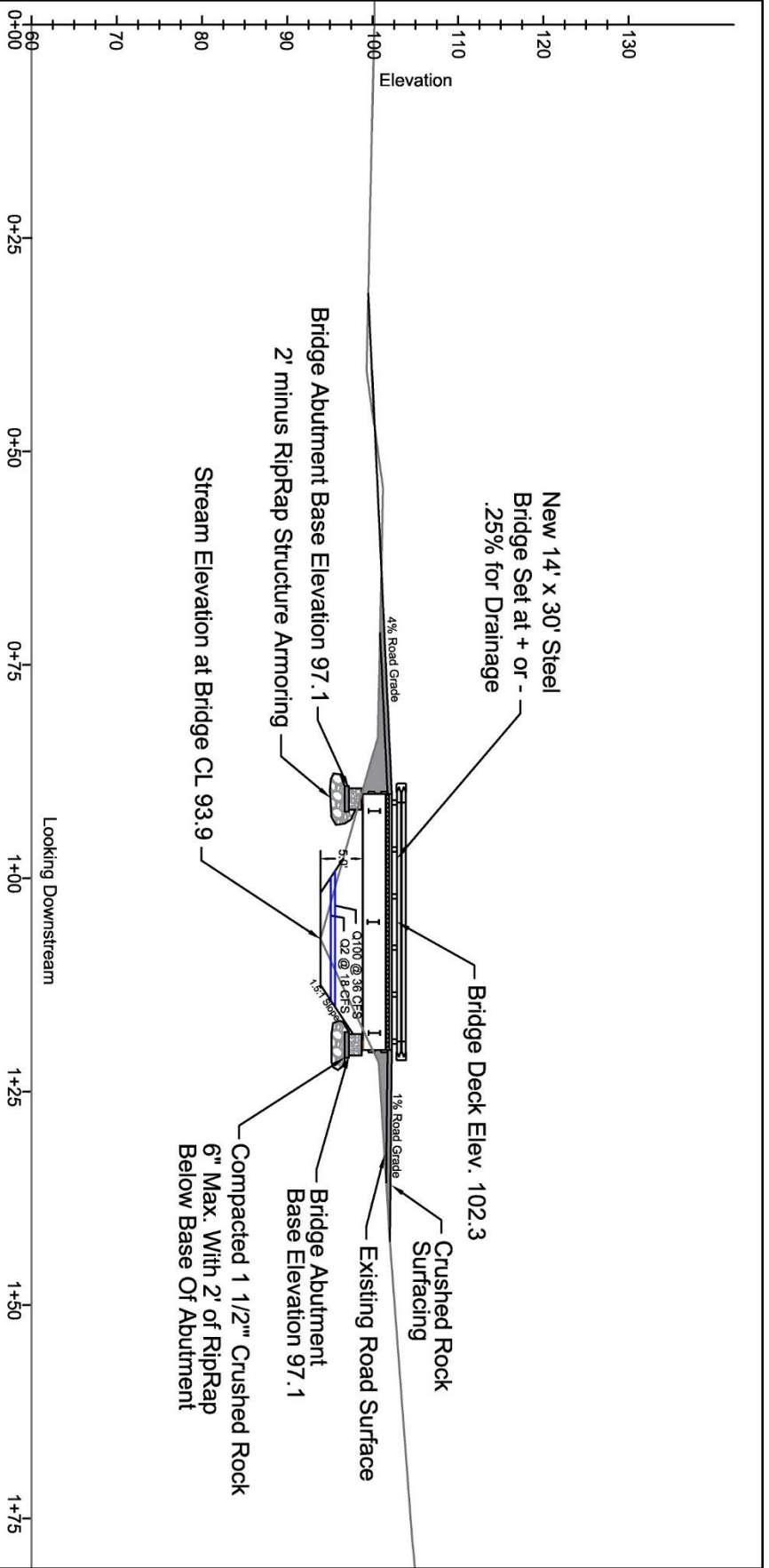
**Bridge to be removed and reinstalled**

**between July 1st - September 30th**



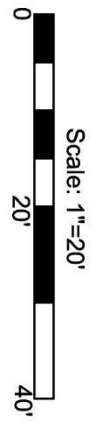


H-3500 Bridge  
 Drawn By: Craig Magnuson  
 Date: 2/01/2023  
 Sheet 2 of 3

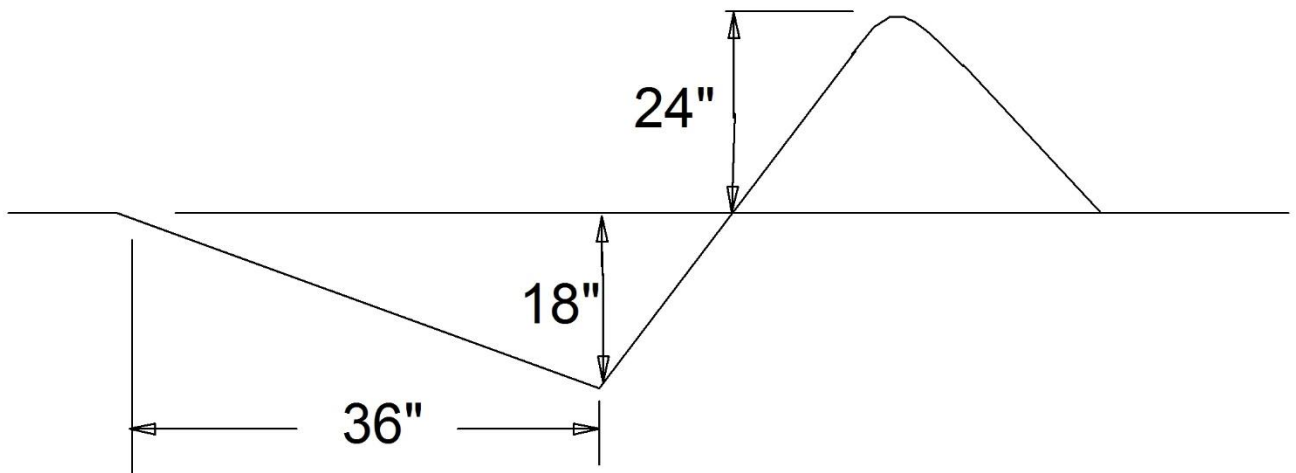
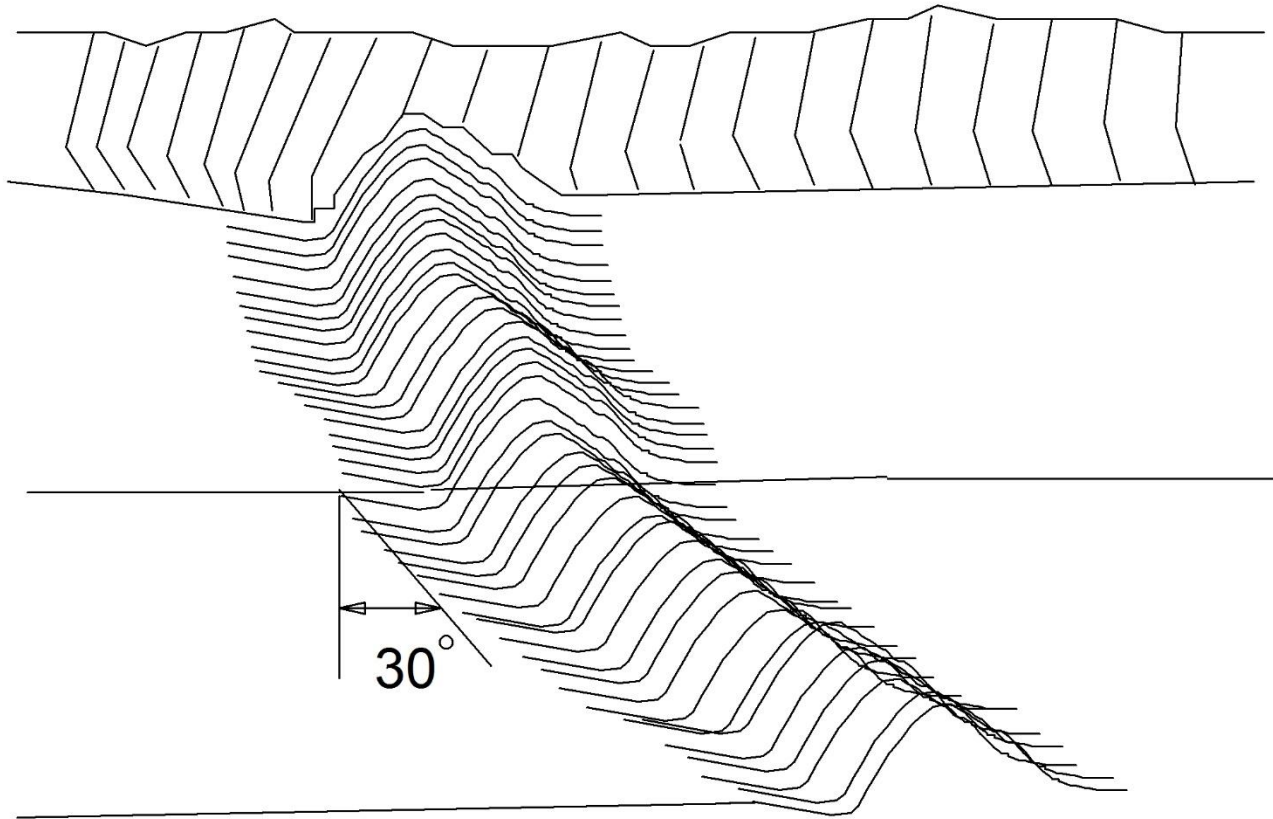


**Road Profile**  
**Notes:**  
**Crossing C20**  
**Crossing Location:**  
 N 47.821156°, W 124.244006°  
 T27N R12W Sec. 27  
 Channel Bed Width = 7.5'  
 Elevation relative to arbitrary datum.  
 Bridge to be removed and reinstalled  
 between July 1st - September 30th

