

TIMBER NOTICE OF SALE

SALE NAME: NORTH HEIGHTS VRH and VDT

AGREEMENT NO: 30-090094

AUCTION: June 15, 2016 starting at 10:00 a.m.,
Northwest Region Office, Sedro Woolley, WA

COUNTY: Snohomish, Skagit

SALE LOCATION: Sale located approximately 5 miles by road, (Units #1 - #5) north of Darrington and 26 miles, by road, (Unit #6) east of Arlington, WA.

**PRODUCTS SOLD
AND SALE AREA:**

All timber as described for removal in Schedule B bounded by white timber sale boundary tags and the BY-ML Road in Unit #1.

All timber (including trees marked with a band of red paint) bounded by white timber sale boundary tags, property line and blue special management tags, except trees marked with blue paint on the bole and root collar, forest products tagged out by blue special management tags (RMZs), forest products tagged out by yellow leave tree area tags, and cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs) in Unit #2.

All timber bounded by white timber sale boundary tags and blue special management tags, except trees marked with blue paint on the bole and root collar, forest products tagged out by blue special management tags (RMZs), forest products tagged out by yellow leave tree area tags, and cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs) in Unit #3.

All timber as described for removal in Schedule B bounded by white timber sale boundary tags, blue special management tags and the BY-ML Road, except forest products tagged out by yellow leave tree area tags, and cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs) in Unit #4 (collectively labeled 4a, 4b, 4c).

All timber bounded by white timber sale boundary tags and blue special management tags, except trees marked with blue paint on the bole and root collar, forest products tagged out by blue special management tags (RMZs), forest products tagged out by yellow leave tree area tags, and cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs) in Unit #5.

All timber as described for removal in Schedule B, bounded by white timber sale boundary tags and the USFS 18 Road, except trees marked with blue paint on the bole and root collar and cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs) in Unit #6.

All timber as described for removal in Schedule B located in the RMZ thinning areas (beyond the blue special management up to the white timber sale boundary tags) within Units #2, #3 and #5.

All timber bounded by orange right of way tags, except that title to the timber, other than that described for removal in Schedule B, within the right of way tags is not conveyed to the Purchaser unless the road segment is actually constructed.

The above described products on part(s) of Sections 2, 5, 10 and 11 all in Township 32 North, Range 9 East, Sections 35 all in Township 33 North, Range 9 East, W.M., containing 306 acres, more or less.

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CERTIFICATION: This sale is certified under the Sustainable Forestry Initiative® program Standard (cert no: BV-SFIS-US09000572)

ESTIMATED SALE VOLUMES AND QUALITY:

Species	Avg DBH	Ring Count	Total MBF	Total \$/MBF	MBF by Grade								
					1P	2P	3P	SM	1S	2S	3S	4S	UT
Douglas fir	16	8	2,497	\$144.00				166		1,074	900	265	92
Hemlock	12		1,671	\$30.00						231	789	483	168
Silver fir	13		715	\$30.00						22	395	145	153
Red alder	12		707	\$166.00						216	103	295	93
Red cedar	13		284	\$799.00							154	129	1
Maple	10		252	\$42.00						68	111	67	6
Cottonwood	11		46	\$20.00	6					16		21	3
Birch	7		1	\$20.00									1
Sale Total			6,173										

MINIMUM BID: \$144/MBF (est. value \$786,000.00) **BID METHOD:** Sealed Bids

PERFORMANCE SECURITY: \$100,000.00 **SALE TYPE:** MBF Scale

EXPIRATION DATE: March 31, 2020 **ALLOCATION:** Export Restricted

BIDDABLE SPECIES: Douglas fir

BID DEPOSIT: \$78,600.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Cable; cable, shovel, forwarder or tracked skidder (tracked skidder only as approved by the Contract Administrator) on sustained slopes 35% or less, 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.

Falling and yarding in Thinning areas shall not be permitted during the bark slippage season unless authorized in writing by the Contract Administrator. This season is estimated to run from April 1 to July 15, but may vary dependent on weather conditions. If permission is granted to operate during the bark slippage season the Purchaser shall be required to provide a plan outlining mitigation measures.

Additional restrictions apply, see Remarks section below.

ROADS: 51.80 stations of required construction. 166.82 stations of required reconstruction. 87.18 stations of optional construction. 87.18 stations of road to be abandoned if built. 150.92 stations of required pre-haul maintenance. Asphalt Repair, see p.21 of road plan (for North Heights, Units #1-5). Gate installation, see p.22 of road plan (for North Heights, Units #1-5).

Rock may be obtained from the following source(s) on State land at no charge to the Purchaser: FP-10 Hardrock Pit at milepost 1.0 of the FP-ML Road. Barco Gravel Pit at milepost 1.6 of the BO-ML Road (gravel ballast). Ashton Pit at milepost 0.2 of the AS-13 Road (3-inch minus crushed rock). Sci-fi Pit at milepost 1.0 of Christian Camp Road (3-inch minus crushed rock). Beverly Lower MP 1.5 of BY-ML Road (6-inch jaw run rock, Rip rap).

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Development of new and existing rock source(s) will involve clearing, stripping, drilling, shooting, and processing rock to generate riprap, subgrade ballast, and pit run rock.

For Units 1-5 portion of the proposal: An estimated total quantity of rock needed for this proposal: 698 cubic yards of riprap and 11,710 cubic yards of 3-inch minus rock, and 17206 cubic yards of 6-inch jaw run rock.

In addition, acquisition of 80 cubic yards of 1 ¼ -inch-minus weed-free surfacing rock from a commercial source.

For Unit 6 portion of the proposal: An estimated total quantity of rock need for this proposal: 456 cubic yards of riprap and 5,941 cubic yards of ballast rock.

Additional restrictions apply, see Remarks section below.

Road construction, road reconstruction, road abandonment, pre-haul maintenance 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:

Units 1-5:

Acres determined by GPS traverse. 242.1 acres gross. 4.7 acres deducted for green tree retention clumps and 4.9 acres deducted for existing road area. 232.5 acres net. Cruised using variable plot method. Expansion factors used are 54.4 and 40.00. Sighting height is 4.5 feet. A total of 197 plots were taken.

Unit 6:

Acres determined by GPS traverse. 73 acres net. Cruised using variable plot method. Expansion factor used is 40.00 and 54.45. Sighting height is 4.5 feet. A total of 63 plots were taken.

Shapefiles of units are available upon request. For Units #1 - #5 only.

FEES:

1. Purchaser shall furnish the State with a check made payable to USDA Forest Service in the amount of \$3,918.00 on the day of sale for #55-092562, for road USFS Cost Recovery Fee.

2. Purchaser shall furnish the State with a check made payable to Grandy Lake Forest Associates, LLC, in the amount of \$4,820.00 on the day of sale for easement #55-082628 right of way timber.

3. Purchaser shall furnish the State with a check made payable to Sierra Pacific Industries, in the amount of \$3,897.00 on the day of sale for permit #55-092561, for right of way timber (\$2,767.00) and road use (\$1,130.00).

4. \$684.61 is due on day of sale.

5. \$109,570.75 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. Trees marked with red paint represent the last take tree on State land along property line boundaries.
2. Outer boundary of harvest area in RMZ thinning areas is demarcated with blue special management tags within the sale area.



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3. In Unit 4, “skips” and “gaps” have been scattered throughout the area of 4c within the unit. “Skips” are marked with yellow “Leave Tree Area” tags and no harvesting shall occur within these clumps. “Gaps” are approximately 0.25 acre patch cuts, where the boundary trees are marked with orange paint. All trees marked with orange paint and all trees bounded by these trees can be harvested.
4. Wildlife timing restrictions are: no falling, bucking, yarding or operation of heavy equipment April 1 to August 31 from one hour before official sunrise to two hours after official sunrise and one before and after official sunset. Timing restrictions will be applied to the area as depicted on the timber sale map. See also p. 7 of the North Heights road plan.
5. There are 2 Cruise Reports and 2 Road Plans associated with this timber sale. Avg. DBH and ring count came off “Units 1-5” cruise report.
 - 5a. Units 1 through 5 and associated right-of-way are compiled in one cruise report entitled North Heights and are covered by one road plan entitled North Heights.
 - 5b. Unit 6 and associated right-of-way way are compiled in a separate cruise report and a separate road plan entitled 32 Volunteers. This cruise data was “grown” by projecting the volume via SuperAce from 1,394 MBF (original cruise, October 2011) to 1,430 MBF (January 2016) and is incorporated in the volume listed in the table above.
6. HQ DF noted within the sale area. See “Units 1-5” cruise for further details (approximately 53mbf of the above listed DF 2S is deemed high quality by the Department).
7. HQ DF noted within the sale area. See “Unit 6” cruise for further details (approximately 98 mbf of the above listed DF 2S is deemed high quality by the Department).

Schedule B
Thinning Prescription

North Heights VDT and RMZ Thinning Prescription and Compliance

Thinning Prescription
UNITS 1, 4a, 4b, 4c, and all RMZs

- Contractor shall leave sufficient trees and basal area per acre in the units to achieve the following:

Minimum Trees per Acre Average 160 – 170 (INCLUDING corridor areas)	Minimum Basal Area per Acre Average 240 (INCLUDING corridor areas)
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To accomplish this prescription, fallers shall harvest trees starting with smallest diameter trees working up to the largest (thin from below), cutting up to all:

- 1) red alder up to 14” DBH, and
- 2) Pacific silver fir up to 15” DBH, and
- 3) western hemlock up to 11” DBH
- 4) Douglas fir up to 14” DBH

Trees with blue special management area tags are subject to the prescription above.

The fallers shall harvest trees of the first species until the prescription is met. If there are not enough trees in a plot of the first species, then the faller shall harvest from the second species and diameter range and so on until the prescription is met.

Only live trees 8 inches or greater in DBH will be used to calculate trees per acre and basal area.

Thinning Prescription:

UNIT 6
 Cut all red alder
 Cut bigleaf maple up to 10 inches dbh
Cut western hemlock up to 14 inches dbh

Cut Douglas-fir up to 15 inches dbh

SPECIAL THINNING CONDITIONS:

Where the prescription would leave an opening greater than 50 feet in diameter, the purchaser must leave a conifer take tree from the largest diameter, largest crown class, best form, and undamaged. Species preference in order of importance: RC, DF, WH, SF.

In areas where thinning is not necessary, i.e., prescription is met, do not put in yarding corridors or skid trails. These areas must be identified and agreed upon in advance with the Contract Administrator.

Skips And Gaps

In Unit 4c, “skips” and “gaps” have been scattered throughout the unit. “Skips” are marked with yellow “Leave Tree Area” tags and no harvesting shall occur within these clumps. “Gaps” are approximately 0.25 acre patch cuts, where the boundary trees are marked with orange paint. All trees marked with orange paint and all trees bounded by these trees can be harvested.

Special Conditions for RMZs:

Three conifer trees per acre of RMZ, from the largest DBH class, shall be felled towards the stream where feasible to remain as LWD. An additional two conifer trees per acre of RMZ will be girdled or topped to a minimum height of 16’ where feasible for snag recruitment; if not, these trees need to be felled toward the stream. Trees shall be chosen from within 25 feet of the timber sale boundary in the RMZ. These trees shall be marked by the Purchaser and reviewed and approved by the Contract Administrator prior to any felling. Additionally, the Purchaser shall retain all snags greater than or equal to 20 inches DBH and 20 feet tall, except where it cannot be accomplished safely.

Certification of Fallers and Yarder Operators

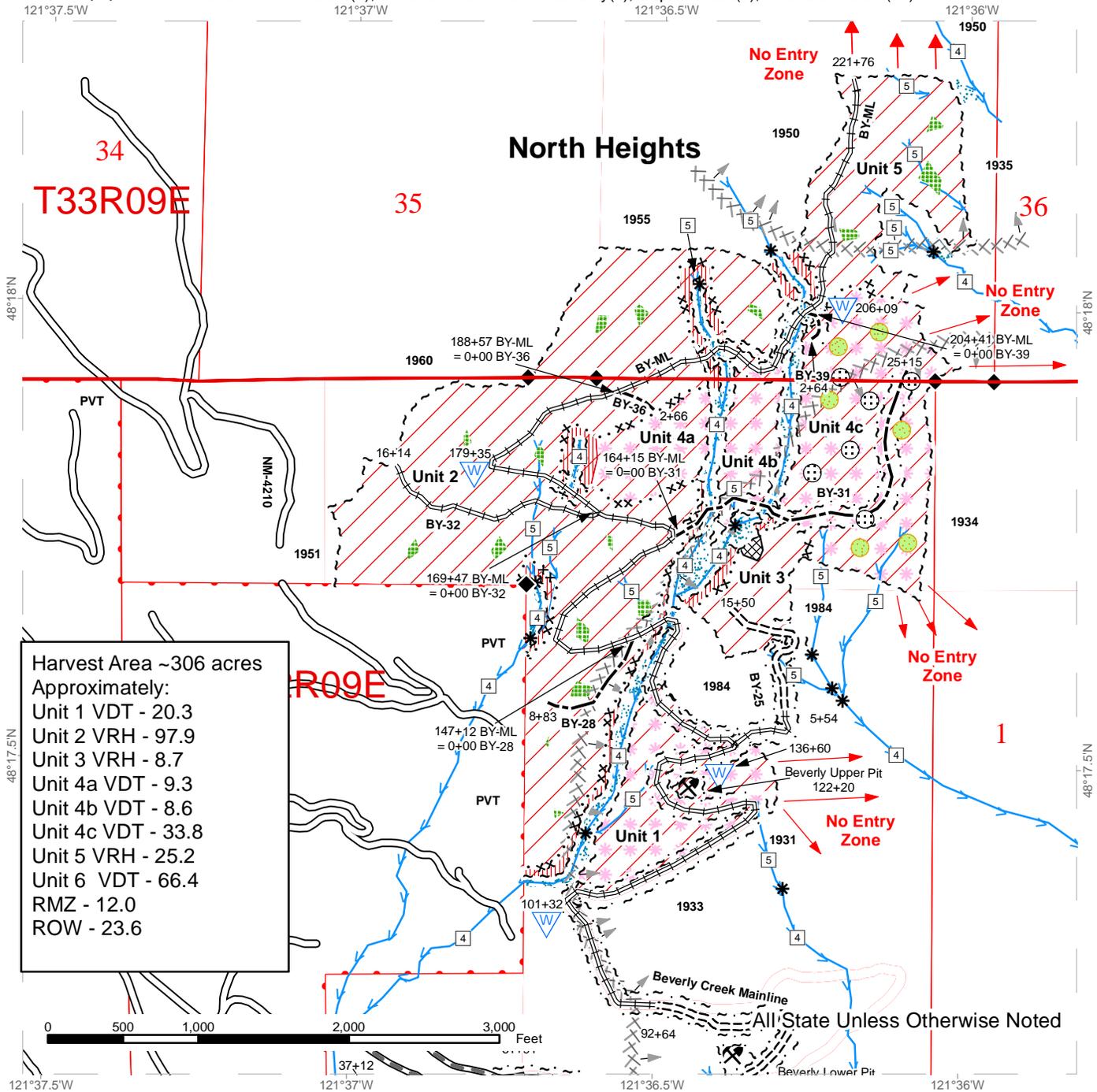
The Contract Administrator (CA) will approve and certify in writing all persons engaged in felling of timber prior to any cutting operations, per the H-011 clause of the contract. The Contract Administrator and Faller/Harvester Operator will jointly review the take tree selection criteria as outlined in Schedule B of the contract.

In conjunction with the Contract Administrator, the Faller/Harvester Operator shall measure sample (and keep a written record of) plots across the landscape concurrently while felling timber in each unit. If a plot indicates that the BA is more than 20 square feet above or below the target, the Contract Administrator must be notified immediately. The CA shall determine if this deviation will require recertification of the fallers.

TIMBER SALE MAP

SALE NAME: NORTH HEIGHTS VRH and VDT
AGREEMENT #: 90094
TOWNSHIP(S): T32R09E, T33R09E
TRUST(S): State Forest Transfer(1), Common School and Indemnity(3), Capitol Grant(7), Scientific School(10)

REGION: Northwest Region
COUNTY(S): SKAGIT, SNOHOMISH
ELEVATION RGE: 1818-3204



Harvest Area ~306 acres
 Approximately:
 Unit 1 VDT - 20.3
 Unit 2 VRH - 97.9
 Unit 3 VRH - 8.7
 Unit 4a VDT - 9.3
 Unit 4b VDT - 8.6
 Unit 4c VDT - 33.8
 Unit 5 VRH - 25.2
 Unit 6 VDT - 66.4
 RMZ - 12.0
 ROW - 23.6

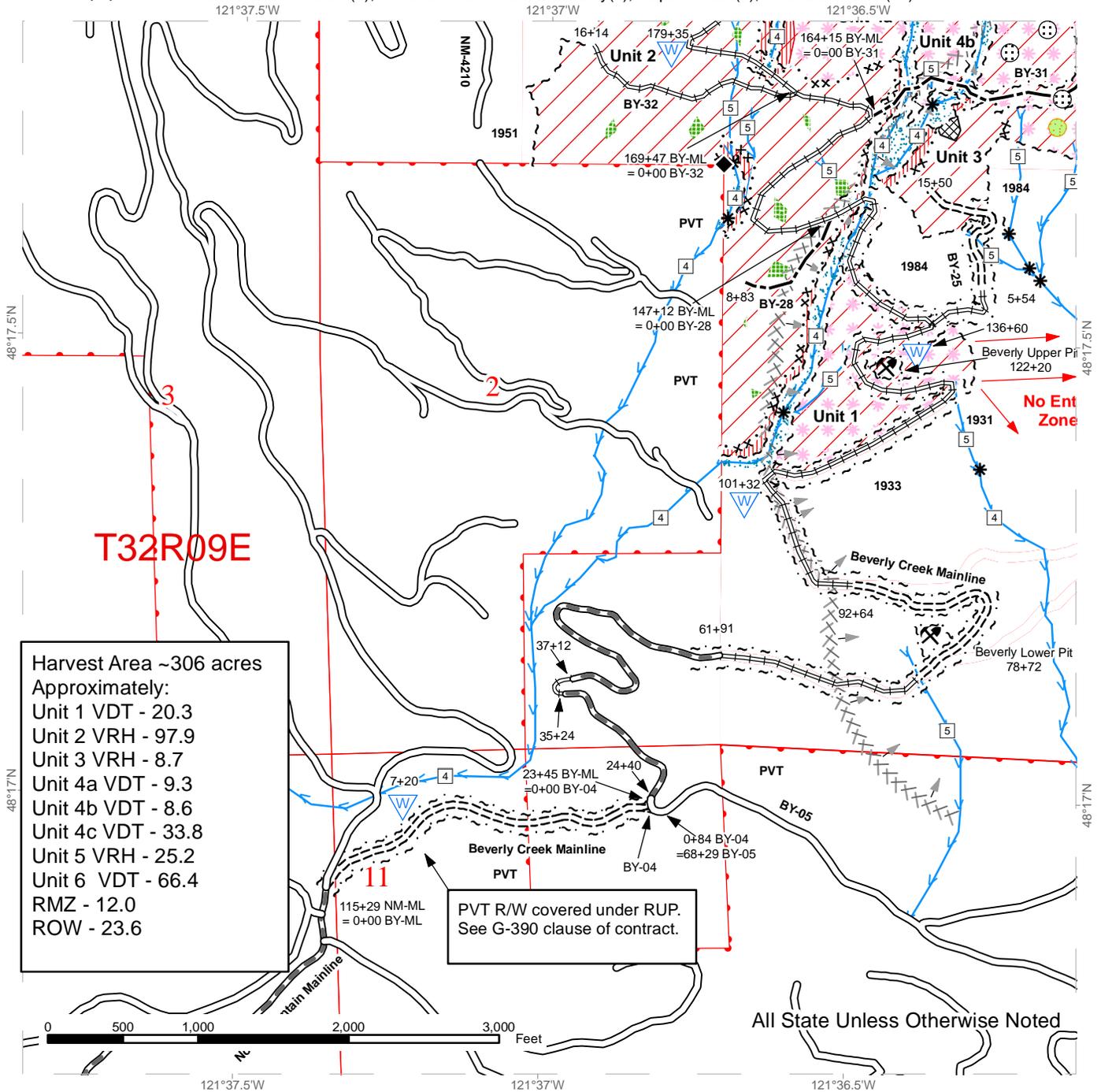
Sale Area	Existing Roads	Gap
Variable Density Thinning	Required Pre-Haul Maintenance	Skip
Riparian Thinning	Required Construction	Stream Type
Sale Boundary Tags	Required Reconstruction	Stream Type Break
Special Mgt Area Tags	Optional Construction	Survey Monument
Right of Way Tags	Streams	Rock Pit
Wildlife Timing Restriction	Non-tradable Leave Trees	Waste Area
	Tradable Leave Trees	



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SALE NAME: NORTH HEIGHTS VRH and VDT
AGREEMENT #: 90094
TOWNSHIP(S): T32R09E, T33R09E
TRUST(S): State Forest Transfer(1), Common School and Indemnity(3), Capitol Grant(7), Scientific School(10)

REGION: Northwest Region
COUNTY(S): SKAGIT, SNOHOMISH
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Harvest Area ~306 acres
 Approximately:
 Unit 1 VDT - 20.3
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 Unit 5 VRH - 25.2
 Unit 6 VDT - 66.4
 RMZ - 12.0
 ROW - 23.6

PVT R/W covered under RUP.
 See G-390 clause of contract.

All State Unless Otherwise Noted

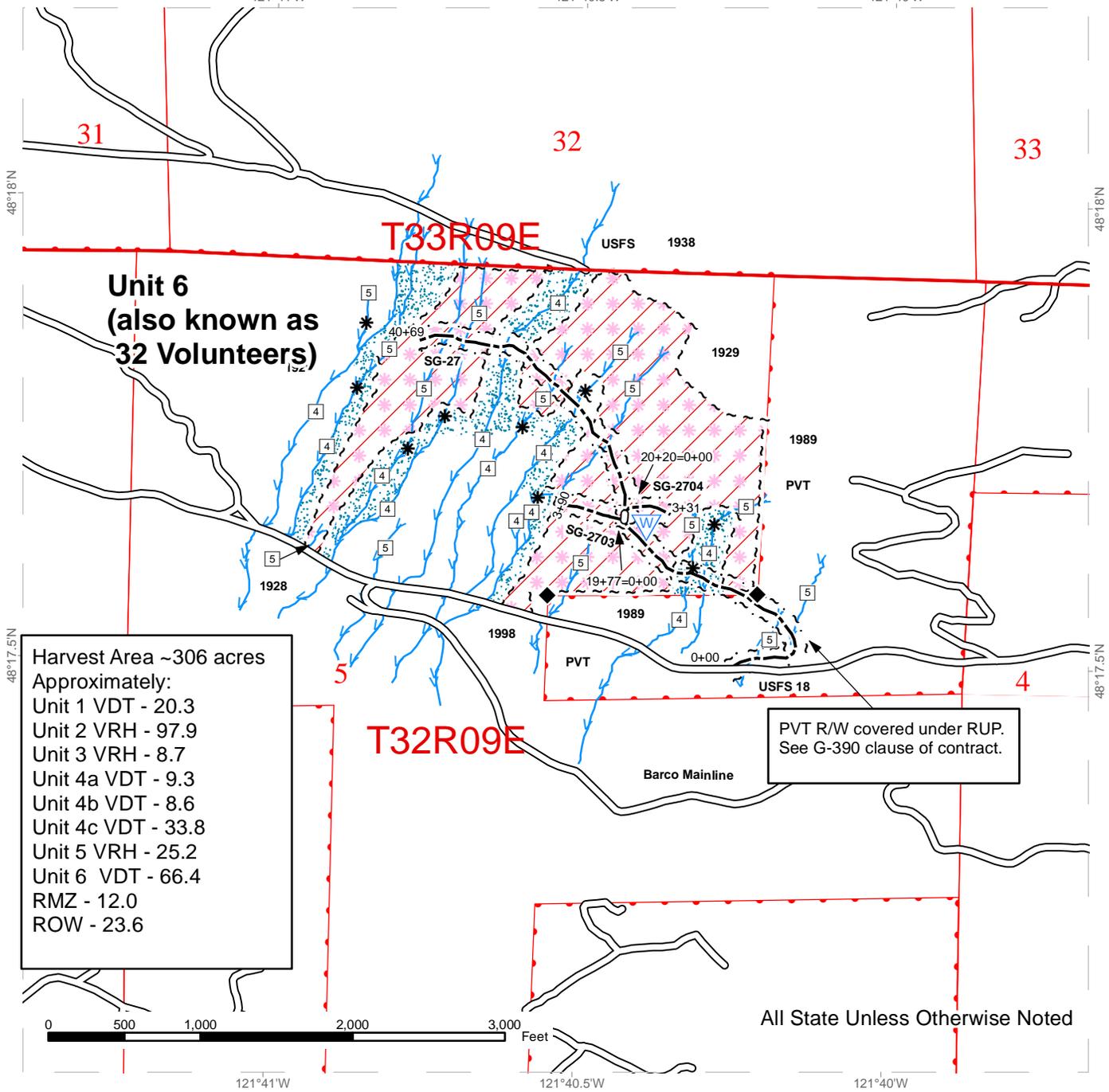
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Wildlife Timing Restriction	Non-tradable Leave Trees	Waste Area
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SALE NAME: NORTH HEIGHTS VRH and VDT
AGREEMENT #: 90094
TOWNSHIP(S): T32R09E, T33R09E
TRUST(S): State Forest Transfer(1), Common School and Indemnity(3), Capitol Grant(7), Scientific School(10)

REGION: Northwest Region
COUNTY(S): SKAGIT, SNOHOMISH
ELEVATION RGE: 1818-3204



Harvest Area ~306 acres
 Approximately:
 Unit 1 VDT - 20.3
 Unit 2 VRH - 97.9
 Unit 3 VRH - 8.7
 Unit 4a VDT - 9.3
 Unit 4b VDT - 8.6
 Unit 4c VDT - 33.8
 Unit 5 VRH - 25.2
 Unit 6 VDT - 66.4
 RMZ - 12.0
 ROW - 23.6

PVT R/W covered under RUP.
 See G-390 clause of contract.

All State Unless Otherwise Noted

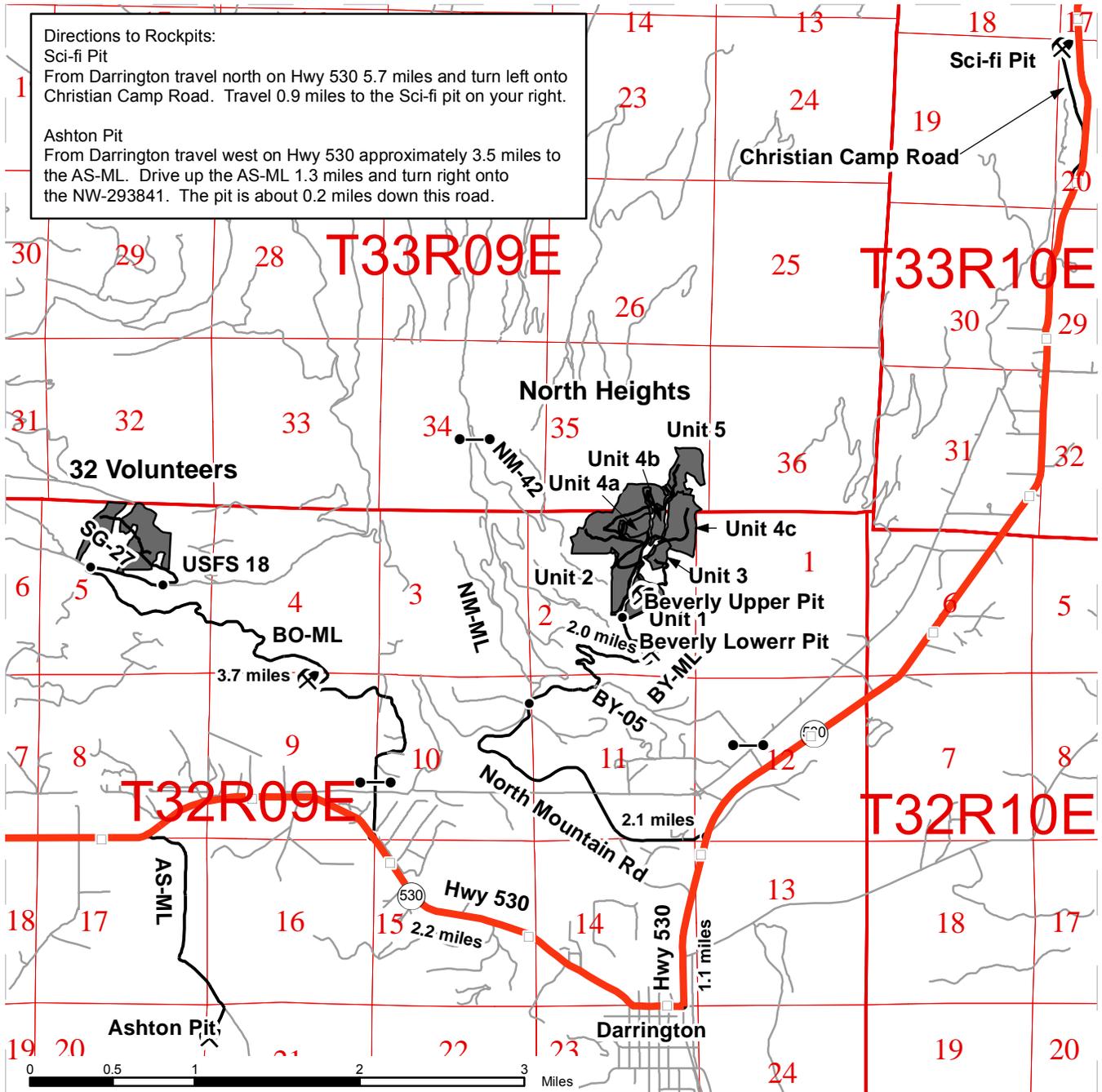
Variable Density Thinning	Existing Roads	Gap
Sale Boundary Tags	Optional Construction	Skip
Right of Way Tags		Stream Type
		Stream Type Break
		Survey Monument
		Waste Area



DRIVING MAP

SALE NAME: NORTH HEIGHTS VRHVDT
AGREEMENT#: 90094
TOWNSHIP(S): T32R09E, T33R09E
TRUST(S): State Forest Transfer(1), Common School and Indemnity(3), Capitol Grant(7), Scientific School(10)

REGION: Northwest Region
COUNTY(S): SKAGIT, SNOHOMISH
ELEVATION RGE: 1846-3263



Directions to Rockpits:
Sci-fi Pit
 From Darrington travel north on Hwy 530 5.7 miles and turn left onto Christian Camp Road. Travel 0.9 miles to the Sci-fi pit on your right.
Ashton Pit
 From Darrington travel west on Hwy 530 approximately 3.5 miles to the AS-ML. Drive up the AS-ML 1.3 miles and turn right onto the NW-293841. The pit is about 0.2 miles down this road.

- Timber Sale Unit
- Highways
- Roads
- Haul Route
- Milepost Markers
- Rock Pit
- Gate
- Distance Indicator

DRIVING DIRECTIONS:

North Heights
 To the BY-ML connector and haul route: From Darrington, travel north on Hwy 530 1 mile and turn left onto North Mountain Road. Travel approximately 2 miles up the hill to a staked road on the right. This connects to the BY-ML, and the sale can be accessed by hiking ~2 miles up the abandoned BV-ML grade.

To access the sale from the west: From Darrington, travel north on Hwy 530 1 mile and turn left onto North Mountain Road. Travel approximately 4 miles up the hill and turn right onto the NM-42. Go through a DNR gate and stay on the NM-42 for 1.0 miles and keep right onto the NM-4210. Drive ¼ mile to a wide parking area near the end of the road. Hike uphill to the east 300 – 500' to the western boundary of unit 2. Hike to the BY-44 grade to access the rest of the units on the abandoned Beverly Creek road system.

32 Volunteers
 Drive 2.2 miles west of Darrington on Hwy 530 and turn right on the BO-ML. Drive 3.7 miles and turn right onto the USFS 18. Drive 0.5 miles to the staked SG-27 road on the left.



**STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES**

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

Export Restricted MBF Scale AGREEMENT NO. 30-090094

SALE NAME: NORTH HEIGHTS VRH and VDT

**THE STATE OF WASHINGTON DEPARTMENT OF NATURAL
RESOURCES, HEREINAFTER ACTING SOLELY, IN ITS PROPRIETARY
CAPACITY, STATE, AND PURCHASER, AGREE AS FOLLOWS:**

Section G: General Terms

G-001 Definitions

The following definitions apply throughout this contract;

Bill of Sale and Contract for Forest Products: Contract between the Purchaser and the State, which sets forth the procedures and obligations of the Purchaser in exchange for the right to remove forest products from the sale area. The Bill of Sale and Contract for Forest Products may include a Road Plan for any road construction or reconstruction, where applicable.

Contract Administrator: Region Manager's designee responsible for assuring that the contractual obligations of the Purchaser are met.

Forest Product: Any material derived from the forest for commercial use.

Purchaser: The company or individual that has entered a Bill of Sale and Contract for Forest Products with the State for the right to harvest and remove forest products from the timber sale area.

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

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

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

G-010 Products Sold and Sale Area

Purchaser was the successful bidder on June 15, 2016 and the sale was confirmed on _____. The State, as owner, agrees to sell to Purchaser, and Purchaser agrees to purchase, cut, and remove the following forest products:

All timber as described for removal in Schedule B bounded by white timber sale boundary tags and the BY-ML Road in Unit #1.

All timber (including trees marked with a band of red paint) bounded by white timber sale boundary tags, property line and blue special management tags, except trees marked with blue paint on the bole and root collar, forest products tagged out by blue special management tags (RMZs), forest products tagged out by yellow leave tree area tags, and cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs) in Unit #2.

All timber bounded by white timber sale boundary tags and blue special management tags, except trees marked with blue paint on the bole and root collar, forest products tagged out by blue special management tags (RMZs), forest products tagged out by yellow leave tree area tags, and cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs) in Unit #3.

All timber as described for removal in Schedule B bounded by white timber sale boundary tags, blue special management tags and the BY-ML Road, except forest products tagged out by yellow leave tree area tags, and cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs) in Unit #4 (collectively labeled 4a, 4b, 4c).

All timber bounded by white timber sale boundary tags and blue special management tags, except trees marked with blue paint on the bole and root collar, forest products tagged out by blue special management tags (RMZs), forest products tagged out by yellow leave tree area tags, and cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs) in Unit #5.

All timber as described for removal in Schedule B, bounded by white timber sale boundary tags and the USFS 18 Road, except trees marked with blue paint

on the bole and root collar and cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs) in Unit #6.

All timber as described for removal in Schedule B located in the RMZ thinning areas (beyond the blue special management up to the white timber sale boundary tags) within Units #2, #3 and #5.

All timber bounded by orange right of way tags, except that title to the timber, other than that described for removal in Schedule B, within the right of way tags is not conveyed to the Purchaser unless the road segment is actually constructed.

The above described products, located on approximately 306 acres on part(s) of Sections 2, 5, 10, and 11 all in Township 32 North, Range 9 East, Section 35 in Township 33 North, Range 9 East W.M. in Snohomish, and Skagit County(s) as shown on the attached timber sale map and as designated on the sale area.

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

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

G-020 Inspection By Purchaser

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

G-025 Schedules

The following attached schedules are hereby incorporated by reference:

Schedule	Title
A	NW Ground-Based Equip Specifications (Rev 2/11/16)
B	Thinning Prescription

G-030 Contract Term

Purchaser shall remove the forest products conveyed and complete all work required by this contract prior to March 31, 2020.

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-050 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 contract value based on the contract payment rate and advertised volume.

For the second extension, not to exceed 1 year, payment of at least 90 percent of the contract value based on the contract payment rate base and advertised volume.

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 timber value of the contract.

To determine the unpaid portion of the contract, multiply the contract payment rate for each item by the remaining volume for each item based on the volumes from the Timber Notice of Sale. In addition, all cash deposits that

can be used for timber payments, except the initial deposit, will be deducted from the unpaid portion of the contract.

- e. Payment of \$3.00 per acre per annum for the acres on which an operating release has not been issued in Variable Density Thinning (VDT) areas. Payment of \$13.00 per acre per annum for the acres on which an operating release has not been issued in Variable Retention Harvest (VRH) areas.
- 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-090 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, added forest products become a part of this contract and shall be paid for at the same rate and manner as other forest products under this contract.

G-100 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 shall be paid for at the same rate and manner as other forest products under this contract.

G-105 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 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 same rate and manner as other forest products under this contract.

G-110 Title and Risk of Loss

Title to the forest products conveyed passes at confirmation of the sale. Purchaser bears the risk of loss of or damage to and has an insurable interest in the forest products in this contract from the time of confirmation of the sale of forest products. In the event of loss of or damage to the forest products after passage of title, whether the cause is foreseeable or unforeseeable, the forest products shall be paid for by Purchaser. Breach of this contract shall have no effect on this provision. Title to the forest products not removed from the sale area within the period specified in this contract shall revert to the State as provided in RCW 79.15.100.

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 Purchaser's expense regardless of cost, to remedy deficiencies at any time.

G-140 Indemnity

To the fullest extent permitted by law, Purchaser shall indemnify, defend and hold harmless State, agencies of State and all officials, agents and employees of State, from and against all claims arising out of or resulting from the performance of the contract. "Claim" as used in this contract means any financial loss, claim, suit, action, damage, or expense, including but not limited to attorneys' fees, attributable for bodily injury,

sickness, disease or death, or injury to or destruction of tangible property including loss of use resulting therefrom. Purchasers' obligations to indemnify, defend, and hold harmless includes any claim by Purchasers' agents, employees, representatives, or any subcontractor or its employees. Purchaser expressly agrees to indemnify, defend, and hold harmless State for any claim arising out of or incident to Purchasers' or any subcontractors' performance or failure to perform the contract. Purchasers' obligation to indemnify, defend, and hold harmless State shall not be eliminated or reduced by any actual or alleged concurrent negligence of State or its agents, agencies, employees and officials. Purchaser waives its immunity under Title 51 RCW to the extent it is required to indemnify, defend and hold harmless State and its agencies, officials, agents or employees.

G-150 Insurance

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

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

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

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

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

Purchaser shall include all subcontractors as insured under all required insurance policies, or shall furnish separate certificates of insurance and endorsements for each

subcontractor. Subcontractor(s) must comply fully with all insurance requirements stated herein. Failure of subcontractor(s) to comply with insurance requirements does not limit Purchaser's liability or responsibility.

