WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

TIMBER NOTICE OF SALE

***SALE NAME**: Q WANLESS CREEK* ***AGREEMENT NO**: 30-106239*

AUCTION: March 25, 2025 starting at 10:00 a.m., Northeast Region Office, Colville, WA **COUNTY:** Pend Oreille

SALE LOCATION: Sale located approximately 2 miles east and 15 miles northeast of Usk, WA.

PRODUCTS SOLD AND SALE AREA: All conifer species except for leave trees banded with blue paint, leave trees bounded by yellow leave tree area tags and two standing snags per acre in Units 1, 2, 3, 4 and 5 bounded by white timber sale boundary tags; and all right of way timber bounded by orange right of way boundary tags or banded by orange paint.

All forest products above located on part(s) of Sections 28 all in Township 33 North, Range 44 East, Sections 20 and 30 all in Township 35 North, Range 45 East, Sections 24 all in Township 35 North, Range 44 East, W.M., containing 289 acres, more or less.

CERTIFICATION: This sale is certified under the Sustainable Forestry Initiative® program Standard (cert no: BVC-SFIFM-018227)

ESTIMATED SALE VOLUMES AND QUALITY:

Species	Avg DBH	Ring Count	Total MBF	MBF by Grade P	SM	1S	2S	3S	4S	5S	6S	UT
Douglas fir	15.7		2,558				903	1,346	309			
Larch	15.1		868				264	526	78			
Lodgepole	11.6		787				46	621	120			
Grand fir	13.6		580				193	299	88			
Redcedar	13.3		536					438	98			
Ponderosa pine	19.6		289						177	112		
Hemlock	10.2		66					49	17			
Alpine fir	11		43					24	19			
White pine	17.9		30				14	12	4			
Spruce	11.1		24					19	5			
Sale Total			5,781									

MINIMUM BID: $1,466,000.00 **BID METHOD:** Sealed Bids

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

EXPIRATION DATE: October 1, 2026 **ALLOCATION:** Export Restricted

BID DEPOSIT: $146,600.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Ground based equipment, and Cable. Falling and Yarding will not be permitted from February 1 to June 1 unless authorized in writing by the Contract Administrator due to spring breakup.

ROADS: 51.75 stations of required construction. 1063.41 stations of required prehaul maintenance. 204.97 stations of optional prehaul maintenance. Road construction will

not be permitted from November 15 to June 1 unless authorized in writing by the Contract Administrator due to frozen conditions and spring breakup. The hauling of forest products will not be permitted from February 1 to June 1 unless authorized in writing by the Contract Administrator due to spring breakup.

ACREAGE DETERMINATION

CRUISE METHOD: Acreage determined using GPS methods. Acreage shown above is net harvest acres in harvest units. Ponderosa pine and western redcedar: 8.0 - 17.5 inches dbh has a minimum top of 4.6 inch dib. All other species: 7.0 - 17.5 inches dbh has minimum top of 4.6 inch dib. All species 17.6 inches and greater dbh have a minimum top dib of 40% of dob at 16 feet or a 6 inch top whichever is greater.

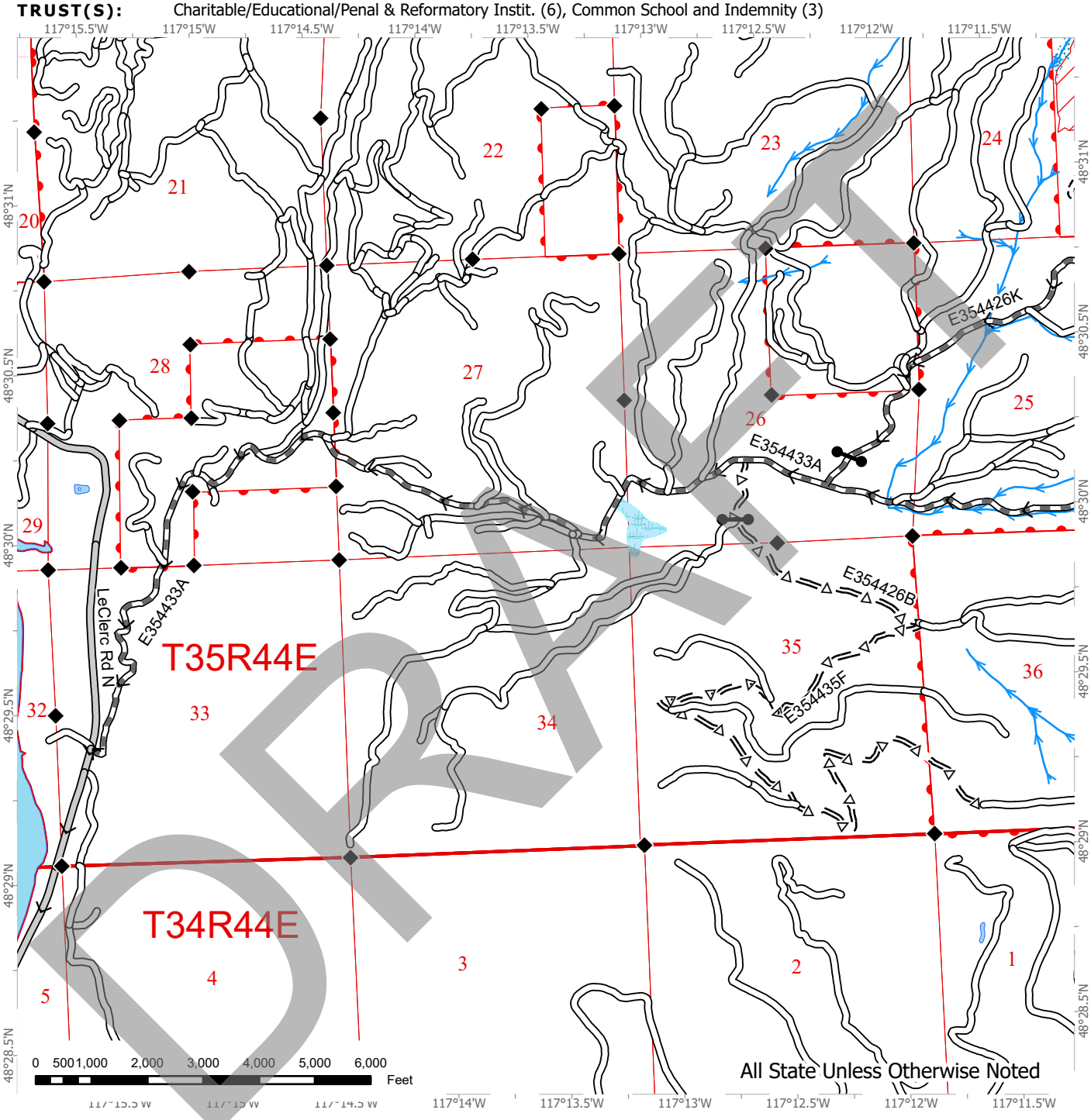
FEES: $98,277.00 is due on day of sale. $9.00 per MBF is due upon removal. These are in addition to the bid price.

SPECIAL REMARKS: Locked gate restricts access to Unit 1. Contact the Northeast Region Office at (509) 684-7474 for access. There is approximately 30 acres of required cable harvest located in portions of Units 3 and 4.

TIMBER SALE MAP

SALE NAME: Q WANLESS CREEK
AGREEMENT#: 30-106239
TOWNSHIP(S): T33R44E, T35R44E, T35R45E
TRUST(S): Charitable/Educational/Penal & Reformatory Instit. (6), Common School and Indemnity (3)

REGION: Northeast Region
COUNTY(S): Pend Oreille
ELEVATION RGE: 2170-5440



- Survey - Section Lines
- DNR Managed Lands
- Ground
- Sale Boundary Tags
- Riparian Mgt Zone
- Existing Roads
- Required Construction
- Required Pre-Haul Maintenance
- Optional Pre-Haul Maintenance
- County Road
- streams
- Survey Monument
- Gate
- Haul Route

N

Prepared By: ljen490
Accessed: 01/09/2025 13:23

Modification Date: ljen490 5/1/2024

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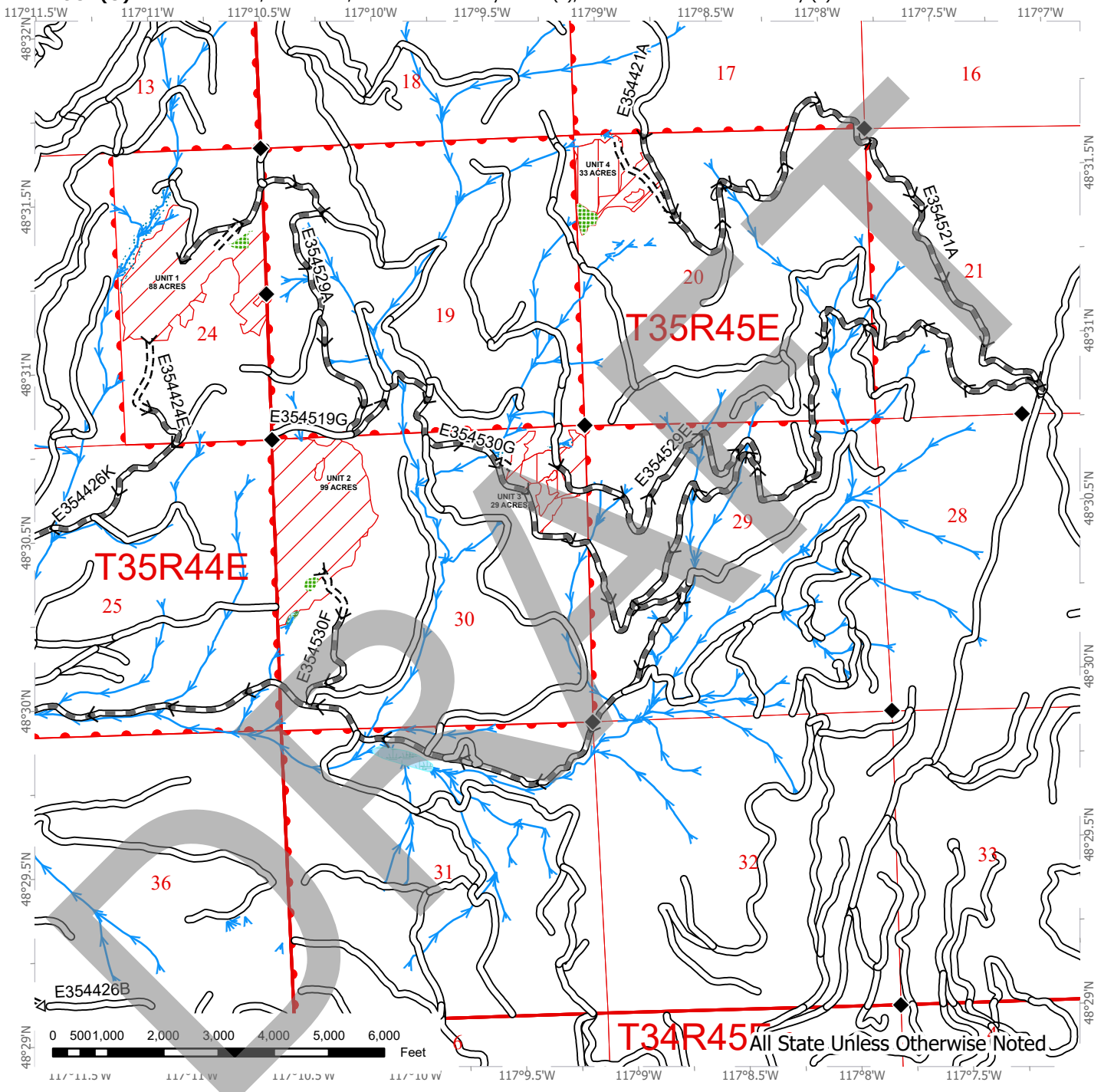

- Survey - Section Lines
- DNR Managed Lands
- Cable
- Ground
- Sale Boundary Tags
- Leave Tree Tags
- Take / Removal Trees
- Leave Tree Area
- Forested Wetland
- Riparian Mgt Zone
- Existing Roads
- Required Construction
- Required Pre-Haul Maintenance
- Optional Pre-Haul Maintenance
- Equipment Limitation Zone
- streams
- Survey Monument
- Haul Route

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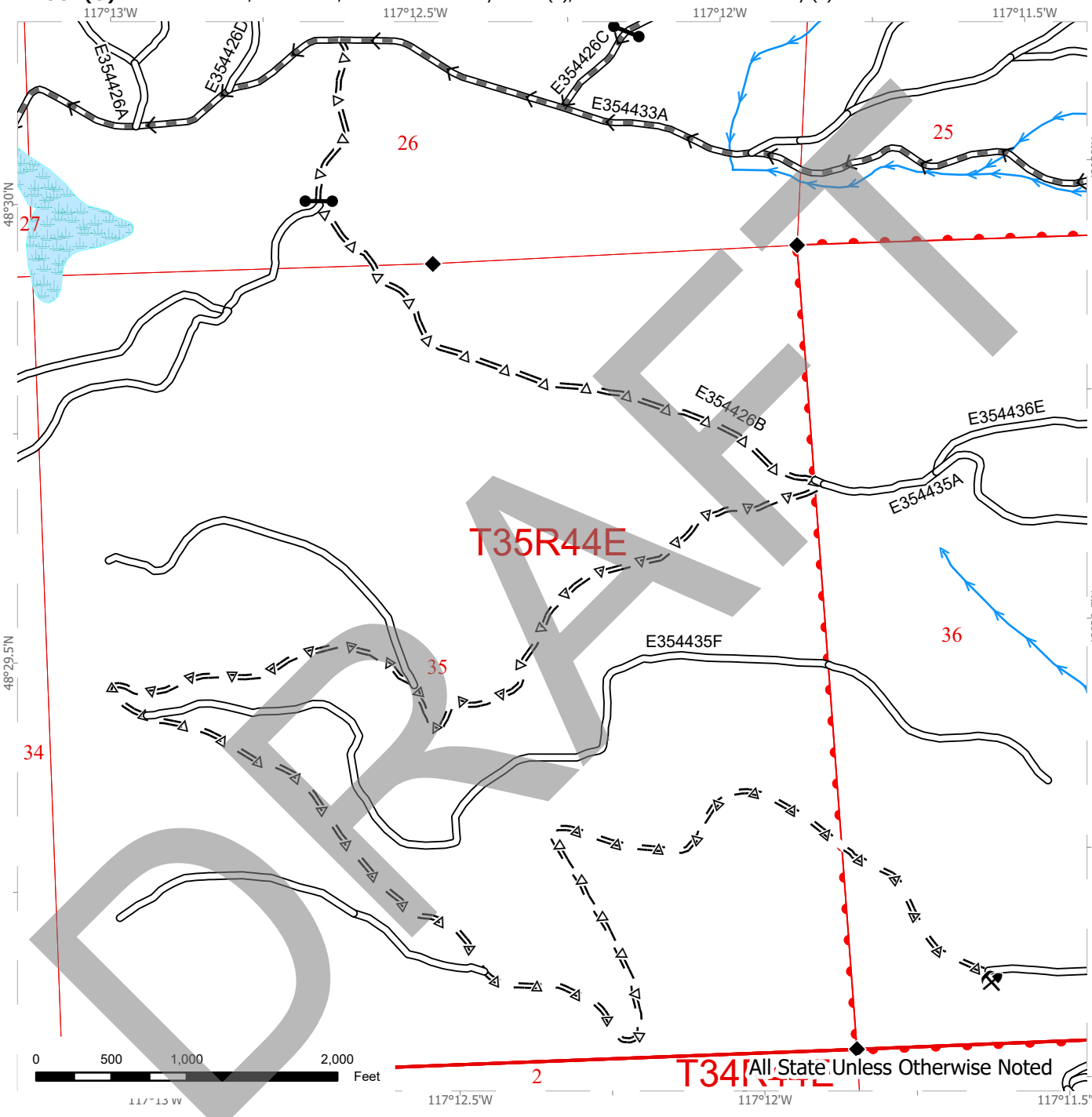

Survey - Section Lines
DNR Managed Lands
Existing Roads
Required Pre-Haul Maintenance
Optional Pre-Haul Maintenance
streams
Survey Monument
Gate
Haul Route

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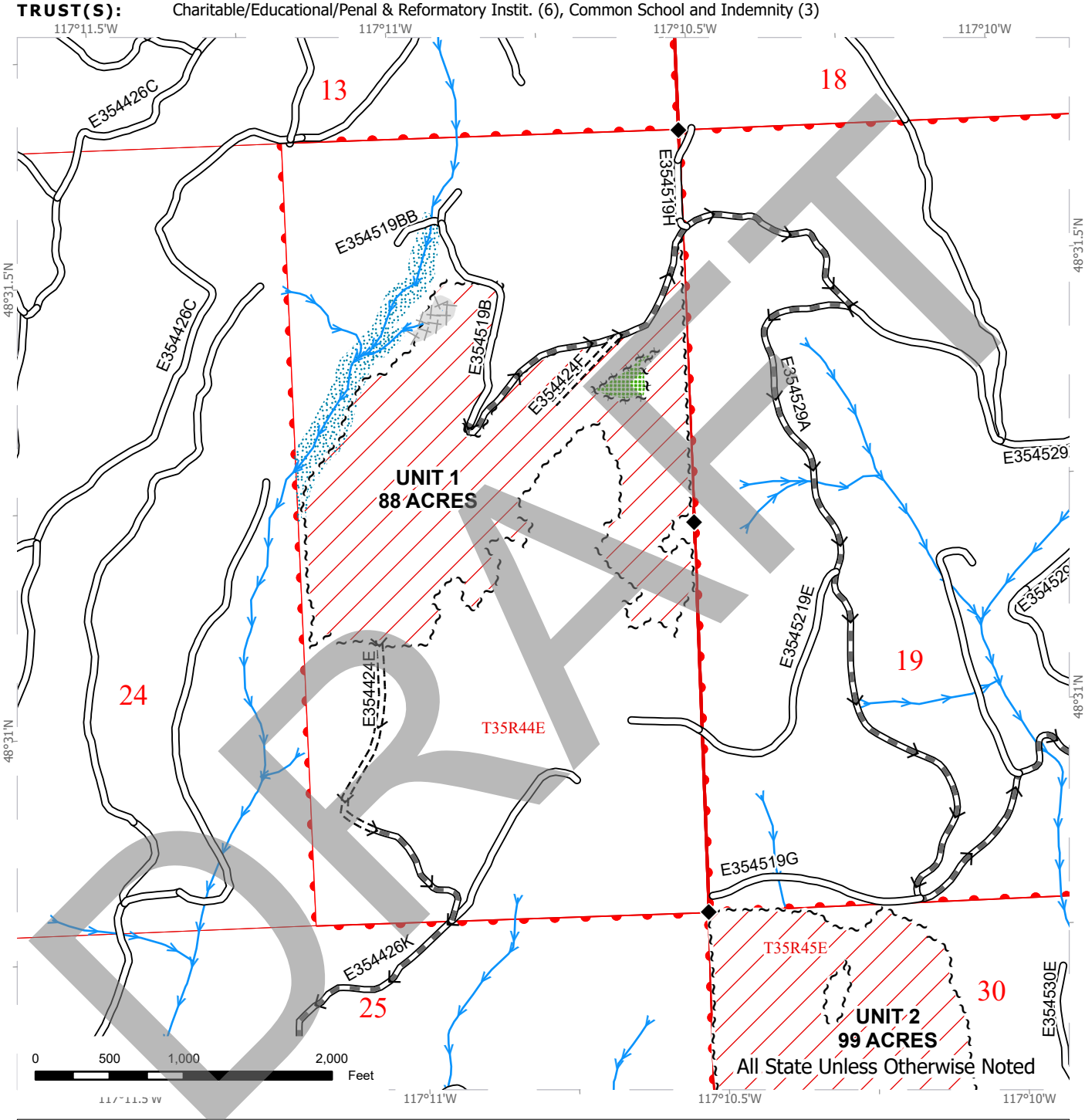

Survey - Section Lines
DNR Managed Lands
Ground
Sale Boundary Tags
Leave Tree Tags
Leave Tree Area
Riparian Mgt Zone
Existing Roads
Required Construction
Required Pre-Haul Maintenance
Equipment Limitation Zone
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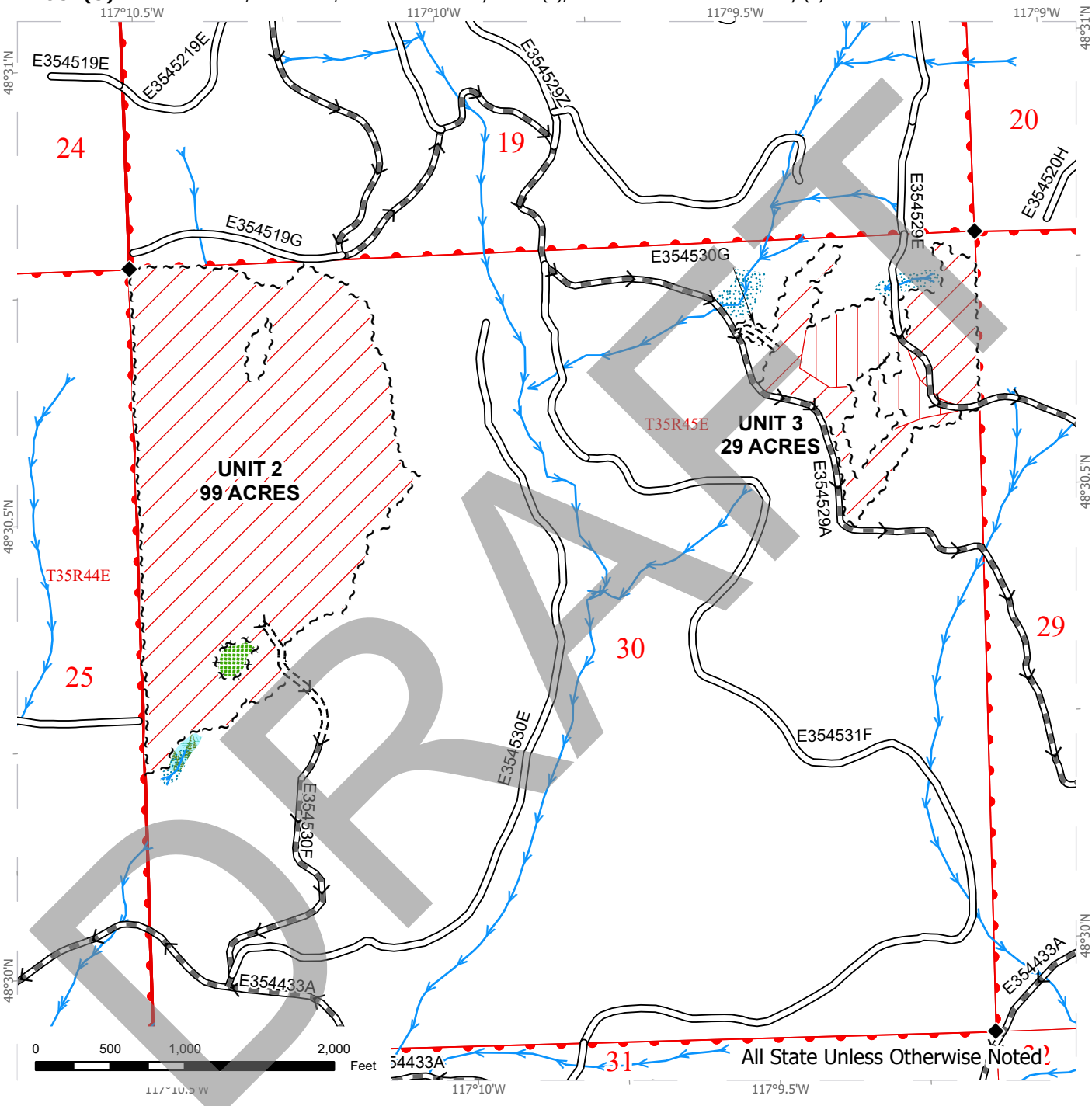