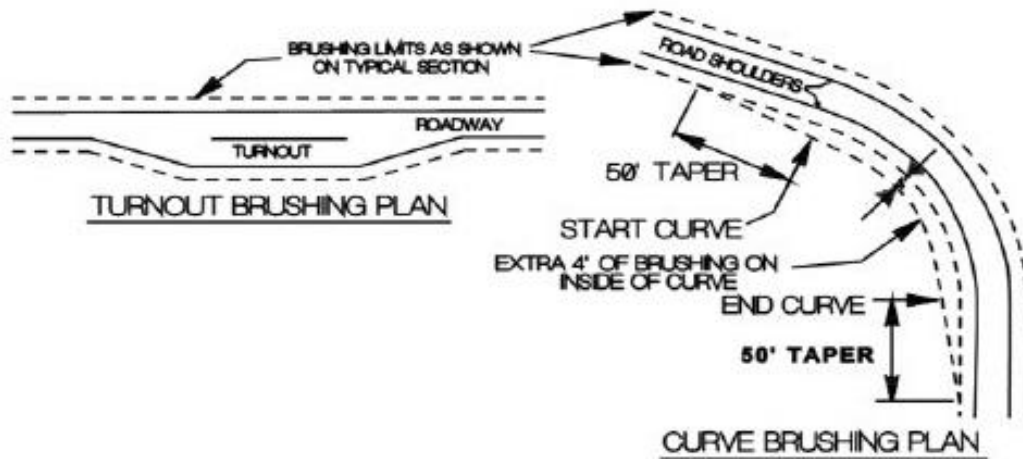
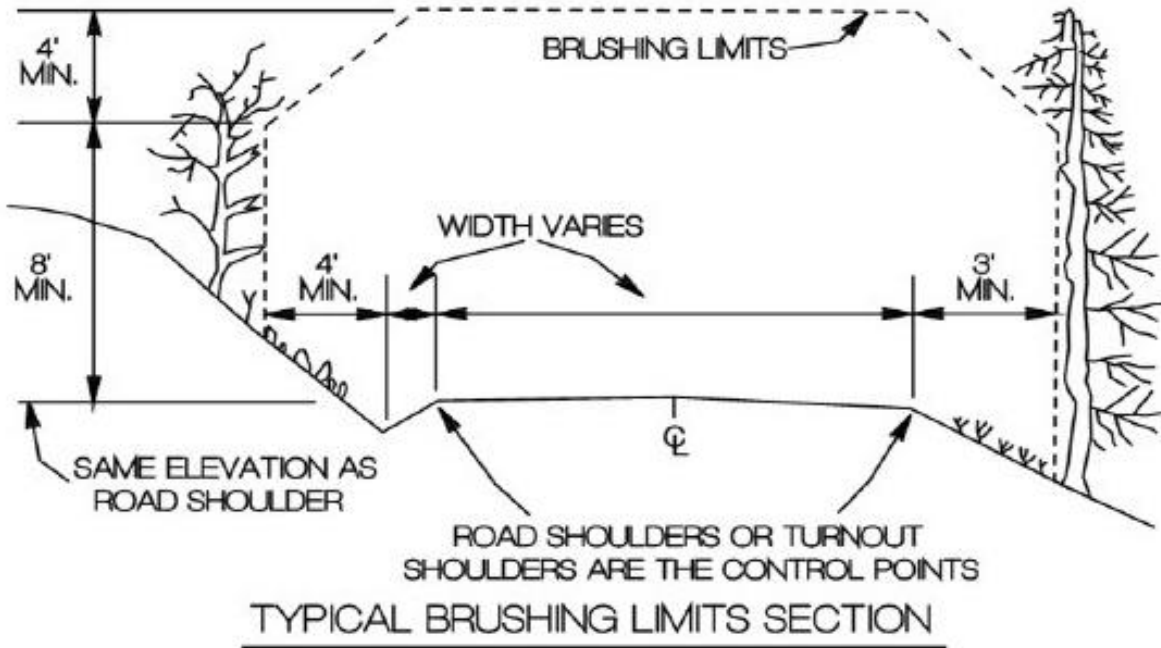
	H-3500 Bridge
	Drawn By: Craig Magnuson Date: 2/01/2023 Sheet 3 of 3



# NON-DRIVABLE WATER BAR DETAIL



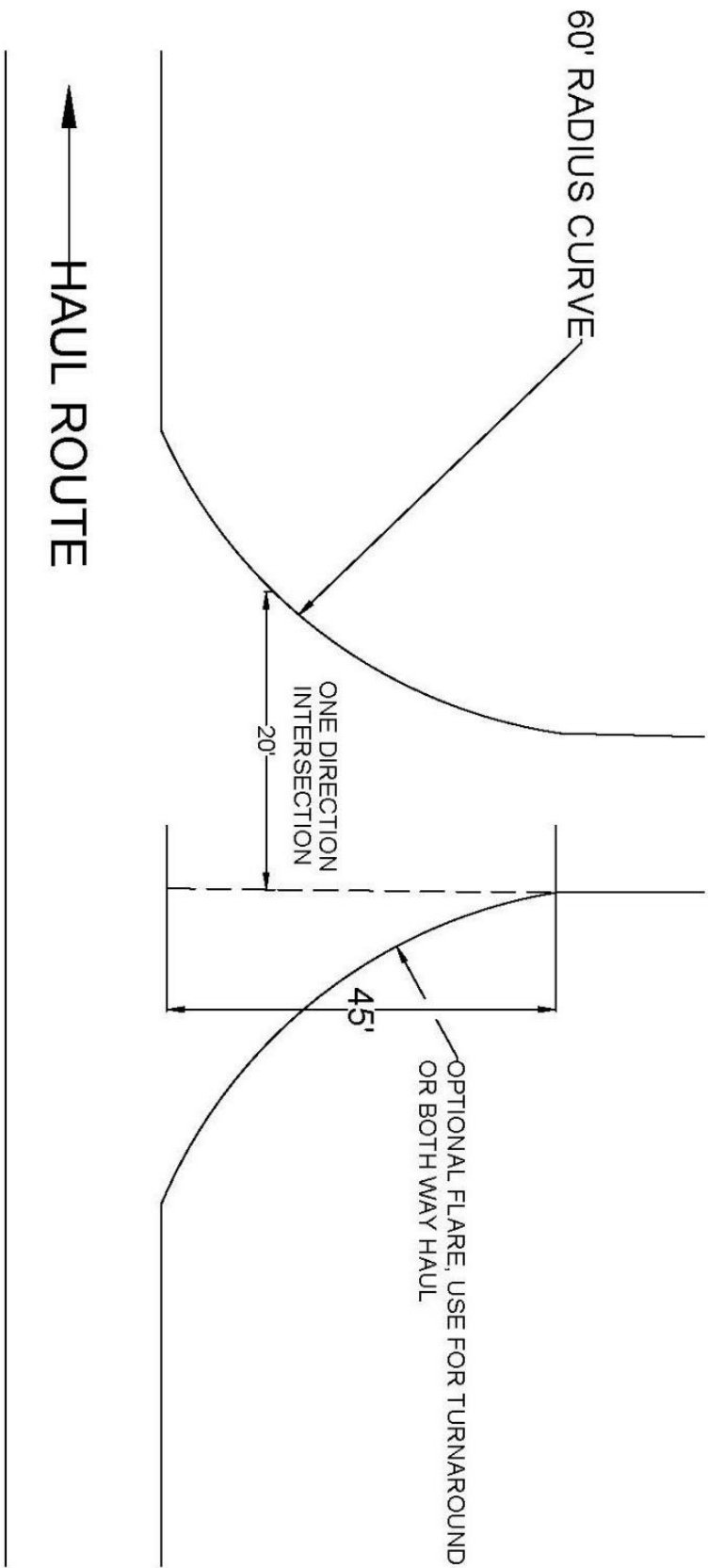
# BRUSHING DETAIL



- 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.