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

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

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

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

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

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

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

Workers' Compensation Coverage. Purchaser shall comply with all State of Washington workers' compensation statutes and regulations. Workers' compensation coverage shall be provided for all employees of Purchaser and employees of any

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

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

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

G-160 Agents

The State's rights and duties will be exercised by the Region Manager at 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 post office address:

G-210 Violation of Contract

G-220 State Suspends Operations

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

G-210 Violation of Contract

- a. If Purchaser violates any provision of this contract, the Contract Administrator, by written notice, may suspend those operations in violation. If the violation is capable of being remedied, Purchaser has 30 days after receipt of a suspension notice to remedy the violation. If the violation cannot be remedied (such as a violation of WAC 240-15-015) or Purchaser fails to remedy the violation within 30 days after receipt of a suspension notice, the State may terminate the rights of Purchaser under this contract and collect damages.
- b. If the contract expires pursuant to clause G-030 or G-031 without Purchaser having performed all its duties under this contract, Purchaser's right to operate is terminated and Purchaser shall not have the right to remedy the breach. This provision shall not relieve Purchaser of any payment obligations.
- c. The State has the right to remedy the breach in the absence of any indicated attempt by Purchaser or if Purchaser is unable, as determined by the State, to remedy the breach. Any expense incurred by the State shall be charged to Purchaser and shall be paid within 30 days of receipt of billing.
- d. If Purchaser's violation is a result of a failure to make a payment when due, in addition to a. and b. above, interest shall accrue on the unpaid balance at 12 percent per annum, beginning the date payment was due.

G-220 State Suspends Operation

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

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

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

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

G-230 Unauthorized Activity

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

G-240 Dispute Resolution

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

- a. In the event of a dispute, Purchaser must make a written request to the Region Manager for resolution prior to seeking other relief.
- b. The Region Manager will issue a written decision on Purchaser's request within ten business days.
- c. Within ten business days of receipt of the Region Manager's decision, Purchaser may make a written request for resolution to the Deputy Supervisor - Uplands of the Department of Natural Resources.

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

G-250 Compliance with All Laws

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

G-260 Venue

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

G-270 Equipment Left on State Land

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

G-280 Operating Release

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

G-310 Road Use Authorization

Purchaser is authorized to use the following State roads and roads for which the State has acquired easements and road use permits; NM-ML (0+00 to 115+29), BY-ML, BY-04, BY-05 (67+29 to 69+09), BY-25, BY-28, BY-31, BY-32, BY-36, BY-39, FP-ML, French Creek Rd (USFS-2010), BO-ML, Segelson Rd (USFS-18), SG-27, SG-2703, SG-2704 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 NM-ML, 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:

USFS; #55-000035; dated September 11, 1986.

Garka Mill Company, Inc.; #55-001575; dated September 13, 1977.

W.B. and Faye Bryson; #55-002302; dated April 21, 1989.

Snohomish County Public Works Trail Permit; #55-077586; dated September 7, 2005.

Grandy Lake Forest Associates, LLC; #55-082628; dated May, 30, 2012.

United States of America, Forest Service; #50-039347; dated September 17, 1976.

Snohomish County; #55-002440; dated May 5, 1993.

Walter M. and Eileen L. Saline; #55-002489; dated August 26, 1993.

Purchaser shall furnish the State with a check made payable to Grandy Lake Forest Associates, LLC, in the amount of \$4,820.00 on the day of sale for easement 55-082628 right of way timber.

Road Use Permits (RUP) with:

USDA Forest Service; #55-092562.

Sierra Pacific Industries; #55-092561; dated November 20, 2015.

Purchaser shall furnish the State with a check made payable to Sierra Pacific Industries, in the amount of \$3,897.00 on the day of sale for permit #55-092561, for right of way timber (\$2,767.00) and road use (\$1,130.00).

Purchaser shall furnish the State with a check made payable to USDA Forest Service in the amount of \$3,918.00 on the day of sale for #55-092562, for road USFS Cost Recovery Fee.

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-010 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 the 'Payment for Forest Products' clause, 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-021 Payment for Forest Products

Purchaser agrees to pay the following rates per MBF Scribner net log scale for forest products conveyed and cut or removed from the sale area plus \$109,570.75 on day of sale and \$9.00 per MBF upon removal in fees. Fees collected shall be retained by the state unless the contract is adjusted via the G-066 clause.

DATA MISSING

Species that are conveyed but are not listed in the table above shall be paid for at a rate to be determined by the State.

Utility logs, special cull and peelable cull logs of all species, included on loads of logs that are required to be removed and scaled per clause H-150 will be paid for on an adjusted gross scale basis at the rate of DATA MISSING per MBF plus fees.

P-027 Payment for Removal of Optional Forest Products

Purchaser agrees to pay the rate of \$2.00 per ton for forest products approved for removal from the sale area under clause H-157.

P-040 Weighing and Scaling Costs

Purchaser agrees to pay for all scaling and weighing costs for logs and other products sold under this contract. Purchaser also agrees to pay for all costs associated with the transmission and reporting of scale or weight data.

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-052 Payment Procedure

If a third party Log and Load Reporting Service (LLRS) is required by this contract the State will compute and forward to the Purchaser statements of charges provided for in the contract. Purchaser shall deliver payment to the Northwest region office on or before the date shown on the billing statement.

If a third party LLRS is not required by this contract, Purchaser shall pay for forest products removed on a monthly basis. Payments will be submitted to the Northwest region office on or before the fourteenth of the month following the month in which the timber was removed or, according to an alternate payment schedule as approved by the State with at least one payment each month for timber removed. The alternate payment schedule, once approved by the State, shall become part of this contract and may be changed only with written approval of the State.

Payment will be based on the contract rate multiplied by the tons (tonnage contracts) or volume (mbf contracts) removed during the month or payment period. Included with the payment will be a summary report along with all related load tickets and the corresponding certified weight tickets for the payment period. The summary report will be generated using a computer spreadsheet and list the load tickets in ascending numerical order with the corresponding ticket number and weight or volume for each load.

P-070 Payment for Products: Damage, Theft, Loss or Mismatch

Forest products included in this agreement which are destroyed, damaged, stolen, lost, or mismatched shall be paid for by Purchaser on demand of the State. The rates contained in clause P-021 shall apply.

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 L: Log Definitions and Accountability

L-010 Forest Products Conveyed

Forest products conveyed are all logs or parts of logs described by the 'Products Sold and Sale Area' (G-010) clause meeting the removal requirements listed in the 'Required Removal of Forest Products' (H-150) clause.

L-020 Short Logs - Peeler Blocks

Logs or parts of logs which are removed from the sale area that fail to meet the minimum gross length requirements shall be scaled and graded as short logs or peeler blocks. Such material shall be paid for at the forest products rates specified in this contract.

L-060 Load Tickets

Purchaser shall complete and use load tickets as directed by the Contract Administrator and, if required, use other identification as directed by the State to ensure accounting of forest products removed from the sale area. A load ticket must be fixed, as designated by the Contract Administrator, to each truck and trailer load prior to leaving the landing.

Purchaser shall account for all load tickets issued by the Contract Administrator. The State may treat load tickets not accounted for as lost forest products. All costs associated with computing the billings for lost loads shall be borne by Purchaser.

L-071 Log and Load Reporting Service

This contract requires the use of a State approved third party Log and Load Reporting Service (LLRS). Purchaser shall ensure log volume measurement data and/or load and weight data is received by the LLRS within 1 business day of logs being measured or weighed. Purchaser agrees to pay the LLRS for log and load data supplied to the State.

If during the term of this contract, the State discontinues use of the LLRS, the State will notify the Purchaser in writing and the Purchaser will then be responsible to send log scale and/or weight information to the State.

L-080 Scaling Rules

Determination of volume and grade of any forest products shall be conducted by a state approved third party scaling organization and in accordance with the Westside log scaling and grading rules and Scribner Volume Table, revised July 1, 1972, contained in the Northwest Log Rules Eastside and Westside Log Scaling Handbook (developed and produced by the Northwest Log Rules Advisory Group) and in effect on the date of confirmation of this contract.

Special scaling specifications shall be noted on the State's Brand Designation form which is hereby incorporated to this contract by reference.

L-110 State Approval of Log Scaling and Weighing Locations

Forest Product measurement and weighing facilities required by this contract must be approved by the State. Forest products sold under the contract which require log scaling shall be scaled, measured, or counted by a State approved third party log scaling organization. Forest products sold under the contract which require weighing shall be weighed at a location that meets Washington State Department of Agriculture approval.

Prior to forest products being hauled, the Contract Administrator must authorize in writing the use of State approved measurement and/or weighing facilities that are at or en-route to final destinations. Forest products from this sale shall be measured or weighed at facilities, which are currently approved for use by the State and are currently authorized for this sale. The State reserves the right to verify load volume and weights with State employees or contractors at the State's own expense. The State reserves the right to revoke the authorization of previously approved measurement locations.

L-120 Long Log Taper Distribution

Forest products over 40 feet long plus trim shall be segment scaled and the lower segment diameters shall be determined using actual taper. In order to utilize taper rules for determining segment diameters for poles and pilings greater than 40 feet in length plus trim, Purchaser must request use of a Pole and Piling Scaling Specification

Agreement on file in the region office. Approval for usage of a special Pole and Piling Scaling Specification Agreement may be granted at the sole discretion of the State.

Following State approval for usage of the Pole and Piling Scaling Specification Agreement, the Brand Designation form shall be amended to incorporate the long log taper rules. The volume reported by the scaling organization for forest products over 40 feet plus trim will be expanded by 5 percent and the additional 5 percent volume shall be billed to the purchaser at the contract rate.

L-130 Conversion Factors

Forest products removed from the sale area that are not measured in units specified in the 'Payment for Forest Products' clause of this contract shall be converted to board feet using Department of Natural Resources' standard conversion factors.

Section H: Harvesting Operations

H-001 Operations Outside the Sale Boundaries

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

H-010 Cutting and Yarding Schedule

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

H-011 Certification of Fallers and Yarder Operators

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

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

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

When leave tree damage exceeds the limits set forth in clause H-012, Purchaser shall be subject to liquidated damages (clause D-040 or D-041).

H-012 Leave Tree Damage Definition

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

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

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

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

H-013 Reserve Tree Damage Definition

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

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

- a. A reserve tree has one or more scars on its trunk exposing the cambium layer, which in total exceeds 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 area, as approved by the Contract Administrator. Purchaser may be required to pay liquidated damages for Excessive Reserve Tree Damage as detailed in clause D-041.

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

H-016 Skid Trail Requirements

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

Purchaser shall comply with the following during the yarding operation:

- a. A skid trail will not exceed 14 feet in width, including rub trees.

- b. Skid trails shall not cover more than 15 percent of the total acreage on one unit.
- c. Location of the skid trails must be marked by Purchaser and approved by the Contract Administrator.
- d. Except for rub trees, skid trails shall be felled and yarded prior to the felling of adjacent timber.
- e. Rub trees shall be left standing until all timber tributary to the skid trail has been removed.
- f. Excessive soil damage is not permitted. Excessive soil damage is described in clause H-017.
- g. Purchaser will not have more than two skid trails open to active skidding at any one time. All other skid trails used for skidding timber will be closed.
- h. Once a skid trail is closed, Purchaser will not reopen a skid trail unless approved in writing by the Contract Administrator.
- i. Skid trails will be water barred at the time of completion of yarding, if required by the Contract Administrator.

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

H-017 Preventing Excessive Soil Disturbance

Operations may be suspended when soil rutting exceeds 4 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-030 Timber Falling

Trees shall be felled and logs shall be bucked to obtain the greatest practicable utilization of forest products and other valuable materials conveyed.

H-035 Fall Trees Into Sale Area

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

H-040 Purchaser Harvest Plan

Purchaser shall, as part of the plan of operations, prepare an acceptable harvest plan for the sale area. The plan shall address the felling, yarding and hauling of forest products, which are part(s) of this contract. The harvest plan shall be approved by the Contract

Administrator prior to beginning the harvest operation. Purchaser shall not deviate from the harvest plan without prior written approval by the Contract Administrator.

H-050 Rub Trees

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

H-052 Branding and Painting

Forest products shall be branded with a brand furnished by the State prior to removal from the landing. 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 felled by chainsaw and yarded by cable; felled by chainsaw or feller-buncher and yarded by cable, shovel, forwarder or tracked skidder (tracked skidder only as approved by the Contract Administrator) on sustained slopes 35% or less, unless authority to use other equipment is granted in writing by the State.

H-125 Log Suspension Requirements

Lead-end suspension is required for all yarding activities.

H-126 Tailholds on State Land

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

H-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 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. An on-site pre-work meeting shall be scheduled with the Contract Administrator, which shall include the operator and fallers, prior to commencement of any activities on site.
- B. A copy of the timber sale prospectus map and contract shall be present onsite during active operations.
- C. Falling and yarding in Thinning areas shall not be permitted during the bark slippage season unless authorized in writing by the Contract Administrator. This season is estimated to run from April 1 to July 15, but may vary dependent on weather conditions. If permission is granted to operate during the bark slippage season the Purchaser shall be required to provide a plan outlining mitigation measures.
- D. Timber must be removed from the site and scaled within eight weeks of felling operations, unless written permission to do otherwise is granted in writing by the Contract Administrator.
- E. All ground-based equipment must operate on a mat of slash. Tops of trees shall be lopped and scattered where trees are felled and/or placed on skid trails to create a mat for equipment to operate on.
- F. Ground-Based Yarding Corridor Requirements
 1. Corridors are limited to 14 feet wide (including rub trees) and no less than 70 feet apart as measured from the center of the corridor. Where possible, corridors should be located in a manner to minimize the damage to, residual trees.
 2. Location of the ground-based yarding corridors must be marked by Purchaser and approved by the Contract Administrator.
 3. Timber in the ground-based yarding corridor must be felled and yarded prior to the falling of adjacent timber.

4. Purchaser shall not have more than two ground-based yarding corridors open to active yarding at any one time. All other ground-based yarding corridors used for yarding timber shall not be active.

5. Once a ground-based yarding corridor is closed, which shall include water bars if necessary, Purchaser shall not reopen a ground-based yarding corridor unless approved in writing by the Contract Administrator.

6. No ground-based equipment shall operate within 30 feet of any typed stream.

G. Cable Yarding Corridor Requirements

1. All cable corridors must be marked by the Purchaser and approved by the Contract Administrator.

2. Cable corridors are limited to 12 feet wide (including rub trees). When cable yarding corridors are required from a central landing, the distance between yarding corridors must be no closer than 100 feet where the corridor leaves the unit as measured from the center of the corridors. Where possible corridors should be located in a manner to minimize the damage to or removal of leave trees. Following completion of yarding of each corridor, rub trees that do not meet take tree specifications may be left standing. It is not required to remove all leave trees from the 12-foot corridor.

H. Trees must be felled into the unit adjacent to the Federal land.

I. If possible, do not block the USFS 18 Road. If blocking, traffic must be permitted to pass within 15 minutes.

J. Compliance with Clause C-050 will not be satisfied until the Contract Administrator receives a letter from Snohomish County PUD stating that the BO-ML has been restored to a satisfactory condition. This letter will address the condition of the road from Highway 530 to PUD's substation access off of 435th Avenue NE.

K. Falling and yarding will occur away from all typed waters where possible. All type 5 streams will have a 30-foot equipment limitation zone measured from each bank. The limited crossings shall be as close to perpendicular as possible.

L. Down woody debris shall be left where it lies, where operationally feasible.

M. Harvesting with ground based equipment will be restricted to periods of drier weather conditions and equipment will be restricted from traveling more than approximately 400-600 feet from an existing road.

N. Marked leave trees in the Variable Retention Harvest areas may be traded for trees of the same size and species with prior approval from the Contract Administrator. See H-141 for exceptions.

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. Wildlife timing restrictions are: no falling, bucking, yarding or operation of heavy equipment April 1 to August 31 from one hour before official sunrise to two hours after official sunrise and one before and after official sunset. Timing restrictions will be applied to the area as depicted on the timber sale map. See also p 7 of the North Heights road plan.

B. Within the No Entry Zone as shown on the timber sale map, tagged trees and the line they define shall not be crossed by any sale activity or used as tailholds. If any trees necessitate falling due to safety, an onsite meeting including the Region Biologist, to facilitate a safety plan, must take place prior to any falling in the area.

C. Non-tradable leave trees: Clumps as depicted on the timber sale map may not be traded. Single leave trees painted with two blue rings may not be traded.

D. Road construction and associated work provisions of the second Road Plan for this sale, dated August 31, 2011 are hereby made a part of this contract.

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

H-150 Required Removal of Forest Products

Purchaser shall remove from the sale area and present for scaling or weighing all forest products conveyed in the G-010 clause that meet the following minimum dimensions:

Species	Net bd ft	Log length (ft)	Log dib
All species	10	12	5

The State may treat failure to remove forest products left on the sale area that meet the above specifications as a breach of this contract. At the State's option, forest products that meet the above specifications and are left on the sale area may be scaled for volume or measured and converted to weight by the State or a third party scaling organization and billed to Purchaser at the contract payment rate. All costs associated with scaling, measuring and computing the billing will be borne by the Purchaser.

H-157 Optional Removal of Forest Products Not Designated

If in the course of operations, Purchaser decides to remove forest products that are below the minimum designated removal specifications per the 'Required Removal of Forest Products' (H-150), the payment rates in clause P-027 shall apply.

Forest products designated as optional shall be decked separately from forest products designated as required for removal. Prior to removal from the sale area, optional forest products as described in this clause must be inspected and approved by the Contract Administrator. Optional forest products may not be mixed with forest products that are required for removal by this contract and shall be removed from the sale area in separate truck loads using load tickets specified by the Contract Administrator.

All material removed under this clause is subject to the same log and load accountability rules as defined in the Log Definitions and Accountability section of this contract. Purchaser shall follow the payment procedures as required in the P-052 clause and will submit a separate summary report for all forest products removed from the sale area under the authority of this clause.

H-160 Mismatch

Mismatch is defined as forest products remaining on the sale area that would have met the specifications in clause H-150 if bucking lengths had been varied to include such products.

The State may treat mismatch as a breach of this contract. At the State's option, forest products that are left on the sale area may be scaled for volume by the State or a third party scaling organization and billed to Purchaser at the contract payment rate. All costs associated with scaling and computing the billing will be borne by Purchaser.

H-180 Removal of Specialized Forest Products or Firewood

Prior to the removal of conveyed specialized forest products or firewood from the sale area, Purchaser and the State shall agree in writing to the method of accounting for/and removal of such products.

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 12/16/2015 are hereby made a part of this contract.

C-050 Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on BY-ML, BY-04, BY-05 (67+29 to 69+09), BY-25, BY-28, BY-31, BY-32, BY-36, BY-39, the FP-ML, BO-ML (MP 0.3 to 3.7), USFS-18, USFS-2010, SG-27, SG-2703, SG-2704. 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 NM-ML (0+00 to 115+29) roads AND the existing BO-ML (MP 0.0 to MP 0.3) road. 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 State current Equipment Rate Schedule on file at the region and Olympia offices. 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

During the "closed season", 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 stream, with the exception of the RMZ thinning areas as approved by the Contract Administrator, 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 4 to 6 gallons of oil, coolant, solvent or contaminated water are available on site to quickly address potential spills from any piece of equipment at all times throughout active operations. If large quantities of bulk fuel/other hazardous materials are stored on site, Purchaser must be able to effectively control a container leak and contain &

recover a hazmat spill equal to the largest single on site storage container volume. (HAZWOPER reg. 29CFR 1910.120 (j) (1) (vii)).

d. Hazardous Material Release Reporting

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

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

DNR Contract Administrator

ECY - Northwest Region:

1-425-649-7000

(Island, King, Kitsap, San Juan, Skagit, Snohomish, and Whatcom counties)

ECY - Southwest Region:

1-360-407-6300

(Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, and Wahkiakum counties)

ECY - Central Region:

1-509-575-2490

(Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, and Yakima counties)

ECY - Eastern Region:

1-509-329-3400

(Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, and Whitman counties)

S-131 Refuse Disposal

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

Section D: Damages

D-010 Liquidated Damages

The clauses in the DAMAGES section of this contract provide for payments by Purchaser to the State for certain breaches of the terms of this contract. These

payments are agreed to as liquidated damages and not as penalties. They are reasonable estimates of anticipated harm to the State 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.

D-020 Failure to Remove Forest Products

Purchaser's failure to remove all or part of the forest products sold in this agreement prior to the expiration of the contract term results in substantial injury to the State. The value of the forest products sold at the time of breach is not readily ascertainable. Purchaser's failure to perform disrupts the State's management plans, the actual cost of which is difficult to assess. A resale involves additional time and expense and is not an adequate remedy. Therefore, Purchaser agrees to pay the State as liquidated damages a sum calculated using the following formula:

$$LD = .35V-ID-P+C+A$$

Where:

LD = Liquidated Damage value.

V = The unremoved value at the date of breach of contract. The value is determined by subtracting the removal volume to date from the State's cruise volume multiplied by the contract bid rates.

ID = Initial Deposit paid at date of contract that has not been applied to timber payments.

P = Advance payments received but not yet applied to specific contract requirements.

C = Charges assessed for contract requirements completed prior to breach of contract but not paid for.

A = Administrative Fee = \$2,500.00.

The above formula reflects the Purchaser's forfeiture of the initial deposit in accordance with clause P-010 by deducting the initial deposit from the amount owed. In no event shall the liquidated damages be less than zero. Interest on the liquidated damage is owed from the date of breach until final payment, calculated using the following formula: Interest = $r \times LD \times N$.

Where:

r = daily equivalent of an annual interest at current interest rate as established by WAC 332-100-030.

LD = Liquidated damage value.

N = Number of days from date of breach to date payment is received.

D-030 Inadequate Log Accountability

Removal of forest products from the sale area without adequate branding and/or valid load tickets attached to the load and scaling forest products in a location other than the facility approved by the State can result in substantial injury to the State. Failure to properly account for loads and scaling and/or weighing information can result in loss to the State. The potential loss from not having proper branding, ticketing, scaling and/or weighing location and accountability is not readily ascertainable. Purchaser's failure to perform results in a loss of log weight and scale accountability, increases the potential for unauthorized removal of forest products, and increases the State's administration costs, the actual costs of which are difficult to assess.

Enforcement actions for unauthorized removal of forest products for each improperly branded load, improperly ticketed load, lost or unaccounted for tickets, or use of a facility not authorized for this sale or improper submission of scaling data are impractical, expensive, time consuming and are not an adequate remedy. Therefore, Purchaser agrees to pay the State, as liquidated damages, a sum of \$100 each time a load of logs does not have branding as required in the contract, \$250 each time a load of logs does not have a load ticket as required by the contract, \$250 each time a load ticket has not been filled out as required by the plan of operations, \$250 each time a load is weighed or scaled at a location not approved as required under this contract, \$250 each time a log ticket summary report is not submitted properly, and if a third party Log and Load Reporting Service is required, \$250 each time scaling or weight data is not properly submitted to the Log and Load Reporting Service within 24 hours of log removal, and \$250 each time a ticket is either lost or otherwise unaccounted for.

D-040 Leave Tree Excessive Damage

When Purchaser's operations exceed the damage limits set forth in clause H-012, Leave Tree Damage Definition, the trees damaged result in substantial injury to the State. The value of the damaged leave trees at the time of the breach is not readily ascertainable. Therefore, Purchaser agrees to pay the State as liquidated damages at the rate of \$50.00 per tree for all damaged trees in the Variable Density Thinning areas.

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 Variable Retention Harvest areas.

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

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Purchaser

Jean Fike
Northwest Region Manager

Date: _____
Address: _____

Date: _____

CORPORATE ACKNOWLEDGEMENT

STATE OF _____)

COUNTY OF _____)

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

_____ to me known to be the _____ of the corporation

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

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

Notary Public in and for the State of

My appointment expires _____

Schedule A
NW Ground-Based Equip Specifications (Rev 2/11/16)

The following types of equipment are considered ground-based equipment: feller-buncher, processor, forwarder, skidder and shovel.

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.

LOG PROCESSOR/DE-LIMBER is defined as a mobile machine with a hydraulic boom capable of simultaneously bucking, delimiting and/or debarking and chipping whole trees while sitting stationary at the landing.

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.

FORWARDER is defined as a track or rubber tire machine used for transporting logs to a landing by use of a bunk with self loading boom in which logs are carried free of the ground.

RUBBER-TIRED SKIDDER is defined as a skidder mounted on rubber tires used to drag logs to a landing. Logs are generally pulled in groups of six or less, with one end on the ground.

TRACKED SKIDDER is defined as any tracked tractor or skidder, fixed or articulated, used to drag logs to landings. Logs are generally pulled in groups of six or less, with one end on the ground.

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

FOR ALL YARDING:

Equipment will 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.

Logging debris created by the operation will be removed from water courses concurrently with yarding.

WHEN SHOVEL YARDING IS AUTHORIZED:

S1. When yarding and loading operations are occurring simultaneously, an additional shovel will be required for loading to avoid extra trips to the landing.

S2. Shovel yarding will not be allowed to create ruts or soil puddling. Shovel routes should be dispersed to prevent creation of definable trails.

S3. Within shovel logged areas, to facilitate proper reforestation, logging debris will be dispersed as necessary to create clear, plantable spots at approximately a 11 foot x 11 foot spacing. Planting spots will be created concurrently with yarding.

LOG PROCESSORS will be allowed within the sale area only under one of the following conditions:

1. No tops or limbs will be allowed to accumulate on any landings, and all tops and limbs will be re-distributed into the unit, to the satisfaction of the Contract Administrator, and will provide for plantable spots every 11 feet by 11 feet.
2. Harvester must provide a written slash treatment plan, acceptable to the Contract Administrator, to address the additional slash accumulation. The Slash Treatment Plan will be a part of the Plan of Operations.

Schedule B
Thinning Prescription

North Heights VDT and RMZ Thinning Prescription and Compliance

Thinning Prescription

UNITS 1, 4a, 4b, 4c, and all RMZs

- Contractor shall leave sufficient trees and basal area per acre in the units to achieve the following:

Minimum Trees per Acre Average	Minimum Basal Area per Acre Average
160 – 170 (INCLUDING corridor areas)	240 (INCLUDING corridor areas)

To accomplish this prescription, fallers shall harvest trees starting with smallest diameter trees working up to the largest (thin from below), cutting up to all:

- 1) red alder up to 14" DBH, and
- 2) Pacific silver fir up to 15" DBH, and
- 3) western hemlock up to 11" DBH
- 4) Douglas fir up to 14" DBH

Trees with blue special management area tags are subject to the prescription above.

The fallers shall harvest trees of the first species until the prescription is met. If there are not enough trees in a plot of the first species, then the faller shall harvest from the second species and diameter range and so on until the prescription is met.

Only live trees 8 inches or greater in DBH will be used to calculate trees per acre and basal area.

Thinning Prescription:

UNIT 6

- Cut all red alder
- Cut bigleaf maple up to 10 inches dbh
- Cut western hemlock up to 14 inches dbh

Cut Douglas-fir up to 15 inches dbh

SPECIAL THINNING CONDITIONS:

Where the prescription would leave an opening greater than 50 feet in diameter, the purchaser must leave a conifer take tree from the largest diameter, largest crown class, best form, and undamaged. Species preference in order of importance: RC, DF, WH, SF.

In areas where thinning is not necessary, i.e., prescription is met, do not put in yarding corridors or skid trails. These areas must be identified and agreed upon in advance with the Contract Administrator.

Skips And Gaps

In Unit 4c, "skips" and "gaps" have been scattered throughout the unit. "Skips" are marked with yellow "Leave Tree Area" tags and no harvesting shall occur within these clumps. "Gaps" are approximately 0.25 acre patch cuts, where the boundary trees are marked with orange paint. All trees marked with orange paint and all trees bounded by these trees can be harvested.

Special Conditions for RMZs:

Three conifer trees per acre of RMZ, from the largest DBH class, shall be felled towards the stream where feasible to remain as LWD. An additional two conifer trees per acre of RMZ will be girdled or topped to a minimum height of 16' where feasible for snag recruitment; if not, these trees need to be felled toward the stream. Trees shall be chosen from within 25 feet of the timber sale boundary in the RMZ. These trees shall be marked by the Purchaser and reviewed and approved by the Contract Administrator prior to any felling. Additionally, the Purchaser shall retain all snags greater than or equal to 20 inches DBH and 20 feet tall, except where it cannot be accomplished safely.

Certification of Fallers and Yarder Operators

The Contract Administrator (CA) will approve and certify in writing all persons engaged in felling of timber prior to any cutting operations, per the H-011 clause of the contract. The Contract Administrator and Faller/Harvester Operator will jointly review the take tree selection criteria as outlined in Schedule B of the contract.

In conjunction with the Contract Administrator, the Faller/Harvester Operator shall measure sample (and keep a written record of) plots across the landscape concurrently while felling timber in each unit. If a plot indicates that the BA is more than 20 square feet above or below the target, the Contract Administrator must be notified immediately. The CA shall determine if this deviation will require recertification of the fallers.

FOREST EXCISE TAX - ROAD SUMMARY SHEET

Region: Northwest

Timber Sale Name: 32 Volunteers VDT

Application Number: 87257

Excise Tax Applicable Activities

Construction: 0 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

Deactivation: 0 linear feet
Road to be made undrivable but not officially abandoned.

Pre-Haul Maintenance: 0 linear feet
Existing road to receive maintenance work (specifically required by the contract) prior to haul

Excise Tax Exempt Activities

Temporary Optional Construction: 4790 linear feet
Optional roads to be constructed and then abandoned

Temporary Optional Reconstruction: 0 linear feet
Optional roads to be reconstructed and then abandoned

New Abandonment: 4790 linear feet
Abandonment of roads constructed or reconstructed under the contract

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



WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

FOREST EXCISE TAX ROAD SUMMARY SHEET

Region:

Timber Sale Name:

Application Number:

EXCISE TAX APPLICABLE ACTIVITIES

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

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

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

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

Pre-Haul Maintenance: linear feet
Existing road to receive maintenance work (specifically required by the contract) prior to haul

EXCISE TAX EXEMPT ACTIVITIES

Temporary Optional Construction: linear feet
Optional roads to be constructed and then abandoned

Temporary Optional Reconstruction: linear feet
Optional roads to be reconstructed and then abandoned

New Abandonment: linear feet
Abandonment of roads constructed or reconstructed under the contract

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

(Revised 6/13)

PRE-CRUISE NARRATIVE

Sale Name: North Heights VRH & VDT	Region: Northwest
Agreement #: 30-090094	District: Clear Lake
Contact Forester: Mike Olson Phone / Location: 360-982-1961	County(s): Snohomish, Skagit
Alternate Contact: Jesse Steele Phone / Location: 360-854-8687	Other information: Click here to enter text.

Type of Sale: MBF Scale	
Harvest System: Ground based Click here to enter text.	50%
Harvest System: Uphill Cable Click here to enter text.	45%
Enter % of sale acres	
Harvest System: Downhill Cable Click here to enter text.	5 %

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)		
1	Sec. 2/T32/R9	03	23.0	0.0	0.0	1.1	1.9	20.0	GPS (Garmin)
2	Sec. 2/T32/R9, Sec. 35/T33R9	03, 10, 01, 07	102.9	0.0	2.1	2.9	0.0	97.9	GPS (Garmin)
3	Sec. 2/T32/R9	03, 10	9.1	0.0	0.4	0.0	0.0	8.7	GPS (Garmin)
4a	Sec. 02/T32/R9	10	9.3	0.0	0.0	0.0	0.0	9.3	GPS (Garmin)
4b	Sec. 2/T32/R9, Sec. 35/T33/R9	10, 01	9.3	0.0	0.0	0.1	0.6	8.6	GPS (Garmin)
4c	Sec. 2/T32/R9, Sec. 35/T33/R9	10, 01, 03	37.5	0.0	1.5	0.0	2.2	33.8	GPS (Garmin)
5	Sec. 35/T33/R9	01	26.6	0.0	0.7	0.7	0.0	25.2	GPS (Garmin)
RMZ	Sec. 02/T32/R9, Sec. 35/T33/R9	01, 03, 10	12.1	0.0	0.0	0.1	0.0	12.0	GIS
ROW Internal - in units	Sec. 02, 11/T32/R9, Sec. 35/T33/R9	01, 03, 10	0	0.0	0.0	0.0	0.0	4.7*	GIS
ROW External	Sec. 02, 11/T32/R9, Sec. 35/T33/R9	01, 03, 10	12.3	0.0	0.0	0.0	0.0	12.3	GIS
TOTAL ACRES			242.1	0.0	4.7	4.9	4.7*	232.5	

*New road construction through thinning units. Deducted from unit acres and added to ROW acres.

HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Leave, take, paint color, tags, flagging etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
1	Variable Density Thinning. Trees will be thinned following the prescription listed in Schedule B. Unit is bounded by white "Timber Sale Boundary" tags.	Right-of-way within and outside unit is marked with orange Right-of-Way Boundary tags.	
2	Variable Retention Harvest. Trees marked with yellow leave tree area tags are designated leave trees. Any blue painted trees not in these areas are designated as leave trees as well.	Right-of-way in RMZs is marked with orange Right-of-Way Boundary tags.	821 Total Leave Trees (738 clumped and 83 single) marked with yellow leave tree area tags and/or blue paint.
3	Variable Retention Harvest. Trees marked with yellow leave tree area tags are designated leave trees. Any blue painted trees not in these areas are designated as leave trees as well.	Right-of-way outside unit is marked with orange Right-of-Way Boundary tags.	78 Total Leave Trees (74 clumped and 4 single) marked with yellow leave tree area tags and/or blue paint.
4a	Variable Density Thinning. Trees will be thinned following the prescription listed in Schedule B. Thinning areas are bounded by blue "Special Management Unit Boundary" tags and white "Timber Sale Boundary" tags.		
4b	Variable Density Thinning. Trees will be thinned following the prescription listed in Schedule B. Unit is bounded by blue "Special Management Area" tags.	Right-of-way in unit is marked with orange Right-of-Way Boundary tags.	
4c	Variable Density Thinning. Trees will be thinned following the prescription listed in Schedule B. Unit is bounded by blue "Special Management Area" tags.	Right-of-way in unit is marked with orange Right-of-Way Boundary tags.	"Skips" (no cut; 1.5 acres) are marked with yellow leave tree area tags. "Gaps" (patch cuts; 1.5 acres) are marked with orange painted trees.
5	Variable Retention Harvest. Trees marked with yellow leave tree area tags are designated leave trees. Any blue painted trees not in these areas are designated as leave trees as well.	Right-of-way outside unit is marked with orange Right-of-Way Boundary tags.	214 Total Leave Trees (209 clumped and 5 single) marked with yellow leave tree area tags and/or blue paint.

