WASHINGTON STATE DEPARTMENT OF
NATURAL RESOURCES

TIMBER NOTICE OF SALE

***SALE NAME**: COPPERHEAD* ***AGREEMENT NO**: 30-98033*

AUCTION: December 18, 2019 starting at 10:00 a.m., Northwest Region Office, Sedro Woolley, WA **COUNTY:** Skagit

SALE LOCATION: Sale located approximately 7 miles northeast of Darrington, WA.

PRODUCTS SOLD AND SALE AREA: All timber bounded by white timber sale boundary tags and blue special management tags, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar and forest products tagged out by yellow leave tree area tags in Unit #2.

All timber bounded by white timber sale boundary tags, property lines and the PM-49 and PM-4913 roads, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar and forest products tagged out by yellow leave tree area tags in Unit #3 (collectively labeled 3a, 3b, 3c, 3d and 3e).

All timber bounded by orange right-of-way tags on the PM-63 Road, all timber bounded by orange right-of-way tags and previously abandoned grade (PM-49 Road) at the location of the PM-4918 Hardrock Pit and all timber within 30-feet of centerline of roads to be constructed, except that title to the timber within the right-of-way associated with areas of road construction (located outside of units) is not conveyed to the Purchaser unless the road segment is actually constructed.

The above described products on part(s) of Sections 31 all in Township 33 North, Range 11 East, Sections 23, 24 and 36 all in Township 33 North, Range 10 East, W.M., containing 233 acres, more or less.

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

ESTIMATED SALE VOLUMES AND QUALITY:

Species	Avg DBH	Ring Count	Total MBF	MBF by Grade 1P	2P	3P	SM	1S	2S	3S	4S	UT
Douglas fir	13	8	2,875						223	1,911	594	147
Hemlock	12	8	321						39	173	86	23
Red alder	12		85						15		58	12
Red cedar	12		25							5	20	
Cottonwood	11		16							8	6	2
Maple	8		14									14
Birch	8		7									7
Sale Total			3,343									

MINIMUM BID: $664,000.00 **BID METHOD:** Sealed Bids

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

EXPIRATION DATE: March 31, 2022 **ALLOCATION:** Export Restricted

TIMBER NOTICE OF SALE

BID DEPOSIT: $66,400.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Cable or tethered equipment; yarded by cable or shovel on sustained slopes 35% or less; a feller-buncher may be utilized on sustained slopes 35% or less; a self-leveling shovel and/or self-leveling harvester/feller-buncher (see H-141 for restrictions) may operate on sustained slopes up to 50%. Falling and Yarding will not be permitted from November 1 to March 31 unless authorized in writing by the Contract Administrator (THIS PERTAINS TO GROUND-BASED EQUIPMENT ONLY) to reduce soil damage and erosion.

ROADS: 172.50 stations of required construction. 72.39 stations of optional construction. 429.11 stations of required prehaul maintenance. 72.39 stations of abandonment, if built. Rock may be obtained from the following source(s) on State land at no charge to the Purchaser: PM-38 Hard Rock Pit at station 198+08 of the PM-ML Road. PM-4916 Hard Rock Pit at station 82+48 of the PM-49 Road. PM-4918 Hard Rock Pit at station 96+74 of the PM-49 Road. PM-4913-0302 Hard Rock Source at station 8+32 of the PM-4913-03 Road.

Development of existing rock sources will involve clearing, stripping and blasting rock to generate riprap, shot rock, and 3-inch-minus ballast.

An estimated total quantity of rock needed for this proposal: 1,013 cubic yards of riprap, 6,083 cubic yard of shot rock and 5,626 cubic yards of ballast rock.

Additional restrictions apply, see Remarks section below.

Road work and the hauling of rock will not be permitted from November 1 to March 31 unless authorized in writing by the Contract Administrator to reduce soil damage and siltation. The hauling of forest products will not be permitted from November 1 to March 31 unless authorized in writing by the Contract Administrator to reduce soil damage and siltation.

ACREAGE DETERMINATION

CRUISE METHOD: Acres determined by GPS traverse. Cruise was conducted via variable and fixed plot sample type. See Cruise Narrative for further details. Shapefiles of units are available upon request.

FEES: 1. Purchaser shall furnish the State with a check made payable to Grandy Lake Forest Association in the amount of $500.00 on the day of sale for permit #55-98208, for road use. 2. Within 30 days of auction, Purchaser must provide the State with a check, payable to Grandy Lake Forest Association, for approximately 59 MBF of right-of-way timber associated with easement #55-000592. This volume is not included in the Estimated Sale Volume and Quantity section above. The value of the Grandy Lake Forest Association timber shall be the same value per thousand as the State auction bid rate. 3. $56,831.00 is due on day of sale. $9.00 per MBF is due upon removal. These are in addition to the bid price.

SPECIAL REMARKS: 1.Unit #1 was dropped from this proposal.

2. A portion of the road work is on previously abandoned grades.

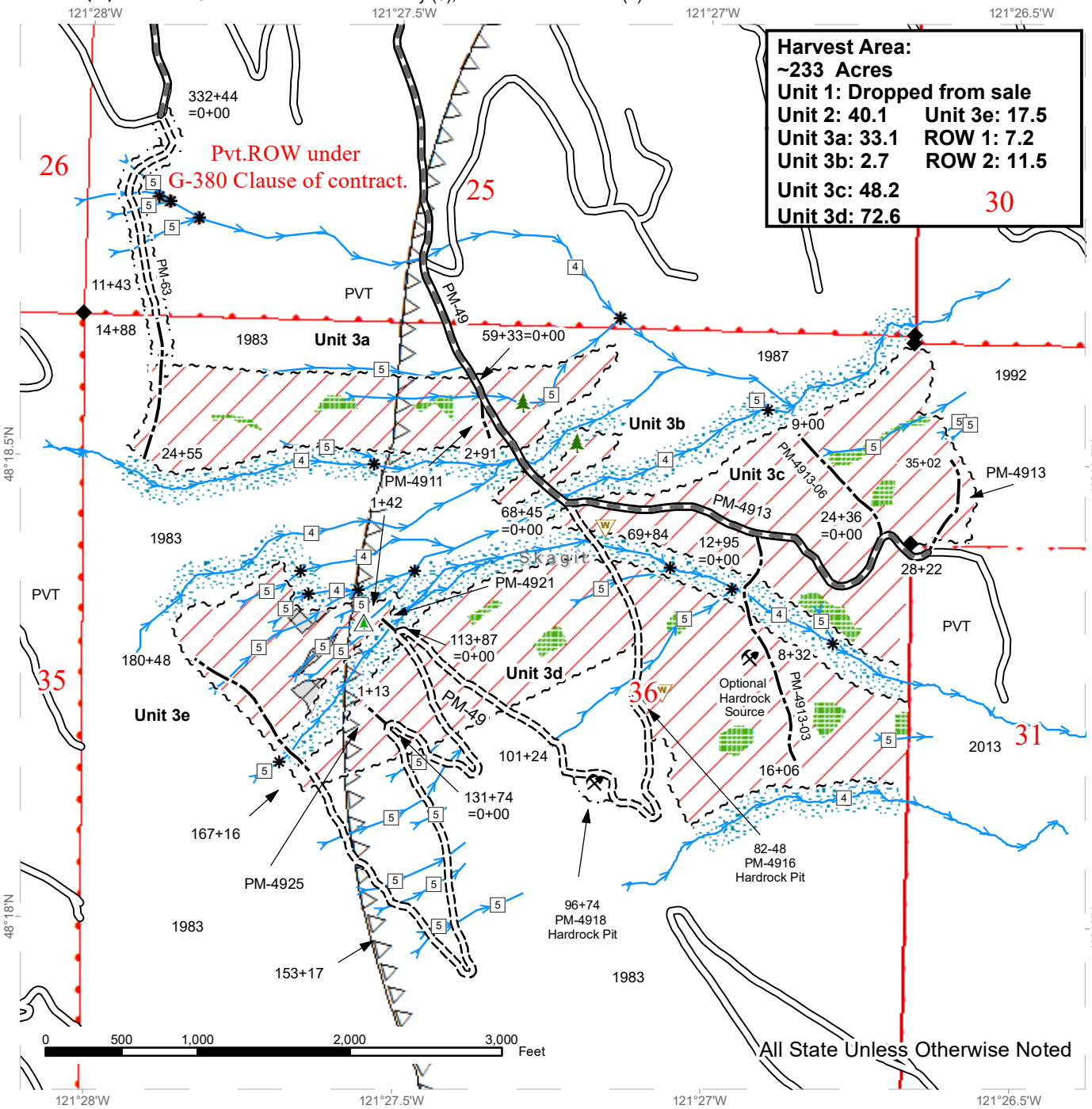
3. National Bald Eagle Management Guidelines require that any use of explosives (i.e., blasting) that might be associated with road work within one mile of the roost either: 1) Restricted during the winter communal roost period (November 15-April 1) OR 2) be coordinated with USFWS and WDFW prior to the activity. This would be applicable to the road work associated with Unit #3.

4. Sold to the Purchaser is 3.3 acres of Grandy Lake Forest Association right-of-way timber for the PM-63 required road construction (this acreage is not included in the Products Sold and Sale Area section above), which contains approximately 59 MBF, comprised of 57 MBF of DF and 2 MBF of WH.

TIMBER SALE MAP

SALE NAME: COPPERHEAD
AGREEMENT #: 30-098033
TOWNSHIP(S): T33R10E, T33R11E
TRUST(S): Common School and Indemnity (3), State Forest Transfer (1)

REGION: Northwest Region
COUNTY(S): Skagit
ELEVATION RGE: 1200-2720



- Variable Retention Harvest
- Non-Tradable Leave Tree Area
- Timing Restriction
- Leave Tree Area
- Riparian Mgt Zone
- Public Land Survey Townships
- Public Land Survey Sections
- DNR Managed Lands
- Sale Boundary Tags
- Right of Way Tags
- Right of Way Tags
- Existing Roads
- Required Pre-Haul Maintenance
- Required Construction
- Optional Construction
- Streams
- Stream Type
- Stream Type Break
- Leave Tree Area <1/4-acre
- Non-Tradeable Leave Trees <1/4-acre
- Rock Pit
- Survey Monument
- Waste Area

N

Prepared By: jarm490

Modification Date: jarm490 5/13/2019

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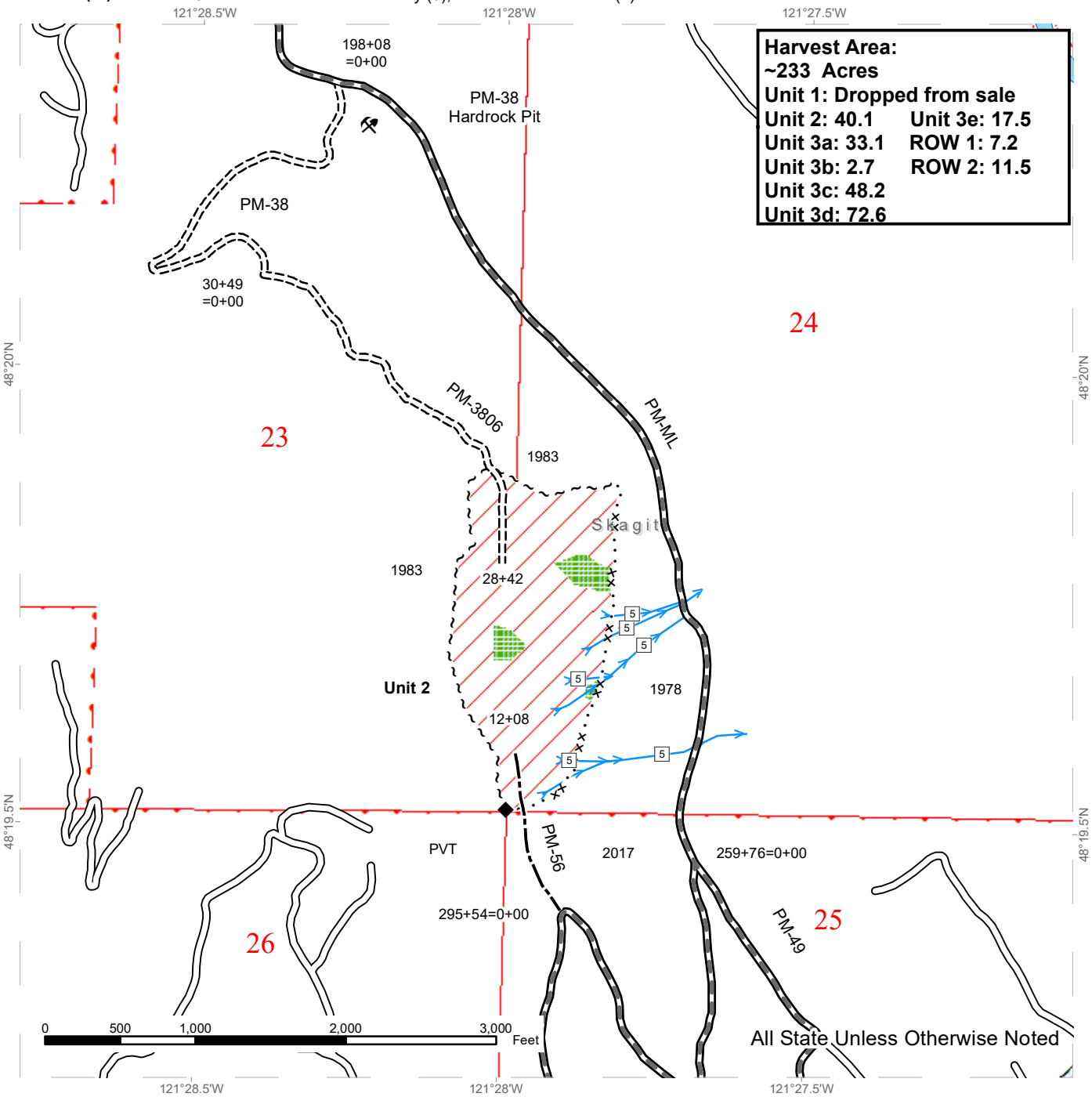

Variable Retention Harvest
Timing Restriction
Leave Tree Area
Public Land Survey Townships
Public Land Survey Sections
DNR Managed Lands
Sale Boundary Tags
Special Mgmt Area
Existing Roads
Required Pre-Haul Maintenance
Required Construction
Optional Construction
Streams
Stream Type
Stream Type Break
Rock Pit
Survey Monument

N

Prepared By: jarm490

Modification Date: jarm490 5/13/2019

DRIVING MAP

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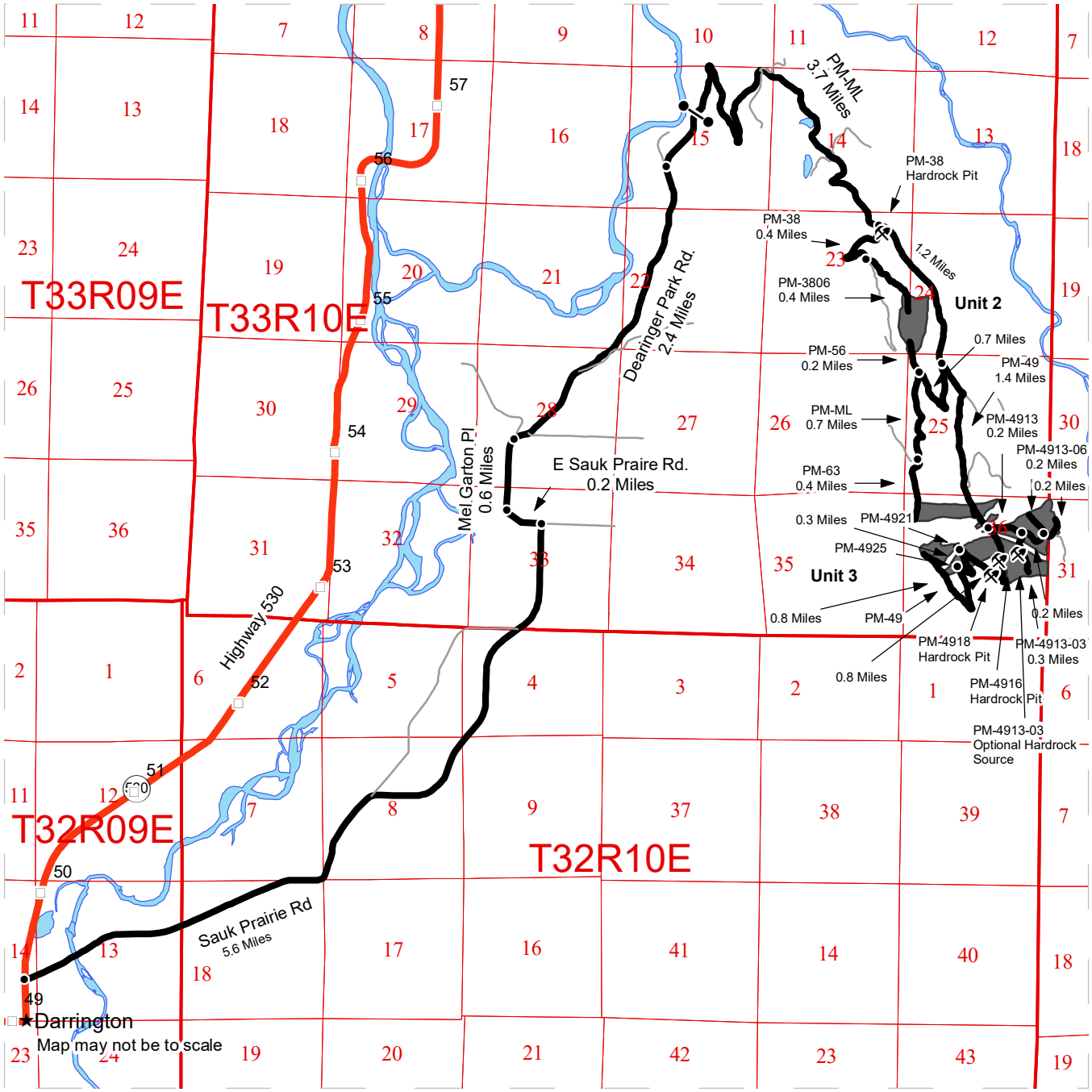

- Timber Sale Unit
- Haul Route
- Other Road
- Highway
- Milepost Markers
- Distance Indicator
- Gate
- Rock Pit

DRIVING DIRECTIONS:

From Darrington travel east on Sauk Prairie Road 5.6 miles. Turn left onto E Sauk Prairie Rd continue for 0.2 miles. This will turn into Mel Garton Pl, continue on this for 0.6 miles to the end of the pavement. At the end of the pavement take the right onto Dearinger Park Rd, continue for 2.4 miles. Dearinger Park road will become the Prairie Mountain mainline (PM-ML) and continues 3.7 miles to the junction with the PM-38 where PM-38 pit is located. For northern access to unit 2, continue up the PM-38 0.4 miles to a fork with the PM-3806. Take a left, on PM-3806, and continue 0.4 miles to the boundary of unit 2. To access the southern portion of unit 2, continue on the PM-ML, past the PM-38 junction, 1.2 miles to the junction with the PM-ML and the PM-49. Take the right fork continuing 0.7 miles on the PM-ML to where the PM-56 joins the PM-ML. Unit 2 is 0.2 miles on the PM-56.

To the western portion of unit 3a, continue 0.7 miles up the PM-ML past the PM-56 junction to the junction with the PM-63, continue 0.4 miles to unit 3a on the PM-63. Accessing the rest of unit 3 will take place from the PM-49, drive 1.4 miles on the PM-49 from where it leave the PM-ML to reach unit 3a, 3b and 3c and the PM-4913. Units 3d and 3e are accessed by continuing on the PM-49, unit 3d is 0.1 mile from the PM-49 and PM-4913 junction with unit 3e being another 1.9 miles up the PM-49.

Hardrock pit PM-4916 is 0.25 miles on the PM-49 from the junction with PM-4913. Hardrock pit PM-4918 is 0.5 miles on the PM-49 from the junction with PM-4913. Optional Hardrock Source is located 0.15 miles on the PM-4913-03.

N

Prepared By: jarm490

Modification Date: jarm490 12/11/2018

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

BILL OF SALE AND CONTRACT FOR FOREST PRODUCTS

Export Restricted Lump Sum AGREEMENT NO. 30-098033

SALE NAME: COPPERHEAD

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 October 30, 2019 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 bounded by white timber sale boundary tags and blue special management tags, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar and forest products tagged out by yellow leave tree area tags in Unit #2.

All timber bounded by white timber sale boundary tags, property lines and the PM-49 and PM-4913 roads, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar and forest products tagged out by yellow leave tree area tags in Unit #3 (collectively labeled 3a, 3b, 3c, 3d and 3e).

All timber bounded by orange right-of-way tags on the PM-63 Road, all timber bounded by orange right-of-way tags and previously abandoned grade (PM-49 Road) at the location of the PM-4918 Hardrock Pit and all timber within 30-feet of centerline of roads to be constructed, except that title to the timber within the right-of-way associated with areas of road construction (located outside of units) is not conveyed to the Purchaser unless the road segment is actually constructed.

The above described products, located on approximately 233 acres on part(s) of Section 31 in Township 33 North, Range 11 East, Sections 23, 24, and 36 all in Township 33 North, Range 10 East W.M. in Skagit County(s) as designated on the sale area and as shown on the attached timber sale map.

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

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

G-020 Inspection By Purchaser

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

G-031 Contract Term

Purchaser shall complete all work required by this contract prior to March 31, 2022.

G-040 Contract Term Adjustment - No Payment

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

a. Road and bridge failures which deny access.

b. Access road closures imposed by road owner.

c. Excessive suspensions as provided in clause G-220.

d. Regulatory actions not arising from Purchaser's failure to comply with this contract which will prevent timber harvest for a period less than 6 months.

G-051 Contract Term Extension - Payment

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

a. A written request for extension of the contract term must be received prior to the expiration date of the contract.

b. Completion of all required roads and compliance with all contract and regulatory requirements.

c. For the first extension, not to exceed 1 year, payment of at least 25 percent of the total contract price.

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

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

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

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

e. Payment of $750.00 per acre per annum for the acres on which an operating release has not been issued in the sale area.

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

g. Extension payments are non-refundable.

G-053 Surveys - Sensitive, Threatened, Endangered Species

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

G-060 Exclusion of Warranties

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

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

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

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

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

e. The CORRECTNESS OF ANY SOIL OR SURFACE CONDITIONS, PRE-SALE CONSTRUCTION APPRAISALS, INVESTIGATIONS, AND ALL OTHER PRE-BID DOCUMENTS PREPARED BY OR FOR THE STATE. These documents have been prepared for the State's appraisal purposes only.

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

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

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

G-062 Habitat Conservation Plan

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

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

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

G-063 Incidental Take Permit Notification Requirements

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

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

c. Purchaser shall refer to a specific ITP number, PRT-812521 or ITP 1168 (copies which are located in the region office) in all correspondence and reports concerning permit activities.

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

G-064 Permits

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

G-065 Regulatory Disclaimer

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

G-066 Governmental Regulatory Actions

a. Risk

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

b. Sale Area

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

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

c. Adjustment of Price

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

G-070 Limitation on Damage

In the event of a breach of any provision of this contract by the State, the exclusive remedy available to Purchaser will be limited to a return of the initial deposit, unapplied payments, and credit for unamortized improvements made by Purchaser.

The State shall not be liable for any damages, whether direct, incidental or consequential.

G-080 Scope of State Advice

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

G-091 Sale Area Adjustment

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

G-101 Forest Products Not Designated

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

Contract Item	Appraised Price	Overbid Factor	Price	Fees	Contract Payment Rate
Birch	$114.80	0	$0.00	$9.00	$9.00
Cottonwood	$27.51	0	$0.00	$9.00	$9.00
Douglas fir	$211.43	0	$0.00	$9.00	$9.00
Hemlock	$167.87	0	$0.00	$9.00	$9.00
Maple	$114.80	0	$0.00	$9.00	$9.00
Red alder	$188.16	0	$0.00	$9.00	$9.00
Red cedar	$296.73	0	$0.00	$9.00	$9.00
Other	$224.84	0	$0.00	$9.00	$9.00

G-106 Adding Naturally Damaged Forest Products

Any forest products not designated for removal that are seriously damaged by disease, insects or wind, or that may contribute seriously to the spread of insect or disease damage may be added to this sale by the State's Contract Administrator. Additions must be in unlogged areas of the sale and added volume shall not exceed an amount

equal to 10 percent of the original advertised volume. Added forest products become a part of this contract and shall be paid for at the rate set forth in clause G-101, G-102 or G-103.

G-111 Title and Risk of Loss

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

G-116 Sustainable Forestry Initiative® (SFI) Certification

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

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

G-120 Responsibility for Work

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

G-121 Exceptions

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

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

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

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

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

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

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

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

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

G-140 Indemnity

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

G-150 Insurance

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

All insurance and surety bonds should be issued by companies admitted to do business within the State of Washington and have a rating of A-, Class VII or better in the most recently published edition of Best's Reports. If an insurer is not admitted, all insurance

policies and procedures for issuing the insurance policies must comply with Chapter 48.15 RCW and 284-15 WAC.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Business Auto Policy (BAP). Purchaser shall maintain business auto liability and, if necessary, commercial umbrella liability insurance with a limit not less than $1,000,000.00 per accident. Such insurance shall cover liability arising out of "Any Auto". Business auto coverage shall be written on ISO form CA 00 01, or substitute liability form providing equivalent coverage. If necessary the policy shall be endorsed to provide contractual liability coverage and cover a "covered pollution cost or

expense" as provided in the 1990 or later editions of CA 00 01. Purchaser waives all rights against State for the recovery of damages to the extent they are covered by business auto liability or commercial umbrella liability insurance.

G-160 Agents

The State's rights and duties will be exercised by the Region Manager at Sedro Woolley, Washington. The Region Manager will notify Purchaser in writing who is responsible for administering the contract. The Region Manager has sole authority to waive, modify, or amend the terms of this contract in the manner prescribed in clause G-180. No agent, employee, or representative of the State has any authority to bind the State to any affirmation, representation, or warranty concerning the forest products conveyed beyond the terms of this contract.

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

G-170 Assignment and Delegation

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

G-180 Modifications

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

G-190 Contract Complete

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

G-200 Notice

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

G-210 Violation of Contract
G-220 State Suspends Operations

All other notices required to be given under this contract shall be in writing and delivered to the authorized agent or mailed to the Party's post office address. Purchaser agrees to notify the State of any change of address.

G-210 Violation of Contract

a. If Purchaser violates any provision of this contract, the Contract Administrator, by written notice, may suspend those operations in violation. If the violation is capable of being remedied, Purchaser has 30 days after receipt of a suspension notice to remedy the violation. If the violation cannot be remedied (such as a violation of WAC 240-15-015) or Purchaser fails to remedy the violation within 30 days after receipt of a suspension notice, the State may terminate the rights of Purchaser under this contract and collect damages.

b. If the contract expires pursuant to clause G-030 or G-031 without Purchaser having performed all its duties under this contract, Purchaser's right to operate is terminated and Purchaser shall not have the right to remedy the breach. This provision shall not relieve Purchaser of any payment obligations.

c. The State has the right to remedy the breach in the absence of any indicated attempt by Purchaser or if Purchaser is unable, as determined by the State, to remedy the breach. Any expense incurred by the State shall be charged to Purchaser and shall be paid within 30 days of receipt of billing.

d. If Purchaser's violation is a result of a failure to make a payment when due, in addition to a. and b. above, interest shall accrue on the unpaid balance at 12 percent per annum, beginning the date payment was due.

G-220 State Suspends Operation

The Contract Administrator may suspend any operation of Purchaser under this contract when the State is suffering, or there is a reasonable expectation the State will suffer environmental, monetary, or other damage if the operation is allowed to continue.

Purchaser shall be in breach of this contract if the operation continues after the suspension notice or if the operation resumes without prior approval and notice from the Contract Administrator.

Purchaser may request a modification of a suspension within 30 days of the start of suspension through the dispute resolution process in clause G-240. If this process results in a finding that the suspension exceeded the time reasonably necessary to stop or prevent damage to the State, Purchaser is entitled to request a contract term adjustment under clause G-040.

If it reasonably appears that the damage that the State is suffering, or can reasonably be expected to suffer if the operation is allowed to continue, will prevent harvest for a period that will exceed 6 months, and Purchaser has complied with this contract, the provisions of clause G-066 shall govern just as if the harvest was prevented by an applicable foreign or domestic governmental regulation or order.

G-230 Unauthorized Activity

Any cutting, removal, or damage of forest products by Purchaser, its employees, agents, or invitees, including independent contractors, in a manner inconsistent with the terms of this contract or State law, is unauthorized. Such activity may subject Purchaser to liability for triple the value of said forest products under RCW 79.02.320 or RCW 79.02.300 and may result in prosecution under RCW 79.02.330 or other applicable statutes.

G-240 Dispute Resolution

The following procedures apply in the event of a dispute regarding interpretation or administration of this contract and the parties agree that these procedures must be followed before a lawsuit can be initiated.

a. In the event of a dispute, Purchaser must make a written request to the Region Manager for resolution prior to seeking other relief.

b. The Region Manager will issue a written decision on Purchaser's request within ten business days.

c. Within ten business days of receipt of the Region Manager's decision, Purchaser may make a written request for resolution to the Deputy Supervisor - Uplands of the Department of Natural Resources.

d. Unless otherwise agreed, a conference will be held by the Deputy Supervisor - Uplands within 30 calendar days of the receipt of Purchaser's request for review of the Region Manager's written decision. Purchaser and the Region Manager will have an opportunity to present their positions. The Deputy Supervisor - Uplands will issue a decision within a reasonable time of being presented with both Parties' positions.

G-250 Compliance with All Laws

Purchaser shall comply with all applicable statutes, regulations and laws, including, but not limited to; chapter 27.53 RCW, chapter 68.50 RCW, WAC 240-15 and WAC 296-54. Failure to comply may result in forfeiture of this contract.

G-260 Venue

This contract shall be governed by the laws of the State of Washington. In the event of a lawsuit involving this contract, venue shall be proper only in Thurston County Superior Court.

G-270 Equipment Left on State Land

All equipment owned or in the possession of Purchaser, its employees, agents, or invitees, including independent contractors, shall be removed from the sale area and other State land by the termination date of this contract. Equipment remaining unclaimed on State land 60 days after the expiration of the contract period is subject to disposition as provided by law. Purchaser shall pay to the State all costs of moving, storing, and disposing of such equipment. The State shall not be responsible for any

damages to or loss of the equipment or damage caused by the moving, storing or disposal of the equipment.

G-280 Operating Release

An operating release is a written document, signed by the State and Purchaser, indicating that Purchaser has been relieved of certain rights or responsibilities with regard to the entire or a portion of the timber sales contract. Purchaser and State may agree to an operating release for this sale, or portion of this sale, prior to the contract expiration, when all contract requirements pertaining to the release area have been satisfactorily completed. Upon issuance of a release, Purchaser's right to cut and remove forest products on the released area will terminate.

G-310 Road Use Authorization

Purchaser is authorized to use the following State roads and roads for which the State has acquired easements and road use permits; PM-ML (Prairie Mountain Mainline), PM-38, PM-3806, PM-49, PM-4911, PM-4913, PM-4913-03, PM-4913-06, PM-4921, PM-4925, PM-56, and PM-63 roads. The State may authorize in writing the use of other roads subject to fees, restrictions, and prior rights.

G-330 Pre-work Conference

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

G-340 Preservation of Markers

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

G-360 Road Use Reservation

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

G-370 Blocking Roads

Purchaser shall not block the PM-ML Road, 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:

Easements with:
Summit Timber Company; #55-000592; dated June 1, 1969.
Summit Timber Company; #55-000592 Supplement; dated April 11, 1989.
Summit Timber Company; #55-001537; dated April 11, 1977.