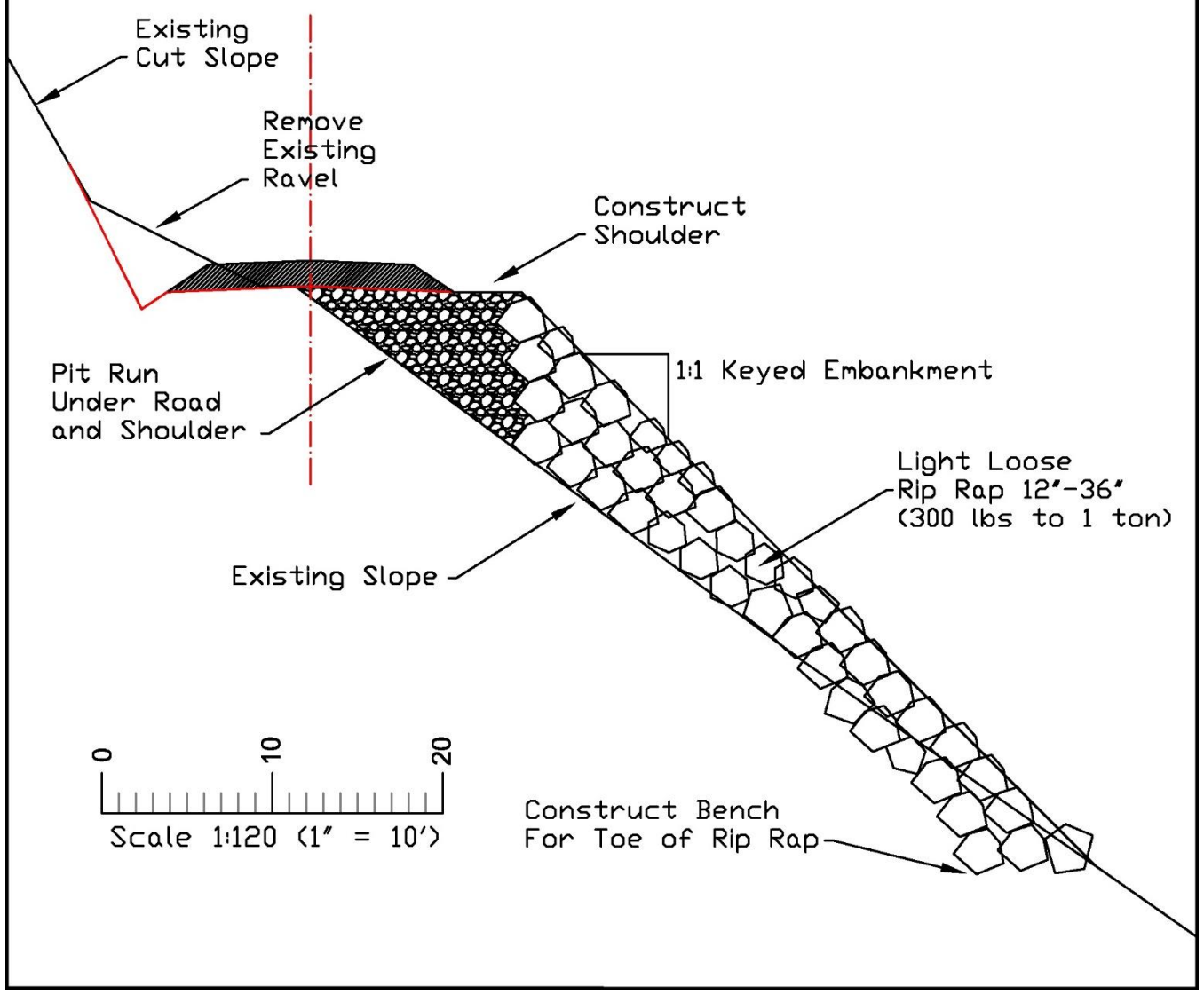


# TYPICAL INTERSECTION



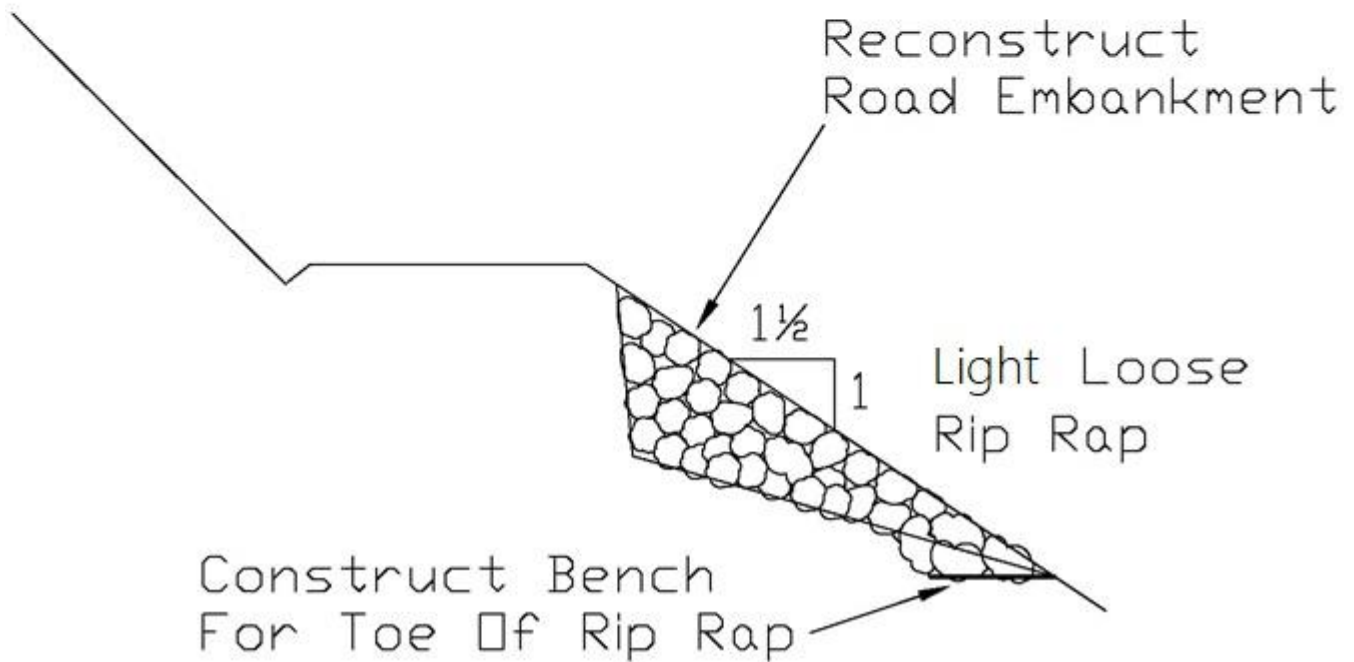
NOT TO SCALE

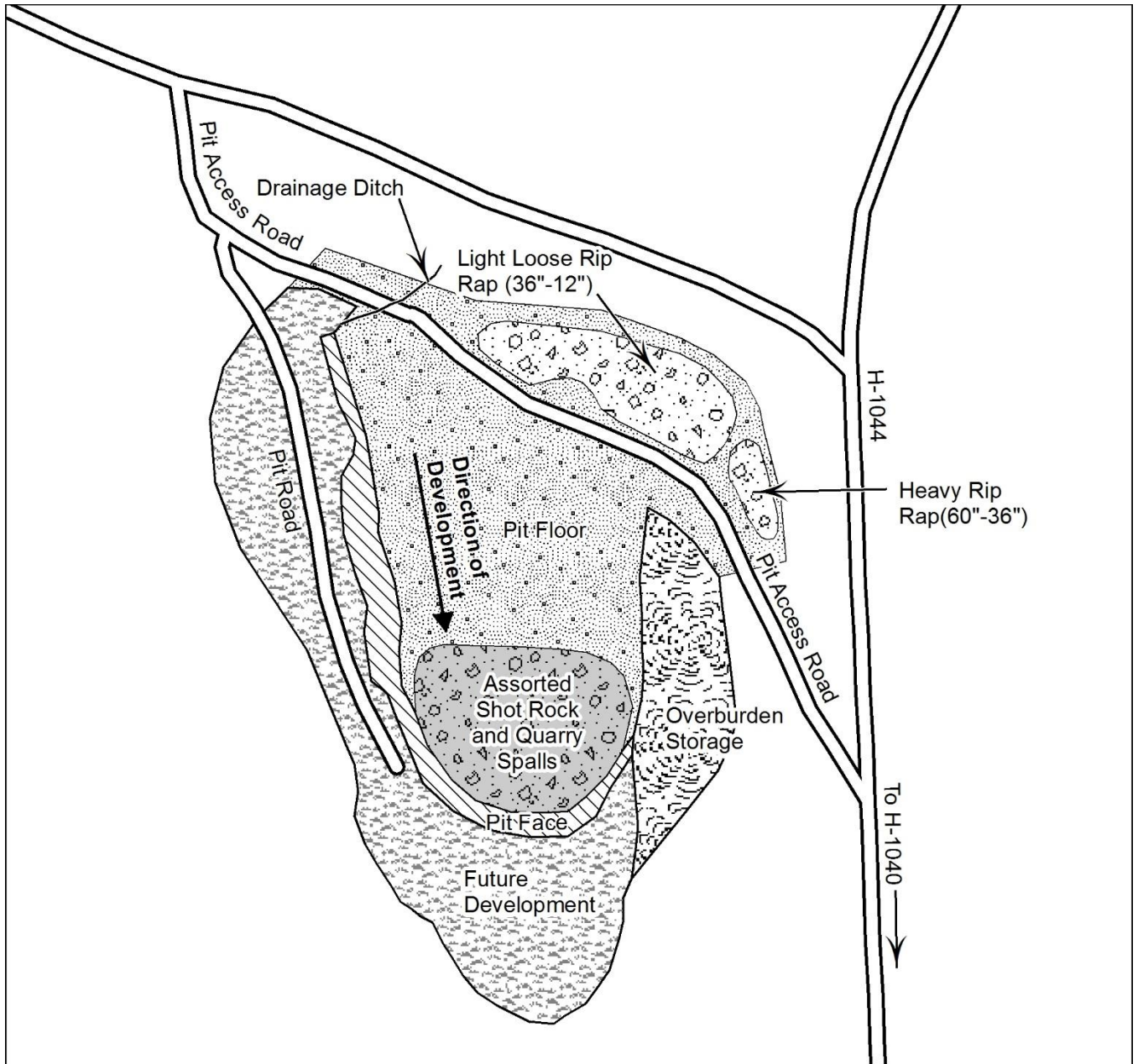
# K-1031 Typical Embankment Key Detail STA 2+40 - 3+20



# Typical Embankment Key Detail

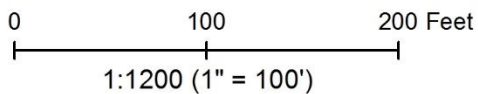
Except where designed otherwise, road reconstruction with rip rap keyed toe and embankment.