- Survey - Section Lines
- DNR Managed Lands
- Cable
- Ground
- Sale Boundary Tags
- Leave Tree Tags
- Right of Way Tags = 2 acres
- Leave Tree Area
- Forested Wetland
- Riparian Mgt Zone
- Existing Roads
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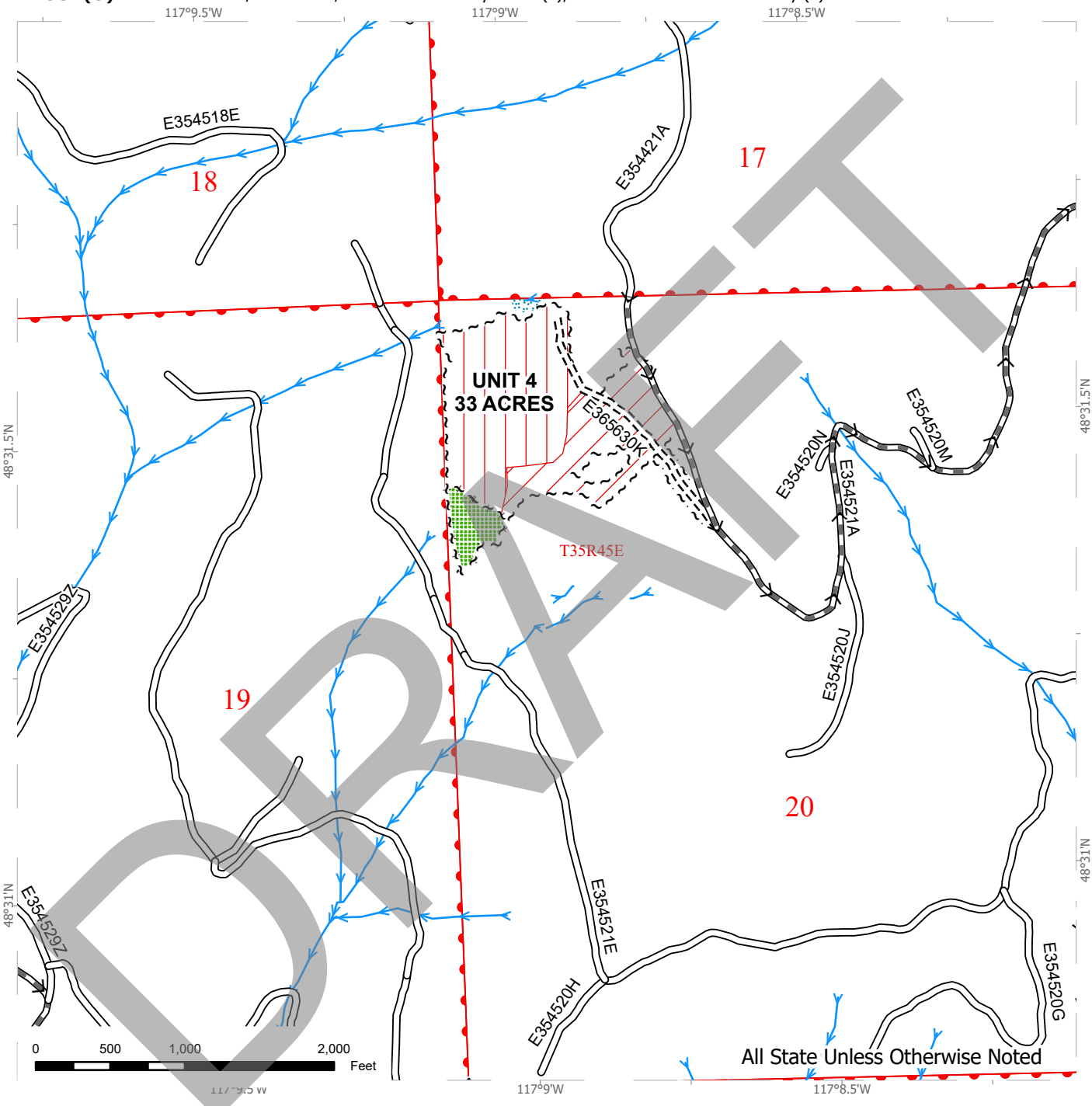

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- Ground
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- Leave Tree Tags
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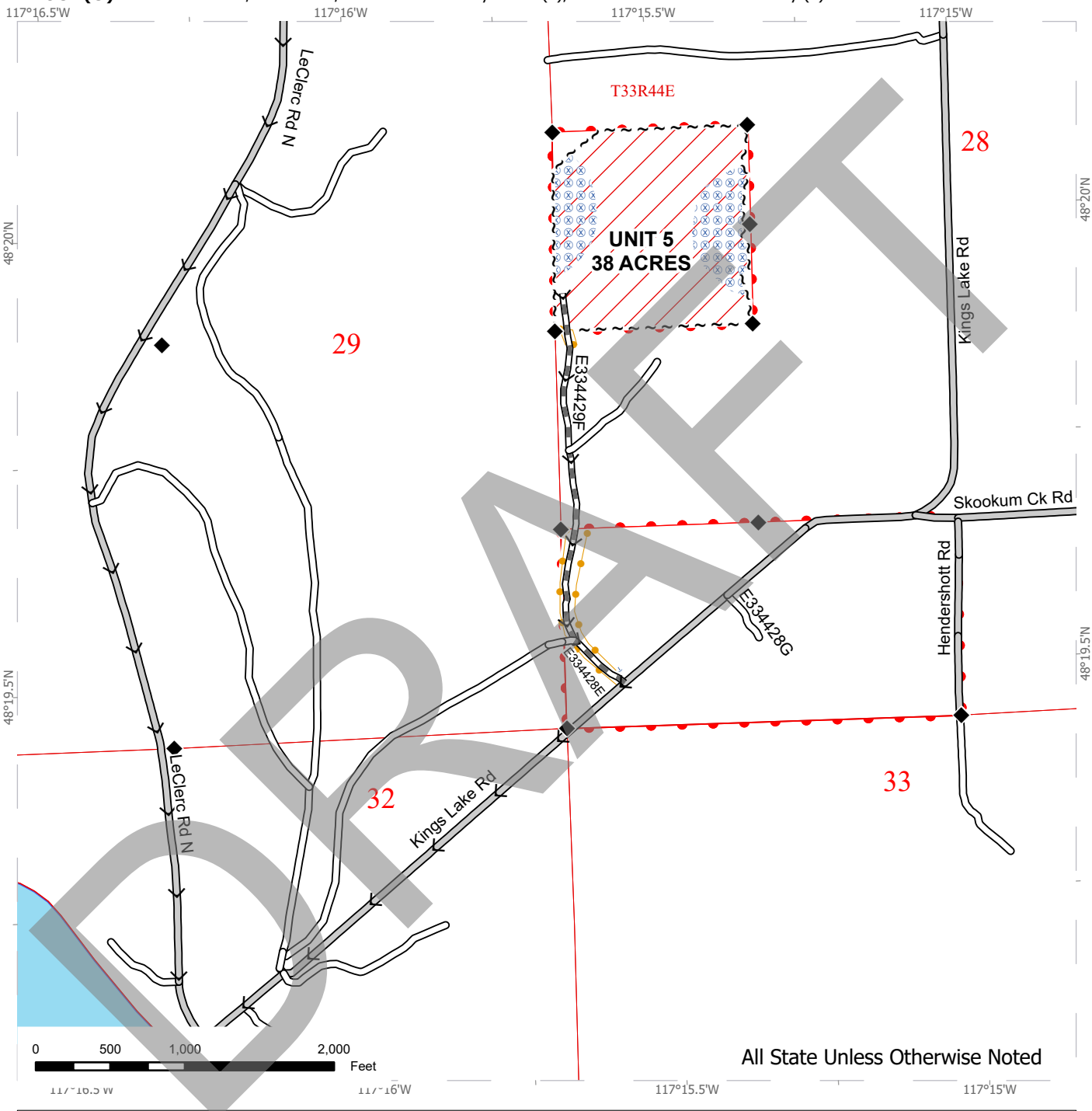

Survey - Section Lines
DNR Managed Lands
Ground
Sale Boundary Tags
Take / Removal Trees
Hazard Abatement Area
Existing Roads
Required Pre-Haul Maintenance
County Road
Survey Monument
Haul Route
N

Prepared By: rmil490
Accessed: 01/09/2025 13:23

Modification Date: rmil490 5/2/2024

DRIVING MAP

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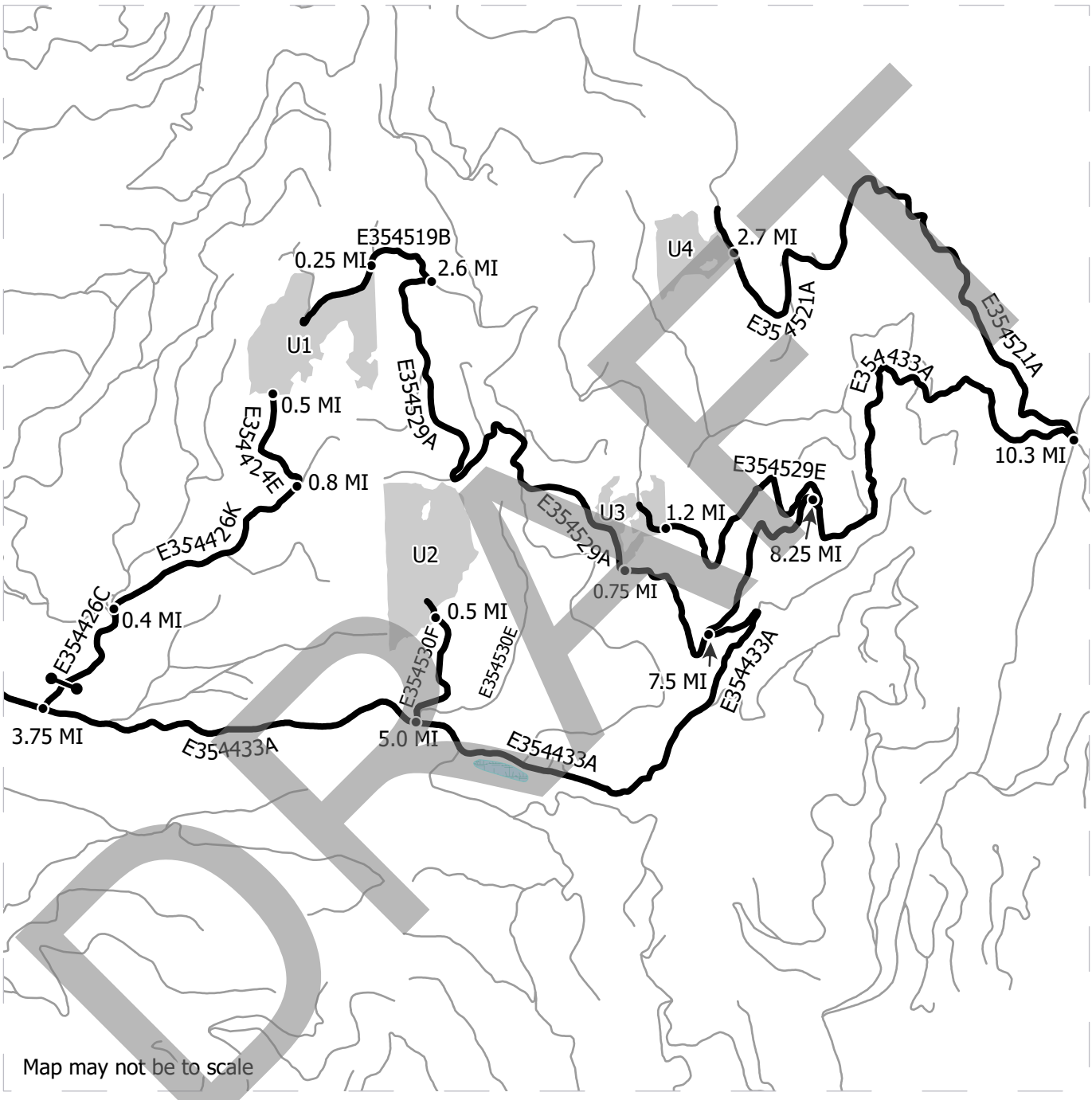

Harvest Unit
Haul Route
Other Route
Distance Indicator
Gate

DRIVING DIRECTIONS:

From Usk- Units 1 – 4: From Highway 20, travel northeast on Kings Lake Rd/5th St for 0.9 miles. After the bridge, turn left onto LeClerc Rd N. Stay on LeClerc Rd N for 13.3 miles. Turn right onto Mill Creek/E354433A.

Unit 1: To reach the north part of Unit 1, from LeClerc Rd N, travel on Mill Creek/E354433A for 7.5 miles. Turn left onto the E354529A road. Continue for about 2.6 miles. Take a sharp left onto the E354519B road. The unit will be on your left in a quarter mile.

To reach the south part of Unit 1, from LeClerc Rd N, travel on Mill Creek/E354433A for 3.75 miles. Turn left onto the E354426C road and go through the gate. Travel for about 0.4 miles and turn right onto the E354426K road. Travel for about 0.8 miles and turn left onto the E354424E Rd. Stay on this road for 0.5 miles to reach the unit.

Unit 2: From LeClerc Rd N, travel on Mill Creek/E354433A for about 5 miles. Turn left onto the E354530E road and then immediately stay left at the fork onto the E354530F road. Stay on this road for about 0.5 miles until you reach the lower part of the unit.

Unit 3: From LeClerc Rd N, travel on Mill Creek/E354433A for 7.5 miles. Turn left onto the E354529A road. Continue for about 0.75 miles. The unit is to the right.

To reach the upper part of the unit, travel on Mill Creek/E354433A for 8.25 miles. Turn left onto the E354529E road. Travel for about 1.2 miles. The unit is above and below the road.

Unit 4: From LeClerc Rd N, travel on Mill Creek/E354433A for 10.3 miles. Turn left onto the E354421A. Travel for 2.7 miles. The unit is to your left.

Unit 5: From Usk, cross the bridge going northeast. Continue on Kings Lake Rd for 0.75 miles. There is a left onto E334428F. Follow this road for 440 ft, and stay slightly right at the fork, onto E334429F. Continue for .25 miles and stay left at the fork. Follow this road for another .15 miles to reach the unit.

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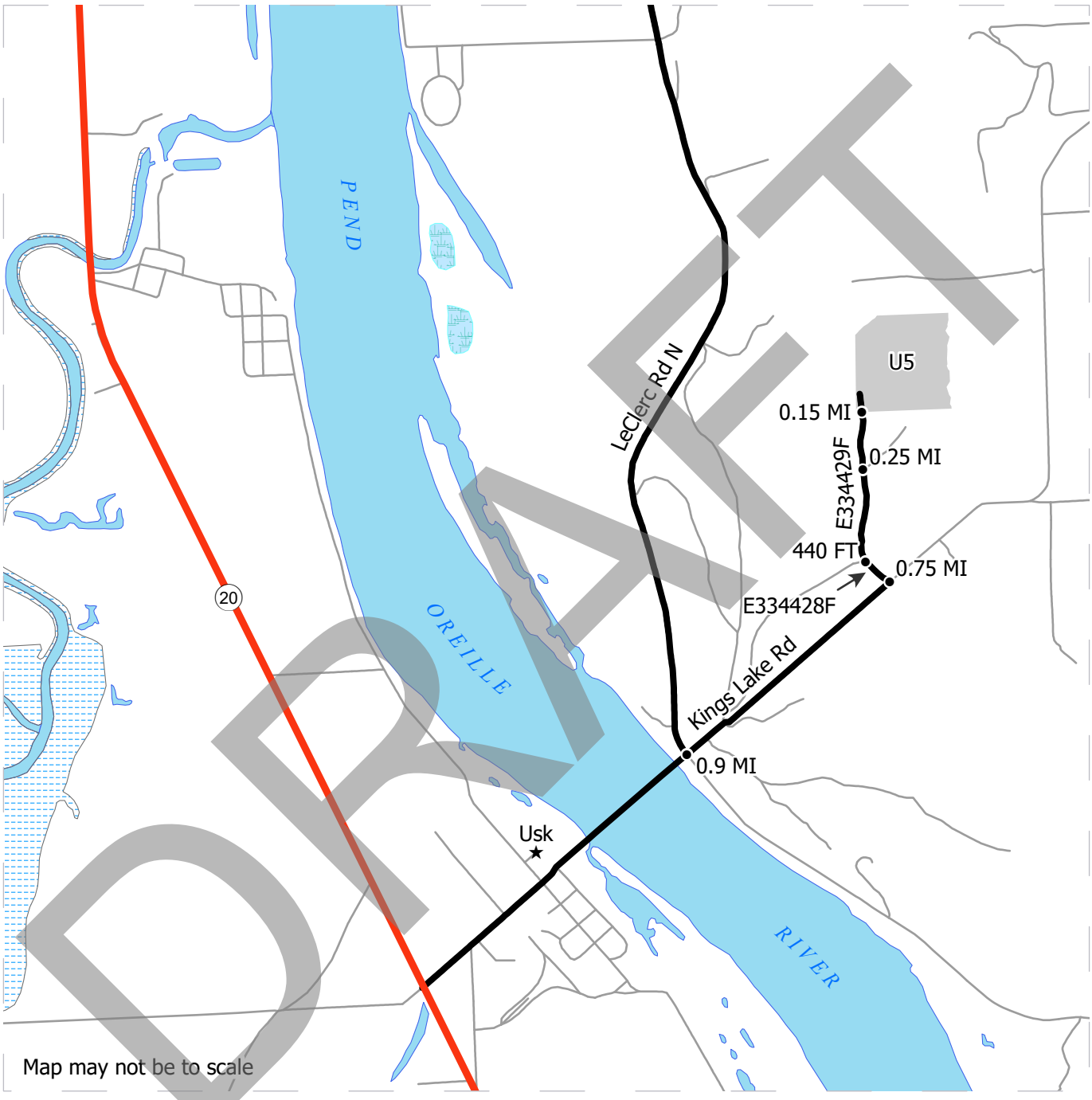

- Harvest Unit
- Highway
- Haul Route
- Other Route
- Distance Indicator
- ★ Town

DRIVING DIRECTIONS:

From Usk- Units 1 – 4: From Highway 20, travel northeast on Kings Lake Rd/5th St for 0.9 miles. After the bridge, turn left onto LeClerc Rd N. Stay on LeClerc Rd N for 13.3 miles. Turn right onto Mill Creek/E354433A.

Unit 1: To reach the north part of Unit 1, from LeClerc Rd N, travel on Mill Creek/E354433A for 7.5 miles. Turn left onto the E354529A road. Continue for about 2.6 miles. Take a sharp left onto the E354519B road. The unit will be on your left in a quarter mile.

To reach the south part of Unit 1, from LeClerc Rd N, travel on Mill Creek/E354433A for 3.75 miles. Turn left onto the E354426C road and go through the gate. Travel for about 0.4 miles and turn right onto the E354426K road. Travel for about 0.8 miles and turn left onto the E354424E Rd. Stay on this road for 0.5 miles to reach the unit.

Unit 2: From LeClerc Rd N, travel on Mill Creek/E354433A for about 5 miles. Turn left onto the E354530E road and then immediately stay left at the fork onto the E354530F road. Stay on this road for about 0.5 miles until you reach the lower part of the unit.

Unit 3: From LeClerc Rd N, travel on Mill Creek/E354433A for 7.5 miles. Turn left onto the E354529A road. Continue for about 0.75 miles. The unit is to the right.

To reach the upper part of the unit, travel on Mill Creek/E354433A for 8.25 miles. Turn left onto the E354529E road. Travel for about 1.2 miles. The unit is above and below the road.

Unit 4: From LeClerc Rd N, travel on Mill Creek/E354433A for 10.3 miles. Turn left onto the E354421A. Travel for 2.7 miles. The unit is to your left.

Unit 5: From Usk, cross the bridge going northeast. Continue on Kings Lake Rd for 0.75 miles. There is a left onto E334428F. Follow this road for 440 ft, and stay slightly right at the fork, onto E334429F. Continue for .25 miles and stay left at the fork. Follow this road for another .15 miles to reach the unit.

N

Prepared By: rmil490
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OVERVIEW MAP

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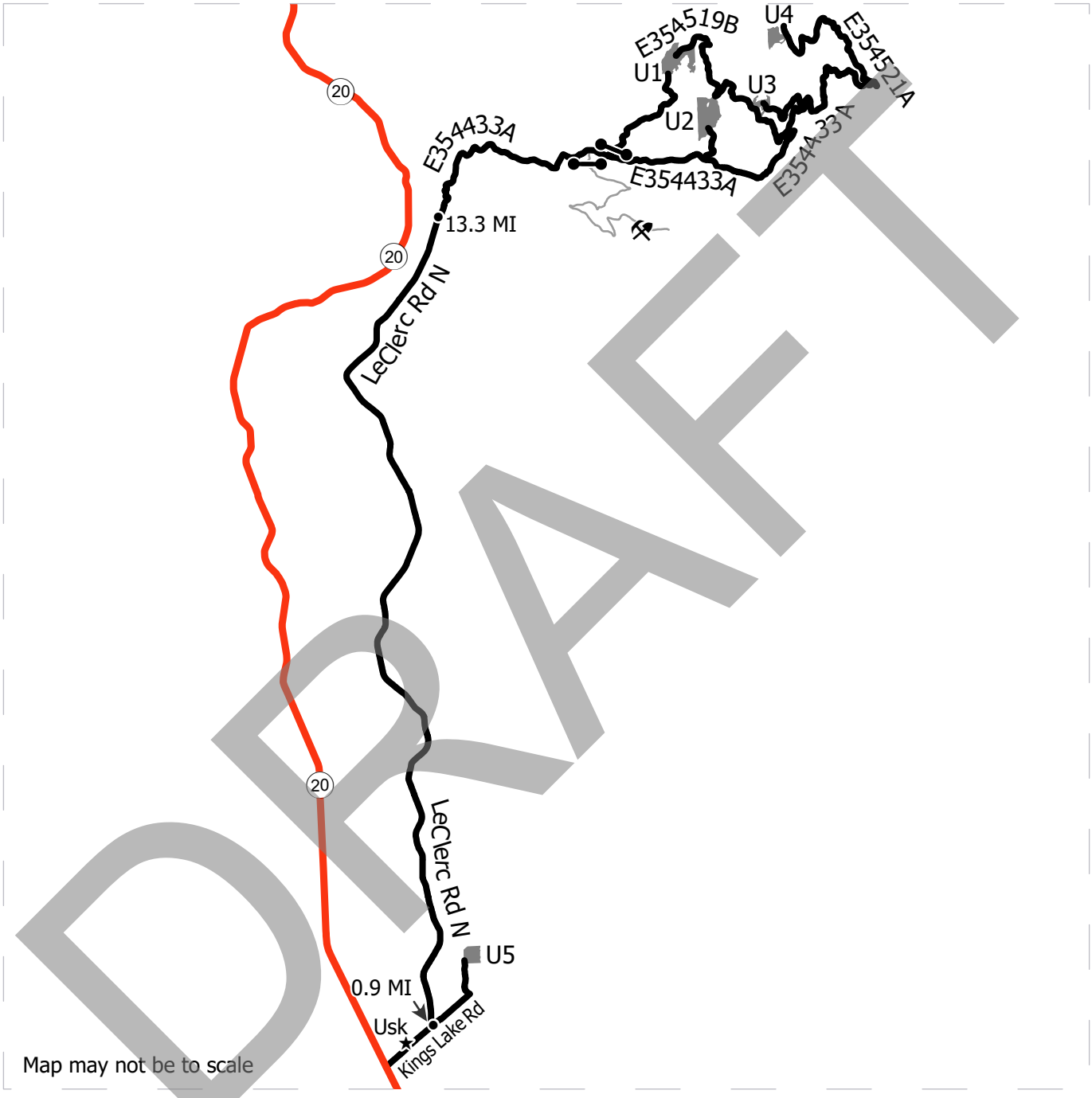

Sale Units
Haul Route
Other Route
Highway
Distance Indicator
Gate
Town
Rock Pit

DRIVING DIRECTIONS:

From Usk- Units 1 – 4: From Highway 20, travel northeast on Kings Lake Rd/5th St for 0.9 miles. After the bridge, turn left onto LeClerc Rd N. Stay on LeClerc Rd N for 13.3 miles. Turn right onto Mill Creek/E354433A.

Unit 1: To reach the north part of Unit 1, from LeClerc Rd N, travel on Mill Creek/E354433A for 7.5 miles. Turn left onto the E354529A road. Continue for about 2.6 miles. Take a sharp left onto the E354519B road. The unit will be on your left in a quarter mile.

To reach the south part of Unit 1, from LeClerc Rd N, travel on Mill Creek/E354433A for 3.75 miles. Turn left onto the E354426C road and go through the gate. Travel for about 0.4 miles and turn right onto the E354426K road. Travel for about 0.8 miles and turn left onto the E354424E Rd. Stay on this road for 0.5 miles to reach the unit.

Unit 2: From LeClerc Rd N, travel on Mill Creek/E354433A for about 5 miles. Turn left onto the E354530E road and then immediately stay left at the fork onto the E354530F road. Stay on this road for about 0.5 miles until you reach the lower part of the unit.

Unit 3: From LeClerc Rd N, travel on Mill Creek/E354433A for 7.5 miles. Turn left onto the E354529A road. Continue for about 0.75 miles. The unit is to the right.

To reach the upper part of the unit, travel on Mill Creek/E354433A for 8.25 miles. Turn left onto the E354529E road. Travel for about 1.2 miles. The unit is above and below the road.

Unit 4: From LeClerc Rd N, travel on Mill Creek/E354433A for 10.3 miles. Turn left onto the E354421A. Travel for 2.7 miles. The unit is to your left.

Unit 5: From Usk, cross the bridge going northeast. Continue on Kings Lake Rd for 0.75 miles. There is a left onto E334428F. Follow this road for 440 ft, and stay slightly right at the fork, onto E334429F. Continue for .25 miles and stay left at the fork. Follow this road for another .15 miles to reach the unit.