Within 30 days of auction, Purchaser must provide the State with a check, payable to Grandy Lake Forest Association, for approximately 59 MBF of timber. This volume is not included in the Estimated Sale Volume and Quantity. The value of the Grandy Lake Forest Association timber shall be the same value per thousand as the State auction bid rate. Final total sum due to be calculated by the State.

RUP with:
Grandy Lake Forest Association; #55-098208; dated December 31, 2018.

Purchaser shall furnish the State with a check made payable to Grandy Lake Forest Association in the amount of $500.00 on the day of sale for permit #55-098208, for road use.

G-430 Open Fires

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

G-450 Encumbrances

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

DATA MISSING

Section P: Payments and Securities

P-011 Initial Deposit

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

P-020 Payment for Forest Products

Purchaser agrees to pay the total, lump sum contract price of $86,918.00. The total contract price consists of a $0.00 contract bid price plus $86,918.00 in fees. Fees collected shall be retained by the state unless the contract is adjusted via the G-066 clause. Purchaser shall be liable for the entire purchase price, and will not be entitled to any refunds or offsets unless expressly stated in this contract.

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

P-045 Guarantee of Payment

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

P-050 Billing Procedure

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

P-080 Payment Account Refund

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

P-090 Performance Security

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

agrees to suspend operations and, within 30 days of notification, to replace the security with one acceptable to the State or to supplement the amount of the existing security.

P-100 Performance Security Reduction

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

Section H: Harvesting Operations

H-010 Cutting and Yarding Schedule

Falling and Yarding will not be permitted from November 1 to March 31 BY GROUND-BASED EQUIPMENT unless authorized in writing by the Contract Administrator.

H-013 Reserve Tree Damage Definition

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

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

a. A reserve tree has one or more scars on its trunk exposing the cambium layer, which in total exceeds 200 square inches.

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

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

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

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

H-017 Preventing Excessive Soil Disturbance

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

H-035 Fall Trees Into Sale Area

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

H-051 Branding and Painting

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

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

H-080 Snags Not to be Felled

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

H-110 Stump Height

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

H-120 Harvesting Equipment

Forest products sold under this contract shall be harvested and removed using cable or tethered equipment (See H-141 for restrictions); shovel or harvester/feller-buncher on sustained slopes 35% or less; self-leveling equipment on sustained slopes up to 50% (See H-141 for restrictions). Authority to use other equipment or to operate outside the equipment specifications detailed above must be approved in writing by the State.

H-126 Tailholds on State Land

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

H-127 Tailholds on Private Land

If Purchaser chooses to tailhold on private property, Purchaser shall obtain permit(s) and assumes responsibility for all costs and damages associated with the permit(s). Purchaser must provide the State with a copy of the executed permit(s) or a letter from the landowner indicating that a satisfactory tailhold permit(s) has been consummated between Purchaser and the landowner.

H-130 Hauling Schedule

The hauling of forest products will not be permitted on any road from November 1 to March 31 unless authorized in writing by the Contract Administrator .

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

A. The following types of equipment are considered ground-based equipment:

SHOVEL is defined as a low ground pressure track-mounted machine with hydraulic boom and grapple capable of picking up one end of the largest log 25 feet from the center of the machine.

FELLER-BUNCHER/HARVESTER is defined as a track mounted machine with hydraulic boom and cutter head capable of felling, bucking, limbing, and decking logs in one operation.

B. Equipment shall remain at least 30 feet from all water courses or areas of wet/soft soils, except as necessary to cross at approved locations. Water course crossing structures must be approved by the Contract Administrator.

C. When yarding and loading operations are occurring simultaneously, an additional shovel shall be required for loading to avoid extra trips to the landing. Shovel yarding shall not be allowed to create ruts or soil puddling. Shovel routes should be dispersed to prevent creation of definable trails.

D. Single banded, blue painted leave trees may be traded with prior approval of Contract Administrator.

E. Falling and yarding shall occur away from all typed waters where possible. Avoid parallel cable yarding in, across, or adjacent to stream channels where possible. All type 5 streams will have a 30-foot equipment exclusion zone measured from each bank. The limited crossings shall be as close to perpendicular as possible.

F. The Contract Administrator must approve all crossings and corridors prior to cutting across Type 4 and Type 5 streams.

G. Ground-based equipment crossings over type 5 streams shall be located by Purchaser and approved by Contract Administrator before use.

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

H-141 Additional Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

A. A copy of the timber sale map and contract shall be present on site during active operations.

B. Purchaser must obtain prior written approval from the Contract Administrator for areas as to where to utilize tethered or self-leveling harvester and/or shovel equipment prior to use.

C. All leave tree groups in Unit 3e are non-tradable, as shown on timber sale map.

D. No yarding activity may occur over cliffs in and adjacent to Unit 3d and 3e.

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

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.

National Bald Eagle Management Guidelines require that any use of explosives (i.e., blasting) that might be associated with road work within one mile of the roost either: 1) Restricted during the winter communal roost period (November 15-April 1) OR 2) be coordinated with USFWS and WDFW prior to the activity. This would be applicable to the road work associated with Unit #3.

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.

Section C: Construction and Maintenance

C-040 Road Plan

Road construction and associated work provisions of the Road Plan for this sale, dated 11/26/2018 are hereby made a part of this contract.

C-050 Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on the PM-38, PM-3806, PM-4911, PM-4913, PM-4913-03, PM-4913-06, PM-56, and PM-63 roads. All work shall be completed to the specifications detailed in the Road Plan.

C-060 Designated Road Maintainer

If required by the State, Purchaser shall perform maintenance and replacement work as directed by the Contract Administrator on the PM-ML and PM-49 roads. 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.

Section S: Site Preparation and Protection

S-001 Emergency Response Plan

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

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

S-010 Fire Hazardous Conditions

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

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

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

S-030 Landing Debris Clean Up

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

S-035 Logging Debris Clean Up

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

S-050 Cessation of Operations for Low Humidity

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

S-060 Pump Truck or Pump Trailer

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

S-100 Stream Cleanout

Slash or debris which enters any type 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-130 Hazardous Materials

a. Hazardous Materials and Waste - Regulatory Compliance

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

b. Hazardous Materials Spill Prevention

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

c. Hazardous Materials Spill Containment, Control and Cleanup

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

d. Hazardous Material Release Reporting

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

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

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

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

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

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

S-131 Refuse Disposal

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

Section D: Damages

D-013 Liquidated Damages or Failure to Perform

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

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

D-041 Reserve Tree Excessive Damage

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

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

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

_____	_____
Purchaser	Tim Stapleton
_____	Northwest Region Manager
Print Name	
Date: _____	Date: _____
Address:	

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

STATE OF _____)
)
COUNTY OF _____)

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

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

_____
Notary Public in and for the State of

_____

My appointment expires _____

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

FOREST EXCISE TAX ROAD SUMMARY SHEET

Region: Northwest

Timber Sale Name: Copperhead

Application Number: 30- 098033

EXCISE TAX APPLICABLE ACTIVITIES

Construction: 17,250 **linear feet**
Road to be constructed (optional and required) but not abandoned

Reconstruction: 0 **linear feet**
Road to be reconstructed (optional and required) but not abandoned

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

Decommission: 0 **linear feet**
Road to be made undriveable but not officially abandoned.

Pre-Haul Maintenance: 42911 **linear feet**
Existing road to receive maintenance work (optional and required) prior to haul

EXCISE TAX EXEMPT ACTIVITIES

Temporary Construction: 7239 **linear feet**
Roads to be constructed (optional and required) and then abandoned

Temporary Reconstruction: 0 **linear feet**
Roads to be reconstructed (optional and required) and then abandoned

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

PRE-CRUISE NARRATIVE

Sale Name: Copperhead	Region: **Northwest**
Agreement #: 30-098033	District: Clear Lake
Contact Forester: Jeremy Porter Phone / Location: 360-856-3500/Northern State WC	County(s): Skagit
Alternate Contact: Joe Magnuson Phone / Location: 360-982-1757	Other information: Click here to enter text.

Type of Sale: Lump Sum	
Harvest System: See Logging Plan Map.	

UNIT ACREAGES AND METHOD OF DETERMINATION:

Unit # Harvest R/W or RMZ WMZ	Legal Description (Enter only one legal for each unit) Sec/Twp/Rng	Grant or Trust	Gross Proposal Acres	Deductions from Gross Acres (No harvest acres)				Net Harvest Acres	Acreage Determination (List method and error of closure if applicable)
				RMZ/ WMZ Acres	Leave Tree Acres	Existing Road Acres	Other Acres (describe)		
2	24/T33/R10E	01	42.6	0	2.5	0	0	40.1	GPS (Garmin)
3a	36/T33/R10E	03	35.2	0	1.4	0.7	0	33.1	GPS (Garmin)
3b	36/T33/R10E	03	3.0	0	0.1	0.2	0	2.7	GPS (Garmin)
3c	36/T33/R10E	03	54.5	0	2.8	3.5	0	48.2	GPS (Garmin)
3d	36/T33/R10E	03	75.7	0	3.1	0	0	72.6	GPS (Garmin)
3e	36/T33/R10E	03	19.1	0	1.6	0	0	17.5	GPS (Garmin)
ROW1	24/T33/R10E	01	7.2	0	n/a	n/a	0	7.2	GPS (Garmin)
ROW2	36/T33/R10E	03	11.5	0	n/a	n/a	0	11.5	GPS (Garmin)
TOTAL ACRES			248.8	0	11.5	4.4	0	232.9	

Revised 03/15/2010 (FRCD)

HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Leave, take, paint color, tags, flagging etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
2	Variable Retention Harvest (VRH). Dispersed single leave trees marked with blue paint on bole and root collar. Leave tree clumps marked with yellow "Leave Tree Area" Tags.		341 total leave trees (341 clumped, 0 dispersed) are marked with yellow leave tree area tags and/or blue paint.
3a	Variable Retention Harvest (VRH). Dispersed single leave trees marked with blue paint on bole and root collar. Leave tree clumps marked with yellow "Leave Tree Area" Tags.		282 total leave trees (281 clumped, 1 dispersed) are marked with yellow leave tree area tags and/or blue paint.
3b	Variable Retention Harvest (VRH). Dispersed single leave trees marked with blue paint on bole and root collar. Leave tree clumps marked with yellow "Leave Tree Area" Tags.		25 total leave trees (25 clumped, 0 dispersed) are marked with yellow leave tree area tags and/or blue paint.
3c	Variable Retention Harvest (VRH). Dispersed single leave trees marked with blue paint on bole and root collar. Leave tree clumps marked with yellow "Leave Tree Area" Tags.		470 total leave trees (445 clumped, 25 dispersed) are marked with yellow leave tree area tags and/or blue paint.
3d	Variable Retention Harvest (VRH). Dispersed single leave trees marked with blue paint on bole and root collar. Leave tree clumps marked with yellow "Leave Tree Area" Tags.		606 total leave trees (583 clumped, 23 dispersed) are marked with yellow leave tree area tags and/or blue paint.
3e	Variable Retention Harvest (VRH). Dispersed single leave trees marked with blue paint on bole and root collar. Leave tree clumps marked with yellow "Leave Tree Area" Tags.		174 total leave trees (164 clumped, 10 dispersed) are marked with yellow leave tree area tags and/or blue paint.
ROW 1 & 2	Timber within 30 feet of centerline of road to be constructed or reconstructed		

***ROW was calculated using an average width of 60 feet multiplied by the length of road divided by 43560**

OTHER PRE-CRUISE INFORMATION:

Unit #	Primary,secondary Species / Estimated Volume (MBF)	Access information (Gates, locks, etc.)	Photos, traverse maps required
2	600 mbf -DF/WH	Access to unit is via PM-ML; DNR key required	
3	2,500 mbf/acre - DF/WH	Access to unit is via PM-ML; DNR key required	
ROW	9 mbf- RA/DF	Access to unit is via PM-ML; DNR key required	
TOTAL MBF	3,109 mbf		

REMARKS:

Unit 1 has been dropped from this sale.

Driving Directions: See driving map.
From Darrington travel east on Sauk Prairie Road 5.6 miles. Turn left onto E Sauk Prairie Rd continue for 0.2 miles. This will turn into Mel Garton Pl, continue on this for 0.6 miles to the end of the pavement. At the end of the pavement take the right onto Dearinger Park Rd, continue for 2.4 miles. Dearinger Park road will become the Prairie Mountain mainline (PM-ML) and continues 3.7 miles to the junction with the PM-38 where PM-38 pit is located. For northern access to unit 2, continue up the PM-38 0.4 miles to a fork with the PM-3806. Take a left, on PM-3806, and continue 0.4 miles to the boundary of unit 2. To access the southern portion of unit 2, continue on the PM-ML, past the PM-38 junction, 1.2 miles to the junction with the PM-ML and the PM-49. Take the right fork continuing 0.7 miles on the PM-ML to where the PM-56 joins the PM-ML. Unit 2 is 0.2 miles on the PM-56.

To the western portion of unit 3a, continue 0.7 miles up the PM-ML past the PM-56 junction to the junction with the PM-63, continue 0.4 miles to unit 3a on the PM-63. Accessing the rest of unit 3 will take place from the PM-49, drive 1.4 miles on the PM-49 from where it leave the PM-ML to reach unit 3a, 3b and 3c and the PM-4913. Units 3d and 3e are accessed by continuing on the PM-49, unit 3d is 0.1 mile from the PM-49 and PM-4913 junction with unit 3e being another 1.9 miles up the PM-49.

Hardrock pit PM-4916 is 0.25 miles on the PM-49 from the junction with PM-4913. Hardrock pit PM-4918 is 0.5 miles on the PM-49 from the junction with PM-4913. Optional Hardrock Source is located 0.15 miles on the PM-4913-03.

Existing road acres calculated using GIS measure tool. Existing road acres in Unit 3a = 520 ft * 60 ft. = 31,200 sq. ft. / 43560 sq. ft./acre = 0.72 acres Existing road acres in Unit 3b = 175 ft * 60 ft. = 10,500 sq. ft. / 43560 sq. ft./acre = 0.24 acres Existing road acres in Unit 3c = 2530 ft * 60 ft. = 151,800 sq. ft. / 43560 sq. ft./acre = 3.48 acres Cedar salvage will occur in units 2 and 3 with an estimated volume of 0.5 cord per acre. Cedar salvage will not occur in RMZ or leave tree areas. Only stumps and existing down wood are to be salvaged. Cedar salvage = 600 bf/cord * 0.5 cord/acre * 214.2 acres = 64.2 mbf

Prepared By: Jeremy Porter Date: 12/11/18	Title: Forester	CC:

Copperhead TS

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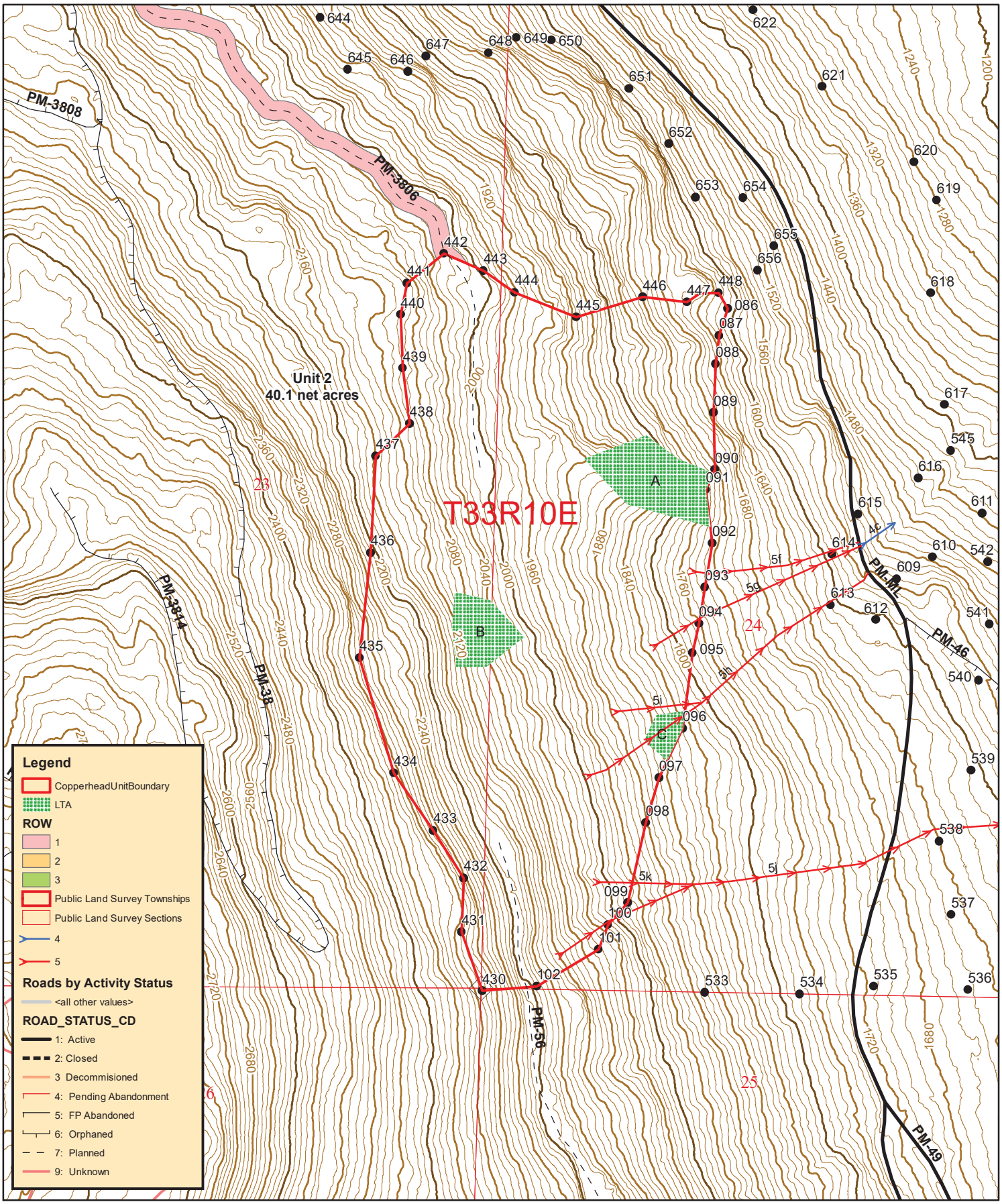

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1 inch = 400 feet

Draft date: 12/10/2018

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Copperhead TS

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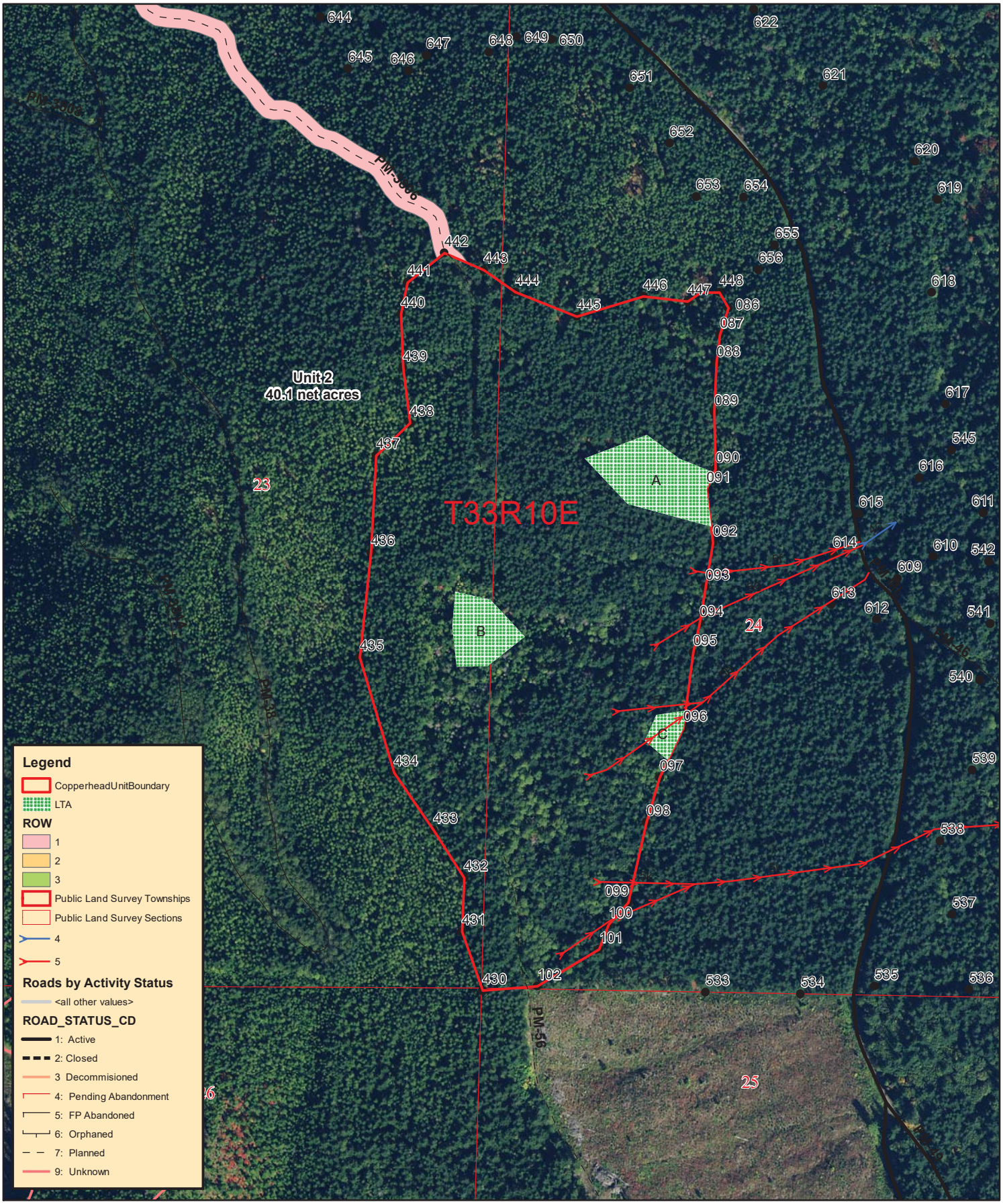

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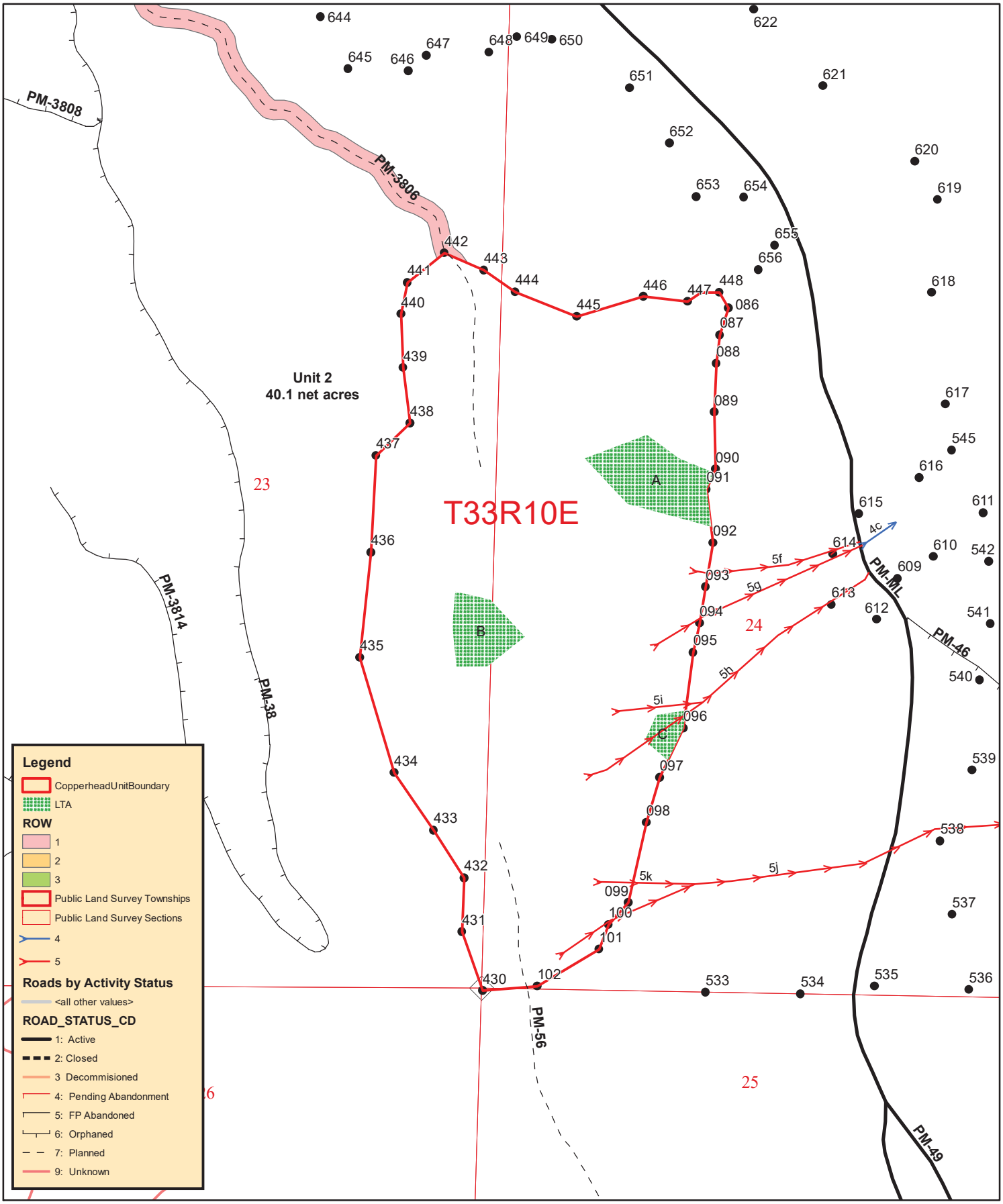

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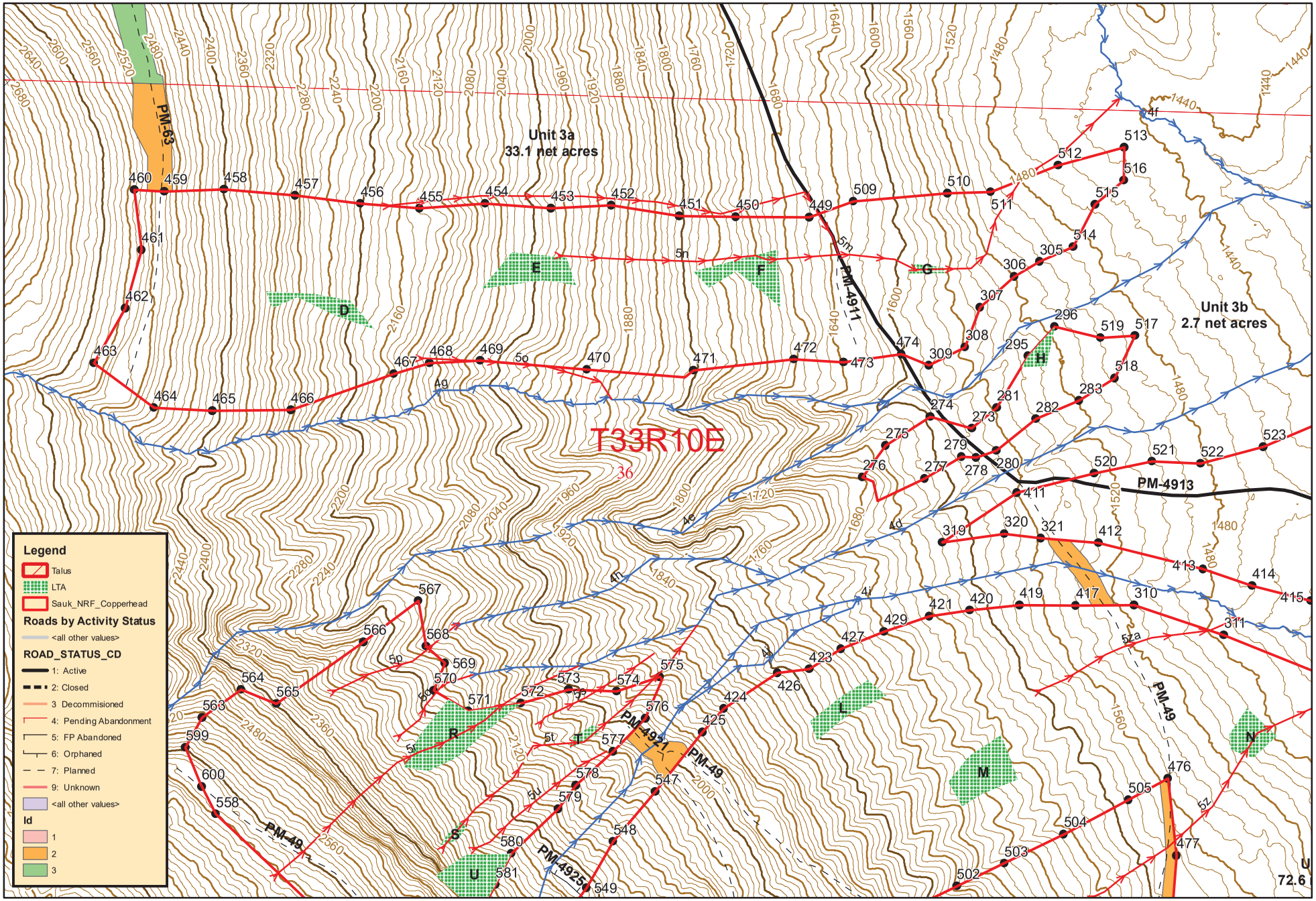