### 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.



Revised 3/10/23

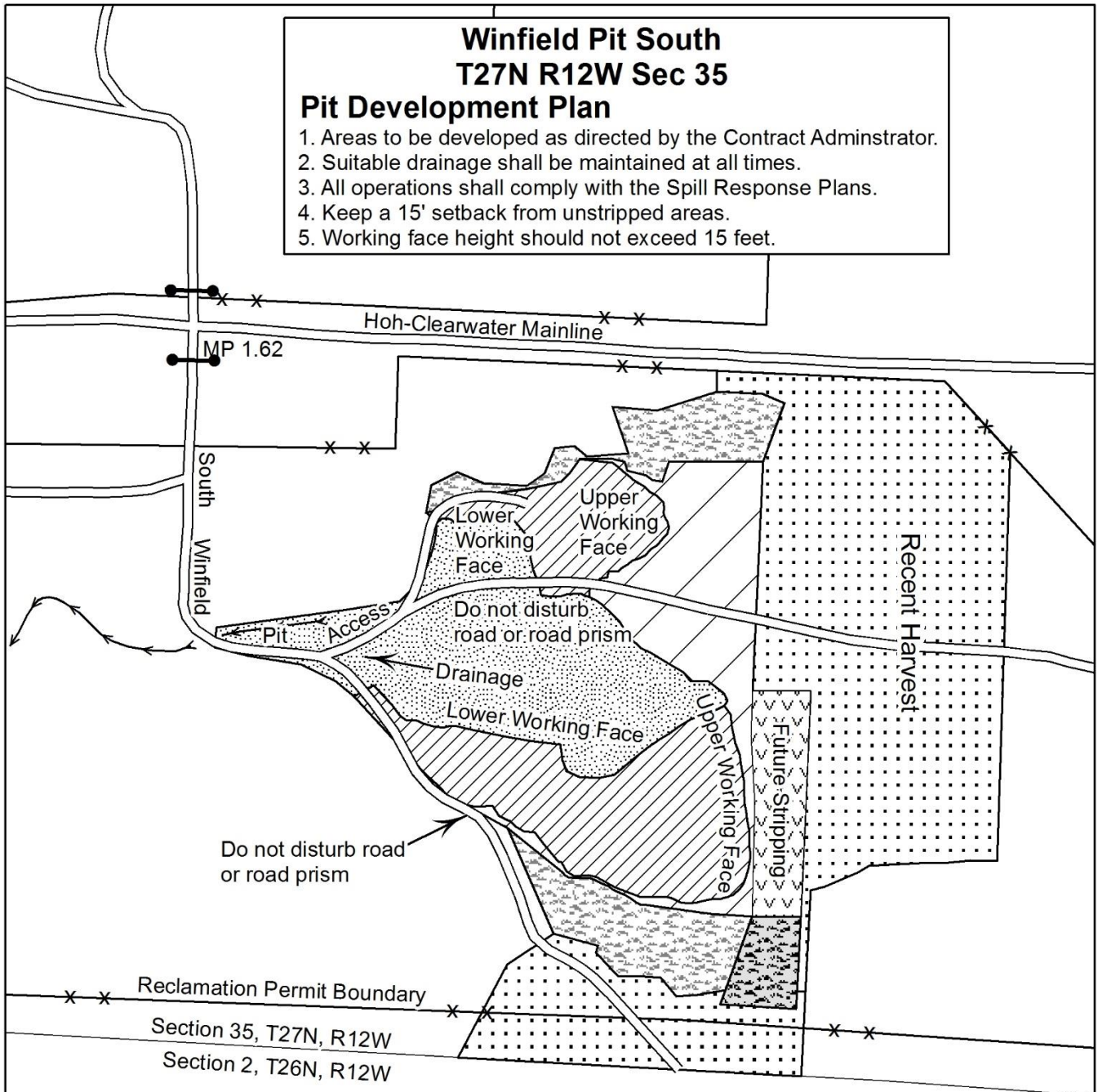
### Legend

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

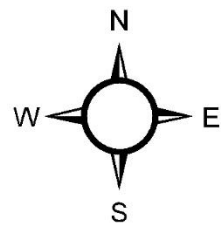


## Winfield Pit South T27N R12W Sec 35 Pit Development Plan

1. Areas to be developed as directed by the Contract Administrator.
2. Suitable drainage shall be maintained at all times.
3. All operations shall comply with the Spill Response Plans.
4. Keep a 15' setback from unstripped areas.
5. Working face height should not exceed 15 feet.



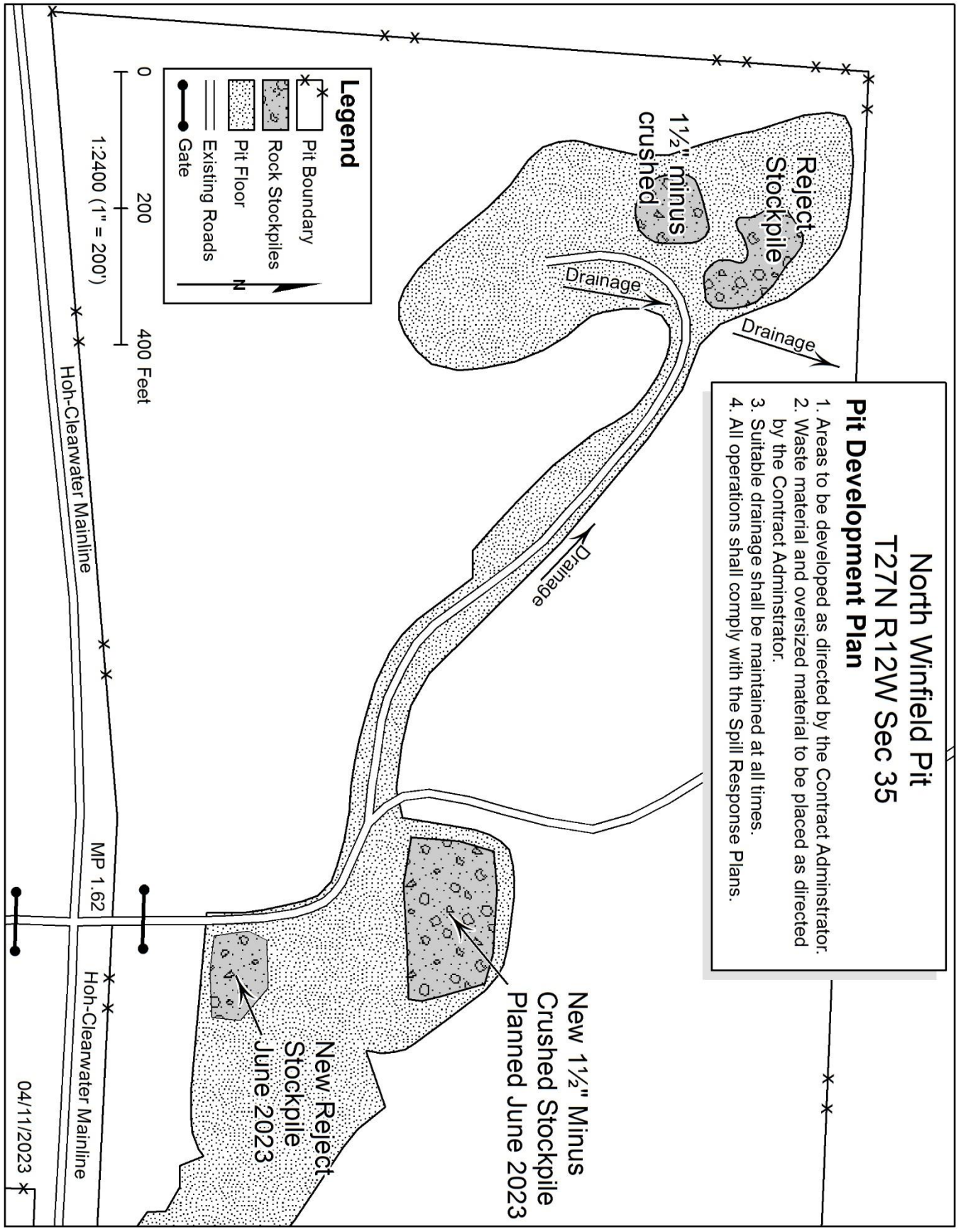
Legend			
	Lower Pit Floor		Existing Overburden
	Upper Pit Floor		Future Overburden
	Stripped Area		Completed Harvest
	Future Stripping		Existing Roads
	Rec. Permit Boundary		Gate



0 100 200 300 Feet  
 1:3600 (1" = 300')

Magnuson 04/11/2023





# Pre-Work Meeting Notes

Date: \_\_\_\_\_

Project / Sale Name: \_\_\_\_\_ Contract / Agreement No: \_\_\_\_\_

Contractor Rep.: \_\_\_\_\_ DNR Rep.: \_\_\_\_\_

Others Present: \_\_\_\_\_

Removal Volume: \_\_\_\_\_ Designated Face: \_\_\_\_\_

Removal Accountability: Bank Measure \_\_\_\_\_ Truck Measure \_\_\_\_\_ Weight \_\_\_\_\_

Stripping Acres: \_\_\_\_\_ Location: \_\_\_\_\_

Reclamation Acres: \_\_\_\_\_ Location: \_\_\_\_\_

Additional Issues:

- Mine Floor Gradient 2%
- Wet Weather Operations
- Equipment Staging Area and Servicing
- Equipment Having Oil or Other Fluid Leaks Prohibited
- Hazardous Materials and Spill Response
- Absorbent Pads Required During Refueling\*
- No On Site Staging of Fuel Trucks or Storage Tanks
- Litter
- Gate Security
- Head Lights On - Safety

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*\*During routine fueling or servicing of motorized mining equipment, all equipment involved must be parked on impervious material with capability to collect any and all potential spillage of any hazardous materials.*

# **PETROLEUM SPILL OR SEDIMENT DISCHARGE RESPONSE**

- Extinguish potential ignition sources
- Plug inlets and outlets of drainage ditches
- Contain spills using dikes or berms
- Notify the following agencies

Department of Natural Resources: (360) 374-2800  
Weekend, Holiday, or After Hours Contact  
Department of Natural Resources:  
1-800-562-6010 or 1-800-527-3305