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Timber Sale Cruise Report
Wanless Creek

Sale Name: Q WANLESS CREEK

Sale Type: LUMP SUM

Region: NORTHEAST

District: ARCADIA

Lead Cruiser: Jake Culp

Other Cruisers: Hailey Howard

Cruise Narrative:
Location:
Legal – Section 28 of T33N R44E. Section 24 of T35N R44E. Sections 20 and 30 of T35N R45E.
General – Units 1-4 are approx. 15 miles NE of Usk, WA. Unit 5 is approx. 2 miles NE of Usk, WA. All units are in Pend Oreille County.
Access – Units 1-4 are accessed of Mill Creek Rd via Leclerc Rd N. Unit 5 is accessed off of the Kings Lake Rd.

Cruise Design:
-This sale was cruised using variable radius plots, utilizing the cruise-count method. Plot locations found using a Garmin handheld GPS unit. The walk-through method was used on plots near boundaries.
-Minor species cruise intensity: We grade the first tree of all minor species encountered; then follow the set cruise design.
-Min. DBH: 8” DBH for PP and RC, 7" DBH for all other species
-Log Length and grades: 32' logs where possible, minimum of 12' lengths. Trees are graded using Eastside Scaling Rules.
-Top DIB: Trees less than 17.5" DBH have a minimum top of 4.6" DIB for all species; Trees 17.6" and greater DBH have a minimum top DOB of 40% of DOB at 16' or a 6" top, whichever is greater.

Take/Leave Prescription:
Cut all trees not marked with blue paint. Leave all trees within tagged and flagged “Leave Tree Areas”.

Cruise Acres determination:
Net harvest unit acreages are used for cruise acreages.

Stand composition:
The stands are comprised mostly of second growth, even aged Douglas fir. Much of the Douglas fir is on the larger side, with much of the volume coming from 2 Saw logs. There are secondary components of western larch, lodgepole pine, grand fir, western red cedar, and ponderosa pine. Sale also contains minor components of western hemlock, subalpine fir, western white pine, and Engelmann spruce.

Timber quality:
Timber to be harvested is comprised of domestic quality Douglas fir (44%), western larch (15%), lodgepole pine (14%), grand fir (10%), western red cedar (9%), ponderosa pine (5%), western hemlock (1%), subalpine fir (1%), western white pine (1%), and Engelmann spruce (<1%).

Stand health/defect:
Older timber in the sale area can be rough, with branch clusters, sweep, and crooks. Other defects noted include forks, spike knots, wind and snow damage. Pini rot was observed in many of the lodgepole pine. Mistletoe can be found in light amounts throughout the sale.

Aspect:
West, Southwest, South, Southeast

Elevation:
2200'-5500'

Harvesting methods:
90% ground based, 10% uphill cable-tether

Slope:
Unit 1- Max 40%, Avg. 13%
Unit 2- Max 33%, Avg. 7%
Unit 3- Max 50%, Avg. 28%
Unit 4- Max 53%, Avg. 34%
Unit 5- Max 15%, Avg. 5%

Other considerations/remarks:
Units 1 and 2 have areas with dense blowdown/jackstraw. There is a large area in the middle of Unit 3 with steep rocky outcroppings and small cliffs.

Trust:
Units 1-4 fall within Trust 3. Unit 5 is Trust 6.

Timber Sale Notice Volume (MBF)

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	5 Saw
DF	15.7			2,558	903	1,346	309	
WL	15.1			868	264	525	78	
LP	11.6			787	46	621	120	
GF	13.6			580	193	299	88	
RC	13.3			536		439	98	
PP	19.6			289			177	112
WH	10.2			66		49	17	
AF	11.0			43	0	24	19	
WP	17.9			30	14	12	4	
ES	11.1			24		20	5	
ALL	13.9			5,781	1,420	3,334	914	112

Timber Sale Notice Weight (tons)

	Tons by Grade				
Sp	All	2 Saw	3 Saw	4 Saw	5 Saw
DF	16,195	5,096	8,913	2,186	
WL	4,753	1,329	2,998	425	
LP	3,968	236	3,155	577	
GF	3,793	1,111	2,069	613	

	Tons by Grade				
Sp	All	2 Saw	3 Saw	4 Saw	5 Saw
RC	3,072		2,375	697	
PP	1,365			789	576
WH	494		364	130	
AF	286	2	159	125	
WP	143	60	60	23	
ES	130		101	30	
ALL	34,198	7,833	20,195	5,594	576

Timber Sale Overall Cruise Statistics

BA (sq ft/acre)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR SE (%)	Net Vol (bf/acre)	Vol SE (%)
134.2	3.3	148.8	2.3	20,025	4.0

Timber Sale Unit Cruise Design

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
WANLESS CREEK U1	B1C: VR, 1 BAF (33.61) Measure/ Count Plots, Sighting Ht = 4.5 ft	88.0	89.3	58	15	1
WANLESS CREEK U2	B1C: VR, 1 BAF (33.61) Measure/ Count Plots, Sighting Ht = 4.5 ft	98.8	101.3	65	17	1
WANLESS CREEK U3	B1C: VR, 1 BAF (25.15) Measure/ Count Plots, Sighting Ht = 4.5 ft	29.1	29.7	32	8	4
WANLESS CREEK U4	B1C: VR, 1 BAF (33.61) Measure/ Count Plots, Sighting Ht = 4.5 ft	33.2	36.1	32	11	1
WANLESS CREEK U5	B1C: VR, 1 BAF (33.61) Measure/ Count Plots, Sighting Ht = 4.5 ft	38.2	38.5	30	10	0
WANLESS CREEK ROW 6	B1: VR, 1 BAF (20) Measure All, Sighting Ht = 4.5 ft	0.4	0.4	2	2	0
WANLESS CREEK ROW 7	B1: VR, 1 BAF (25.15) Measure All, Sighting Ht = 4.5 ft	0.3	0.3	2	2	0
WANLESS CREEK ROW 8	ST: Strip/Percent Sample (1 tree expansion)	0.7	0.6	1	1	0
All		288.7	296.1	222	66	7

Timber Sale Log Grade x Sort Summary

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
AF	LIVE	2 SAW	Domestic	13.6	32	2	2	4.7	2.2	0.5
AF	LIVE	3 SAW	Domestic	8.6	32	82	82	0.0	159.1	23.8

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
AF	LIVE	4 SAW	Domestic	5.2	24	64	64	0.0	124.9	18.6
DF	LIVE	2 SAW	Domestic	13.6	32	3,139	3,127	0.4	5,095.8	902.8
DF	LIVE	3 SAW	Domestic	8.1	32	4,701	4,663	0.8	8,913.4	1,346.2
DF	LIVE	4 SAW	Domestic	5.6	22	1,183	1,071	9.5	2,186.3	309.2
DF	LIVE	CULL	Cull	7.1	23	52	0	100.0	0.0	0.0
ES	LIVE	3 SAW	Domestic	7.5	32	68	68	0.0	100.8	19.6
ES	LIVE	4 SAW	Domestic	5.3	20	17	17	0.0	29.7	4.8
GF	LIVE	2 SAW	Domestic	13.0	32	668	668	0.0	1,110.6	192.9
GF	LIVE	3 SAW	Domestic	7.6	32	1,036	1,036	0.0	2,069.2	299.0
GF	LIVE	4 SAW	Domestic	5.3	20	305	305	0.0	612.8	88.1
LP	LIVE	2 SAW	Domestic	13.2	32	159	159	0.0	236.1	45.9
LP	LIVE	3 SAW	Domestic	7.4	32	2,223	2,150	3.3	3,154.9	620.7
LP	LIVE	4 SAW	Domestic	5.2	22	417	417	0.0	577.0	120.3
PP	LIVE	4 SAW	Domestic	13.4	32	612	612	0.0	788.8	176.6
PP	LIVE	5 SAW	Domestic	7.3	26	390	390	0.0	575.8	112.5
RC	LIVE	3 SAW	Domestic	9.3	32	1,569	1,520	3.1	2,375.1	438.8
RC	LIVE	4 SAW	Domestic	6.1	22	338	338	0.0	696.6	97.7
WH	LIVE	3 SAW	Domestic	6.8	32	171	171	0.0	364.0	49.4
WH	LIVE	4 SAW	Domestic	5.0	23	58	58	0.0	129.6	16.7
WL	LIVE	2 SAW	Domestic	13.2	32	922	916	0.7	1,328.8	264.4
WL	LIVE	3 SAW	Domestic	8.4	32	1,826	1,818	0.4	2,998.4	525.0
WL	LIVE	4 SAW	Domestic	5.3	22	274	271	1.1	425.4	78.3
WP	LIVE	2 SAW	Domestic	13.8	32	47	47	0.0	59.7	13.6
WP	LIVE	3 SAW	Domestic	9.5	32	42	42	0.0	60.2	12.0
WP	LIVE	4 SAW	Domestic	5.5	29	14	14	0.0	22.9	4.0

Timber Sale Log Sort x Diameter Bin Summary

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
AF	5 - 8	LIVE	Domestic	5.6	22	116	0.0	232.5	33.4
AF	9 - 11	LIVE	Domestic	9.8	32	31	0.0	51.5	9.0
AF	12 - 14	LIVE	Domestic	13.6	32	2	4.7	2.2	0.5
DF	5 - 8	LIVE	Cull	5.4	14	0	100.0	0.0	0.0
DF	5 - 8	LIVE	Domestic	6.0	26	2,688	0.1	5,348.7	775.9
DF	9 - 11	LIVE	Cull	8.7	32	0	100.0	0.0	0.0
DF	9 - 11	LIVE	Domestic	9.9	32	2,906	1.3	5,437.9	839.0
DF	12 - 14	LIVE	Domestic	12.7	32	1,679	1.4	2,825.8	484.8
DF	15 - 19	LIVE	Domestic	16.2	32	1,328	6.9	2,204.9	383.5

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
DF	20+	LIVE	Domestic	21.1	32	260	0.0	378.2	74.9
ES	5 - 8	LIVE	Domestic	6.4	26	85	0.0	130.5	24.4
GF	5 - 8	LIVE	Domestic	5.9	25	910	0.0	1,894.2	262.6
GF	9 - 11	LIVE	Domestic	9.6	32	431	0.0	787.8	124.5
GF	12 - 14	LIVE	Domestic	13.2	32	668	0.0	1,110.6	192.9
LP	5 - 8	LIVE	Domestic	6.1	27	1,775	1.2	2,540.9	512.4
LP	9 - 11	LIVE	Domestic	9.4	32	846	5.7	1,268.1	244.1
LP	12 - 14	LIVE	Domestic	13.2	32	50	0.0	77.2	14.5
LP	15 - 19	LIVE	Domestic	16.2	32	55	0.0	81.9	15.9
PP	5 - 8	LIVE	Domestic	6.7	24	225	0.0	363.3	64.9
PP	9 - 11	LIVE	Domestic	9.8	32	165	0.0	212.5	47.6
PP	12 - 14	LIVE	Domestic	12.9	32	374	0.0	469.1	108.0
PP	15 - 19	LIVE	Domestic	15.4	32	238	0.0	319.7	68.7
RC	5 - 8	LIVE	Domestic	6.4	24	696	0.0	1,251.7	200.9
RC	9 - 11	LIVE	Domestic	9.9	32	599	2.3	955.1	172.9
RC	12 - 14	LIVE	Domestic	13.0	32	346	0.0	508.3	99.9
RC	15 - 19	LIVE	Domestic	16.2	32	218	13.7	356.6	62.8
WH	5 - 8	LIVE	Domestic	6.0	28	229	0.0	493.6	66.1
WL	5 - 8	LIVE	Domestic	6.3	27	938	0.4	1,571.5	270.7
WL	9 - 11	LIVE	Domestic	9.8	32	1,189	0.6	1,914.2	343.3
WL	12 - 14	LIVE	Domestic	12.4	32	496	0.5	742.0	143.3
WL	15 - 19	LIVE	Domestic	15.7	32	382	1.1	525.1	110.3
WP	5 - 8	LIVE	Domestic	5.5	29	14	0.0	22.9	4.0
WP	9 - 11	LIVE	Domestic	9.5	32	42	0.0	60.2	12.0
WP	12 - 14	LIVE	Domestic	13.8	32	47	0.0	59.7	13.6

Cruise Unit Report
WANLESS CREEK U1

Unit Sale Notice Volume (MBF): WANLESS CREEK U1

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	5 Saw
DF	14.1			771	174	508	89	
WL	15.4			245	102	120	23	
LP	10.4			198		167	32	
GF	15.7			188	92	76	20	
PP	20.9			185			123	61
RC	13.1			149		121	28	
WH	10.2			44		29	14	
WP	13.6			8		5	2	
ALL	13.5			1,787	368	1,026	332	61

Unit Cruise Design: WANLESS CREEK U1

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (33.61) Measure/Count Plots, Sighting Ht = 4.5 ft	88.0	89.3	58	15	1

Unit Cruise Summary: WANLESS CREEK U1

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	21	116	2.0	0
WL	8	22	0.4	0
LP	3	23	0.4	0
GF	3	19	0.3	0
PP	2	21	0.4	0
RC	6	27	0.5	0
WH	4	7	0.1	0
WP	1	1	0.0	0
ALL	48	236	4.1	0

Unit Cruise Statistics: WANLESS CREEK U1

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	67.2	99.6	13.1	130.3	39.7	8.7	8,757	107.2	15.7

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WL	12.7	208.5	27.4	218.4	19.5	6.9	2,784	209.4	28.2
LP	13.3	245.2	32.2	169.2	13.5	7.8	2,255	245.5	33.1
GF	11.0	231.5	30.4	194.2	21.0	12.2	2,138	232.4	32.7
PP	12.2	223.7	29.4	172.3	6.4	4.5	2,097	223.8	29.7
RC	15.6	189.7	24.9	108.0	53.5	21.8	1,690	197.0	33.1
WH	4.1	313.4	41.2	123.0	34.7	17.4	499	315.3	44.7
WP	0.6	761.6	100.0	150.7	0.0	0.0	87	761.6	100.0
ALL	136.8	46.9	6.2	148.5	39.3	5.7	20,309	61.2	8.4

Unit Summary: WANLESS CREEK U1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	21	ALL	14.1	66	83	8,985	8,757	2.5	62.0	67.2	17.9	770.6
GF	LIVE	CUT	3	ALL	15.7	78	99	2,138	2,138	0.0	8.2	11.0	2.8	188.2
LP	LIVE	CUT	3	ALL	10.4	70	88	2,255	2,255	0.0	22.6	13.3	4.1	198.5
PP	LIVE	CUT	2	ALL	20.9	82	110	2,097	2,097	0.0	5.1	12.2	2.7	184.6
RC	LIVE	CUT	6	ALL	13.1	56	70	1,851	1,690	8.7	16.7	15.6	4.3	148.8
WH	LIVE	CUT	4	ALL	10.2	58	72	499	499	0.0	7.1	4.1	1.3	43.9
WL	LIVE	CUT	8	ALL	15.4	89	113	2,784	2,784	0.0	9.9	12.7	3.2	245.0
WP	LIVE	CUT	1	ALL	13.6	72	91	87	87	0.0	0.6	0.6	0.2	7.7
ALL	LIVE	CUT	48	ALL	13.8	68	86	20,698	20,309	1.9	132.2	136.8	36.5	1,787.2
ALL	ALL	ALL	48	ALL	13.8	68	86	20,698	20,309	1.9	132.2	136.8	36.5	1,787.2

Cruise Unit Report
WANLESS CREEK U2

Unit Sale Notice Volume (MBF): WANLESS CREEK U2

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	5 Saw
DF	12.9			588	81	358	148	
LP	11.0			501		420	81	
WL	14.6			457	123	293	41	
RC	12.2			322		255	68	
GF	10.4			56		44	12	
PP	20.6			42			32	10
ES	11.1			24		20	5	
WH	10.3			22		20	2	
WP	19.4			22	14	7	2	
ALL	12.5			2,035	218	1,417	390	10

Unit Cruise Design: WANLESS CREEK U2

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (33.61) Measure/Count Plots, Sighting Ht = 4.5 ft	98.8	101.3	65	17	1

Unit Cruise Summary: WANLESS CREEK U2

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	18	83	1.3	0
LP	12	60	0.9	0
WL	14	50	0.8	0
RC	12	52	0.8	0
GF	2	8	0.1	0
PP	1	6	0.1	0
ES	1	3	0.0	0
WH	2	4	0.1	0
WP	1	2	0.0	0
ALL	63	268	4.1	0

Unit Cruise Statistics: WANLESS CREEK U2

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	42.9	128.8	16.0	138.7	27.5	6.5	5,951	131.7	17.2
LP	31.0	130.3	16.2	163.4	17.7	5.1	5,070	131.5	17.0
WL	25.9	155.5	19.3	179.1	14.3	3.8	4,630	156.1	19.7
RC	26.9	183.8	22.8	121.3	39.3	11.4	3,261	188.0	25.5
GF	4.1	337.1	41.8	136.8	11.4	8.0	566	337.3	42.6
PP	3.1	458.1	56.8	136.5	0.0	0.0	424	458.1	56.8
ES	1.6	458.1	56.8	159.2	0.0	0.0	247	458.1	56.8
WH	2.1	393.6	48.8	108.5	11.8	8.3	224	393.7	49.5
WP	1.0	565.6	70.2	214.8	0.0	0.0	222	565.6	70.2
ALL	138.6	49.5	6.1	148.6	27.6	3.5	20,594	56.7	7.1

Unit Summary: WANLESS CREEK U2

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	18	ALL	12.9	65	81	6,293	5,951	5.4	47.3	42.9	11.9	587.9
ES	LIVE	CUT	1	ALL	11.1	67	84	247	247	0.0	2.3	1.6	0.5	24.4
GF	LIVE	CUT	2	ALL	10.4	64	80	566	566	0.0	7.0	4.1	1.3	55.9
LP	LIVE	CUT	12	ALL	11.0	71	91	5,285	5,070	4.1	47.0	31.0	9.4	501.0
PP	LIVE	CUT	1	ALL	20.6	67	88	424	424	0.0	1.3	3.1	0.7	41.8
RC	LIVE	CUT	12	ALL	12.2	59	74	3,261	3,261	0.0	33.1	26.9	7.7	322.1
WH	LIVE	CUT	2	ALL	10.3	53	65	224	224	0.0	3.6	2.1	0.6	22.2
WL	LIVE	CUT	14	ALL	14.6	85	107	4,678	4,630	1.0	22.2	25.9	6.8	457.4
WP	LIVE	CUT	1	ALL	19.4	91	116	222	222	0.0	0.5	1.0	0.2	21.9
ALL	LIVE	CUT	63	ALL	12.4	68	86	21,199	20,594	2.9	164.3	138.6	39.1	2,034.7
ALL	ALL	ALL	63	ALL	12.4	68	86	21,199	20,594	2.9	164.3	138.6	39.1	2,034.7

Cruise Unit Report
WANLESS CREEK U3

Unit Sale Notice Volume (MBF): WANLESS CREEK U3

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	5 Saw
DF	15.5			223	83	121	19	
PP	15.2			63			22	41
GF	11.7			5		4	1	
WL	15.1			4		4	0	
ALL	15.3			294	83	129	42	41

Unit Cruise Design: WANLESS CREEK U3

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (25.15) Measure/Count Plots, Sighting Ht = 4.5 ft	29.1	29.7	32	8	4

Unit Cruise Summary: WANLESS CREEK U3

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	24	65	2.0	0
PP	5	21	0.7	0
GF	1	2	0.1	0
WL	1	1	0.0	0
ALL	31	89	2.8	0

Unit Cruise Statistics: WANLESS CREEK U3

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	51.1	106.5	18.8	149.9	31.2	6.4	7,659	110.9	19.9
PP	16.5	179.9	31.8	130.5	41.4	18.5	2,153	184.6	36.8
GF	1.6	565.7	100.0	103.1	0.0	0.0	162	565.7	100.0
WL	0.8	565.7	100.0	178.5	0.0	0.0	140	565.7	100.0
ALL	69.9	87.0	15.4	144.6	32.6	5.9	10,114	92.9	16.5

Unit Summary: WANLESS CREEK U3

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	24	ALL	15.5	69	86	7,733	7,659	1.0	39.0	51.1	13.0	222.9
GF	LIVE	CUT	1	ALL	11.7	57	71	162	162	0.0	2.1	1.6	0.5	4.7
PP	LIVE	CUT	5	ALL	15.2	65	85	2,153	2,153	0.0	13.1	16.5	4.2	62.7
WL	LIVE	CUT	1	ALL	15.1	82	104	140	140	0.0	0.6	0.8	0.2	4.1
ALL	LIVE	CUT	31	ALL	15.3	67	85	10,189	10,114	0.7	54.8	69.9	17.9	294.3
ALL	ALL	ALL	31	ALL	15.3	67	85	10,189	10,114	0.7	54.8	69.9	17.9	294.3

Cruise Unit Report
WANLESS CREEK U4

Unit Sale Notice Volume (MBF): WANLESS CREEK U4

				MBF Volume by Grade			
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw
DF	17.3			527	291	203	33
WL	16.0			110	22	77	12
LP	17.8			46	30	13	2
AF	11.0			42		24	18
GF	13.5			4		3	1
ALL	15.9			728	343	320	65

Unit Cruise Design: WANLESS CREEK U4

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (33.61) Measure/Count Plots, Sighting Ht = 4.5 ft	33.2	36.1	32	11	1

Unit Cruise Summary: WANLESS CREEK U4

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	34	97	3.0	0
WL	4	20	0.6	0
LP	2	7	0.2	0
AF	5	12	0.4	0
GF	1	1	0.0	0
ALL	46	137	4.3	0

Unit Cruise Statistics: WANLESS CREEK U4

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	101.9	64.6	11.4	155.7	25.1	4.3	15,866	69.3	12.2
WL	21.0	150.7	26.6	157.8	23.0	11.5	3,314	152.4	29.0
LP	7.4	192.0	33.9	186.9	5.9	4.2	1,374	192.1	34.2
AF	12.6	222.1	39.3	99.5	46.3	20.7	1,254	226.9	44.4
GF	1.1	565.7	100.0	105.6	0.0	0.0	111	565.7	100.0
ALL	143.9	42.9	7.6	152.3	28.0	4.1	21,919	51.2	8.6

Unit Summary: WANLESS CREEK U4

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
AF	LIVE	CUT	5	ALL	11.0	50	61	1,254	1,254	0.0	19.1	12.6	3.8	41.6
DF	LIVE	CUT	34	ALL	17.3	71	90	15,968	15,866	0.6	62.4	101.9	24.5	526.7
GF	LIVE	CUT	1	ALL	13.5	58	73	111	111	0.0	1.1	1.1	0.3	3.7
LP	LIVE	CUT	2	ALL	17.8	83	105	1,374	1,374	0.0	4.3	7.4	1.7	45.6
WL	LIVE	CUT	4	ALL	16.0	80	101	3,314	3,314	0.0	15.0	21.0	5.3	110.0
ALL	LIVE	CUT	46	ALL	16.1	69	87	22,021	21,919	0.5	101.9	143.9	35.6	727.7
ALL	ALL	ALL	46	ALL	16.1	69	87	22,021	21,919	0.5	101.9	143.9	35.6	727.7

Cruise Unit Report
WANLESS CREEK U5

Unit Sale Notice Volume (MBF): WANLESS CREEK U5

				MBF Volume by Grade			
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw
DF	20.2			448	274	154	21
GF	13.0			327	101	171	55
RC	19.5			66		63	2
WL	16.2			49	16	31	2
LP	17.0			42	16	20	6
ALL	15.8			932	407	440	85

Unit Cruise Design: WANLESS CREEK U5

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (33.61) Measure/Count Plots, Sighting Ht = 4.5 ft	38.2	38.5	30	10	0

Unit Cruise Summary: WANLESS CREEK U5

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	13	59	2.0	0
GF	16	59	2.0	0
RC	3	12	0.4	0
WL	4	8	0.3	0
LP	2	6	0.2	0
ALL	38	144	4.8	0

Unit Cruise Statistics: WANLESS CREEK U5

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	66.1	73.7	13.5	177.6	19.2	5.3	11,739	76.2	14.5
GF	66.1	82.8	15.1	129.5	36.4	9.1	8,560	90.5	17.6
RC	13.4	168.7	30.8	127.7	60.7	35.1	1,717	179.3	46.7
WL	9.0	239.9	43.8	144.0	15.4	7.7	1,291	240.4	44.5
LP	6.7	242.1	44.2	163.2	26.3	18.6	1,097	243.5	48.0
ALL	161.3	29.7	5.4	151.3	30.3	4.9	24,404	42.4	7.3

Unit Summary: WANLESS CREEK U5

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	13	ALL	20.2	84	107	11,800	11,739	0.5	29.7	66.1	14.7	448.4
GF	LIVE	CUT	16	ALL	13.0	63	79	8,560	8,560	0.0	71.7	66.1	18.3	327.0
LP	LIVE	CUT	2	ALL	17.0	75	95	1,097	1,097	0.0	4.3	6.7	1.6	41.9
RC	LIVE	CUT	3	ALL	19.5	60	75	1,717	1,717	0.0	6.5	13.4	3.0	65.6
WL	LIVE	CUT	4	ALL	16.2	85	108	1,297	1,291	0.4	6.3	9.0	2.2	49.3
ALL	LIVE	CUT	38	ALL	15.8	70	88	24,471	24,404	0.3	118.5	161.3	39.9	932.2
ALL	ALL	ALL	38	ALL	15.8	70	88	24,471	24,404	0.3	118.5	161.3	39.9	932.2