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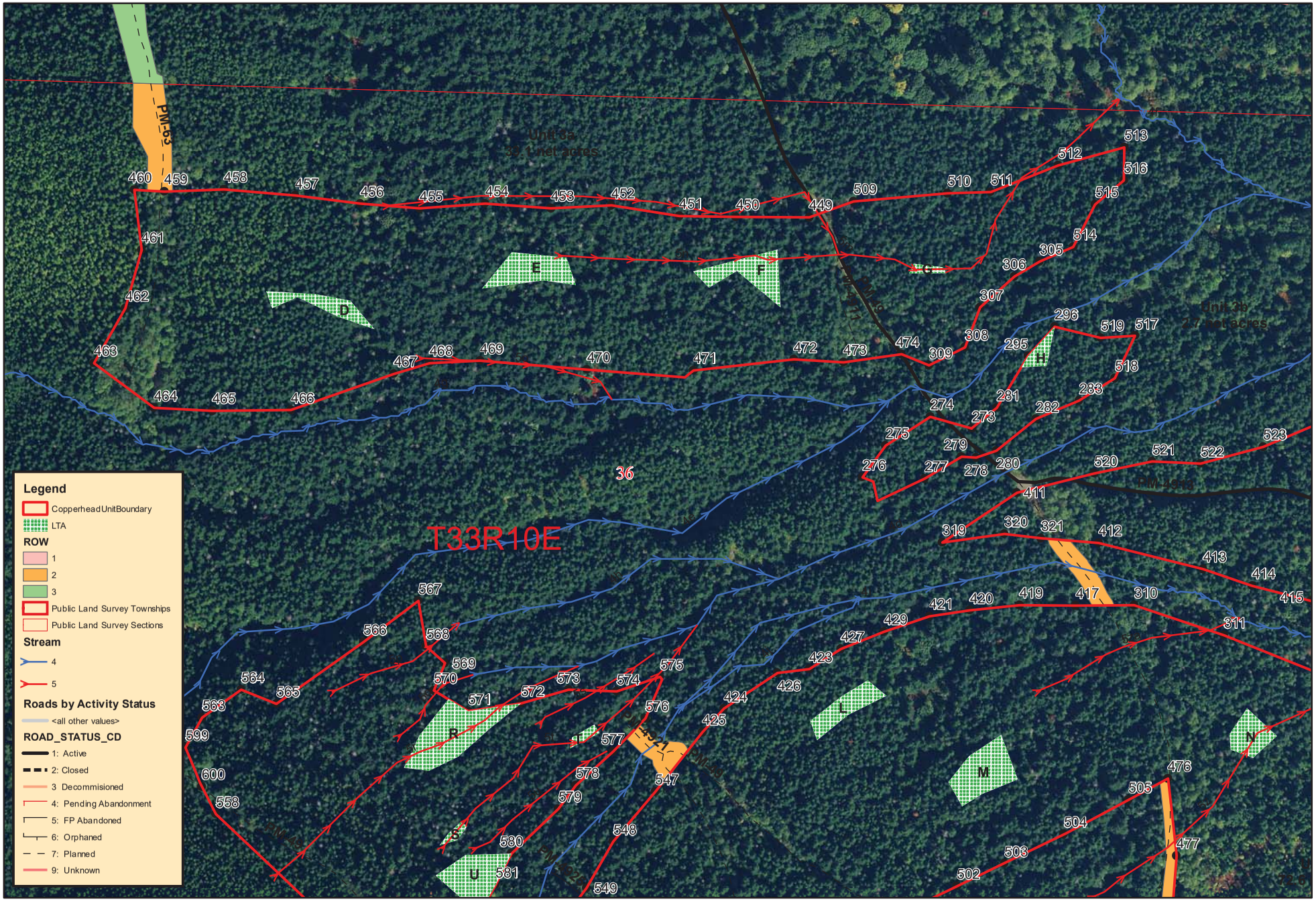

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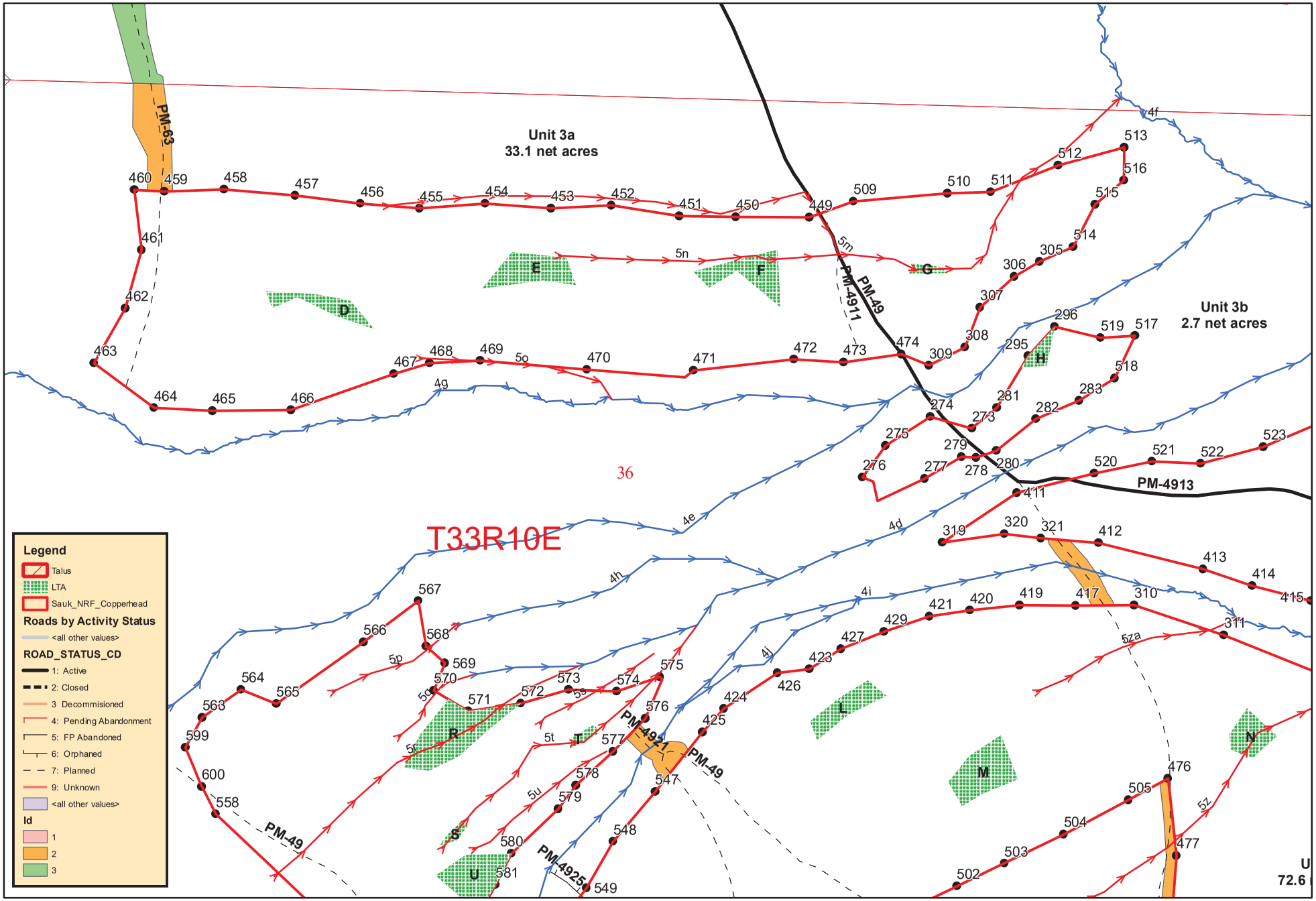

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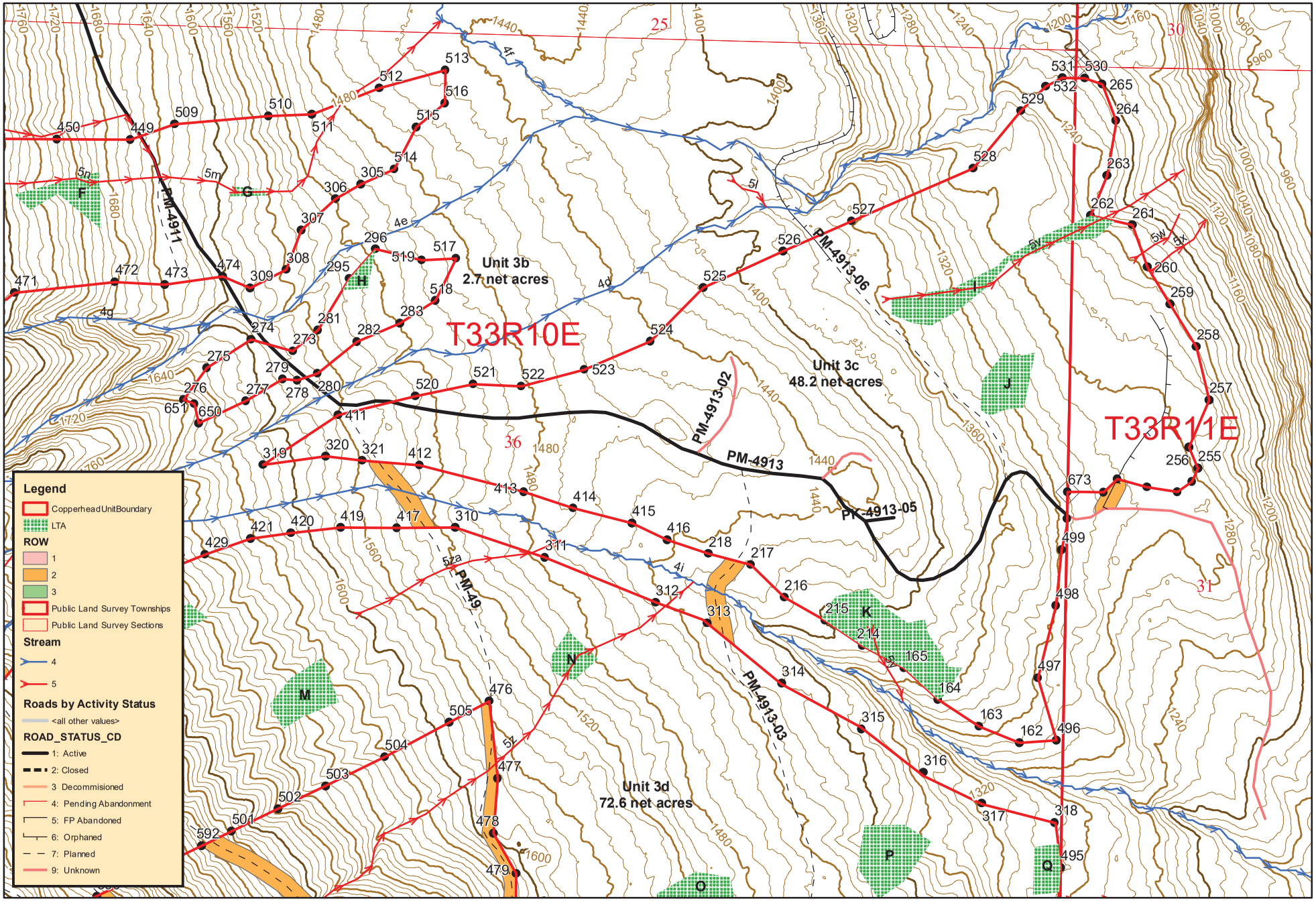

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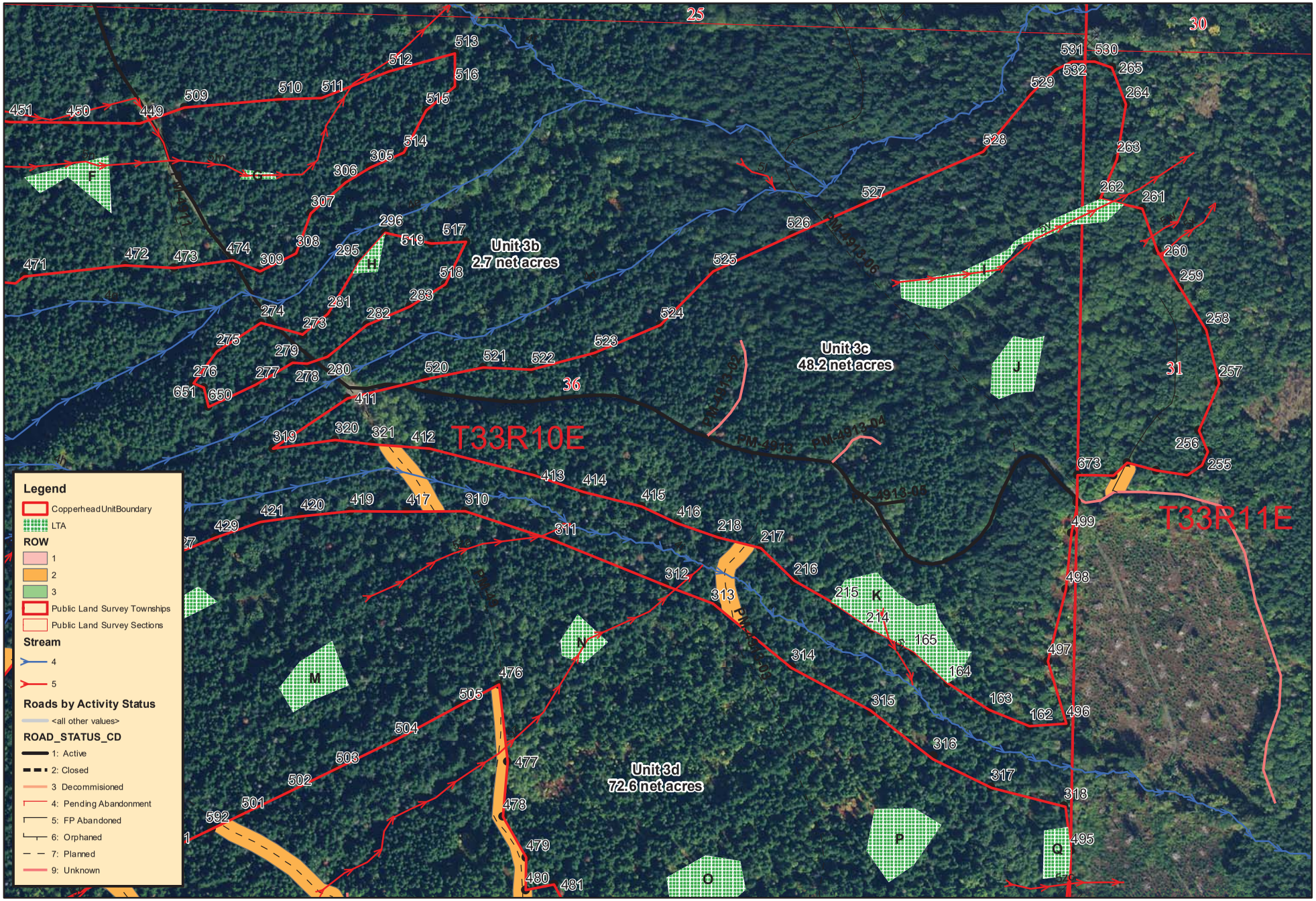

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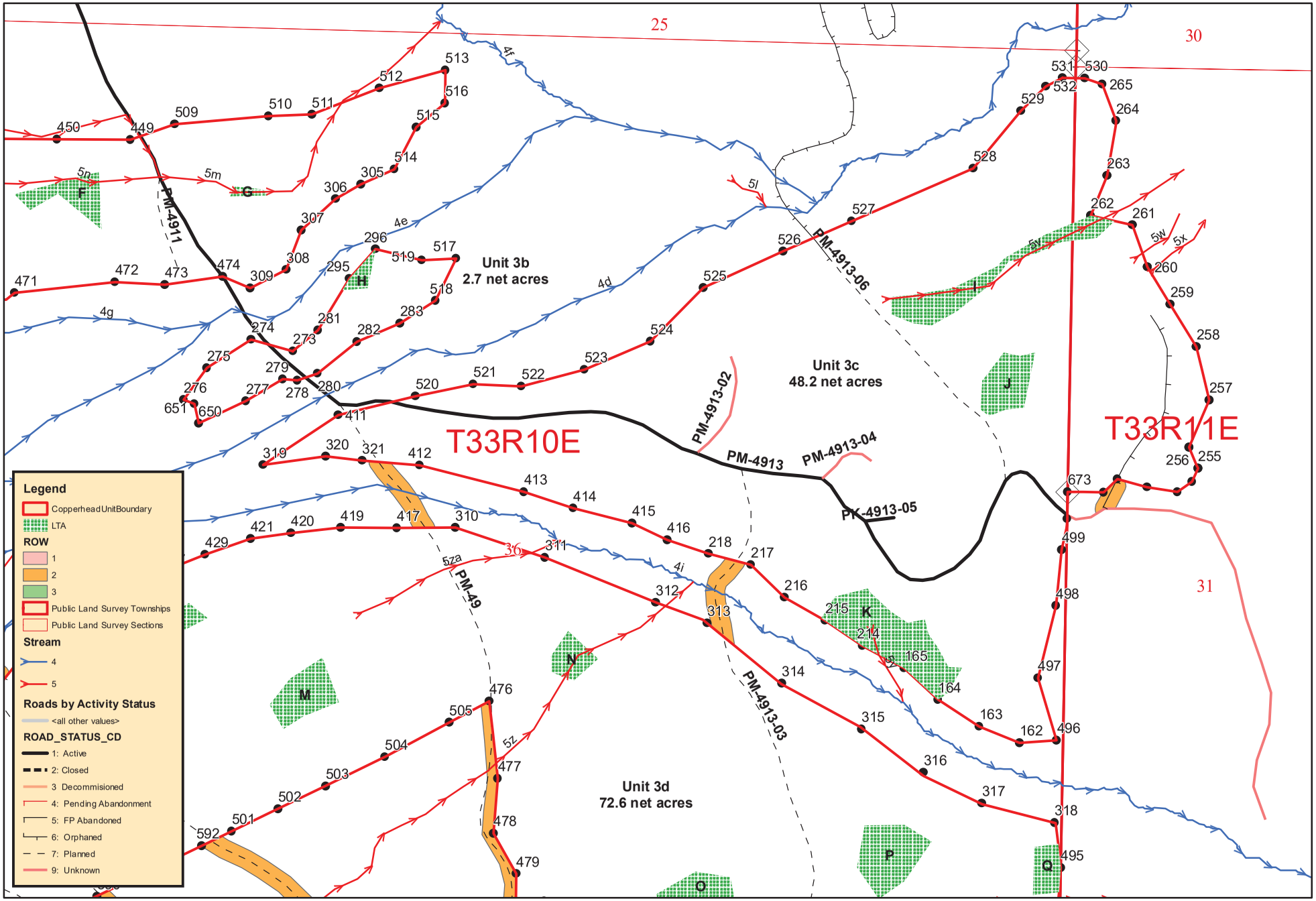

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Draft date: 12/5/2018

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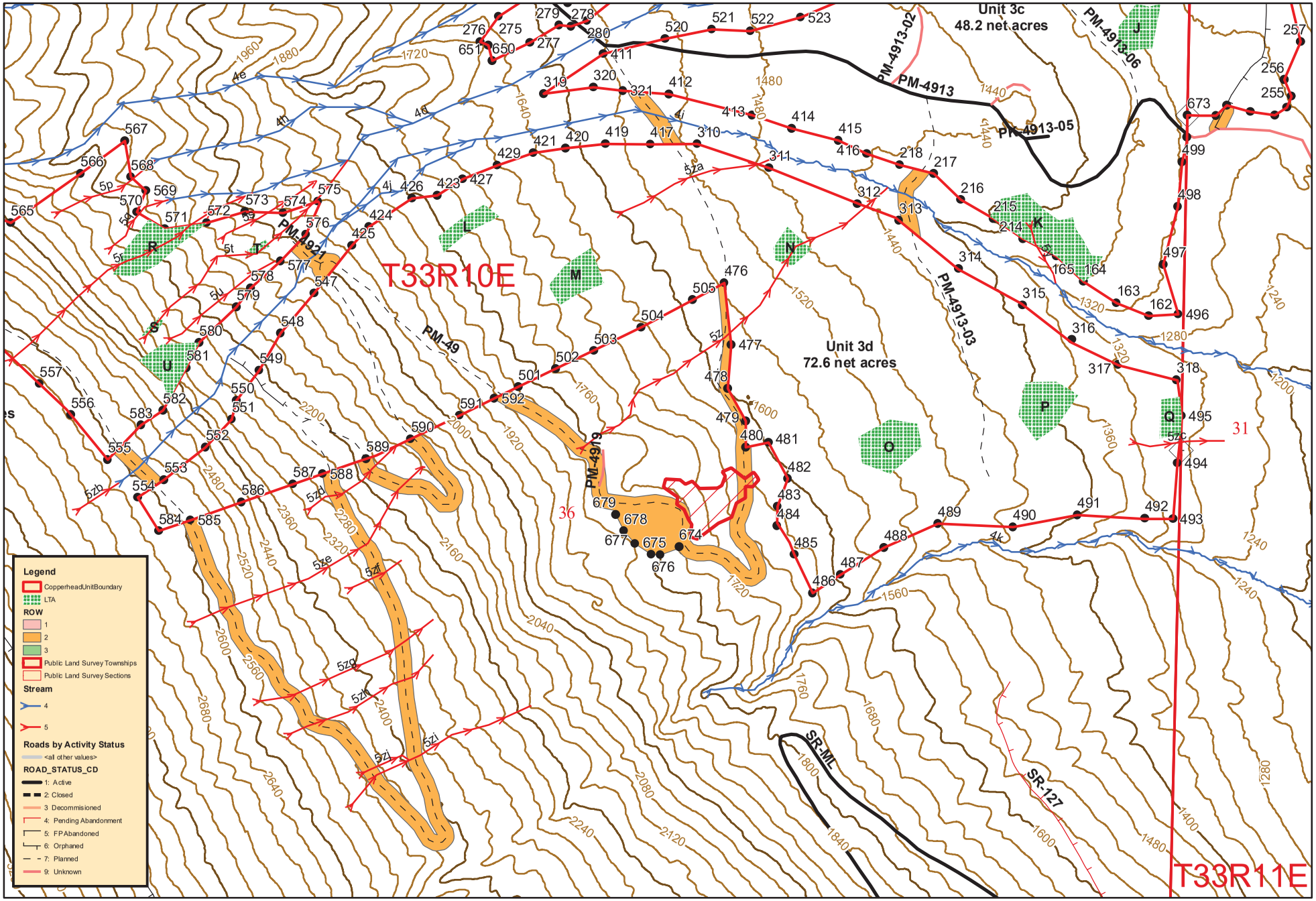

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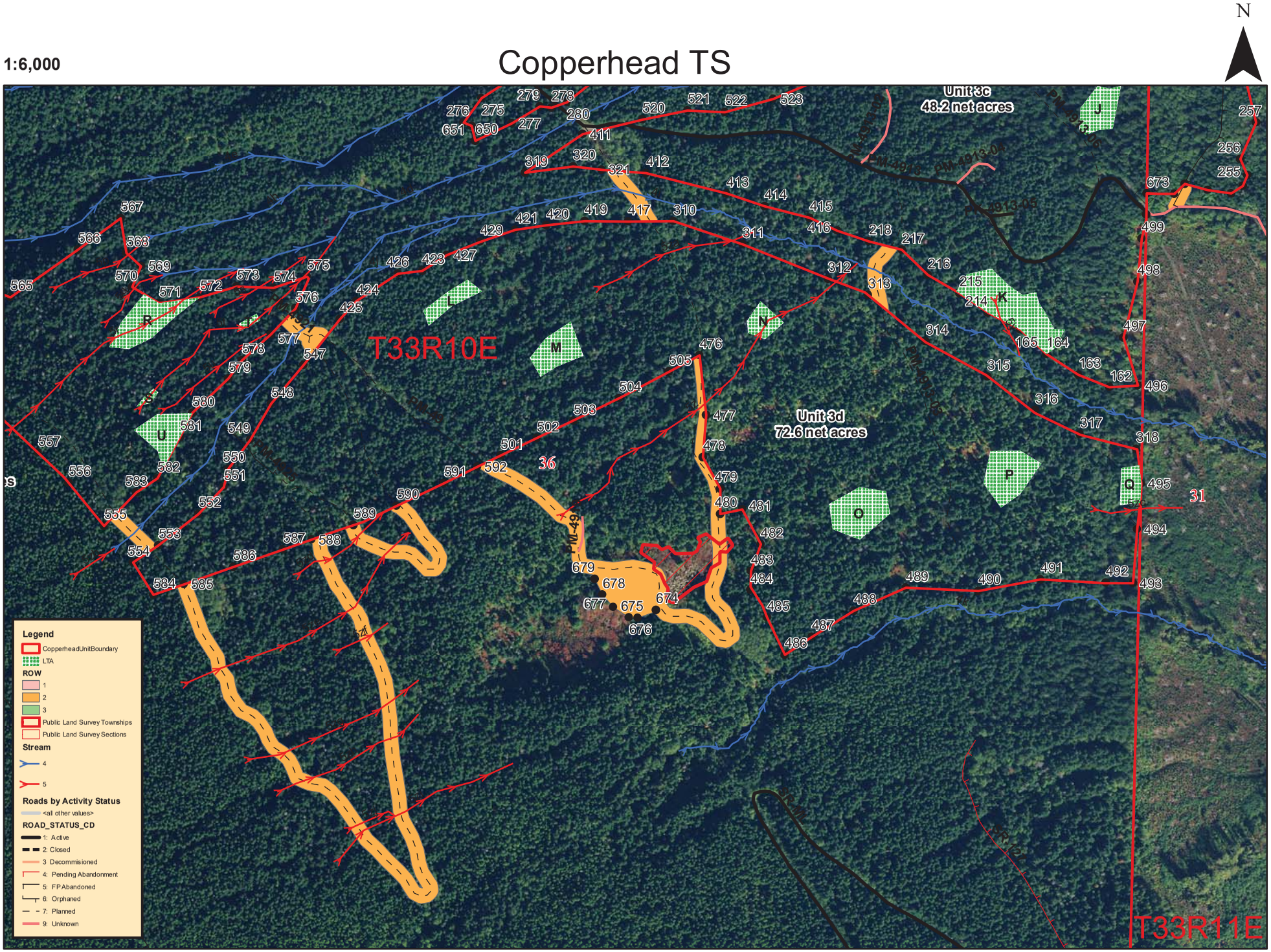

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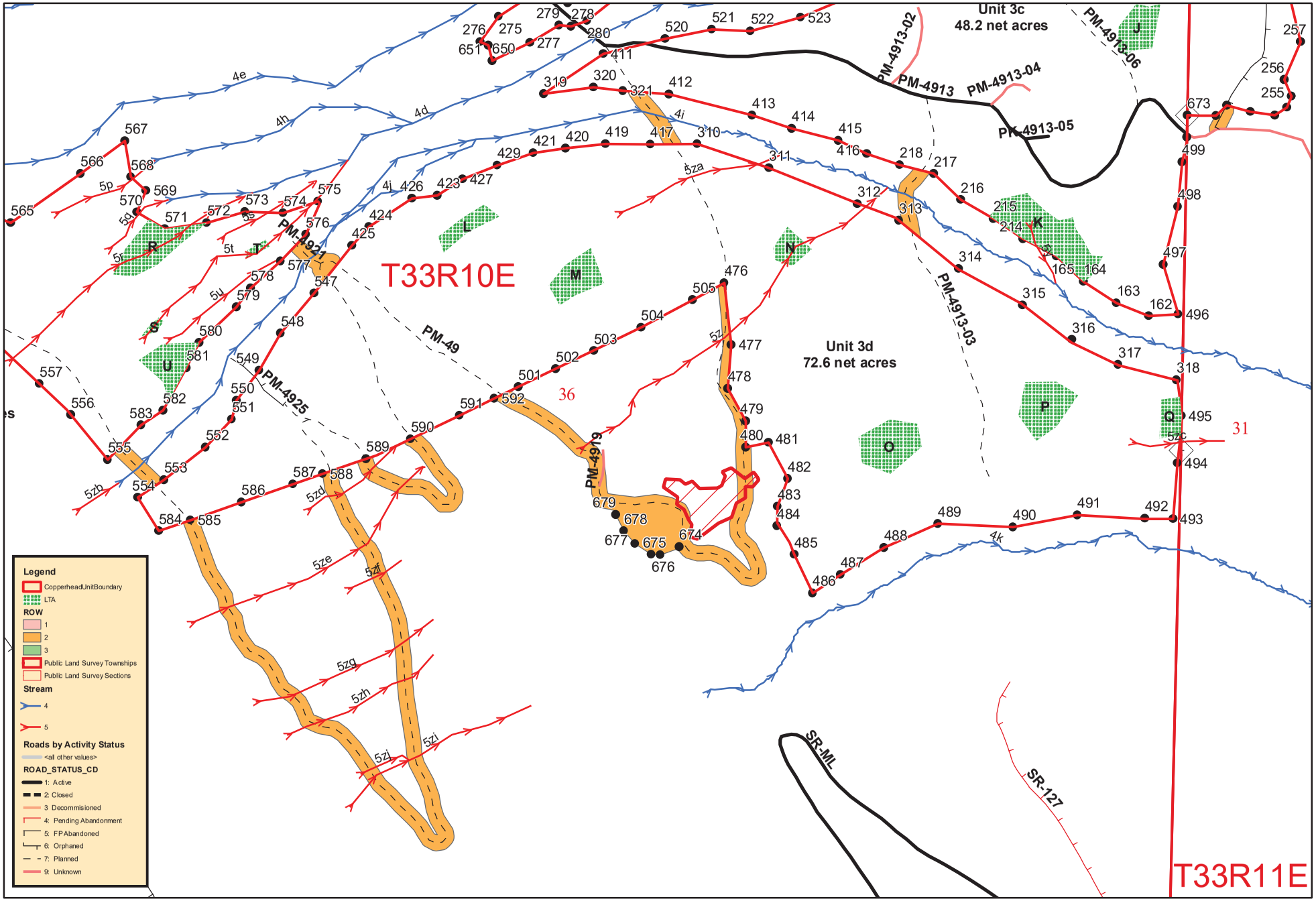

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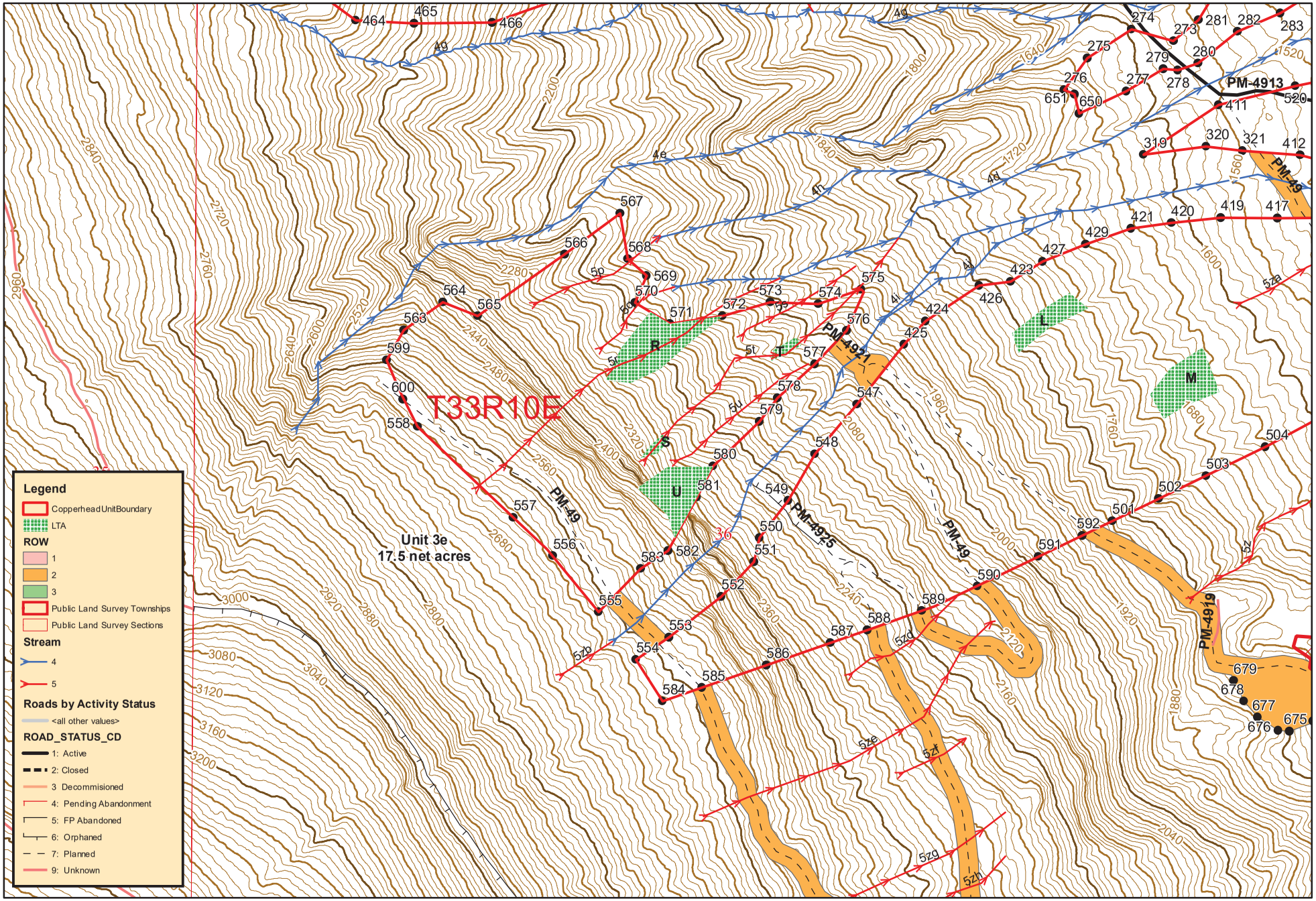