Washington Emergency Management Division:  
1-800-258-5990 or 1-800-OILS-911

National Response Center: 1-800-424-8802



SUMMARY - Road Development Costs																			
SALE NAME: T3 Kalaloch West	CONTRACT#: 30-102259	REGION: Olympic	DISTRICT: Coast																
LEGAL DESCRIPTION: Sec. 3-4, T24N, R13W; Sec. 22, 23, 26, 27, 34, T25N, R13W																			
ROAD NAME:	K-1031	12+00 Spur	2+10 Spur	1+40 Spur	3+00 Spur	K-1031	N-1100	H-3500	K-1000	K-1030	K-1050	TOTAL:	SHEET #2-5						
ROAD TYPE:	Construction	Construction	Construction	Construction	Construction	Recon.	Recon.	Recon.	Prehaul	Prehaul	Prehaul	TOTAL:							
NUMBER OF STATIONS:	4.50	12.00	2.10	1.40	3.00	25.00	1.00	1.00	297.55	15.50	29.35	392.40	985.50						
SIDE SLOPE:	15%	25%	10%	10%	20%	70%	0%	0%	0%	0%	0%	0%							
CLEARING AND GRUBBING:	\$513	\$1,368	\$239	\$160	\$342	\$2,586	\$0	\$0	\$0	\$0	\$0	\$5,208	\$0						
ROAD BRUSHING:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,087	\$279	\$151	\$1,517	\$2,371						
EXCAVATION AND FILL:	\$890	\$17,827	\$356	\$237	\$678	\$24,504	\$0	\$0	\$0	\$0	\$0	\$44,492	\$0						
ROAD GRADING:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,008	\$101	\$0	\$1,109	\$5,326						
DITCH CLEANING/CONSTRUCTION:	\$0	\$0	\$0	\$0	\$0	\$907	\$0	\$0	\$892	\$601	\$988	\$3,337	\$2,478						
ROCK TOTALS (CL. Yds./)ROCK COSTS:																			
Ballast:	9750	9750	550	1320	230	260	460	3000	\$78,600	\$0	\$0	\$29,734	\$0	1280	0	1340	8440	1310	
Surface:	850	850	\$12,672	\$29,093	\$5,134	\$6,107	\$10,792	\$78,600	\$0	\$0	\$0	\$190	\$0	\$0	\$0	\$31,482	\$203,614	\$29,878	
Oversize:	245	245	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,366	\$0	\$0	\$0	\$4,366	\$14,876	\$660	
CULVERTS AND FLUMES:	\$27	\$0	\$0	\$0	\$0	\$28	\$3,912	147	\$0	\$0	\$0	\$91	\$0	\$0	\$0	\$71	\$6,175	\$46	
STRUCTURES:	\$0	\$3,750	\$0	\$0	\$0	\$0	\$20,000	\$7,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$31,250	\$0	\$0	
MISC. EXPENSES:	\$26	\$261	\$69	\$8	\$18	\$68,200	\$0	\$0	\$6,725	\$283	\$6,592	\$82,182	\$7,296						
OVERHEAD:	\$1,130	\$4,533	\$551	\$521	\$1,072	\$16,430	\$1,600	\$600	\$3,676	\$101	\$3,361	\$33,576	\$5,613						
TOTAL COSTS:	\$15,259	\$61,201	\$7,441	\$7,033	\$14,469	\$221,811	\$21,600	\$8,100	\$49,625	\$1,365	\$45,367	\$453,272	\$72,197						
COST PER STATION:	\$3,391	\$5,100	\$3,543	\$5,024	\$4,823	\$8,872	\$21,600	\$8,100	\$167	\$88	\$1,546	\$1,155	\$73						
MOBILIZATION:												\$8,850							
ROAD DEACTIVATION AND ABANDONMENT COSTS:												\$5,661							
Pit Work												\$0							
Road Standard													Const.	Reconst.	Prehaul	Posthaul	Deactivation	TOTAL (All Roads) =	
Total Costs =													\$107,615	\$253,724	\$154,998	\$17,981	\$5,661	SALE VOLUME MBF =	2,758
Total Sta. =													23.00	27.00	647.00	647.00	13.60	TOTAL COST PER MBF =	\$195.79
Cost per Sta. =													\$4,679	\$9,397	\$240	\$28	\$416	TOTAL COST PER STATION =	\$391.89
Plans to be furnished by:													Compiled by: Craig Magnuson		Date: 04/11/2023				



				SUMMARY - Road Development Costs									
SALE NAME:	T3 Kalaloch West	CONTRACT#:	30-102259 <th>REGION:</th> <td>Olympic</td> <th>DISTRICT:</th> <td>Coast</td> <td colspan="5"></td> <td></td>	REGION:	Olympic	DISTRICT:	Coast						
LEGAL DESCRIPTION:		Sec. 3-4, T24N, R13W.; Sec. 22, 23, 26, 27, 34, T25N, R13W											
ROAD NAME:		K-1200	K-1210	K-1220	Cont. Culv.	K-1000	K-1030	K-1031	K-1050	1+40 Spur			
ROAD TYPE:		Prehaul	Prehaul	Prehaul	Prehaul	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul			
NUMBER OF STATIONS:		21.05	40.45	4.50	0.00	297.55	15.50	29.50	29.35	1.40			
SIDESLOPE:		0%	0%	0%	0%	0%	0%	0%	0%	0%			
CLEARING AND GRUBBING:		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
ROAD BRUSHING:		\$0	\$728	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
EXCAVATION AND FILL:		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
ROAD GRADING:		\$53	\$263	\$29	\$0	\$1,008	\$101	\$192	\$191	\$9			
DITCHING:		\$0	\$778	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
ROCK TOTALS (Cu. Yds.)/ROCK COSTS:													
Ballast:		0	10	0	0	0	0	0	0	0			
		\$0	\$222	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Surface:		60	0	0	0	300	30	0	0	0			
		\$1,278	\$0	\$0	\$0	\$6,942	\$659	\$0	\$0	\$0			
Oversize:		0	0	0	0	0	0	0	0	0			
		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
CULVERTS AND FUMES:		\$0	\$0	\$0	\$1,848	\$0	\$0	\$0	\$0	\$0			
STRUCTURES:		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
MISC. EXPENSES:		\$93	\$673	\$36	\$0	\$100	\$0	\$0	\$0	\$0			
OVERHEAD:		\$114	\$213	\$5	\$148	\$805	\$76	\$19	\$19	\$1			
TOTAL COSTS:		\$1,538	\$2,877	\$70	\$1,996	\$8,856	\$835	\$211	\$210	\$10			
COST PER STATION:		\$73	\$71	\$16	\$0	\$30	\$54	\$7	\$7	\$7			
					Total								
					Costs \$16,603								
					Stations 439.30								
					Cost/station \$37.79								



SUMMARY - Road Development Costs															
SALE NAME:	T3 Kalaloch West	CONTRACT#:	30-102259	REGION:	Olympic	DISTRICT:	Coast								
LEGAL DESCRIPTION:	Sec. 3-4, T24N, R13W.; Sec. 22, 23, 26, 27, 34, T25N, R13W														
ROAD NAME:		K-1105		K-1200		K-1210		K-1220		0		0		0	
ROAD TYPE:		Posthaul		Posthaul		Posthaul		Posthaul		Posthaul		Posthaul		Posthaul	
NUMBER OF STATIONS:		22.10		21.05		40.45		4.50		0.00		0.00		0.00	
SIDE SLOPE:		0%		0%		0%		0%		0%		0%		0%	
CLEARING AND GRUBBING:		\$0		\$0		\$0		\$0		\$0		\$0		\$0	
ROAD BRUSHING:		\$0		\$0		\$0		\$0		\$0		\$0		\$0	
EXCAVATION AND FILL:		\$0		\$0		\$0		\$0		\$0		\$0		\$0	
ROAD GRADING:		\$144		\$137		\$263		\$29		\$0		\$0		\$0	
DITCHING:		\$0		\$0		\$0		\$0		\$0		\$0		\$0	
ROCK TOTALS (Cu. Yds.)/ROCK COSTS:															
Ballast:	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0
Surface:	0	0	20	60	0	\$1,330	0	\$0	0	\$0	0	\$0	0	\$0	0
Oversize:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CULVERTS AND FLUMES:		\$0		\$0		\$0		\$0		\$0		\$0		\$0	
STRUCTURES:		\$0		\$0		\$0		\$0		\$0		\$0		\$0	
MISC. EXPENSES:		\$0		\$0		\$0		\$0		\$0		\$0		\$0	
OVERHEAD:		\$14		\$56		\$159		\$3		\$0		\$0		\$0	
TOTAL COSTS:		\$158		\$619		\$1,752		\$32		\$0		\$0		\$0	
COST PER STATION:		\$7		\$29		\$43		\$7		\$0		\$0		\$0	
Total															
Costs \$2,562															
Stations 88.10															
Cost/station \$29.08															