Cruise Unit Report
WANLESS CREEK ROW 6

Unit Sale Notice Volume (MBF): WANLESS CREEK ROW 6

				MBF Volume by Grade			
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw
WL	21.3			1	0	0	0
DF	13.0			1		1	
GF	8.0			0			0
ALL	11.6			2	0	1	0

Unit Cruise Design: WANLESS CREEK ROW 6

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (20) Measure All, Sighting Ht = 4.5 ft	0.4	0.4	2	2	0

Unit Cruise Summary: WANLESS CREEK ROW 6

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WL	1	1	0.5	0
DF	2	2	1.0	0
GF	1	1	0.5	0
ALL	4	4	2.0	0

Unit Cruise Statistics: WANLESS CREEK ROW 6

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WL	10.0	141.4	100.0	190.3	0.0	0.0	1,903	141.4	100.0
DF	20.0	141.4	100.0	69.7	10.9	7.7	1,395	141.8	100.3
GF	10.0	141.4	100.0	60.2	0.0	0.0	602	141.4	100.0
ALL	40.0	70.7	50.0	97.5	63.8	31.9	3,899	95.3	59.3

Unit Summary: WANLESS CREEK ROW 6

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	2	ALL	13.0	48	58	1,395	1,395	0.0	21.7	20.0	5.5	0.6
GF	LIVE	CUT	1	ALL	8.0	40	48	602	602	0.0	28.6	10.0	3.5	0.2
WL	LIVE	CUT	1	ALL	21.3	90	114	2,008	1,903	5.2	4.0	10.0	2.2	0.8

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
ALL	LIVE	CUT	4	ALL	11.6	47	57	4,004	3,899	2.6	54.3	40.0	11.2	1.6
ALL	ALL	ALL	4	ALL	11.6	47	57	4,004	3,899	2.6	54.3	40.0	11.2	1.6

Cruise Unit Report
WANLESS CREEK ROW 7

Unit Sale Notice Volume (MBF): WANLESS CREEK ROW 7

				MBF Volume by Grade			
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw
AF	9.3			1	0		1
DF	23.7			1		1	
ALL	10.9			2	0	1	1

Unit Cruise Design: WANLESS CREEK ROW 7

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (25.15) Measure All, Sighting Ht = 4.5 ft	0.3	0.3	2	2	0

Unit Cruise Summary: WANLESS CREEK ROW 7

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
AF	4	4	2.0	0
DF	2	2	1.0	0
ALL	6	6	3.0	0

Unit Cruise Statistics: WANLESS CREEK ROW 7

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
AF	50.3	70.7	50.0	77.9	69.4	34.7	3,920	99.1	60.9
DF	25.2	141.4	100.0	126.0	68.7	48.6	3,169	157.2	111.2
ALL	75.5	0.0	0.0	94.0	66.2	27.0	7,089	66.2	27.0

Unit Summary: WANLESS CREEK ROW 7

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
AF	LIVE	CUT	4	ALL	9.3	34	40	3,996	3,920	1.9	106.6	50.3	16.5	1.2
DF	LIVE	CUT	2	ALL	23.7	61	77	3,446	3,169	8.0	8.2	25.1	5.2	1.0
ALL	LIVE	CUT	6	ALL	11.0	36	43	7,442	7,089	4.7	114.8	75.5	21.7	2.1
ALL	ALL	ALL	6	ALL	11.0	36	43	7,442	7,089	4.7	114.8	75.5	21.7	2.1

Cruise Unit Report
WANLESS CREEK ROW 8

Unit Sale Notice Volume (MBF): WANLESS CREEK ROW 8

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	5 Saw
WL	21.0			1	1	0	0	
GF	10.1			0		0	0	
PP	8.9			0				0
ALL	13.2			1	1	1	0	0

Unit Cruise Design: WANLESS CREEK ROW 8

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
ST: Strip/Percent Sample (1 tree expansion)	0.7	0.6	1	1	0

Unit Cruise Summary: WANLESS CREEK ROW 8

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WL	2	2	2.0	0
GF	6	6	6.0	0
PP	1	1	1.0	0
ALL	9	9	9.0	0

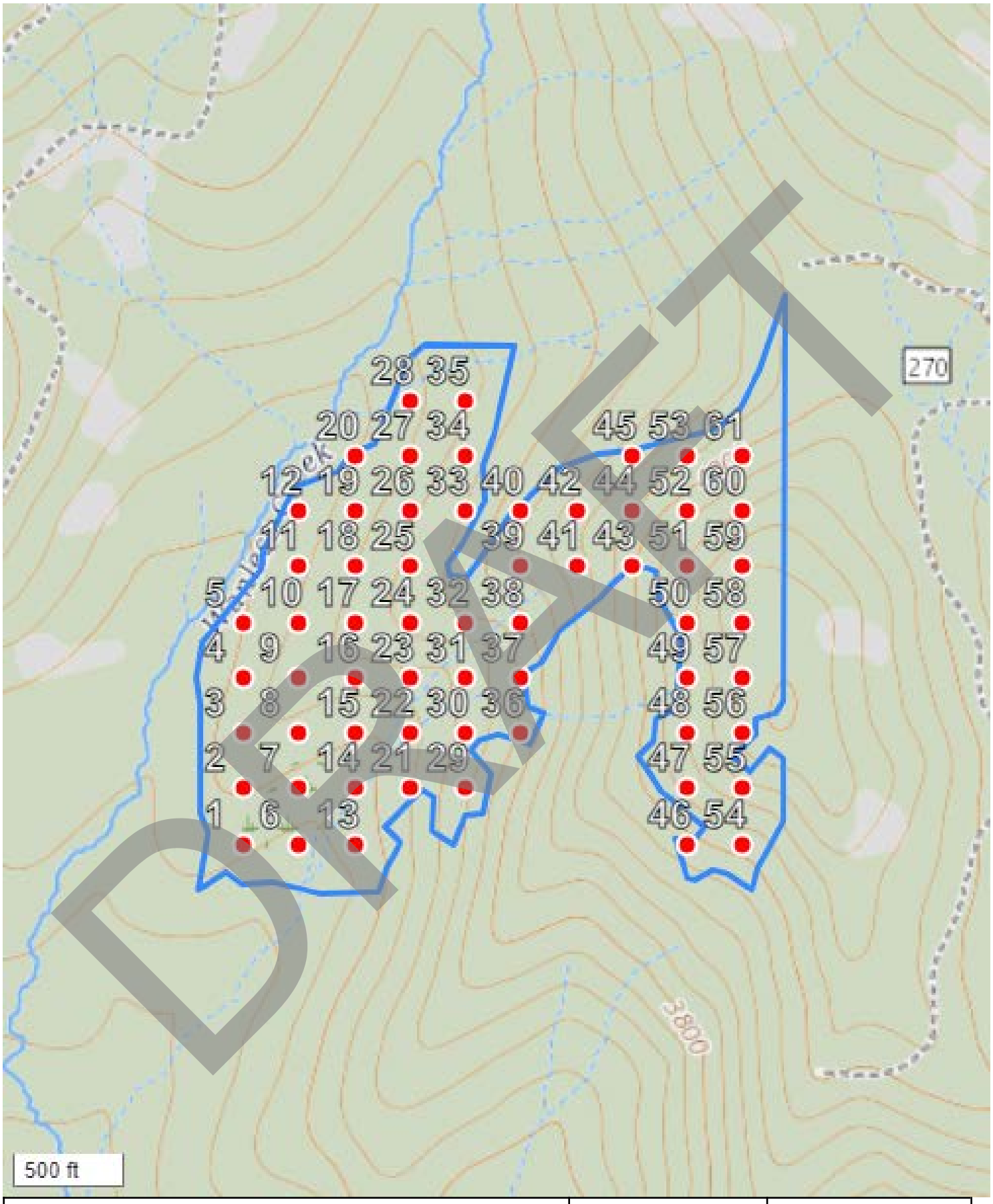
Unit Cruise Statistics: WANLESS CREEK ROW 8

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WL	6.8	0.0	0.0	202.2	0.4	0.3	1,383	0.4	0.3
GF	4.8	0.0	0.0	86.8	37.9	15.5	415	37.9	15.5
PP	0.6	0.0	0.0	32.3	0.0	0.0	20	0.0	0.0
ALL	12.2	0.0	0.0	148.5	43.1	14.4	1,818	43.1	14.4

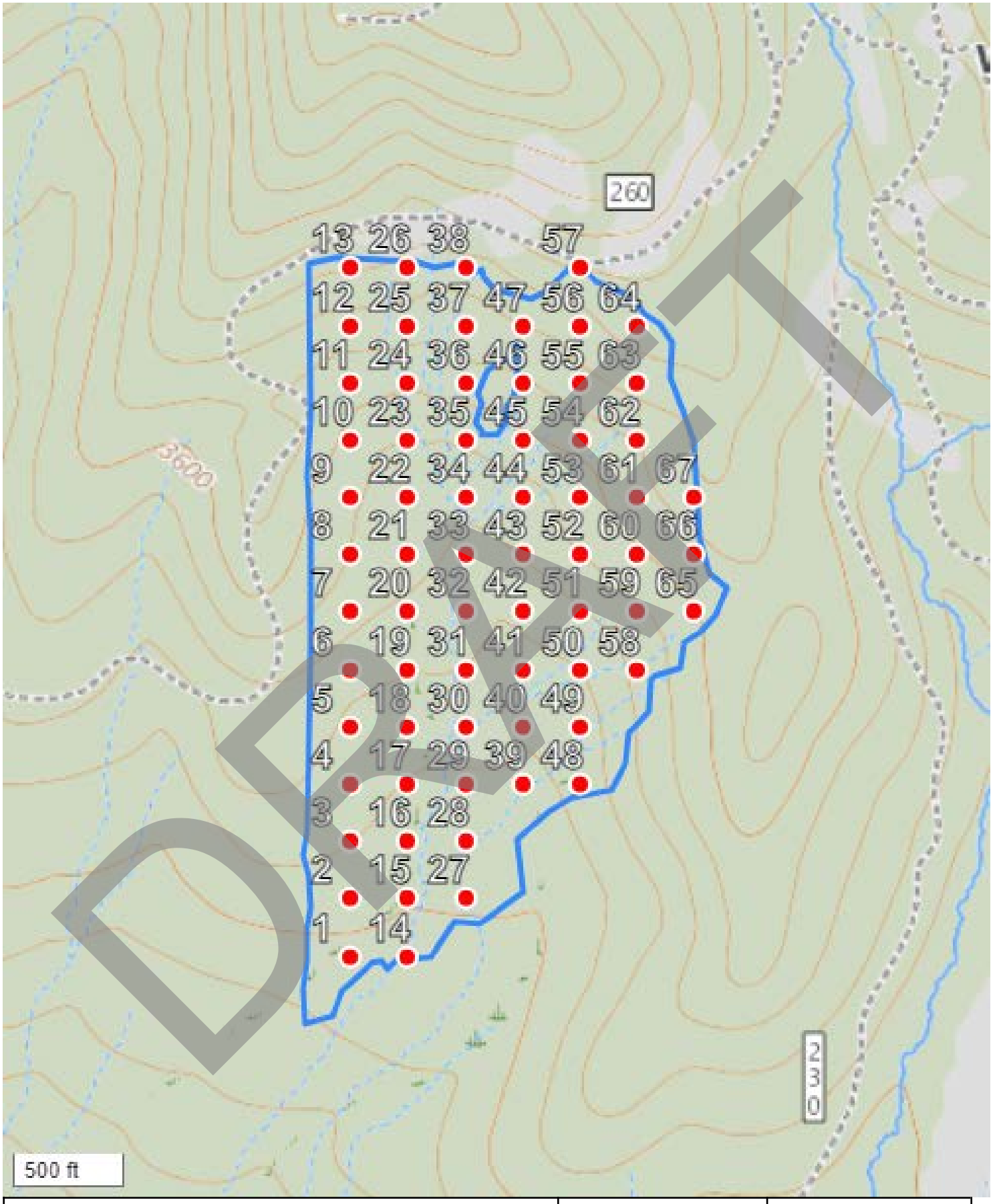
Unit Summary: WANLESS CREEK ROW 8

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
GF	LIVE	CUT	6	ALL	10.1	49	61	430	415	3.7	8.6	4.8	1.5	0.3
PP	LIVE	CUT	1	ALL	8.9	28	33	20	20	0.0	1.4	0.6	0.2	0.0
WL	LIVE	CUT	2	ALL	21.0	86	109	1,383	1,383	0.0	2.8	6.8	1.5	1.0

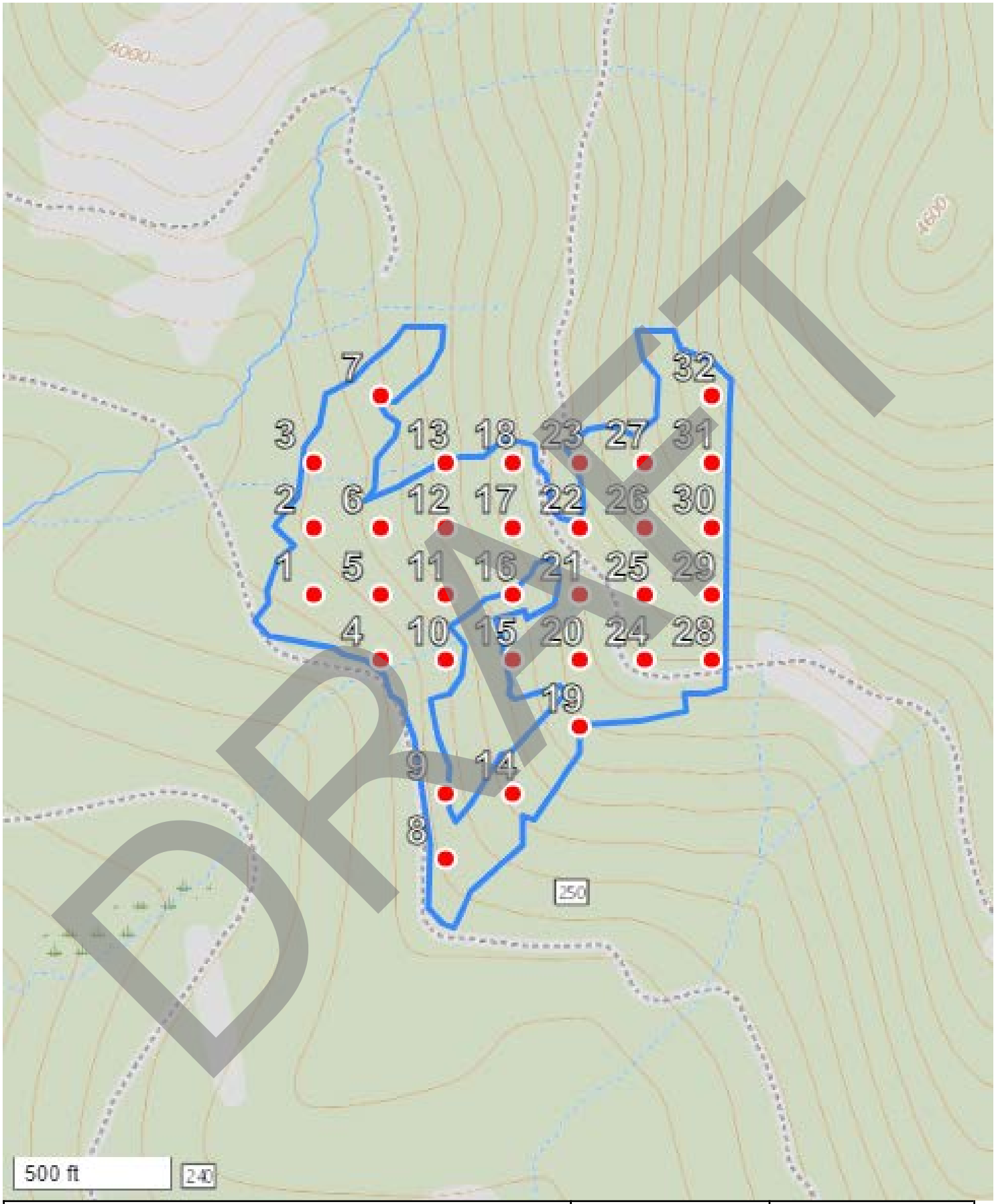
Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
ALL	LIVE	CUT	9	ALL	13.2	55	68	1,833	1,818	0.9	12.8	12.2	3.2	1.3
ALL	ALL	ALL	9	ALL	13.2	55	68	1,833	1,818	0.9	12.8	12.2	3.2	1.3



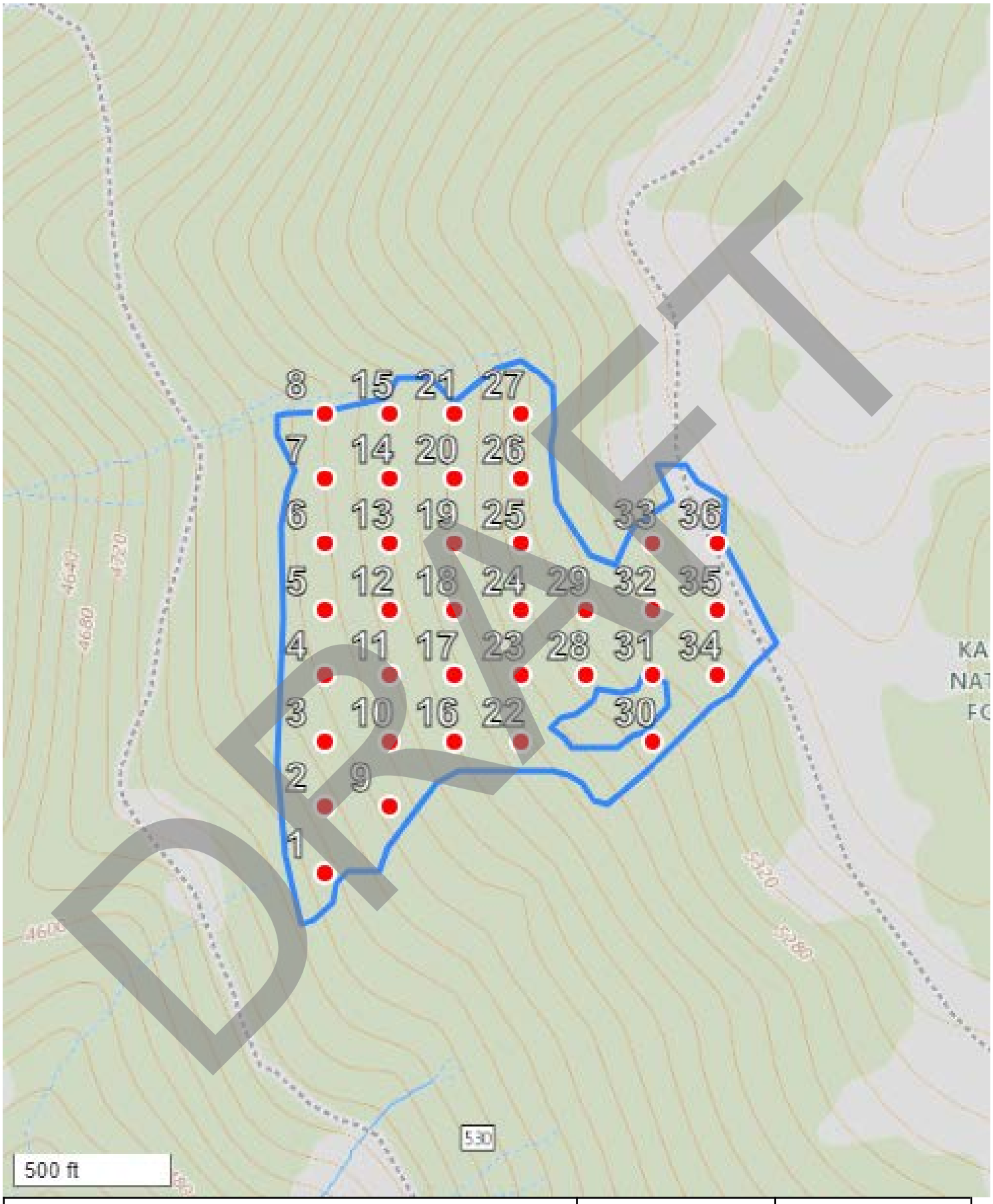
FMA Name: WANLESS CREEK U1	**N Plots:** 61	**Plot Spacing:** 246.2 ft
Grid Name: WANLESS CREEK U1 - 1	**Acres Treated:** 89.26	**Main Azimuth:** 0 deg



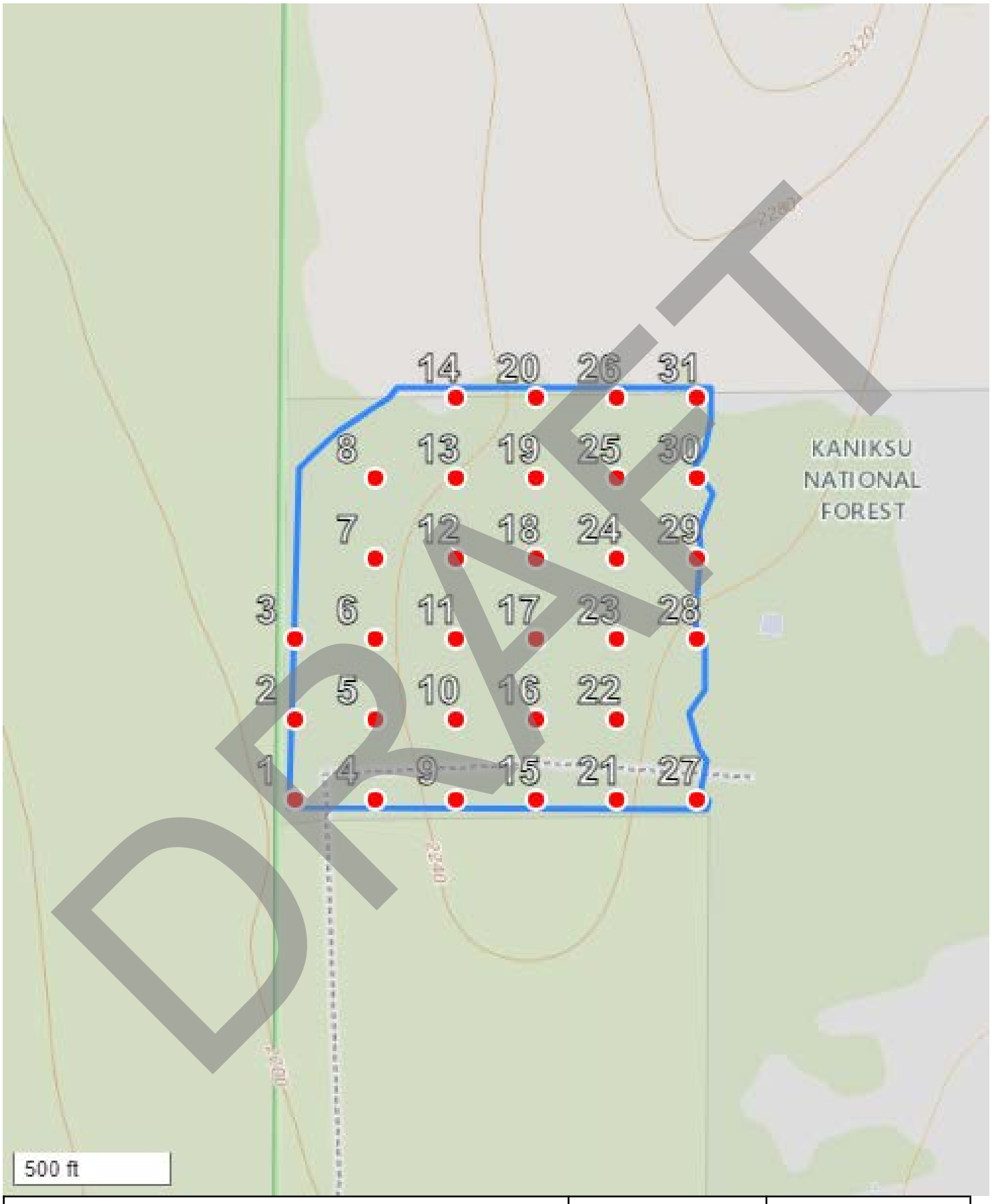
FMA Name: WANLESS CREEK U2	**N Plots:** 67	**Plot Spacing:** 254.4 ft
Grid Name: WANLESS CREEK U2 - 1	**Acres Treated:** 101.25	**Main Azimuth:** 0 deg



FMA Name: WANLESS CREEK U3	**N Plots:** 32	**Plot Spacing:** 207.4 ft
Grid Name: WANLESS CREEK U3 - 1	**Acres Treated:** 29.68	**Main Azimuth:** 0 deg