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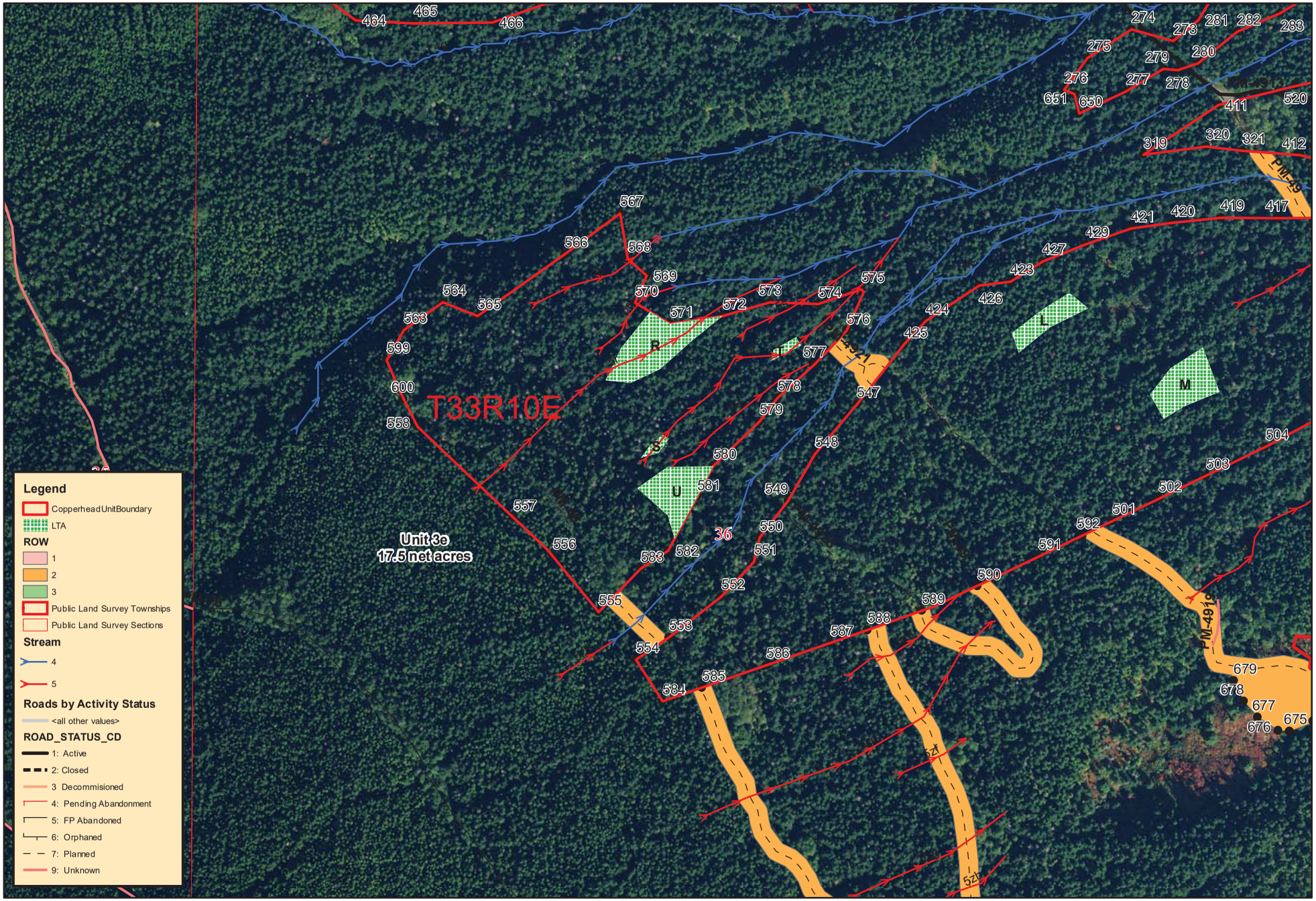

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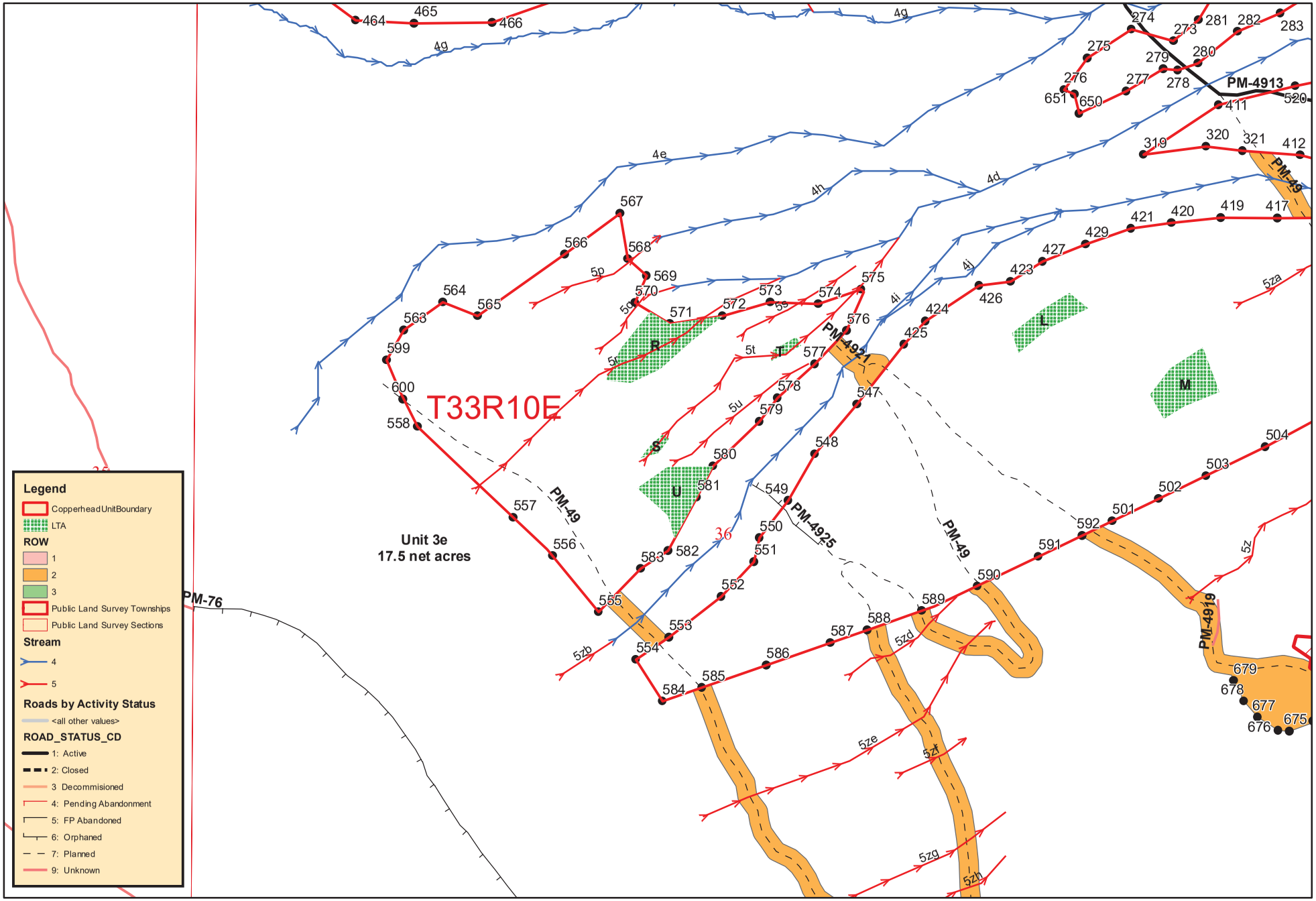

0 100 200 400 Feet

1 inch = 400 feet

Draft date: 12/5/2018

PRE-CRUISE NARRATIVE

Sale Name: Copperhead	Region: **Northwest**
Agreement #: 30-098033	District: Clear Lake
Contact Forester: Jeremy Porter Phone / Location: 360-856-3500/Northern State WC	County(s): Skagit
Alternate Contact: Joe Magnuson Phone / Location: 360-982-1757	Other information: Click here to enter text.

Type of Sale: Lump Sum	
Harvest System: See Logging Plan Map.	

UNIT ACREAGES AND METHOD OF DETERMINATION:

Unit # **Harvest R/W or RMZ WMZ**	**Legal Description** (Enter only one legal for each unit) **Sec/Twp/Rng**	**Grant or Trust**	**Gross Proposal Acres**	**Deductions from Gross Acres (No harvest acres)**				**Net Harvest Acres**	**Acreage Determination** (List method and error of closure if applicable)
				RMZ/ WMZ Acres	**Leave Tree Acres**	**Existing Road Acres**	**Other Acres (describe)**		
Pvt. ROW	25/T33/R10E	n/a	3.3	0	n/a	n/a	0	3.3	GPS (Garmin)
TOTAL ACRES			3.3	0	n/a	n/a	0	3.3	

HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Leave, take, paint color, tags, flagging etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
Pvt. ROW	Right-of-way is marked with orange Right-of-Way Boundary tags.		

***ROW was calculated in GIS.**

Revised 03/15/2010 (FRCD)

OTHER PRE-CRUISE INFORMATION:

Unit #	Primary,secondary Species / Estimated Volume (MBF)	Access information (Gates, locks, etc.)	Photos, traverse maps required
Pvt ROW	6 mbf - RA/DF	Access to unit is via PM-ML; DNR key required	
TOTAL MBF	6 mbf		

REMARKS:

Unit 1 has been dropped from this sale.

Driving Directions: See driving map.
From Darrington travel east on Sauk Prairie Road 5.6 miles. Turn left onto E Sauk Prairie Rd continue for 0.2 miles. This will turn into Mel Garton Pl, continue on this for 0.6 miles to the end of the pavement. At the end of the pavement take the right onto Dearinger Park Rd, continue for 2.4 miles. Dearinger Park road will become the Prairie Mountain mainline (PM-ML) and continues 3.7 miles to the junction with the PM-38 where PM-38 pit is located. Continue on the PM-ML, past the PM-38 junction, 1.2 miles to the junction with the PM-ML and the PM-49. Take the right fork continuing 0.7 miles on the PM-ML to where the PM-56 joins the PM-ML. Continue 0.7 miles up the PM-ML past the PM-56 junction to the junction with the PM-63, continue 0.4 miles to unit 3a on the PM-63.

Prepared By: Jeremy Porter Date: 12/12/18	Title: Forester	CC:

CRUISE NARRATIVE

Sale Name: **Copperhead**	**Region:** **Northwest**
Agree. #: **30-098033**	**District:** **Clearlake**
Lead cruiser: **Matt Llobet**	**Completion date:** **1-24-19**
Other cruisers on sale: AH	

Unit acreage specifications:

Unit #	Cruised acres	Cruised acres agree with sale acres? Yes/No	If acres do not agree explain why.
2	40.1	Yes	
3a	33.1	Yes	
3b	2.7	Yes	
3c	48.2	Yes	
3d	72.6	Yes	
3e	17.5	Yes	
ROW	18.7	No	Combined ROW 1 and 2
Total	232.9		

Unit cruise specifications:

Unit #	Sample type (VP, FP, ITS, 100%)	Expansion factor (BAF, full/ half)	Sighting height (4.5 ft, 16 ft.)	Grid size (Plot spacing or % of area)	Plot ratio (cruise: count)	Total number of plots
2	VP	40.0 BAF	4.5’	295’x 295’	1:1	19
3a	VP	40.0 BAF	4.5’	295’x 295’	1:1	14
3b	VP	40.0 BAF	4.5’	295’x 295’	1:1	2
3c	VP	40.0 BAF	4.5’	295’x 295’	1:1	24
3d	VP	40.0 BAF	4.5’	295’ x 295’	1:2	35
3e	VP	40.0 BAF	4.5’	295’ x 295’	1:1	10
ROW	FP	.05	FP	10pts/18.7ac	Cruise All	10

Sale/Cruise Description:

Minor species cruise intensity:	A full BAF was used throughout the sale					
Minimum cruise spec:	**Minimum DBH 7 inches,** 10 Net Board feet, Minimum Top Diameter 5 inches or 40% of 16-foot form point					
Avg ring count by sp:	**DF=**	8	**WH** =	8	**RA** =	
Leave/take tree description:	**VRH-** Take all trees bounded by white “Timber Sale Boundary” tags. Leave tree areas are marked with yellow “Leave tree Area” tags and individual leave trees are marked with one band of blue paint. **ROW-** Remove all timber bound by orange “Right of Way” tags					

Other conditions:	
Sort Description:	

Field observations:

All timber was graded in variable log lengths with the Scaling Bureaus Westside/Northwest log rules. The utility wood was given a board ft. volume. Copperhead was cruised using the Variable plot and Fix plot sample method. The Timber type consisted of a dominant Douglas fir component, with scattered Western Hemlock and Hardwoods. The Species composition throughout the sale is Douglas fir at 86% and Western Hemlock at 10%. The Douglas fir has an average diameter of 13 inches, with an average bole length of 52 feet. The Western Hemlock has an average diameter of 12 inches, and an average bole length of 41 feet. Copperhead timber sale is 35% ground base harvesting and 65% cable harvesting, and ranges in elevation from 1200'-2720'. Grades are predominantly #3saw and #4saw, with a smaller component of #2saw. Defect observed on site included: forked or multiple tops, root rot pockets, spike knots, sweep, frost check, and broken tops.

Prepared By: Matt Llobet

Title: Forest Check Cruiser

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T33N R10E S24 Ty0002
THRU
T33N R10E S36 Ty003E

Project: COPPER
Acres 232.90

Page 1
Date 1/28/2019
Time 7:53:31AM

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 5-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF	D	2S		7	3.1	987	956	223			100		11	23	5	61	31	13	166	1.36	5.8
DF	D	3S		67	1.1	8,301	8,206	1,911	27	73			1	2	5	93	36	8	88	0.68	93.5
DF	D	4S		20	1.4	2,589	2,552	594	99	1			17	51	19	13	25	5	27	0.31	93.5
DF	D	UT		6		631	631	147	94		6		34	15	20	32	24	5	28	0.35	22.9
DF	**Totals**			86	1.3	12,508	12,345	2,875	43	49	8		6	14	9	71	30	7	57	0.54	215.6
RA	D	2S		17		62	62	15			100		100				20	12	100	1.09	.6
RA	D	4S		68	3.7	259	249	58	62	38				89	11		30	7	47	0.50	5.3
RA	D	UT		15		54	54	13	82	18			6	94			24	5	28	0.38	1.9
RA	**Totals**			3	2.5	375	366	85	54	29	17		18	75	7		28	7	47	0.51	7.8
WH	D	2S		12	.9	171	169	39			100				80	20	33	13	210	1.58	.8
WH	D	3S		54		741	741	173	66	34					9	91	36	7	75	0.64	9.9
WH	D	4S		26		369	369	86	100				3	57	20	20	27	5	28	0.35	13.1
WH	D	UT		8		98	98	23		47	53		100				19	12	95	1.16	1.0
WH	**Totals**			10	.1	1,378	1,376	321	62	22	16		8	15	20	57	31	6	55	0.55	24.8
RC	D	3S		21		23	23	5	100							100	36	6	60	0.63	.4
RC	D	4S		75	4.5	84	80	19	100				2		63	35	32	5	32	0.46	2.5
RC	D	UT		4		3	3	1	100				100				15	5	20	0.29	.2
RC	**Totals**			1	3.5	110	106	25	100				5		47	48	32	5	34	0.48	3.1
BR	D	UT		100		31	31	7	100					100			28	5	30	0.24	1.0
BR	**Totals**			0		31	31	7	100					100			28	5	30	0.24	1.0
BM	D	UT		100		59	59	14	100				100				18	5	20	0.29	3.0
BM	**Totals**			0		59	59	14	100				100				18	5	20	0.29	3.0
CW	D	3S		49		36	36	8	100							100	40	6	60	0.37	.6
CW	D	4S		36		26	26	6	100					100			30	7	50	0.46	.5
CW	D	UT		15		10	10	2	100					100			21	5	20	0.20	.5
CW	**Totals**			1		72	72	17	100					51		49	31	6	44	0.36	1.6
Totals					1.2	14,533	14,355	3,343	47	45	9		7	16	10	67	30	7	56	0.53	257.0

TC PSTATS

PROJECT STATISTICS

PROJECT COPPER

DATE 1/28/2019

TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
33N	10E	24	COPPER	0002	THR	232.90	114	508	S	W
33N	10E	36	COPPER	003E						

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	114	508	4.5		
CRUISE	59	262	4.4	40,798	.6
DBH COUNT					
REFOREST COUNT	53	246	4.6		
BLANKS	2				
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	200	138.2	13.4	52	37.1	136.2	12,508	12,345	3,455	3,455
WHEMLOCK	37	21.7	12.4	41	5.2	18.3	1,378	1,376	418	418
R ALDER	11	7.2	11.8	40	1.6	5.4	375	366	110	110
WR CEDAR	8	3.1	11.5	36	0.7	2.2	110	106	48	48
BL MAPLE	3	3.0	8.0	25	0.4	1.0	59	59	15	15
COTWOOD	2	1.1	10.8	52	0.2	.7	72	72	18	18
BIRCH	1	1.0	8.0	35	0.1	.4	31	31	7	7
TOTAL	*262*	*175.2*	*13.1*	*50*	*45.4*	*164.2*	*14,533*	*14,355*	*4,071*	*4,071*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	SAMPLE TREES - BF LOW	AVG	HIGH	# OF TREES REQ. 5	7	INF. POP. 10
DOUG FIR	51.5	3.7	108	112	116			
WHEMLOCK	83.9	13.8	70	81	93			
R ALDER	57.2	18.1	40	49	58			
WR CEDAR	45.8	17.3	27	33	38			
BL MAPLE								
COTWOOD	10.9	10.2	58	65	72			
BIRCH								
TOTAL	*59.7*	*3.7*	*97*	*101*	*105*	*143*	*73*	*36*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	TREES/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	7	INF. POP. 10
DOUG FIR	71.6	6.7	129	138	147			
WHEMLOCK	214.6	20.1	17	22	26			
R ALDER	485.1	45.4	4	7	10			
WR CEDAR	832.3	77.9	1	3	5			
BL MAPLE	1067.7	99.9	0	3	6			
COTWOOD	1067.7	99.9	0	1	2			
BIRCH	1067.7	99.9	0	1	2			
TOTAL	*60.9*	*5.7*	*165*	*175*	*185*	*148*	*76*	*37*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	BASAL AREA/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	7	INF. POP. 10
DOUG FIR	66.5	6.2	128	136	145			
WHEMLOCK	211.7	19.8	15	18	22			
R ALDER	506.3	47.4	3	5	8			
WR CEDAR	879.2	82.3	0	2	4			
BL MAPLE	1067.7	99.9	0	1	2			
COTWOOD	1067.7	99.9	0	1	1			
BIRCH	1067.7	99.9	0	0	1			
TOTAL	*54.9*	*5.1*	*156*	*164*	*173*	*120*	*61*	*30*

PROJECT STATISTICS

PROJECT COPPER

TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
33N	10E	24	COPPER	0002	THR	232.90	114	508	S	W
33N	10E	36	COPPER	003E						

CL 68.1	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	71.1	6.7	11,524	12,345	13,166			
WHEMLOCK	221.9	20.8	1,091	1,376	1,662			
R ALDER	505.0	47.3	193	366	538			
WR CEDAR	884.6	82.8	18	106	194			
BL MAPLE	1067.7	99.9	0	59	119			
COTWOOD	1067.7	99.9	0	72	144			
BIRCH	1067.7	99.9	0	31	62			
TOTAL	*59.4*	*5.6*	*13,557*	*14,355*	*15,154*	*141*	*72*	*35*

CL 68.1	COEFF		**V BAR/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR			85	91	97			
WHEMLOCK	153.6	14.4	60	75	91			
R ALDER	233.2	21.8	36	67	99			
WR CEDAR	738.3	69.1	8	48	87			
BL MAPLE	1067.7	99.9	0	57	115			
COTWOOD	1067.7	99.9	0	101	202			
BIRCH	1067.7	99.9	0	86	172			
TOTAL	*56.3*	*5.3*	*83*	*87*	*92*	*127*	*65*	*32*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: COPPER

Date 1/28/2019

Time 7:53:32AM

T33N R10E S24 T0002

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
33N	10E	24	COPPER	0002	40.10	19	38	S	W

T33N R10E S24 T0002

Spp	ST	Sort	Grade	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 5-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		DM	2S	5	.0	899	899	36			100			100			26	12	142	1.26	6.3
DF		DM	3S	63	.4	11,137	11,097	445	29	71					3	97	36	8	81	0.63	136.7
DF		DM	4S	25	1.7	4,354	4,282	172	100				13	58	16	13	25	5	28	0.30	155.4
DF		DM	UT	7		1,156	1,156	46	100				7		44	49	34	5	37	0.33	30.9
DF	**Totals**			90	.6	17,546	17,434	699	50	45	5		4	19	9	68	31	6	53	0.48	329.4
RA		DM	2S	21		362	362	15			100		100				20	12	100	1.09	3.6
RA		DM	4S	74	4.1	1,330	1,276	51	57	43				100			30	7	50	0.52	25.8
RA		DM	UT	5		72	72	3	100					100			23	5	20	0.46	3.6
RA	**Totals**			9	3.1	1,765	1,710	69	46	32	21		21	79			28	7	52	0.56	33.0
BR		DM	UT	100		181	181	7	100					100			28	5	30	0.24	6.0
BR	**Totals**			1		181	181	7	100					100			28	5	30	0.24	6.0
Type Totals					.9	19,492	19,325	775	50	43	7		5	25	8	61	30	6	52	0.48	368.4

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: COPPER

Date 1/28/2019

Time 7:53:32AM

T33N R10E S24 TROW

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
33N	10E	24	COPPER	ROW	18.70	10	61	S	W

T33N R10E S24 TROW

Spp	ST	Sort	Grade	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 5-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		DM	2S	14	3.4	1,180	1,140	21			100				33	67	37	12	190	1.37	6.0
DF		DM	3S	65	3.8	5,220	5,020	94	27	73					9	91	36	8	84	0.66	60.0
DF		DM	4S	18	1.4	1,420	1,400	26	94	6			29	34	14	23	24	5	25	0.31	56.0
DF		DM	UT	3		220	220	4	100				45	55			20	5	22	0.27	10.0
DF	**Totals**			81	3.2	8,040	7,780	145	37	48	15		6	8	13	72	30	7	59	0.57	132.0
WH		DM	2S	28	4.5	440	420	8			100					100	36	13	210	1.55	2.0
WH		DM	3S	32		480	480	9	100						25	75	35	6	60	0.63	8.0
WH		DM	4S	40		580	580	11	100				3	31	52	14	30	5	32	0.35	18.0
WH	**Totals**			15	1.3	1,500	1,480	28	72		28		1	12	28	58	32	6	53	0.53	28.0
RA		DM	4S	42		120	120	2	100					33	67		29	5	30	0.34	4.0
RA		DM	UT	58		160	160	3	25	75			25	75			20	7	40	0.54	4.0
RA	**Totals**			3		280	280	5	57	43			14	57	29		24	6	35	0.42	8.0
RC		DM	4S	33		20	20	0	100				100				11	5	10	0.20	2.0
RC		DM	UT	67		40	40	1	100				100				15	5	20	0.29	2.0
RC	**Totals**			1		60	60	1	100				100				13	5	15	0.25	4.0
Type Totals					2.8	9,880	9,600	180	43	40	16		6	10	16	68	29	6	56	0.55	172.0

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: COPPER

Date 1/28/2019

Time 7:53:32AM

T33N R10E S36 T003A

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
33N	10E	36	COPPER	003A	33.10	14	23	S	W

T33N R10E S36 T003A

Spp	ST	Sort	Grade	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 5-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		DM	2S	8	2.6	1,367	1,331	44			100					100	36	12	175	1.23	7.6
DF		DM	3S	75	1.1	11,514	11,385	377	21	79						100	37	8	96	0.69	118.6
DF		DM	4S	15	4.7	2,378	2,267	75	100				13	71	16		25	5	25	0.33	89.1
DF		DM	UT	2		246	246	8	100				100				17	5	16	0.22	15.6
DF	**Totals**			95	1.8	15,506	15,229	504	32	59	9		4	11	2	83	31	7	66	0.58	231.0
WH		DM	3S	37		279	279	9	100							100	36	7	60	0.75	4.7
WH		DM	4S	19		140	140	5	100					100			29	5	30	0.34	4.7
WH		DM	UT	44		326	326	11		100			100				20	10	70	0.97	4.7
WH	**Totals**			5		745	745	25	56	44			44	19		37	28	7	53	0.66	14.0
Type Totals					1.7	16,251	15,974	529	33	58	8		5	11	2	81	30	7	65	0.58	245.0

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: COPPER

Date 1/28/2019

Time 7:53:32AM

T33N R10E S36 T003B

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
33N	10E	36	COPPER	003B	2.70	2	8	S	W

T33N R10E S36 T003B

Spp	ST	Sort	Grade	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 5-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		DM	2S	13		1,811	1,811	5			100				100		32	12	160	1.18	11.3
DF		DM	3S	62		8,015	8,015	22	19	81						100	36	8	97	0.72	83.0
DF		DM	4S	23		2,932	2,932	8	100				31	54	15		24	5	26	0.30	113.2
DF		DM	UT	2		255	255	1	100				100				10	5	10	0.17	25.5
DF	**Totals**			87		13,013	13,013	35	36	50	14		9	12	17	62	27	6	56	0.54	233.0
WH		DM	3S	87		1,657	1,657	4		100						100	36	10	140	1.06	11.8
WH		DM	4S	13		237	237	1	100				100				16	5	20	0.34	11.8
WH	**Totals**			13		1,894	1,894	5	12	88			12			88	26	8	80	0.84	23.7
Type Totals						14,907	14,907	40	33	55	12		9	11	15	65	27	7	58	0.57	256.6

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: COPPER

Date 1/28/2019

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T33N R10E S36 T003C

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
33N	10E	36	COPPER	003C	48.20	24	44	S	W

T33N R10E S36 T003C

Spp	ST	Sort	Grade	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 5-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		DM	2S	14	3.1	1,985	1,923	93			100		13	17		69	31	13	176	1.47	11.0
DF		DM	3S	62	2.4	8,760	8,549	412	25	75			3		12	85	35	8	92	0.73	93.0
DF		DM	4S	16		2,140	2,140	103	100				20	61	19		24	5	26	0.32	83.1
DF		DM	UT	8		1,070	1,070	52	83		17		51	4	11	33	22	6	28	0.42	38.1
DF	**Totals**			96	1.9	13,955	13,683	660	38	47	15		11	12	11	65	28	7	61	0.60	225.2
BM		DM	UT	100		286	286	14	100				100				18	5	20	0.29	14.3
BM	**Totals**			2		286	286	14	100				100				18	5	20	0.29	14.3
RA		DM	4S	40		96	96	5	100						100		34	5	40	0.40	2.4
RA		DM	UT	60		140	140	7	100					100			25	5	30	0.29	4.7
RA	**Totals**			2		235	235	11	100					59	41		28	5	33	0.33	7.1
Type Totals					1.9	14,477	14,205	685	40	45	15		12	13	12	63	28	7	58	0.58	246.5

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: COPPER

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T33N R10E S36 T003D

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
33N	10E	36	COPPER	003D	72.60	35	53	S	W

T33N R10E S36 T003D

Spp	ST	Sort	Grade	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 5-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		DM	2S	2	16.7	190	158	11			100		100				20	13	100	1.25	1.6
DF		DM	3S	67	.4	5,258	5,236	380	44	56				6	3	91	36	8	77	0.64	67.7
DF		DM	4S	25	1.2	1,971	1,948	141	100				25	25	30	20	25	5	28	0.32	70.6
DF		DM	UT	6		388	388	28	100				32	41		27	23	5	23	0.33	16.8
DF		**Totals**		73	1.0	7,806	7,729	561	60	38	2		10	12	10	68	29	6	49	0.49	156.7
WH		DM	2S	16	.0	434	434	32			100				100		32	13	210	1.59	2.1
WH		DM	3S	57		1,548	1,548	112	64	36					11	89	37	7	76	0.64	20.3
WH		DM	4S	20		535	535	39	100				4	79	7	9	24	5	25	0.38	21.7
WH		DM	UT	7		164	164	12			100		100				16	15	140	1.60	1.2
WH		**Totals**		25		2,682	2,682	195	57	21	22		7	16	24	53	30	7	59	0.60	45.3
CW		DM	3S	49		114	114	8	100							100	40	6	60	0.37	1.9
CW		DM	4S	36		84	84	6	100					100			30	7	50	0.46	1.7
CW		DM	UT	15		33	33	2	100					100			21	5	20	0.20	1.7
CW		**Totals**		2		231	231	17	100					51		49	31	6	44	0.36	5.2
Type Totals					.7	10,719	10,642	773	60	33	7		9	14	13	64	30	6	51	0.51	207.2

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: COPPER

Date 1/28/2019

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T33N R10E S36 T003E

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
33N	10E	36	COPPER	003E	17.50	10	35	S	W

T33N R10E S36 T003E

Spp	ST	Sort	Grade	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 5-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		DM	2S	4		694	694	12			100					100	40	13	240	1.55	2.9
DF		DM	3S	67	.4	10,427	10,383	182	7	93				5	4	92	36	9	112	0.86	92.4
DF		DM	4S	26		3,940	3,940	69	90	10			3	58	10	29	29	5	33	0.33	120.8
DF		DM	UT	3		451	451	8	100					68	32		28	5	30	0.30	15.0
DF		**Totals**		75	.3	15,512	15,468	271	31	65	4		1	20	6	73	32	7	67	0.59	231.1
WH		DM	3S	54		2,141	2,141	37	63	37						100	36	7	76	0.56	28.0
WH		DM	4S	46		1,767	1,767	31	100					31	28	41	32	5	32	0.31	54.8
WH		**Totals**		19		3,907	3,907	68	79	21				14	12	73	33	6	47	0.40	82.8
RC		DM	3S	22		304	304	5	100							100	36	6	60	0.63	5.1
RC		DM	4S	78	4.6	1,093	1,042	18	100						64	36	34	5	33	0.47	31.6
RC		**Totals**		6	3.6	1,397	1,346	24	100						49	51	34	5	37	0.49	36.7
Type Totals					.5	20,816	20,721	363	44	52	3		1	18	10	72	32	6	59	0.53	350.6

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TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
33N	10E	24	COPPER	0002	40.10	19	99	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	19	99	5.2		
CRUISE	9	38	4.2	9,739	.4
DBH COUNT					
REFOREST COUNT	10	61	6.1		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	32	207.5	12.6	55	50.9	181.1	17,546	17,434	4,832	4,832
R ALDER	5	29.4	12.6	44	7.1	25.3	1,765	1,710	523	523
BIRCH	1	6.0	8.0	35	0.7	2.1	181	181	41	41
TOTAL	*38*	*242.9*	*12.5*	*53*	*58.8*	*208.4*	*19,492*	*19,325*	*5,395*	*5,395*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	50.1	8.8	93	102	111			
R ALDER	48.6	24.2	50	66	82			
BIRCH								
TOTAL	*53.1*	*8.6*	*87*	*96*	*104*	*113*	*58*	*28*