## 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

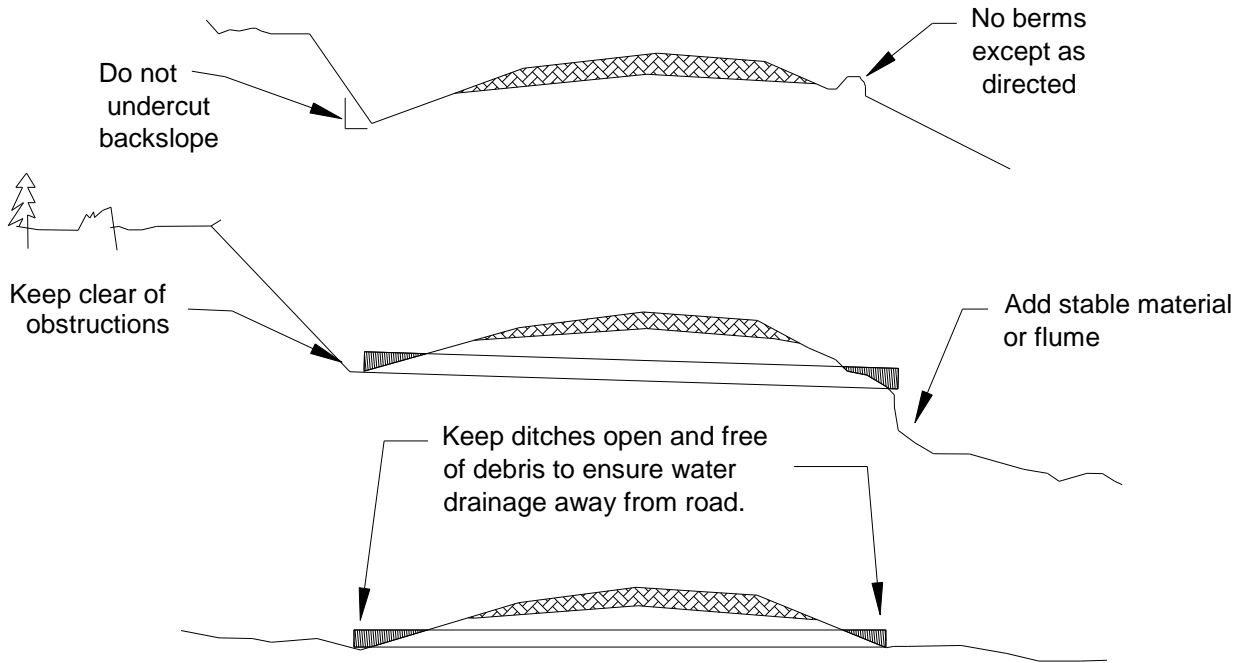
Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

### Termination of Use or End of Season

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

### Debris

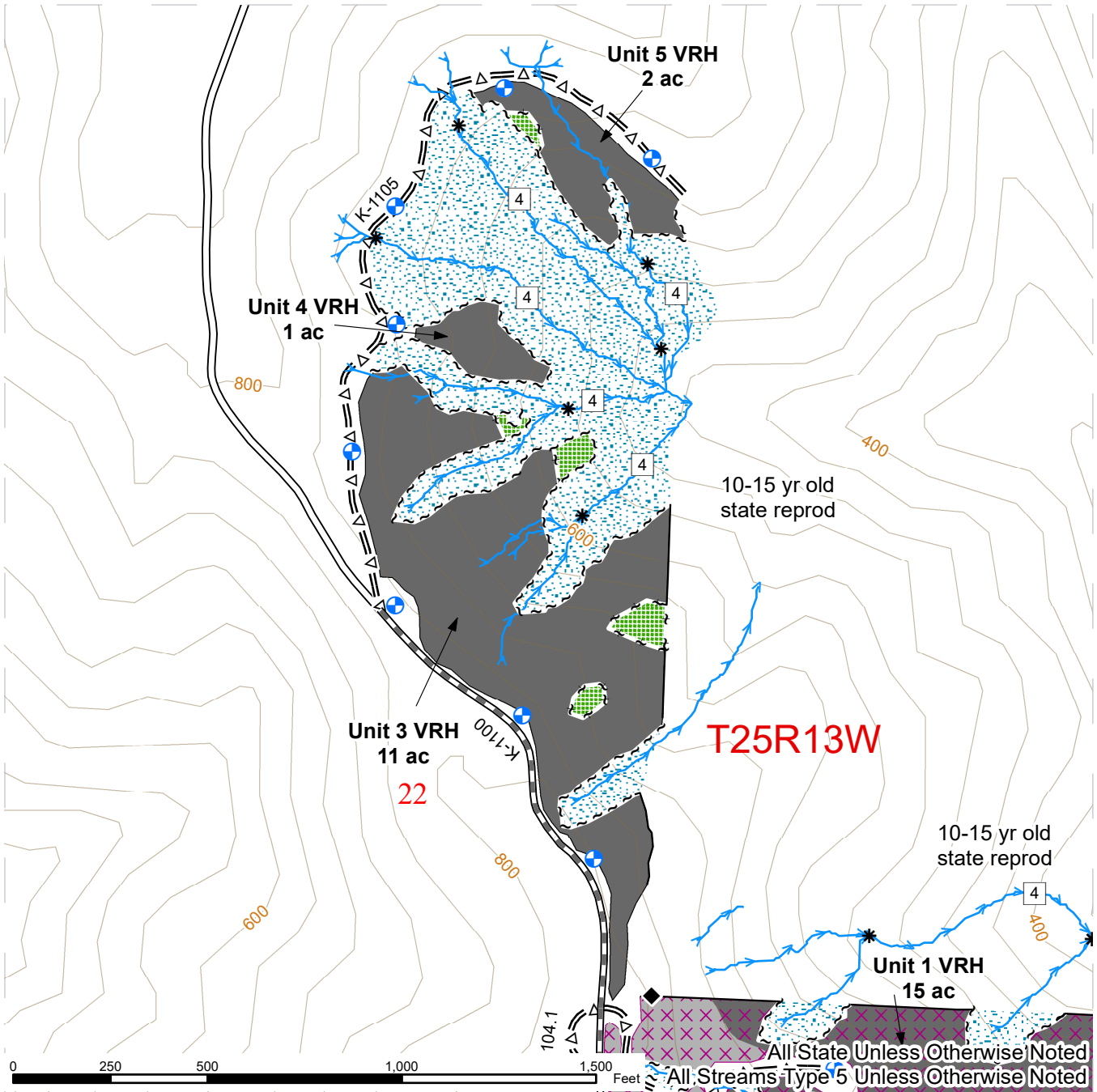
Remove fallen timber, limbs, and stumps from the slopes, roadway, ditchlines, and culvert inlets.



# LOGGING PLAN MAP

**SALE NAME:** T3 KALALOCH WEST  
**AGREEMENT#:** 30-102259  
**TOWNSHIP(S):** T25R13W, T26R12W, T27R11W, T27R12W  
**TRUST(S):** Common School and Indemnity (3)

**REGION:** Olympic Region  
**COUNTY(S):** Jefferson  
**ELEVATION RGE:** 180'-920'



◆ Survey Monument	— Timber Type Change	<b>Logging Method</b>
□ Stream Type	— Existing Road	■ Ground
* Stream Break	=Δ= Optional Pre-haul Maintenance	■ Cable
⊕ Proposed Landing	▬ Required Pre-haul Maintenance	□ Public Land Survey Sections
→ Streams	▨ Leave Tree Area	□ Public Land Survey Townships
— Contours 40-foot	▤ Riparian Mgt Zone	□ DNR Managed Lands
~ ~ ~ Leave Tree Area Tags	⊠ Slash Manipulation	
~ ~ ~ Sale Boundary Tags	□ Sale Area	

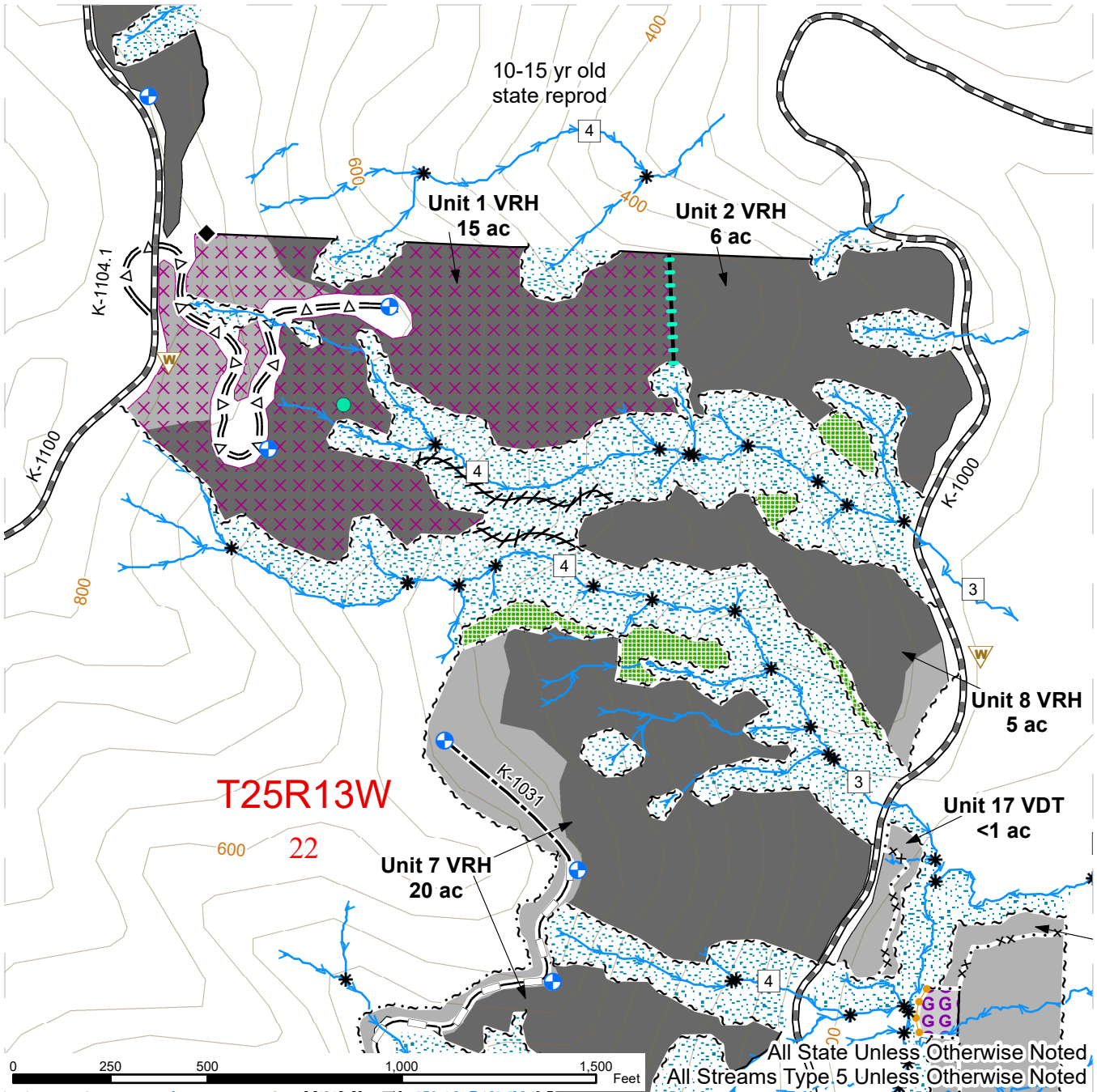




# LOGGING PLAN MAP

**SALE NAME:** T3 KALALOCH WEST  
**AGREEMENT#:** 30-102259  
**TOWNSHIP(S):** T25R13W, T26R12W, T27R11W, T27R12W  
**TRUST(S):** Common School and Indemnity (3)