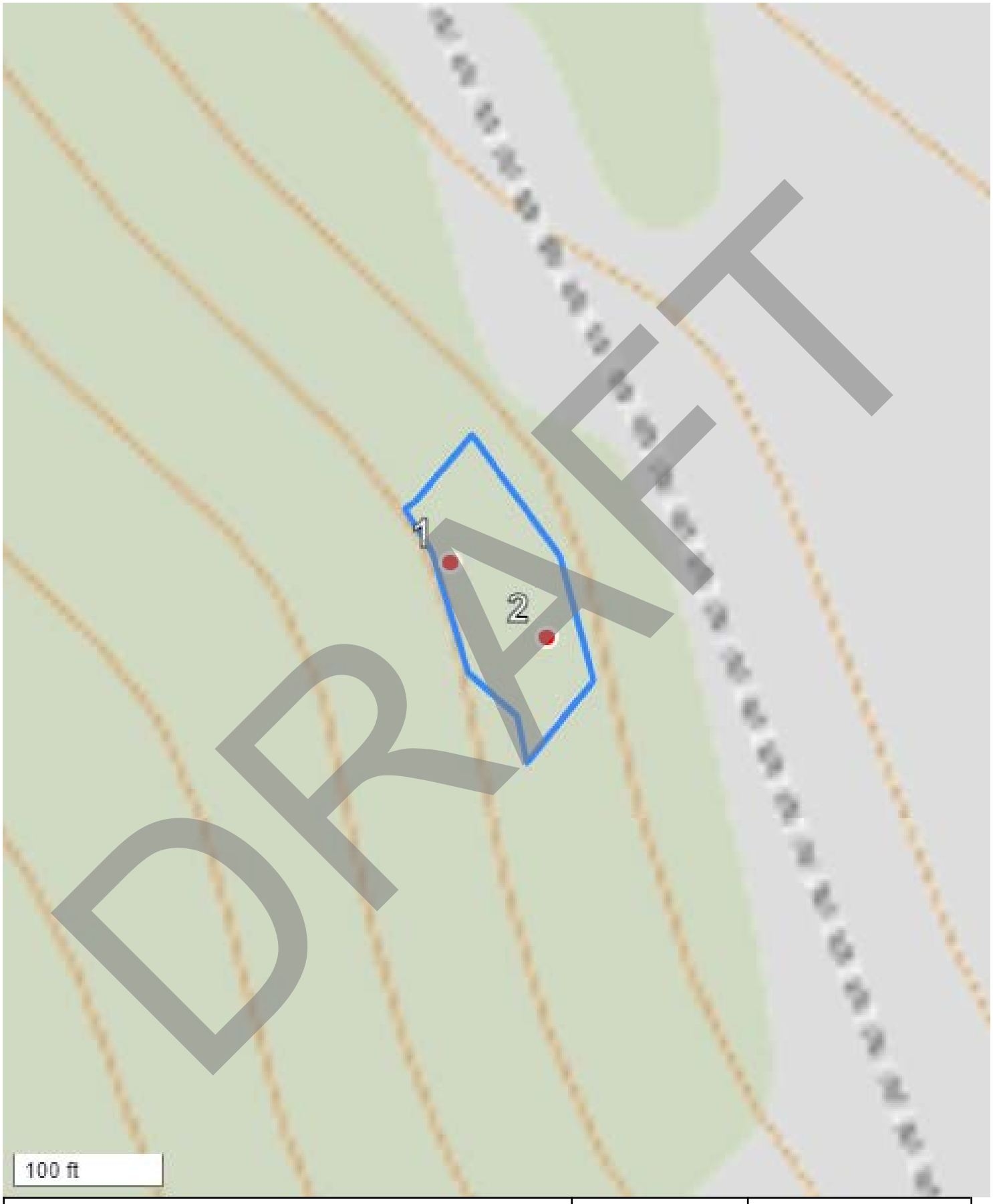


FMA Name: WANLESS CREEK U4	**N Plots:** 36	**Plot Spacing:** 206 ft
Grid Name: WANLESS CREEK U4 - 1	**Acres Treated:** 36.12	**Main Azimuth:** 0 deg



FMA Name: WANLESS CREEK U5	**N Plots:** 31	**Plot Spacing:** 253.9 ft
Grid Name: WANLESS CREEK U5 - 1	**Acres Treated:** 38.54	**Main Azimuth:** 0 deg

FMA Name: WANLESS CREEK ROW 6	**N Plots:** 2	**Plot Spacing:** 94.9 ft
Grid Name: WANLESS CREEK ROW 6 - 1	**Acres Treated:** 0.41	**Main Azimuth:** 0 deg



FMA Name: WANLESS CREEK ROW 7	**N Plots:** 2	**Plot Spacing:** 80.8 ft
Grid Name: WANLESS CREEK ROW 7 - 1	**Acres Treated:** 0.3	**Main Azimuth:** 37.6 deg

FMA Name: WANLESS CREEK ROW 8	**N Plots:** 3	**Plot Spacing:** 78.1 ft
Grid Name: WANLESS CREEK ROW 8 - 1	**Acres Treated:** 0.56	**Main Azimuth:** 38.9 deg

Washington State Department of Natural Resources

Sale Name: Wanless Creek
Agreement No.: 30-106239

Road Plan Map
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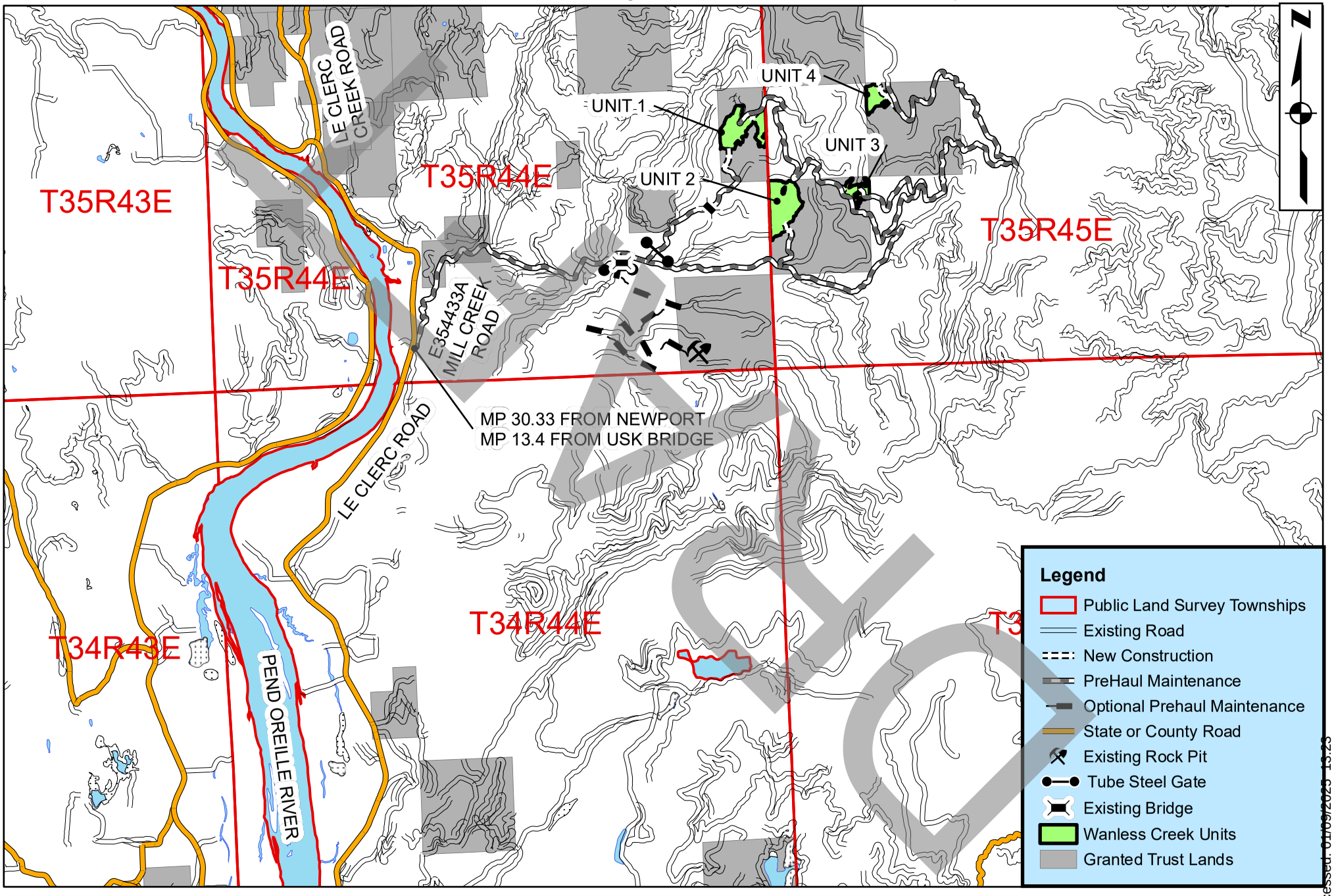
Region: Northeast
County.: Pend Oreille



0 3,500 7,000 14,000 21,000 Feet

1:85,334

Date: 12/8/2023

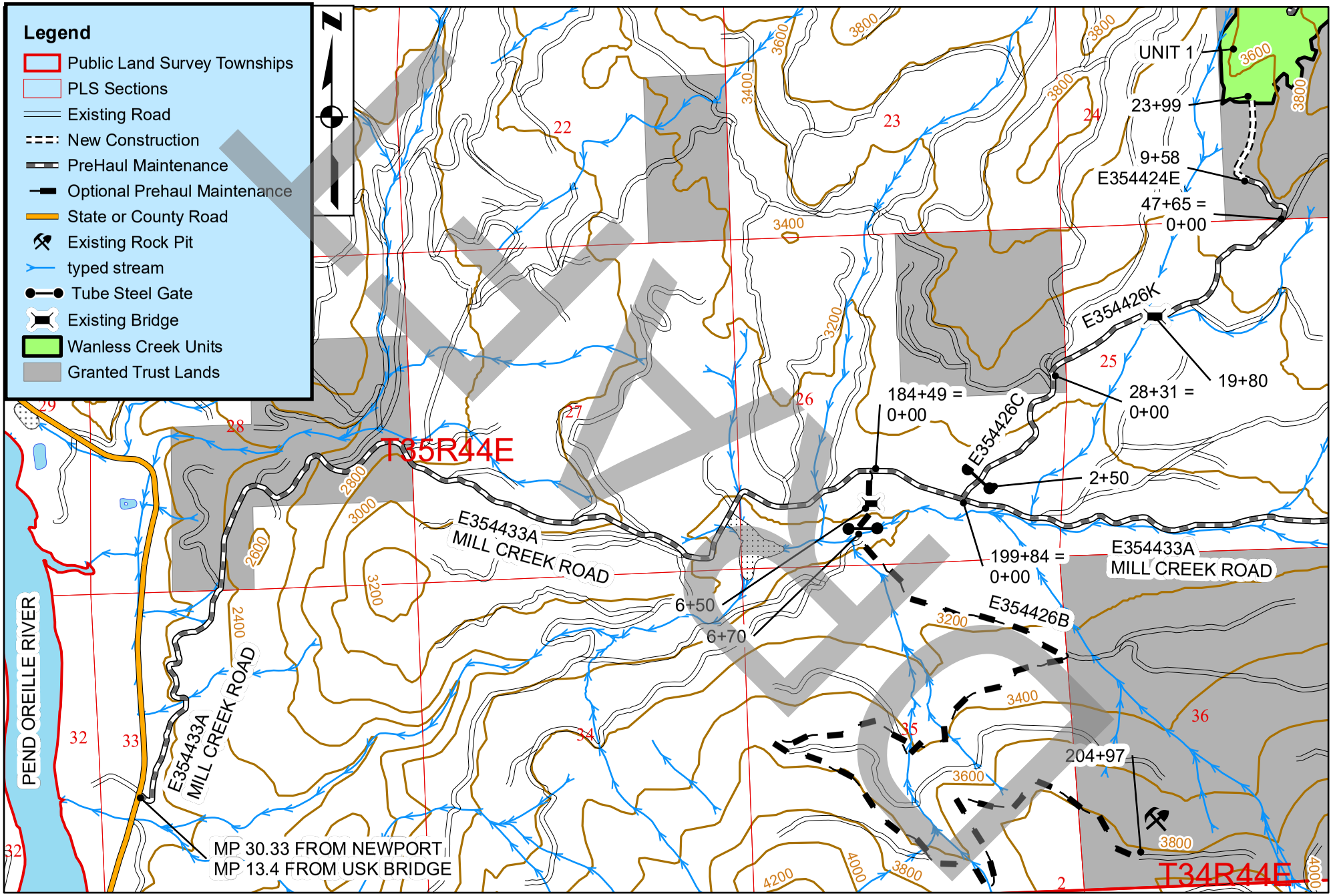
Accessed: 01/09/2025 13:23

Washington State Department of Natural Resources

Sale Name: Wanless Creek
Agreement No.: 30-106239

Road Plan Map
Page 2 of 5

Region: Northeast
County.: Pend Oreille



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Date: 12/8/2023

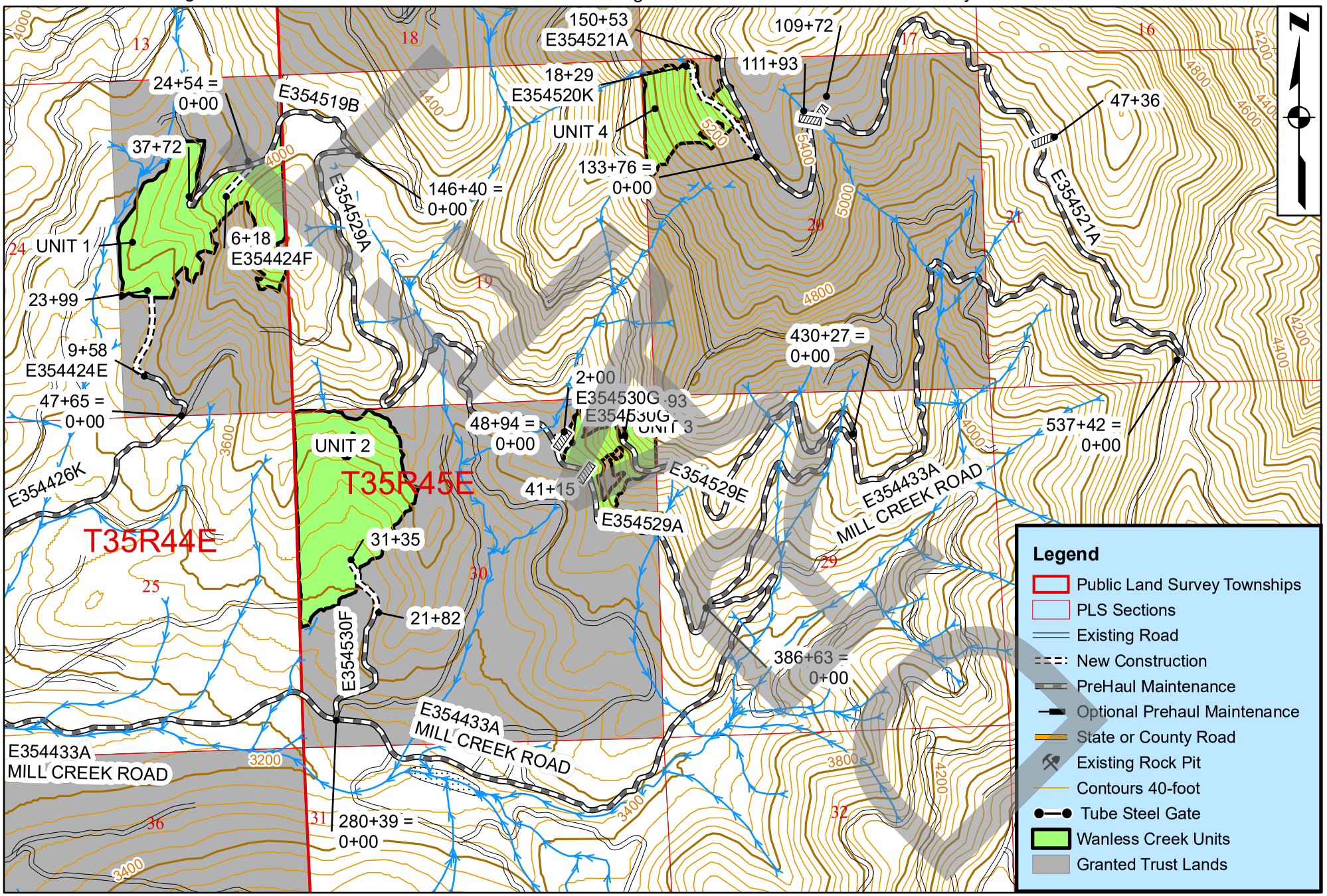
Accessed: 01/09/2025 13:23

Washington State Department of Natural Resources

Sale Name: Wanless Creek
Agreement No.: 30-106239

Road Plan Map
Page 3 of 5

Region: Northeast
County.: Pend Oreille



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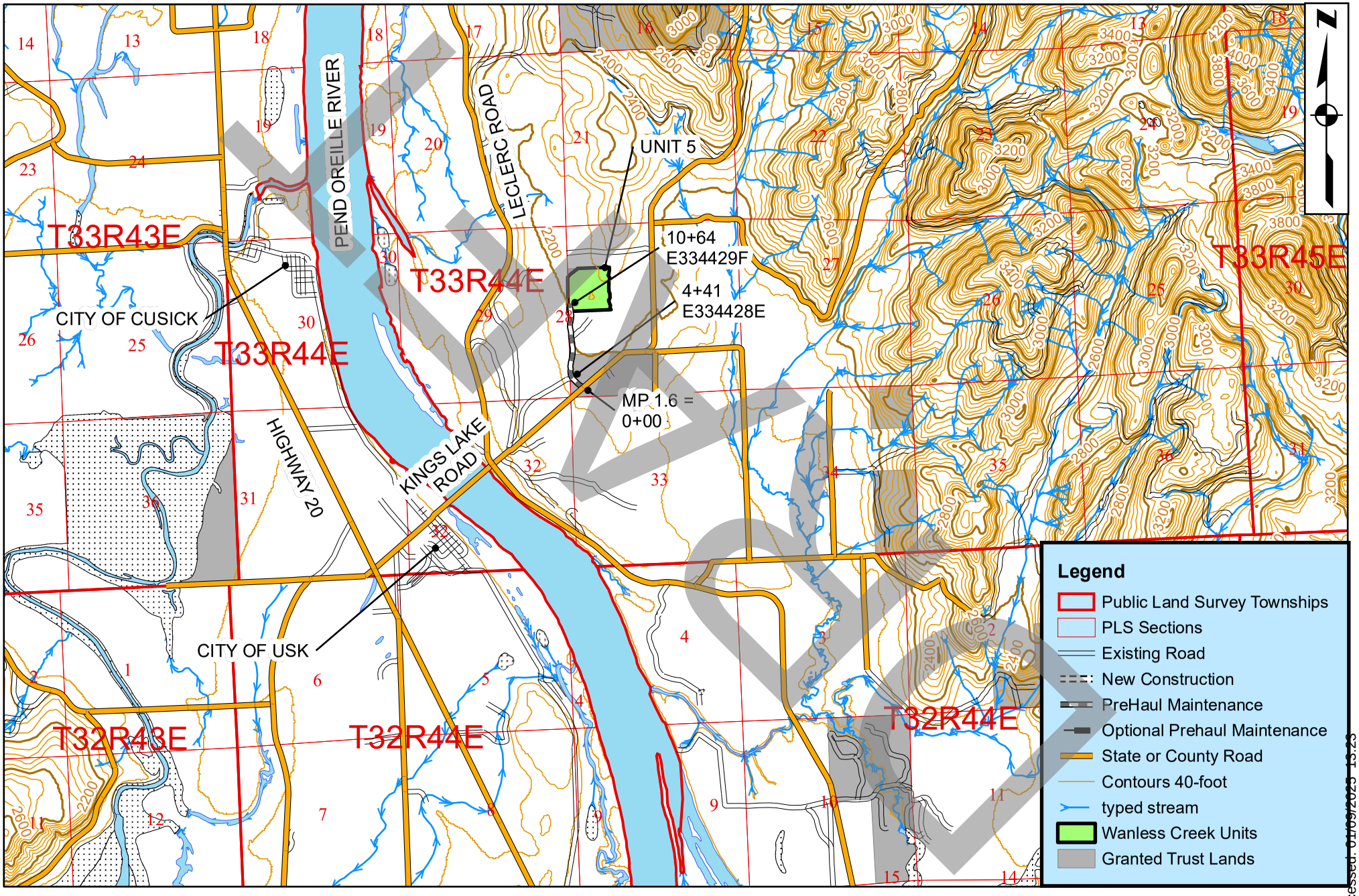
Washington State Department of Natural Resources

Sale Name: Wanless Creek
Agreement No.: 30-106239

Road Plan Map
Page 4 of 5

Region: Northeast
County.: Pend Oreille



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Date: 12/8/2023

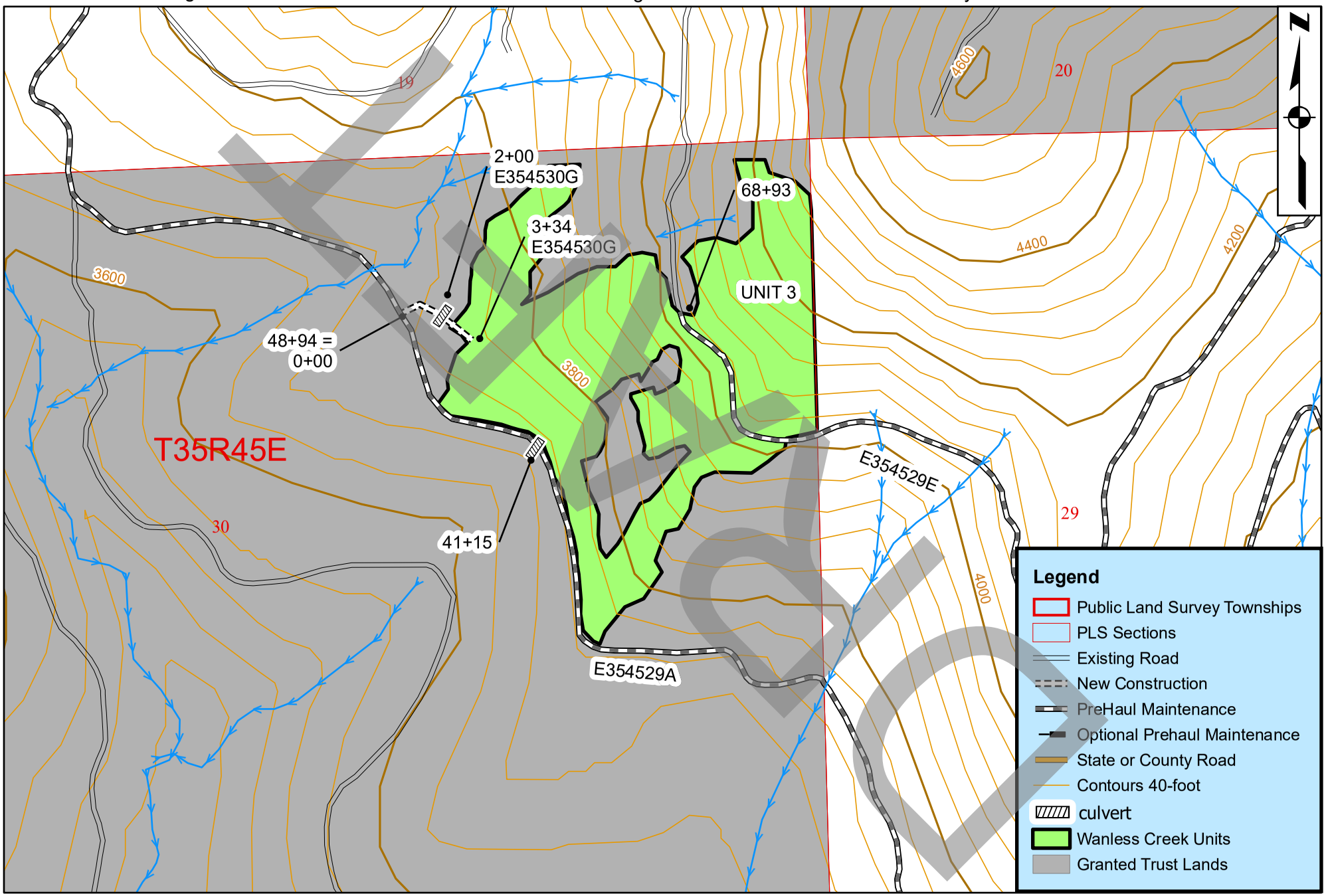
Accessed: 01/09/2025 13:23

Washington State Department of Natural Resources

Sale Name: Wanless Creek
Agreement No.: 30-106239

Road Plan Map
Page 5 of 5

Region: Northeast
County.: Pend Oreille



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Date: 12/8/2023

Accessed: 01/09/2025 13:23

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

WANLESS CREEK TIMBER SALE ROAD PLAN
PEND OREILLE COUNTY
ARCADIA DISTRICT
NORTHEAST REGION

AGREEMENT NO.: 10-106239 STAFF ENGINEER: TRAVIS PARRY

DATE: 6/19/2024 DRAWN & COMPILED BY: TRAVIS PARRY

SECTION 0 – SCOPE OF PROJECT

0-1 ROAD PLAN SCOPE

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

0-2 REQUIRED ROADS

The specified work on the following roads is required.