CL: 68.1 %	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	51.4	12.1	182	207	233			
R ALDER	240.2	56.6	13	29	46			
BIRCH	435.9	102.7		6	12			
TOTAL	*50.4*	*11.9*	*214*	*243*	*272*	*107*	*55*	*27*

CL: 68.1 %	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	45.6	10.7	162	181	201			
R ALDER	237.3	55.9	11	25	39			
BIRCH	435.9	102.7		2	4			
TOTAL	*47.3*	*11.1*	*185*	*208*	*232*	*94*	*48*	*24*

CL: 68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	48.6	11.5	15,437	17,434	19,432			
R ALDER	234.3	55.2	766	1,710	2,654			
BIRCH	435.9	102.7		181	367			
TOTAL	*46.9*	*11.0*	*17,190*	*19,325*	*21,460*	*93*	*47*	*23*

CL: 68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR			85	96	107			
R ALDER	57.9	13.6	30	68	105			
BIRCH	435.9	102.7		86	174			
TOTAL	*277.3*	*65.3*	*82*	*93*	*103*	*3,244*	*1,655*	*811*

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TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
33N	10E	24	COPPER	ROW	18.70	10	61	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	10	61	6.1		
CRUISE	10	61	6.1	2,281	2.7
DBH COUNT					
REFOREST					
COUNT					
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	42	84.0	13.6	54	23.1	85.2	8,040	7,780	2,227	2,226
WHEMLOCK	13	26.0	12.4	40	6.2	21.8	1,500	1,480	477	477
R ALDER	4	8.0	10.5	27	1.5	4.9	280	280	82	82
WR CEDAR	2	4.0	8.1	15	0.5	1.4	60	60	13	13
TOTAL	*61*	*122.0*	*13.0*	*48*	*31.4*	*113.3*	*9,880*	*9,600*	*2,798*	*2,797*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	59.7	9.6	90	100	109			
WHEMLOCK	100.2	28.9	40	57	73			
R ALDER	54.7	31.3	24	35	46			
WR CEDAR	47.1	44.1	8	15	22			
TOTAL	*73.9*	*9.7*	*75*	*83*	*91*	*218*	*111*	*55*

CL: 68.1 %	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	64.3	21.4	66	84	102			
WHEMLOCK	125.9	41.9	15	26	37			
R ALDER	129.1	43.0	5	8	11			
WR CEDAR	210.8	70.2	1	4	7			
TOTAL	*42.6*	*14.2*	*105*	*122*	*139*	*81*	*41*	*20*

CL: 68.1 %	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	61.0	20.3	68	85	102			
WHEMLOCK	151.2	50.3	11	22	33			
R ALDER	152.5	50.7	2	5	7			
WR CEDAR	218.7	72.8	0	1	2			
TOTAL	*52.0*	*17.3*	*94*	*113*	*133*	*120*	*61*	*30*

CL: 68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	65.0	21.6	6,098	7,780	9,462			
WHEMLOCK	164.5	54.8	670	1,480	2,290			
R ALDER	151.3	50.4	139	280	421			
WR CEDAR	225.0	74.9	15	60	105			
TOTAL	*60.5*	*20.1*	*7,668*	*9,600*	*11,532*	*162*	*83*	*40*

CL: 68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	55.6	18.5	72	91	111			
WHEMLOCK	138.0	45.9	31	68	105			
R ALDER	129.2	43.0	29	58	87			
WR CEDAR	212.0	70.6	11	42	74			
TOTAL	*43.0*	*14.3*	*68*	*85*	*102*	*82*	*42*	*21*

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TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
33N	10E	36	COPPER	003A	33.10	14	57	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	14	57	4.1		
CRUISE	7	23	3.3	4,486	.5
DBH COUNT					
REFOREST COUNT	7	34	4.9		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	21	126.2	14.7	61	38.8	148.6	15,506	15,229	4,085	4,085
WHEMLOCK	2	9.3	15.0	49	3.0	11.4	745	745	262	262
TOTAL	*23*	*135.5*	*14.7*	*61*	*41.7*	*160.0*	*16,251*	*15,974*	*4,347*	*4,347*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**SAMPLE TREES - BF**			# OF TREES REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	36.0	8.1	126	137	148			
WHEMLOCK	35.4	33.1	54	80	106			
TOTAL	*38.0*	*8.1*	*121*	*132*	*142*	*60*	*31*	*15*

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	49.3	13.7	109	126	143			
WHEMLOCK	213.9	59.3	4	9	15			
TOTAL	*42.3*	*11.7*	*120*	*136*	*151*	*77*	*39*	*19*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	48.9	13.5	128	149	169			
WHEMLOCK	213.9	59.3	5	11	18			
TOTAL	*41.6*	*11.5*	*142*	*160*	*178*	*74*	*38*	*19*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	47.9	13.3	13,208	15,229	17,251			
WHEMLOCK	216.7	60.0	298	745	1,192			
TOTAL	*42.5*	*11.8*	*14,095*	*15,974*	*17,854*	*78*	*40*	*19*

CL: 68.1 %	COEFF		**V-BAR/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR			89	103	116			
WHEMLOCK	96.2	26.6	26	65	104			
TOTAL	*254.2*	*70.4*	*88*	*100*	*112*	*2,778*	*1,417*	*694*

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TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
33N	10E	36	COPPER	003B	2.70	2	8	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	2	8	4.0		
CRUISE	2	8	4.0	406	2.0
DBH COUNT					
REFOREST COUNT					
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	7	138.6	13.6	49	38.0	140.0	13,013	13,013	3,428	3,428
WHEMLOCK	1	11.8	17.6	55	4.8	20.0	1,894	1,894	517	517
TOTAL	*8*	*150.5*	*14.0*	*50*	*42.8*	*160.0*	*14,907*	*14,907*	*3,945*	*3,945*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**SAMPLE TREES - BF**			# OF TREES REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	49.9	20.3	98	123	148			
WHEMLOCK								
TOTAL	*45.7*	*17.2*	*106*	*128*	*149*	*95*	*48*	*24*

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	93.0	87.1	18	139	259			
WHEMLOCK	141.4	132.4		12	28			
TOTAL	*74.6*	*69.8*	*45*	*150*	*256*	*390*	*199*	*98*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	60.6	56.8	61	140	219			
WHEMLOCK	141.4	132.4		20	46			
TOTAL	*35.4*	*33.1*	*107*	*160*	*213*	*88*	*45*	*22*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	49.1	46.0	7,028	13,013	18,997			
WHEMLOCK	141.4	132.4		1,894	4,402			
TOTAL	*24.9*	*23.3*	*11,430*	*14,907*	*18,383*	*44*	*22*	*11*

CL: 68.1 %	COEFF		**V-BAR/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	49.1	46.0	50	93	136			
WHEMLOCK	141.4	132.4		95	220			
TOTAL	*24.9*	*23.3*	*71*	*93*	*115*	*44*	*22*	*11*

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TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
33N	10E	36	COPPER	003C	48.20	24	103	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	24	103	4.3		
CRUISE	11	44	4.0	7,967	.6
DBH COUNT					
REFOREST COUNT	13	59	4.5		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	39	143.9	14.1	51	41.3	155.0	13,955	13,683	3,840	3,840
BL MAPLE	3	14.3	8.0	25	1.8	5.0	286	286	75	75
R ALDER	2	7.1	9.3	32	1.1	3.3	235	235	66	66
TOTAL	*44*	*165.3*	*13.5*	*48*	*44.5*	*163.3*	*14,477*	*14,205*	*3,980*	*3,980*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**SAMPLE TREES - BF**			# OF TREES REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	51.4	8.2	116	126	137			
BL MAPLE								
R ALDER	20.2	18.9	28	35	42			
TOTAL	*54.7*	*8.4*	*110*	*120*	*131*	*119*	*61*	*30*

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	71.6	14.9	122	144	165			
BL MAPLE	489.9	102.1		14	29			
R ALDER	489.9	102.1		7	14			
TOTAL	*62.2*	*13.0*	*144*	*165*	*187*	*161*	*82*	*40*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	66.0	13.8	134	155	176			
BL MAPLE	489.9	102.1		5	10			
R ALDER	489.9	102.1		3	7			
TOTAL	*57.7*	*12.0*	*144*	*163*	*183*	*139*	*71*	*35*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	69.1	14.4	11,713	13,683	15,652			
BL MAPLE	489.9	102.1		286	579			
R ALDER	489.9	102.1		235	476			
TOTAL	*62.4*	*13.0*	*12,358*	*14,205*	*16,051*	*162*	*83*	*41*

CL: 68.1 %	COEFF		**V-BAR/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR			76	88	101			
BL MAPLE	489.9	102.1		57	116			
R ALDER	489.9	102.1		71	143			
TOTAL	*251.7*	*52.4*	*76*	*87*	*98*	*2,639*	*1,347*	*660*

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TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
33N	10E	36	COPPER	003D	72.60	35	121	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	35	121	3.5		
CRUISE	14	53	3.8	11,309	.5
DBH COUNT					
REFOREST COUNT	19	68	3.6		
BLANKS	2				
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	36	112.7	12.8	46	28.1	100.6	7,806	7,729	2,260	2,260
WHEMLOCK	15	39.5	12.8	40	9.9	35.4	2,682	2,682	815	815
COTWOOD	2	3.6	10.8	52	0.7	2.3	231	231	59	59
TOTAL	*53*	*155.8*	*12.8*	*45*	*38.7*	*138.3*	*10,719*	*10,642*	*3,133*	*3,133*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**SAMPLE TREES - BF**			# OF TREES REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	52.1	8.7	75	83	90			
WHEMLOCK	77.3	20.6	83	105	126			
COTWOOD	10.9	10.2	58	65	72			
TOTAL	*63.5*	*8.7*	*80*	*88*	*96*	*161*	*82*	*40*

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	86.6	14.6	96	113	129			
WHEMLOCK	142.0	24.0	30	40	49			
COTWOOD	591.6	99.9	0	4	7			
TOTAL	*65.8*	*11.1*	*138*	*156*	*173*	*173*	*88*	*43*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	80.3	13.6	87	101	114			
WHEMLOCK	149.4	25.2	26	35	44			
COTWOOD	591.6	99.9	0	2	5			
TOTAL	*60.5*	*10.2*	*124*	*138*	*152*	*146*	*75*	*37*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	82.7	14.0	6,649	7,729	8,809			
WHEMLOCK	160.1	27.0	1,957	2,682	3,407			
COTWOOD	591.6	99.9	0	231	462			
TOTAL	*64.4*	*10.9*	*9,485*	*10,642*	*11,799*	*165*	*84*	*41*

CL: 68.1 %	COEFF		**V-BAR/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR			66	77	88			
WHEMLOCK	99.5	16.8	55	76	96			
COTWOOD	591.6	99.9	0	101	202			
TOTAL	*253.0*	*42.7*	*69*	*77*	*85*	*2,556*	*1,304*	*639*

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DATE 1/28/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
33N	10E	36	COPPER	003E	17.50	10	59	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	10	59	5.9		
CRUISE	6	35	5.8	4,610	.8
DBH COUNT					
REFOREST COUNT	4	24	6.0		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	23	149.7	14.0	54	42.8	160.0	15,512	15,468	4,319	4,319
WHEMLOCK	6	77.1	10.7	41	14.7	48.0	3,907	3,907	1,101	1,101
WR CEDAR	6	36.7	11.8	38	8.1	28.0	1,397	1,346	619	619
TOTAL	*35*	*263.4*	*12.8*	*48*	*65.9*	*236.0*	*20,816*	*20,721*	*6,038*	*6,038*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**SAMPLE TREES - BF**			# OF TREES REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	34.4	7.7	131	142	153			
WHEMLOCK	77.8	34.6	41	63	85			
WR CEDAR	30.5	13.6	33	38	44			
TOTAL	*57.6*	*10.0*	*98*	*109*	*120*	*133*	*68*	*33*

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	55.7	18.5	122	150	177			
WHEMLOCK	128.5	42.7	44	77	110			
WR CEDAR	269.8	89.8	4	37	70			
TOTAL	*48.2*	*16.0*	*221*	*263*	*306*	*103*	*52*	*26*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	63.5	21.1	126	160	194			
WHEMLOCK	116.5	38.8	29	48	67			
WR CEDAR	269.8	89.8	3	28	53			
TOTAL	*37.0*	*12.3*	*207*	*236*	*265*	*61*	*31*	*15*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	67.4	22.4	11,997	15,468	18,939			
WHEMLOCK	111.9	37.3	2,452	3,907	5,363			
WR CEDAR	269.8	89.8	138	1,346	2,555			
TOTAL	*39.6*	*13.2*	*17,989*	*20,721*	*23,453*	*70*	*35*	*17*

CL: 68.1 %	COEFF		**V-BAR/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR			75	97	118			
WHEMLOCK			51	81	112			
WR CEDAR	265.6	88.4	5	48	91			
TOTAL	*163.4*	*54.4*	*76*	*88*	*99*	*1,182*	*603*	*296*

TC PSPCTLTCM

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

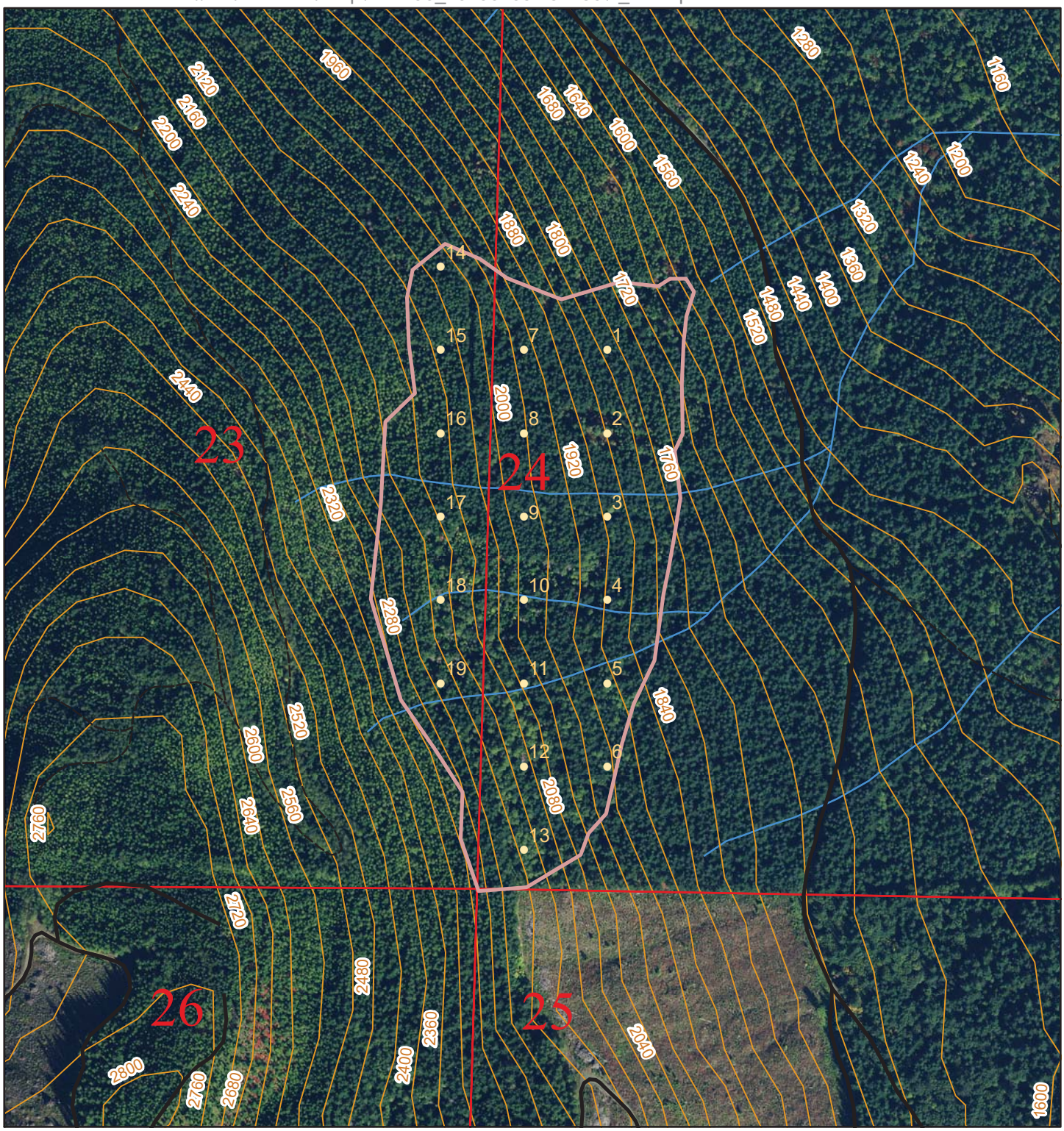
T33N R10E S24 Ty0002	40.1
T33N R10E S24 TyROW	18.7
T33N R10E S36 Ty003	17.5

Project COPPER
Acres 232.90

Page No 1
Date: 1/28/2019
Time 7:56:43AM

Species	S T	Total Trees	Total Logs	Total Tons	Net Cubic Ft/ Tree	Net Cubic Ft/ Log	CF/ LF	Total CCF Gross	Total CCF Net	Total MBF Gross	Total MBF Net
DOUG FIR		32,177	50,224	22,931	25.01	16.02	0.53	8,046	8,046	2,913	2,875
WHEMLOCK		5,045	5,787	3,116	19.30	16.83	0.56	974	974	321	321
R ALDER		1,668	1,813	706	15.39	14.16	0.51	257	257	87	85
WR CEDAR		716	716	260	15.45	15.45	0.49	111	111	26	25
COTWOOD		259	381	104	16.38	11.16	0.36	42	42	17	17
BL MAPLE		690	690	95	5.20	5.20	0.29	36	36	14	14
BIRCH		242	242	44	6.80	6.80	0.24	16	16	7	7
Totals		40,798	59,854	27,256	23.24	15.84	0.53	9,482	9,482	3,385	3,343

Wood Type Species	Total Trees	Total Logs	Total Tons	Net Cubic Ft/ Tree	Net Cubic Ft/ Log	CF/ LF	Total CCF Gross	Total CCF Net	Total MBF Gross	Total MBF Net
C	37,939	56,728	26,308	24.07	16.10	0.53	9,131	9,131	3,260	3,220
H	2,859	3,125	949	12.29	11.25	0.43	352	352	125	123
Totals	40,798	59,854	27,256	23.24	15.84	0.53	9,482	9,482	3,385	3,343



Copperhead Unit 2

Layer:	copperheadunitboundary selection	Township:	T33R10E
Poly Id:	1	Total Sample Points:	19
Acres:	43	Spacing Between Points:	Width: 295 Height: 295
Imagery:	2017 Orthophoto (1-ft Color) [HXIP]	Point Rotation Degrees:	0

N

0 175 350 700 1,050 1,400 Feet

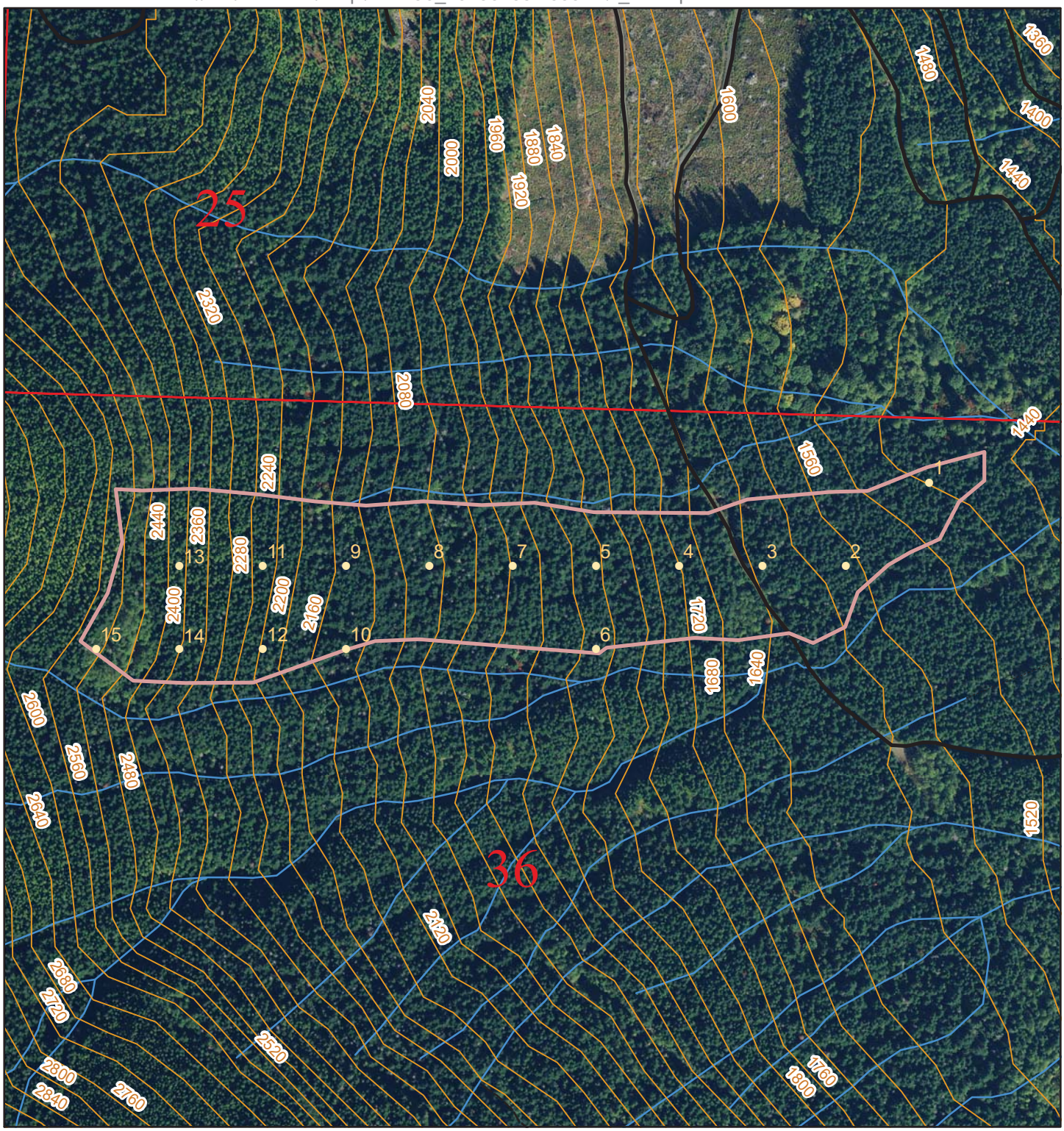
Scale 1:6,000

Legend

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

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

Jan 03, 2019 03:22 PM



Copperhead Unit 3A

Layer:	copperheadunitboundary selection	Township:	T33R10E
Poly Id:	1	Total Sample Points:	15
Acres:	35	Spacing Between Points:	Width: 295 Height: 295
Imagery:	2017 Orthophoto (1-ft Color) [HXIP]	Point Rotation Degrees:	0

N

0 175 350 700 1,050 1,400 Feet

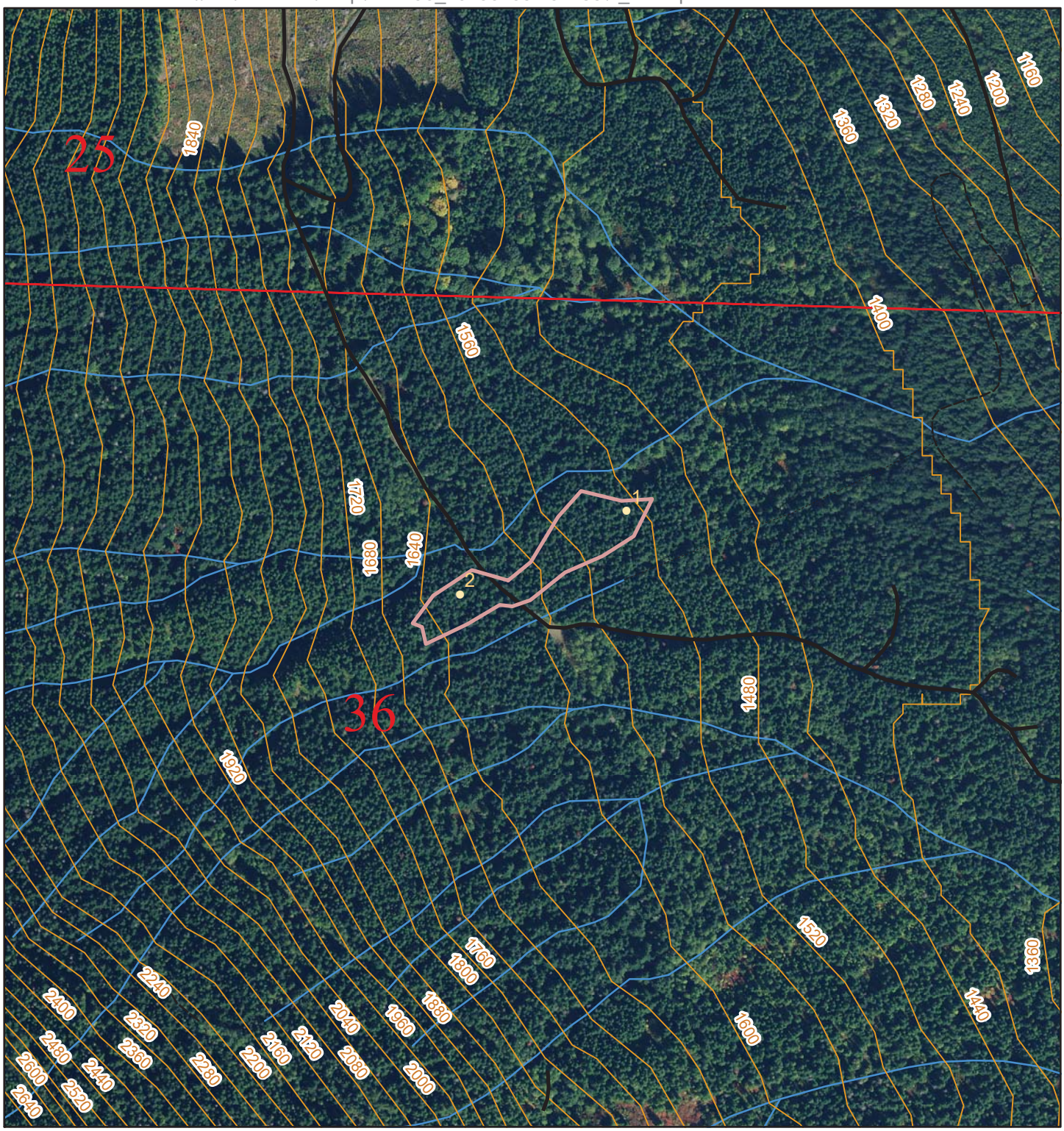
Scale 1:6,000

Legend

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

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

Jan 03, 2019 04:00 PM



Copperhead Unit 3b VRH

Layer:	copperheadunitboundary selection	Township:	T33R10E
Poly Id:	1	Total Sample Points:	2
Acres:	3	Spacing Between Points:	Width: 295 Height: 295
Imagery:	2017 Orthophoto (1-ft Color) [HXIP]	Point Rotation Degrees:	0

N

0 175 350 700 1,050 1,400 Feet

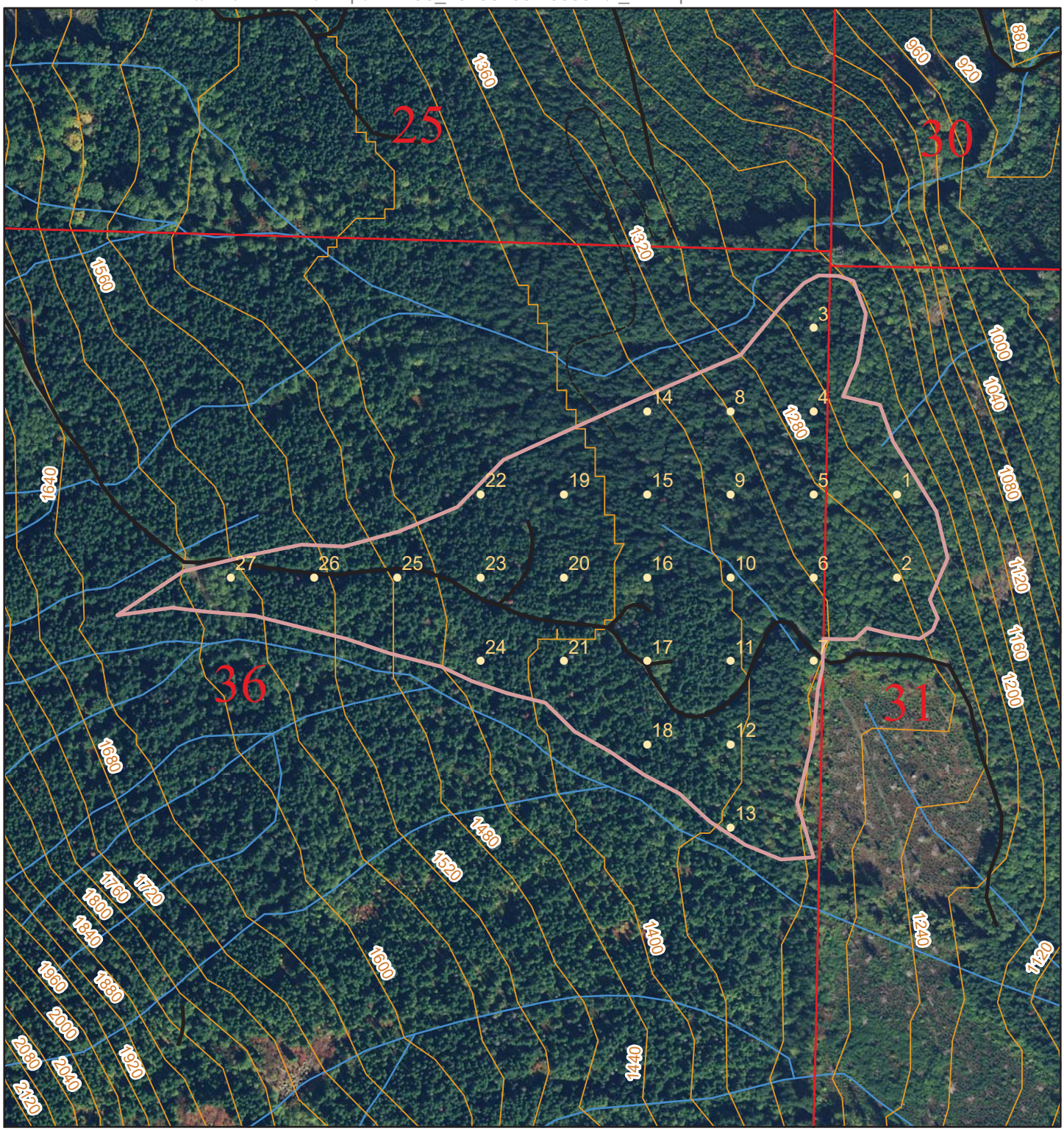
Scale 1:6,000

Legend

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

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

Jan 03, 2019 04:23 PM



Copperhead Unit 3c VRH

Layer:	copperheadunitboundary selection	Township:	T33R11E, T33R10E
Poly Id:	1	Total Sample Points:	27
Acres:	55	Spacing Between Points:	Width: 295 Height: 295
Imagery:	2017 Orthophoto (1-ft Color) [HXIP]	Point Rotation Degrees:	0