**REGION:** Olympic Region  
**COUNTY(S):** Jefferson  
**ELEVATION RGE:** 180'-920'



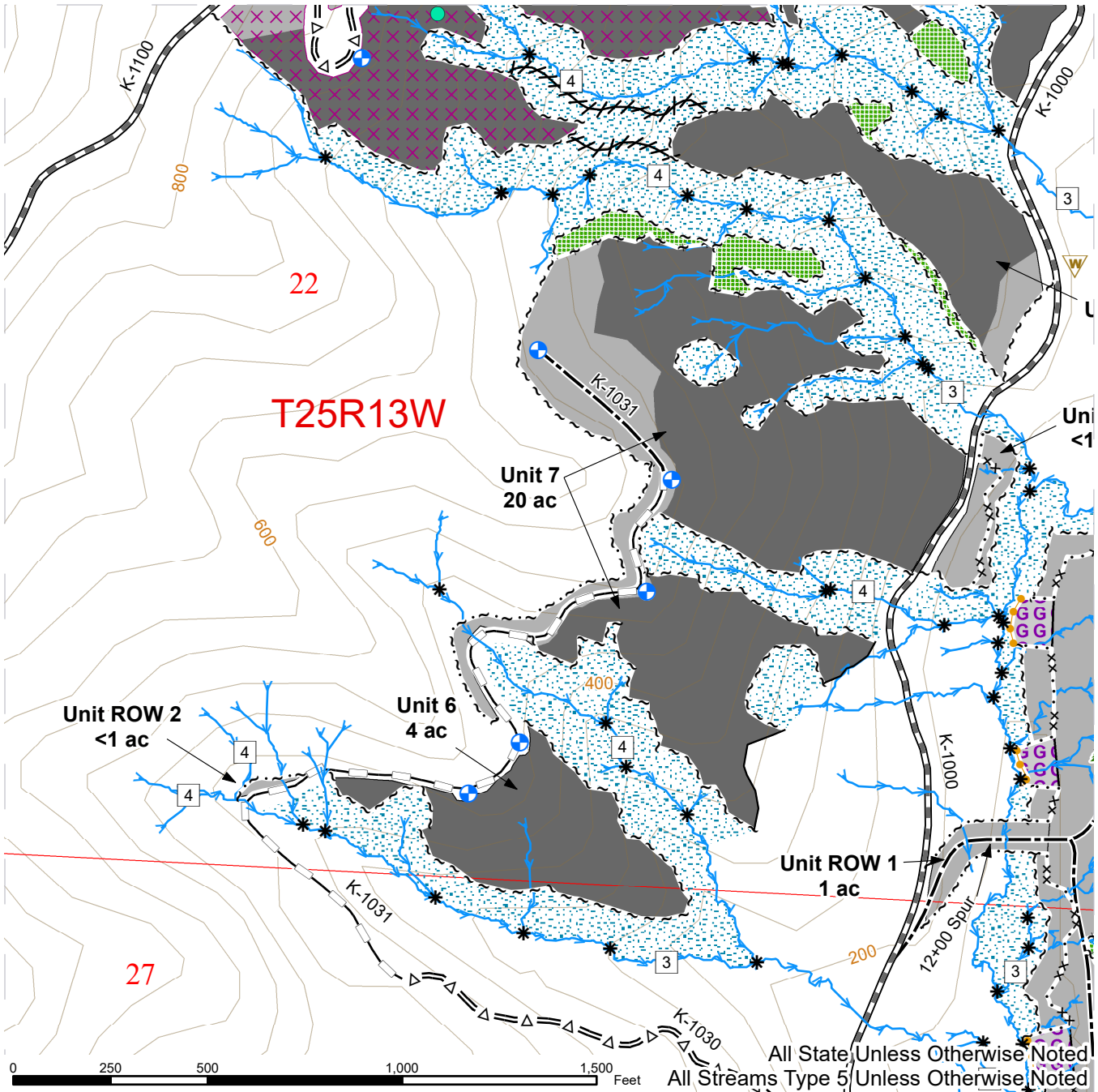
Acoustic Monitoring Site	Right of Way Tags	Optional Construction	Cable
Survey Monument	Sale Boundary Tags	Optional Reconstruction	Public Land Survey Sections
Stream Type	Special Mgmt Area Tags	Gap	Public Land Survey Townships
Stream Break	Timber Type Change	Leave Tree Area	DNR Managed Lands
Proposed Landing	Gap Last Tree Tags	Riparian Mgt Zone	
Waste Area	Unstable Slope Boundary Flag Line	Slash Manipulation	
Streams	Harvest Prescription Boundary	Sale Area	
Contours 40-foot	Optional Pre-haul Maintenance	<b>Logging Method</b>	
Leave Tree Area Tags	Required Pre-haul Maintenance	Ground	



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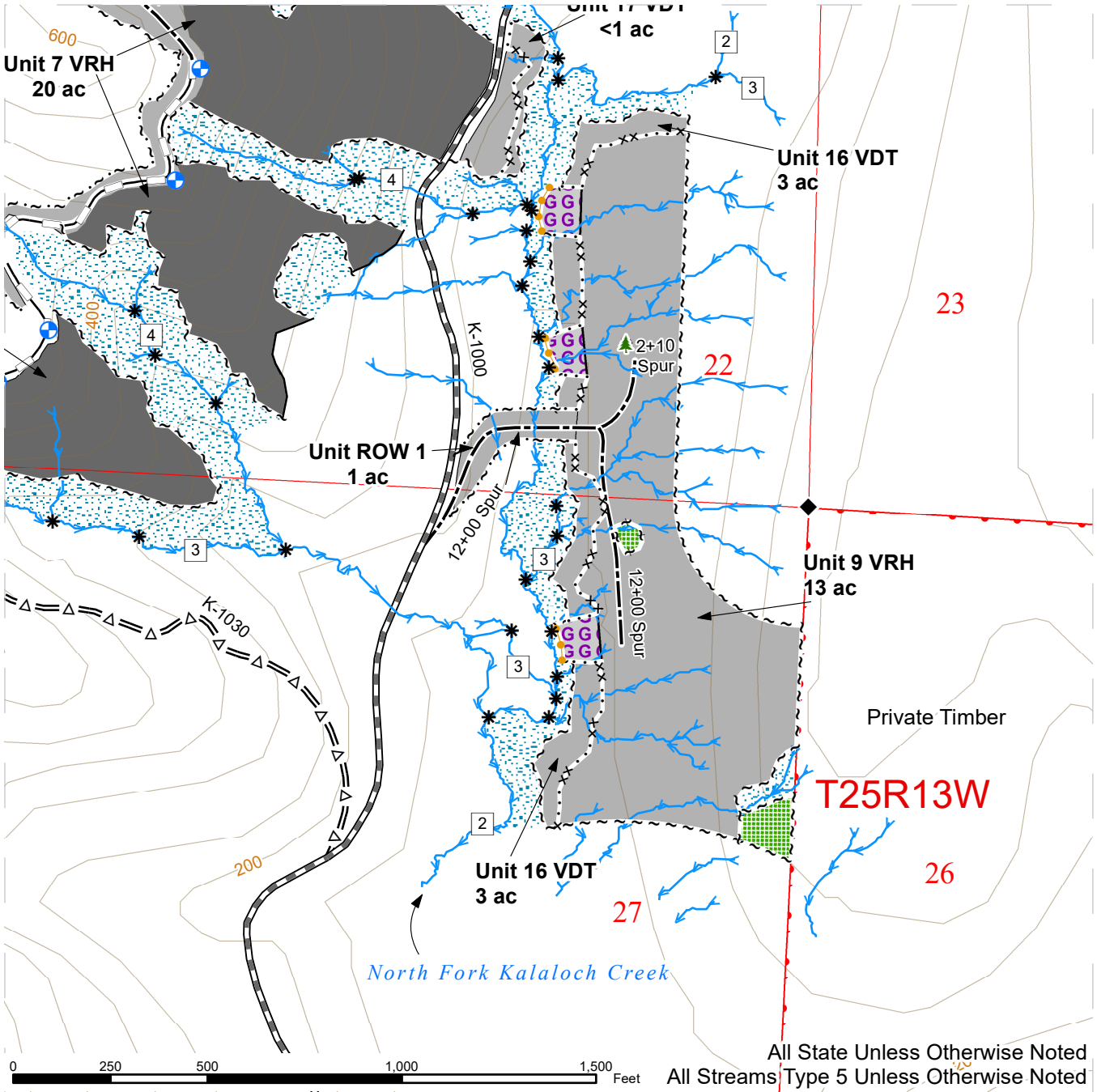


Acoustic Monitoring Site	Sale Boundary Tags	Leave Tree Area
Stream Type	Special Mgmt Area Tags	Riparian Mgt Zone
Stream Break	Timber Type Change	Slash Manipulation
Leave Tree Area <1/4-acre	Gap Last Tree Tags	Sale Area
Proposed Landing	Unstable Slope Boundary Flag Line	<b>Logging Method</b>
Waste Area	Optional Pre-haul Maintenance	Ground
Streams	Required Pre-haul Maintenance	Cable
Contours 40-foot	Optional Construction	Public Land Survey Sections
Leave Tree Area Tags	Optional Reconstruction	Public Land Survey Townships
Right of Way Tags	Gap	DNR Managed Lands