Road	Stations	Type
E354433A	0+00 to 537+42	Pre-Haul Maintenance
E354426C	0+00 to 28+31	Pre-Haul Maintenance
E354426K	0+00 to 47+65	Pre-Haul Maintenance
E354424E	0+00 to 9+58	Pre-Haul Maintenance
	9+58 to 23+99	Construction
E354530F	0+00 to 21+82	Pre-Haul Maintenance
	21+82 to 31+35	Construction
E354529A	0+00 to 146+40	Pre-Haul Maintenance
E354530G	0+00 to 3+34	Construction
E354519B	0+00 to 37+72	Pre-Haul Maintenance
E354424F	0+00 to 6+18	Construction
E354529E	0+00 to 68+93	Pre-Haul Maintenance
E354521A	0+00 to 150+53	Pre-Haul Maintenance
E354520K	0+00 to 18+29	Construction
E334428E	0+00 to 4+41	Pre-Haul Maintenance
E334429F	0+00 to 10+64	Pre-Haul Maintenance

0-3 OPTIONAL ROADS

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

Road	Stations	Type
E354426B	0+00 to 204+97	Optional Pre-Haul Maintenance
	6+50	Existing bridge, spread and compact 5 cy of 5/8 inch minus crushed surface rock to each bridge approach
	6+70	Existing traffic gate, close and lock gate each day once contract activities are complete
	204+97	Existing stockpile, approximately 300cy of 3" minus crushed surface rock.

0-4 CONSTRUCTION

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

Road	Stations	Requirements
E354424E	9+58 to 23+99	New construction, construct road in accordance with Typical Section Detail, Rock List, and the Culvert and Drainage List. Proposed route follows abandoned existing road prism.
E354530F	21+82 to 31+35	New construction, construct road in accordance with Typical Section Detail, Rock List, and the Culvert and Drainage List.
E354530G	0+00 to 3+34	New construction, construct road in accordance with Typical Section Detail, Rock List, and the Culvert and Drainage List.
	2+00	Install 24" x 30' culvert, spread and compact 10cy 1-1/4 in minus surface rock and armor inlet and outlet with 1/2 cy light loose rip rap for each.
E354424F	0+00 to 6+18	New construction, construct road in accordance with Typical Section Detail, Rock List, and the Culvert and Drainage List.

E354520K	0+00 to 18+29	New construction, construct road in accordance with Typical Section Detail, Rock List, and the Culvert and Drainage List.

Construction includes, but is not limited to clearing & grubbing, pioneering & decking logs, subgrade construction and compaction, rolling dip, cross drain, and culvert installation, Fish passage structure installation, cut & fill, embankment construction, riprap and rock application. Construct to the TYPICAL SECTION SHEET, ROCK LIST, and CULVERT & DRAINAGE LIST, for general specifications, unless otherwise specified in design details.

0-6 PRE-HAUL MAINTENANCE

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

Road	Stations	Requirements
E354433A	0+00 to 537+42	Pre-haul maintenance. Reshape road to provide drainage as needed
	184+49	Intersection with existing E354426B on right
	199+84	Intersection with existing E354426C on left
	280+39	Intersection with existing E354530F on left
	386+63	Intersection with existing E354529A on left
	430+27	Intersection with existing E354529E on left
E354426C	0+00 to 28+31	Pre-haul maintenance. Reshape road to provide drainage as needed
	2+50	Existing traffic gate, close and lock gate each day once contract activities are complete
E354426K	0+00 to 47+65	Pre-haul maintenance. Reshape road to provide drainage as needed
	19+80	Existing bridge, spread and compact 5 cy of 5/8 inch minus crushed surface rock to each bridge approach
E354424E	0+00 to 9+58	Pre-haul maintenance. Reshape road to provide drainage as needed
	9+58	End prehaul maintenance and begin new construction
E354530F	0+00 to 21+82	Pre-haul maintenance. Reshape road to provide drainage as needed
	21+82	End prehaul maintenance and begin new construction

E354529A	0+00 to 146+40	Pre-haul maintenance. Reshape road to provide drainage as needed
	41+15	Replace existing culvert with 24” x 44’ culvert, spread and compact 10cy 1-1/4 in minus surface rock and armor inlet and outlet with 1/2 cy light loose rip rap for each.
	48+94	Intersection with new construction E354530G on right
E354519B	0+00 to 37+72	Pre-haul maintenance. Reshape road to provide drainage as needed
	24+54	Intersection with new construction E354424F on left
E354529E	0+00 to 68+93	Pre-haul maintenance. Reshape road to provide drainage as needed
E354521A	0+00 to 150+53	Pre-haul maintenance. Reshape road to provide drainage as needed
	47+36	Replace existing culvert with 18” x 38’ culvert, spread and compact 10cy 1-1/4 in minus surface rock and armor inlet and outlet with 1/4 cy light loose rip rap for each.
	109+72	Replace existing culvert with 24” x 28’ culvert, spread and compact 10cy 1-1/4 in minus surface rock and armor inlet and outlet with 1/4 cy light loose rip rap for each.
	111+93	Replace existing culvert with 24” x 28’ culvert, spread and compact 10cy 1-1/4 in minus surface rock and armor inlet and outlet with 1/4 cy light loose rip rap for each.
	133+76	Intersection with new construction E354520K on left
E334428E	0+00 to 4+41	Pre-haul maintenance. Reshape road to provide drainage as needed
E334429F	0+00 to 10+64	Pre-haul maintenance. Reshape road to provide drainage as needed

Maintenance includes, but is not limited to brushing, clearing, grubbing, subgrade reshaping, rolling dip, cross drain, and culvert installation, cleaning culverts and ditches, grading, and riprap and rock application. Reference the TYPICAL SECTION SHEET, ROCK LIST, and CULVERT & DRAINAGE LIST, for general specifications.

0-7 POST-HAUL MAINTENANCE

This project includes post-haul road maintenance listed in Clause 9-5 POST-HAUL MAINTENANCE9-5 .

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

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

1-3 ROAD DIMENSIONS

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 or design data (plan, profile, and cross-sections).

1-4 ROAD TOLERANCES

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

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

1-6 ORDER OF PRECEDENCE

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

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

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

1-7 TEMPORARY ROAD CLOSURE

Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before the closure of any road. Construction may not close any road for more than 21 consecutive calendar days.

1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS

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

1-9 DAMAGED METALLIC COATING

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

1-15 ROAD MARKING

Purchaser shall perform road work in accordance with the state's marked location. All road work is marked as follows:

- Centerline marked with orange ribbon for new construction.
- Road stationing marked on orange ribbon and/or pink tags.

1-18 REFERENCE POINT DAMAGE

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

1-21 HAUL APPROVAL

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

1-23 ROAD WORK PHASE APPROVAL

Purchaser shall obtain written approval from the Contract Administrator upon completion of each of the following phases of road work:

- Subgrade construction
- Drainage installation
- Subgrade compaction
- Rock application
- Rock compaction

1-25 ACTIVITY TIMING RESTRICTION

Construction restrictions apply to this contract. All construction, reconstruction and transportation of heavy equipment and/or trucks is prohibited between the following dates, except as may be authorized in writing by the Contract Administrator.

November 15 to May 31

1-26 OPERATING DURING CLOSURE PERIOD

If permission is granted to operate during a closure period listed in Clause 1-25 ACTIVITY TIMING RESTRICTIONS, the Contractor shall provide a maintenance plan to include further protection of state resources. The Contract Administrator must approve the maintenance plan, in writing, before operation in the closure period. The Contractor shall be required to maintain all haul roads including those listed in Contract Clause C-060 DESIGNATED ROAD MAINTAINER.

1-29 SEDIMENT RESTRICTION

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

1-30 CLOSURE TO PREVENT DAMAGE

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

- Wheel track rutting exceeds 4 inches on jaw run roads.
- Wheel track rutting exceeds 3 inches on crushed rock roads.
- Wheel track rutting exceeds 6 inches on native surface roads.
- Surface or base stability problems persist.
- Weather is such that satisfactory results cannot be obtained in an area of operations.

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

Operations must stop unless authority to continue working or hauling is granted in writing by the Contract Administrator. In the event that surface or base stability problems persist, 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 BRIDGE OR ASPHALT SURFACE RESTRICTION

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

If tracked equipment is used on bridge or asphalt surfaces, Purchaser shall immediately cease all operations. Purchaser shall remove any dirt, rock, or other material tracked or spilled on the bridge or asphalt surface(s) and have surface(s) evaluated for any damage caused by transporting equipment. The Contract Administrator will immediate inform the Region Engineer, or their designee. Any damage to the surface(s) 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.

1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS

Purchaser shall immediately remove any mud, dirt, rock, or other material tracked or spilled on to county roads and state highways.

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

1-41 REQUIREMENTS FOR PAVED ROAD APPROACHES

Requirements for the Mill Creek Road approach:
Purchaser shall build up approaches to allow a smooth grade transition between the Mill Creek Road and Leclerc Road. The surface of the Mill Creek Road approach must slope down away from the edge of the Leclerc Road at minimum grade of 2% to a maximum grade of 6% for a distance of 6 feet from the county road shoulder, unless otherwise directed by the Contract Administrator or as shown in the county road approach permit.

1-43 ROAD WORK AROUND UTILITIES

Road work is in close proximity to a utility. Known utilities are listed, but it is the Purchaser's responsibility to identify any utilities not listed. Purchaser shall work in accordance with all applicable laws or rules concerning utilities. Purchaser is responsible for all notification, including "call before you dig", and liabilities associated with the utilities and their rights-of-way.

Road	Stations	Utility	Utility Contact
Mill Creek Road/E354533A	0+00	Overhead power, underground communications	Pend Oreille PUD

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.

2-4 PASSAGE OF LIGHT VEHICLES

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

2-5 MAINTENANCE GRADING – EXISTING ROAD

Purchaser shall use a grader to shape the existing surface before commencement of haul and upon completion of the sale. Purchaser shall accomplish all grading using a motor grader with a minimum of 175 horsepower.

2-6 CLEANING CULVERTS

Purchaser shall clean the inlets and outlets of all culverts and shall obtain written approval from the Contract Administrator before beginning hauling activities or rock application.

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

Purchaser shall clean ditches, headwalls, and catch basins. Work shall be completed before commencement of haul and upon completion of the sale and shall be subject to the written approval of the Contract Administrator. Work shall be done in accordance with the Culvert and Drainage Detail. Pulling ditch material across crushed rock road surfaces or mixing in with the road surface is not allowed.

2-8 MAINTAINING EROSION CONTROL STRUCTURES

Purchaser shall clean and maintain all erosion control structures. Work must be completed before hauling begins and must be done in accordance with the CULVERT AND DRAINAGE SPECIFICATIONS DETAIL. Excavated material must be scattered outside the grubbing limits.

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

3-1 BRUSHING

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. Contractor shall remove brushing debris from the road surface, ditchlines, and culvert inlets and outlets.

3-5 CLEARING

Purchaser shall fall all vegetative material larger than 3 inches DBH or over 6 feet high between the marked right-of-way boundaries and within waste and debris areas. If not marked in the field, between the clearing limits specified on the TYPICAL SECTION SHEET. Clearing must be completed before starting excavation and embankment.

3-7 RIGHT-OF-WAY DECKING

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

3-8 PROHIBITED DECKING AREAS

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

- Within the grubbing limits.
- Within 50 feet of any stream.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- On slopes greater than 35%.
- Against standing trees.

3-10 GRUBBING

Purchaser shall remove all stumps between the grubbing limits specified on the TYPICAL SECTION SHEET. Those stumps outside the grubbing limits but with undercut roots shall also be removed. Stumps over 22 inches diameter shall be split. Stumps over 40 inches shall be quartered. Grubbing shall be completed before starting excavation and embankment.

3-12 STUMP PLACEMENT

Purchaser shall place grubbed stumps outside of the grubbing limits or as directed by the Contract Administrator and in compliance with all other clauses in this road plan.

3-14 STUMPS WITHIN DESIGNATED WASTE AREAS

Purchaser is not required to remove stumps within waste areas if they are cut flush with the ground.

3-20 ORGANIC DEBRIS DEFINITION

Organic debris is defined as all vegetative material not eligible for removal by Contract Clauses G-010 PRODUCTS SOLD AND SALE AREA or G-011 RIGHT TO REMOVE FOREST PRODUCTS AND CONTRACT AREA, that is larger than one cubic foot in volume within the grubbing 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, except by burning, before the application of rock or timber haul.

3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

Waste areas for organic debris shall be located within the cleared right-of-way or in natural openings, or in areas approved in writing by the Contract Administrator.

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, wetland, or within the riparian management zone.
- On road subgrades, or excavation and embankment slopes.
- On slopes greater than 35%.
- 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

On all new construction, Purchaser shall scatter organic debris outside of the clearing limits of the road or as directed by the Contract Administrator.

3-30 EXCLUSION OF DOZER BLADES

Purchaser shall not use dozer blades for the piling of organic debris.

3-31 PILING

Purchaser shall pile organic debris no closer than 20 feet from standing timber and no higher than 10 feet**.** Piles must be free of rock and soil Debris piles shall be placed within the cleared right-of-way, or in natural openings, as designated by the Contract Administrator. Placement of debris piles outside of the right-of-way limits is subject to the written approval of the Contract Administrator. No piling within the Riparian Management Zone (RMZ).

SECTION 4 – EXCAVATION

4-1 EXCAVATOR CONSTRUCTION

Purchaser shall use a track mounted hydraulic excavator for construction work, unless authorized, in writing, by the Contract Administrator.

4-2 PIONEERING

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

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

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

Purchaser shall follow these standards for road grade and alignment except as designed:

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 16 percent favorable and 10 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%
- 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:

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

4-6 EMBANKMENT SLOPE RATIO

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

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

4-7 SHAPING CUT AND FILL SLOPE

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

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

- 7 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 1 to 6 feet.
- 4 feet for embankment heights at centerline of greater than 6 feet.

4-20 SUBGRADE DIMENSIONS FOR INTERSECTIONS

On the following road(s), Purchaser shall construct the subgrade to the dimensions shown on the WYE INTERSECTION DETAIL.

Road	Stations
E354524F	0+00
E354520K	0+00

4-21 TURNOUTS

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

4-22 TURNAROUNDS

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

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

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

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

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

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 55% if the waste material is compacted and free of organic debris. On side slopes greater than 55%, all waste material must be end hauled or pushed to the designated embankment sites and waste areas identified.

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 35%.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Against standing timber.
- Outside the clearing limits.

4-45 SELECT BORROW

Select borrow consists of granular material, either naturally occurring or processed, and contains no more than 5% clay, organic debris, or trash by volume. Select borrow material must be free of rocks greater than 6 inches in any dimension.

4-46 COMMON BORROW

Common borrow consists of soil, and/or aggregate that is non-plastic and contains no more than 5% clay, organic debris, or trash by volume. The material is considered non-plastic if the fines in the sample cannot be rolled, between the hand and a smooth surface, into a thread at any moisture content. Common borrow material must be free of rocks greater than 6 inches in any dimension.

4-47 BORROW MATERIAL

Borrow material may not contain more than 5% clay, organic debris, or trash by volume. Borrow material must be free of rocks greater than 6 inches in any dimension.

4-48 NATIVE MATERIAL

Native material consists of naturally occurring material that is free of organic debris, trash, and rocks greater than 6 inches in any dimension.

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. Purchaser shall accomplish all shaping using a motor grader with a minimum of 175 horsepower.

4-56 DRY WEATHER SHAPING

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

4-60 FILL COMPACTION

Purchaser shall compact all embankment and waste material. Minimum acceptable compaction is achieved by placing embankments in 1 foot or shallower lifts, and routing excavation equipment over the entire width of each lift.

Except as otherwise specified in this plan, a vibratory plate compactor or tamper shall be used for areas specifically requiring keyed embankment construction, and for embankment segments too narrow to accommodate equipment. Compaction with a plate compactor shall be made by a minimum of three full coverages; each lift shall not exceed 6 inches in depth.

4-61 SUBGRADE COMPACTION

Purchaser shall compact constructed or reconstructed subgrades deeper than 3 feet at the road shoulder by routing equipment over the entire width. Contractor shall obtain written approval from the Contract Administrator for subgrade compaction before Rock application.

4-62 DRY WEATHER COMPACTION

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

4-63 EXISTING SURFACE COMPACTION

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

SECTION 5 – DRAINAGE

5-1 REMOVAL OF SHOULDER BERMS

Purchaser shall remove berms from road shoulders to permit the escape of runoff. The construction of ditchouts will be required where ponding will result from the effects of sidecast debris.

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 CULVERT & DRAINAGE LIST. Culvert, downspout, and flume lengths may be adjusted to fit as-built conditions and may not terminate directly on unprotected soil. Culverts shall be new steel, aluminum, or polyethylene meeting the material specifications in Clauses 10-15 through 10-23. Culvert placement shall precede embankment construction.

5-12 UNUSED MATERIALS STATE PROPERTY

On required roads, any materials listed on the CULVERT & DRAINAGE LIST that are not installed will become the property of the state. Contractor shall stockpile materials at Northeast Region Headquarters in Colville.

5-13 CONTINGENCY CULVERTS

The following culverts will be supplied by the Purchaser and are available for installation as directed by the Contract Administrator.

Road	Size
On any portion of road used for timber or rock haul.	18” x 64’ culvert 18” culvert band

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" the Corrugated Polyethylene Pipe Association’s “Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings”. Corrugated Polyethylene pipe must be installed in a manner consistent with the manufacturer’s recommendations.

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

All culverts shall 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 shall be installed with a depth of cover specified in the Engineer’s design, or to the minimum depth recommended by the culvert manufacturer for the type of cover material over the pipe, whichever is greater.

5-20 ENERGY DISSIPATERS

Energy dissipaters shall be installed to prevent erosion and are subject to approval by the Contract Administrator. The type of energy dissipater and the amount of material shall be consistent with the specifications listed on the CULVERT AND DRAINAGE SPECIFICATION DETAIL.

5-21 DOWNSPOUTS AND FLUMES

Downspouts and flumes longer than 5 feet shall 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 unless specified otherwise on the CULVERT AND DRAINAGE LIST.

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

Purchaser shall construct headwalls accordance with CULVERT AND DRAINAGE SPECIFICATION DETAIL at all cross drain culverts, except for temporary culverts. Headwalls shall also be constructed at all culverts identified on the CULVERT AND DRAINAGE LIST that specifies the placement of rock. Rock shall be placed by zero drop height methods. Minimum specifications require that rock be placed at a width of one culvert diameter on each side of the culvert opening, and to a height of one culvert diameters above the top of the culvert.

5-27 ARMORING FOR CULVERTS

Purchaser shall place LIGHT LOOSE RIP RAP in conjunction with or immediately following construction of the embankment. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets as designated on the CULVERT AND DRAINAGE SPECIFICATIONS DETAIL or as directed by the Contract Administrator. 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 with a zero-drop-height only. No placement by end dumping or dropping of rock is allowed. LIGHT LOOSE RIP RAP must meet the specifications in Clause 6-50 LIGHT LOOSE RIP RAP.

5-30 DRIVABLE WATERBAR CONSTRUCTION

Purchaser shall construct drivable waterbars in accordance with the DRIVABLE WATERBAR DETAIL and as specified on the CULVERT AND DRAINAGE LIST or as marked in the field. Drivable waterbars must be installed concurrently with construction of the subgrade and must be maintained in an operable condition.

5-31 ROLLING DIP CONSTRUCTION

Purchaser shall construct Rolling dips in accordance with the ROLLING DIP DETAIL and as specified on the CULVERT & DRAINAGE LIST or marked in the field. Rolling dips must be installed concurrently with construction of the subgrade and shall be maintained in an operable condition. Minimum frequency of rolling dips shall be at a maximum spacing of 400 feet horizontal or one for every 10 feet of vertical change or as directed by the Contractor Administrator.

5-33 NATIVE SURFACE ROADS

If overwintered, native surface roads must be water barred by November 15. Purchaser shall construct waterbars according to the attached NON-DRIVABLE WATERBAR DETAIL at a maximum spacing that will produce a vertical distance of no more than 10 feet between waterbars or between natural drainage paths, and with a maximum spacing of 300 feet.

SECTION 6 – ROCK AND SURFACING

6-3 ROCK SOURCE STATE LAND, EXISTING STOCKPILE

Rock used in accordance with the quantities on the ROCK LIST may be obtained from the following existing stockpile(s) on state land at no charge to the Purchaser.

Source	Location	Rock Type	Quantity
Existing Stockpile	204+97 E354426B Road	3" minus crushed	Apprx. 300CY

6-5 ROCK FROM COMMERCIAL SOURCE

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

6-12 ROCK SOURCE SPECIFICATIONS

Rock sources must be in accordance with the following specifications **<**, unless otherwise specified in the ROCK SOURCE DEVELOPMENT <AND RECLAMATION> PLAN**>**:

- 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.
- All vehicle access to the top of the pit faces must be blocked.

6-14 DRILL AND SHOOT

Rock drilling and shooting must meet the following specifications:

- Oversize material remaining in the rock source at the conclusion of the timber sale shall not exceed 5% of the total volume mined in that source.
- Oversize material is defined as rock fragments larger than three feet in any dimension.
- Oversized rock that exceeds the maximum allowable amount shall be reduced and stockpiled.
- Contractor shall notify the Contract Administrator a minimum of 3 working days before blasting operations.
- Contractor shall submit an informational drilling and shooting plan to the Contract Administrator 3 working days before any drilling.
- All operations must be carried out in compliance with 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 the Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.
- Purchaser shall block access roads and trails before blasting operations.

6-25 FINES

% Passing U.S. #40 sieve	100%
% Passing U.S. #200 sieve	0%

The portion of aggregate retained on the No. 200 sieve may not contain more than 0.2 percent organic debris and trash. All percentages are by weight.

6-26 5/8-INCH MINUS CRUSHED ROCK

% Passing 5/8" square sieve	100%
% Passing 3/8" square sieve	55 - 75%
% Passing U.S. #4 sieve	40 - 60%

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

6-28 1 ¼-INCH MINUS CRUSHED ROCK

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

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

6-38 4-INCH IN-PLACE ROCK

4-inch in-place rock must have a minimum of 90 percent of the top 4 inches of the running surface pass a 4-inch square opening.

In-place rock may not contain more than 5 percent by weight of organic debris and trash. No more than 40 percent of rock may be larger than 8 inches in any dimension and no rock may be larger than 12 inches in any dimension.

6-50 LIGHT LOOSE RIP RAP

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

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

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

Measurement of specified rock depths, are defined as the compacted depth(s) using the compaction methods required in this road plan. Estimated quantities specified in the ROCK LIST are compacted yards. Contractor 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 before rock application.

6-71 ROCK APPLICATION

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

6-73 ROCK FOR WIDENED PORTIONS

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

6-80 WATERING FOR DUST ABATEMENT

Purchaser shall use water for dust abatement as directed by the Contract Administrator.

7-70 GATE CLOSURE

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

Road	Station	Comment
E354426B	6+70	Close and lock gate each day once contract activities are complete
E354426C	2+50	Close and lock gate each day once contract activities are complete

SECTION 8 – EROSION CONTROL

8-1 SEDIMENT CONTROL STRUCTURES

Sediment control shall be accomplished using sediment traps, silt fences, settling ponds, slash windrows, or other methods as approved in writing by the Contract Administrator.

SECTION 9 – POST-HAUL ROAD WORK

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

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

9-5 POST-HAUL MAINTENANCE

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

Road	Stations	Additional Requirements
E354433A	0+00 to 537+42	Post haul grading
E354426B	0+00 to 204+97	Post haul grading if road was used for contract activities
E354426C	0+00 to 28+31	Post haul grading
E354426K	0+00 to 47+65	Post haul grading
E354424E	0+00 to 9+58	Post haul grading
	9+58 to 23+99	Post haul grading
E354530F	0+00 to 21+82	Post haul grading
	21+82 to 31+35	Post haul grading
E354529A	0+00 to 146+40	Post haul grading
E354530G	0+00 to 3+34	Post haul grading
E354519B	0+00 to 37+72	Post haul grading
E354424F	0+00 to 6+18	Post haul grading
E354529E	0+00 to 68+93	Post haul grading
E354521A	0+00 to 150+53	Post haul grading
E354520K	0+00 to 18+29	Post haul grading
E334428E	0+00 to 4+41	Post haul grading
E334429F	0+00 to 10+64	Post haul grading

9-10 LANDING DRAINAGE

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

9-11 LANDING EMBANKMENT

Purchaser shall slope landing embankments to the original construction specifications.

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) or aluminized aluminum type 2 coated meeting AASHTO M-274.

10-17 CORRUGATED PLASTIC CULVERT

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

10-18 CORRUGATED STEEL STRUCTURAL PLATE

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

10-20 FLUME AND DOWNSPOUT

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

10-21 METAL BAND

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

10-23 RUBBER CULVERT GASKETS

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

10-24 GAUGE AND CORRUGATION

Unless otherwise stated in the engineer's design, metal culverts must conform to the following specifications for gage and corrugation as a function of diameter.

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

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

Drainage

- Prevent silt bearing road surface and ditch runoff from delivering sediment to any streams or wetlands.
- Maintain rolling dips and drivable waterbars as needed to keep them functioning as intended.
- Maintain 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.