OTHER PRE-CRUISE INFORMATION:

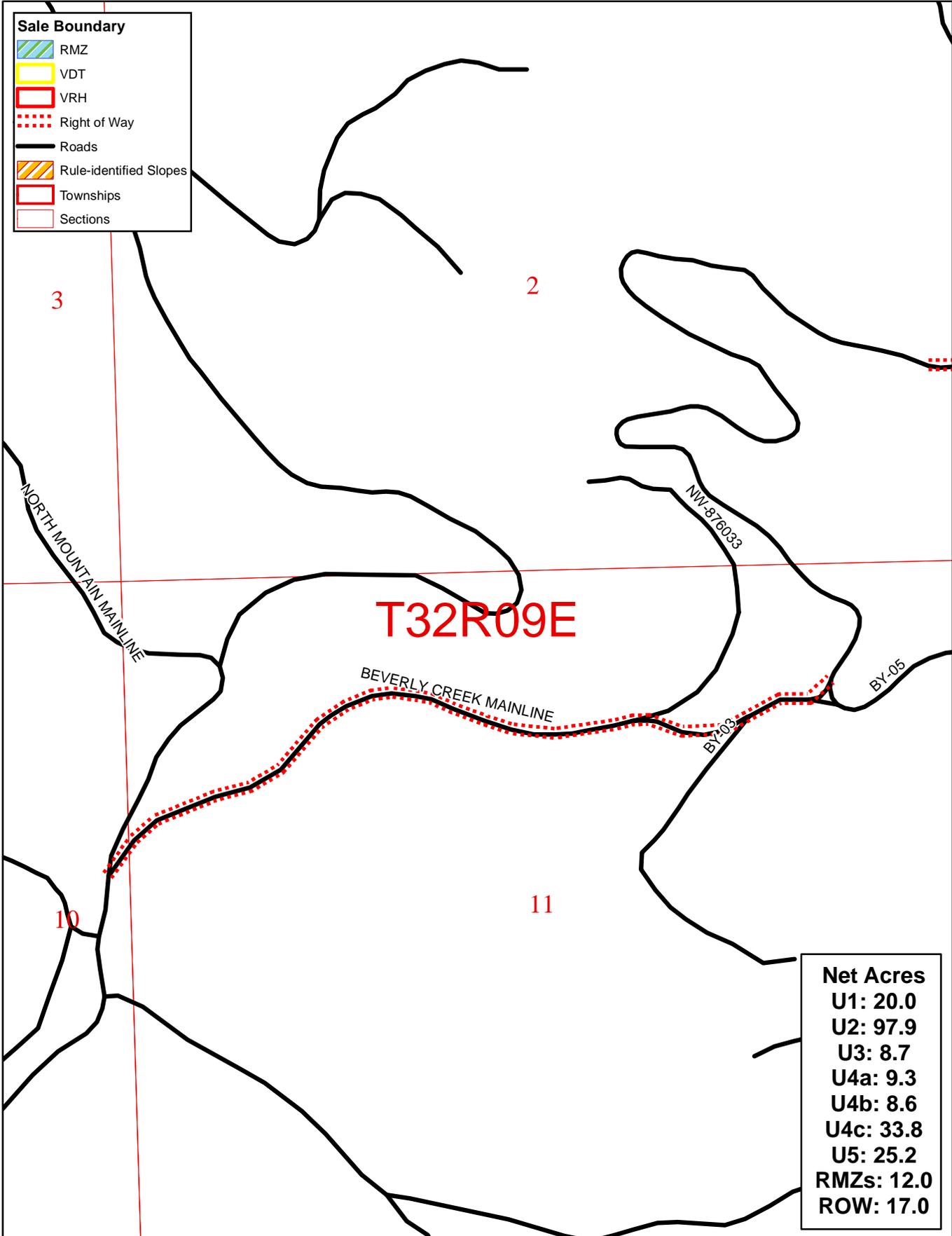
Unit #	Primary,secondary Species / Estimated Volume (MBF)	Access information (Gates, locks, etc.)	Photos, traverse maps required
1	WH-DF / 103 MBF	An F1-3 key is required to access all units.	Traverse and vicinity maps are attached.
2	WH-DF 2,937 MBF		
3	WH-DF / 261 MBF		
4a	WH-DF / 47 MBF		
4b	WH-DF / 43 MBF		
4c	WH-DF / 169 MBF		
5	WH-DF / 756 MBF		
RMZ	WH-RA / 60 MBF		
ROW	WH-DF / 504 MBF		
TOTAL MBF	4,880 MBF		

REMARKS:

<p>Directions:</p> <p>To access the sale from the west: From Darrington, travel north on Hwy 530 1 mile and turn left onto North Mountain Road. Travel approximately 4 miles up the hill and turn right onto the NM-42. Go through a DNR gate and stay on the NM-42 for 1.0 miles and keep right onto the NM-4210. Drive ¼ mile to a wide parking area near the end of the road. Hike uphill to the east 300 – 500' to the western boundary of unit 2. Hike to the BY-44 grade to access the rest of the units on the abandoned Beverly Creek road system.</p> <p>To access the sale from the south: From Darrington, travel north on Hwy 530 1.6 miles and turn left onto the Beverly Creek Mainline. Cross the powerline ROW, go through a DNR gate, and drive up the hill approximately 1.5 miles and park at the last curve of the BY-ML. From here you can hike up the abandoned BY-ML to access the sale. It is ~1.3 miles to Unit 1.</p> <p>To the BY-ML connector and right-of-way: From Darrington, travel north on Hwy 530 1 mile and turn left onto North Mountain Road. Travel approximately 2 miles up the hill to a staked road on the right. This is the BY-ML connector.</p>

Prepared By: Michael Olson Date: 2/4/16	Title: Natural Resource Specialist I	CC:
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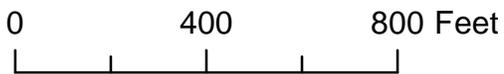
North Heights Timber Sale Precruise Map



Sale Boundary

- RMZ
- VDT
- VRH
- Right of Way
- Roads
- Rule-identified Slopes
- Townships
- Sections

Net Acres	
U1:	20.0
U2:	97.9
U3:	8.7
U4a:	9.3
U4b:	8.6
U4c:	33.8
U5:	25.2
RMZs:	12.0
ROW:	17.0



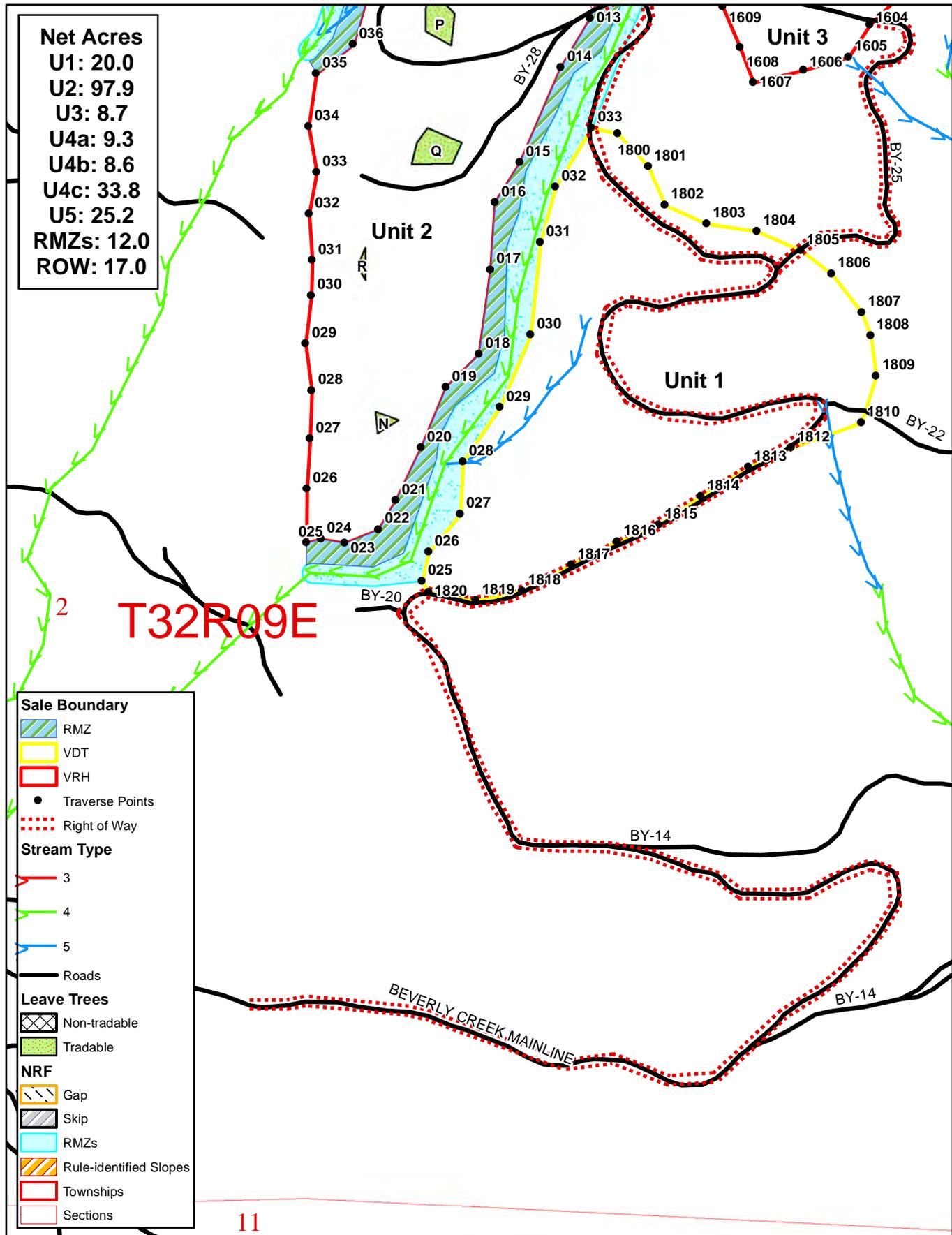
12/16/2015

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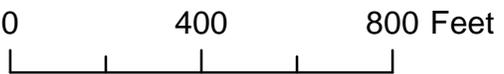
North Heights Timber Sale Precruise Map



Net Acres	
U1:	20.0
U2:	97.9
U3:	8.7
U4a:	9.3
U4b:	8.6
U4c:	33.8
U5:	25.2
RMZs:	12.0
ROW:	17.0



Sale Boundary	
	RMZ
	VDT
	VRH
	Traverse Points
	Right of Way
Stream Type	
	3
	4
	5
	Roads
Leave Trees	
	Non-tradable
	Tradable
NRF	
	Gap
	Skip
	RMZs
	Rule-identified Slopes
	Townships
	Sections



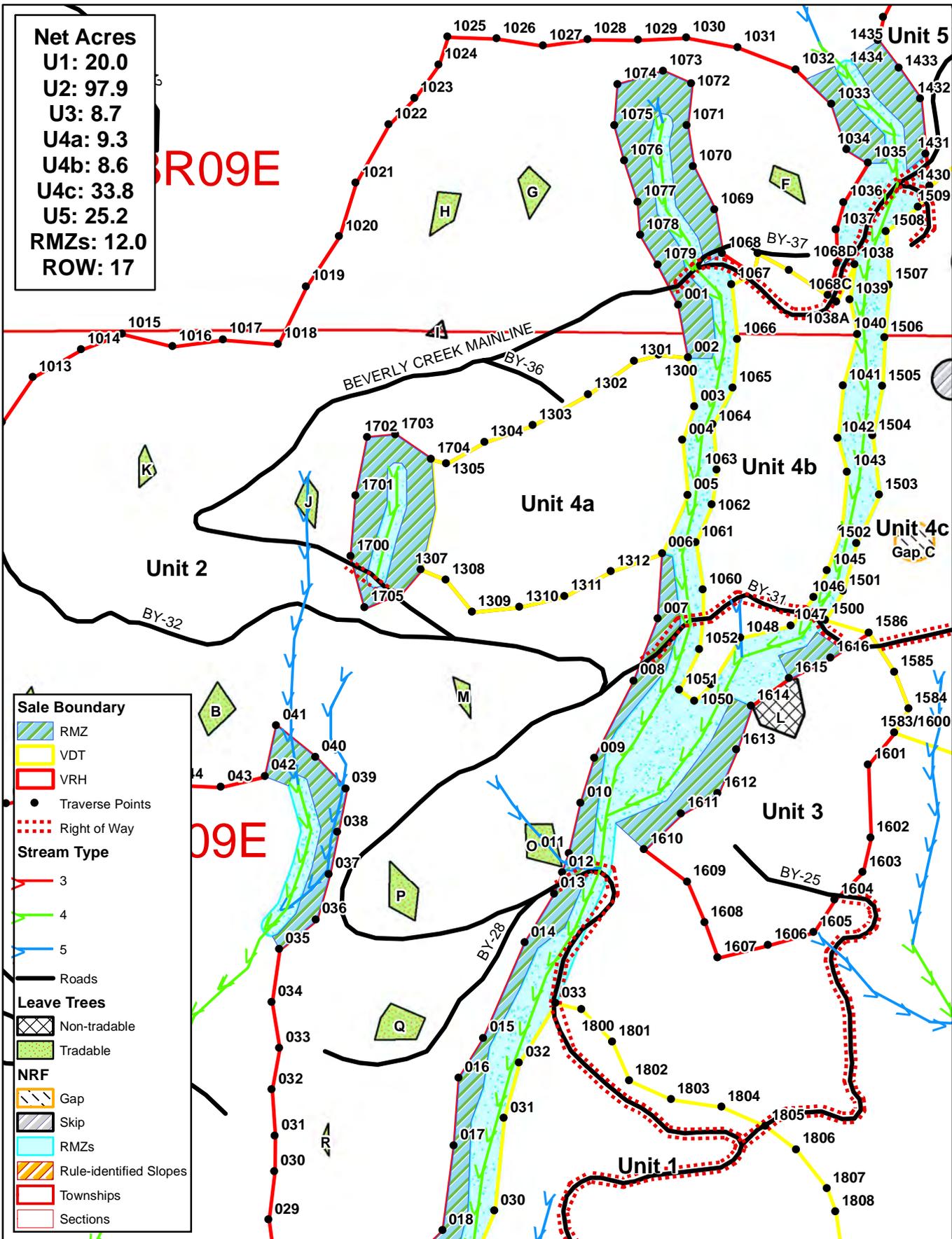
12/16/2015

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North Heights Timber Sale Precruise Map



Net Acres	
U1:	20.0
U2:	97.9
U3:	8.7
U4a:	9.3
U4b:	8.6
U4c:	33.8
U5:	25.2
RMZs:	12.0
ROW:	17



Sale Boundary

- RMZ (diagonal hatching)
- VDT (yellow fill)
- VRH (red outline)
- Traverse Points (black dots)
- Right of Way (dotted red line)

Stream Type

- 3 (red line with arrow)
- 4 (green line with arrow)
- 5 (blue line with arrow)

Roads

- Black line

Leave Trees

- Non-tradable (cross-hatching)
- Tradable (green stippling)

NRF

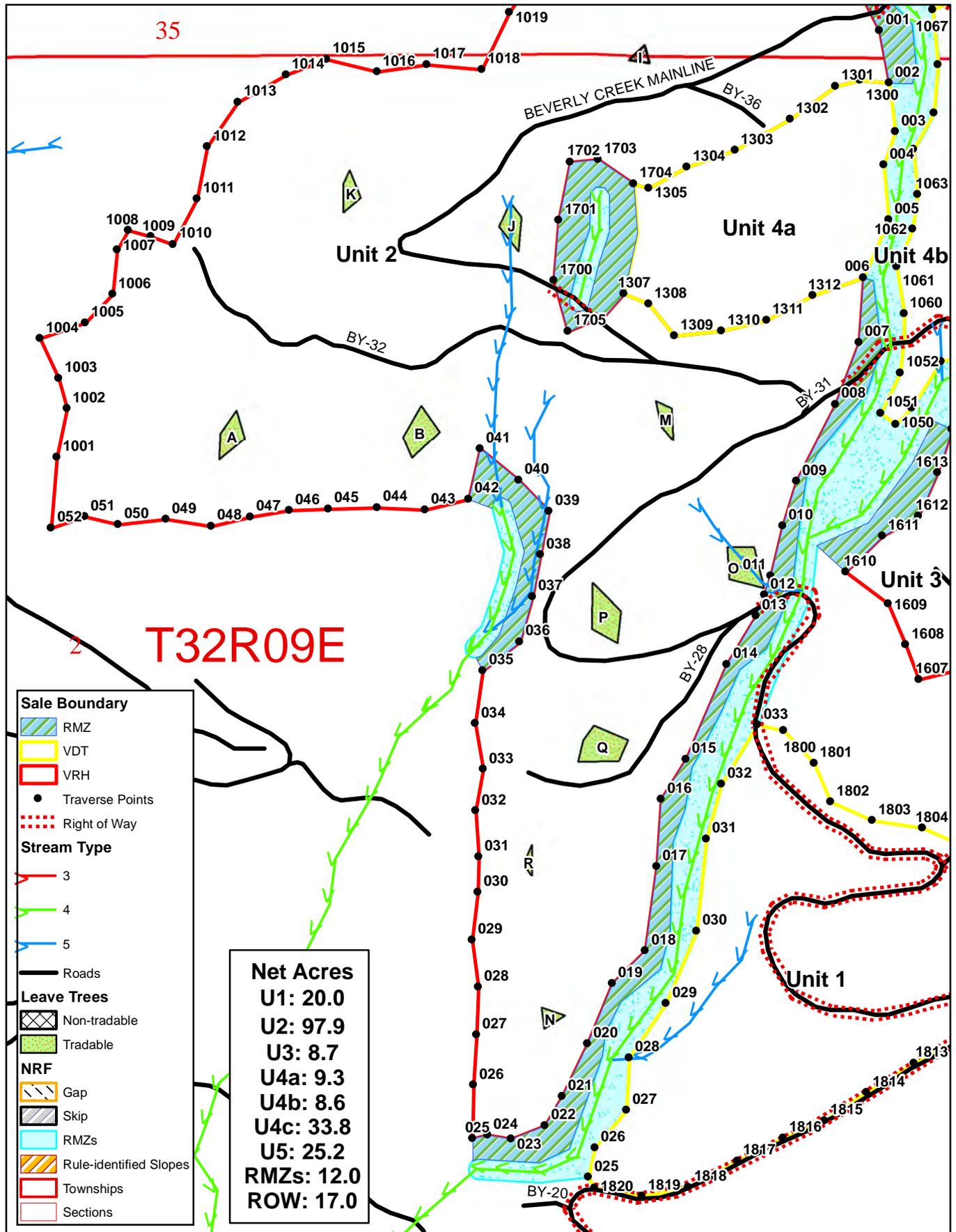
- Gap (yellow diagonal hatching)
- Skip (grey diagonal hatching)
- RMZs (light blue fill)
- Rule-identified Slopes (orange diagonal hatching)
- Townships (red outline)
- Sections (black outline)



12/16/2015

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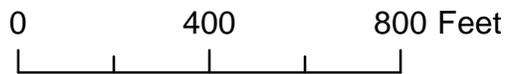
North Heights Timber Sale Precruise Map



T32R09E

- Sale Boundary**
- RMZ
 - VDT
 - VRH
 - Traverse Points
 - Right of Way
- Stream Type**
- 3
 - 4
 - 5
- Roads**
- Roads
- Leave Trees**
- Non-tradable
 - Tradable
- NRF**
- Gap
 - Skip
 - RMZs
 - Rule-identified Slopes
 - Townships
 - Sections

Net Acres
U1: 20.0
U2: 97.9
U3: 8.7
U4a: 9.3
U4b: 8.6
U4c: 33.8
U5: 25.2
RMZs: 12.0
ROW: 17.0



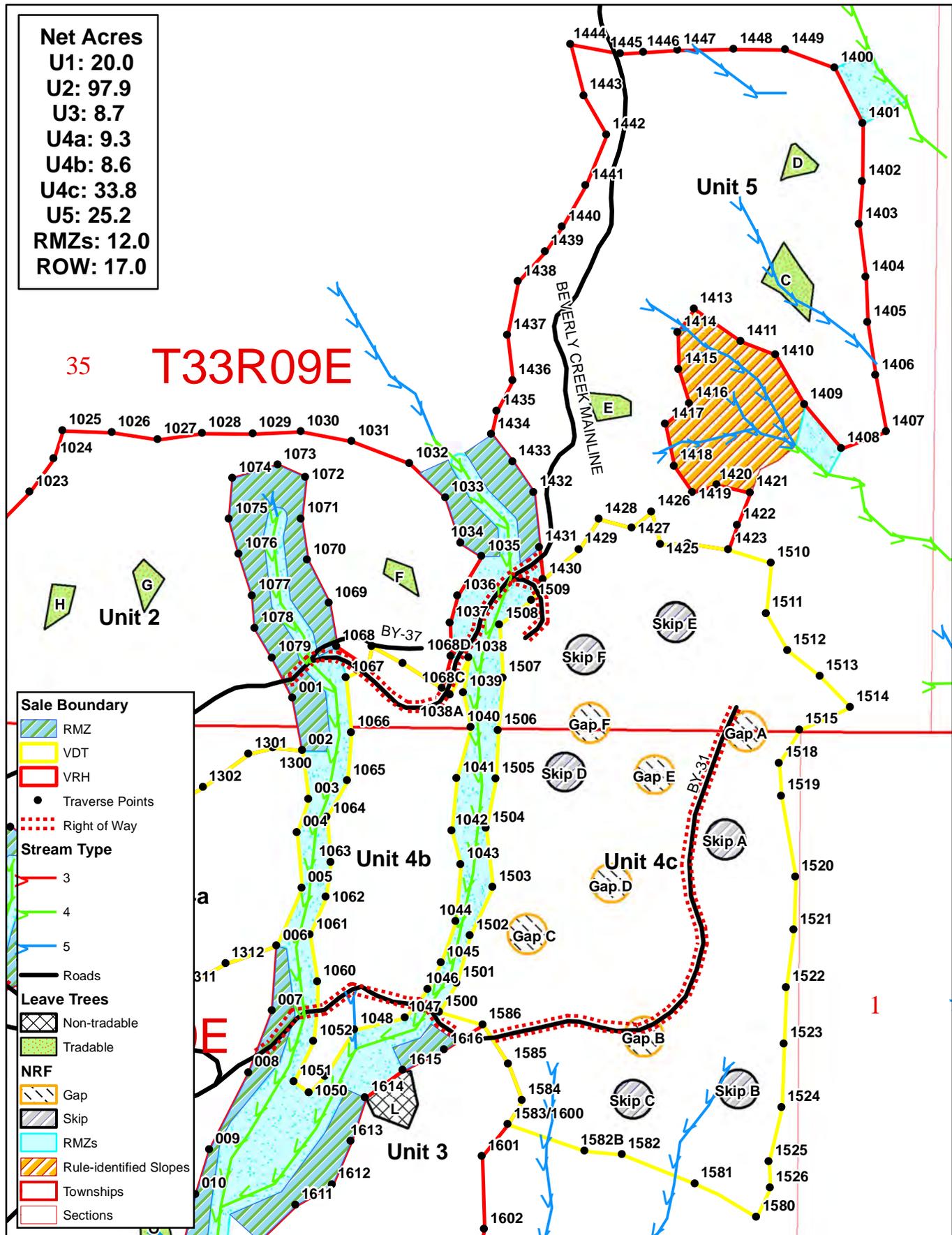
12/16/2015

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North Heights Timber Sale Precruise Map



Net Acres	
U1:	20.0
U2:	97.9
U3:	8.7
U4a:	9.3
U4b:	8.6
U4c:	33.8
U5:	25.2
RMZs:	12.0
ROW:	17.0



Sale Boundary

- RMZ
- VDT
- VRH
- Traverse Points
- Right of Way

Stream Type

- 3
- 4
- 5

Roads

- Roads

Leave Trees

- Non-tradable
- Tradable

NRF

- Gap
- Skip
- RMZs
- Rule-identified Slopes
- Townships
- Sections



12/16/2015

1:4,800

Cruise Narrative

Sale Name: North Heights VRH&VDT	Region: Northwest
Agree. #: 30-090094	District: Clear Lake
Lead cruiser: Matt Llobet	Completion date: 2-17-16
Other cruisers on sale: IM,JM	

Unit acreage specifications:

Unit #	Cruised acres	Cruised acres agree with sale acres? Yes/No	If acres do not agree explain why.
1	56.56	NO	-Combined units 1,4a,4b,4c -Extracted 1.5ac of patch cut out of unit 4c -Extracted 14.14ac of Corridor from units: 1,4a,4b,4c
2	97.9	Yes	
3	33.9	NO	Combined Units 3 and 5
RMZ	12.0	Yes	
ROW	19.7	Yes	
Patch Cut	1.5	Yes	
CORR	14.14	Yes	
Total	235.7	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	V.P.	40.0 BAF	4.5'	225' x 225'	Cruise All	45
2	V.P.	54.4 BAF 40.0 BAF	4.5'	225' x 225'	1:2	81
3	V.P.	54.4 BAF 40.0 BAF	4.5'	225' x 225'	1:2	27
RMZ	V.P.	40.0 BAF	4.5'	4plot/3.8ac	Cruise All	12
ROW	V.P.	40.0 BAF	4.5'	2plots/2.5ac	Cruise All	17
Patch cut	V.P.	40.0 BAF	4.5'	5plot/1.5ac	Cruise All	5
CORR	V.P.	54.4 BAF 40.0 BAF	4.5'	10plot/14.14ac	Cruise All	10

Sale/Cruise Description:

Minor species cruise intensity:	Used a 40 prism in units 2,3, and Corridor to capture minors			
Minimum cruise spec:	Minimum DBH 8 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
Leave/take tree description:	<p>Variable Retention Harvest- Take all timber bound by white timber sale boundary tags or trees marked with a yellow 'T' and a red band, except trees marked with blue paint or bound out with yellow leave tree tags.</p> <p>ROW- Harvest all timber bounded by orange right-of-way tags. Centerline is marked with stakes.</p> <p>RMZ- See Schedule B</p> <p>Patch Cut- See schedule B</p>			
Other conditions				

Field observations:

<p>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. North Heights timber sale was cruised using the variable plot sample method. North Heights timber sale is 235.7 acres.</p> <p>Harvest Method</p> <ul style="list-style-type: none"> - Cable- 50%, Ground Base- 50% <p>Plots dropped</p> <ul style="list-style-type: none"> - Sample points were dropped due to leave tree clumps and unit boundary

Prepared by: Matt Llobet

**Title: Northwest
Region Timber
Cruiser**

TC PSPCSTGR **Species, Sort Grade - Board Foot Volumes (Project)**

T32N R09E S02 TyGAP THRU T33N R09E S35 TyRMZ	Project: HEIGHTS Acres 235.70	Page 1 Date 2/23/2016 Time 6:51:46AM
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Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf	
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
SF	D	2S			14.8	20	17	4			72	28			10	90	39	14	259	1.97	.1
SF	D	3S		58	6.8	1,881	1,753	413		95	5			1	49	50	34	8	80	0.67	22.0
SF	D	4S		20	2.2	624	610	144	97	3			18	38	24	20	25	5	26	0.30	23.1
SF	D	UT		22		651	651	154	28	38	18	16	20	19	6	55	23	7	60	0.65	10.8
SF	Totals			15	4.6	3,177	3,031	714	25	64	7	4	8	12	34	45	28	7	54	0.53	56.0
RC	D	3S		52	9.3	660	599	141		37	61	2		1	99	36	10	124	1.42	4.8	
RC	D	4S		47	7.5	582	538	127	90	10			20	47	29	4	24	5	25	0.39	21.8
RC	D	UT		1		4	4	1	100				100			20	5	20	0.24	.2	
RC	Totals			6	8.4	1,247	1,141	269	43	24	32	1	10	23	14	54	26	6	43	0.64	26.8
DF	D	2S		43	3.7	3,515	3,384	798			85	15		4	10	86	38	14	280	1.87	12.1
DF	D	3S		37	6.3	3,117	2,920	688		100				1	35	64	36	8	90	0.74	32.5
DF	D	4S		11	8.5	978	895	211	80	20			20	44	30	6	26	5	27	0.31	32.8
DF	D	UT		5	12.5	456	399	94	30	17		53	44	21		35	23	6	48	0.61	8.3
DF	HASM			1	6.0	30	28	7				100			100		40	22	790	4.11	.0
DF	HA2S			3	.9	226	224	53			62	38			28	72	38	15	337	2.31	.7
DF	Totals			39	5.7	8,321	7,850	1,850	11	40	38	11	5	8	22	66	31	8	91	0.80	86.4
WH	D	2S		12	9.3	920	834	197			97	3			31	69	37	13	222	1.71	3.8
WH	D	3S		48	7.0	3,440	3,199	754		100				0	78	22	33	8	74	0.66	43.1
WH	D	4S		29	4.6	2,018	1,925	454	90	10			15	39	42	4	26	5	27	0.29	71.6
WH	D	UT		11		715	715	168	51	20	10	19	23	19	10	49	22	6	34	0.41	21.0
WH	Totals			33	5.9	7,092	6,673	1,573	32	53	13	2	7	13	55	25	28	6	48	0.49	139.5
RA	D	2S		7	11.4	114	101	24			100			100			30	13	155	1.37	.7
RA	D	3S		19	13.3	305	264	62		100			13	86	1		28	10	91	0.99	2.9
RA	D	4S		44	10.9	671	598	141	12	88			3	90	4	3	30	7	45	0.54	13.3
RA	D	UT		30	18.5	502	409	96	82	14	2	2	25	57	8	10	23	5	25	0.38	16.5
RA	Totals			7	13.8	1,591	1,372	323	30	62	8	1	11	80	4	4	26	7	41	0.53	33.3
BR	D	UT		100		7	7	2	100				100				11	5	10	0.20	.7
BR	Totals			0		7	7	2	100				100				11	5	10	0.20	.7
BM	D	UT		100		28	28	7	100				27	73			23	5	26	0.38	1.0
BM	Totals			0		28	28	7	100				27	73			23	5	26	0.38	1.0
CW	D	3S		30	16.7	42	35	8		100					100		40	6	50	0.43	.7
CW	D	4S		59	22.2	87	68	16	26	74				38	62		35	6	35	0.40	1.9
CW	D	UT		11		12	12	3	100				100				12	5	10	0.17	1.2
CW	Totals			1	18.7	142	115	27	26	74			10	22	67		29	6	30	0.37	3.8
Totals					6.4	21,604	20,217	4,765	23	49	23	6	7	16	33	45	29	7	58	0.60	347.6

TC PSTATS		PROJECT STATISTICS								PAGE	1
		PROJECT				HEIGHTS				DATE	2/23/2016
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt	
32N	09E	02	GAP	GAP	THR	235.70	197	861	S	W	
33N	09E	35	RMZ	RMZ							
		PLOTS		TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL			197	861	4.4						
CRUISE			117	466	4.0	52,858		.9			
DBH COUNT											
REFOREST											
COUNT			71	395	5.6						
BLANKS			9								
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	128	47.6	16.0	66	16.6	66.4	8,321	7,850	2,163	2,163	
WHEMLOCK	140	91.2	12.0	55	20.6	71.2	7,092	6,673	1,927	1,927	
PS FIR	75	33.6	12.8	57	8.4	30.1	3,177	3,031	849	849	
R ALDER	69	24.8	12.3	47	5.9	20.6	1,591	1,372	463	463	
WR CEDAR	46	22.6	12.6	40	5.5	19.6	1,247	1,141	454	454	
COTWOOD	4	2.6	10.9	57	0.5	1.7	142	115	41	41	
BL MAPLE	3	1.0	10.3	30	0.2	.6	28	28	9	9	
BIRCH	1	.7	7.0	33	0.1	.2	7	7	2	2	
TOTAL	466	224.3	13.1	55	58.1	210.4	21,604	20,217	5,909	5,908	
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		99.8	8.9	253	277	302					
WHEMLOCK		119.3	10.1	97	108	119					
PS FIR		100.6	11.6	110	124	139					
R ALDER		72.7	8.7	61	67	72					
WR CEDAR		104.8	15.6	99	117	135					
COTWOOD		38.5	22.0	35	45	55					
BL MAPLE		21.7	15.0	23	27	31					
BIRCH											
TOTAL		127.1	5.9	142	150	159	645	329	161		
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		146.8	10.5	43	48	53					
WHEMLOCK		127.9	9.1	83	91	99					
PS FIR		241.1	17.2	28	34	39					
R ALDER		213.2	15.2	21	25	29					
WR CEDAR		250.5	17.8	19	23	27					
COTWOOD		655.1	46.6	1	3	4					
BL MAPLE		808.8	57.6	0	1	2					
BIRCH		1403.6	99.9	0	1	1					
TOTAL		66.9	4.8	214	224	235	179	91	45		
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		136.1	9.7	60	66	73					
WHEMLOCK		123.2	8.8	65	71	77					
PS FIR		242.6	17.3	25	30	35					
R ALDER		219.7	15.6	17	21	24					
WR CEDAR		220.6	15.7	17	20	23					
COTWOOD		652.1	46.4	1	2	3					

TC PSTATS		PROJECT STATISTICS							PAGE	2
		PROJECT			HEIGHTS				DATE	2/23/2016
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
32N	09E	02	GAP	GAP	THR	235.70	197	861	S	W
33N	09E	35	RMZ	RMZ						
CL	68.1	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10	
BL MAPLE		806.4	57.4	0	1	1				
BIRCH		1403.6	99.9	0	0	0				
TOTAL		65.8	4.7	201	210	220	173	88	43	
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		145.5	10.4	7,036	7,850	8,663				
WHEMLOCK		125.5	8.9	6,077	6,673	7,269				
PS FIR		250.4	17.8	2,491	3,031	3,571				
R ALDER		235.7	16.8	1,141	1,372	1,602				
WR CEDAR		218.8	15.6	964	1,141	1,319				
COTWOOD		666.1	47.4	61	115	170				
BL MAPLE		814.9	58.0	12	28	44				
BIRCH		1403.6	99.9	0	7	15				
TOTAL		73.8	5.3	19,155	20,217	21,280	218	111	54	
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		82.7	5.9	106	118	130				
WHEMLOCK		38.7	2.8	85	94	102				
PS FIR		173.8	12.4	83	101	119				
R ALDER		165.7	11.8	55	67	78				
WR CEDAR		114.7	8.2	49	58	67				
COTWOOD		518.6	36.9	35	67	99				
BL MAPLE		814.9	58.0	19	46	72				
BIRCH		1403.6	99.9	0	37	75				
TOTAL		67.7	4.8	91	96	101	183	93	46	

T32N R09E S02 TGAP T32N R09E S02 TGAP
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt
 32N 09E 02 GAP GAP 1.50 5 35 S W

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre					
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft		CF/ Lf				
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99									
WH		DM	2S	10	13.0	843	733	1	100				100				32	14	200	1.63	3.7				
WH		DM	3S	60	12.1	4,537	3,988	6	100				42 58				34	8	87	0.81	46.1				
WH		DM	4S	15	4.1	1,092	1,046	2	100					29	40	32		20	5	17	0.28	60.2			
WH		DM	UT	15		972	972	1	12	88					12	41	47		22	7	36	0.63	27.1		
WH	Totals			27	9.5	7,445	6,740	10	17	72	11					6	12	41	41	26	7	49	0.62	137.0	
RA		DM	4S	51	6.9	2,526	2,353	4	19	81					100				30	7	49	0.53	48.2		
RA		DM	UT	49		2,235	2,235	3	65	35					27	39	34		22	6	28	0.43	79.5		
RA	Totals			18	3.6	4,761	4,588	7	41	59					13	70	17		25	6	36	0.48	127.7		
RC		DM	3S	61	16.0	2,593	2,178	3	55 45				100				36	9	90	0.93	24.3				
RC		DM	4S	39	17.6	1,646	1,356	2	92	8					15	57	28		25	5	25	0.36	54.0		
RC	Totals			14	16.7	4,239	3,533	5	35	37	28					6	22	72		29	6	45	0.58	78.2	
DF		DM	2S	41	5.2	2,421	2,294	3	100				100				40	14	274	2.01	8.4				
DF		DM	3S	44	5.0	2,633	2,502	4	100				4 38 59				35	9	98	0.79	25.5				
DF		DM	4S	15	3.4	826	798	1	93	7					7	50	23	20	27	5	28	0.33	28.1		
DF	Totals			22	4.8	5,880	5,595	8	13	46	41					1	9	20	70	32	8	90	0.82	62.0	
SF		DM	2S	55	14.8	3,092	2,636	4	72 28				10 90				39	14	259	1.97	10.2				
SF		DM	3S	22	20.4	1,347	1,072	2	100				8 92				39	7	62	0.62	17.4				
SF		DM	4S	9	15.1	476	404	1	100					100				26	5	25	0.24	15.9			
SF		DM	UT	14		646	646	1	100				100				40	8	90	0.71	7.2				
SF	Totals			19	14.4	5,561	4,758	7	8	36	40	16					10	6	84	35	8	94	0.85	50.6	
Type Totals					9.6	27,886	25,213	38	22	52	23	3					5	23	16	56	28	7	55	0.64	455.5

T32N R09E S02 TU1										T32N R09E S02 TU1				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
32N	09E	02	U1	U1	56.56	45	95	S	W					

S Spp	So T	Gr rt ad	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre		
								Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft		CF/ Lf	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99						
WH	DM	3S	36	1.3	1,088	1,074	61	100				83 17				33	6	54	0.39	19.8	
WH	DM	4S	55	3.0	1,679	1,628	92	88	12			16	22	62		27	5	27	0.24	59.3	
WH	DM	UT	9		261	261	15	100				86	14			14	5	14	0.19	19.1	
WH	Totals		39	2.1	3,027	2,963	168	57	43			16	13	64	6	26	5	30	0.27	98.2	
SF	DM	3S	60	9.7	1,589	1,435	81	100				77 23				33	7	64	0.55	22.3	
SF	DM	4S	34	1.7	814	799	45	100				19	62	6	13	24	5	25	0.27	31.7	
SF	DM	UT	6		141	141	8	50	50			15	50			35	26	6	46	0.50	3.1
SF	Totals		32	6.6	2,544	2,375	134	37	63			7	24	49	20	28	6	42	0.41	57.0	
RA	DM	3S	4	16.7	65	54	3	100				100				30	8	50	0.57	1.1	
RA	DM	4S	55	8.6	767	702	40	17	83			6	94			29	7	44	0.52	15.9	
RA	DM	UT	41		513	513	29	69	31			32	56			12	23	6	30	0.33	17.3
RA	Totals		17	5.7	1,345	1,268	72	38	62			16	79	5		26	6	37	0.44	34.3	
DF	DM	3S	59	5.2	567	537	30	100				100				32	7	61	0.52	8.8	
DF	DM	4S	32		295	295	17	100				22	53	13	12	23	5	24	0.23	12.3	
DF	DM	UT	9		76	76	4	51	49			49	51				20	6	24	0.36	3.2
DF	Totals		12	3.1	937	908	51	37	63			11	21	63	4	26	6	37	0.37	24.3	
Type Totals				4.3	7,853	7,515	425	45	55			13	29	48	10	26	6	35	0.35	213.9	

T32N R09E S35 TROW **T32N R09E S35 TROW**
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt
 32N 09E 35 ROW ROW 19.70 17 43 S W

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft		CF/ Lf
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
DF		DM	2S	26	3.7	1,740	1,675	33			67	33				100	40	16	377	2.23	4.4
DF		DM	3S	35	4.9	2,392	2,275	45		100					44	56	35	9	111	0.92	20.6
DF		DM	4S	12	8.2	819	752	15	90	10			50	28	7	15	23	5	23	0.29	32.3
DF		DM	UT	9	15.6	691	584	12	100				53	47			22	5	23	0.32	25.8
DF		HA	SM	5	6.0	354	333	7			100					100	40	22	790	4.11	.4
DF		HA	2S	13	3.0	844	818	16			66	34				100	40	16	394	2.44	2.1
DF	Totals			70	5.9	6,840	6,436	127	20	36	26	18	11	8	16	66	27	7	75	0.75	85.6
RA		DM	3S	18	10.1	242	217	4		100				88	12		31	9	89	1.01	2.4
RA		DM	4S	12		142	142	3	25	75			75		25		22	6	22	0.37	6.5
RA		DM	UT	70		818	818	16	78		10	11	54	37		9	18	5	24	0.34	34.6
RA	Totals			13	2.0	1,202	1,177	23	58	28	7	8	46	42	5	7	20	6	27	0.40	43.5
WH		DM	2S	49	15.5	475	401	8			38	62			100		32	15	276	2.36	1.5
WH		DM	3S	3	25.0	30	22	0		100				100			23	10	60	1.06	.4
WH		DM	4S	17	33.3	202	135	3	100					100			24	5	20	0.24	6.7
WH		DM	UT	31		245	245	5	44			56		44	56		22	6	43	0.49	5.7
WH	Totals			9	15.6	952	803	16	30	3	19	48		33	67		24	6	56	0.64	14.3
RC		DM	3S	82	29.7	245	173	3				100			100		36	24	640	6.39	.3
RC		DM	4S	18	67.3	109	36	1	100				100				21	5	9	0.55	3.8
RC	Totals			2	41.3	354	208	4	17			83	17		83		22	7	51	1.19	4.1
BM		DM	UT	100		129	129	3	100					100			24	5	30	0.40	4.3
BM	Totals			1		129	129	3	100					100			24	5	30	0.40	4.3
SF		DM	3S	20		65	65	1		100					100		40	6	60	0.56	1.1
SF		DM	UT	80		259	259	5			100				100		40	13	240	1.55	1.1
SF	Totals			4		324	324	6		20	80				100		40	10	150	1.06	2.2
BR		DM	UT	100		88	88	2	100					100			11	5	10	0.20	8.8
BR	Totals			1		88	88	2	100					100			11	5	10	0.20	8.8
Type Totals					7.3	9,888	9,166	181	27	30	23	20	15	15	18	52	24	7	56	0.66	162.8

T32N R09E S35 T00U2 T32N R09E S35 T00U2
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt
 32N 09E 35 U2 00U2 97.90 81 167 S W