N

0 175 350 700 1,050 1,400 Feet

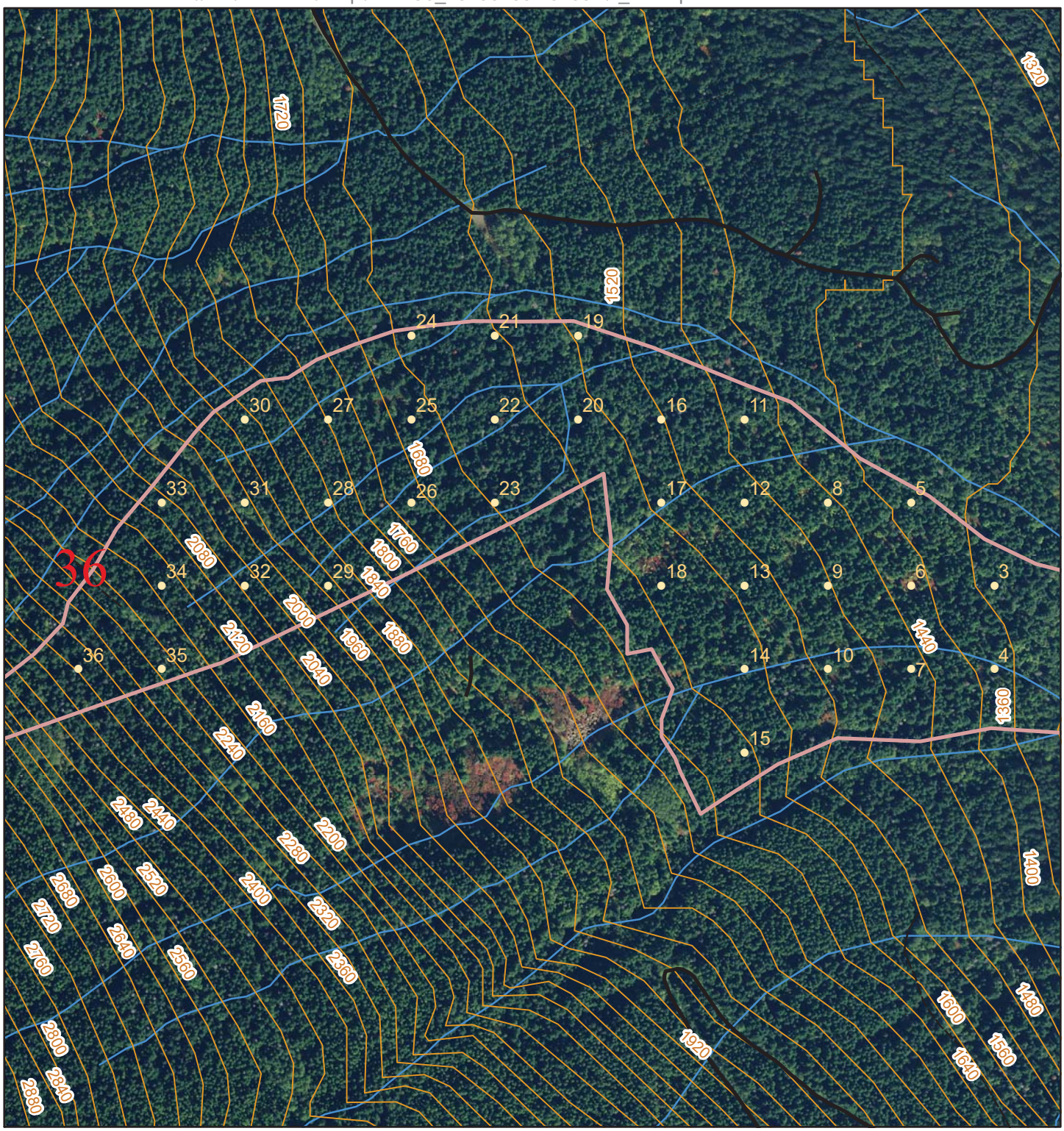
Scale 1:6,000

Legend

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

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

Jan 03, 2019 04:34 PM



Copperhead Unit 3d VRH

Layer:	copperheadunitboundary selection	Township:	T33R10E
Poly Id:	1	Total Sample Points:	36
Acres:	76	Spacing Between Points:	Width: 295 Height: 295
Imagery:	2017 Orthophoto (1-ft Color) [HXIP]	Point Rotation Degrees:	0

N

0 175 350 700 1,050 1,400 Feet

Scale 1:6,000

Legend

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

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

Jan 03, 2019 04:40 PM

Copperhead Unit 3e

Layer:	copperheadunitboundary selection	Township:	T33R10E
Poly Id:	1	Total Sample Points:	11
Acres:	19	Spacing Between Points:	Width: 295 Height: 295
Imagery:	2017 Orthophoto (1-ft Color) [HXIP]	Point Rotation Degrees:	0

N

0 175 350 700 1,050 1,400 Feet

Scale 1:6,000

Legend

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

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

Jan 07, 2019 03:32 PM

TC PSPCTLTCM

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

T33N R010 S25 TyPRW 3.3

Project COPPER
Acres 3.30

Page No 1
Date: 1/28/2019
Time 3:59:41PM

Species	S T	Total Trees	Total Logs	Total Tons	Net Cubic Ft/ Tree	Net Cubic Ft/ Log	CF/ LF	Total CCF Gross	Total CCF Net	Total MBF Gross	Total MBF Net
DOUG FIR		264	528	442	58.77	29.38	0.86	155	155	57	57
WHEMLOCK		44	44	17	12.15	12.15	0.35	5	5	2	2
Totals		308	572	459	52.11	28.06	0.82	160	160	59	59

Wood Type Species	Total Trees	Total Logs	Total Tons	Net Cubic Ft/ Tree	Net Cubic Ft/ Log	CF/ LF	Total CCF Gross	Total CCF Net	Total MBF Gross	Total MBF Net
C	308	572	459	52.11	28.06	0.82	160	160	59	59
Totals	308	572	459	52.11	28.06	0.82	160	160	59	59

CRUISE NARRATIVE

Sale Name: **Copperhead** **Private ROW**	**Region:** **Northwest**
Agree. #: **30-098033**	**District:** **Clearlake**
Lead cruiser: **Matt Llobet**	**Completion date:** **1-24-19**
Other cruisers on sale:	

Unit acreage specifications:

Unit #	**Cruised acres**	**Cruised acres agree with sale acres? Yes/No**	**If acres do not agree explain why.**
1	3.3	Yes	
Total	3.3	Yes	

Unit cruise specifications:

Unit #	Sample type (VP, FP, ITS, 100%)	Expansion factor (BAF, full/ half)	Sighting height (4.5 ft, 16 ft.)	Grid size (Plot spacing or % of area)	Plot ratio (cruise: count)	Total number of plots
1	FP	.05	FP	1plot/ac	Cruise All	3

Sale/Cruise Description:

Minor species cruise intensity:	A full 1/20th acre fix plot was used throughout the ROW					
Minimum cruise spec:	**Minimum DBH 7 inches,** 10 Net Board feet, Minimum Top Diameter 5 inches or 40% of 16-foot form point					
Avg ring count by sp:	**DF=**	8	**WH** =		**RA** =	
Leave/take tree description:	**ROW-** Remove all timber bound by orange "Right of Way" tags					
Other conditions:						
Sort Description:						

Field observations:

All timber was graded in variable log lengths with the Scaling Bureaus Westside/Northwest log rules. The utility wood was given a board ft. volume. Copperhead ROW was cruised using the Fix plot sample method. The Timber type consisted of a dominant Douglas fir component, with scattered Western Hemlock. The Species composition throughout the ROW is Douglas fir at 97% and Western Hemlock at 3%. The Douglas fir has an average diameter of 18 inches, with an average bole length of 73 feet. The Western Hemlock has an average diameter of 10 inches, and an average bole length of 40 feet. **Prepared By**: Matt Llobet **Title**: Forest Check Cruiser

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T33N R010 S25 TyPRW 3.30

Project: **COPPER**

Acres **3.30**

Page **1**
Date **1/28/2019**
Time **3:59:41PM**

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 5-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		D	2S	58		10,133	10,133	33			100					100	39	13	253	1.58	40.0
DF		D	3S	32	.0	5,667	5,667	19	42	58						100	38	8	85	0.68	66.7
DF		D	4S	10		1,600	1,600	5	100				17	50	33		26	5	30	0.36	53.3
DF	**Totals**			97		17,400	17,400	57	23	19	58		2	5	3	91	34	8	109	0.85	160.0
WH		D	4S	57		267	267	1	100							100	40	5	40	0.40	6.7
WH		D	UT	43		200	200	1	100					100			29	5	30	0.29	6.7
WH	**Totals**			3		467	467	2	100					43		57	35	5	35	0.35	13.3
Totals					0.0	17,867	17,867	59	25	18	57		1	6	3	90	34	8	103	0.82	173.3

TC PSTATS

PROJECT STATISTICS

PROJECT COPPER

DATE 1/28/2019

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
33N	010	25	COPPER	PRW	3.30	3	14	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	3	14	4.7		
CRUISE	3	14	4.7	308	4.5
DBH COUNT					
REFOREST					
COUNT					
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	12	80.0	18.0	73	33.4	141.6	17,400	17,400	4,701	4,701
WHEMLOCK	2	13.3	10.4	40	2.5	7.9	467	467	162	162
TOTAL	*14*	*93.3*	*17.1*	*68*	*36.1*	*149.5*	*17,867*	*17,867*	*4,863*	*4,863*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL 68.1	COEFF		**SAMPLE TREES - BF**			# OF TREES REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	46.6	14.0	187	218	248			
WHEMLOCK	20.2	18.9	28	35	42			
TOTAL	*59.7*	*16.5*	*160*	*191*	*223*	*153*	*78*	*38*

CL 68.1	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	25.0	17.3	66	80	94			
WHEMLOCK	173.2	119.8		13	29			
TOTAL	*44.6*	*30.9*	*65*	*93*	*122*	*114*	*58*	*29*

CL 68.1	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	30.9	21.4	111	142	172			
WHEMLOCK	173.2	119.8		8	17			
TOTAL	*26.3*	*18.2*	*122*	*149*	*177*	*40*	*20*	*10*

CL 68.1	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	43.0	29.7	12,225	17,400	22,575			
WHEMLOCK	173.2	119.8		467	1,026			
TOTAL	*40.2*	*27.8*	*12,898*	*17,867*	*22,835*	*93*	*47*	*23*

CL 68.1	COEFF		**V BAR/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	28.1	19.5	86	123	159			
WHEMLOCK	173.2	119.8		59	129			
TOTAL	*35.8*	*24.8*	*86*	*120*	*153*	*74*	*38*	*18*

TC PSPCTLTCM

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

T33N R010 S25 TyPRW 3.3

Project COPPER
Acres 3.30

Page No 1
Date: 1/28/2019
Time 3:59:41PM

Species	S T	Total Trees	Total Logs	Total Tons	Net Cubic Ft/ Tree	Net Cubic Ft/ Log	CF/ LF	Total CCF Gross	Total CCF Net	Total MBF Gross	Total MBF Net
DOUG FIR		264	528	442	58.77	29.38	0.86	155	155	57	57
WHEMLOCK		44	44	17	12.15	12.15	0.35	5	5	2	2
Totals		308	572	459	52.11	28.06	0.82	160	160	59	59

Wood Type Species	Total Trees	Total Logs	Total Tons	Net Cubic Ft/ Tree	Net Cubic Ft/ Log	CF/ LF	Total CCF Gross	Total CCF Net	Total MBF Gross	Total MBF Net
C	308	572	459	52.11	28.06	0.82	160	160	59	59
Totals	308	572	459	52.11	28.06	0.82	160	160	59	59

FPA/N No:	2816915
Effective Date:	5/15/2019
Expiration Date:	5/15/2022
Shut Down Zone:	658
EARR Tax Credit:	[X] Eligible [ ] Non-eligible
Reference:	Copperhead

Forest Practices Application/Notification

Notice of Decision

Decision

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

FPA/N Classification

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

Number of Years Granted on Multi-Year Request

[ ] 4 years [ ] 5 years

Conditions on Approval / Reasons for Disapproval

The crossing at 101+24 on the PM-49 road shall be built during peroids of dry soil conditions between April 1 and Sept 30 of any given year. If soil conditions are appropriate for construction outside of the above dates permission may be granted for construction. Contact the forest practice forester for permission.

The portion of the cracked sliver fill near 113+87 on the PM-49 road within the harvest unit shall be pulled back and end hauled. The road in this vicinity shall be constructed with appropriate drainage to avoid adding water from the road onto the portion of the cracked sliver fill that is not in the harvest unit.

Issued By: Stacie Heiner **Region:** Northwest

Title: Skagit Forest Practice Forester **Date:** 5/15/2019

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

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

Appeal Information

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

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

And

Department Of Natural Resources
Northwest Region
919 N Township Street
Sedro-Woolley, WA 98284

Other Applicable Laws

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

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

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

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

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

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

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

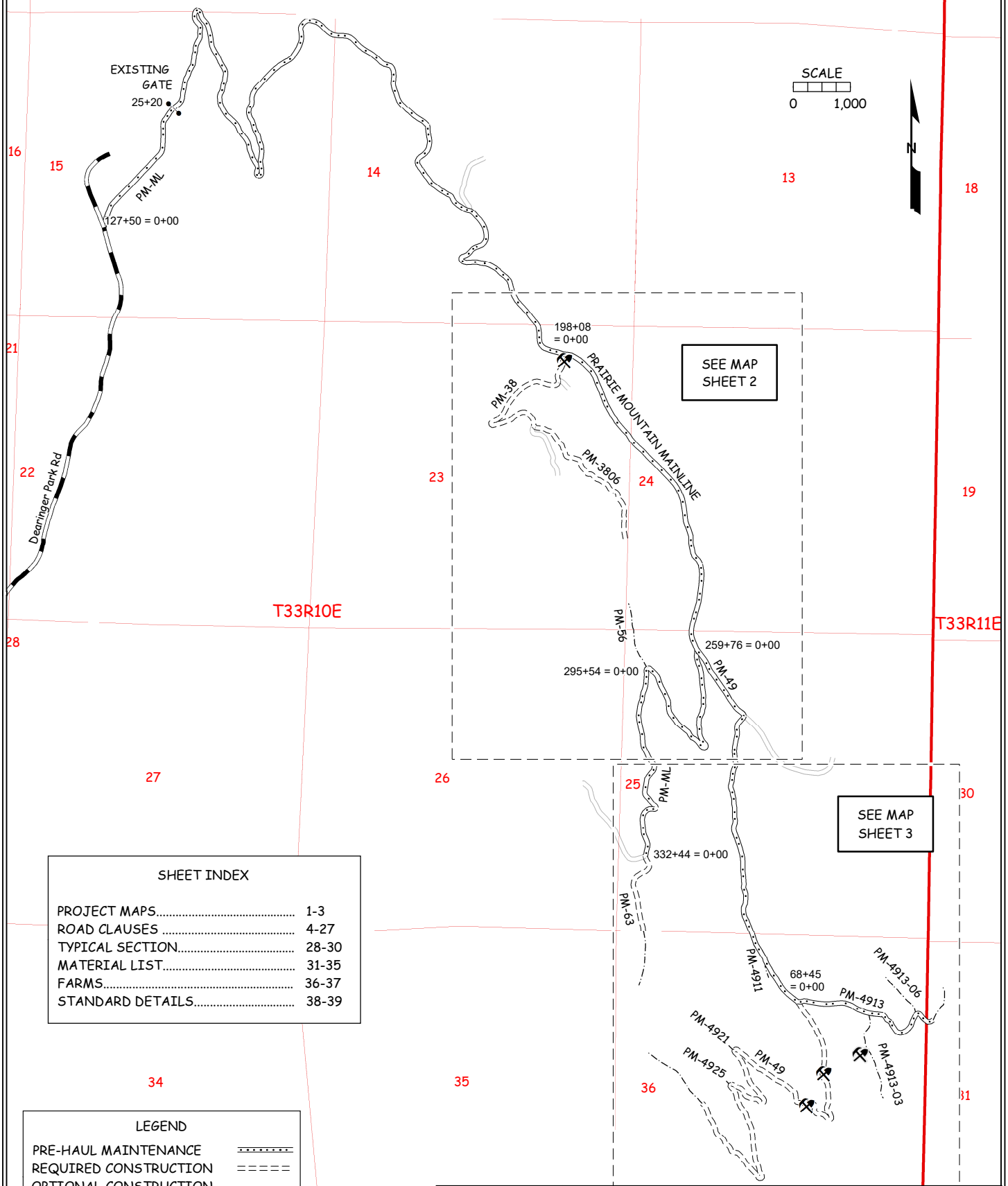
Failure by the seller to send the required notice to the DNR at the time of sale will be prima facie evidence in an action by the buyer against the seller for costs related to the continuing forest land obligation prior to sale.

DNR affidavit of mailing:

On this day_____, I placed in the United States mail at Sedro-Woolley, WA,
(date) (post office location)
postage paid, a true and accurate copy of this document. Notice of Decision FPA #_____
Braelyn Hamilton _____
(Printed name) (Signature)

WASHINGTON STATE
DEPT. OF NATURAL RESOURCES
NORTHWEST REGION

ROAD PLAN AND SPECIFICATIONS
#30-098033 COPPERHEAD TIMBER SALE



SHEET INDEX

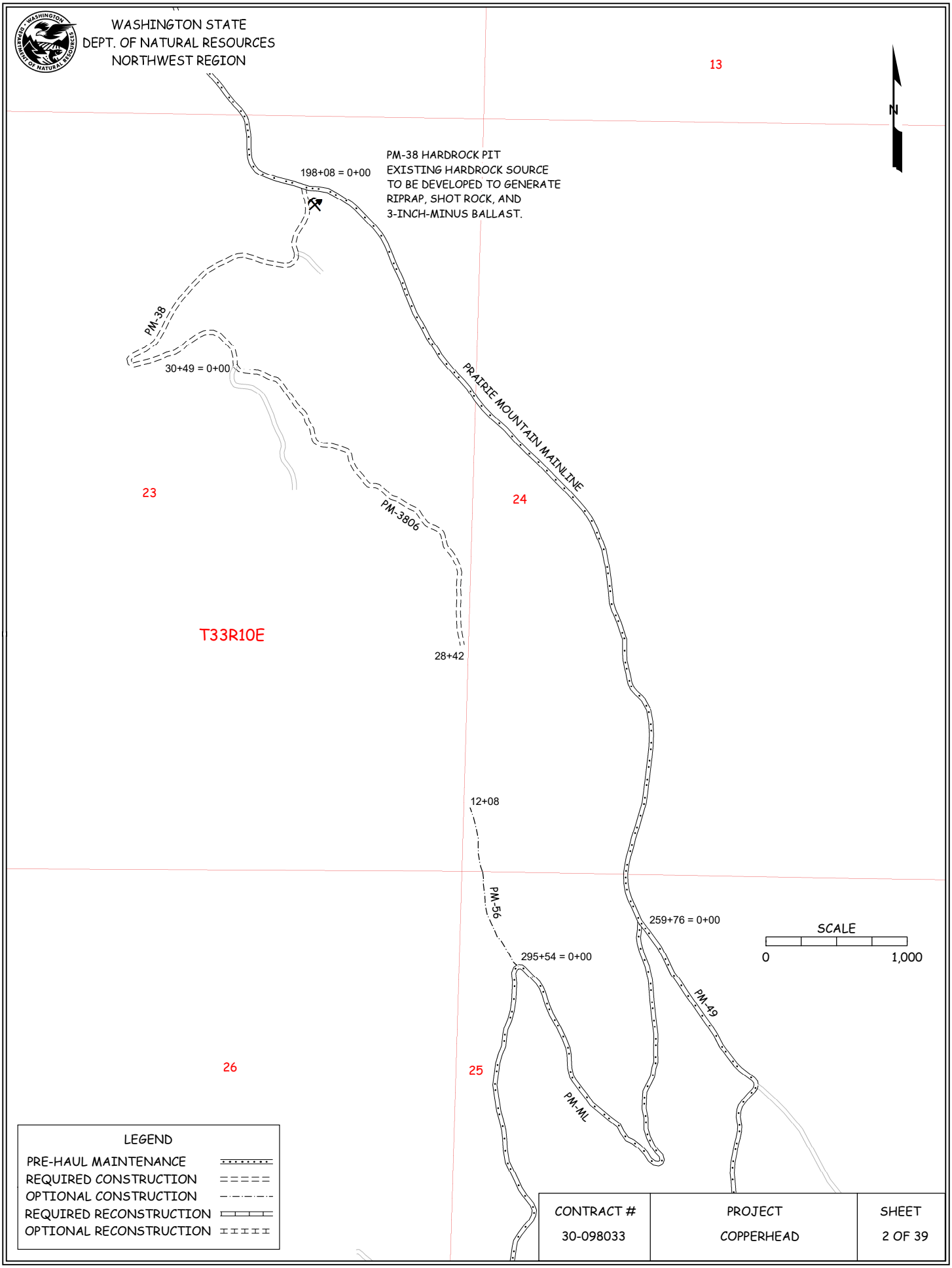
PROJECT MAPS	1-3
ROAD CLAUSES	4-27
TYPICAL SECTION	28-30
MATERIAL LIST	31-35
FARMS	36-37
STANDARD DETAILS	38-39

LEGEND

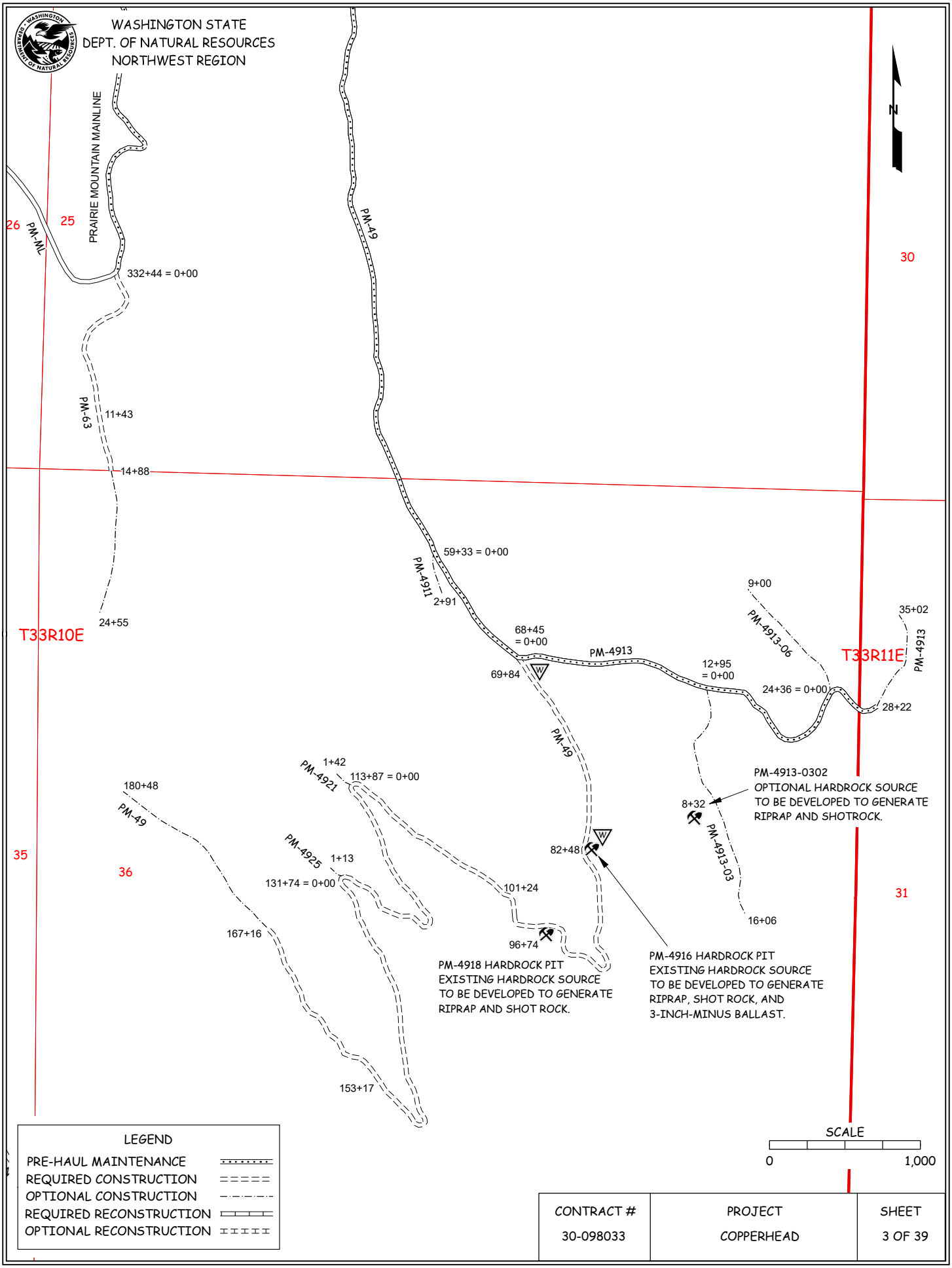
PRE-HAUL MAINTENANCE	
REQUIRED CONSTRUCTION	
OPTIONAL CONSTRUCTION	
REQUIRED RECONSTRUCTION	
OPTIONAL RECONSTRUCTION	

DESIGNED BY	REVIEWED BY	APPROVED BY	PLAN DATE	SHEET
D. SYMMANK	ZYLSTRA 12/26/2018	ZYLSTRA 12/26/2018	11/26/2018	1 OF 39

WASHINGTON STATE
DEPT. OF NATURAL RESOURCES
NORTHWEST REGION



CONTRACT #	PROJECT	SHEET
30-098033	COPPERHEAD	2 OF 39



CONTRACT #	PROJECT	SHEET
30-098033	COPPERHEAD	3 OF 39

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

COPPERHEAD TIMBER SALE ROAD PLAN
SKAGIT COUNTY
CLEARLAKE DISTRICT
NORTHWEST REGION

AGREEMENT NO.: 30-098033 STAFF ENGINEER: SYMMANK

DATE: NOVEMBER 26, 2018

SECTION 0 – SCOPE OF PROJECT

0-1 ROAD PLAN SCOPE

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

0-2 REQUIRED ROADS

The specified work on the following roads is required.

Road	Stations	Type
PM-ML	0+00 to 332+44	PRE-HAUL MAINTENANCE
PM-38*	0+00 to 30+49	CONSTRUCTION
PM-3806*	0+00 to 28+42	CONSTRUCTION
PM-49	0+00 to 68+45	PRE-HAUL MAINTENANCE
PM-49*	68+45 to 167+16	CONSTRUCTION
PM-4913	0+00 to 28+22	PRE-HAUL MAINTENANCE
PM-63*	0+00 to 14+88	CONSTRUCTION

*** Construction is on previously abandoned road grade.**

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.

Road	Stations	Type
PM-49*	167+16 to 180+48	CONSTRUCTION
PM-4911*	0+00 to 2+91	CONSTRUCTION
PM-4913*	28+22 to 35+02	CONSTRUCTION
PM-4913-03	0+00 to 16+06	CONSTRUCTION
PM-4913-06^	0+00 to 9+00	CONSTRUCTION
PM-4921*	0+00 to 1+42	CONSTRUCTION
PM-4925*	0+00 to 1+13	CONSTRUCTION
PM-56*	0+00 to 12+08	CONSTRUCTION
PM-63*	14+88 to 24+55	CONSTRUCTION

*** Construction is on previously abandoned road grade.**

^ Construction is on an orphan road grade.

0-4 CONSTRUCTION

Construction includes, but is not limited to clearing, grubbing, excavation and embankment to sub-grade, landing and turnout construction, keyed rip rap shot rock fill, sliver fill removal and endhaul, culvert installation, application of shot rock, and application of 3-inch-minus ballast rock.

0-6 PRE-HAUL MAINTENANCE

Pre-haul maintenance includes, but is not limited to ripping of road surface, blading, shaping, and ditching the road surface, and culvert installation.

0-7 POST-HAUL MAINTENANCE

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

0-10 ABANDONMENT

This project includes abandonment listed in Clause 9-21 ROAD ABANDONMENT.

0-12 DEVELOP ROCK SOURCE

Purchaser may develop a new and existing rock sources. Rock source development will involve clearing, stripping and blasting. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

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

1-3 ROAD DIMENSIONS

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

1-4 ROAD TOLERANCES

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

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

1-6 ORDER OF PRECEDENCE

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

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

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

1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS

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

1-9 DAMAGED METALLIC COATING

Any cut ends, or 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 or cold galvanizing compound.

1-18 REFERENCE POINT DAMAGE

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

1-21 HAUL APPROVAL

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

1-22 WORK NOTIFICATIONS

On the following road, Purchaser shall notify the Contract Administrator a minimum of 14 business calendar days before work begins.

Road	Stations	Remarks
PM-49	101+24	Keyed rip rap shot rock fill. An onsite pre-work meeting with the operator is required prior to starting work.

1-25 ACTIVITY TIMING RESTRICTION

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

Road	Stations	Activity	Closure Period
All	All	Rock hauling, construction, or abandonment	November 1 to March 31

The following roads are within the 1 mile timing restriction of a **BALD EAGLE ROOSTING AREA**. The specified activities are not allowed during the listed closure periods unless coordinated with USFWS and WDFW prior to the activity.

Road	Stations	Activity	Closure Period
PM-49	68+45 to 167+16	Use of explosives (i.e., blasting) associated with road work or rock pit development	November 15 to April 1
PM-4913-03	0+00 to 16+06		

1-26 OPERATING DURING CLOSURE PERIOD

If permission is granted to operate during a closure period listed in Clause 1-25 ACTIVITY TIMING RESTRICTION, Purchaser shall provide a maintenance plan to include further protection of state resources. Purchaser shall obtain written approval from the Contract Administrator for the maintenance plan, and shall put preventative measures in place before operating during the closure period. Purchaser is required to maintain all haul roads at their own expense 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 must be developed. All parties shall follow this plan.

1-29 SEDIMENT RESTRICTION

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

1-30 CLOSURE TO PREVENT DAMAGE

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

- Wheel track rutting exceeds 6 inches on jaw run pit run roads.
- Wheel track rutting exceeds 4 inches on other existing roads.
- Surface or base stability problems persist.
- Weather is such that satisfactory results cannot be obtained in an area of operations.
- When, in the opinion of the Contract Administrator excessive road damage or rutting may occur.

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

1-33 SNOW PLOWING RESTRICTION

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

SECTION 2 – MAINTENANCE

2-1 GENERAL ROAD MAINTENANCE

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

2-2 ROAD MAINTENANCE – PURCHASER MAINTENANCE

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

2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER

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

2-5 MAINTENANCE GRADING – EXISTING ROAD

On PRE-HAUL MAINTENANCE roads, Purchaser shall use a grader to shape the existing surface before hauling

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

Purchaser shall clean ditches, headwalls, and catchbasins. Work must be completed before application of rock and must be done in accordance with the TYPICAL SECTION. Pulling ditch material across the road or mixing in with the road surface is not allowed.

2-8 MAINTAINING EROSION CONTROL STRUCTURES

Purchaser shall clean and maintain all erosion control structures. Work must be completed before hauling of rock or timber and must be done as approved by the Contract Administrator. Excavated material must be scattered outside the grubbing limits.

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

3-5 CLEARING

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

3-8 PROHIBITED DECKING AREAS

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

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

3-10 GRUBBING

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

3-20 ORGANIC DEBRIS DEFINITION

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

3-21 DISPOSAL COMPLETION

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

3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

Waste areas for organic debris are located as listed below, within the cleared right-of-way or in natural openings as designated, or at areas approved in writing by the Contract Administrator.