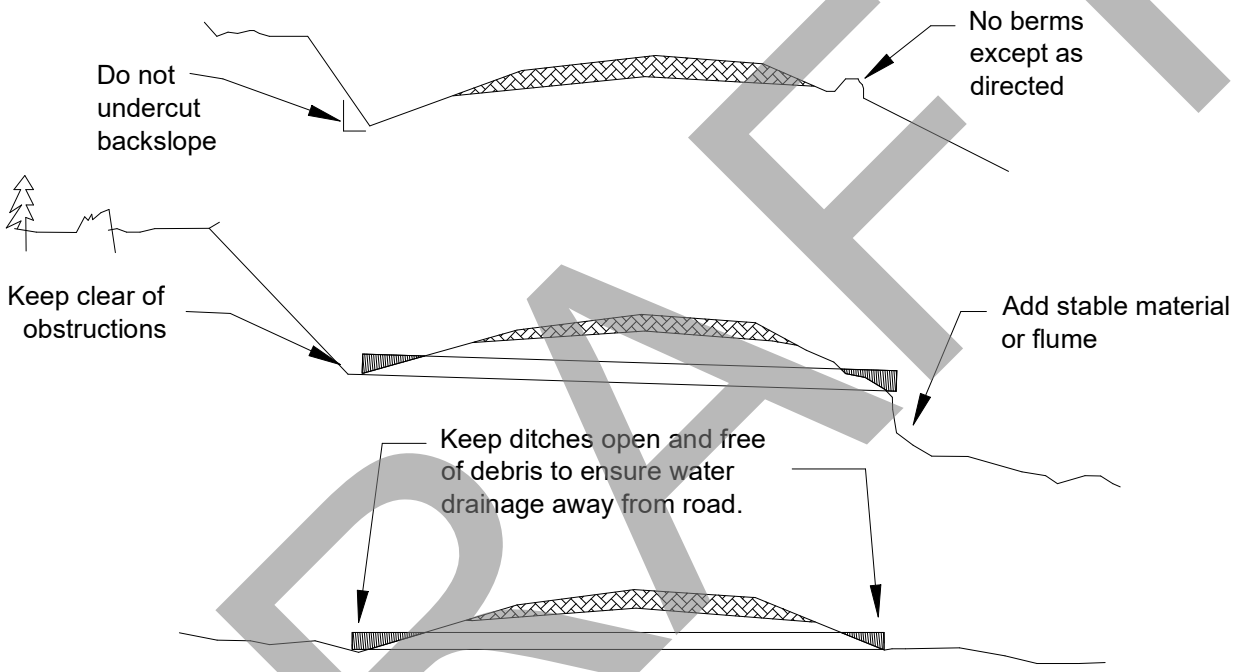
FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

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.

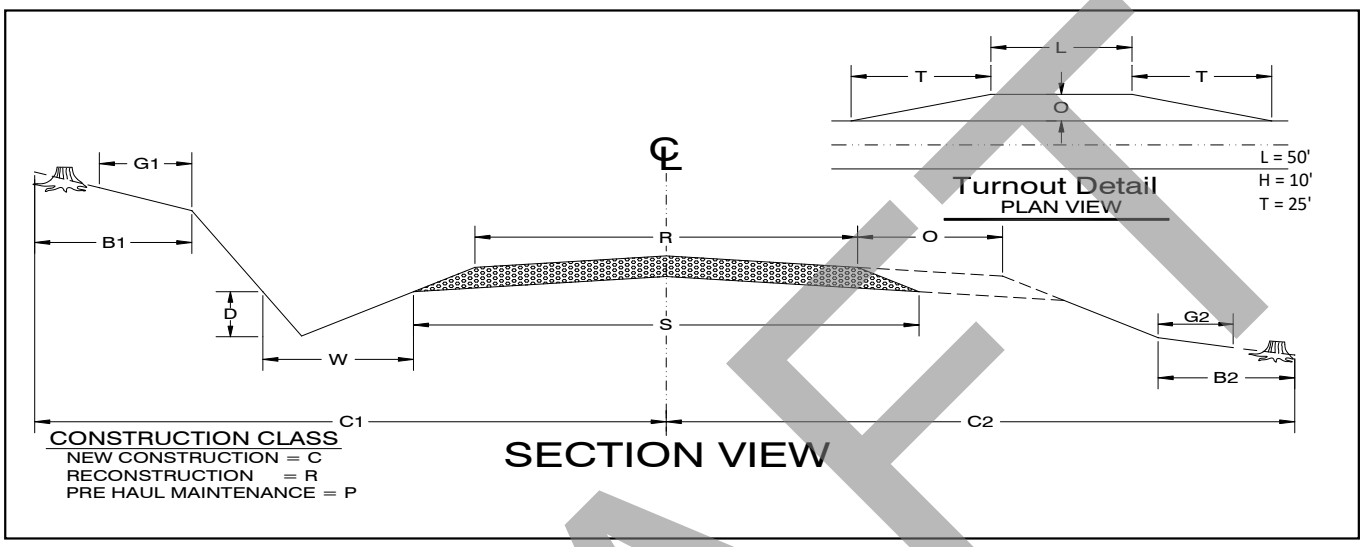


STATE OF WASHINGTON

DEPARTMENT OF NATURAL RESOURCES

Application No.: 30-106239 Name of Sale: Wanless Creek Date: 12/8/2023

TYPICAL SECTION SHEET



	ROAD NAME	START STATION	END STATION	CONSTRUCTION CLASS	FULL BENCH	TOLERANCE CLASS	SUBGRADE WIDTH (S)	ROAD WIDTH (R)	INSLOPE "/10'	OUTSLOPE "/10'	CROWN " AT CL	DITCH WIDTH (W)	DITCH DEPTH (D)	DITCH 2 SIDES	GRUBBING CUT BANK (G1	GRUBBING FILL TOE (G2)	ROAD CUT CLEARING (B1	ROAD FILL CLEARING (B2	R/W CUT CLEARING (C1)	R/W FILL CLEARING (C2)
	E354433A	0+00	537+42	P		C	14'	12'	subgrade shape varies											
*	E354426B	0+00	204+97	P		C	14'	12'	subgrade shape varies											
	E354426C	0+00	28+31	P		C	14'	12'	subgrade shape varies											
	E354426K	0+00	47+65	P		C	14'	12'	subgrade shape varies											
	E354424E	0+00	9+58	P		C	14'	12'	subgrade shape varies											
	E354424E	9+58	23+99	C		C	14'	12'		4					3	3	10	10		
	E354530F	0+00	21+82	P		C	14'	12'	subgrade shape varies											
	E354530F	21+82	31+35	C		C	14'	12'		4					3	3	10	10		
	E354529A	0+00	146+40	P		C	14'	12'	subgrade shape varies											
	E354530G	0+00	3+34	C		C	14'	12'		4					3	3	10	10		
	E354519B	0+00	37+72	P		C	14'	12'	subgrade shape varies											
	E354424F	0+00	6+18	C		C	14'	12'		4					3	3	10	10		
	E354529E	0+00	68+93	P		C	14'	12'	subgrade shape varies											
	E354521A	0+00	150+53	P		C	14'	12'	subgrade shape varies											
	E354520K	0+00	18+29	C		C	14'	12'		4					3	3	10	10		
	E334428E	0+00	4+41	P		C	14'	12'	subgrade shape varies											
	E334429F	0+00	10+64	P		C	14'	12'	subgrade shape varies											

*Optional

DRAWN BY: RK

STATE OF WASHINGTON

DEPARTMENT OF NATURAL RESOURCES

Application No.: 30-106239 Name of Sale: Wanless Creek Date: 12/8/2023

CULVERT & DRAINAGE LIST

Road Name	Station		CULVERT			LENGTH			RIPRAP			Ditch	Staked	Rolling Dip	Notes
	Start	End	Diameter (in)	Gauge	Skew (deg)	Culvert (ft)	Downspout	Flume	Inlet C.Y.	Outlet C.Y.	Catchbasin				
E354433A	0+00	537+42			Reshape or install rolling dips.									148	9,13,14
E354426B	0+00	204+97			Reshape or install rolling dips.									56	9,13,14
E354426C	0+00	28+31			Reshape or install rolling dips.									8	9,13,14
E354426K	0+00	47+65			Reshape or install rolling dips.									13	9,13,14
E354424E	0+00	9+58			Reshape or install rolling dips.									3	9,13,14
E354424E	9+58	23+99			Install rolling dips.									4	9,14
E354530F	0+00	21+82			Reshape or install rolling dips.									6	9,13,14
E354530F	21+82	31+35			Install rolling dips.									3	9,14
E354529A	0+00	146+40			Reshape or install rolling dips.									40	9,13,14
		41+15	24	14		44			1/2	1/2					1,2,3,6,10,11
E354530G	0+00	3+34			Install rolling dips.									1	9,14
		2+00	24	14		30			1/2	1/2					1,2,3,6,10,11
E354519B	0+00	37+72			Reshape or install rolling dips.									10	9,13,14
E354424F	0+00	6+18			Install rolling dips.									2	9,14
E354529E	0+00	68+93			Reshape or install rolling dips.									19	9,13,14
E354521A	0+00	150+53			Reshape or install rolling dips.									41	9,13,14
		47+36	18	16		38			1/4	1/4					1,2,3,6,10,11
		109+72	24	14		28			1/2	1/2					1,2,3,6,10,11
		111+93	24	14		28			1/2	1/2					1,2,3,6,10,11
E354520K	0+00	18+29			Install rolling dips.									5	9,14
E334428E	0+00	4+41			Reshape or install rolling dips.									1	9,13,14
E334429F	0+00	10+64			Reshape or install rolling dips.									3	9,13,14
One additional 18"x64' CMP culverts to be installed at location to be determined by the Contract Administrator															
Additional Rolling Dips shall be installed at the discretion of the Contract Administrator															

STRUCTURE NOTES

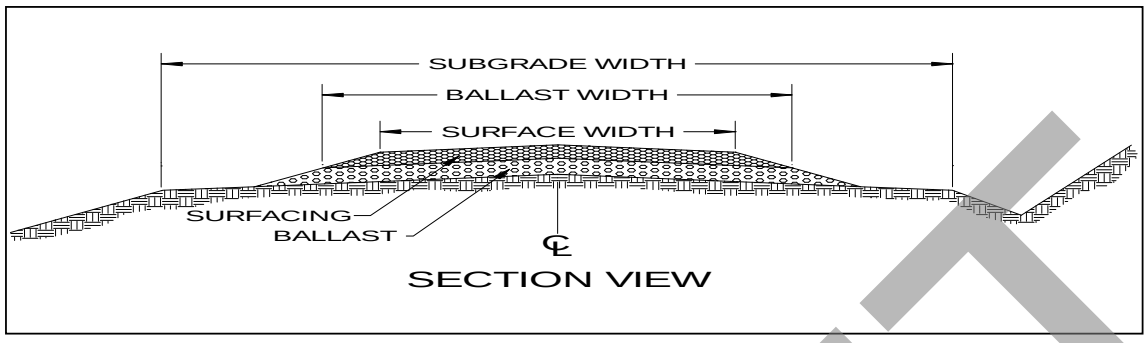
1. Install Headwall - See Detail D1
2. Install Catchbasin - See Detail D1
3. Armor Catchbasin - See Detail D1
4. Armor Ditch
5. Heavy Loose Riprap
6. Light Loose Riprap
7. Step Bevel Pipe Ends
8. Remove Existing Pipe
9. See Rolling Dip Detail D5
10. See Pipe Installation Detail D1
11. Install Energy dissipater - See D1
12. Install Ditchout
13. Reshape Rolling Dip
14. Install additional rolling dips as directed in section 9-5 Post Haul Maint.

STATE OF WASHINGTON

DEPARTMENT OF NATURAL RESOURCES

Application No.: 30-106239 Name of Sale: Wanless Creek Date: 12/8/2023

ROCK LIST

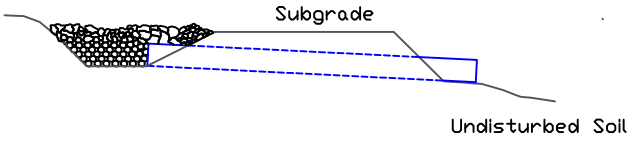


SECTION VIEW

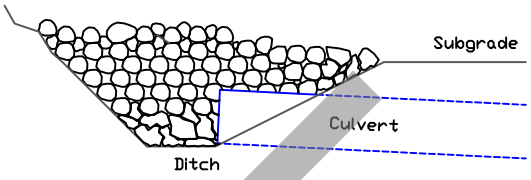
1. ROCK DEPTHS ARE DEFINED AS COMPACTED DEPTHS.
2. LOOSE YARD QUANTITIES ARE DEPENDANT ON SOURCE.
3. ROCK SLOPES SHALL BE 1.5(H) : 1(V).
4. ALL ROCK SOURCES ARE SUBJECT TO APPROVAL BY THE CONTRACT ADMINISTRATOR.
5. THE ROCK QUANITIES SHOWN ASSUME AN EXPANSION FACTOR OF 25%

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	BALLAST SOURCE	BALLAST WIDTH (ft)	BALLAST DEPTH (in)	BALLAST QUANTITY (cu.yd./sta)	SURFACE SOURCE	SURFACE WIDTH (ft)	SURFACE DEPTH (in)	SURFACE QUANTITY (cu.yd./sta)	FABRIC WIDTH (ft)
E354529A	41+15			Surface rock over cmp 10 cy.				C				
				Armoring for inlet/outlet 1 cy				D				
E354530G	2+00			Surface rock over cmp 10 cy.				C				
				Armoring for inlet/outlet 1 cy				D				
E354521A	47+36			Surface rock over cmp 10 cy.				C				
				Armoring for inlet/outlet 1/2 cy				D				
	109+72			Surface rock over cmp 10 cy.				C				
				Armoring for inlet/outlet 1/2 cy				D				
	111+93			Surface rock over cmp 10 cy.				C				
				Armoring for inlet/outlet 1/2 cy				D				
E354426K	19+80			5 cy ea. surface rock				B				
				at bridge approaches								
Additional surface rock for spot patching and additional culverts						300	cy	C				
placed as directed by the Contract Administrator												
Additional rip rap rock for additional culverts						1	cy	D				
placed as directed by the Contract Administrator												
B: Commercial 5/8 in minus crushed surface rock source per contractor												
C: Commercial 1-1/4 in minus, source per contractor or existing stock pile source												
D: Commercial or diggable onsite source for light loose rip rap per contractor												
cy = cubic yards												

CULVERT AND DRAINAGE SPECIFICATIONS DETAIL - D1



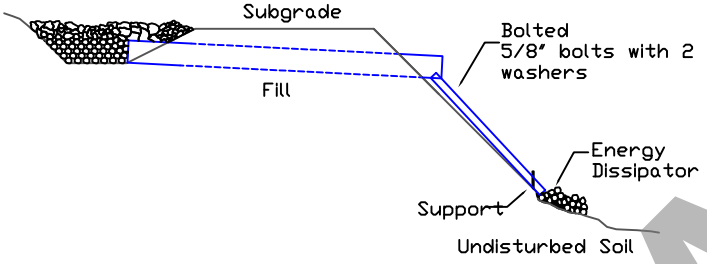
HEADWALLS



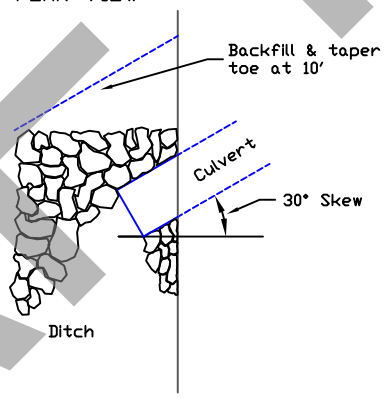
Headwall to be constructed of material that will resist erosion

FLUME

Use where ground conditions are uniform, providing for stability of flume.

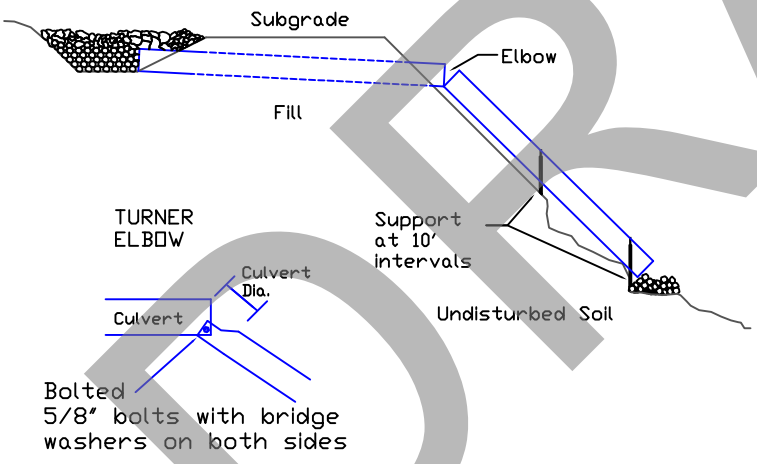


PLAN VIEW



DOWNSPOUT

Use where ground conditions are irregular.

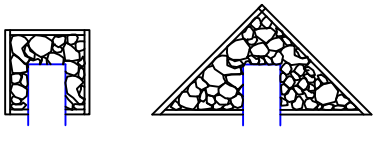


CULVERT BACKFILL & BASE PREPARATION
(For Culverts Less Than 36")

Minimum Cover	Minimum Bed Depth	Min. Trench Width	Nominal Diameter
A	B	C	D
12"	6"	36"	18"
12"	6"	42"	24"
12"	6"	48"	30"
12"	6"	54"	36"

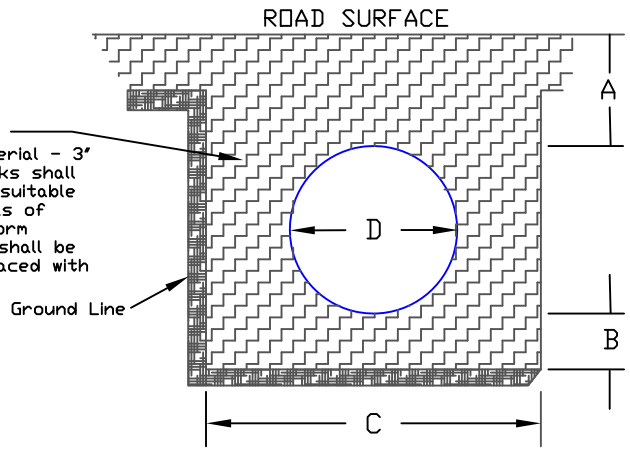
DISSIPATOR SPEC'S
Size in Culvert Diameters

Area	2 X 2
Depth	1
Aggragate	1/3

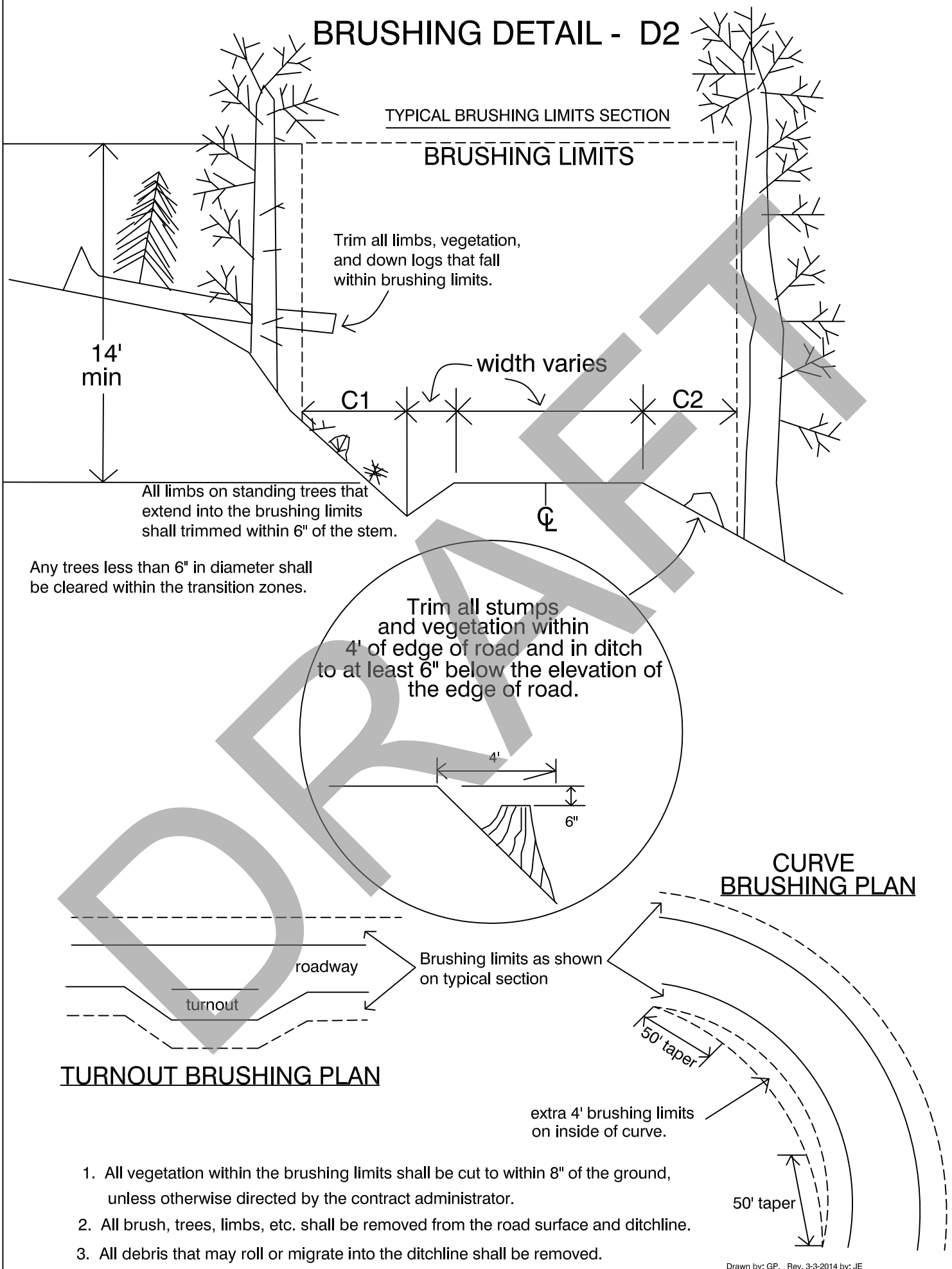


ROAD SURFACE

BEDDING MATERIAL:
Use granular material - 3" minus. Large rocks shall be replaced with suitable material. Materials of poor or non-uniform bearing capacity shall be removed and replaced with suitable fill.



BRUSHING DETAIL - D2



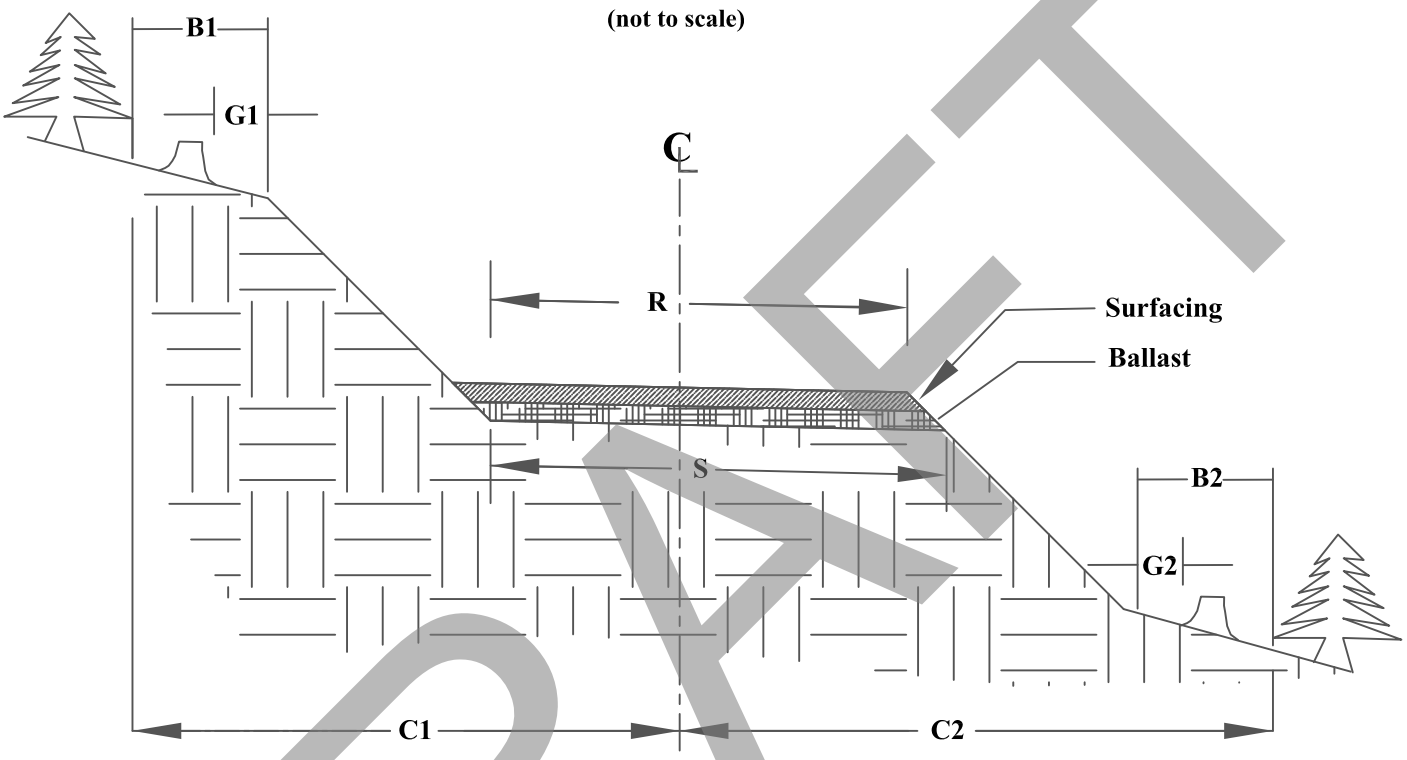
TURNOUT BRUSHING PLAN

1. All vegetation within the brushing limits shall be cut to within 8" of the ground, unless otherwise directed by the contract administrator.
2. All brush, trees, limbs, etc. shall be removed from the road surface and ditchline.
3. All debris that may roll or migrate into the ditchline shall be removed.