Spp	S	So	Gr	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft		CF/Lf
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
WH	DM	2S		14	7.9	1,501	1,383	135	100				34	66	36	13	216	1.66	6.4		
WH	DM	3S		49	5.1	5,024	4,767	467	100				82	18	33	8	79	0.71	60.3		
WH	DM	4S		30	4.1	3,055	2,930	287	92	8			9	45	39	6	27	5	28	0.31	104.4
WH	DM	UT		7		634	634	62	44	22	34		13	10		77	20	5	32	0.47	19.9
WH	Totals			36	4.9	10,214	9,715	951	31	53	14	2	4	14	57	25	29	6	51	0.52	191.0
DF	DM	2S		47	2.0	4,209	4,125	404			88	12			12	88	39	14	293	1.93	14.1
DF	DM	3S		34	5.3	3,140	2,973	291			100			1	39	60	36	8	82	0.71	36.1
DF	DM	4S		12	7.7	1,154	1,065	104	76	24			15	50	30	4	27	5	28	0.31	37.4
DF	DM	UT		4	21.4	440	346	34	26		74		26		74		20	6	44	0.62	7.9
DF	HA	2S		3		225	225	22			100				100		40	14	290	1.85	.8
DF	Totals			32	4.7	9,169	8,734	855	10	37	44	8	3	7	22	68	31	8	91	0.80	96.3
SF	DM	3S		56	7.0	2,657	2,470	242			92	8		1	42	57	35	8	87	0.74	28.4
SF	DM	4S		16	2.5	703	685	67	99	1			18	29	26	27	26	5	27	0.32	25.2
SF	DM	UT		28		1,223	1,223	120	25	35	19	21	20	15	8	57	23	7	65	0.71	18.7
SF	Totals			16	4.5	4,584	4,379	429	23	62	10	6	8	10	30	52	29	7	61	0.60	72.3
RC	DM	3S		45	8.5	1,108	1,014	99			40	60		2		98	36	10	123	1.39	8.2
RC	DM	4S		55	4.7	1,251	1,192	117	93	7			19	46	30	4	25	5	25	0.38	47.3
RC	Totals			8	6.5	2,359	2,206	216	50	22	28		11	26	16	47	26	6	40	0.59	55.6
RA	DM	2S		12	11.4	274	243	24			100				100		30	13	155	1.37	1.6
RA	DM	3S		27	12.2	567	497	49			100		12	88			28	11	98	1.03	5.1
RA	DM	4S		38	11.4	814	721	71			100				100		30	7	50	0.60	14.5
RA	DM	UT		23	35.0	638	415	41	90	10			9	63	19	10	26	5	23	0.41	18.4
RA	Totals			7	18.2	2,293	1,876	184	20	67	13		5	89	4	2	28	7	47	0.61	39.6
CW	DM	3S		41	16.7	102	85	8			100				100		40	6	50	0.43	1.7
CW	DM	4S		50	25.0	139	104	10	41	59				59	41		33	6	30	0.38	3.5
CW	DM	UT		9		17	17	2	100				100				12	5	10	0.17	1.7
CW	Totals			1	20.1	258	206	20	29	71			8	30	62		29	6	30	0.38	6.9
BM	DM	UT		100		41	41	4	100				45	55			23	5	25	0.37	1.7
BM	Totals			0		41	41	4	100				45	55			23	5	25	0.37	1.7
Type Totals					6.1	28,917	27,157	2,659	24	48	24	4	5	17	34	44	29	7	59	0.61	463.2

T32N R09E S35 TU3										T32N R09E S35 TU3				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
32N	09E	35	U3	U3	33.90	27	47	S	W					

S Twp	So Rge	Gr Ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
								Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft		CF/ Lf
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
DF	DM	2S	40	6.6	8,341	7,792	264		82	18		12	6	82	35	14	251	1.70	31.0	
DF	DM	3S	41	7.4	8,760	8,110	275		100					23	77	38	9	108	0.84	74.8
DF	DM	4S	10	10.9	1,988	1,771	60	79	21			13	39	41	7	27	5	30	0.35	59.9
DF	DM	UT	6		1,308	1,308	44	12	32	56		56	27		17	28	9	95	0.93	13.8
DF	HA	2S	3		430	430	15			100				100		32	17	370	3.24	1.2
DF	Totals		66	6.8	20,828	19,411	658	8	46	33	13	5	10	18	67	33	9	107	0.88	180.7
WH	DM	2S	7	17.2	812	672	23			100				100		40	14	240	1.85	2.8
WH	DM	3S	57	13.6	5,895	5,096	173			100				71	29	33	8	73	0.68	69.8
WH	DM	4S	13	2.7	1,233	1,199	41	94	6			52	32	16		21	5	21	0.28	56.2
WH	DM	UT	23		2,006	2,006	68	48	28	24		24	28	20	28	29	6	46	0.41	43.8
WH	Totals		31	9.8	9,945	8,972	304	23	64	13		12	11	47	30	28	7	52	0.54	172.6
RC	DM	3S	92	9.2	607	551	19		45	55				100		36	9	104	1.24	5.3
RC	DM	4S	8	61.7	109	42	1	100				100				15	5	8	0.46	5.3
RC	Totals		2	17.2	716	593	20	7	42	51		7		93		25	7	56	1.01	10.6
SF	DM	3S	75	20.0	216	173	6			100				100		40	10	120	0.97	1.4
SF	DM	4S	25		58	58	2	100						100		37	5	40	0.34	1.4
SF	Totals		1	15.8	274	231	8	25	75					100		39	8	80	0.67	2.9
Type Totals				8.0	31,763	29,207	990	13	52	27	9	7	10	26	56	31	8	80	0.74	366.8

T33N R09E S02 TCORR										T33N R09E S02 TCORR				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
33N	09E	02	CORR	CORR	14.14	10	52	S	W					

Spp	Sp	T	So	Gr	ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
							Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft		CF/ Lf
											4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
WH	DM	2S	29	6.9	2,241	2,086	29			100					21	79	38	13	225	1.69	9.3		
WH	DM	3S	32	8.0	2,419	2,225	31			100					61	39	34	8	77	0.79	28.9		
WH	DM	4S	23	13.0	1,875	1,631	23	84	16				9	45	43	3	26	5	25	0.36	64.2		
WH	DM	UT	16		1,121	1,121	16	44			56				8	92	37	6	78	0.61	14.4		
WH	Totals		27	7.7	7,655	7,063	100	26	35	30	9		2	12	35	51	30	7	60	0.65	116.8		
DF	DM	2S	69	2.5	6,771	6,601	93			81	19				15	85	39	14	297	1.97	22.3		
DF	DM	3S	25	8.2	2,570	2,360	33			100					42	58	35	7	68	0.61	34.7		
DF	DM	4S	6	22.0	691	539	8	63	37				78	8	14		18	5	18	0.30	29.3		
DF	DM	UT		100.0	150												40	6		0.55	2.5		
DF	Totals		36	6.7	10,181	9,499	134	4	27	56	13		4	0	21	74	31	8	107	0.98	88.7		
SF	DM	3S	62	2.3	4,380	4,278	60			100					37	63	35	8	89	0.71	47.9		
SF	DM	4S	19	3.2	1,365	1,320	19	78	22				18	27	44	10	23	5	26	0.31	50.0		
SF	DM	UT	19		1,236	1,236	17	38	62				19	38		43	24	7	48	0.47	25.9		
SF	Totals		26	2.1	6,980	6,834	97	22	78				7	12	32	49	28	7	55	0.53	123.9		
RC	DM	3S	82	6.9	1,262	1,175	17			13	87					100	36	11	153	1.83	7.7		
RC	DM	4S	18		246	246	3	46	54						54	46	28	6	32	0.62	7.8		
RC	Totals		5	5.8	1,508	1,421	20	8	20	72				9	8	83	32	8	92	1.30	15.5		
RA	DM	3S	45	20.8	558	442	6			100			37	63			24	10	76	1.05	5.8		
RA	DM	4S	27		255	255	4			100					100		30	7	50	0.53	5.1		
RA	DM	UT	28		269	269	4	100					19	81			23	5	25	0.45	10.9		
RA	Totals		4	10.7	1,081	965	14	28	72				22	78			25	7	44	0.63	21.8		
CW	DM	4S	83	16.7	495	412	6			100						100	40	6	50	0.43	8.2		
CW	DM	UT	17		82	82	1	100					100				12	5	10	0.17	8.2		
CW	Totals		2	14.3	577	495	7	17	83				17			83	26	6	30	0.37	16.5		
Type Totals						6.1	27,983	26,278	372	16	45	32	7	5	10	26	59	29	7	69	0.71	383.2	

T33N R09E S35 TRMZ										T33N R09E S35 TRMZ				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
33N	09E	35	RMZ	RMZ	12.00	12	27	S	W					

S Spp	So T	Gr rt ad	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
								Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft		CF/ Lf
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
RA		DM 4S	85	16.5	2,060	1,720	21	41	59				59	21	20	32	6	39	0.43	44.2
RA		DM UT	15		292	292	4	100					39	61		19	5	23	0.23	12.9
RA	Totals		24	14.5	2,353	2,012	24	50	50				6	59	18	29	6	35	0.40	57.1
SF		DM 3S	62		1,742	1,742	21		100					69	31	34	6	57	0.44	30.8
SF		DM 4S	31		857	857	10	100					23	20	57	25	5	25	0.22	34.8
SF		DM UT	7		185	185	2	100					100			13	5	15	0.17	12.1
SF	Totals		33		2,784	2,784	33	37	63				14	6	61	27	6	36	0.33	77.7
WH		DM 3S	65		1,325	1,325	16		100					75	25	34	6	57	0.38	23.2
WH		DM 4S	28	9.8	638	576	7	57	43				57		43	22	5	26	0.26	22.6
WH		DM UT	7		125	125	1	100					100			16	5	20	0.17	6.2
WH	Totals		24	3.0	2,088	2,025	24	22	78				22		62	26	6	39	0.33	52.0
DF		DM 3S	61	8.9	906	825	10		100					28	72	37	7	66	0.52	12.6
DF		DM 4S	39		524	524	6	100					17	37	45	25	5	26	0.23	20.5
DF	Totals		16	5.7	1,429	1,348	16	39	61				7	15	34	30	6	41	0.37	33.0
RC		DM 4S	71	16.7	246	205	2		100					100		30	8	50	0.57	4.1
RC		DM UT	29		82	82	1	100					100			20	5	20	0.24	4.1
RC	Totals		3	12.5	328	287	3	29	71				29	71		25	7	35	0.44	8.2
Type Totals				5.8	8,983	8,458	101	37	63				13	21	44	28	6	37	0.36	228.0

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT		HEIGHTS		DATE 2/23/2016		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
32N	09E	02	GAP	GAP	1.50	5	35	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL		5	35	7.0						
CRUISE		5	35	7.0	427		8.2			
DBH COUNT										
REFOREST										
COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
WHEMLOCK	10	90.9	12.7	57	22.4	80.0	7,445	6,740	2,195	2,195
R ALDER	8	85.5	11.7	48	18.7	64.0	4,761	4,588	1,536	1,536
WR CEDAR	6	54.0	12.8	54	13.4	48.0	4,239	3,533	1,306	1,306
DOUG FIR	6	29.6	17.2	73	11.6	48.0	5,880	5,595	1,629	1,629
PS FIR	5	24.6	17.3	78	9.6	40.0	5,561	4,758	1,502	1,502
TOTAL	35	284.6	13.4	57	76.4	280.0	27,886	25,213	8,169	8,169
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		
WHEMLOCK	72.6	24.1	90	119	148					
R ALDER	47.4	17.9	52	64	75					
WR CEDAR	73.0	32.5	71	105	139					
DOUG FIR	63.3	28.2	189	263	338					
PS FIR	88.3	43.9	176	314	452					
TOTAL	100.4	17.0	130	157	183	403	205	101		
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK	89.6	44.5	50	91	131					
R ALDER	137.7	68.4	27	86	144					
WR CEDAR	169.8	84.4	8	54	99					
DOUG FIR	110.7	55.0	13	30	46					
PS FIR	92.2	45.8	13	25	36					
TOTAL	26.7	13.2	247	285	322	35	18	9		
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK	35.4	17.6	66	80	94					
R ALDER	143.9	71.5	18	64	110					
WR CEDAR	136.9	68.0	15	48	81					
DOUG FIR	91.3	45.4	26	48	70					
PS FIR	122.5	60.9	16	40	64					
TOTAL	26.7	13.3	243	280	317	35	18	9		
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WHEMLOCK	27.7	13.8	5,813	6,740	7,667					
R ALDER	149.8	74.4	1,173	4,588	8,002					
WR CEDAR	170.8	84.9	534	3,533	6,533					
DOUG FIR	91.8	45.6	3,042	5,595	8,148					
PS FIR	137.7	68.4	1,502	4,758	8,013					
TOTAL	29.4	14.6	21,530	25,213	28,897	43	22	11		

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

T32N R09E S02 TyGAP	1.5
T32N R09E S02 TyU1	56.5
T33N R09E S35 TyRM	12.0

Project HEIGHTS
Acres 235.70

Page No 1
Date: 2/23/2016
Time 6:51:47AM

Species	Total	Total	Total	Net Cubic Ft/		CF/	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log	LF	Gross	Net	Gross	Net
DOUG FIR	11,214	20,357	14,529	45.45	25.04	0.80	5,098	5,097	1,961	1,850
WHEMLOCK	21,491	32,876	14,534	21.13	13.81	0.50	4,542	4,542	1,672	1,573
PS FIR	7,925	13,202	5,736	25.26	15.16	0.53	2,002	2,002	749	714
R ALDER	5,850	7,857	3,002	18.66	13.90	0.54	1,092	1,092	375	323
WR CEDAR	5,333	6,313	2,516	20.07	16.96	0.65	1,070	1,070	294	269
COTWOOD	623	906	238	15.56	10.70	0.37	97	97	33	27
BL MAPLE	247	247	58	8.80	8.80	0.38	22	22	7	7
BIRCH	173	173	10	2.22	2.22	0.20	4	4	2	2
Totals	52,858	81,931	40,623	26.34	17.00	0.60	13,927	13,925	5,092	4,765

Wood Type Species	Total	Total	Total	Net Cubic Ft/		CF/	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log	LF	Gross	Net	Gross	Net
C	45,964	72,748	37,315	27.65	17.47	0.61	12,712	12,711	4,676	4,407
H	6,894	9,183	3,308	17.62	13.22	0.52	1,214	1,214	417	359
Totals	52,858	81,931	40,623	26.34	17.00	0.60	13,927	13,925	5,092	4,765

PRE-CRUISE NARRATIVE

Sale Name: 32 Volunteers	Region: Northwest
Agreement #: 30-087257	District: Cascade
Contact Forester: Lance Cochran	Phone/ Location: (360)- 856-3500 - Ext: /
Alternate Contact: Joel Dryden	Phone/ Location: (360)-391-5374 Ext: /

Type of Sale: MBF Scale

UNIT ACREAGES AND METHODS OF DETERMINATION:

Unit # Harvest R/W or RMZ WMZ	Legal Description Sec/Twp/Rng	Grant	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	Road Construct ion R/W	Corridor Acres (describe)		
1 PC	Sec 05/ T32/ R09E	01	58.7					58.7 PC	GPS /GIS
Corridor Acres	Sec 05/ T32/ R09E	01	7.7					7.7 Corridor	GPS /GIS
R/W	Sec 05/ T32/ R09E	01	6.6					6.6 R/W	GPS /GIS
TOTAL ACRES			73					73	

HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Mark leave, take, etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
1 PC	Cut all red alder Cut bigleaf maple 6-18 inches dbh Cut western hemlock 6-14 inches dbh Cut Douglas-fir 6-15 inches dbh		
Corridor estimate	Every 100 feet corridor (12 ft. wide) placement. Measured length for acreage calculation. See map.		
R/W	R/W marked with orange tags. Acreage determined with average 60 foot width. The R/W acreage includes the total area on Grandy Lakes ownership.		

*C: Jim
10/21/11 am*

OTHER PRE-CRUISE INFORMATION:

Unit #	Estimated Volume	Access information (Gates, locks, etc.)	Photos, traverse maps required
1 PC	988 MBF		
R/W	576 MBF	No locked gates	
Corridors	671 MBF		
Total	2.2 MMBF		

REMARKS:

Estimated R/W volume was calculated by adding 100% cruise volume on Grandy Lakes to estimated R/W volume inside the unit.

See attached prospectus map

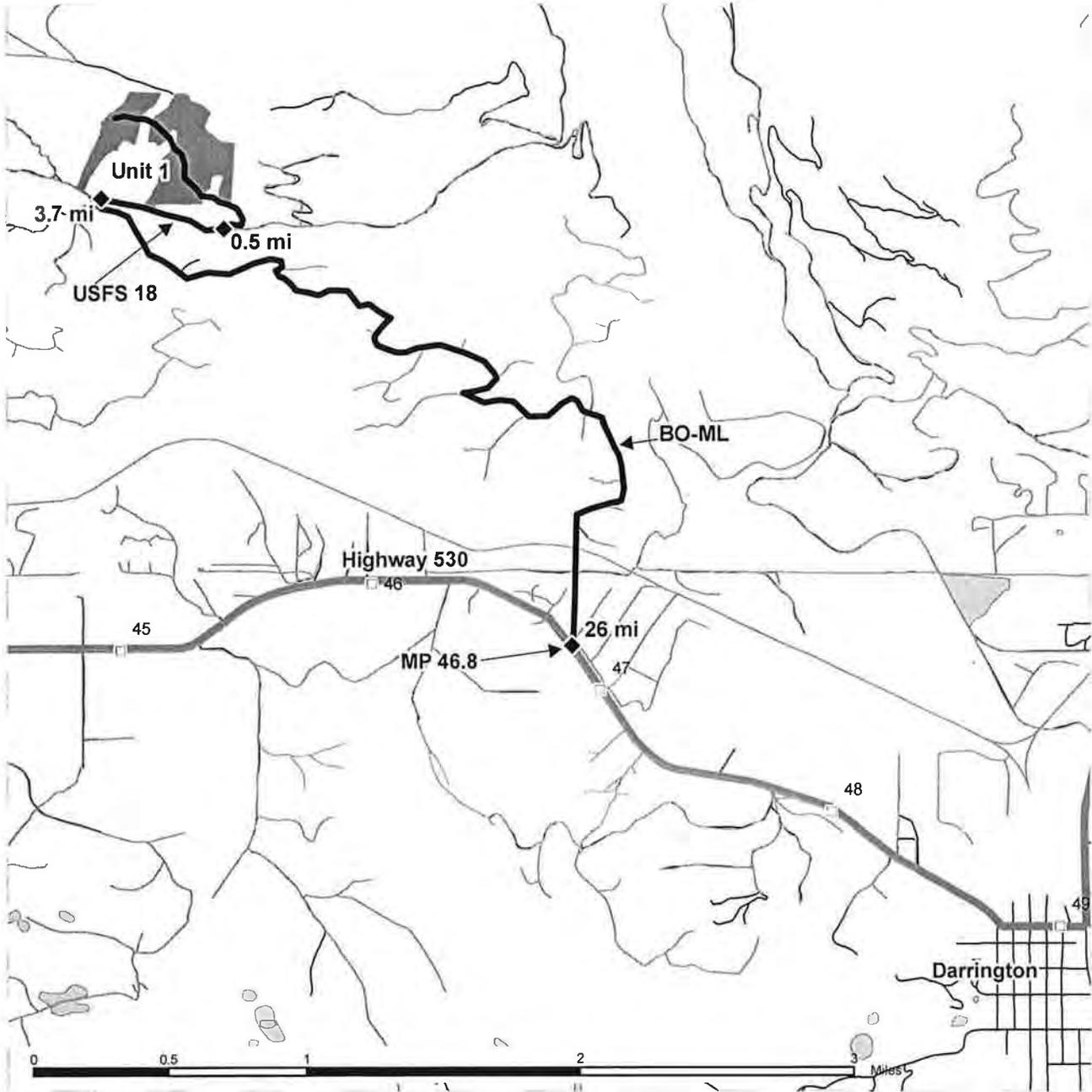
Prepared By: Lance Cochran Date: 09/01/11	Title: NRS 1	CC: Region Timber Sale File
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Revised 2/23/2007 (PSLD) (9/22/08 NW)

DRIVING MAP

SALE NAME: 32 VOLUNTEERS VDT
 AGREEMENT#: 87257
 TOWNSHIP(S): T32R09E
 TRUST(S): State Forest Transfer(1)

REGION: Northwest Region
 COUNTY(S): SNOHOMISH
 ELEVATION RGE: 1016-2272



- Timber Sale Unit
- Haul Route
- Other Route
- Highways
- Open Water
- Milepost Markers

DRIVING DIRECTIONS:

From Arlington travel 26 miles east on State Route 530 to the BO-ML road at MP 46.8. Turn left (north) on the BO-ML road and drive 3.7 miles to the USFS 18 road. Turn right and follow the USFS 18 road 0.5 miles to access Unit 1.



Gross Acres for 32 Volunteers VDT: 73 acres

Road Construction:

4,069' SG-27 *60' = 5.6 acres

390' SG-2703 0.5

331' SG-2704 0.5

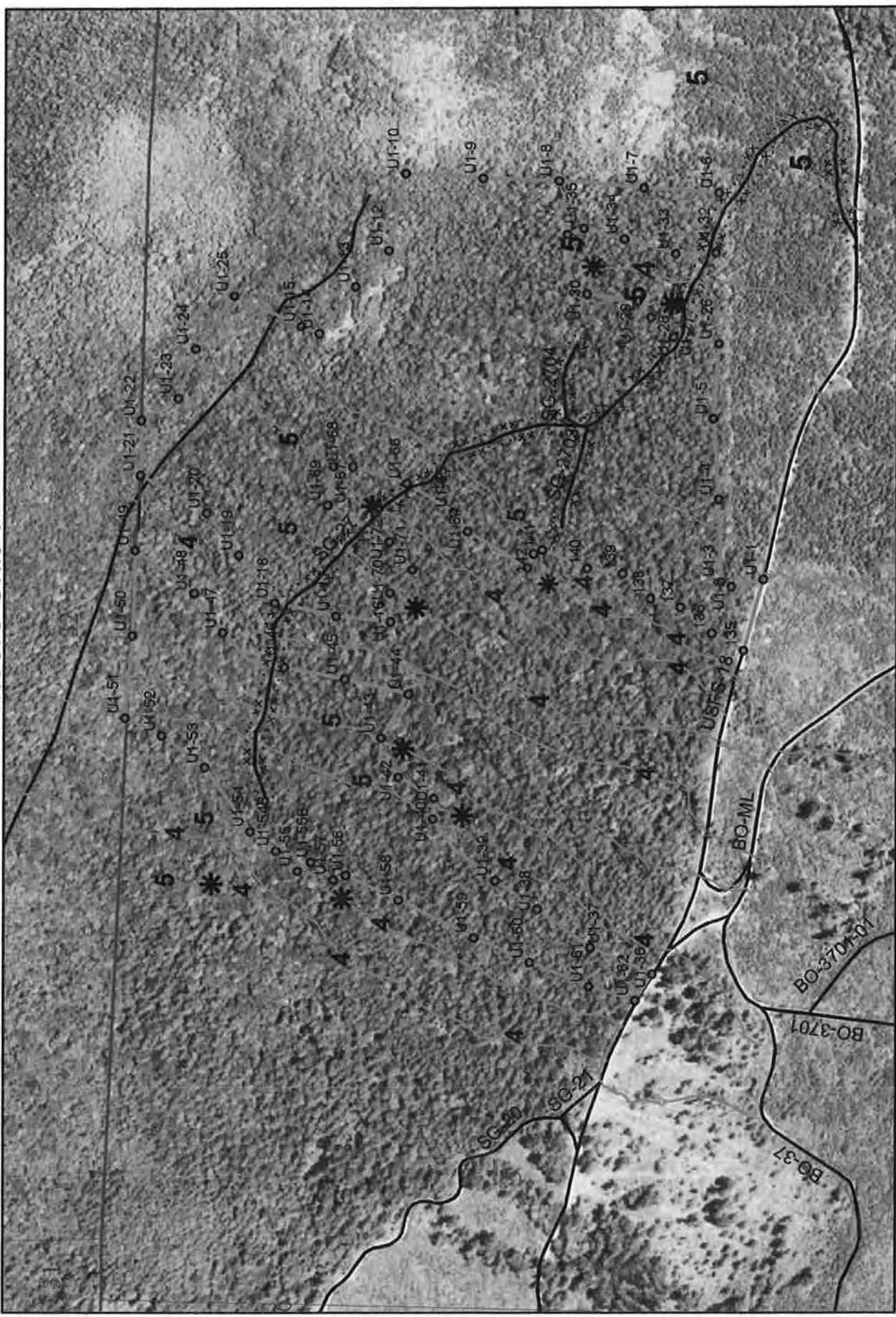
Total: 6.6 acres (Clear-cut)

Corridors (12 feet wide)

Total: 7.7 acres (Clear-cut)

Net PC Acres: 58.7

32 Volunteers Unit 1



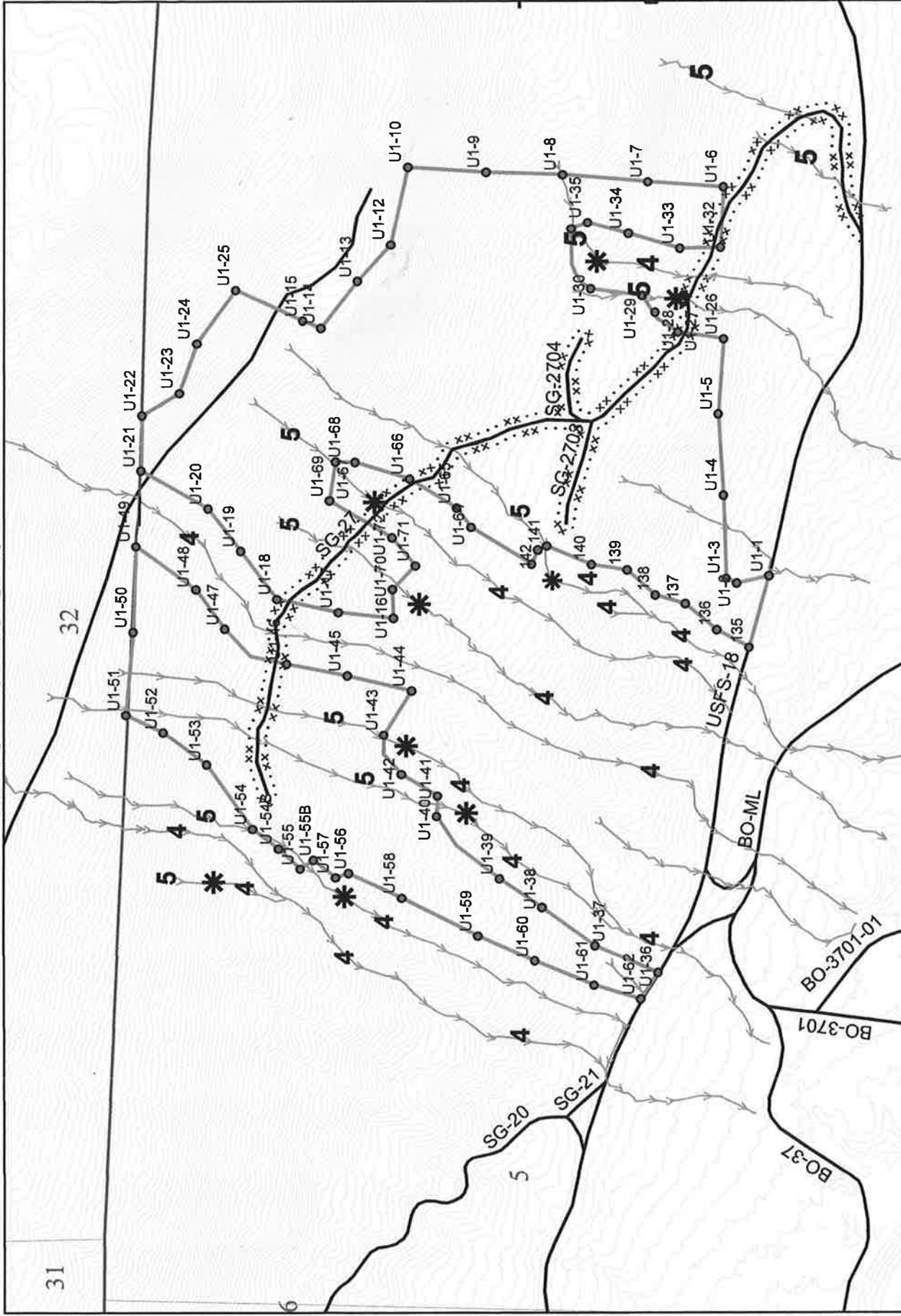
Legend

- boundary_points_U1
- 32_Vols_u1_boundary
- 32Vols_Streams
- ...xx Right-of-Way
- Roads 32 Volunteers

Unit 1
 73 Gross Acres
 58.7 Net Acres
 R/W 6.6 Acres



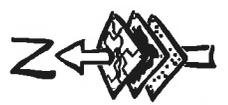
32 Volunteers Unit 1



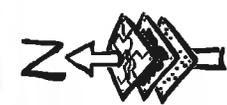
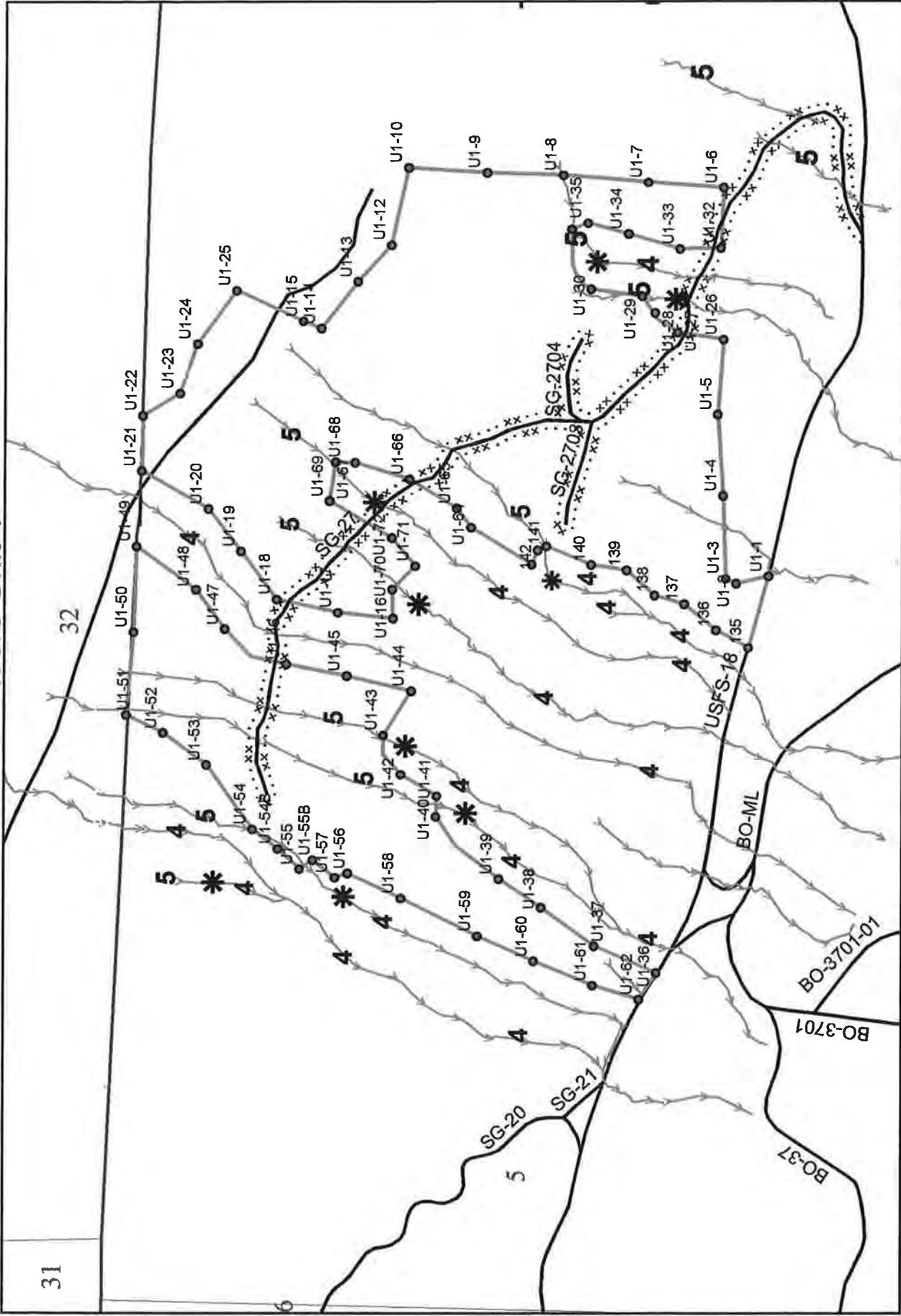
Legend

- boundary_points_U1
- 32_Vols_u1_boundary
- 32Vols_Streams
- ...xx Right-of-Way
- Roads 32 Volunteers

Unit 1
 73 Gross Acres
 58.7 Net Acres
 RW 6.6 Acres



32 Volunteers Unit 1



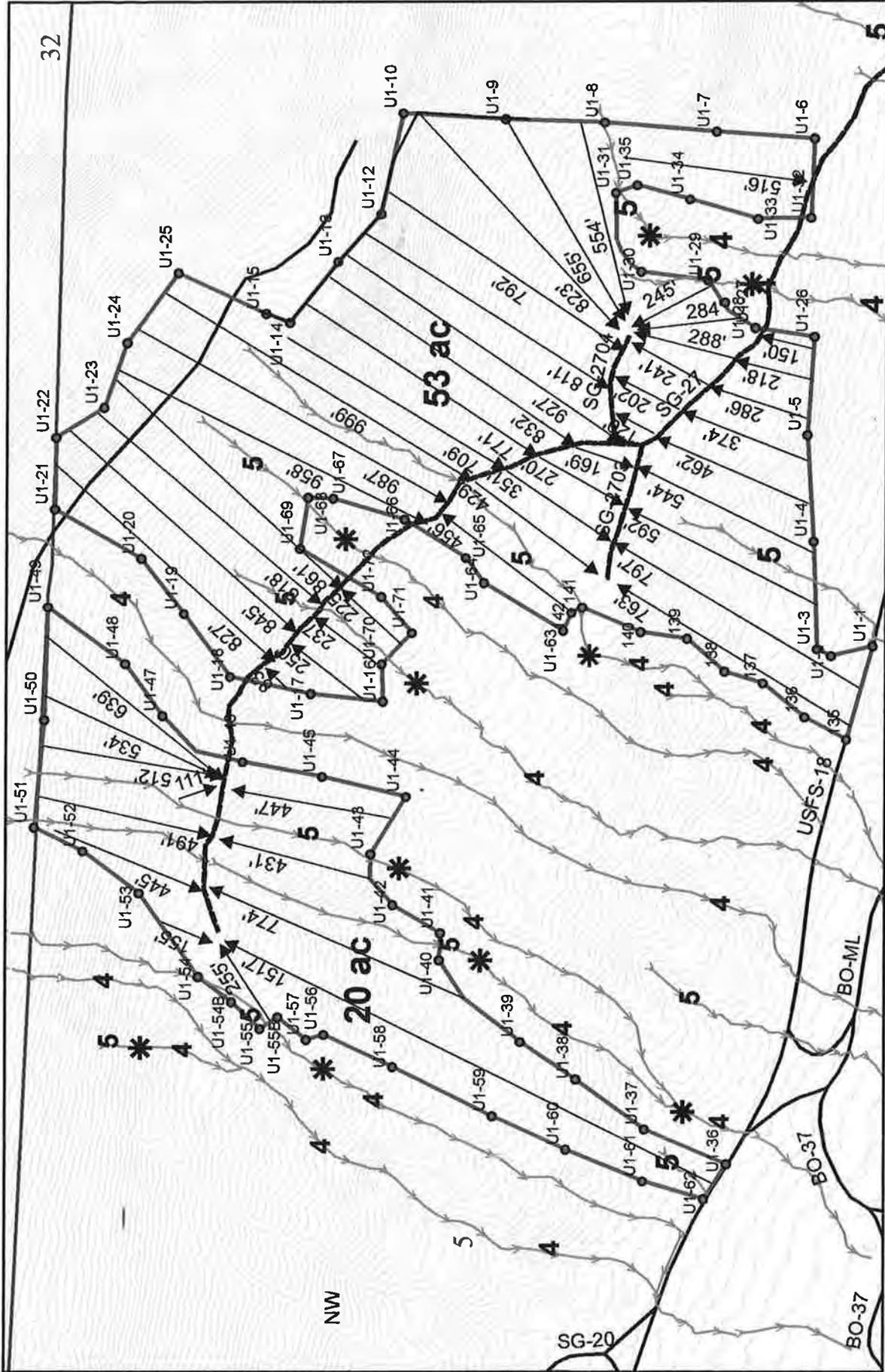
Legend

- boundary_points_U1
- 32_Vols_u1_boundary
- 32Vols_Streams
- ...xx Right-of-Way
- Roads 32 Volunteers

Unit 1
 73 Gross Acres
 58.7 Net Acres
 R/W 6.6 Acres



32 Volunteers Unit 1



Legend

- boundary_points_U1
- 32_Vols_u1_boundary
- 32Vols_Streams
- ==== Roads_32_Volunteers

Unit 1
 73 Gross Acres
 58.7 Net Acres
 R/W 6.6 Acres



Cruise Narrative

Sale Name: 32 VOLUNTEERS	Region: Northwest
App.#:30-087257	District: Cascade
Lead Cruiser: Jim Past	Completion Date: 10/21/2011
Other cruisers NONE on sale:	

Unit acreage specifications:

Unit #	Cruised acres	Cruised acres agree with sale acres? Yes/No	If acres do not agree explain why.
1-PC	58.7	YES	
R/W CORR	14.3	YES	
TOTAL	73	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-PC	VP	40.00	4.5	300'X300'	CRUISED ALL	44
R/W CORR	VP	54.45	4.5	300'X300'	CRUISED ALL	19

Sale/Cruise Description:

Minor species cruise intensity:	ALL SPECIES WERE CRUISED WITH EQUAL INTENSITIES.						
Minimum cruise spec:	Minimum DBH=8 Inches, Minimum Top Diameter=5 Inches						
Avg ring count by sp:	<table style="width: 100%; border: none;"> <tr> <td style="border: none;">DF =</td> <td style="border: none; text-align: center;">5</td> <td style="border: none;">WH =</td> <td style="border: none; text-align: center;">6</td> <td style="border: none;">SS =</td> <td style="border: none;"></td> </tr> </table>	DF =	5	WH =	6	SS =	
DF =	5	WH =	6	SS =			

Field observations:

NRF THINNING, STAND TABLE PLOTS WERE USED TO DEVELOPE PRESCRIPTION.ADDITIONAL PLOTS WERE ADDED TO DETERMINE VOLUME FOR THINNING, ROW AND CORRIDORS.CORRIDOR ACREAGE WAS ESTIMATED FROM LOGGING PLAN MAP.