Road	Disposal Location
PM-49	69+84
PM-49	82+48

3-23 PROHIBITED DISPOSAL AREAS

Purchaser shall not place organic debris in the following areas:

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

3-24 BURYING ORGANIC DEBRIS RESTRICTED

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

3-25 SCATTERING ORGANIC DEBRIS

Purchaser shall scatter organic debris outside of the clearing limits in natural openings unless otherwise detailed in this road plan.

3-32 END HAULING ORGANIC DEBRIS

On the following road, Purchaser shall end haul or push organic debris to the designated waste areas specified in Clause 3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS or to a waste area located by the Contract Administrator.

Road	Stations	Remarks
PM-49	112+22 to 113+16	Organic debris associated with the cracked sliver fill removal.
PM-49	128+60 to 129+40	Organic debris associated with the cracked sliver fill removal.

SECTION 4 – EXCAVATION

4-2 PIONEERING

Pioneering may not extend past construction that will be completed during the current construction season. Pioneering may not extend more than 500 feet beyond completed construction unless approved in writing by the Contract Administrator.**>** In addition, the following actions must be taken as pioneering progresses:

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

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

Purchaser shall follow these standards for road grade and alignment:

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 18 percent favorable and 12 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Maximum grade change for sag vertical curves is 5% in 100 feet.
- Maximum grade change for crest vertical curves is 4% in 100 feet.

4-4 SWITCHBACK STANDARDS

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

- Maximum adverse grades for switchbacks is 10% of the curve radius.
- Maximum favorable grades for switchbacks is 15%.
- Maximum transition grades entering and leaving switchbacks is a 5% grade change.
- Transition grades required to meet switchback grade limitations must be constructed on the tangents preceding and departing from the switchbacks.

4-5 CUT SLOPE RATIO

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

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

4-6 EMBANKMENT SLOPE RATIO

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

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

4-7 SHAPING CUT AND FILL SLOPE

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

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

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

4-9 EMBANKMENT WIDENING

The minimum embankment widening is:

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

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

4-10 WIDEN THE EXISTING SUBGRADE

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

4-11 KEYED EMBANKMENT

On the following road, Purchaser shall key embankments into the native.

Road	Stations	Remarks
PM-49	101+24	Keyed rip rap armored shot rock or rip rap fill

4-12 FULL BENCH CONSTRUCTION

Where side slopes exceed 50%, Purchaser shall use full bench construction for the entire subgrade width.

4-21 TURNOUTS

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

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

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

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

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

4-35 WASTE MATERIAL DEFINITION

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

4-36 DISPOSAL OF WASTE MATERIAL

Purchaser may sidecast waste material on side slopes up to 50% if the waste material is compacted and free of organic debris. On side slopes greater than 50%, all waste material must be end hauled or pushed to the designated embankment sites and waste areas identified in Clause 4-37 WASTE AREA LOCATION.

4-37 WASTE AREA LOCATION

Purchaser shall deposit waste material in the listed designated areas. Additional waste areas may also be identified or approved by the Contract Administrator.

Road	Waste Area Location
PM-49	69+84
PM-49	82+48

4-38 PROHIBITED WASTE DISPOSAL AREAS

Purchaser shall not deposit waste material in the following areas:

- Within 50 feet of a cross drain culvert.
- Within 100 feet of a live stream or wetland.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Against standing timber.

4-55 ROAD SHAPING

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

4-57 EXISTING ROAD RIPPING AND BLADING

On the following roads, Purchaser shall rip the surface to a depth of 6 inches and reshape.

Road	Stations	Remarks
PM-ML	0+00 to 25+20	Potholed gravel road.
Other PRE-HAUL MAINTENANCE roads	Various spots	Any existing potholes.

4-60 FILL COMPACTION

Purchaser shall compact all embankment and waste material by routing equipment over the entire width of each lift.

4-61 SUBGRADE COMPACTION

Purchaser shall compact constructed or reconstructed subgrades by routing equipment over the entire width.

4-63 EXISTING SURFACE COMPACTION

Purchaser shall compact maintained road surfaces by routing equipment over the entire width.

SECTION 5 – DRAINAGE

5-5 CULVERTS

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

5-7 USED CULVERT MATERIAL

On the following road, and all temporary roads, Purchaser may install used culverts. All other roads must have new culverts installed. Purchaser shall obtain approval from the Contract Administrator for the quality of the used culverts before installation. Culverts must meet the specifications in Clauses 10-15 through 10-24.

Road	Stations	Remarks
PM-63	0+00 to 14+88	Required Construction

5-12 UNUSED MATERIALS STATE PROPERTY

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

5-15 CULVERT INSTALLATION

Culvert installation must be in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL and the National Corrugated Metal Pipe Association's "Installation Manual for Corrugated Steel Drainage Structures" and the Corrugated Polyethylene Pipe Association's "Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings". Corrugated Polyethylene pipe must be installed in a manner consistent with the manufacturer's recommendations. Culverts over 18 inches diameter shall be banded using lengths of no less than 10 feet, and no more than one length less than 16 feet**.** Shorter section of banded culvert shall be installed at the inlet end.

5-16 APPROVAL FOR LARGER CULVERT INSTALLATION

Purchaser shall obtain written approval from the Contract Administrator for the installation of culverts 36 inches in diameter and over before backfilling.

5-17 CROSS DRAIN SKEW AND SLOPE

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

5-18 CULVERT DEPTH OF COVER

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

5-20 ENERGY DISSIPATERS

Purchaser shall install energy dissipaters in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL. Energy dissipater installation is subject to approval by the Contract Administrator.

The type of energy dissipater and the amount of material must be consistent with the specifications listed on the CULVERT AND DRAINAGE SPECIFICATION DETAIL

5-21 DOWNSPOUTS AND FLUMES

Downspouts and flumes must be staked on both sides at a maximum interval of 10 feet with 6-foot heavy-duty steel posts, and fastened securely to the posts in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL.

5-25 CATCH BASINS

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

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

Purchaser shall construct headwalls in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all cross drain culverts. Rock used for headwalls must weigh at least 50 pounds. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets. Minimum specifications require that rock be placed at a width of one culvert diameter on each side of the culvert opening, and to a height of one culvert diameter above the top of the culvert. Rock may not restrict the flow of water into culvert inlets or catch basins. No placement by end dumping or dropping of rock is allowed.

5-27 ARMORING FOR STREAM CROSSING CULVERTS

At stream crossing culverts, Purchaser shall place riprap in conjunction with construction of the embankment. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets as designated on the MATERIALS LIST or as directed by the Contract Administrator. Rock may not restrict the flow of water into culvert inlets or catch basins. Placement must be by zero-drop-height method only. No placement by end dumping or dropping of rock is allowed.

6-2 ROCK SOURCE ON STATE LAND

Rock used in accordance with the quantities on the TYPICAL SECTION and MATERIALS LIST may be obtained from the following sources on state land at no charge to the Purchaser. Purchaser shall obtain written approval from the Contract Administrator for the use of material from any other source. If other operators are using, or desire to use the rock sources, a joint operating plan must be developed. All parties shall follow this plan.

Source	Location	Rock Type
PM-38 Hardrock Pit	198+08 of the PM-ML	Shot rock, Rip rap, 3-inch minus ballast
PM-4916 Hardrock Pit*	82+48 of the PM-49	Shot rock, Rip rap, 3-inch minus ballast
PM-4918 Hardrock Pit*	96+74 of the PM-49	Shot rock and Rip rap
PM-4903-0302 Hardrock source*	8+32 of the PM-4913-03	Optional Rip rap and Shot rock

*** See also Clause 1-25 Activity Timing Restrictions for these rock sources.**

6-5 ROCK FROM COMMERCIAL SOURCE

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

6-11 ROCK SOURCE DEVELOPMENT PLAN BY PURCHASER

Purchaser shall conduct rock source development and use at the following sources, in accordance with a written ROCK SOURCE DEVELOPMENT PLAN to be prepared by the Purchaser. The plan is subject to written approval by the Contract Administrator before any rock source operations. Upon completion of operations, the rock source must be left in the condition specified in the ROCK SOURCE DEVELOPMENT PLAN, and approved in writing by the Contract Administrator.

Source
PM-38 Hardrock Pit
PM-4916 Hardrock Pit
PM-4918 Hardrock Pit
PM-4903-0302 Optional Hardrock source

Rock source development plans prepared by the Purchaser must show the following information:

- Rock source location.
- Rock source overview showing access roads, development areas, stockpile locations, waste areas, and floor drainage.
- Rock source profiles showing development areas, bench locations including widths, and wall faces including heights.

6-12 ROCK SOURCE SPECIFICATIONS

Rock sources must be in accordance with the following specifications:

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

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

- Pit walls must be maintained in a condition to minimize the possibility of the walls sliding or failing.
- The width of pit benches must be a minimum of 1.5 times the maximum length of the largest machine used.
- The surface of pit floors and benches must be uniform and free-draining at a minimum 2% outslope gradient.

- All operations must be carried out in compliance with all regulations of the Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration and Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.

6-23 ROCK GRADATION TYPES

Purchaser shall provide rock in accordance with the types and amounts listed in the TYPICAL SECTION and MATERIALS LIST. Rock must meet the following specifications for gradation and uniform quality when placed in hauling vehicles or during manufacture and placement into a stockpile. The exact point of evaluation for conformance to specifications will be determined by the Contract Administrator.

6-34 3-INCH MINUS BALLAST ROCK

Ballast rock must be 100% equal to, or smaller than, 3 inches in at least one dimension.

Rock may contain no more than 5 percent organic debris, dirt, and trash. All percentages are by weight.

6-42 CLEAN ROCK, SHOT BALLAST

Shot Ballast rock used as spot rock on existing roads shall be 100% equal to, or smaller than, 6 inches in at least one dimension.

No more than 10 percent of the rock by visual inspection may exceed 8 inches in any dimension and no rock may be larger than 12 inches in any dimension. Shot Ballast rock may not contain more than 5 percent by weight of organic debris, dirt, and trash.

6-50 LIGHT LOOSE RIP RAP

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

Quantity	Approximate Size Range
20% to 90%	300 lbs. to 1 ton (18”- 36”)
15% to 80%	50 lbs. to 500 lbs. (8”- 18”)
10% to 20%	50 lbs. max (3”- 8”)

6-51 HEAVY LOOSE RIP RAP

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

Quantity	Size Range
30% to 90%	1 ton to 3 ton (36”- 54”)
70% to 90%	500 lbs. to 1½ ton (24”- 42”)
10% to 30%	50 lbs. max (3”- 8”)

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

Measurement of specified rock depths, are defined as the compacted depths using the compaction methods required in this road plan. Estimated quantities specified in the TYPICAL SECTION are loose yards. Purchaser shall apply adequate amounts of rock to meet the specified rock depths. Specified rock depths are minimum requirements and are not subject to reduction.

6-70 APPROVAL BEFORE ROCK APPLICATION

Purchaser shall obtain written approval from the Contract Administrator for culvert installation, ditch construction, ditch reconstruction, headwall construction, and headwall reconstruction before rock application.

6-71 ROCK APPLICATION

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

6-73 ROCK FOR WIDENED PORTIONS

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

SECTION 8 – EROSION CONTROL

8-2 PROTECTION FOR EXPOSED SOIL

Purchaser shall provide and evenly spread a 4-inch layer of straw to all exposed soils within 25 feet of a stream or wetland. Soils must be covered before the first anticipated storm event.

8-11 STABILIZE SLOPES – MATERIAL REMOVAL

On the following road, Purchaser shall stabilize embankment slopes by removing sidecast material. End haul all material to a waste area designated in Clause 4-37 WASTE AREA LOCATION or by the Contract Administrator. All work is subject to approval by the Contract Administrator.

Road	Stations	Remarks
PM-49	112+22 to 113+16	Remove and endhaul the cracked sliver fill material to designated waste areas.
PM-49	128+60 to 129+40	Remove and endhaul the cracked sliver fill material to designated waste areas.

8-15 REVEGETATION

Purchaser shall spread seed and fertilizer on all exposed soils within the grubbing limits resulting from road work activities using manual dispersal. Other methods of covering must be approved in writing by the Contract Administrator.

8-16 REVEGETATION SUPPLY

The Purchaser shall provide the seed and fertilizer.

8-17 REVEGETATION TIMING

Purchaser shall revegetate during the first available opportunity after road work is completed. Soils may not be allowed to sit exposed for longer than one month without receiving revegetation treatment unless otherwise approved in writing by the Contract Administrator.

8-18 PROTECTION FOR SEED

Purchaser shall provide a protective cover for seed if revegetation occurs between July 1 and March 31. The protective cover may consist of straw, jute matting, or clear plastic sheets. The protective cover requirement may be waived in writing by the Contract Administrator if Purchaser is able to demonstrate a revegetation plan that will result in the establishment of a uniform dense crop (at least 50% coverage) of 3-inch tall grass by October 31.

8-19 ASSURANCE FOR SEEDED AREA

Purchaser shall ensure the growth of a uniform and dense crop (at least 50% coverage) of 3-inch tall grass. Purchaser shall reapply the grass seed and fertilizer in areas that have failed to germinate or have been damaged through any cause, restore eroded or disturbed areas, clean up and properly dispose of eroded materials, and reapply the grass seed and fertilizer at no additional cost to the state.

8-25 GRASS SEED

Purchaser shall evenly spread the seed mixture listed below on all exposed soil inside the grubbing limits at a rate of 50 pounds per acre of exposed soil. Grass seed must 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
5. Seed must conform to the following mixture **<**unless a comparable mix is approved in writing by the Contract Administrator.

Kind and Variety of Seed in Mixture	% by Weight
Creeping Red Fescue	50
Elf Perennial Rye Grass	25
Highland Colonial Bentgrass	15
White Clover	10
Inert and Other Crop	0.5

8-27 FERTILIZER

Purchaser shall evenly spread the fertilizer listed below on all exposed soil inside the grubbing limits at a rate of 200 pounds per acre of exposed soil. Fertilizer must meet the following specifications:

Chemical Component	% by Weight
Nitrogen	16
Phosphorous	16
Potassium	16
Sulphur	3
Inerts	49

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

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

9-5 POST-HAUL MAINTENANCE

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

Road	Stations	Additional Requirements
PM-49	102+17 to 167+16	▪ Construct drivable waterbars according to the attached DRIVABLE WATERBAR DETAIL at a maximum spacing that will produce a vertical drop of no more than 30 feet between waterbars or between natural drainage paths and with a maximum spacing of 400 feet, or as marked in the field. ▪ Construct drivable waterbars immediately downslope of each culvert. Avoid installing intermediate waterbars between culverts. If it is necessary to install intermediate waterbars, they may not be keyed into the ditch. They should function only as road surface drains.

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

9-12 LANDING EMBANKMENT REMOVAL

The Purchaser shall reduce or relocate landing embankment, in a manner approved, in writing, by the Contract Administrator. Excavated material shall be placed in a waste area designated by the Contract Administrator.

9-21 ROAD ABANDONMENT

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

Road	Stations
PM-49	167+16 to 180+48
PM-4911	0+00 to 2+91
PM-4913	28+22 to 35+02
PM-4913-03	0+00 to 16+06
PM-4913-06	0+00 to 9+00
PM-4921	0+00 to 1+42
PM-4925	0+00 to 1+13
PM-56	0+00 to 1+13
PM-63	14+88 to 24+55

9-22 ABANDONMENT

- Remove all ditch relief culverts. The resulting slopes must be 1:1 or flatter. Place and compact the removed fill material in a location that will not erode into any Type 1 through 5 waters or wetlands.
- Remove all culverts in natural drainages. The resulting slopes must be 1.5:1 or flatter. Strive to match the existing native stream bank gradient. The natural streambed width must be re-established. Place and compact the removed fill material in a location that will not erode into any Type 1 through 5 waters or wetlands.
- Transport all removed culverts off site. All removed culverts are the property of the Purchaser.
- Construct non-drivable waterbars at natural drainage points and at a spacing that will produce a vertical drop of no more than 20 feet between waterbars and with a maximum horizontal spacing of 400 feet.
- Skew waterbars at least 30 degrees from perpendicular to the road centerline on roads in excess of 3 percent grade.
- Key waterbars into the cut-slope to intercept the ditch. Waterbars must be outsloped to provide positive drainage. Outlets must be on stable locations.
- Inslope or outslope the road as appropriate.
- Remove bridges and other structures.
- Pull back unstable fill that has potential of failing and entering any Type 1 through 5 waters or wetlands. Place and compact removed material in a stable location.
- Remove berms except as designed.
- Block the road by constructing an aggressive barrier of dense interlocked large woody debris (logs, stumps, root wads, etc.) so that four wheel highway vehicles cannot pass the point of abandonment. Typical barrier dimensions are 10 feet high by 20 feet deep, spanning the entire road prism from top of cutslope to toe of fillslope. Long term effectiveness is the primary objective. If necessary construct a vehicular turn-around near the point of abandonment.

- Apply grass seed to all exposed soils resulting from the abandonment work and in accordance with Section 8 EROSION CONTROL.

SECTION 10 MATERIALS

10-15 CORRUGATED STEEL CULVERT

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

10-16 CORRUGATED ALUMINUM CULVERT

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

10-17 CORRUGATED PLASTIC CULVERT

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

10-18 CORRUGATED STEEL STRUCTURAL PLATE

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

10-19 CORRUGATED ALUMINUM STRUCTURAL PLATE

Structural plate culverts must be aluminum alloy meeting AASHTO M-219 (ASTM A-746) specifications.

10-20 FLUME AND DOWNSPOUT

Downspouts and flumes must meet the AASHTO specification designated for the culvert. Plastic downspouts and flumes must be Type C – corrugated single walled pipe.

10-21 METAL BAND

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

10-22 PLASTIC BAND

Plastic coupling and end bands must meet the AASHTO specification designated for the culvert. Only fittings supplied or recommended by the culvert manufacturer may be used.

10-24 GAUGE AND CORRUGATION

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

Diameter	Gauge	Corrugation
18"	16 (0.064”)	2 $^{2}/_{3}$" X $^{1}/_{2}$"
24" to 48"	14 (0.079”)	2 $^{2}/_{3}$" X $^{1}/_{2}$"
54" to 96"	12 (0.109”)	3" X 1"

SECTION 11 SPECIAL NOTES

11-1 ONSITE PRE-WORK MEETING

On the following road segments an onsite meeting with the operator is required prior to construction to go over the construction details pertaining to Clause 4-11 KEYED EMBANKMENT. Design data, plan, profile, and cross-section, and other schematic drawings are available.

Road	Location	Remarks
PM-49	101+24	Keyed rip rap armored shot rock or rip rap fill

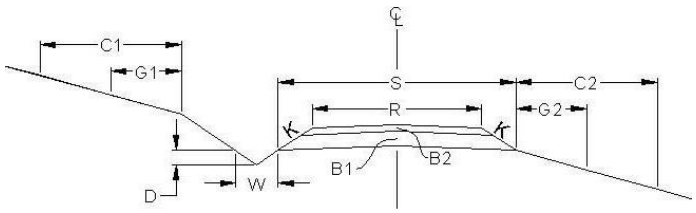
11-2 TYPICAL SECTION ROAD DIMENSION EXCEPTIONS

On the following road segments the road dimensions shown on the TYPICAL SECTION SHEET may be modified to match existing road prism surface and ditch dimensions where they currently provide surface water runoff in an even, unconcentrated manner.

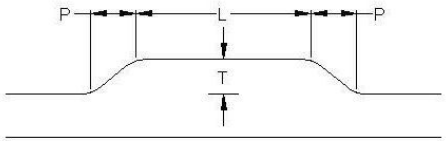
Road	Stations	Remarks
PM-38	All	▪ Ditch width and depth may vary. ▪ Construct inslope or outslope segments to 3 percent. ▪ Construct crown segments to 3 inches at centerline. ▪ In other specifications Maintain road according to the FOREST ACCESS ROAD SPECIFICATIONS.
PM-3806	All	
PM-49	68+45 to 180+48	
PM-4911	All	
PM-4913	28+22 to 35+02	
PM-4921	All	
PM-4925	All	
PM-56	All	
PM-63	All	

ROAD #		PM-ML	PM-38[1]	PM-3806[1]	PM-49
REQUIRED / OPTIONAL		Required	Required	Required	Required
CONSTRUCT / RECONSTRUCT		Pre-Haul	Construction	Construction	Pre-Haul
TOLERANCE CLASS (A/B/C)		C	C	C	C
STATION / MP TO		0+00	0+00	0+00	0+00
STATION / MP		322+44	30+49	28+42	54+33
ROAD WIDTH	R	12	12	12	12
CROWN (INCHES @ C/L)		3	3	3	3
DITCH WIDTH	W	3	X[2]	X[2]	3
DITCH DEPTH	D	1	X[2]	X[2]	1
TURNOUT LENGTH	L	50	50	50	50
TURNOUT WIDTH	T	10	10	10	10
TURNOUT TAPER	P	25	25	25	25
GRUBBING	G1	--	5	5	--
	G2	--	5	5	--
CLEARING	C1	--	10	10	--
	C2	--	10	10	--
ROCK FILLSLOPE	K:1	1½	1½	1½	1½
❖ BALLAST DEPTH	B1	--	6	6	--
CUBIC YARDS / STATION		--	34	34	--
➢ TOTAL CY BALLAST		--	1,037[3]	967[3]	--
❖ SURFACING DEPTH	B2	--	--	--	--
CUBIC YARDS / STATION		--	--	--	--
➢ TOTAL CY SURFACING		--	--	--	--
➢ TOTAL CUBIC YARDS		--	1,037[3]	967[3]	--
SUBGRADE WIDTH	S	--	13.5	13.5	--
BRUSHCUT (Y/N)		N	N/A	N/A	N
BLADE, SHAPE, & DITCH (Y/N)		Y	N/A	N/A	Y

TYPICAL SECTION



TURNOUT DETAIL (PLAN VIEW)



SYMBOL NOTES

❖ Specified Rock Depth is FINISHED COMPACTED DEPTH in inches.

➢ Specified Rock Quantity is LOOSE MEASURE (Truck Cubic Yards) needed to accomplish specified FINISHED COMPACTED DEPTH. Rock quantities include volume for turnouts, curve widening and landings.

1 Previously abandoned or orphan road grade.
2 TYPICAL SECTION DIMENSIONS may be modified as described in CLAUSE 11-2.
3 3-inch minus ballast.
4 Shot ballast rock may be used.
5 Spot application for culvert installation.

Rock Totals Summary

Type	Quantity (Cubic Yards)
Shot rock	6,083
3-inch-minus ballast	5,626
Rip Rap	1,037

ROAD #		PM-49	PM-49[1]	PM-49[1]	PM-49[1]	PM-49[1]	PM-4911[1]	PM-4913	PM-4913[1]
REQUIRED / OPTIONAL		Required	Required	Required	Required	Optional	Optional	Required	Optional
CONSTRUCT / RECONSTRUCT		Pre-Haul	Construction	Construction	Construction	Construction	Construction	Pre-Haul	Construction
TOLERANCE CLASS (A/B/C)		C	C	C	C	C	C	C	C
STATION / MP TO		54+33	68+45	131+74	153+17	167+16	0+00	0+00	28+22
STATION / MP		68+45	131+74	153+17	167+16	180+48	2+91	28+22	35+02
ROAD WIDTH	**R**	12	12	12	12	12	12	12	12
CROWN (INCHES @ C/L)		3	3	3	3	3	3	3	3
DITCH WIDTH	**W**	3	X[2]	X[2]	X[2]	X[2]	X[2]	3	X[2]
DITCH DEPTH	**D**	1	X[2]	X[2]	X[2]	X[2]	X[2]	1	X[2]
TURNOUT LENGTH	**L**	50	50	50	50	25	25	50	25
TURNOUT WIDTH	**T**	10	10	10	10	10	10	10	10
TURNOUT TAPER	**P**	25	25	25	25	25	25	25	25
GRUBBING	**G1**	--	5	5	5	5	5	--	5
	G2	--	5	5	5	5	5	--	5
CLEARING	**C1**	--	10	10	10	10	10	--	10
	C2	--	10	10	10	10	10	--	10
ROCK FILLSLOPE	**K:1**	1½	1½	1½	1½	1½	1½	1½	1½
❖ **BALLAST DEPTH**	**B1**	--	6	12	6	6	6	--	--
CUBIC YARDS / STATION		--	34	72	34	34	34	--	--
➢ **TOTAL CY BALLAST**		30[5,3]	2,153[3]	1,543[4]	476[3]	453[3]	99[3]	--	--
❖ **SURFACING DEPTH**	**B2**	--	--	--	--	--	--	--	--
CUBIC YARDS / STATION		--	--	--	--	--	--	--	--
➢ **TOTAL CY SURFACING**		--	--	--	--	--	--	--	--
➢ **TOTAL CUBIC YARDS**		30[5,3]	2,153[3]	1,543[4]	476[3]	453[3]	99[3]	--	--
SUBGRADE WIDTH	**S**	--	13.5	15	13.5	13.5	13.5	--	--
BRUSHCUT (Y/N)		N	N/A	N/A	N/A	N/A	N/A	N	N/A
BLADE, SHAPE, & DITCH (Y/N)		Y	N/A	N/A	N/A	N/A	N/A	Y	N/A

ROAD #		PM-4913-03	PM-4913-06[1]	PM-4921[1]	PM-4925[1]	PM-56[1]	PM-63[1]	PM-63[1]	PM-63[1]
REQUIRED / OPTIONAL		Optional	Optional	Optional	Optional	Optional	Required	Required	Optional
CONSTRUCT / RECONSTRUCT		Construction	Construction	Construction	Construction	Construction	Construction	Construction	Construction
TOLERANCE CLASS (A/B/C)		C	C	C	C	C	C	C	C
STATION / MP TO		0+00	0+00	0+00	0+00	0+00	0+00	11+43	14+88
STATION / MP		16+06	9+00	1+42	1+13	12+08	11+43	14+88	24+55
ROAD WIDTH	**R**	12	12	12	12	12	12	12	12
CROWN (INCHES @ C/L)		3	3	3	3	3	3	3	3
DITCH WIDTH	**W**	2	2	X[2]	X[2]	X[2]	X[2]	X[2]	X[2]
DITCH DEPTH	**D**	1	1	X[2]	X[2]	X[2]	X[2]	X[2]	X[2]
TURNOUT LENGTH	**L**	25	25	25	25	25	50	50	25
TURNOUT WIDTH	**T**	10	10	10	10	10	10	10	10
TURNOUT TAPER	**P**	25	25	25	25	25	25	25	25
GRUBBING	**G1**	5	5	5	5	5	5	5	5
	G2	5	5	5	5	5	5	5	5
CLEARING	**C1**	10	10	10	10	10	10	10	10
	C2	10	10	10	10	10	10	10	10
ROCK FILLSLOPE	**K:1**	1½	1½	1½	1½	1½	1½	1½	1½
❖ **BALLAST DEPTH**	**B1**	12	12	12	12	6	18	12	12
CUBIC YARDS / STATION		72	72	72	72	34	114	72	72
➢ **TOTAL CY BALLAST**		1,157[4]	648[4]	103[4]	82[4]	411[3]	1,304[4]	249[4]	697[4]
❖ **SURFACING DEPTH**	**B2**	--	--	--	--	--	--	--	--
CUBIC YARDS / STATION		--	--	--	--	--	--	--	--
➢ **TOTAL CY SURFACING**		--	--	--	--	--	--	--	--
➢ **TOTAL CUBIC YARDS**		1,157[4]	648[4]	103[4]	82[4]	411[3]	1,304[4]	249[4]	697[4]
SUBGRADE WIDTH	**S**	15	15	15	15	13.5	16.5	15	15
BRUSHCUT (Y/N)		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BLADE, SHAPE, & DITCH (Y/N)		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			**Note:** Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:
												Diameter / Gage / Corrugation **18" / 16 / 2 2/3" x 1/2"** **24" – 48" / 14 / 2 2/3" x 1/2"** **54" – 96" / 14 / 3" x 1"**
PM-ML	251+99	24	40	GM	--	--	3	6	H/L	NT	C	Type 5 stream
	253+06	18	40	GM	--	--	2	6	L	NT	C	Excavate through berm at outlet
PM-36	0+66	18	36	GM	--	--	2	3	L	NT	C	
	7+10	18	30	GM	--	--	2	3	L	NT	C	
	13+12	18	30	GM	--	--	2	3	L	NT	C	
	15+61	18	30	GM	--	--	2	3	L	NT	C	Below seep
	22+91	18	30	GM	--	--	2	3	L	NT	C	Below seep
	26+53	18	30	GM	--	--	2	3	L	NT	C	
PM-3806	10+82	18	40	GM	--	--	2	3	L	NT	C	
	13+86	18	40	GM	--	--	2	3	L	NT	C	Draw
	19+46	18	30	GM	--	--	2	3	L	NT	C	
PM-49	54+33	18	40	GM	--	--	2	3	L	NT	C	
	57+44	24	30	GM	--	--	3	6	H/L	NT	C	Type 5 stream
	58+72	18	36	GM	--	--	2	3	L	NT	C	
	71+62	48	50	GM	--	--	8	15	H/L	NT	C	Type 4 stream
	74+47	24	40	GM	--	--	4	6	H/L	NT	C	Type 5 stream
	75+05	18	36	GM	--	--	2	3	L	NT	C	
	81+00	30	40	GM	--	--	4	6	H/L	NT	C	Type 5 stream
	84+32	18	36	GM	--	--	2	3	L	NT	C	
	87+05	18	30	GM	--	--	2	3	L	NT	C	
	89+11	18	36	GM	--	--	2	3	L	NT	C	

GM – Galvanized Metal PS – Polyethylene Pipe Single Wall PD – Polyethylene Pipe Dual Wall AM – Aluminized Metal C – Concrete XX – PD or GM
H – Heavy Loose Riprap L – Light Loose Riprap SR – Shot Rock NT – Native (Bank Run) QS – Quarry Spalls

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			**Note:** Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter: Diameter / Gage / Corrugation: 18" / 16 / 2 2/3" x 1/2"; 24" – 48" / 14 / 2 2/3" x 1/2"; 54" – 96" / 14 / 3" x 1"
PM-49	94+01	18	40	GM	--	--	2	3	L	NT	C	
	98+83	18	30	GM	--	--	2	3	L	NT	C	
	101+24	18	40	GM	20	GM	10	150	H/L	SR or RR	C	Repair fill failure with a keyed rip rap armored shot rock (or rip rap) fill. Estimated fill material is 300 cubic yards.
	102+17	18	40	GM	--	--	2	3	L	NT	C	
	104+45	24	36	GM	--	--	3	6	H/L	NT	C	
	106+35	18	30	GM	--	--	2	3	L	NT	C	
	108+28	24	40	GM	--	--	3	6	H/L	NT	C	
	110+56	18	30	GM	--	--	2	3	L	NT	C	
	112+22	18	30	GM	--	--	2	3	L	NT	C	
	115+15	18	30	GM	--	--	2	3	L	NT	C	
	116+77	18	30	GM	--	--	2	3	L	NT	C	
	119+26	24	34	GM	--	--	3	6	H/L	NT	C	
	120+70	18	30	GM	--	--	2	3	L	NT	C	
	122+80	24	36	GM	--	--	3	6	H/L	NT	C	Type 5 stream
	123+28	18	30	GM	--	--	2	3	L	NT	C	
	123+93	18	40	GM	--	--	2	3	L	NT	C	
	125+30	18	40	GM	--	--	6	3	L	NT	C	Capture seep direct inside switchback to 123+93 pipe
	127+10	24	36	GM	--	--	4	8	H/L	NT	C	Type 5 stream
	128+51	24	36	GM	--	--	4	8	H/L	NT	C	Type 5 stream
	130+53	18	30	GM	--	--	2	3	L	NT	C	