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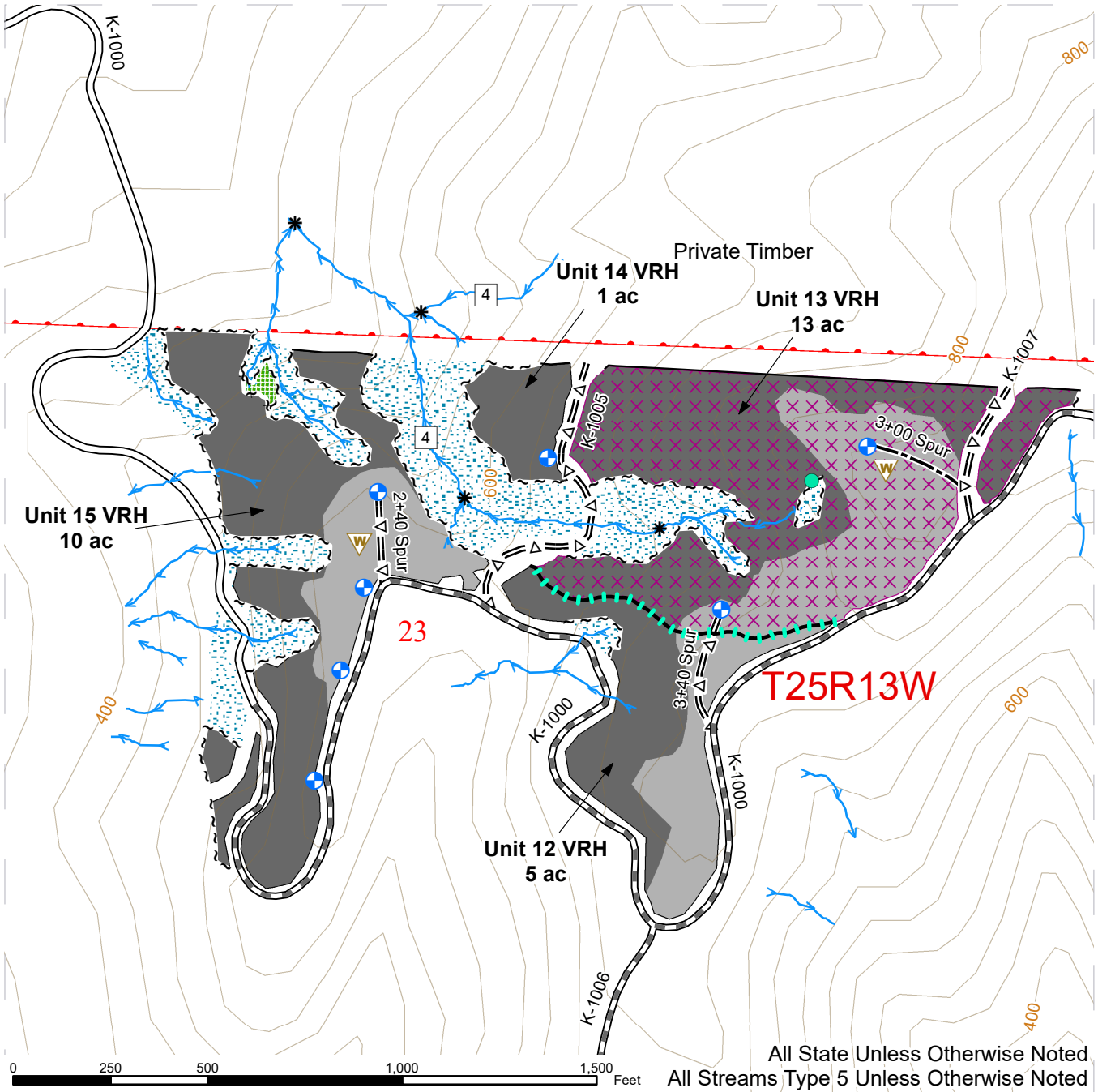
◆ Survey Monument	~ ~ ~ Sale Boundary Tags	▨ Leave Tree Area
□ Stream Type	· · · x Special Mgmt Area Tags	▨ Riparian Mgt Zone
* Stream Break	— Timber Type Change	□ Sale Area
🌲 Leave Tree Area <1/4-acre	● ● ● Gap Last Tree Tags	<b>Logging Method</b>
⊕ Proposed Landing	= Δ = Optional Pre-haul Maintenance	▨ Ground
— Streams	▬ Required Pre-haul Maintenance	▨ Cable
— Contours 40-foot	— Optional Construction	□ Public Land Survey Sections
⋈ Leave Tree Area Tags	— Optional Reconstruction	□ Public Land Survey Townships
~ ~ ~ Right of Way Tags	GG Gap	□ DNR Managed Lands



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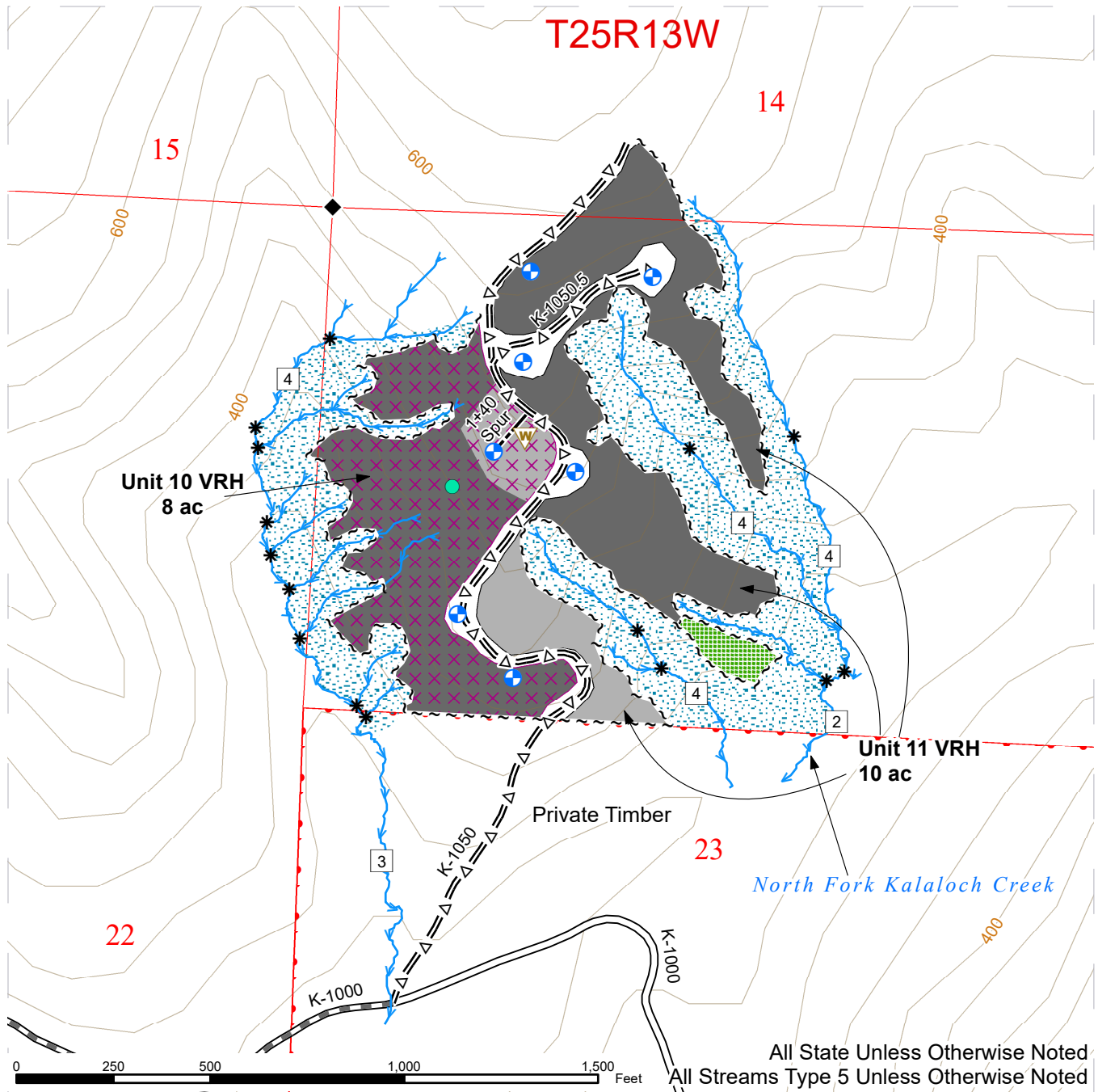
Acoustic Monitoring Site	Timber Type Change	Sale Area
Stream Type	Harvest Prescription Boundary	<b>Logging Method</b>
Stream Break	Existing Road	Ground
Proposed Landing	Optional Pre-haul Maintenance	Cable
Waste Area	Required Pre-haul Maintenance	Public Land Survey Sections
Streams	Optional Construction	Public Land Survey Townships
Contours 40-foot	Leave Tree Area	DNR Managed Lands
Leave Tree Area Tags	Riparian Mgt Zone	
Sale Boundary Tags	Slash Manipulation	



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

	Acoustic Monitoring Site		Leave Tree Area Tags		Slash Manipulation
	Survey Monument		Sale Boundary Tags		Sale Area
	Stream Type		Existing Road	<b>Logging Method</b>	
	Stream Break		Optional Pre-haul Maintenance		Ground
	Proposed Landing		Required Pre-haul Maintenance		Cable
	Waste Area		Optional Construction		Public Land Survey Sections
	Streams		Leave Tree Area		Public Land Survey Townships
	Contours 40-foot		Riparian Mgt Zone		DNR Managed Lands