Grants: _____

Prepared by: Jim Past

Species, Sort Grade - Board Foot Volumes (Project)

T32N R09E S05 TyUIPC	58.70
T32N R09E S05 TyUIRW	14.30

Project: VOLNTEER
Acres 73.00

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Date 10/21/2011
Time 1:20:10PM

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								Average Log				Logs Per /Acre
									Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf	
									5-7	8-11	12-16	17+	12-20	21-30	31-35	36-99					
BM	D	2S		27	2.8	953	926	68			81	19			100	32	13	181	1.38	5.1	
BM	D	3S		45	30.1	2,171	1,517	111		15	85				100	32	12	109	1.21	13.9	
BM	D	4S		28	52.1	1,896	909	66	51	48	1		4	7	89	28	6	24	0.49	38.2	
BM Totals				18	33.2	5,020	3,353	245	14	20	61	5	1	2	97	29	8	59	0.77	57.2	
WH	D	2S		35		480	480	35			51	49			100	32	15	279	1.61	1.7	
WH	D	3S		35		471	471	34	25	58	17				100	32	8	87	0.58	5.4	
WH	D	4S		30	12.0	458	402	36	96	4			28	5	68	20	5	23	0.29	17.5	
WH Totals				7	3.9	1,409	1,354	99	37	21	24	17	8	1	90	23	7	55	0.51	24.7	
RA	D	2S		49		2,626	2,626	192			100				100	32	14	216	1.46	12.2	
RA	D	3S		11		564	564	41		100					100	32	11	140	0.99	4.0	
RA	D	4S		40	9.7	2,343	2,116	154	39	61			2	12	86	26	7	44	0.51	47.6	
RA Totals				28	4.1	5,533	5,306	387	16	35	49		1	5	94	27	8	83	0.76	63.8	
DF	D	SM		23		2,039	2,039	149				100			100	32	20	570	3.41	3.6	
DF	D	2S		18	.7	1,578	1,567	114			37	63			100	32	16	340	1.97	4.6	
DF	D	3S		34	3.3	2,977	2,877	210	13	71	17		0	2	98	31	9	88	0.69	32.6	
DF	D	4S		9	3.1	815	790	58	87	13			17	21	62	17	5	17	0.28	45.1	
DF	H	2S		16		1,345	1,345	98			67	33			100	32	15	272	1.69	4.9	
DF Totals				45	1.5	8,753	8,618	629	12	25	23	40	2	3	96	24	8	95	0.84	90.8	
RC	D	3S		85	29.9	257	180	13	32	48	20	0			100	31	9	80	1.12	2.3	
RC	D	4S		15	33.8	47	31	2	100						100	16	5	12	0.32	2.6	
RC Totals				1	30.5	303	211	15	42	41	17	0		15	85	23	7	44	0.83	4.8	
CW	D	IP		31		79	79	6				100			100	32	26	1000	5.58	.1	
CW	D	2S		45	12.3	129	113	8				100			100	32	21	535	3.23	.2	
CW	D	4S		24	18.8	74	60	5		15	85		4		96	27	13	144	1.45	4	
CW Totals				1	10.5	282	253	19		4	20	76	1		99	29	17	355	2.53	.7	
Totals					10.4	21,301	19,094	1394	15	26	37	21	2	3	95	26	8	79	0.78	242.1	

TC PSTATS					PROJECT STATISTICS					PAGE	1
					PROJECT	VOLNTEER	DATE 10/21/2011				
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
32N	09E	05	32 VOLUNTEER	UIPC	73.00	63	202	S	W		
32N	09E	05	32 VOLUNTEER	UIRW							
					ESTIMATED		PERCENT				
					TREES	TOTAL	SAMPLE				
					PER PLOT	TREES	TREES				
					PLOTS	TREES					
TOTAL					63	202	3.2				
CRUISE					30	127	4.2	7,200	1.8		
DBH COUNT											
REFOREST											
COUNT					30	75	2.5				
BLANKS					3						
100 %											
STAND SUMMARY											
		SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
		TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR		59	30.4	16.6	84	11.2	45.8	8,753	8,618	1,869	1,868
BL MAPLE		27	26.3	16.4	67	9.6	38.8	5,020	3,353	1,284	1,289
R ALDER		22	26.0	16.1	72	9.2	36.9	5,533	5,306	1,321	1,322
WHEMLOCK		11	13.0	11.3	56	2.7	9.1	1,409	1,354	292	291
WR CEDAR		6	2.7	15.0	49	0.9	3.4	303	211	93	92
COTWOOD		2	.2	31.3	102	0.2	1.1	282	253	53	53
TOTAL		127	98.6	15.9	72	34.0	135.2	21,301	19,094	4,911	4,915
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		47.5	6.6	865	926	987					
BL MAPLE		79.0	16.1	146	174	202					
R ALDER		21.9	5.0	261	275	289					
WHEMLOCK		97.8	30.9	235	340	445					
WR CEDAR		71.6	31.9	90	132	174					
COTWOOD		48.6	45.5	714	1,310	1,906					
TOTAL		86.3	8.0	517	561	606	297	152	74		
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		170.1	21.4	24	30	37					
BL MAPLE		149.8	18.9	21	26	31					
R ALDER		159.8	20.1	21	26	31					
WHEMLOCK		257.3	32.4	9	13	17					
WR CEDAR		401.6	50.6	1	3	4					
COTWOOD		573.9	72.2	0	0	0					
TOTAL		56.6	7.1	92	99	106	128	65	32		
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		153.1	19.3	37	46	55					
BL MAPLE		151.7	19.1	31	39	46					
R ALDER		157.1	19.8	30	37	44					
WHEMLOCK		292.4	36.8	6	9	13					
WR CEDAR		363.5	45.8	2	3	5					
COTWOOD		556.7	70.1	0	1	2					
TOTAL		54.2	6.8	126	135	144	118	60	29		
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		168.9	21.3	6,786	8,618	10,451					
BL MAPLE		155.1	19.5	2,698	3,353	4,007					
R ALDER		154.7	19.5	4,272	5,306	6,339					
WHEMLOCK		393.0	49.5	684	1,354	2,023					

TC PSTATS		PROJECT STATISTICS							PAGE	2	
		PROJECT			VOLNTEER				DATE	10/21/2011	
TWP	RGE	SC	TRACT	TYPE	ACRES			PLOTS	TREES	CuFt	BdFt
32N	09E	05	32 VOLUNTEER	U1PC	73.00			63	202	S	W
32N	09E	05	32 VOLUNTEER	U1RW							
CL	68.1	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10		
WR CEDAR		403.6	50.8	104	211	318					
COTWOOD		559.9	70.5	75	253	431					
TOTAL		<i>71.9</i>	<i>9.1</i>	<i>17,366</i>	<i>19,094</i>	<i>20,822</i>	<i>206</i>	<i>105</i>	<i>52</i>		
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		148.0	18.6	148	188	228					
BL MAPLE		70.0	8.8	69	86	103					
R ALDER		70.6	8.9	116	144	172					
WHEMLOCK		358.7	45.1	75	148	221					
WR CEDAR		403.6	50.8	31	63	94					
COTWOOD		559.9	70.5	66	225	384					
TOTAL		<i>65.8</i>	<i>8.3</i>	<i>128</i>	<i>141</i>	<i>154</i>	<i>173</i>	<i>88</i>	<i>43</i>		

T32N R09E S05 TU1PC	T32N R09E S05 TU1PC
Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt	BdFt
32N 09E 05 32 VOLUNTEER UIPC 58.70 44 105 S	W

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre				
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft		CF/ Lf			
									5-7	8-11	12-16	17+	12-20	21-30	31-35	36-99								
RA		DM	2S	46	2,632	2,632	154	100				100				32	14	214	1.45	12.3				
RA		DM	3S	11	631	631	37	100				100				32	11	140	0.99	4.5				
RA		DM	4S	43	9.9	2,653	2,392	140	40	60					2	13	85	26	7	45	0.50	53.5		
RA	Totals			48	4.4	5,916	5,655	332	17	37	47					1	5	94	27	8	80	0.73	70.3	
BM		DM	2S	28	870	870	51	100				100				32	12	160	1.23	5.4				
BM		DM	3S	46	30.3	2,027	1,412	83	100				100				32	12	111	1.24	12.7			
BM		DM	4S	26	55.6	1,718	763	45	42	58					3	97			31	6	25	0.50	30.5	
BM	Totals			26	34.0	4,616	3,045	179	11	15	75					1	99			31	8	63	0.78	48.6
DF		DM	3S	71	6.4	1,825	1,709	100	17	83					100				32	8	76	0.63	22.5	
DF		DM	4S	29	4.4	704	673	40	100					11	8	81	17	5	15	0.25	43.7			
DF	Totals			20	5.8	2,530	2,383	140	41	59					3	2	95	22	6	36	0.44	66.2		
WH		DM	3S	42	261	261	15	36	64					100				32	8	70	0.47	3.7		
WH		DM	4S	58	11.0	392	349	20	100					38	62			19	5	21	0.27	16.2		
WH	Totals			5	6.6	653	610	36	72	28					22	78			22	6	31	0.32	19.9	
Type Totals					14.7	13,714	11,692	686	23	35	42					2	3	94	26	7	57	0.63	205.0	

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)								Page 1											
		Project: VOLNTEER								Date	10/21/2011										
										Time	1:17:50PM										
T32N R09E S05 TUIRW										T32N R09E S05 TUIRW											
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
32N	09E	05	32 VOLUNTEER	UIRW	14.30	19	97	S	W												
Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/ Lf	
								5-7	8-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf		
DF	DM	SM		30	10,409	10,409	149					100			100	32	20	570	3.41	18.3	
DF	DM	2S		23	.7	8,056	8,001	114			37	63			100	32	16	340	1.97	23.5	
DF	DM	3S		23	.4	7,701	7,672	110	8	60	32		1	4	96	31	9	104	0.77	74.1	
DF	DM	4S		3		1,269	1,269	18	58	42			30	48	23	18	6	25	0.38	50.9	
DF	H	2S		21		6,864	6,864	98			67	33			100	32	15	272	1.69	25.2	
DF	Totals			69	.2	34,299	34,215	489	4	15	29	52	1	3	96	28	11	178	1.30	192.0	
BM	DM	2S		25	10.6	1,297	1,159	17			22	78			100	32	16	306	2.28	3.8	
BM	DM	3S		42	29.4	2,758	1,949	28			59	41			100	32	11	102	1.13	19.1	
BM	DM	4S		33	42.5	2,625	1,508	22	71	26	3		5	22	73	22	6	22	0.45	69.8	
BM	Totals			9	30.9	6,680	4,616	66	23	34	24	19	2	7	91	25	7	50	0.73	92.7	
RA	DM	2S		67		2,602	2,602	37			100				100	32	14	224	1.50	11.6	
RA	DM	3S		7		287	287	4			100				100	32	11	140	1.03	2.1	
RA	DM	4S		26	8.1	1,071	985	14	37	63			3	5	92	22	7	42	0.61	23.7	
RA	Totals			8	2.2	3,961	3,874	55	9	23	67		1	1	98	25	9	104	0.99	37.4	
WH	DM	2S		55		2,452	2,452	35			51	49			100	32	15	279	1.61	8.8	
WH	DM	3S		30		1,331	1,331	19	16	54	30				100	32	9	108	0.73	12.4	
WH	DM	4S		15	14.4	728	623	9	87	13			2	16	81	21	6	27	0.35	22.9	
WH	Totals			9	2.3	4,512	4,407	63	17	18	38	27	0	2	97	26	9	100	0.79	44.0	
RC	DM	3S		85	29.9	1,310	918	13	32	48	20	0			100	31	9	80	1.12	11.5	
RC	DM	4S		15	33.8	238	158	2	100						100	16	5	12	0.32	13.0	
RC	Totals			2	30.5	1,548	1,076	15	42	41	17	0		15	85	23	7	44	0.83	24.5	
CW	DM	1P		31		405	405	6			100				100	32	26	1000	5.58	.4	
CW	DM	2S		45	12.3	656	576	8			100				100	32	21	535	3.23	1.1	
CW	DM	4S		24	18.8	380	309	4		15	85		4		96	27	13	144	1.45	2.2	
CW	Totals			3	10.5	1,442	1,290	18		4	20	76	1		99	29	17	355	2.53	3.6	
Type Totals					5.7	52,442	49,478	708	8	18	32	42	1	3	96	26	10	125	1.08	394.3	

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT		VOLNTEER		DATE 10/21/2011		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
32N	09E	05	32 VOLUNTEER	U1PC	58.70	44	105	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		44	105	2.4						
CRUISE		11	30	2.7	5,122		.6			
DBH COUNT										
REFOREST										
COUNT		30	75	2.5						
BLANKS		3								
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
R ALDER	13	29.0	15.8	72	9.9	39.6	5,916	5,655	1,414	1,415
BL MAPLE	8	21.8	17.2	72	8.5	35.0	4,616	3,045	1,188	1,193
DOUG FIR	6	24.6	12.2	74	5.7	20.0	2,530	2,383	636	635
WHEMLOCK	3	11.9	9.4	50	1.9	5.8	653	610	140	140
TOTAL	30	87.3	14.5	70	26.3	100.4	13,714	11,692	3,379	3,383
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		
R ALDER	15.6	4.9	247	260	273					
BL MAPLE			188	188	188					
DOUG FIR	13.9	6.9	128	138	148					
WHEMLOCK	92.8	64.2	26	73	120					
TOTAL	34.2	7.0	182	196	210	49	25	12		
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
R ALDER	138.5	20.9	23	29	35					
BL MAPLE	156.1	23.5	17	22	27					
DOUG FIR	201.1	30.3	17	25	32					
WHEMLOCK	268.1	40.4	7	12	17					
TOTAL	64.2	9.7	79	87	96	165	84	41		
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
R ALDER	139.5	21.0	31	40	48					
BL MAPLE	158.2	23.8	27	35	43					
DOUG FIR	204.6	30.8	14	20	26					
WHEMLOCK	256.9	38.7	4	6	8					
TOTAL	64.0	9.6	91	100	110	163	83	41		
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
R ALDER	138.2	20.8	4,477	5,655	6,832					
BL MAPLE	158.6	23.9	2,318	3,045	3,772					
DOUG FIR	203.5	30.7	1,652	2,383	3,113					
WHEMLOCK	264.0	39.8	367	610	852					
TOTAL	64.0	9.6	10,565	11,692	12,819	164	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		
R ALDER	34.6	5.2	113	143	173					
BL MAPLE	18.9	2.8	66	87	108					
DOUG FIR	89.0	13.4	83	119	156					
WHEMLOCK	194.1	29.2	64	105	147					
TOTAL	347.5	52.3	105	116	128	4,822	2,460	1,205		

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT VOLNTEER				DATE	10/21/2011		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
32N	09E	05	32 VOLUNTEER	UIRW	14.30	19	97	S	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
		PLOTS	TREES		TREES	TREES					
TOTAL		19	97	5.1							
CRUISE		19	97	5.1	2,078		4.7				
DBH COUNT											
REFOREST											
COUNT											
BLANKS											
100 %											
STAND SUMMARY											
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
DOUG FIR	53	54.1	22.7	104	31.9	151.9	34,299	34,215	6,926	6,927	
BL MAPLE	19	44.9	14.9	57	14.1	54.5	6,680	4,616	1,676	1,681	
R ALDER	9	13.7	18.6	74	6.0	25.8	3,961	3,874	940	940	
WHEMLOCK	8	17.6	15.5	74	5.8	22.9	4,512	4,407	914	912	
WR CEDAR	6	14.0	15.0	49	4.4	17.2	1,548	1,076	472	472	
COTWOOD	2	1.1	31.3	102	1.0	5.7	1,442	1,290	269	269	
TOTAL	97	145.3	18.7	78	64.2	278.0	52,442	49,478	11,199	11,201	
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	37.0	5.4	955	1,010	1,064						
BL MAPLE	96.3	22.7	131	169	207						
R ALDER	26.2	9.2	266	293	320						
WHEMLOCK	76.9	29.0	312	440	568						
WR CEDAR	71.6	31.9	90	132	174						
COTWOOD	48.6	45.5	714	1,310	1,906						
TOTAL	75.8	7.9	609	662	714	229	117	57			
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10			
DOUG FIR	106.8	25.2	40	54	68						
BL MAPLE	140.4	33.1	30	45	60						
R ALDER	224.3	52.8	6	14	21						
WHEMLOCK	220.6	52.0	8	18	27						
WR CEDAR	207.8	49.0	7	14	21						
COTWOOD	309.5	72.9	0	1	2						
TOTAL	29.7	7.0	135	145	155	37	19	9			
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10			
DOUG FIR	87.5	20.6	121	152	183						
BL MAPLE	133.3	31.4	37	54	72						
R ALDER	215.4	50.8	13	26	39						
WHEMLOCK	277.8	65.5	8	23	38						
WR CEDAR	184.4	43.5	10	17	25						
COTWOOD	299.5	70.6	2	6	10						
TOTAL	26.8	6.3	260	278	296	30	16	8			
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	87.2	20.6	27,184	34,215	41,246						
BL MAPLE	145.7	34.3	3,032	4,616	6,201						
R ALDER	206.2	48.6	1,992	3,874	5,757						
WHEMLOCK	323.7	76.3	1,046	4,407	7,768						

TC TSTATS				STATISTICS			PAGE	2	
				PROJECT	VOLNTEER		DATE	10/21/2011	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
32N	09E	05	32 VOLUNTEER	UIRW	14.30	19	97	S	W
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10
WR CEDAR		208.9	49.2	546	1,076	1,606			
COTWOOD		301.4	71.0	374	1,290	2,206			
TOTAL		45.6	10.7	44,163	49,478	54,794	88	45	22
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR		87.2	20.6	179	225	272			
BL MAPLE		145.7	34.3	56	85	114			
R ALDER		206.2	48.6	77	150	223			
WHEMLOCK		323.7	76.3	46	192	339			
WR CEDAR		208.9	49.2	32	63	93			
COTWOOD		301.4	71.0	65	225	385			
TOTAL		45.6	10.7	159	178	197	88	45	22

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

T32N R09E S05 TyUIP	58.7
T32N R09E S05 TyUIR	14.3

Project **VOLNTEER**
Acres **73.00**

Page No **1**
Date: **10/21/2011**
Time **1:20:10PM**

Species	Total	Total	Total	Net Cubic Ft/		CF/ LF	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log		Gross	Net	Gross	Net
DOUG FIR	2,216	6,632	3,888	61.52	20.56	0.85	1,364	1,363	639	629
R ALDER	1,896	4,660	2,652	50.90	20.71	0.75	964	965	404	387
BL MAPLE	1,921	4,178	2,484	48.96	22.52	0.77	937	941	366	245
WHEMLOCK	952	1,800	682	22.35	11.81	0.50	213	213	103	99
COTWOOD	15	52	94	250.36	74.14	2.56	39	39	21	18
WR CEDAR	200	351	159	33.73	19.23	0.84	68	67	22	15
Totals	7,200	17,673	9,958	49.83	20.30	0.78	3,585	3,588	1,555	1,394

Wood Type Species	Total	Total	Total	Net Cubic Ft/		CF/ LF	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log		Gross	Net	Gross	Net
C	3,368	8,783	4,728	48.80	18.71	0.78	1,645	1,644	764	743
H	3,832	8,890	5,230	50.73	21.87	0.77	1,940	1,944	791	651
Totals	7,200	17,673	9,958	49.83	20.30	0.78	3,585	3,588	1,555	1,394

Species, Sort Grade - Board Foot Volumes (Project)

T32N R09E S05 TyU1PC 58.70 T32N R09E S05 TyU1RW 14.30		Project: VOLNTEER Acres 73.00	Page 1 Date 1/7/2016 Time 1:10:22PM
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Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99						
DF	D	SM		24		2,189	2,189	160										32	20	618	3.65	3.5
DF	D	2S		18	.7	1,694	1,682	123				37	63					32	16	369	2.12	4.6
DF	D	3S		33	3.2	3,087	2,988	218			83	17		0	3	97		32	9	93	0.72	32.2
DF	D	4S		9	3.2	793	767	56			100			18	68	13		23	6	30	0.33	25.3
DF	HQ	2S		16		1,443	1,443	105					33			100		32	15	295	1.81	4.9
DF Totals				46	1.5	9,205	9,069	662			36	23	41	2	7	92		29	9	129	0.95	70.5
RA	D	2S		49		2,634	2,634	192								100		32	14	216	1.46	12.2
RA	D	3S		11		565	565	41								100		32	11	140	1.00	4.0
RA	D	4S		40	9.7	2,347	2,119	155		14	86			2	12	86		28	7	48	0.51	43.8
RA Totals				27	4.1	5,546	5,318	388		5	45	50		1	5	94		29	8	89	0.76	60.0
WH	D	2S		35		488	488	36				51	49			100		32	15	284	1.63	1.7
WH	D	3S		35		475	475	35				83	17			100		32	8	88	0.59	5.4
WH	D	4S		30	12.1	460	404	30		32	68			27	5	68		21	5	24	0.29	16.7
WH Totals				7	3.9	1,423	1,368	100		10	49	24	17	8	1	90		24	7	57	0.51	23.8
BM	D	2S		27	2.9	957	930	68				81	19			100		32	13	182	1.38	5.1
BM	D	3S		45	30.1	2,179	1,524	111			15	85				100		32	12	109	1.22	13.9
BM	D	4S		28	52.0	1,904	914	67		11	88	1		4	7	89		30	6	25	0.49	36.2
BM Totals				17	33.2	5,041	3,367	246		3	31	61	5	1	2	97		30	8	61	0.77	55.2
RC	D	3S		85	29.9	261	183	13				80	20	0		100		31	9	81	1.14	2.3
RC	D	4S		15	33.8	47	31	2		100						100		26	5	20	0.32	1.6
RC Totals				1	30.5	308	214	16		15	68	17	0		15	85		29	7	56	0.84	3.8
CW	D	5S		31		81	81	6					100			100		32	26	1016	5.66	.1
CW	D	2S		45	12.3	131	115	8					100			100		32	21	544	3.28	.2
CW	D	4S		24	18.8	76	61	4			15	85		4		96		27	13	146	1.47	.4
CW Totals				1	10.5	287	257	19			4	20	76	1		99		29	17	361	2.57	.7
Totals					10.2	21,810	19,593	1,430		3	38	37	22	2	5	93		29	8	92	0.81	214.1



WASHINGTON STATE DEPARTMENT OF
Natural Resources
 Peter Goldmark - Commissioner of Public Lands

FPA/N No: 2815034

Effective Date: 3/25/2016

Expiration Date: 3/25/2019

**Forest Practices Application/Notification
 Notice of Decision**

Shut Down Zone: 656, 658

EARR Tax Credit: Eligible Non-eligible

Reference: North Heights

DECISION:

- NOTIFICATION Operations shall not begin before the effective date.
- APPROVED This Forest Practices Application is subject to the conditions listed below.
- DISAPPROVED This Forest Practices Application is disapproved for the reasons listed below.
- CLOSED Applicant has withdrawn FPA/N.

FPA/N CLASSIFICATION

Number of Years Granted on Multi-Year Request

Class II Class III Class IVG Class IVS 4yrs 5 yrs

Conditions on Approval / Reasons for Disapproval

Yarding roads and skid trails that have the potential to channelize water shall be treated with mulch, water bars or another method to prevent erosion and additional water from being directed toward potentially unstable slopes.

Issued By: Stacie Heiner *SHA*

Region: Northwest

Title: Skagit Forest Practice Forester

Date: 3/25/2016

Copies to: Landowner, Timber Owner and Operator

Issued in Person: Landowner, Timber Owner Operator By: *[Signature]*

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.

Hydraulic Project Approval (HPA) (Chapter 77.55RCW and WAC 222-50-020(2))

The Department of Fish and Wildlife (WDFW), as the jurisdictional agency issuing HPAs, has final authority for approving water crossing structures in Type S and F waters. WDFW continues to have authority on Type N waters and may exercise that authority on some Type N waters.

Notice: The HPA water crossing requirements supersede what is indicated on the FPA. Landowners are required by law to follow the provisions as directed on the HPA.

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 Division 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, postage paid, a true and accurate copy of the attached document. Notice of Decision FPA #_2815_____	
_____ Braelyn Hamilton (Printed name)	_____ (Signature)



WASHINGTON STATE DEPARTMENT OF
Natural Resources
 Peter Goldmark - Commissioner of Public Lands

FPA/N No: 2814944

Effective Date: 1/12/2016

Expiration Date: 1/12/2019

Shut Down Zone: 656/658

EARR Tax Credit: Eligible Non-eligible

Reference: 32 Volunteers

**Forest Practices Application/Notification
 Notice of Decision**

DECISION:

- NOTIFICATION Operations shall not begin before the effective date.
- APPROVED This Forest Practices Application is subject to the conditions listed below.
- DISAPPROVED This Forest Practices Application is disapproved for the reasons listed below.
- CLOSED Applicant has withdrawn FPA/N.

FPA/N CLASSIFICATION

Number of Years Granted on Multi-Year Request

- Class II
- Class III
- Class IVG
- Class IVS
- 4yrs
- 5 yrs

Conditions on Approval / Reasons for Disapproval

Conditions:

Notify the Department of Natural Resources at least 48 hours before beginning operations. Call (360) 856-3500 for Forest Practices, or directly by cellular telephone to the Forest Practice Forester, and provide the application number and legal description for your operation.

All culvert work associated with flowing Type Np/Ns waters located within ¼ mile of any Type F waters will be conducted when the stream channel is dry or, when flowing water is present, in isolation from the main stream flow; this will be accomplished by installation of a temporary bypass flume/culvert, or by pumping the stream flow around the work area.

Armor the inlet and outlets of all culverts that have a diameter equal to or greater than 30 inches.

Erosion control methods will be used to prevent silt-laden water from entering any stream channel, which will be in place prior to the start of work. These may include, but not be limited to, straw bales, filter fabric, temporary sediment ponds, check dams of pea gravel-filled burlap bags or other material, and/or immediate mulching of exposed soil areas.

Deposit side-cast material away from stream channels to eliminate its potential for delivery to typed waters.

Due to the numerous type N streams existing within the proposal area, a minimum of front end suspension shall be utilized on all cable yarding operations. If the use of front end suspension will not ensure the maintenance of stream channel integrity, full suspension yarding will be utilized.

Comments:

Installation of relief culverts will be required on both upslope sides of type Np or higher classed streams at a distance of between 50 to 100 feet from the stream crossing. Refer to WAC 222-24-020 (15) for relief culverts.

Issued By: Bud Westcott *B.W.*

Region: Northwest

Title: Islands Forest Practice Forester

Date: 1/12/2016

Copies to: Landowner, Timber Owner and Operator

Issued in Person: Landowner, Timber Owner Operator By: *L. Wilson*

Appeal Information

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Mailing address: P.O. BOX 40903, OLYMPIA, WA 98504-0903

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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

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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 1/13/16, I placed in the United States mail at Sedro-Woolley, WA, postage paid, a true and accurate copy of the attached document. Notice of Decision FPA # 2814944

L Utgard

(Printed name)

(Signature)



WASHINGTON STATE
DEPT. OF NATURAL RESOURCES
NORTHWEST REGION

ROAD PLAN AND SPECIFICATIONS #30-92622 NORTH HEIGHTS VRH&VDT

CLEAR LAKE DISTRICT CAVANAUGH UNIT

T33R09E 34

35

36



3

T32R09E

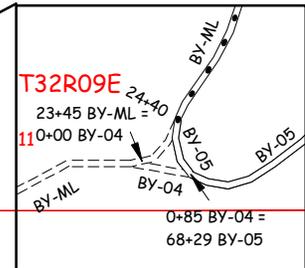
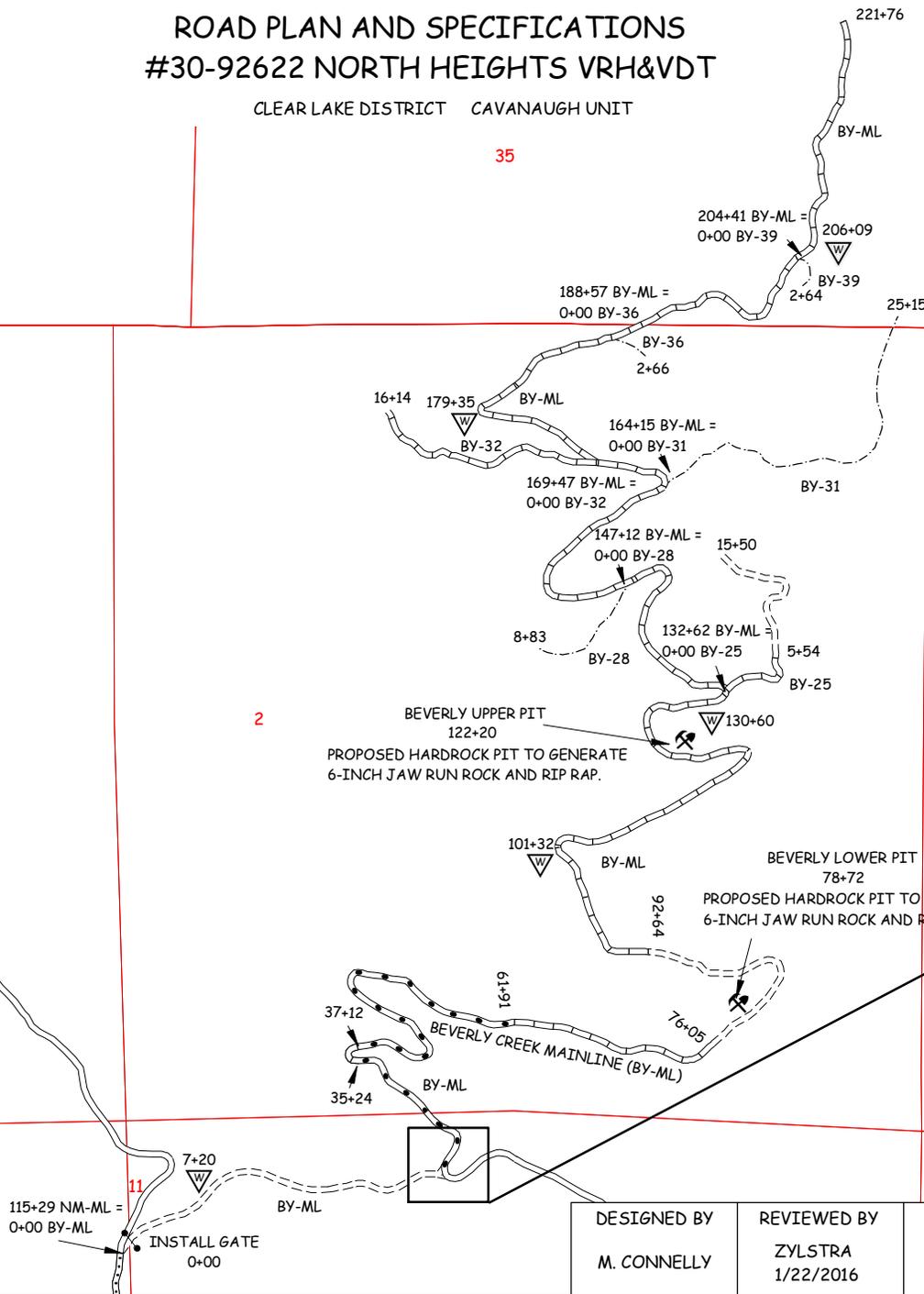
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1

LEGEND

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

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DESIGNED BY M. CONNELLY	REVIEWED BY ZYLSTRA 1/22/2016	APPROVED BY FIKE 1/25/2016	PLAN DATE 12/16/2015	SHEET 1 OF 42
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STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

NORTH HEIGHTS VRH & VDT TIMBER SALE ROAD PLAN
SNOHOMISH COUNTY
CLEAR LAKE DISTRICT

AGREEMENT NO.: 30-090094

STAFF ENGINEER: M. CONNELLY

DATE: 12/16/15

SECTION 0 – SCOPE OF PROJECT

0-1 ROAD PLAN SCOPE

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

0-2 REQUIRED ROADS

The specified work on the following roads is required.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
NM-ML*	0+00 to 115+29	PRE-HAUL
BY-ML**	0+00 to 24+40	CONSTRUCTION
BY-ML	24+40 to 35+24	PRE-HAUL
BY-ML***	35+24 to 37+12	RECONSTRUCTION
BY-ML	37+12 to 61+91	PRE-HAUL
BY-ML***	61+91 to 76+05	RECONSTRUCTION
BY-ML	76+05 to 92+64	CONSTRUCTION
BY-ML***	92+64 to 221+76	RECONSTRUCTION
BY-04	0+00 to 0+85	CONSTRUCTION
BY-25***	0+00 to 5+54	RECONSTRUCTION
BY-25	5+54 to 15+50	CONSTRUCTION
BY-32***	0+00 to 16+14	RECONSTRUCTION

*NM-ML is the Forest Service 2810 Road.

**Construction on the BY-ML from 0+00 to 18+72 and 22+69 to 24+40 is on an abandoned grade.

***All reconstruction on these roads are on abandoned grades.

0-3 OPTIONAL ROADS

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

<u>Road</u>	<u>Stations</u>	<u>Type</u>
BY-28	0+00 to 8+83	CONSTRUCTION
BY-31*	0+00 to 25+15	CONSTRUCTION
BY-36	0+00 to 2+66	CONSTRUCTION
BY-39	0+00 to 2+64	CONSTRUCTION

*Construction on the BY-31 from 0+00 to 20+30 is on an orphaned grade.

0-4 CONSTRUCTION

Construction includes, but is not limited to clearing, grubbing, excavation and embankment to sub-grade, landing and turnout construction, culvert installation, drill and shoot, application of shot rock, application of pit run rock, and work as specified below:

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
BY-ML	0+00 to 24+40	Day light existing through cuts on road prism to dimensions specified on TYPICAL SECTION SHEET and construct portion of road as designed by construction stakes. See CLAUSE 1-16 CONSTRUCTION STAKES SET BY STATE. Extra material shall be end hauled to waste area specified in CLAUSE 4-37 WASTE AREA LOCATION.

0-5 RECONSTRUCTION

This project includes, but is not limited to clearing, grubbing, excavation and embankment to sub-grade, full bench end haul, landing and turnout construction, culvert installation, drill and shoot, and work as specified below:

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
BY-ML	35+24 to 37+12 115+75 to 118+00 130+73 to 132+83 175+88 to 179+46	Widen switch backs.

0-6 PRE-HAUL MAINTENANCE

Pre-haul maintenance includes, but is not limited to work as specified below:

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
NM-ML*	0+00 to 115+29	Clean catch basins and outlets of culverts, clean ditches, install or modify cross drains, brushing, repair asphalt.
BY-ML	24+40 to 35+24	Blading, shaping, and ditching the road surface, existing culvert clean out, spot application of 3-inch minus crushed rock.
BY-ML	37+12 to 61+91	Blading, shaping, and ditching the road surface, existing culvert clean out, install cross drains, spot application of 3-inch minus crushed rock.

*NM-ML is the Forest Service 2810 Road.

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 shall develop new and an existing rock sources. Rock source development will involve clearing, stripping, drilling, shooting and processing rock to generate rip rap, subgrade ballast, and pit run rock. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

0-13 STRUCTURES

Purchaser shall install a gate. Requirements for these structures are listed in Section 7 STRUCTURES.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-4 ROAD TOLERANCES

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

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

1-5 DESIGN DATA

Design data is available upon request at the Department of Natural Resources Northwest Region Office in Sedro-Woolley, WA.

1-6 ORDER OF PRECEDENCE

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

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

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

1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS

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

1-9 DAMAGED METALLIC COATING

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

1-10 WSDOT STANDARD SPECIFICATION REFERENCE

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

1-16 CONSTRUCTION STAKES SET BY STATE

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

<u>Road</u>	<u>Stations</u>	<u>Type</u>
BY-ML	0+00 to 24+40	CONSTRUCTION

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 any hauling other than timber cut on the right-of-way, without written approval from the Contract Administrator.

1-25 ACTIVITY TIMING RESTRICTION

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

<u>Activity</u>	<u>Closure Period</u>
All activities.	November 1 to March 31

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.

1-27 TIMING RESTRICTION FOR MARBLED MURRELET

On the following roads, any road work, right-of-way timber falling and yarding, rock pit operation, or heavy equipment operation is not allowed from one hour before official sunrise to two hours after official sunrise, and from one hour before official sunset to one hour after official sunset from April 1 through August 31. This restriction does not apply to hauling timber, rock, or equipment.

<u>Road</u>	<u>Stations</u>
BY-ML	61+91 to 147+12
BY-ML	195+62 to 221+76
BY-25	0+00 to 15+50
BY-31	0+00 to 25+15
BY-39	0+00 to 2+64

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:

- Surface or base stability problems persist.
- Weather is such that satisfactory results cannot be obtained in an area of operations.
- When, in the opinion of the Contract Administrator excessive road damage or rutting may occur.

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

1-32 ASPHALT SURFACE RESTRICTION

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

If tracked equipment is used on asphalt surfaces, Purchaser shall immediately cease all road construction and hauling operations. Purchaser shall remove any dirt, rock, or other material tracked or spilled on the asphalt surfaces and have surfaces evaluated for any damage caused by transporting equipment. Any damage to the surfaces will be repaired, at the Purchaser's expense, as directed by the Contract Administrator.

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. 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

Purchaser shall use a grader or dozer to shape the existing surface before commencement of rock haul.

2-6 CLEANING CULVERTS

Purchaser shall clean the inlets and outlets of all culverts before commencement of rock haul.

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

Purchaser shall clean ditches, headwalls, and catch basins. Work must be completed before rock application except as listed below and must be done in accordance with the TYPICAL SECTION.

<u>Road</u>	<u>Stations</u>	<u>Activity</u>
NM-ML	0+00 to 115+29	Any hauling

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

3-1 BRUSHING

On the following roads, Purchaser shall cut vegetative material up to 3 inches in diameter, including limbs, as shown on the BRUSHING DETAIL. Brushing must be achieved by manual or mechanical cutting of brush, trees, and branches. Root systems and stumps of cut vegetation may not be disturbed unless directed by the Contract Administrator. Purchaser shall remove brushing debris from the road surface, ditchlines, and culvert inlets and outlets.

<u>Road</u>	<u>Stations</u>
NM-ML	0+00 to 115+29

3-2 BRUSHING RESTRICTION

On the following road, pulling, digging, pushing over, and other non-cutting methods used for vegetation removal may not be used for brushing.

<u>Road</u>	<u>Stations</u>
NM-ML	0+00 to 115+29

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

3-10 GRUBBING

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 the application of rock.

3-23 PROHIBITED DISPOSAL AREAS

Purchaser shall not place organic debris in the following areas:

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

3-24 BURYING ORGANIC DEBRIS RESTRICTED

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

3-25 SCATTERING ORGANIC DEBRIS

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

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

4-5 CUT SLOPE RATIO

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

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

4-6 EMBANKMENT SLOPE RATIO

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

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

4-7 SHAPING CUT AND FILL SLOPE

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

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

- 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.