GM – Galvanized Metal PS – Polyethylene Pipe Single Wall PD – Polyethylene Pipe Dual Wall AM – Aluminized Metal C – Concrete XX – PD or GM
H – Heavy Loose Riprap L – Light Loose Riprap SR – Shot Rock NT – Native (Bank Run) QS – Quarry Spalls

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			**Note:** Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:
												Diameter / Gage / Corrugation **18" / 16 / 2 2/3" x 1/2"** **24" – 48" / 14 / 2 2/3" x 1/2"** **54" – 96" / 14 / 3" x 1"**
PM-49	132+17	18	80	GM	--	--	2	3	L	NT	C	Goes through switchback
	133+54	18	30	GM	--	--	2	3	L	NT	C	
	135+08	24	30	GM	--	--	3	8	H/L	NT	C	Type 5 stream
	136+23	18	30	GM	--	--	2	8	L	NT	C	
	137+39	24	30	GM	--	--	3	8	H/L	NT	C	Type 5 stream
	138+43	24	36	GM	--	--	3	6	H/L	NT	C	Type 5 stream
	140+02	18	30	GM	--	--	2	3	L	NT	C	
	141+50	30	36	GM	--	--	4	12	H/L	NT	C	Type 5 stream
	142+39	24	36	GM	10	GM	3	6	H/L	NT	C	Capture wet draw. Clear stumps and dirt at inlet
	142+98	30	36	GM	--	--	4	8	H/L	NT	C	Type 5 stream
	144+01	18	30	GM	--	--	2	3	L	NT	C	
	145+95	24	30	GM	--	--	6	20	H/L	NT	C	Type 5 stream
	146+35	24	30	GM	--	--	6	30	H/L	NT	C	Excavate inlet
	147+09	18	30	GM	--	--	2	3	L	NT	C	
	148+55	18	30	GM	--	--	2	8	L	NT	C	
	150+85	18	30	GM	--	--	2	3	L	NT	C	
	152+51	18	30	GM	--	--	2	3	L	NT	C	
	153+17	24	30	GM	--	--	4	10	H/L	NT	C	Type 5 stream
	153+93	24	30	GM	--	--	4	10	H/L	NT	C	Type 5 stream
	154+28	18	30	GM	--	--	3	6	L	NT	C	Capture Seep
	155+09	18	30	GM	--	--	3	6	L	NT	C	
	156+52	24	30	GM	--	--	4	8	H/L	NT	C	Capture Seeps

GM – Galvanized Metal PS – Polyethylene Pipe Single Wall PD – Polyethylene Pipe Dual Wall AM – Aluminized Metal C – Concrete XX – PD or GM
H – Heavy Loose Riprap L – Light Loose Riprap SR – Shot Rock NT – Native (Bank Run) QS – Quarry Spalls

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			**Note:** Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:
												Diameter / **Gage** / **Corrugation** **18"** / **16** / **2 2/3" x 1/2"** **24" – 48"** / **14** / **2 2/3" x 1/2"** **54" – 96"** / **14** / **3" x 1"**
PM-49	157+16	30	30	GM	--	--	6	15	H/L	NT	C	Type 5 stream
	158+71	24	36	GM	--	--	4	10	H/L	NT	C	Type 5 stream
	159+14	18	30	GM	--	--	3	6	L	NT	C	
	160+62	18	30	GM	--	--	2	3	L	NT	C	
	161+40	18	30	GM	20	GM	2	3	L	NT	C	
	162+75	24	30	GM	--	--	4	10	H/L	NT	C	Type 5 stream
	163+64	18	36	GM	--	--	3	6	L	NT	C	
	165+38	18	60	GM	--	--	2	3	L	NT	C	
	167+16	24	36	XX	--	--	4	8	H/L	NT	C	
	169+27	48	36	XX	--	--	8	20	H/L	NT	C	Type 4 stream
	171+43	18	30	XX	--	--	2	3	L	NT	C	
	172+52	18	30	XX	--	--	2	3	L	NT	C	
	174+00	18	30	XX	--	--	2	3	L	NT	C	Capture Seep
	175+74	24	30	XX	--	--	4	15	H/L	NT	C	Type 5 stream
	176+68	18	30	XX	--	--	2	3	L	NT	C	
	178+30	18	30	XX	--	--	2	3	L	NT	C	
PM-4913-03	2+41	18	30	XX	--	--	2	3	L	NT	C	
	3+00	18	36	XX	--	--	2	3	L	NT	C	
	4+14	60	50	XX	--	--	10	20	H/L	NT	C	Type 4 stream
	5+80	18	36	XX	--	--	2	3	L	NT	C	
	14+10	18	30	XX	--	--	2	3	L	NT	C	
PM-4913-06	1+09	18	30	XX	--	--	2	3	L	NT	C	

GM – Galvanized Metal PS – Polyethylene Pipe Single Wall PD – Polyethylene Pipe Dual Wall AM – Aluminized Metal C – Concrete XX – PD or GM
H – Heavy Loose Riprap L – Light Loose Riprap SR – Shot Rock NT – Native (Bank Run) QS – Quarry Spalls

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			**Note:** Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:
												Diameter / Gage / Corrugation **18" / 16 / 2 2/3" x 1/2"** **24" – 48" / 14 / 2 2/3" x 1/2"** **54" – 96" / 14 / 3" x 1"**
PM-4913-06	8+27	24	40	XX	--	--	2	6	H/L	NT	C	
PM-4921	0+46	48	60	XX	--	--	8	15	H/L	NT	C	Type 4 stream
PM-56	0+53	18	40	XX	--	--	2	3	L	NT	C	
	2+63	18	30	XX	--	--	2	3	L	NT	C	
	8+71	18	30	XX	--	--	2	3	L	NT	C	
PM-63	0+24	18	30	XX	--	--	2	3	L	NT	C	
	3+59	18	30	XX	--	--	2	3	L	NT	C	
	5+10	24	30	XX	--	--	3	6	H/L	NT	C	Type 5 stream
	6+66	36	30	XX	--	--	4	8	H/L	NT	C	Type 4 stream
	7+04	18	36	XX	--	--	2	3	L	NT	C	
	7+79	24	36	XX	--	--	3	6	H/L	NT	C	Type 5 stream
	8+43	18	36	XX	--	--	2	3	L	NT	C	
	9+97	36	40	XX	--	--	6	8	H/L	NT	C	Type 5 stream. Excavate inlet to direct flow to this culvert
	10+64	18	36	XX	--	--	2	3	L	NT	C	
	11+43	18	30	XX	--	--	2	3	L	NT	C	
	14+16	18	36	XX	--	--	2	3	L	NT	C	
	17+44	18	30	XX	--	--	2	3	L	NT	C	
	20+00	18	30	XX	--	--	2	3	L	NT	C	
	22+69	18	30	XX	--	--	2	3	L	NT	C	

GM – Galvanized Metal PS – Polyethylene Pipe Single Wall PD – Polyethylene Pipe Dual Wall AM – Aluminized Metal C – Concrete XX – PD or GM
H – Heavy Loose Riprap L – Light Loose Riprap SR – Shot Rock NT – Native (Bank Run) QS – Quarry Spalls

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Cuts and Fills

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

Surface

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

Drainage

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

Preventative Maintenance

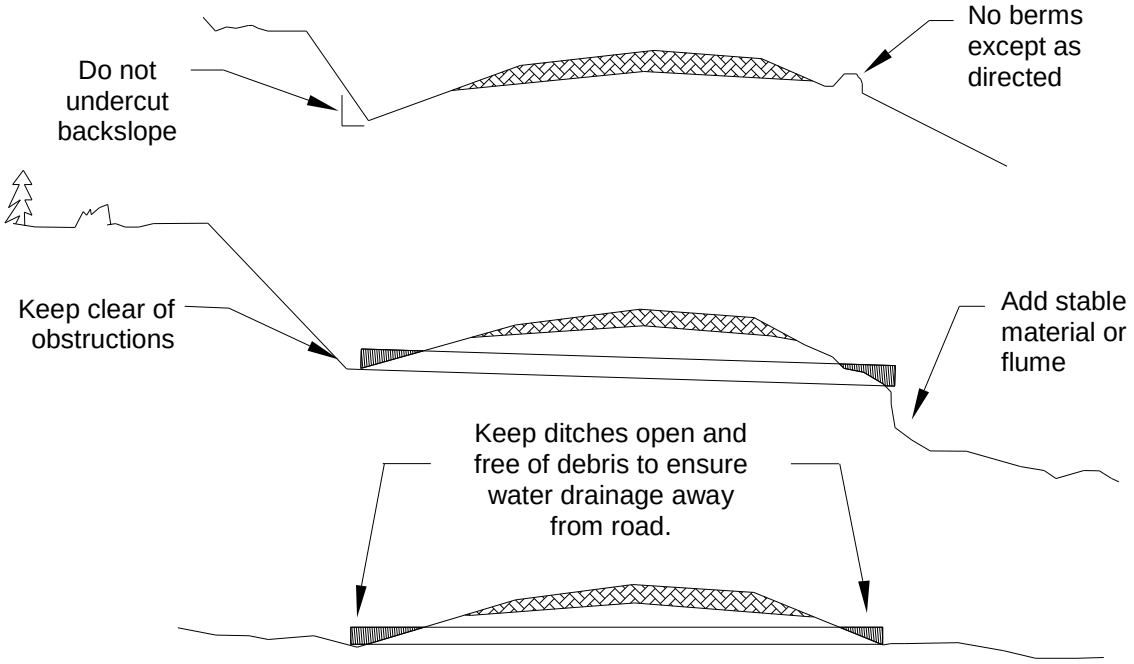
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

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

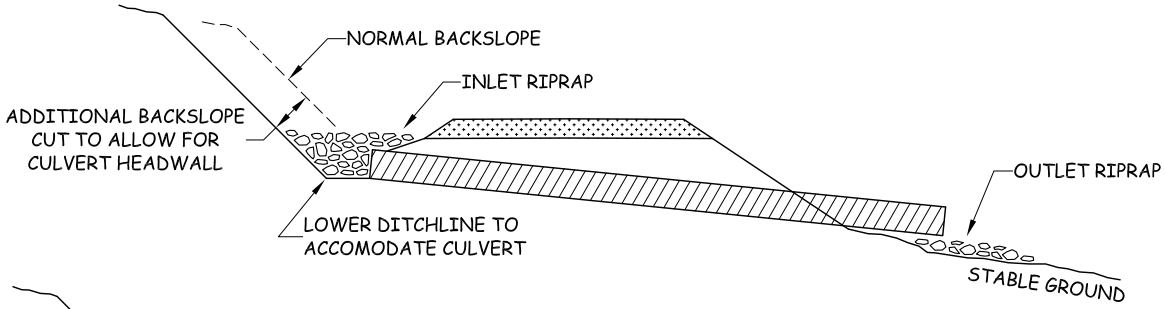
Debris

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

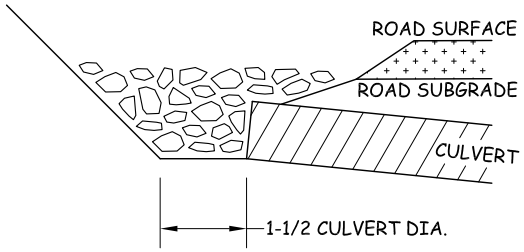


CULVERT AND DRAINAGE SPECIFICATIONS

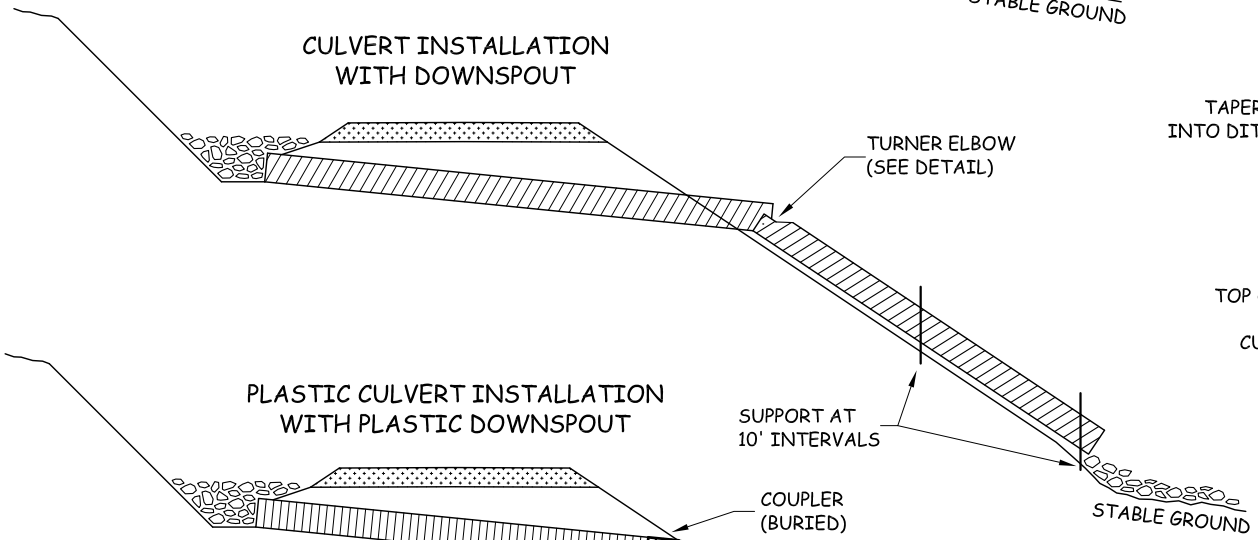
CULVERT INSTALLATION (TYPICAL)



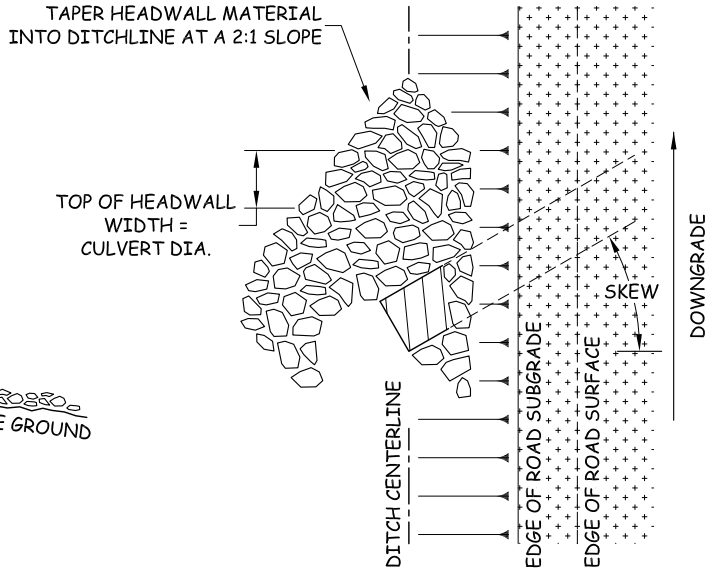
CULVERT HEADWALL - SECTION VIEW



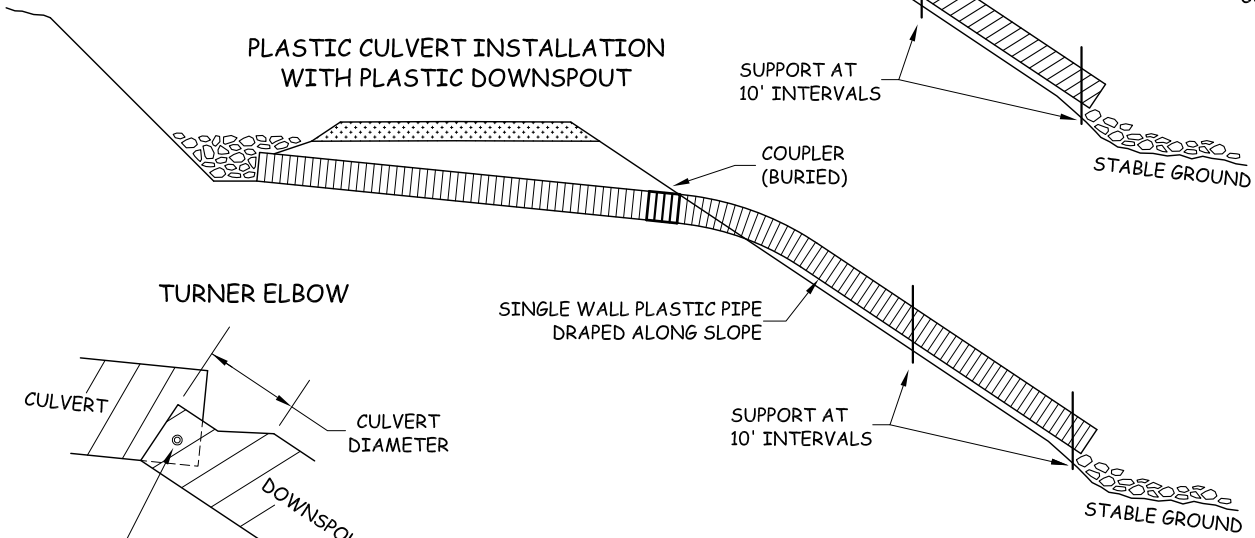
CULVERT INSTALLATION WITH DOWNSPOUT



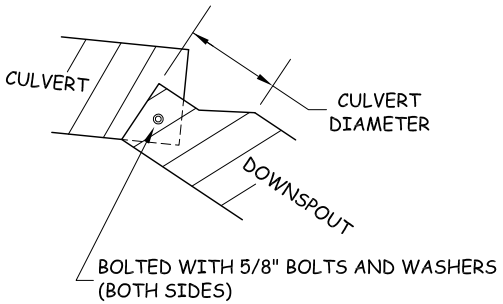
CULVERT HEADWALL - PLAN VIEW



PLASTIC CULVERT INSTALLATION WITH PLASTIC DOWNSPOUT



TURNER ELBOW

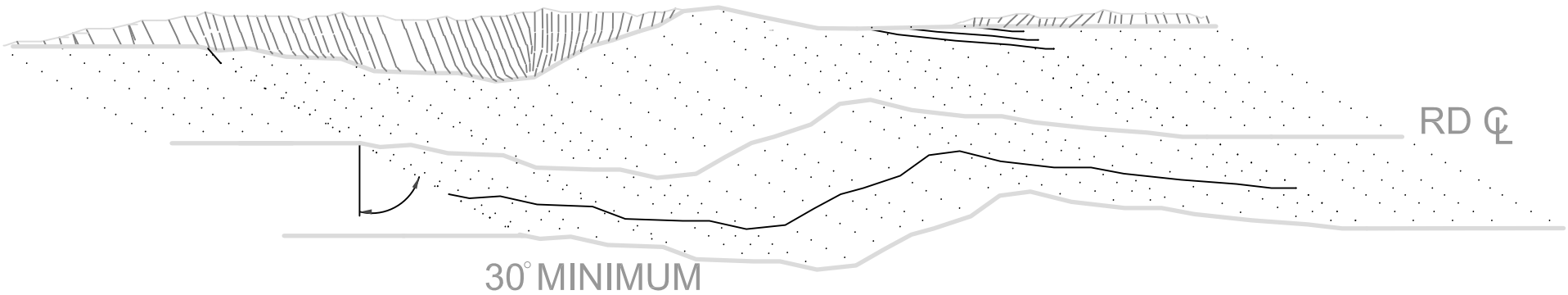


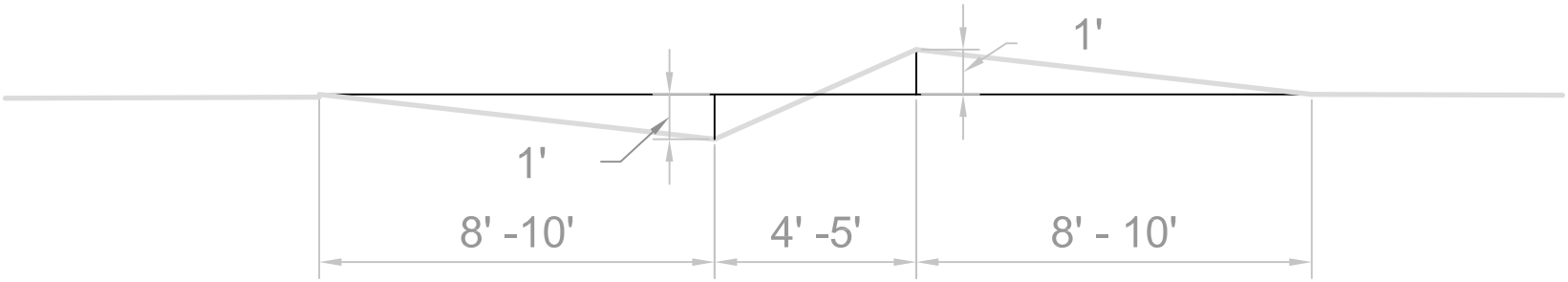
HEADWALL NOTE:

HEADWALL TO BE CONSTRUCTED OF IMPERVIOUS MATERIAL THAT WILL RESIST EROSION AND ARMORED WITH RIPRAP QUANTITY SPECIFIED IN ROAD PLAN.

CONTRACT #	PROJECT	SHEET
30-098033	COPPERHEAD	38 OF 39

DRIVEABLE WATERBAR DETAIL





CONTRACT #	PROJECT	SHEET
30-098033	COPPERHEAD	39 OF 39

SUMMARY - Road Development Costs

REGION: NW
DISTRICT: Cascade

SALE/PROJECT NAME: Copperhead CONTRACT #: 30-098033

ROAD NUMBERS:

ROAD STANDARD:	Construction	Reconstruction	Maintenance
NUMBER OF STATIONS:	244+89	0+00	429+11
CLEARING & GRUBBING:	$20,453	$0	$0
EXCAVATION AND FILL:	$30,092	$0	$0
MISC. MAINTENANCE:	$0	$0	$9,694
ROAD ROCK:	$135,994	$0	$718
ROCK STOCKPILE PROD:	$0	$0	$0
CULVERTS AND FLUMES:	$59,555	$0	$4,172
STRUCTURES:	$0	$0	$0
MOBILIZATION:	$5,232	$0	$1,233
TOTAL COSTS:	$251,326	$0	$15,816
COST PER STATION:	$1,026	$0	$37

ROAD DEACTIVATION & ABANDONMENT COSTS: $5,853

	TOTAL (All Roads) =	**$272,995**
Cruised	**SALE VOLUME MBF =**	**3,343**
	TOTAL $/MBF =	**$82**

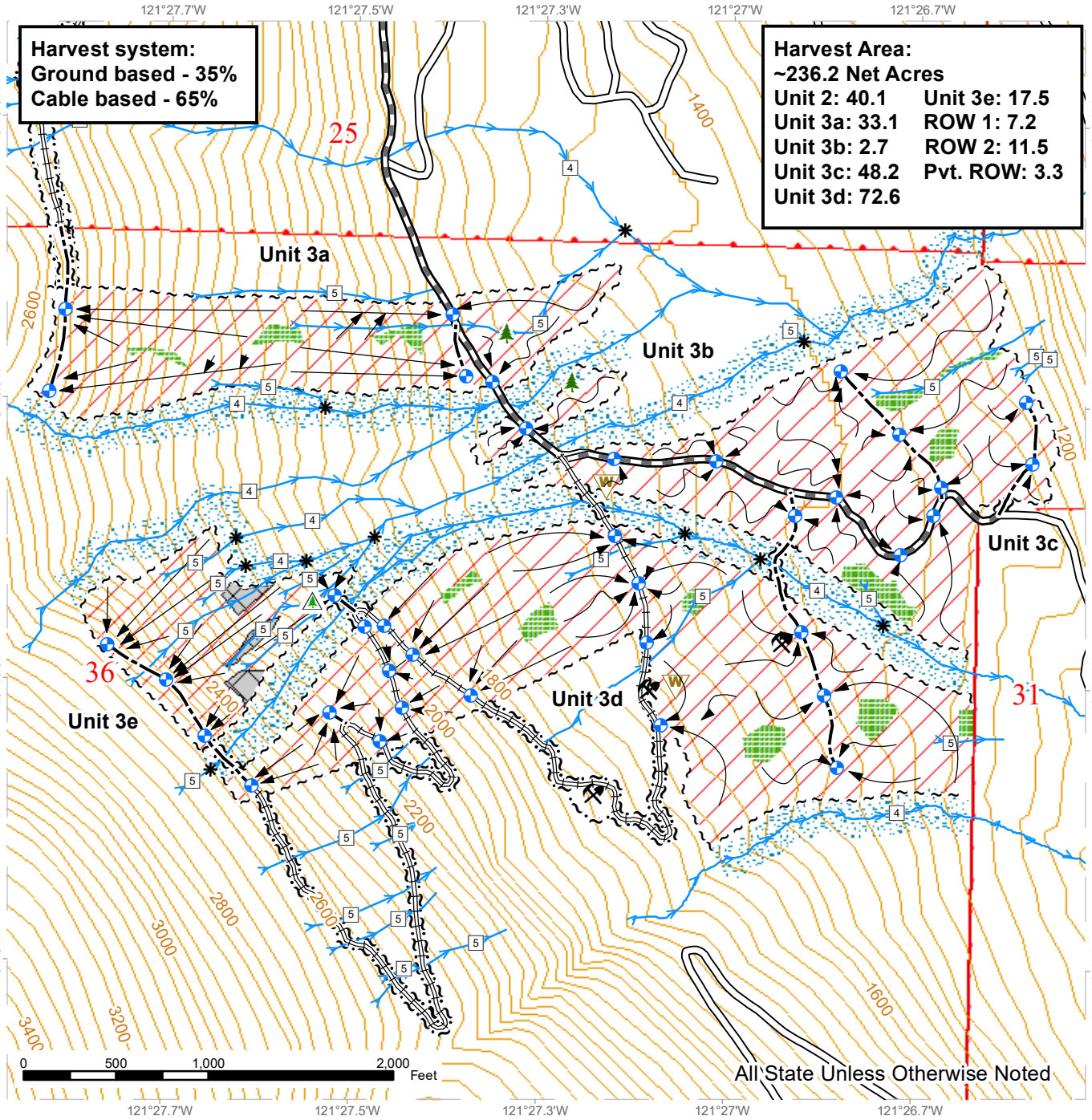
Compiled by: Symmank Date: 05/17/19

LOGGING PLAN MAP

SALE NAME: COPPERHEAD
AGREEMENT#: 30-098033
TOWNSHIP(S): T33R10E, T33R11E
TRUST(S): Common School and Indemnity (3), State Forest Transfer (1)

Note: Unit 1 was dropped from the timber sale.

REGION: Northwest Region
COUNTY(S): Skagit
ELEVATION RGE: 1200-2720



Variable Retention Harvest	DNR Managed Lands	Existing Roads	Landing - Proposed	Stream Break
Leave Tree Area	ROW	Required Pre-Haul Maintenance	Leave Tree Area <1/4-acre	
Non-Tradable Leave Tree Area	Sale Boundary Tags	Temporary Construction	Non-Tradeable Leave Trees	
Riparian Mgt Zone	Right of Way Tags	Required Reconstruction	Rock Pit	
	Right of Way Tags	Ground Harvest	Waste Area	
	Streams	Cable Harvest	Stream Type 4	
			Stream Type 5	

N

Prepared By: jarm490

Modification Date: jarm490 5/13/2019

LOGGING PLAN MAP

SALE NAME: COPPERHEAD
AGREEMENT#: 30-098033
TOWNSHIP(S): T33R10E, T33R11E
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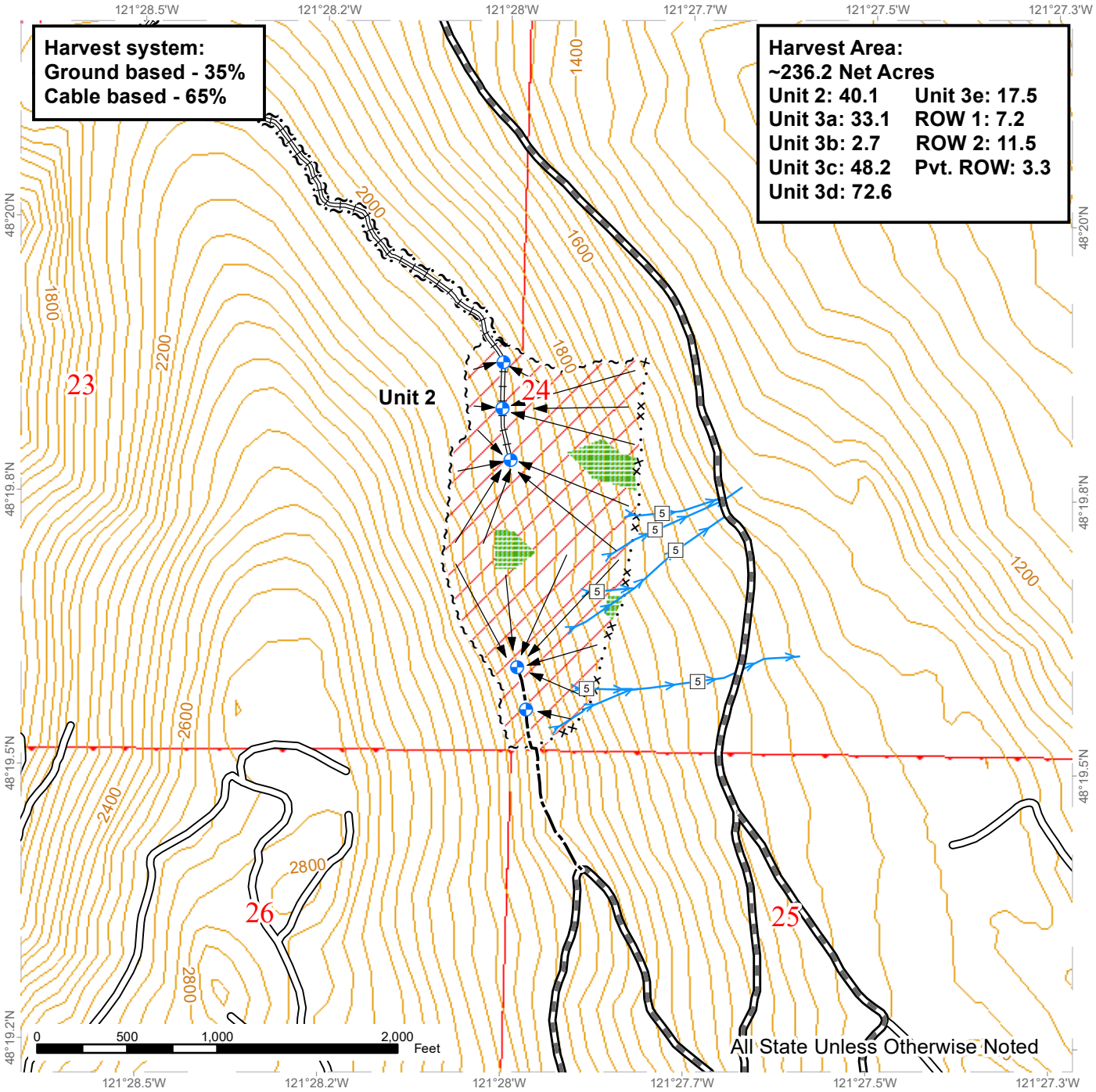
ELEVATION RGE: 1200-2720



Variable Retention Harvest	Sale Boundary Tags	Required Pre-Haul Maintenance	Landing - Proposed
Leave Tree Area	Special Mgmt Area	Temporary Construction	Stream Type 5
DNR Managed Lands	Streams	Required Reconstruction	
ROW	Existing Roads	Cable Harvest	

N

Prepared By: jarm490

Modification Date: jarm490 5/13/2019