4-10 WIDEN THE EXISTING SUBGRADE

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

<u>Road</u>	<u>Stations</u>	<u>Comments</u>
BY-ML	35+24 to 37+12 115+75 to 118+00 130+73 to 132+83 175+88 to 179+46	Widen switchbacks by excavating into uphill side. Haul material from excavation to a designated waste area identified in Clause 4-37 WASTE AREA LOCATION.

4-12 FULL BENCH CONSTRUCTION

On the following road, and where side slopes exceed 50%, Purchaser shall use full bench construction for the entire subgrade width. Purchaser shall end haul waste material to the location specified in Clause 4-37 WASTE AREA LOCATION.

<u>Road</u>	<u>Full Bench Location</u>	<u>Comments</u>
BY-ML	208+28 to 221+76	Drill and shoot as needed to obtain dimensions specified on TYPICAL SECTION SHEET.

4-21 TURNOUTS

Purchaser shall construct turnouts intervisible with a maximum distance of 1,000 feet between turnouts unless otherwise shown on drawings. Locations 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 and 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

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. The amount of material allowed in a waste area is at the discretion of the Contract Administrator.

<u>Road</u>	<u>Waste Area Location</u>
BY-ML	7+20
BY-ML	101+32
BY-ML	130+60
BY-ML	179+35
BY-ML	206+09

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.
- Within a riparian management zone.
- On side slopes steeper than 45%.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Within the operational area for cable landings.
- Against standing timber.
- Outside the clearing limits.

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.

4-60 FILL COMPACTION

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

4-61 SUBGRADE COMPACTION

Purchaser shall compact constructed and reconstructed subgrades 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 MATERIALS 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 must meet the specifications in Clauses 10-15 through 10-23. Purchaser shall obtain approval from the Contract Administrator for the quality of used culverts before installation.

5-6 USED CULVERT MATERIAL

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

<u>Road</u>	<u>Stations</u>
BY-31	0+00 to 25+15
BY-36	0+00 to 2+64

5-11 UNUSED MATERIALS STATE PROPERTY

On required roads, any materials listed on the MATERIALS 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”.

5-16 APPROVAL FOR LARGER CULVERT INSTALLATION

Purchaser shall obtain written approval from the Contract Administrator for the installation of culverts 30 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

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

5-20 ENERGY DISSIPATERS

Purchaser shall install energy dissipaters at all culverts on the MATERIALS LIST that specify the placement of rock in the comments section. 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 MATERIALS LIST. Rock used for energy dissipaters must weigh at least 25 lbs. Energy dissipaters must extend a minimum of 1 foot to each side of the culvert at the outlet and a minimum of 2 feet beyond the outlet. Rock must be set in place by machine and manual labor. No placement by end dumping or dropping of rock is allowed

5-21 DOWNSPOUTS AND FLUMES

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

5-25 CATCH BASINS

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

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

Purchaser shall construct headwalls in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all cross drain culverts. Rock used for headwalls must weigh at least 50 pounds. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets. 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

Purchaser shall place light and heavy rip rap 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. Rock may not restrict the flow of water into culvert inlets or catch basins. Rock must be set in place by machine. Placement must be by zero-drop-height method only.

SECTION 6 – ROCK AND SURFACING

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.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
Ashton Pit	MP 0.2 of the AS-13 road.	3-inch minus crushed rock
Sci-fi Pit	MP 1.0 of Christian Camp road.	3-inch minus crushed rock
Beverly Lower	MP 1.5 of BY-ML road.	6-inch jaw run rock, Rip rap
Beverly Upper	MP 2.3 of BY-ML road.	6-inch jaw run rock, Rip rap

6-5 ROCK FROM COMMERCIAL SOURCE

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

<u>Source</u>	<u>Location</u>
Gold Hill Quarry	MP 0.5 Darrington-Sauk River Rd, Darrington, WA

6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE

Purchaser shall conduct rock source development and use at the following sources, in accordance with the written ROCK SOURCE DEVELOPMENT PLAN prepared by the state included in this road plan. 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. Purchaser shall notify the Contract Administrator before starting any operations in the rock source.

<u>Source</u>
Ashton Pit
Sci-fi Pit

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.

6-13 ROCK EXPLORATION

Purchaser shall provide an excavator with operator for **8** hours of exploration of rock at the following sites.

<u>Site</u>	<u>Location</u>
Beverly Lower	Station 78+72 on the BY-ML
Beverly Upper	Station 122+20 on the BY-ML

6-28 1 ¼-INCH MINUS CRUSHED ROCK

% Passing 1 ¼" square sieve	100%
% Passing 5/8" square sieve	55 - 75%
% Passing U.S. #4 sieve	20 - 50%

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

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

6-33 3-INCH MINUS CRUSHED ROCK

% Passing 3" square sieve	100%
% Passing 1½" square sieve	55 - 75%
% Passing U.S. #4 sieve	15 - 45%

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

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

6-39 6-INCH JAW RUN ROCK

% Passing 6" in one dimension	100%
% Passing 3" square sieve	45 - 65%

Rock may not contain more than 5 percent organic debris and trash. All percentages are by weight.

6-50 LIGHT LOOSE RIP RAP

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

<u>At Least/Not More Than</u>	<u>Weight Range</u>	<u>Size Range</u>
20% / 90%	300 lbs. to 1 ton	20" - 36"
80% / --	50 lbs. to ½ ton	12" - 30"
10% / 20%	50 lbs. max	3" - 8"

6-51 HEAVY LOOSE RIP RAP

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

<u>At Least/Not More Than</u>	<u>Weight Range</u>	<u>Size Range</u>
30% / 90%	1 ton to 3 ton	36" - 54"
70% / 90%	500 lbs. to 1 ½ ton	24" - 42"
10% / 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. Road surfaces must be compacted in accordance with the TYPICAL SECTION 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.

6-93 ASPHALT REPAIR

In the following locations, asphalt damage or wear, including but not limited to depressions, sags, cracks, and alligating, must be replaced with new material. All pavement repair areas must be saw-cut before removal. The cutting line must be a minimum of 6 inches beyond the damaged area. Damaged areas exceeding 25 square feet must have asphalt placed with an approved paving machine. The replacement asphalt must be Hot Mix Asphalt or equivalent and installed per Clause 5-04.3(5)E of the WSDOT Standard Specifications. Purchaser shall notify the Contract Administrator at least 5 working days before starting any asphalt road repairs. Purchaser shall obtain written approval from the Contract Administrator for all completed repairs.

<u>Road</u>	<u>Station</u>	<u>Requirements</u>
NM-ML	46+47	Patch asphalt 30 ft by 14 ft (Length x Width)
NM-ML	72+59	Strip asphalt Apply approximately 10 cy of 6-inch jaw run rock into stripped area. Patch asphalt 11 ft by 14 ft Apply approximately 50 cy of 1 1/4" inch-minus crushed rock to shoulder of road to widen turnout.
NM-ML	77+06	Patch asphalt: 16 ft by 14 ft 4.5 by 14 ft 2 by 14 ft
NM-ML	87+53	Patch asphalt 5 ft by 14 ft
NM-ML	88+65	Patch asphalt 5 ft by 14 ft
NM-ML	92+71	Rip slumped asphalt from road, 22 ft by 6 ft Fill in with approximately 30 cy of 1 1/4" inch-minus crushed rock.

6-94 HMA WEATHER LIMITATIONS (WSDOT 5-04.3(16))

HMA may not be placed on any wet surface, or when the average surface temperatures are less than 45°F, or when weather conditions otherwise prevent the proper handling or finishing of the HMA.

When in the opinion of the Contract Administrator the weather is such that satisfactory results cannot be obtained in any phase of operations, the Purchaser shall suspend operations until the weather is favorable.

SECTION 7 – STRUCTURES

7-76 GATE INSTALLATION

Purchaser shall install the listed gates. Gate installations must be installed within 30 days of road construction operations.

<u>Road</u>	<u>Station</u>	<u>Furnished by</u>
BY-ML	0+30	State

The gate and lock box must be installed plumb and aligned to ensure all mating components match with precision. Each post must be filled with concrete set in a minimum of 4 cubic yards of poured-in-place concrete. The Contract Administrator will provide Purchaser with a padlock.

Purchaser shall provide and place 20 cubic yards of rip rap to prevent vehicles driving around the gate.

7-77 GATE SUPPLIED BY STATE

A gate with lock box is located at Department of Natural Resources Northwest Region Office in Sedro Woolley, WA. After making arrangements through the Contract Administrator, Purchaser shall transport the gate, tie-back post, and lock box to the installation site.

SECTION 8 – EROSION CONTROL

8-2 PROTECTION FOR EXPOSED SOIL

Purchaser shall provide and evenly spread a 6-inch layer of straw to all exposed soils at culvert installations.

8-15 REVEGETATION

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

8-16 REVEGETATION SUPPLY

The Purchaser shall provide the grass seed.

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 dispersed 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 addition 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>.

<u>Kind and Variety of Seed in Mixture</u>	<u>% by Weight</u>
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:

<u>Chemical Component</u>	<u>% by Weight</u>
Nitrogen	16
Phosphorous	16
Potassium	16
Sulphur	3
Inerts	49

SECTION 9 – POST-HAUL ROAD WORK

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.

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

9-12 LANDING EMBANKMENT REMOVAL

Purchaser shall reduce or relocate the landing embankment. Place excavated material in a waste area approved in writing by the Contract Administrator.

9-21 ROAD ABANDONMENT

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

<u>Road</u>	<u>Stations</u>
BY-28	0+00 to 8+83
BY-31	0+00 to 25+15
BY-36	0+00 to 2+66
BY-39	0+00 to 2+64

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 1:1 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.

10-20 FLUME AND DOWNSPOUT

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

10-21 METAL BAND

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

10-22 PLASTIC BAND

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

10-24 GAGE AND CORRUGATION

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

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

10-35 HOT MIX ASPHALT (HMA)

HMA must be CL ½", PG 64-28. The materials that HMA is composed of must be of such sizes, grading, and quantity that, when proportioned and mixed, they will produce a well-graded mixture within the requirements listed below. The aggregate percentage refers to completed dry mix, and includes mineral filler when used.

% Passing 3/4" square sieve	100%
% Passing 1/2" square sieve	90 - 100%
% Passing 3/8" square sieve	90% max
% Passing U.S. #8 sieve	28 - 58%
% Passing U.S. #200 sieve	2 - 7% max

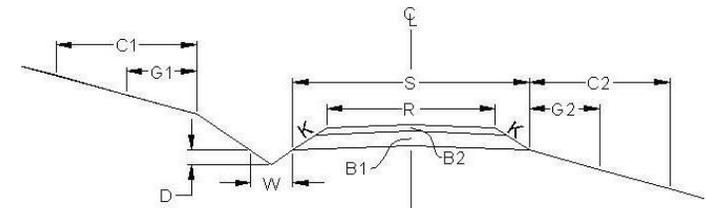
Emulsified Asphalt: Asphalt binder for the tack coat and must be emulsified asphalt, CSS-1 grade meeting the requirements of Section 9-02.1(6) Cationic Emulsified Asphalt of the WSDOT Standard Specifications.

HMA must conform to Sections 5-04 of the WSDOT Standard Specifications, except 5-04.5.

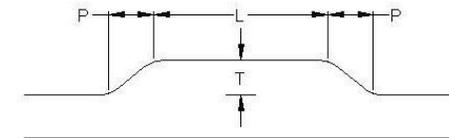
- Asphalt mixing plants must be capable of meeting the requirements of Section 5-04.3(1) – HMA Mixing Plant.
- Subgrade preparation must meet the requirements of Section 2-06.3(2) – Subgrade for Pavement.
- The placement of HMA must be applied in accordance with Section 5-04.3(3) – Asphalt Pavers.
- The compaction of the HMA must meet the requirements of Section 5-04.3(10) – Compaction.

ROAD #		NM-ML	BY-ML	BY-ML	BY-ML
REQUIRED / OPTIONAL		REQUIRED	REQUIRED	REQUIRED	REQUIRED
CONSTRUCT / RECONSTRUCT / PRE-HAUL		PRE-HAUL	CONSTRUCT	PRE-HAUL	RECONSTRUCT
TOLERANCE CLASS (A/B/C)		N/A	C	N/A	C
STATION / MP TO		0+00	0+00	24+40	35+24
STATION / MP		115+29	24+40	35+24	37+12
ROAD WIDTH	R	12	12	12	12
CROWN (INCHES @ C/L)		3	3	3	3
DITCH WIDTH	W	3	3	3	3
DITCH DEPTH	D	1	1	1	1
TURNOUT LENGTH	L	-	50	-	-
TURNOUT WIDTH	T	-	10	-	-
TURNOUT TAPER	P	-	25	-	-
GRUBBING	G1	-	5	-	5
	G2	-	5	-	5
CLEARING	C1	-	10	-	10
	C2	-	10	-	10
ROCK FILLSLOPE	K:1	1 ½	1 ½	1 ½	1 ½
❖ BALLAST DEPTH	B1	-	18	-	-
CUBIC YARDS / STATION		-	114	-	-
➤ TOTAL CY BALLAST		-	2782	-	-
❖ SURFACING DEPTH	B2	-	-	-	-
CUBIC YARDS / STATION		-	-	-	-
➤ TOTAL CY SURFACING		60	-	-	-
➤ TOTAL CUBIC YARDS		60 [@]	2782 ^A	-	-
SUBGRADE WIDTH	S	-	16.5	-	-
BRUSHCUT (Y/N)		Y	N/A	N	N
BLADE, SHAPE, & DITCH (Y/N)		N	N/A	Y	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 ¼-inch-minus weed free surfacing for NM-ML Pre-haul maintenance.**
- A **3-inch minus crushed rock from Ashton Pit or Sci-fi Pit.**
- B **6-inch jaw run rock from Beverly Creek Upper and Beverly Creek Lower Pits.**

Total Rock Quantities:

1 ¼-inch-minus weed free surfacing: **60** Cubic Yards
3-inch-minus crushed surfacing: **11710** Cubic Yards
6-inch jaw run rock: **17206** Cubic Yards
Rip Rap: **698** Cubic Yards

ROAD #		BY-ML	BY-ML	BY-ML	BY-ML	BY-04	BY-25	BY-25
REQUIRED / OPTIONAL		REQUIRED	REQUIRED	REQUIRED	REQUIRED	REQUIRED	REQUIRED	REQUIRED
CONSTRUCT / RECONSTRUCT		PRE-HAUL	RECONSTRUCT	CONSTRUCT	RECONSTRUCT	CONSTRUCT	RECONSTRUCT	CONSTRUCT
TOLERANCE CLASS (A/B/C)		N/A	C	C	C	C	C	C
STATION / MP TO		37+12	61+91	76+05	92+64	0+00	0+00	5+54
STATION / MP		61+91	76+05	92+64	221+76	0+85	5+54	15+50
ROAD WIDTH	R	12	12	12	12	12	12	12
CROWN (INCHES @ C/L)		3	3	3	3	3	3	3
DITCH WIDTH	W	3	3	3	3	3	3	3
DITCH DEPTH	D	1	1	1	1	1	1	1
TURNOUT LENGTH	L	-	50	50	50	50	50	50
TURNOUT WIDTH	T	-	10	10	10	10	10	10
TURNOUT TAPER	P	-	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	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½
❖ BALLAST DEPTH	B1	-	18	12	12	12	12	12
CUBIC YARDS / STATION		-	114	80	80	80	80	80
➤ TOTAL CY BALLAST		-	1612	1131 ^B	10330 ^B	68 ^B	444 ^B	797 ^B
❖ SURFACING DEPTH	B2	-	-	6	6	6	6	6
CUBIC YARDS / STATION		-	-	34	34	34	34	34
➤ TOTAL CY SURFACING		-	-	481 ^A	4391 ^A	29 ^A	189 ^A	339 ^A
➤ TOTAL CUBIC YARDS		-	1612 ^A	1613	14721	97	633	1136
SUBGRADE WIDTH	S	-	16.5	16.5	16.5	16.5	16.5	16.5
BRUSHCUT (Y/N)		N	N/A	N/A	N/A	N/A	N/A	N/A
BLADE, SHAPE, & DITCH (Y/N)		Y	N/A	N/A	N/A	N/A	N/A	N/A

ROAD #		BY-28	BY-31	BY-32	BY-36	BY-39		
REQUIRED / OPTIONAL		OPTIONAL	OPTIONAL	REQUIRED	OPTIONAL	OPTIONAL		
CONSTRUCT / RECONSTRUCT		CONSTRUCT	CONSTRUCT	RECONSTRUCT	CONSTRUCT	CONSTRUCT		
TOLERANCE CLASS (A/B/C)		C	C	C	C	C		
STATION / MP TO		0+00	0+00	0+00	0+00	0+00		
STATION / MP		8+83	25+15	16+14	2+66	2+64		
ROAD WIDTH	R	12	12	12	12	12		
CROWN (INCHES @ C/L)		3	3	3	3	3		
DITCH WIDTH	W	2	2	3	2	2		
DITCH DEPTH	D	1	1	1	1	1		
TURNOUT LENGTH	L	25	25	50	25	25		
TURNOUT WIDTH	T	10	10	10	10	10		
TURNOUT TAPER	P	25	10	25	10	10		
GRUBBING	G1	5	25	5	25	25		
	G2	5	5	5	5	5		
CLEARING	C1	10	5	10	5	5		
	C2	10	10	10	10	10		
ROCK FILLSLOPE	K:1	1 ½	1 ½	1 ½	1 ½	1 ½		
❖ BALLAST DEPTH	B1	12	12	12	12	12		
CUBIC YARDS / STATION		80	80	80	80	80		
➤ TOTAL CY BALLAST		707 ^B	2012 ^B	1292 ^B	213 ^B	212 ^B		
❖ SURFACING DEPTH	B2	6	6	6	6	6		
CUBIC YARDS / STATION		34	34	34	34	34		
➤ TOTAL CY SURFACING		301A	856 ^A	549 ^A	91 ^A	90 ^A		
➤ TOTAL CUBIC YARDS		1008	2868	1841	304	302		
SUBGRADE WIDTH	S	16.5	16.5	16.5	16.5	16.5		
BRUSHCUT (Y/N)		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		

MATERIALS LIST

LOCATION		CULVERT			DWNSTP		RIPRAP			FILL TYPE	TOLERANCE	REMARKS		
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			<u>Note:</u> Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:		
												<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>
NM-ML	88+66	24	--	--	--	--	3	6	L	NT	C	Install energy dissipator for outlet of existing culvert by a combination of machinery and manual labor. Stack rock against underside of pipe in a way to protect subgrade of existing road.		
BY-ML	0+00	18	40	PD	--	--	2	3	L	NT	C	Ditch lay		
	4+37	18	30	PD	--	--	2	3	L	NT	C			
	8+62	18	30	PD	--	--	2	3	L	NT	C			
	14+11	18	32	PD	--	--	2	4	L	NT	C			
	18+96	18	32	PD	--	--	2	4	L	NT	C			
	55+05	18	30	PD	--	--	2	3	L	NT	C			
	59+39	18	30	PD	--	--	2	3	L	NT	C			
	60+94	18	40	PD	--	--	2	3	L	NT	C			
	62+11	18	32	PD	--	--	2	3	L	NT	C			
	63+24	18	30	PD	--	--	2	3	L	NT	C			
	64+76	18	30	PD	--	--	2	3	L	NT	C			
	65+80	18	30	PD	--	--	2	3	L	NT	C			
	67+96	18	30	PD	--	--	2	3	L	NT	C			
	70+88	18	32	PD	--	--	2	3	L	NT	C			
	75+45	18	30	PD	--	--	2	3	L	NT	C			
	76+05	24	40	PD	--	--	3	6	H/L	NT	C	Stream Crossing.		
	76+73	18	30	PD	--	--	2	3	L	NT	C			
	77+48	18	30	PD	--	--	2	3	L	NT	C			
	78+70	18	30	PD	--	--	2	3	L	NT	C			
	81+31	18	30	PD	--	--	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
BY-ML	84+93	18	32	PD	--	--	2	3	L	NT	C			
	86+17	18	34	PD	--	--	2	3	L	NT	C			
	87+38	18	32	PD	--	--	2	3	L	NT	C			
	89+03	18	30	PD	--	--	2	3	L	NT	C			
	92+64	18	40	PD	--	--	2	3	L	NT	C			
	93+81	18	30	PD	--	--	2	3	L	NT	C			
	96+29	18	34	PD	--	--	2	3	L	NT	C			
	101+06	18	36	PD	--	--	2	4	L	NT	C			
	105+09	18	34	PD	--	--	2	3	L	NT	C			
	107+33	18	30	PD	--	--	2	3	L	NT	C			
	109+41	18	30	PD	--	--	2	3	L	NT	C			
	112+40	18	32	PD	--	--	2	3	L	NT	C			
	114+88	18	30	PD	--	--	2	3	L	NT	C			
	116+94	18	30	PD	--	--	2	3	L	NT	C			
	120+67	18	30	PD	--	--	2	3	L	NT	C			
	124+77	18	30	PD	--	--	2	3	L	NT	C			
	129+41	18	30	PD	--	--	2	3	L	NT	C			
	135+78	18	32	PD	--	--	2	3	L	NT	C			
	139+29	18	32	PD	--	--	2	3	L	NT	C			
	144+22	18	36	PD	--	--	2	4	L	NT	C	Trench outlet.		
	144+60	72	60	GM	--	--	15	25	H/L	NT	C	Stream crossing.		

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MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS		
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			<u>Note:</u> Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:		
												Diameter	Gage	Corrugation
		18"										18" 16 2 2/3" x 1/2"		
		24" - 48"										24" - 48" 14 2 2/3" x 1/2"		
		54" - 96"										54" - 96" 14 3" x 1"		
BY-ML	146+06	18	36	PD	--	--	2	4	L	NT	C			
	147+12	18	50	PD	--	--	2	6	L	NT	C			
	149+94	18	30	PD	--	--	2	3	L	NT	C			
	154+97	24	40	PD	--	--	3	4	H/L	NT	C			
	155+21	-	-	-	-	-	-	-	-	-	-	Ditchout away from pipe outlet.		
	156+90	18	32	PD	--	--	2	3	L	NT	C			
	159+08	18	36	PD	--	--	2	4	L	NT	C			
	160+31	18	36	PD	--	--	2	4	L	NT	C			
	161+88	18	32	PD	--	--	2	3	L	NT	C			
	162+67	18	36	PD	--	--	2	4	L	NT	C			
	166+12	18	34	PD	--	--	2	3	L	NT	C			
	167+32	18	34	PD	--	--	2	3	L	NT	C			
	168+86	18	34	PD	--	--	2	3	L	NT	C			
	172+57	30	36	GM	--	--	5	10	H/L	NT	C	Stream Crossing. Pull old pipe. Install pipe in a manner that directs water back into natural channel.		
	174+46	24	36	PD	--	--	3	6	L	NT	C	Stream Crossing.		
	175+80	18	32	PD	--	--	2	3	L	NT	C			
	177+21	18	32	PD	--	--	2	3	L	NT	C			
	180+91	18	32	PD	--	--	2	3	L	NT	C			
	183+98	18	30	PD	--	--	2	3	L	NT	C			
	185+19	18	30	PD	--	--	2	3	L	NT	C			
	187+17	18	30	PD	--	--	2	3	L	NT	C			

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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"										
BY-ML	188+57	18	40	PD	--	--	2	3	L	NT	C			
	191+21	18	30	PD	--	--	2	3	L	NT	C			
	193+29	18	34	PD	--	--	2	3	L	NT	C			
	195+62	36	64	GM	--	--	15	35	H/L	NT	C	Stream Crossing.		
	196+75	18	30	PD	--	--	2	3	L	NT	C			
	198+27	18	30	PD	--	--	2	3	L	NT	C			
	200+35	18	30	PD	--	--	2	3	L	NT	C			
	202+73	18	30	PD	--	--	2	3	L	NT	C			
	204+41	48	60	GM	--	--	15	25	H/L	NT	C	Stream Crossing.		
	206+24	18	30	PD	20	PD	2	3						
	213+15	18	34	PD	20	PD	2	3						
	217+74	18	30	PD	20	PD	2	3						
	219+69	18	30	PD	20	PD	2	3						
BY-25	0+00	18	40	PD	--	--	2	3	L	NT	C	Ditch lay.		
	1+52	18	36	PD	--	--	3	4	L	NT	C			
	4+15	18	36	PD	--	--	2	3	L	NT	C			
	8+59	24	36	PD	--	--	3	6	H/L	NT	C	Stream Crossing.		
	12+25	18	30	PD	--	--	2	3	L	NT	C			
BY-28	4+78	18	30	PD	--	--	2	3	L	NT	C			

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 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"
BY-31	0+00	18	40	PD	--	--	2	3	L	NT	C				
	1+44	18	30	PD	--	--	2	3	L	NT	C				
	3+41	48	44	GM	--	--	10	15	H/L	NT	C	Stream Crossing.			
	5+33	18	34	PD	--	--	2	3	L	NT	C				
	7+61	48	44	GM	--	--	10	15	H/L	NT	C	Stream Crossing.			
	8+91	18	30	PD	--	--	2	3	L	NT	C				
	12+22	18	30	PD	--	--	2	3	L	NT	C				
	14+43	18	30	PD	--	--	2	3	L	NT	C				
	16+63	18	30	PD	--	--	2	3	L	NT	C				
	20+35	18	30	PD	--	--	2	3	L	NT	C				
BY-32	0+64	18	30	PD	--	--	2	3	L	NT	C				
	2+65	30	36	GM	--	--	4	8	H/L	NT	C				
	4+95	24	32	PD	--	--	3	6	H/L	NT	C	Stream Crossing.			
	7+36	18	30	PD	--	--	2	3	L	NT	C				
	9+99	18	30	PD	--	--	2	3	L	NT	C				
	12+28	18	50	PD	--	--	2	4	L	NT	C				
	15+76	18	34	PD	--	--	2	3	L	NT	C				
BY-36	1+83	18	34	PD	--	--	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

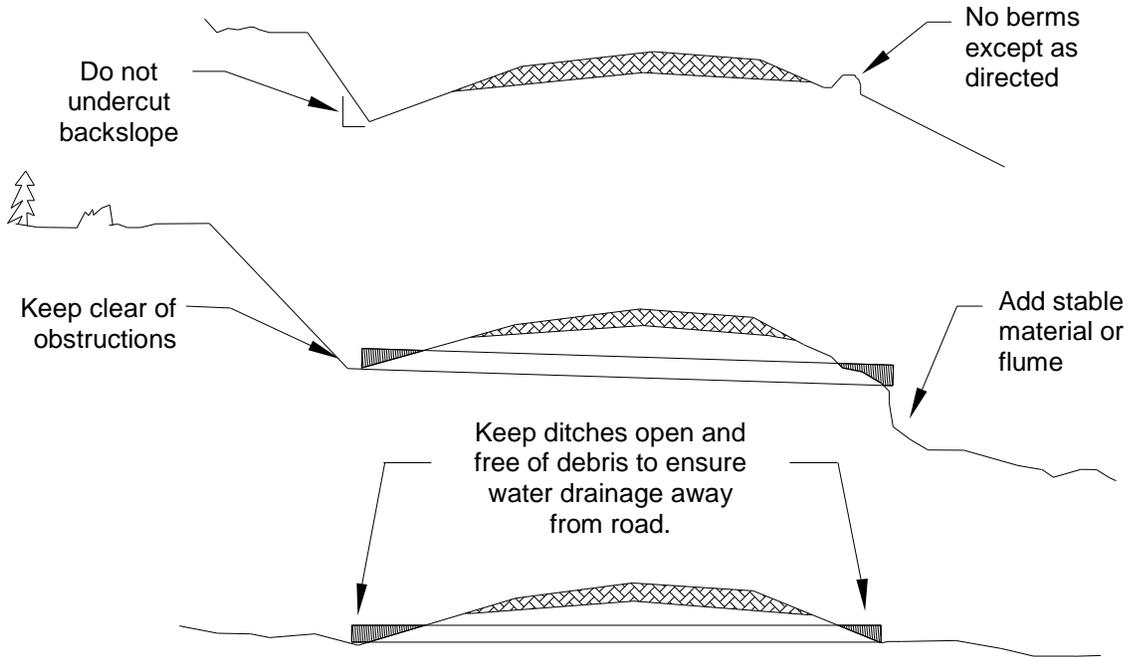
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

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

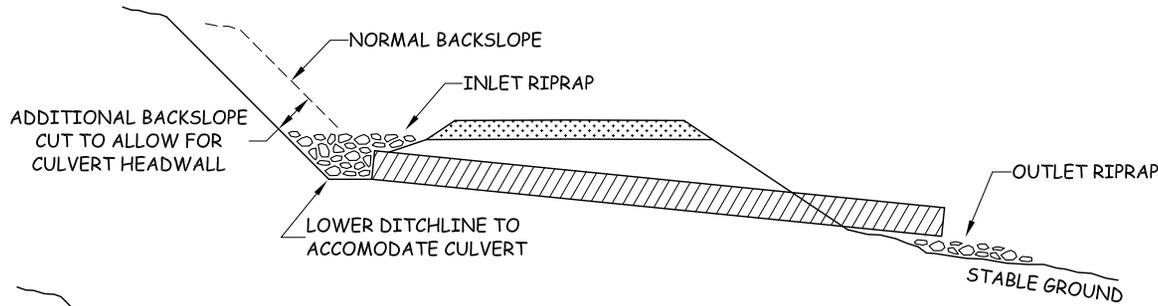
Debris

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

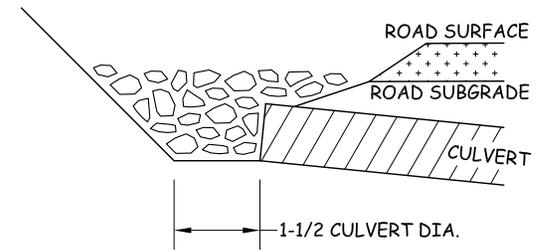


CULVERT AND DRAINAGE SPECIFICATIONS

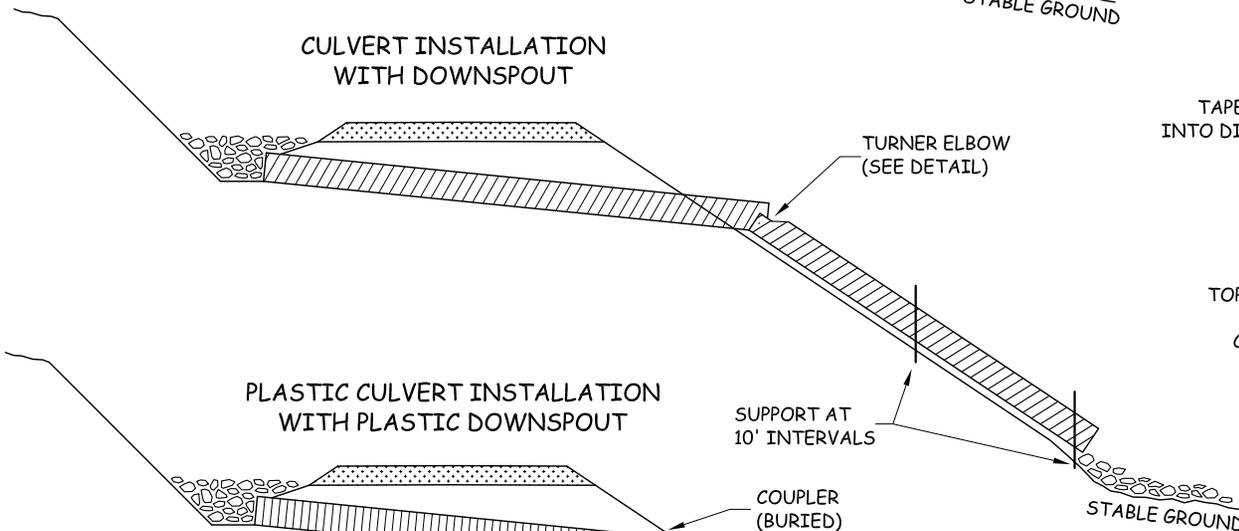
CULVERT INSTALLATION (TYPICAL)



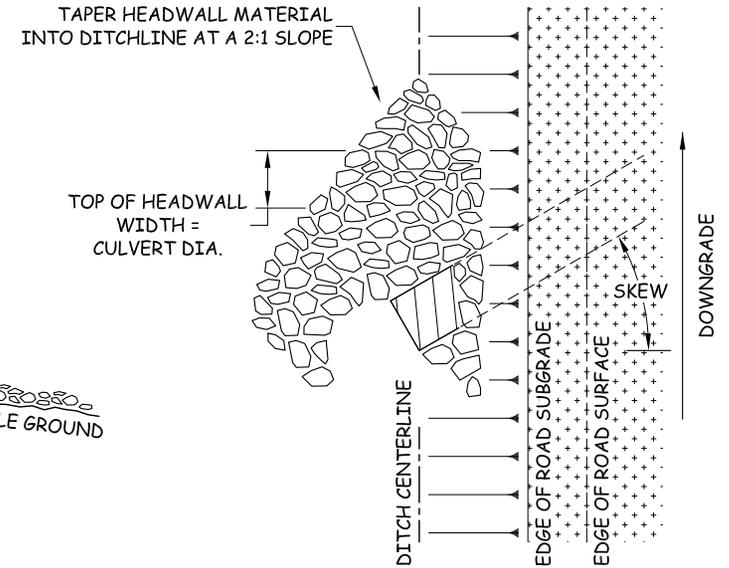
CULVERT HEADWALL - SECTION VIEW



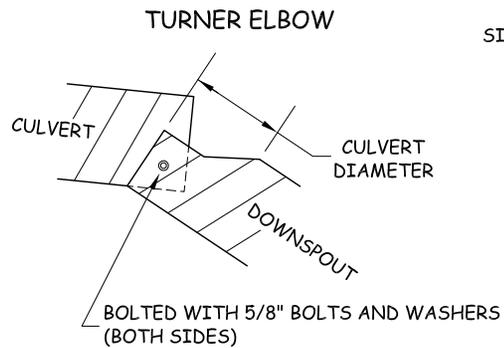
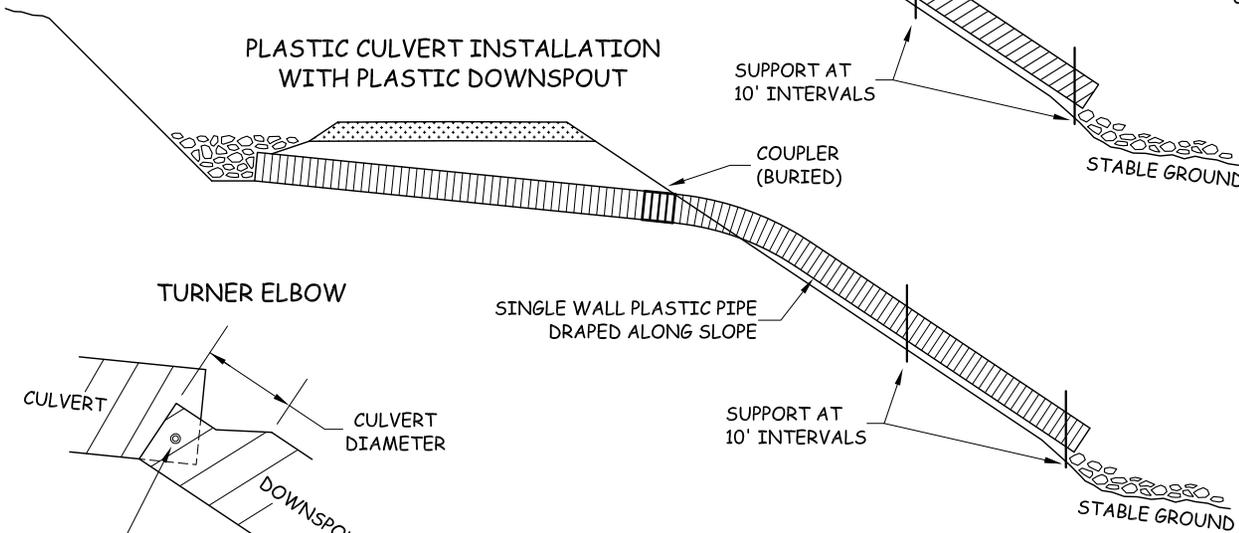
CULVERT INSTALLATION WITH DOWNSPOUT



CULVERT HEADWALL - PLAN VIEW



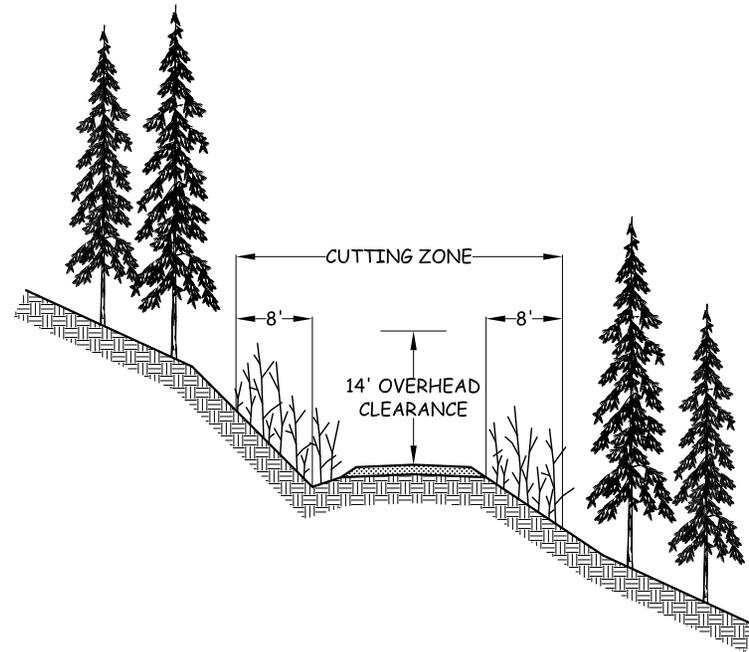
PLASTIC CULVERT INSTALLATION WITH PLASTIC DOWNSPOUT



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
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ROAD BRUSHING DETAILS



SPECIFICATIONS

BRUSH SHALL BE CUT ON THE ROAD SURFACE AND 8 ft. BACK FROM ROAD DITCH AND OUTSIDE EDGE OF RUNNING SURFACE.

ON THE INSIDE OF SWITCHBACKS AND TIGHT CURVES, BRUSH SHALL BE CUT BACK 16 ft. FOR VISIBILITY.

ON TRUCK TURNOUTS, BRUSH SHALL BE CUT 8 ft. BACK FROM OUTSIDE EDGE.

BRUSH SHALL BE CUT TO PROVIDE AN OVERHEAD CLEARANCE OF 14 ft. ABOVE THE ROAD RUNNING SURFACE.

BRUSH SHALL BE CUT TO WITHIN 6 in. OF THE GROUND.

SLASH SHALL BE REMOVED FROM CUT SLOPES ABOVE THE ROAD AND SCATTERED ON EMBANKMENT SLOPES.

DITCHES SHALL BE CLEARED OF WOODY DEBRIS.

CULVERT INLETS AND OUTLETS SHALL BE CLEANED A MINIMUM DISTANCE OF TWO PIPE DIAMETERS AWAY.

CONTRACT # 30-090094	PROJECT NORTH HEIGHTS VRH & VDT	SHEET 39 OF 42
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WASHINGTON STATE
DEPT. OF NATURAL RESOURCES
NORTHWEST REGION

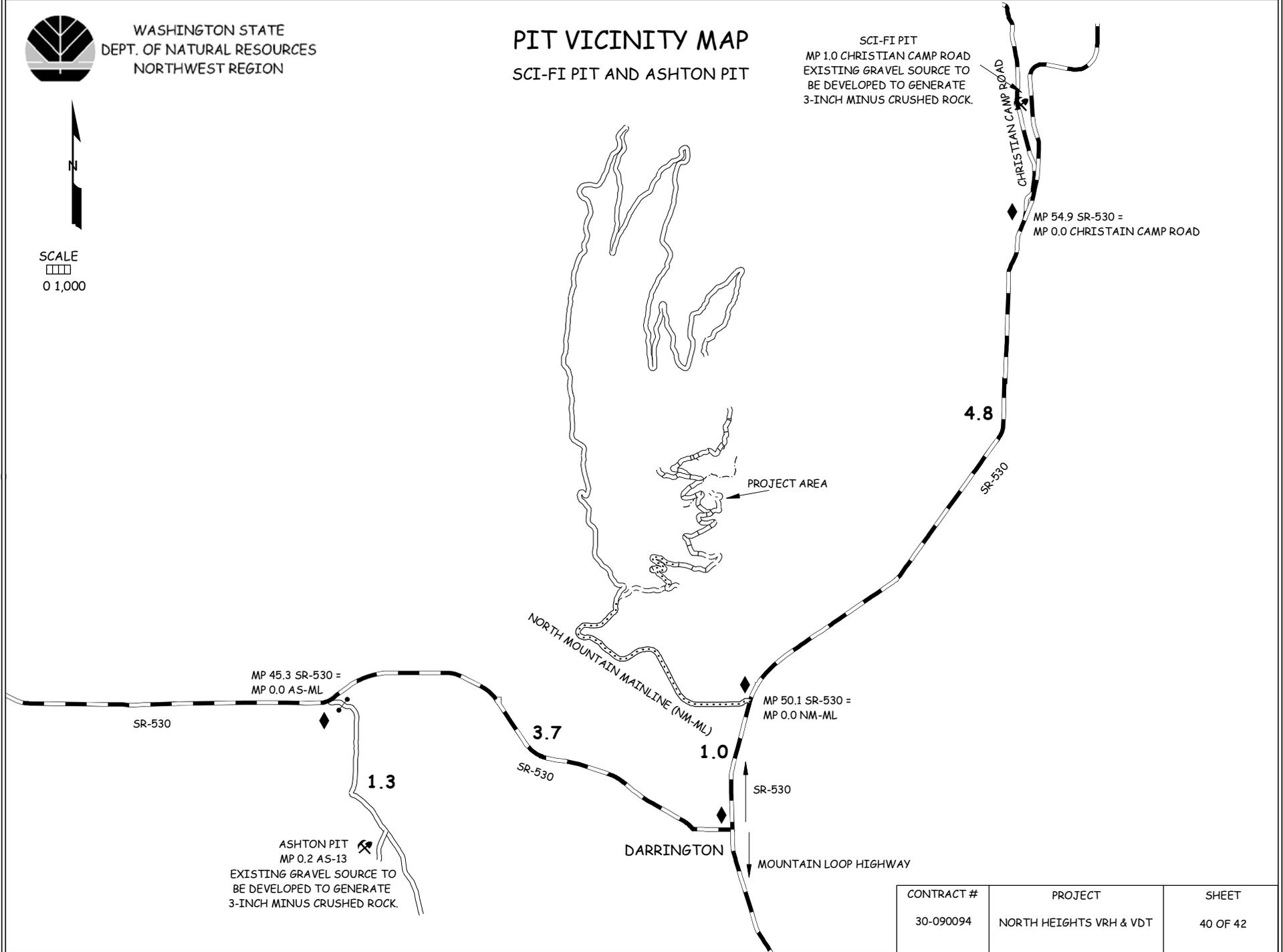
PIT VICINITY MAP

SCI-FI PIT AND ASHTON PIT

SCI-FI PIT
MP 1.0 CHRISTIAN CAMP ROAD
EXISTING GRAVEL SOURCE TO
BE DEVELOPED TO GENERATE
3-INCH MINUS CRUSHED ROCK.



SCALE
0 1,000

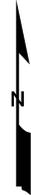
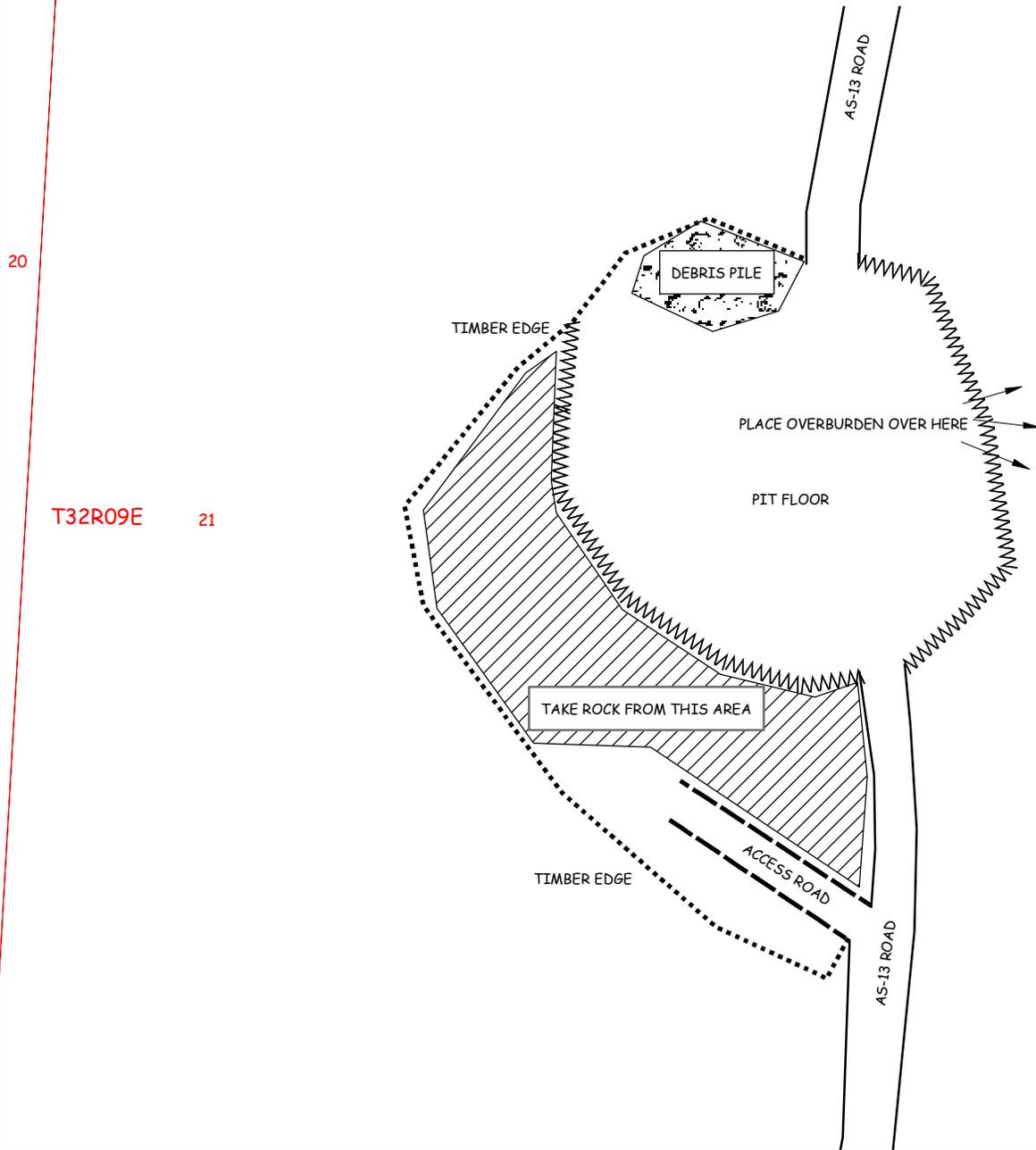


CONTRACT #	PROJECT	SHEET
30-090094	NORTH HEIGHTS VRH & VDT	40 OF 42



PIT DEVELOPMENT PLAN

ASHTON GRAVEL PIT



NOT TO SCALE

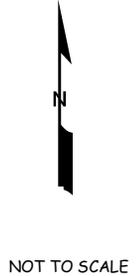
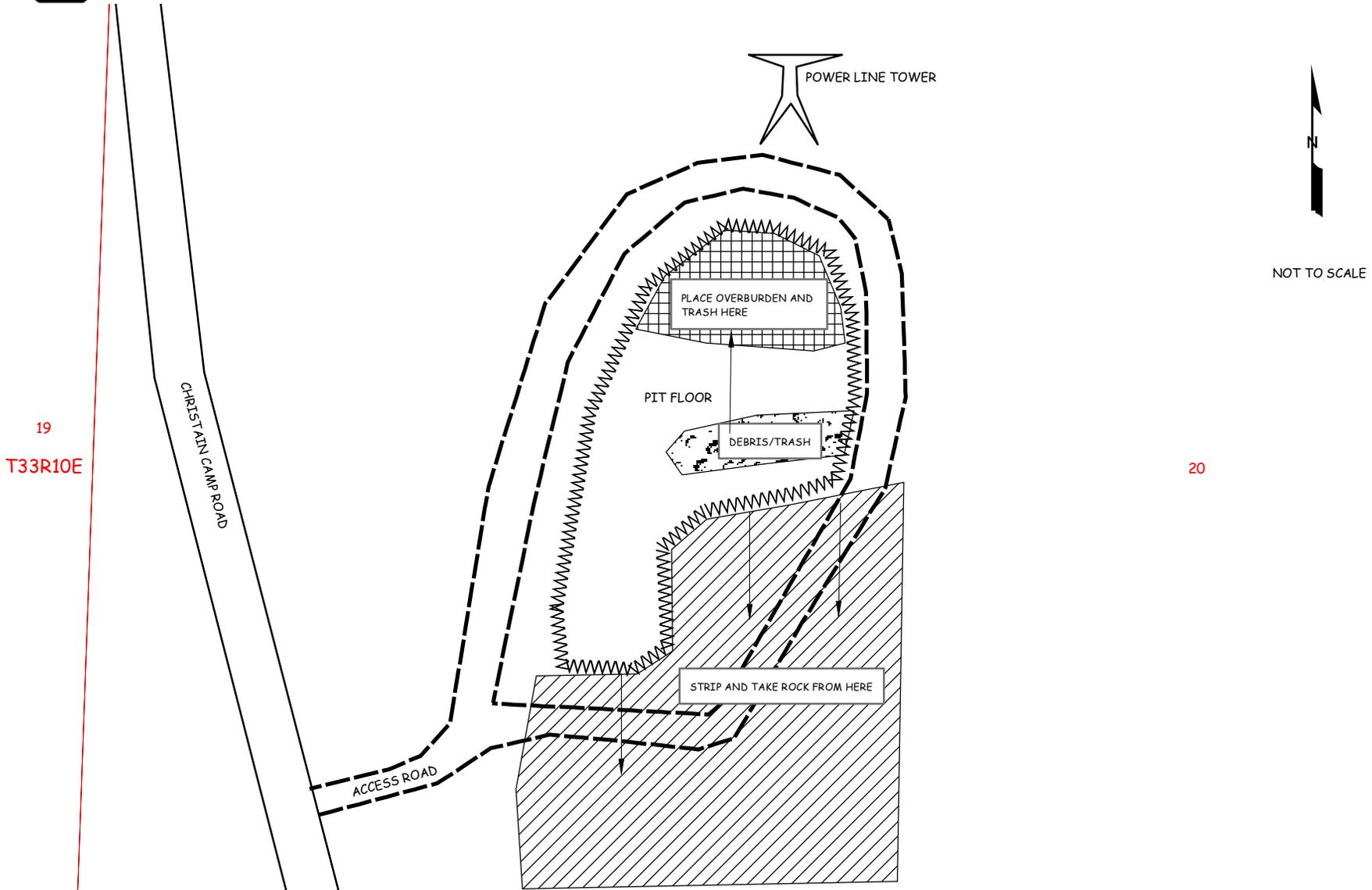
CONTRACT #	PROJECT	SHEET
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WASHINGTON STATE
DEPT. OF NATURAL RESOURCES
NORTHWEST REGION

PIT DEVELOPMENT PLAN

SCI-FI GRAVEL PIT



CONTRACT #	PROJECT	SHEET
30-090094	NORTH HEIGHTS VRH&VDT	42 OF 42

SECTION 0 - SCOPE OF PROJECT

This project includes but is not limited to the following major items:

Construction of the SG-27, SG-2703, and SG-2704 roads totals 47.90 stations. Construction will involve clearing, grubbing, excavation and embankment to sub-grade, end-haul, landing and turnout construction, culvert installation, geotextile installation, and application of 3-inch-minus gravel ballast.

Development of an existing hardrock source at MP 1.0 of the French Point Mainline (FP-ML) road. Development will involve clearing, stripping, drilling, shooting, and processing rock to generate shot rock and riprap.

Development of an existing gravel source at MP 1.6 of the Barco Mainline (BO-ML) road. Development will involve clearing, stripping, and processing rock to generate gravel ballast.

Construction centerline is staked. Any additional staking or referencing necessary to build the road to the following specifications shall be the responsibility of the Purchaser. Construction staking notes are available on request.

SECTION 1 - GENERAL CLAUSES

1.1-1

Clauses in this plan apply to all construction including landings unless otherwise noted.

1.1-3

Construction of the following roads is not required. If the Purchaser elects to use these roads, they shall be constructed on the State's location and in accordance with this Road Plan.

Road	Length	Type
SG-27	40.69 Stations	Construction
SG-2703	3.90 Stations	Construction
SG-2704	3.31 Stations	Construction

1.1-4

If the purchaser desires a road location or design change, a revised road plan shall be submitted to the State for consideration.

1.1-5

On this plan quantities are minimum acceptable values. Additional quantities required by the State because of hidden conditions or purchaser's choice of construction season or techniques shall be at the purchaser's expense.

1.2-1

Construction, or abandonment of any road shall not be permitted between November 1 and March 31 unless authorized in writing by the contract administrator. If permission is granted to operate between November 1 and March 31, the purchaser may be required to provide a "Closed Season Plan" to include further protection of water, soil, roads, and other forest assets.

1.2-2

Purchaser shall not use roads constructed under this Road Plan for hauling, other than timber cut on the right of way, without written approval from the contract administrator.

1.2.1-1

Pioneering shall not extend past construction that will be completed during the current construction season. Pioneering shall not extend more than 500 feet beyond completed construction at any given time unless approved, in writing, by the contract administrator. In addition, the following measures will be taken as pioneering progresses:

- Drainage shall be provided on all uncompleted construction as approved, in writing, by the contract administrator.
- Clearing and grubbing shall be completed prior to starting excavation and embankment.
- Culvert placement in live streams shall precede embankment.
- Culverts shall be installed in completed subgrade as construction progresses.
- Subgrade, ditches and culvert installations, once completed, are subject to written approval by the contract administrator prior to rock application.

1.3-1

Rock hauling on any road shall not be permitted between November 1 and March 31 unless authorized in writing by the contract administrator. If permission is granted to operate between November 1 and March 31, the purchaser may be required to provide a "Closed Season Plan" to include further protection of water, soil, roads, and other forest assets.

1.4-3

Construction stake reference points (R.P.'s) that are moved or damaged at any time during construction shall be reset in their original locations by the purchaser. Excavation and embankment shall not proceed on road segments controlled by said R.P.'s until all moved or damaged R.P.'s are reset.

1.5-1

Maintenance on roads listed in Contract Clause C-50: Purchaser Road Maintenance and Repair and C-60: Designated Road Maintainer shall be performed in accordance with the forest road maintenance specifications in clause 1.5-2. If permission is granted to operate between November 1 and March 31, the purchaser shall be required to maintain all haul roads including those listed as "designated maintainer roads". If other operators are using, or desire to use these "designated maintainer roads", a joint operating plan shall be developed. All parties shall follow this plan.

1.5-2

Forest road maintenance specifications shall be as follows:

Cuts and Fills

- Maintain slope lines to a stable gradient compatible with the construction materials. Remove overhanging material from cut slopes.
- Spoils from slides or other sources should be placed and compacted in a stable location so they will not enter into any typed waters or wetlands.
- Undesirable slide spoils and debris should not be mixed into the road running surface materials.

Surface

- Grade and shape road surface, turnouts and shoulders as needed to maintain the crown for drainage. Inslope or outslope as directed to provide suitable surface water runoff in an even, dispersed manner.
- Blading must not undercut back-slope at bottom of ditch-line.
- Surface treatment (water or lignin) may be required to control dust and to retain fine surface rock.

- Desirable running surface material should be maintained on the roadway. Replace running surface material lost or worn away.
- Remove berms to facilitate drainage except as designed.

Drainage

- Inspect culverts on a regular basis and immediately after significant storm events, even during periods of inactivity.
- Keep ditches, drainage channels, and inlets and outlets of culverts clear of obstructions and functioning as intended.
- Maintain headwalls at inlets and energy dissipaters at outlets.
- Minimize silt bearing road surface and ditch runoff from entering any typed waters or wetlands.

Structures

- Repair culverts, bridges, gates, fences and other road structures as required.

Termination of Use or End of Season

- Perform preventative maintenance work to safeguard against storm damage.

1.5-3

Snowplowing shall not be permitted unless authorized, in writing, by the contract administrator.

SECTION 2 - CLEARING

2.1-1

Fell all vegetative material larger than 2 inches DBH or over 10

feet high between the marked right of way boundaries or if not marked in the field, between clearing limits specified on "Typical Section Sheet."

SECTION 3 - GRUBBING

3-1

All stumps shall be removed that fall between grubbing limits shown on the "Typical Section Sheet." Also those stumps with roots undercut by excavation shall be removed.

3-2

Grubbing limits are defined as the entire area between the external limits shown on the "Typical Section Sheet."

SECTION 4 - DEBRIS DISPOSAL AND REMOVAL

4.1-1

Right of way debris is defined as all non-merchantable vegetative material larger than one cubic foot in volume within the clearing limits, excluding stumps between the clearing limits and grubbing limits.

4.1-2

All right of way debris disposal shall be completed prior to the application of rock.

4.2.3-3

Right of way debris shall not be placed against standing timber.

4.2.3-4

Right of way debris shall be scattered outside the clearing limits in natural openings, unless otherwise detailed in this plan.

SECTION 5 - EXCAVATION

5.1-1

Unless controlled by construction stakes or specific design sheets herein, roads shall be constructed in accordance with dimensions shown on the "Typical Section Sheet."

5.1-2

Purchaser shall not bury merchantable material.

5.1-3

Road grade and alignment shall conform to the State's marked location and drawings. Grade and alignment shall have smooth continuity without abrupt changes in direction. Maximum grades are 18 percent favorable and 15 percent adverse, unless otherwise detailed in this plan. Minimum radius curve is 50 feet.

5.1-5

Curve widening on the inside of curves shall be 2 feet extra on 80 to 100 foot radius curves and 4 feet extra on 50 to 79 foot radius curves.

5.1-7

Roads shall be constructed or reconstructed to the dimensions shown on the "Typical Section Sheet," within the tolerances listed below. Tolerance classes for each road are listed on the "Typical Section Sheet."

Tolerance Class	A	B	C
Road 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

5.1-8

Excavation slopes shall be constructed no steeper than shown

on the following table except as construction staked or designed:

Material Type	Excavation Slope Ratio
Common Earth	1:1
Fractured or loose rock	½:1
Hardpan or solid rock	¼:1

5.1-9

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

5.1-10

Except as construction staked or designed, embankments shall be widened as follows:

Height at Centerline	Sub-grade Widening
Less than 6 feet	2 feet
6 feet or over	4 feet

5.1-11

Embankment slopes shall be constructed no steeper than shown on the following table except as construction staked or designed:

Material Type	Embankment Slope Ratio
Common earth/rounded gravel	1½:1
Angular rock	1¼:1
Sandy Soils	2:1

5.1-12

Organic material shall be excluded from embankment.

5.1-14

Where side slopes exceed 50 percent, full bench construction shall be utilized for the entire sub-grade width except as construction staked or designed.

5.1-17

On the following road segments all excavated material in excess of that which is needed to construct the designed fill shall be end hauled or pushed to designated waste area.

Road	Excavation Location	Disposal Location
SG-27	*26+96 to 36+43	Station 19+77 to 20+20

* See Section 11.1 for further details.

5.1-21

Waste material shall not be deposited within 30 feet of a culvert installation.

5.1-22

Waste material shall not be deposited within 30 feet of a live stream.

5.1-23

Turnout locations noted on this plan are approximate. Locations shall be adjusted to fit final sub-grade alignment and sight distances. Locations shall be subject to written approval of the contract administrator.

5.1-24

Turnouts shall be inter-visible with a maximum of 1,000 feet between turnouts unless shown otherwise on drawings. Minimum dimensions are shown on the "Typical Section Sheet."

5.2-1

Road pioneering operations shall not undercut the final cut slope, deposit excavated material outside the clearing limits or

restrict drainage.

5.3-1

All embankment and waste material shall be compacted. The minimum acceptable compaction is achieved by placing embankments in 2 foot or shallower lifts and routing excavation equipment over entire width of the lifts.

5.4-1

Silt-bearing runoff shall not be permitted to go into streams.

5.5-2

Constructed sub-grades shall be compacted.

5.5-5

Finished subgrade shall be crowned as shown on "Typical Section Sheet," uniform, firm, rut-free and shaped to ensure surface runoff in an even, unconcentrated manner.

SECTION 6 - DRAINAGE

6.2.1-1

Purchaser shall furnish, install and maintain galvanized metal (AASHTO specification No. M36) or corrugated polyethylene tubing (AASHTO specification No. M294) culverts as designated on the "Materials List."

6.2.1-2

Annular corrugated bands and culvert ends shall be used on metal culverts. On culverts 24 inches and smaller, bands shall have a minimum width of 12 inches; on culverts over 24 inches, bands shall have a minimum width of 24 inches. Manufacturer's approved connectors shall be used for corrugated polyethylene tubing.

6.2.1-5

On required roads: culverts, downspouts, flumes, bands and gaskets as listed on the "Materials List" which are not installed

shall become property of the State.

6.2.1-6

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

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

6.2.2.1-1

Culvert, downspout, flume and energy dissipater installation shall be in accordance with the "Culvert and Drainage Specifications" and the National Corrugated Steel Pipe Association Installation Manual for Corrugated Steel Drainage Structures.

6.2.2.2-1

Any damaged galvanized coating or cut ends shall be retreated with a minimum of 2 coats of zinc rich paint.

6.2.2.3-1

Cross drains and surface culverts on road grades in excess of 3 percent shall be skewed at least 30 degrees from perpendicular to the road centerline, except that cross drain culverts at the low points of dips in roads shall not be skewed.

6.2.2.3-2

Cross drain culverts shall be installed at a slope steeper than the incoming ditch grade, but not at less than 3 percent.

6.2.2.4-1

Installations of culverts 36 inches in diameter and over shall be subject to written approval by the contract administrator prior to making backfill.

6.2.2.5-1

Drainage structure out falls shall not terminate directly on unprotected soil that will erode. Downspouts, flumes and energy dissipaters shall be installed to prevent erosion.

6.3-1

Ditches shall be constructed concurrently with construction of the subgrade and shall drain to culverts, ditch-outs, and natural drainages.

6.3-2

Shaping the ditch line, culvert headwalls and catch-basins shall be completed prior to application of rock and shall be done in accordance with the "Typical Section" and "Culvert and Drainage Specifications" sheets.

6.4-1

Catch basins shall be constructed to resist erosion in accordance with the "Culvert and Drainage Specifications: Catch Basin" drawing. Minimum dimensions shall be two feet wide and four feet long with back slopes consistent with Clause 5.1-8: Excavation-Slopes.

6.5-1

Headwalls shall be constructed in accordance with the "Culvert and Drainage Specifications Headwall" drawing at all ditch relief culverts.

SECTION 7 - ROCK

7.1-1

Rock for construction under this contract may be obtained from existing pits on State land as listed below. Development and use shall be in accordance with a written "Pit Development and Reclamation Plan" prepared by the Purchaser and subject to written approval by the contract administrator. Upon completion of pit operations, the pits shall be left in the condition specified in said plan, subject to written approval by the contract administrator. Use of material from any other source must have prior written approval from the contract administrator. If other operators are using, or desire to use these pits, a joint operating plan shall be developed. All parties shall follow this plan.

<u>Pit Location</u>	<u>Remarks</u>
FP-10 Hardrock Pit	Development of an existing hardrock source at MP 1.0 of the French Point Mainline (FP-ML) road. Development will involve clearing, stripping, drilling, shooting, and processing rock to generate shot rock and riprap.
Barco Gravel Pit	Development of a proposed gravel source at MP 1.6 of the Barco Mainline (BO-ML) road. Development will involve clearing, stripping, and processing rock to generate gravel ballast.

7.1-2

Rock pit operations shall conform to the following specifications:

- Pit walls shall be maintained in a condition to minimize the possibility of the walls sliding or failing.
- Pit walls shall not be undermined or over-steepened. The maximum slope of the walls shall be consistent with

recognized engineering standards for the type of material being excavated in accordance with the following table:

Pit Material	Maximum Slope Ratio (Horiz. :Vert.)	Maximum Slope Angle (Vert. Degrees)
Sand	2:1	27
Gravel	1.5:1	34
Common Earth	1:1	45
Fractured Rock	0.5:1	63
Solid Rock	0:1	90

- The width of pit benches shall be a minimum of 1.5 times the maximum length of the largest machine in use.
- The surface of pit floors and benches shall be uniform and free-draining at a minimum 2% out-slope gradient.

7.1-5

Rock for gravel ballast, shot rock or riprap may be obtained from private sources at Purchaser's expense. The quality of any alternate rock must be equal to or greater than the quality of the rock specified in clause 7.1-1. Use of rock from any alternate source is subject to written approval from the contract administrator.

7.2.1.2-2

Rock shall contain no vegetative debris, dirt, or trash.

7.4.1-1

On the following roads, purchaser shall provide and apply geotextile to the subgrade to a width that is two feet more than the driving surface width including turnouts.

Road	Location	Remarks
SG-27	0+00 to 8+46	Wet soils

7.4.1-2

Geotextile shall weigh at least 4 ounces per square yard and be designed by the manufacturer to be used for subgrade restraint and separation. Installation of the fabric shall be in accordance with the manufacturer's specifications.

7.4.2-1

Apply at least the minimum required rock quantity as shown on "Typical Section Sheet."

7.4.2-2

Subgrade shall be approved, in writing, by the contract administrator prior to application of rock.

7.4.2-7

Turnouts and curve widening shall have rock applied to the same depth and specifications as the traveled way.

7.4.2-8

Each lift of rock shall be crowned as shown on "Typical Section Sheet," and shall be uniform, firm, rut-free and shaped to ensure surface runoff in an even, un-concentrated manner.

7.4.3-3

Rock shall be spread, shaped and compacted concurrently with rock hauling operations.

7.4.4-1

Riprap shall consist of angular stone placed as indicated in this plan, or as directed by the contract administrator.

Loose Riprap - The stone for loose riprap shall be hard, sound and durable. It shall be free from segregation, seams, cracks and other defects tending to destroy its resistance to weather. Loose riprap shall be free of rock fines, soil or other extraneous material.

Heavy Loose Riprap Grading Requirements		
At Least/Not More Than	Minimum Size	Max. Size
40% / 90%	1 Ton (½ cu. yd.)	--
70% / 90%	300 lbs. (2 cu. ft.)	---
10% / 30%	---	50 lbs.

Light Loose Riprap Grading Requirements		
At Least/Not More Than	Size Range	Max. Size
20% / 90%	300 lbs. to 1 Ton	---
80% / ----	50 lbs. to 1 Ton	---
10% / 20%	---	50 lbs.

7.4.4-2

Riprap shall be set in place in conjunction with or immediately following construction of the embankment. No placement by end-dumping or dropping of riprap shall be allowed.

SECTION 9 - ROAD AND LANDING TREATMENT

9.1-1

The following roads shall be abandoned by the Purchaser prior to the termination of this contract.

Road	Location	Treatment
SG-27	0+00 to 40+69	Abandon
SG-2703	0+00 to 3+90	Abandon
SG-2704	0+00 to 3+31	Abandon

9.1-3

"Abandoned" treatment shall consist of:

1. Remove all ditch relief culverts. The resulting slopes shall be 1:1 or flatter. The removed fill material shall be placed and compacted in a location that will not erode into any type 1 through 5 waters or wetlands.
2. Remove all culverts in natural drainages. The resulting slopes shall be 1:1 or flatter. Strive for matching the existing native streambank gradient. The natural streambed width shall be re-established. The removed fill material shall be placed and compacted in a location that will not erode into any type 1 through 5 waters or wetlands.
3. All removed culverts shall be property of the Purchaser and shall be transported off site.
4. Construct non-drivable waterbars at natural drainage points and at a spacing which will produce a vertical drop of no more than 20 feet between waterbars and with a maximum horizontal spacing of 400 feet.
5. Waterbars shall be skewed at least 30 degrees from perpendicular to the road centerline on roads in excess of 3 percent grade.
6. Waterbars shall intercept the ditch and be keyed into the road cut slope and be outsloped to provide positive drainage. Outlets shall be on stable locations.
7. Inslope or outslope the road as appropriate.
8. Remove bridges and other structures.
9. Pull back unstable fill that has potential of failing and entering any type 1 through 5 waters or wetlands. Removed material shall be placed and compacted in a

stable location.

10. Remove berms except as designed.
11. 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.
12. Revegetate all exposed soils resulting from the abandonment work in accordance with "Section 10 - Revegetation".

9.2-1

Purchaser shall reduce or relocate landing debris, in a manner approved, in writing, by the contract administrator, to avoid landing failures and potential debris slides.

9.2-2

Purchaser shall provide for drainage of all landing surfaces as approved, in writing, by the contract administrator.

SECTION 10 – REVEGETATION

10.1-1

Purchaser shall revegetate all exposed soils within the grubbing limits resulting from construction or abandonment.

10.1-2

Purchaser shall perform revegetation during the first available opportunity after construction or abandonment is completed. Soils shall not be allowed to sit exposed for longer than one month without receiving revegetation treatment unless

otherwise approved in writing by the contract administrator.

10.1-3

Revegetated soils that fail to germinate or are disturbed and re-exposed through any cause shall be revegetated to the point of full coverage.

10.2-1

Revegetation of all exposed soils shall be accomplished by manual dispersal of grass seed and fertilizer unless otherwise detailed in this plan. Other methods of revegetation must be approved in writing by the contract administrator.

10.3-1-1

Seed mix shall meet the following specifications:

Seed Species	% by Weight
Creeping Red Fescue	50
Elf Perennial Rye Grass	25
Highland Colonial Bentgrass	15
White Clover	10

All seed species shall have a minimum 90% germination rate. Weed seed shall not exceed 0.5% by weight.

10.3-2

Fertilizer shall meet the following specifications:

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

10.3-3

Revegetation application rates shall result in 50 pounds of in place seed mix and 200 pounds of in place fertilizer mix per acre of exposed soil.

10.4-1

Purchaser shall provide a protective cover over the revegetated area if revegetation occurs between July 1 and March 31. The protective cover may consist of, but not be limited to, such items as dispersed straw, jute matting or clear plastic sheets. The protective cover requirement may be waived by the contract administrator in writing if the Purchaser is able to demonstrate a revegetation plan that will result in the establishment of a uniform dense crop of 3 inch tall grass by October 31.

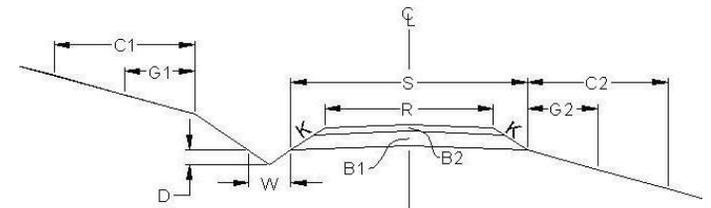
SECTION 11 - SPECIAL NOTES

11.1

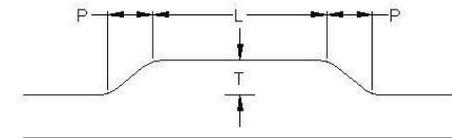
Designed cut and fill dimensions and road widths for Clause 5.1-17 are controlled by Clauses 5.1-1, 5.1-5, 5.1-7, 5.1-10, 5.1-11, and 5.1-14. Excavated material in excess of that which is needed to construct the fill portions of this road segment to these dimensions shall be end hauled to the designated waste area. Side slopes exceeding 50% will be full bench with excess material end hauled to the designated waste area.

ROAD #		SG-27	SG-2703	SG-2704	
REQUIRED / OPTIONAL		Optional	Optional	Optional	
CONSTRUCT / RECONSTRUCT		Construction	Construction	Construction	
TOLERANCE CLASS (A/B/C)		C	C	C	
STATION / MP TO		0+00	0+00	0+00	
STATION / MP		40+69	3+90	3+31	
ROAD WIDTH	R	12	12	12	
CROWN (INCHES @ C/L)		3	3	3	
DITCH WIDTH	W	2	2	2	
DITCH DEPTH	D	1	1	1	
TURNOUT LENGTH	L	25	25	25	
TURNOUT WIDTH	T	10	10	10	
TURNOUT TAPER	P	25	25	25	
GRUBBING	G1	5	5	5	
	G2	5	5	5	
CLEARING	C1	10	10	10	
	C2	10	10	10	
ROCK FILLSLOPE	K:1	1½	1½	1½	
❖ BALLAST DEPTH	B1	18	18	18	
CUBIC YARDS / STATION		124	124	124	
➤ TOTAL CY BALLAST		5,046	484	411	
❖ SURFACING DEPTH	B2	--	--	--	
CUBIC YARDS / STATION		--	--	--	
➤ TOTAL CY SURFACING		--	--	--	
➤ TOTAL CUBIC YARDS		5,046	484	411	
SUBGRADE WIDTH	S	16.5	16.5	16.5	
BRUSHCUT (Y/N)		N/A	N/A	N/A	
BLADE, SHAPE, & DITCH (Y/N)		N/A	N/A	N/A	

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.

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS									
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE												
										<u>Diameter</u>	<u>Gage</u>		<u>Corrugation</u>								
												Note: Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter: <table style="margin-left: auto; margin-right: auto; border: none;"> <tr> <td style="text-align: center;"><u>18"</u></td> <td style="text-align: center;"><u>16</u></td> <td style="text-align: center;"><u>2 2/3" x 1/2"</u></td> </tr> <tr> <td style="text-align: center;"><u>24" – 48"</u></td> <td style="text-align: center;"><u>14</u></td> <td style="text-align: center;"><u>2 2/3" x 1/2"</u></td> </tr> <tr> <td style="text-align: center;"><u>54" – 96"</u></td> <td style="text-align: center;"><u>14</u></td> <td style="text-align: center;"><u>3" x 1"</u></td> </tr> </table>	<u>18"</u>	<u>16</u>	<u>2 2/3" x 1/2"</u>	<u>24" – 48"</u>	<u>14</u>	<u>2 2/3" x 1/2"</u>	<u>54" – 96"</u>	<u>14</u>	<u>3" x 1"</u>
<u>18"</u>	<u>16</u>	<u>2 2/3" x 1/2"</u>																			
<u>24" – 48"</u>	<u>14</u>	<u>2 2/3" x 1/2"</u>																			
<u>54" – 96"</u>	<u>14</u>	<u>3" x 1"</u>																			
SG-27	0+00 to 8+46	--	--	--	--	--	--	--	--	--	--	Geotextile									
	0+22	18	40	XX	--	--	2	3	L	NT	C	Ditchline									
	1+54	24	36	XX	--	--	4	6	H/L	NT	C										
	2+53	18	36	XX	--	--	2	3	L	NT	C										
	5+53	18	30	XX	--	--	2	3	L	NT	C										
	7+60	24	30	XX	--	--	4	6	H/L	NT	C										
	9+92	18	36	XX	--	--	2	3	L	NT	C										
	12+97	30	40	XX	--	--	6	40	H/L	NT	C										
	13+82	24	32	XX	--	--	4	6	H/L	NT	C										
	14+87	18	30	XX	--	--	2	3	L	NT	C										
	16+07	18	30	XX	--	--	2	3	L	NT	C										
	18+24	18	30	XX	--	--	2	3	L	NT	C										
	20+57	18	30	XX	--	--	2	3	L	NT	C										
	22+82	18	30	XX	--	--	2	3	L	NT	C										
	24+77	24	36	XX	--	--	6	10	H/L	NT	C										
	25+33	18	30	XX	--	--	2	3	L	NT	C										
	26+96	18	30	XX	--	--	2	3	L	NT	C										
	28+09	36	40	XX	--	--	6	15	H/L	NT	C										
	28+71	18	30	XX	--	--	2	3	L	NT	C										
	30+19	24	36	XX	--	--	6	10	H/L	NT	C										
	31+21	18	30	XX	--	--	2	3	L	NT	C										

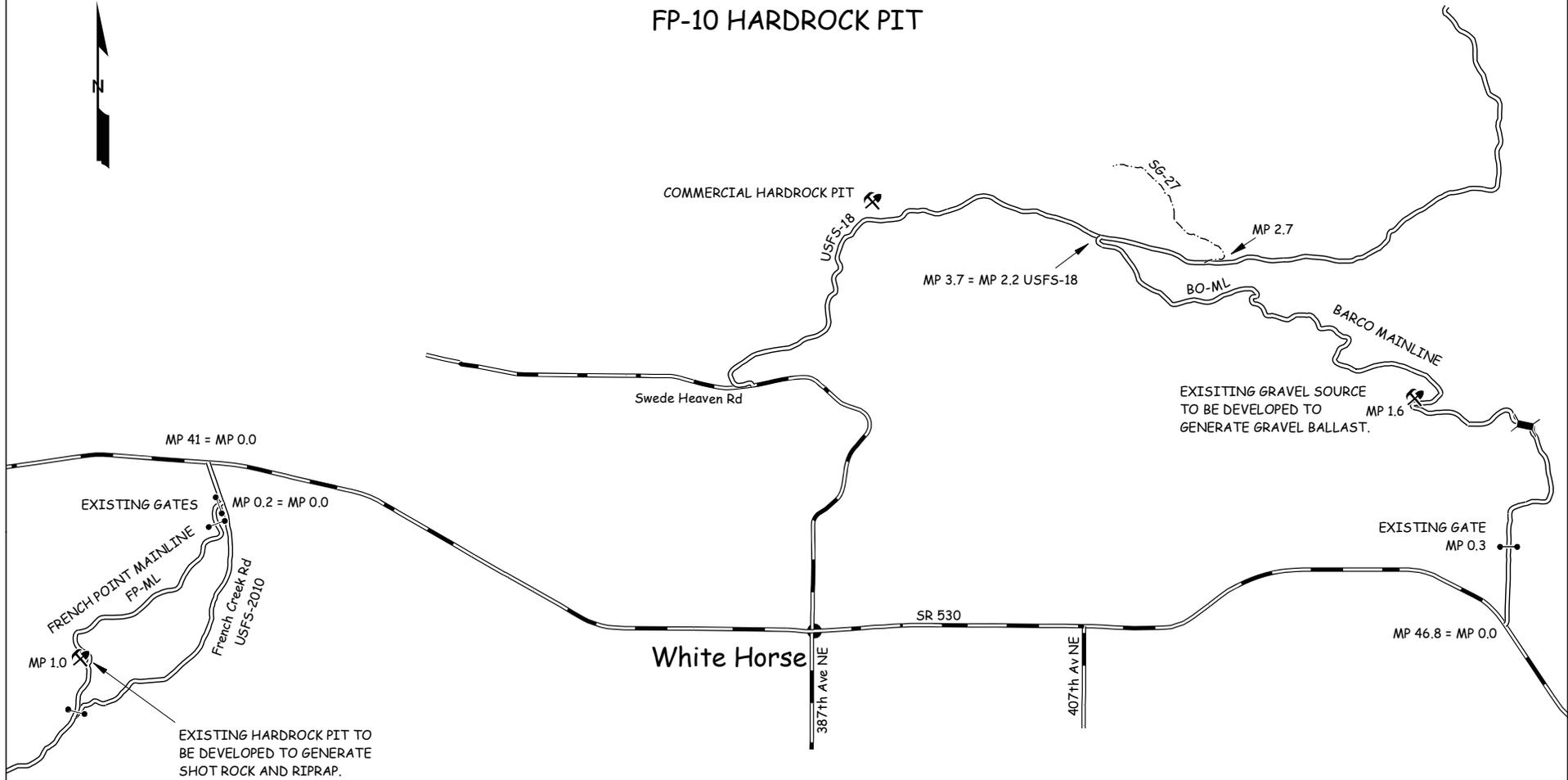
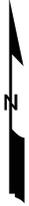
GM – Galvanized Metal PS – Polyethylene Pipe Single Wall PD – Polyethylene Pipe Dual Wall AM – Aluminized Metal C – Concrete XX – PD or GM
H – Heavy Loose Riprap L – Light Loose Riprap SR – Shot Rock NT – Native (Bank Run) QS – Quarry Spalls

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			
										<u>Note:</u> Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:		
		<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>								
		18"	16	2 2/3" x 1/2"								
		24" – 48"	14	2 2/3" x 1/2"								
		54" – 96"	14	3" x 1"								
SG-27	33+22	18	30	XX	--	--	2	3	L	NT	C	
	34+43	60	50	XX	--	--	50	150	H/L	SR	C	
	36+67	24	30	XX	--	--	6	10	H/L	NT	C	
	38+21	24	40	XX	--	--	6	15	H/L	NT	C	
	39+42	18	40	XX	--	--	4	6	L	NT	C	
SG-2703	1+39	18	30	XX	--	--	2	3	L	NT	C	
SG-2704	1+86	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

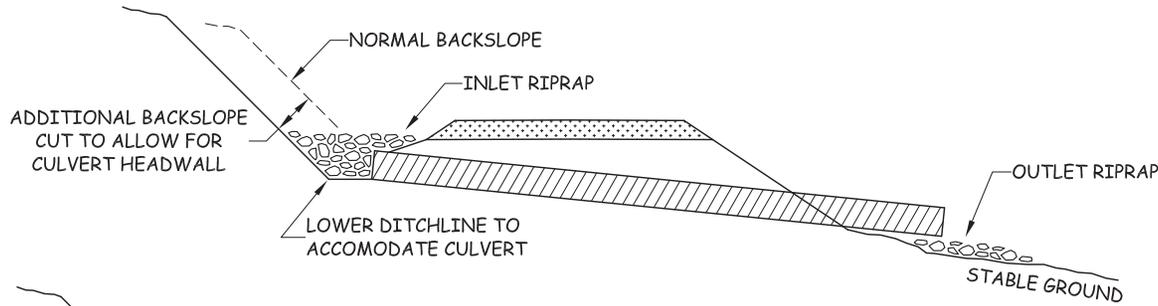
PIT VICINITY MAP FP-10 HARDROCK PIT



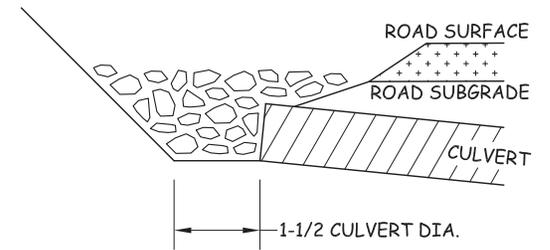
CONTRACT #	PROJECT	SHEET
87257	32 VOLUNTEERS VDT	15 OF 16

CULVERT AND DRAINAGE SPECIFICATIONS

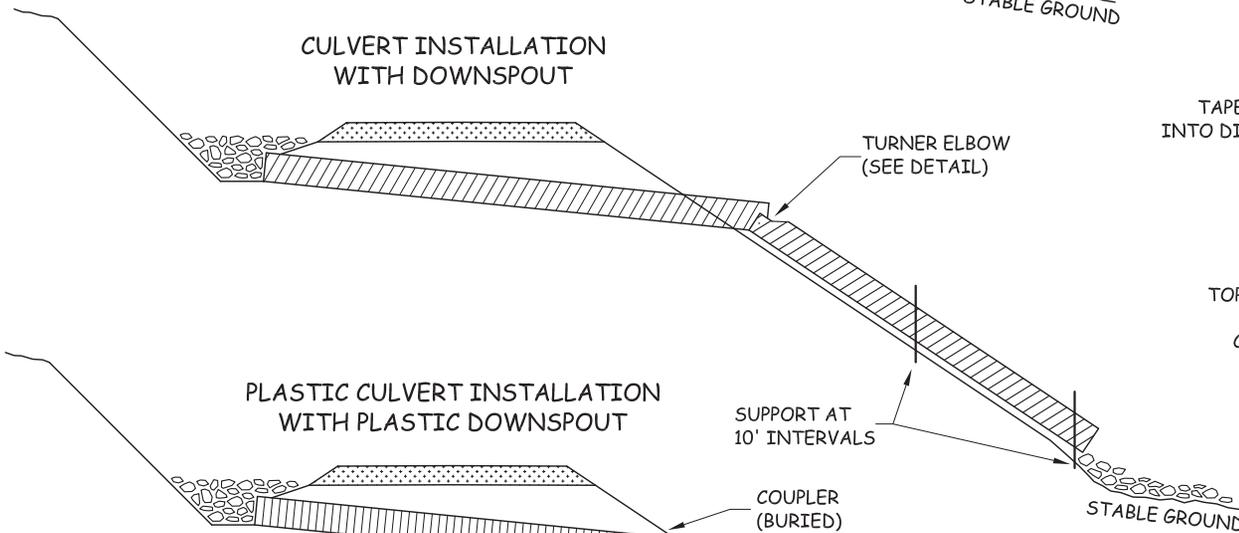
CULVERT INSTALLATION (TYPICAL)



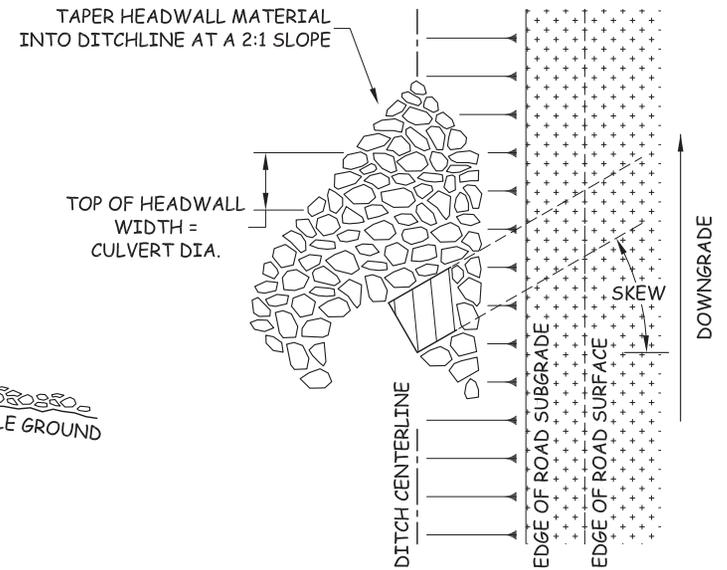
CULVERT HEADWALL - SECTION VIEW



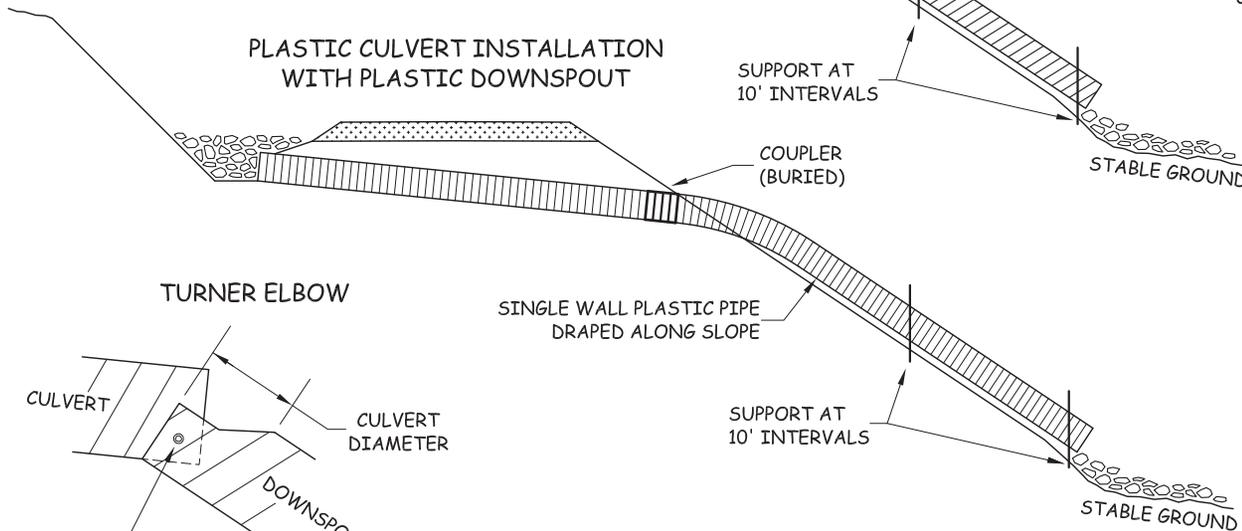
CULVERT INSTALLATION WITH DOWNSPOUT



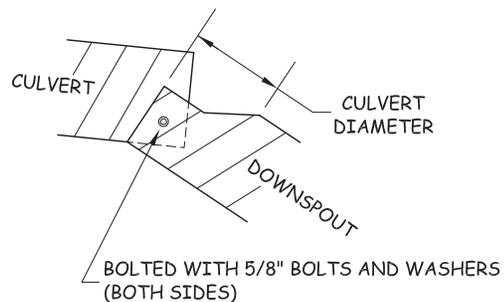
CULVERT HEADWALL - PLAN VIEW



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
87257	32 VOLUNTEERS VDT	16 OF 16

SUMMARY - Road Development Costs

REGION: NW

DISTRICT: Cascade

SALE/PROJECT NAME: 32 Volunteers VDT

CONTRACT #: 87257

ROAD NUMBERS: SG-27, SG-2703, SG-2704 -

ROAD STANDARD:	Construction	Reconstruction	Maintenance
NUMBER OF STATIONS:	47.90	0.00	0.00
CLEARING & GRUBBING:	\$9,477	\$0	
EXCAVATION AND FILL:	\$20,006	\$0	-
MISC. MAINTENANCE:	\$0	\$0	-
ROAD ROCK:	\$51,595	\$0	-
ROCK STOCKPILE PROD:	\$0	\$0	-
CULVERTS AND FLUMES:	\$17,900	\$0	-
STRUCTURES:	\$0	\$0	-
MOBILIZATION:	\$6,318	\$0	-
TOTAL COSTS:	\$105,295	\$0	\$0
COST PER STATION:	\$2,198	\$0	#DIV/0!
ROAD DEACTIVATION & ABANDONMENT COSTS:		\$1,437	

TOTAL (All Roads) = \$106,732
SALE VOLUME MBF = 1,394
TOTAL \$/MBF = \$77

Compiled by: Symmank

Date: 10/25/11

SUMMARY - Road Development Costs

REGION: NW
DISTRICT: Cascade

SALE/PROJECT NAME: North Heights VRH & VDT

CONTRACT #: 30-090094

ROAD NUMBERS:	BY-ML, BY-04, BY-25, BY-28, BY-31, BY-36, BY-39	BY-ML, BY-25, BY-32	NM-ML, BY-ML
ROAD STANDARD:	Construction	Reconstruction	Pre-haul
NUMBER OF STATIONS:	91.08	166.81	152.80
CLEARING & GRUBBING:	\$37,243	\$51,346	\$0
EXCAVATION AND FILL:	\$23,372	\$9,118	\$3,950
MISC. MAINTENANCE:	\$6,393	\$1,096	\$25,885
ROAD ROCK:	\$97,165	\$209,066	\$0
ROCK STOCKPILE PROD:	\$0	\$0	\$0
CULVERTS AND FLUMES:	\$19,667	\$54,195	\$0
STRUCTURES:	\$0	\$5,000	\$0
MOBILIZATION:	\$13,393	\$12,287	\$0
TOTAL COSTS:	\$197,232	\$342,108	\$29,835
COST PER STATION:	\$2,165	\$2,051	\$195
ROAD DEACTIVATION & ABANDONMENT COSTS:		\$4,697	
		TOTAL (All Roads) =	\$573,872
		SALE VOLUME MBF =	4,803
		TOTAL \$/MBF =	\$119

Compiled by: M. Connelly

Date: 01/21/16

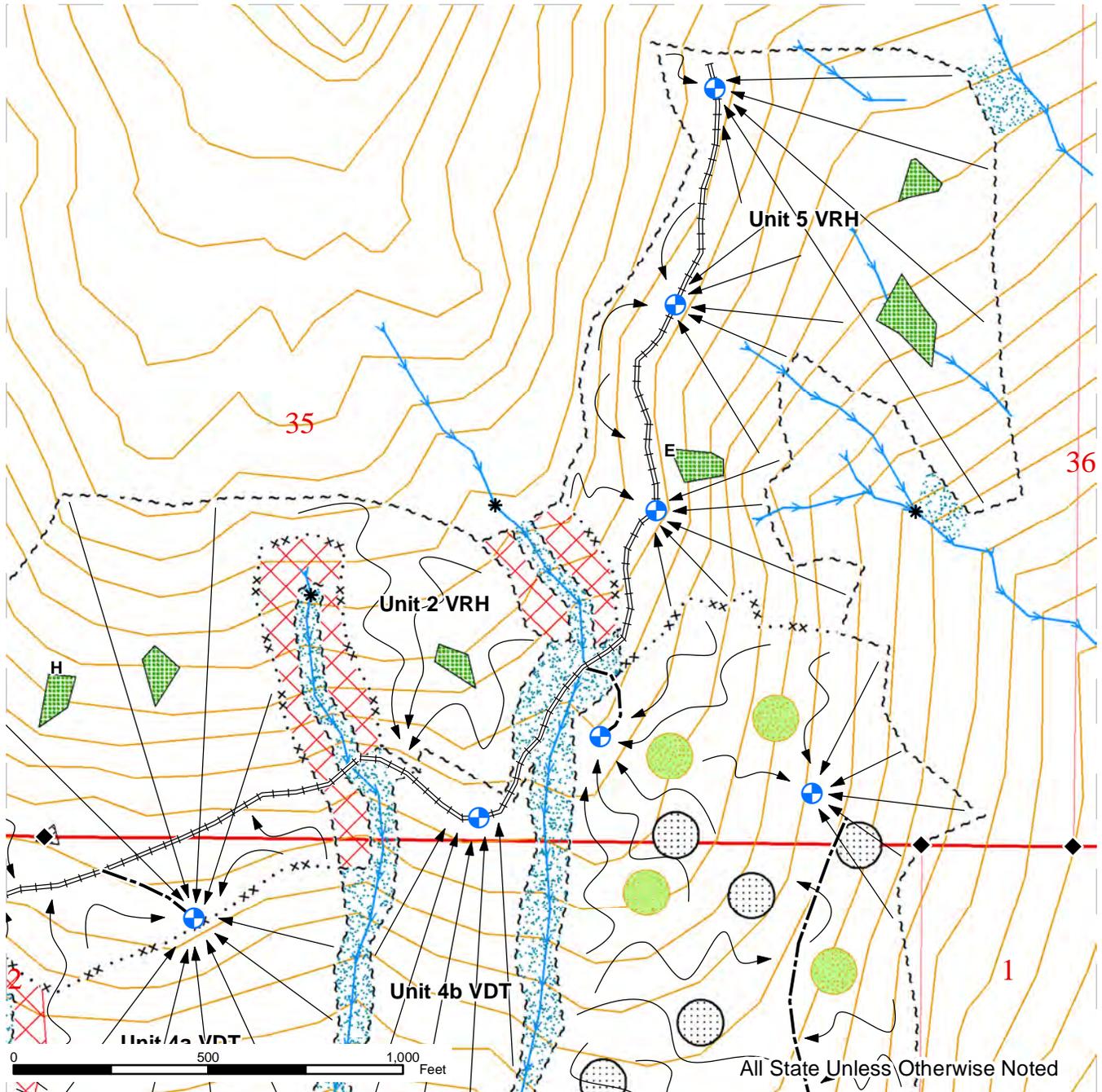
LOGLINES REGION 1 FORM

TIMBER SALE	APPLICATION NUMBER	AUCTION DATE	EXPIRATION DATE	REGION	ACRES	SALE VOLUME (mbf)	DELIVERED LOG VALUE	STUMPAGE VALUE	MINIMUM BID VALUE	SALE TYPE	BOARD OR REGION SALE	
NORTH HEIGHTS VRH and V	90094	June-16	3/31/20	Northwest	306	6,173	\$469	\$127	\$786,000	Scale	BOARD	
5 miles by road, (Units #1 - #5) north of Darrington and 26 miles, by road, (Unit #6) east of Arlington, WA												
DATE OF APPRAISAL												
TBS GRADE DISTRIBUTION				GRADES BY VOLUME (MBF)								
SPECIES	AVG DBH	RINGS PER INCH	VOLUME MBF	3P	SM	1S	2S	3S	4S	UT	% Vol	
Douglas fir	16.0	8.0	2,497		166.0		1074.0	900.0	265.0		92.0	40%
Hemlock	12.0		1,671				231.0	789.0	483.0		168.0	27%
Silver fir	13.0		715				22.0	395.0	145.0		153.0	12%
Noble fir												
Spruce												
Red cedar	13.0		284					154.0	129.0		1.0	5%
Lodgepole pine												
Birch	7.0		1								1.0	0%
Maple	10.0		252				68.0	111.0	67.0		6.0	4%
Red alder	12.0		707				216.0	103.0	295.0		93.0	11%
Cottonwood	11.0		46	6.0			16.0		21.0		3.0	1%
TOTAL VOLUME			6,173	0%	3%		26%	40%	23%		8%	100%
PRICE DISTRIBUTION Price survey March 2016												
Douglas fir				\$585	\$585		\$520	\$500	\$425	\$270		
Hemlock				\$430	\$430		\$430	\$390	\$350	\$260		
Silver fir				\$430	\$430		\$430	\$390	\$350	\$260		
Noble fir				\$430	\$430		\$430	\$390	\$350	\$260		
Spruce				\$400	\$400		\$400	\$390	\$350	\$260		
Red cedar								\$1,100	\$1,100			
Lodgepole pine				\$430	\$430		\$430	\$390	\$350	\$260		
Birch				\$430	\$430		\$430	\$390	\$350	\$260		
Maple						\$420	\$420	\$400	\$330	\$230		
Red alder						\$660	\$660	\$600	\$450	\$230		
Cottonwood				\$200	\$200	\$200	\$200	\$200	\$200	\$135		
TOTAL DELIVERED VALUES	WT. \$/MBF	STUMPAGE		3P	SM	1S	2S	3S	4S	UT	TOTAL	
Douglas fir	\$498	\$157			\$97,110		\$558,480	\$450,000	\$112,625	\$24,840	\$1,243,055	
Hemlock	\$371	\$30					\$99,330	\$307,710	\$169,050	\$43,680	\$619,770	
Silver fir	\$355	\$14					\$9,460	\$154,050	\$50,750	\$39,780	\$254,040	
Noble fir												
Spruce												
Red cedar	\$1,096	\$755						\$169,400	\$141,900		\$311,300	
Lodgepole pine												
Birch	\$260	-\$81								\$260	\$260	
Maple	\$383	\$42				\$28,560	\$44,400	\$22,110	\$1,380		\$96,450	
Red alder	\$507	\$166				\$142,560	\$61,800	\$132,750	\$21,390		\$358,500	
Cottonwood	\$196	-\$145		\$1,200			\$3,200		\$4,200	\$405	\$9,005	
TOTAL VALUE	\$469										\$2,892,380	
LOGGING SYSTEM				CONSTRUCTION TYPE				REMARKS				
Cable-uphill < 20 mbf/ac	COST/MBF	% OF SALE	WEIGHTED \$	TOTAL \$	NEW ROAD	COST/STA	# STA	TOTAL COST	REGION SUPPLIED ROAD COSTS YES			
Cable-downhill < 20 mbf/ac	\$125	12%	\$15	\$92,595	RECONSTRUCTION	\$2,165	91.08	\$197,232				
Shovel logging <20 mbf/ac	\$150	5%	\$8	\$46,298	ABANDONMENT	\$2,051	166.81	\$342,108				
Cable thinning - 10+ mbf/ac	\$95	34%	\$32	\$199,388	DEACTIVATION	\$195	152.8	\$29,835				
Cable thinning - user input value	\$180	17%	\$31	\$188,894	PREHAUL	\$4,697	1	\$4,697				
Thinning-ground based 10+ mbf/a	\$220	14%	\$31	\$190,128	Unit 6 Roads	\$200						
	\$150	18%	\$27	\$166,671	Unit 6 Deactivation	\$2,198	47.9	\$105,295				
TOTAL		100%	(\$143)	\$883,974	TOTAL	(\$1,478)	460.59	(\$680,604)				
REMARKS:				REMARKS:								
Vol./acre (BF): 20,173												
DESTINATION(S)				FEES				Generic TONS/MBF Numbers				
TRANSPORTATION	1	2	3	4	ARRF	TOTAL FEE	\$/MBF	TOTAL \$	DIA. LD/AVG. TON/MBF* AVG.DBH			
DELIVERY DESTINATION	Darrington	Mt Vernon	La Conner		RUP (USFS/Pr)	\$ 12,635.00	\$2	\$165,128	5"to7"	2800	8.9	9"
SPECIES GROUP	DF/WVW	Hdwd	RC		TOTAL FEES			\$12,635	8"to11"	3500	7.1	13"
CONVERSION FACTOR (T/M)	7.0	7.8	7.5						12"to15"	4200	5.9	17"
% VOL TO DESTINATION	79%	16%	5%						16"+	5000	5	20"
VOL TO DESTINATION (MBF)	4,877	988	309						*BASED ON 25 TON LOAD			
VOL TO DESTINATION (TONS)	34,137	7,704	2,315									
MILES TO DESTINATION	7	64	62									
ADDITIONAL CHARGES (\$/MBF)			\$65.00									
HAUL COST	\$26.25	\$100.39	\$159.13	0								
WEIGHTED HAUL COST	(\$44.76)											
(A mile haul rate: \$/ton-mile)	\$ 0.16											
APPRAISAL SUMMARY				BIDDABLE SPECIES PRICE DISTRIBUTION								
	RATIO	TOTAL	\$/MBF	Biddable?	SPECIES	TONS	STUMP \$/MBF	\$/TON	ADJ. \$/MBF	ADJ. \$/TON	TOTAL \$	
DELIVERED VALUE		\$2,892,380	\$469	Fixed	Douglas fir		\$156.66		\$144.00		\$359,568	
LOGGING COST	-31%	(\$883,974)	(\$143)	Fixed	Hemlock		\$29.74		\$30.00		\$50,130	
RD. CONSTRUCTION COST	-24%	(\$680,604)	(\$110)	Fixed	Silver fir		\$14.14		\$30.00		\$21,450	
TRANSPORTATION COST	-10%	(\$276,276)	(\$45)	Fixed	Red cedar		\$754.96		\$799.00		\$226,916	
FEES	-6%	(\$177,763)	(\$29)	Fixed	Birch		-\$81.16		\$20.00		\$20	
TOTAL COSTS	-70%	(\$2,018,616)	(\$327)	Fixed	Maple		\$41.58		\$42.00		\$10,584	
MARKET VALUE		\$873,764	\$142	Fixed	Red alder		\$165.91		\$166.00		\$117,362	
PROFIT & RISK	10%	(\$87,376)	(\$14)	Fixed	Cottonwood		-\$145.40		\$20.00		\$920	
APPRAISED VALUE		\$786,387	\$127		TOTAL				N/A	\$/Ton	\$786,950	
MINIMUM BID VALUE		\$786,000	\$127									
Remarks:				Other Con.				Other Hdwd				
								P-021 price >				
								< P-027 price				

LOGGING PLAN MAP

SALE NAME: NORTH HEIGHTS VRHVDT
 AGREEMENT#: 90094
 TOWNSHIP(S): T32R09E, T33R09E
 TRUST(S): State Forest Transfer(1), Common School and Indemnity(3), Capitol Grant(7), Scientific School(10)

REGION: Northwest Region
 COUNTY(S): SKAGIT, SNOHOMISH
 ELEVATION RGE: 1846-3263



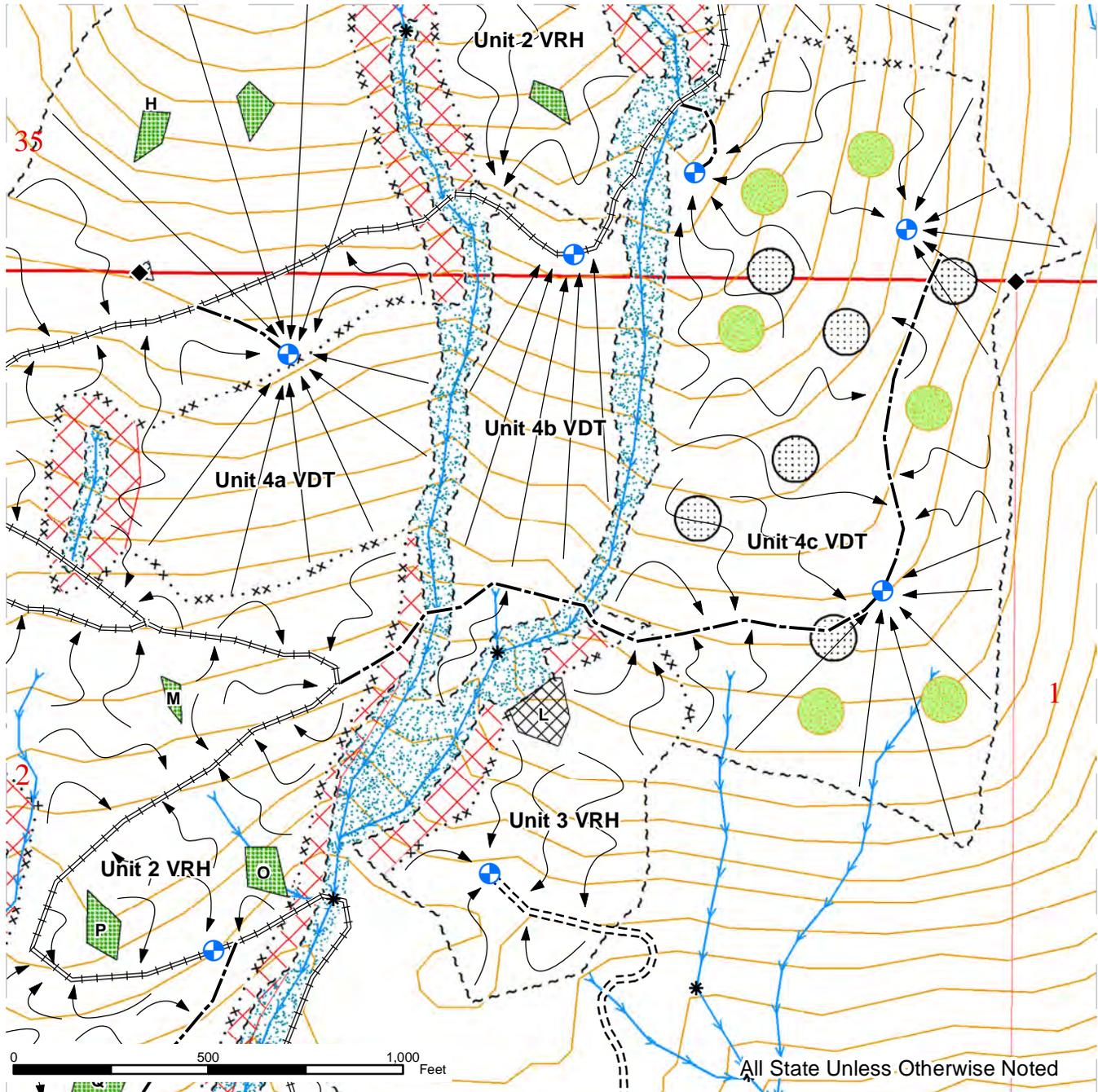
--- Sale Boundary Tags	== Existing Roads	↗ Cable
...xx Special Mgt Area Tags	- - - Optional Construction	↻ Ground
→ Streams	==+ Required Reconstruction	▽ Waste Area
⊠ RMZ Thinning	- - - - Required Construction	◆ Survey Monument
⊠ NF Gap	◆ Survey Corners	⊕ Proposed Landing
▨ NRF Skip		● Gate
		⚒ Rock Pit



LOGGING PLAN MAP

SALE NAME: NORTH HEIGHTS VRHVDT
 AGREEMENT#: 90094
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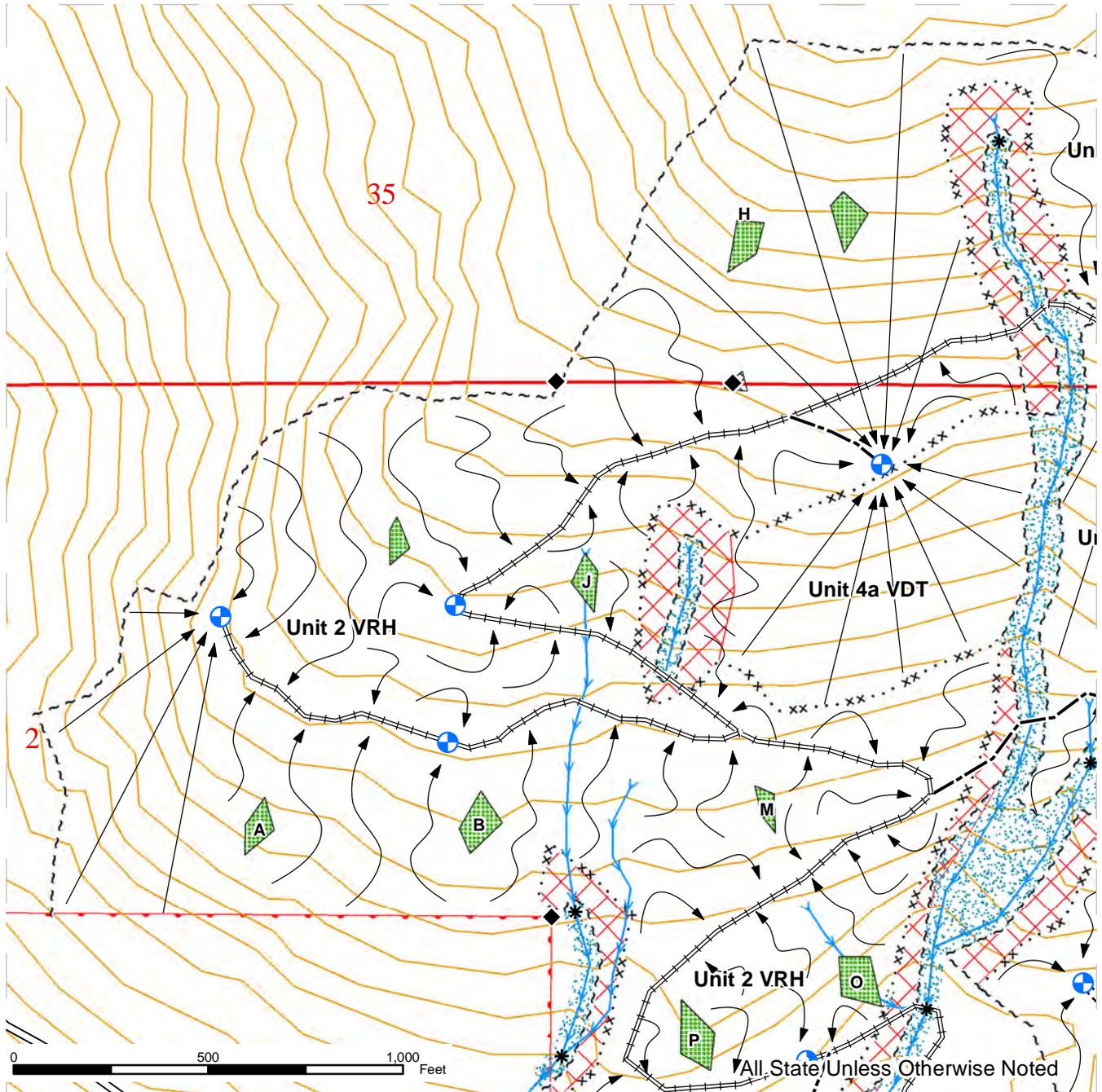


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...xx Special Mgt Area Tags	- - - Optional Construction	⤿ Ground
→ Streams	⊕ Required Reconstruction	⚠ Waste Area
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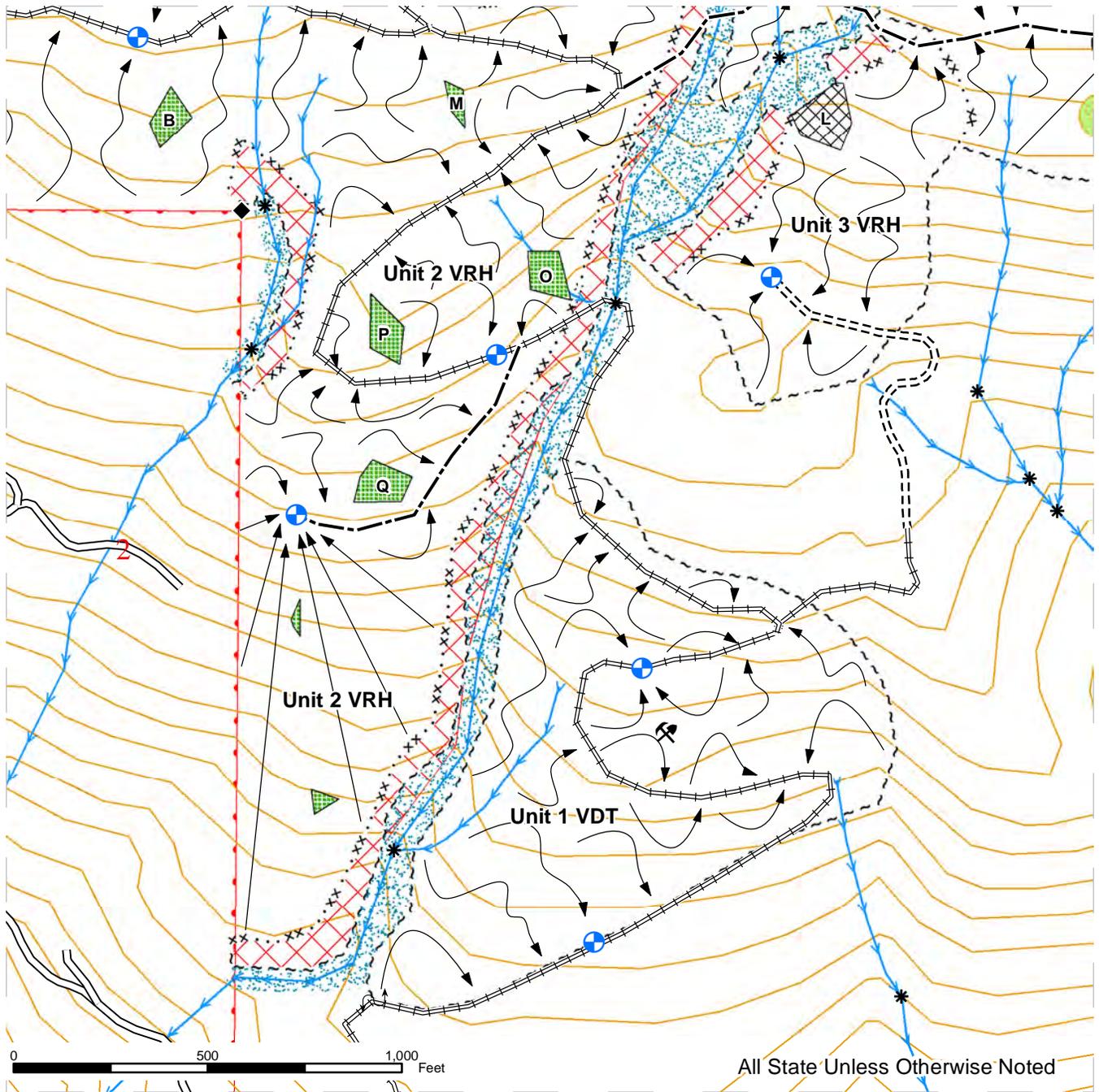


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