Drawn by: GP. Rev. 3-3-2014 by: JE

OUTSLOPED ROAD CROSS-SECTION

DETAIL D3



Drawn by: JBB 2/18/03

Revised: JE 01/14/20162

STANDARD 30° ROLLING DIP - D5

Note: Plan of dip shown is for an outsloped rolling dip. Dips may be either insloped or outsloped. When insloped, dips shall discharge into a culvert, drop inlet, overside drain, or drainage ditch. When outsloped, they shall discharge into an overside drain or on to natural ground. Minimum skew is 30°, and the maximum skew is 45°.

The minimum cross grade from "B" to "E" is 1% greater than the original road grade.

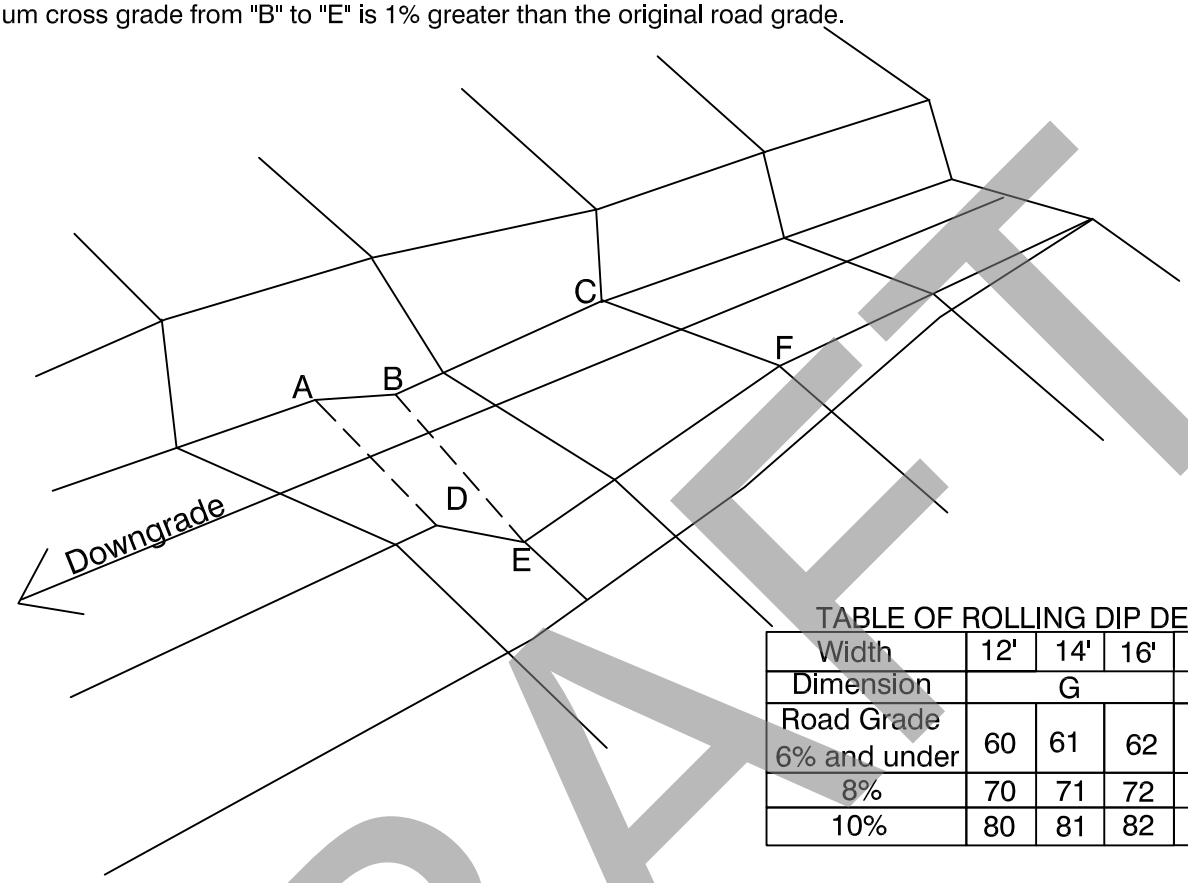
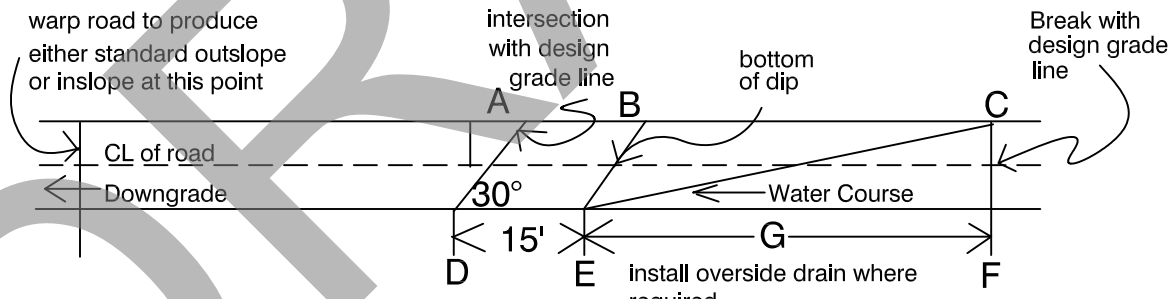
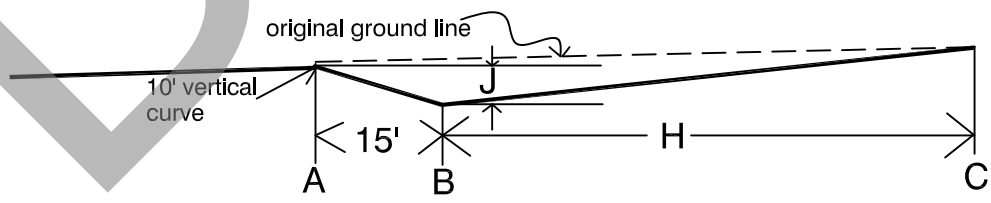


TABLE OF ROLLING DIP DEMENSIONS

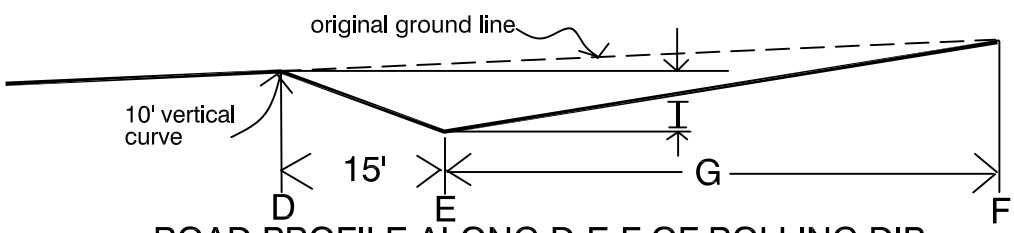
Width	12'	14'	16'	ALL		
Dimension	G			H	I	J
Road Grade 6% and under	60	61	62	52	.8	0.3
8%	70	71	72	62	1.0	0.2
10%	80	81	82	72	1.1	0.1



PLAN OF ROLLING DIP



ROAD PROFILE ALONG A-B-C OF ROLLING DIP



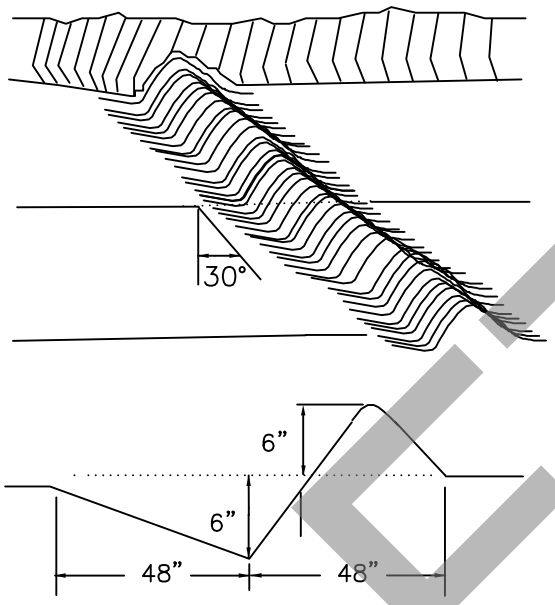
ROAD PROFILE ALONG D-E-F OF ROLLING DIP

Accessed: 01/09/2025 13:23

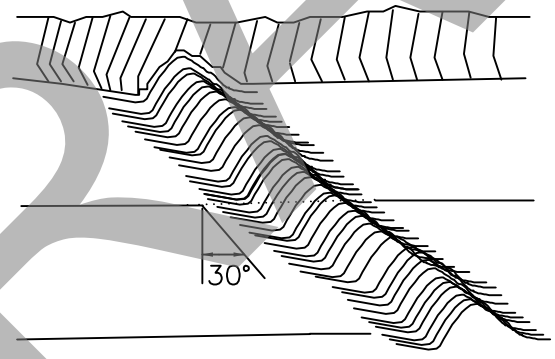
Drawn by: GP

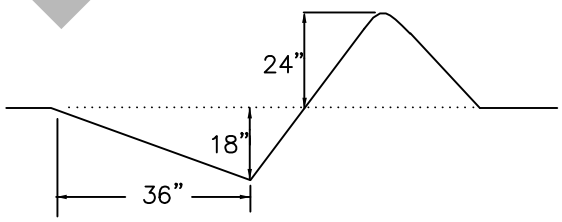
WATERBAR DETAIL–D6

DRIVABLE WATERBAR



NON DRIVABLE WATERBAR



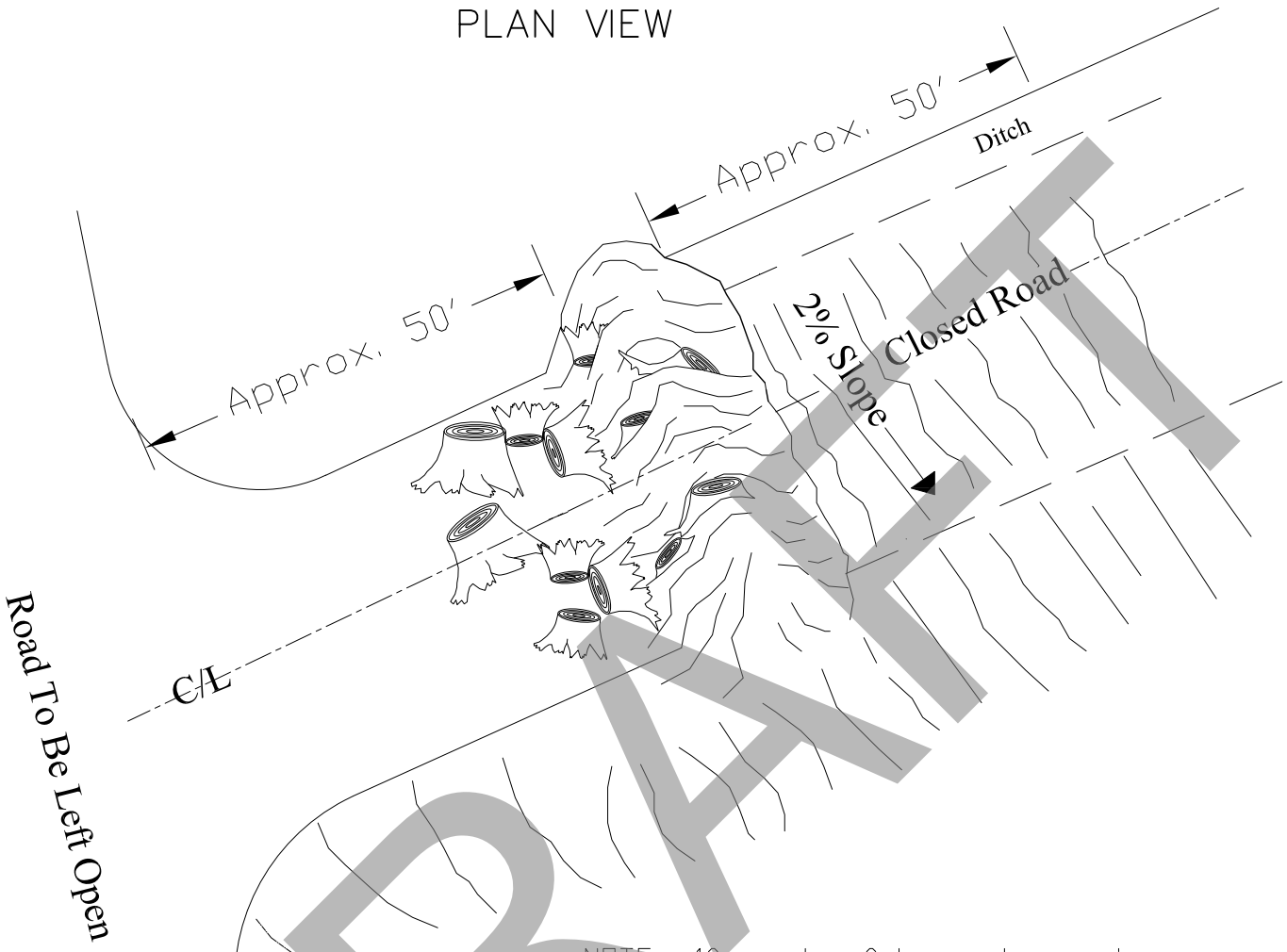


1. Waterbar construction for forest roads Specifications are average and may be adjusted to conditions.
2. Waterbar shall keyed into the bank.
3. The waterbar shall be outsloped for proper drainage.
4. Rock outlet if fill slope is present.

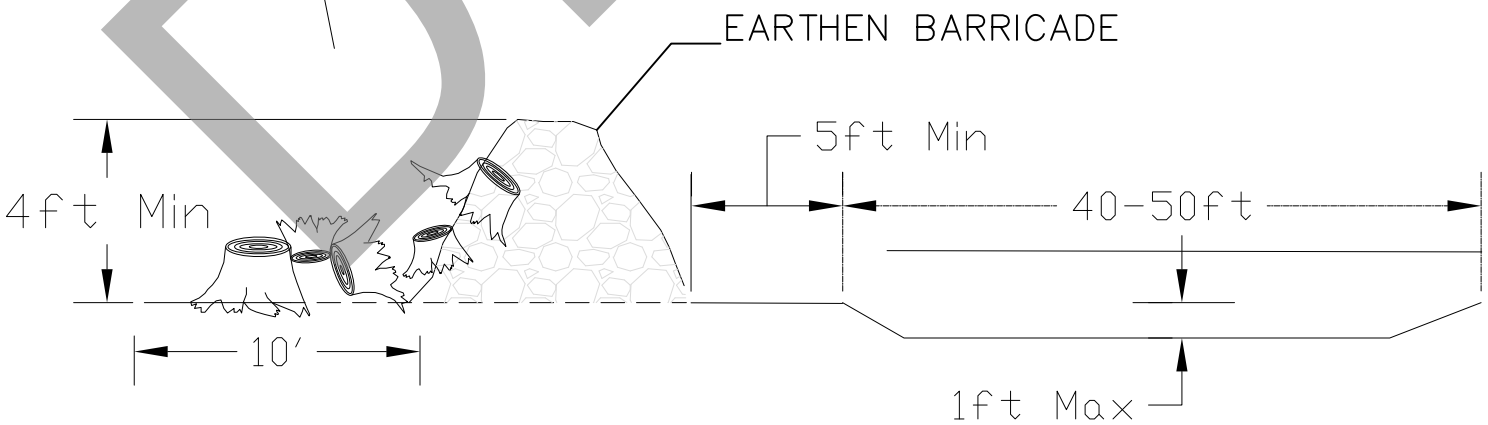
Revised: 05/21/2012

EARTHEN BARRICADE DETAIL-D8

PLAN VIEW

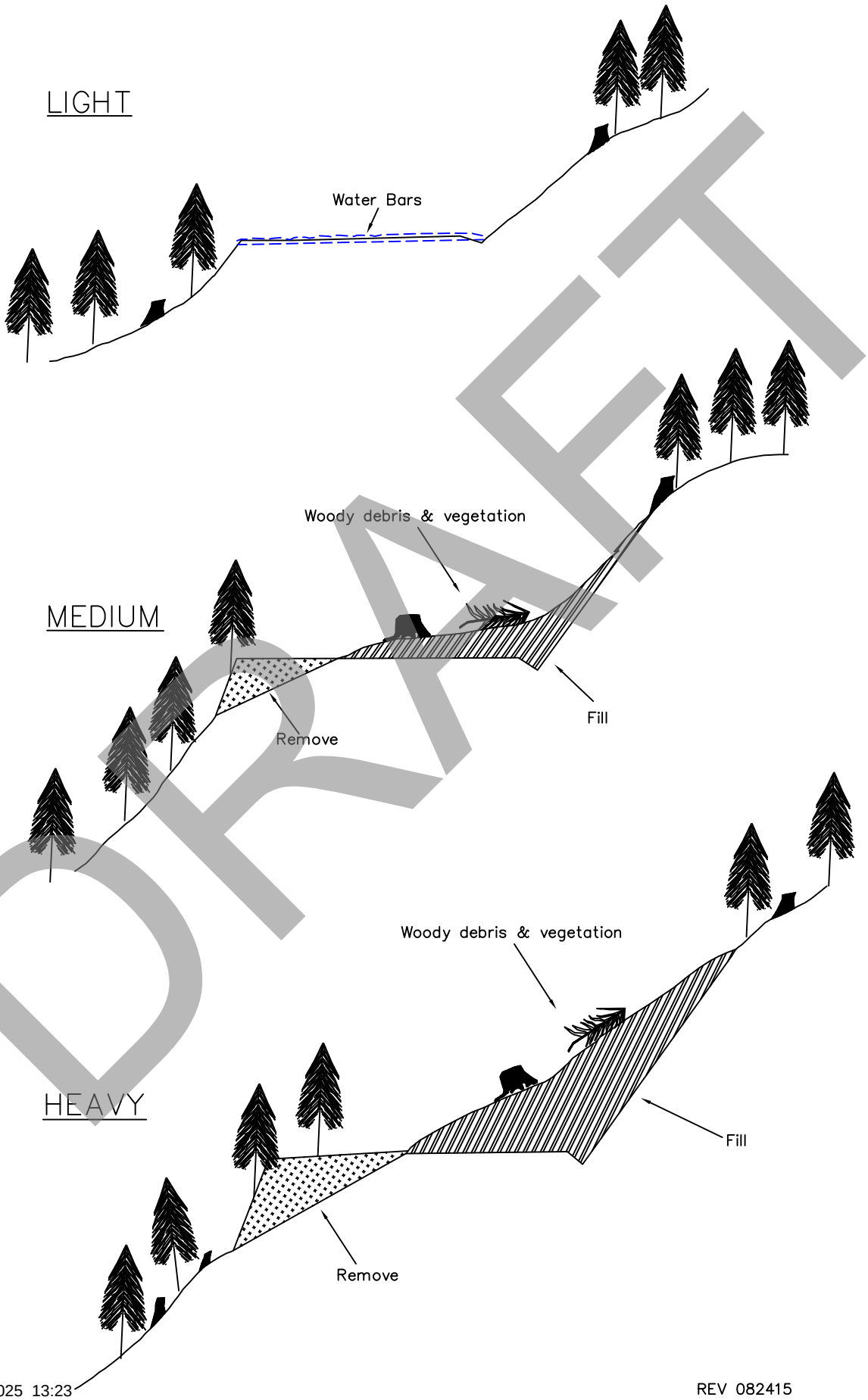


NOTE: 10 yards of heavy loose rip rap or 10 yards of 14" diameter and larger stumps shall be placed in front of and in the earthen barricade..

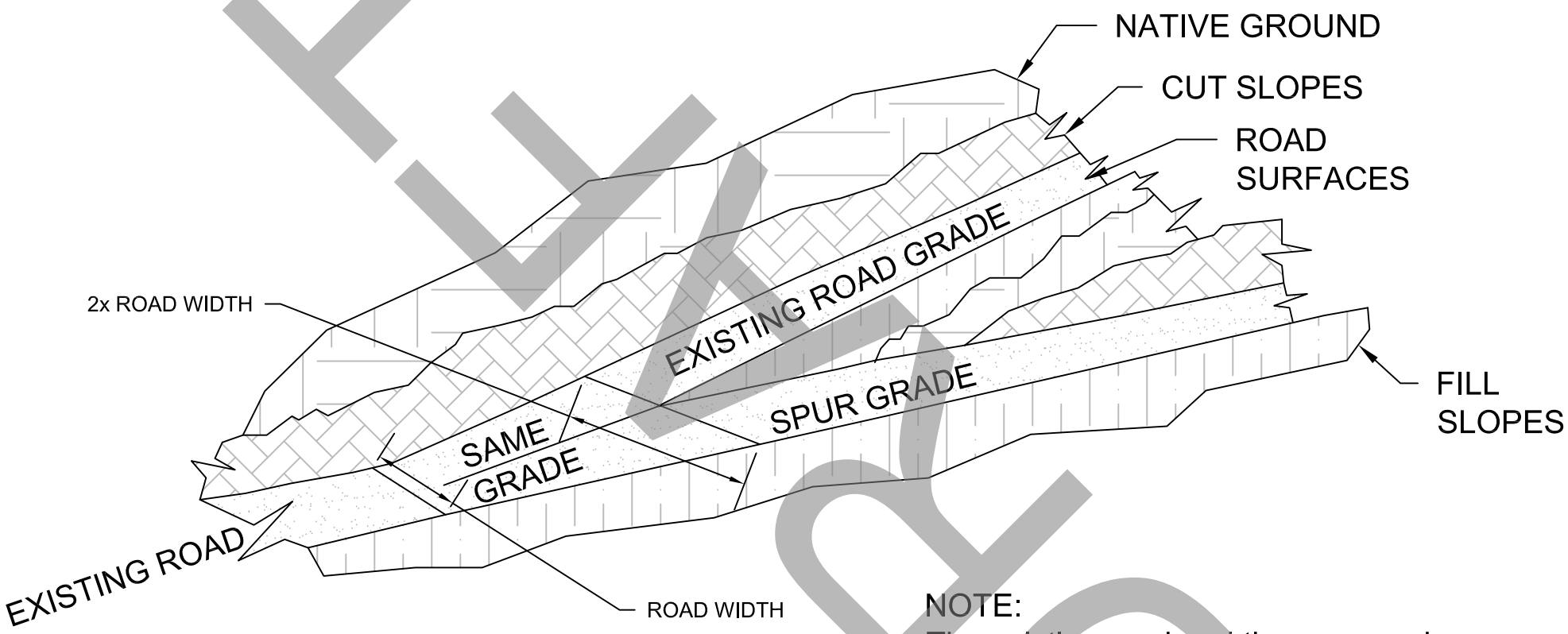


Note: $\frac{1}{3}$ of stumps or rip rap shall be partially buried in the earthen barricade and/or road surface.

ROAD ABANDONMENT DETAIL–D12
CROSS SECTIONS



DETAIL D17 - WYE INTERSECTION DETAIL



NOTE:
The existing road and the spur road shall have the same grade until the roads are completely separated. The roads shall not separate until twice the road width has been achieved.

Sale Name: WANLESS CREEK SUMMARY - Road Development Costs

REGION: Northeast CONTRACT #: 30-106239 ENGINEER: Travis Parry
DISTRICT: Arcadia DATE: 12/8/2023

	Construction	Reconstruction	Maintenance	Decommission	Abandonment
ROAD NUMBERS:	E354424E, E354530F, E354530G, E354424F, E354520K		E354433A, E354426B, E354426C, E354426K, E354424E, E354530F, E354529A, E354519B, E354529E, E354521A, E334228E, E334429F		
Comments:					
ROAD STANDARD:	*Construction*	*Reconstruction*	*Maintenance*	*Decommission*	*Abandonment*
NUMBER OF STATIONS:	***51.75***	***0.00***	***1268.38***	***0.00***	***0.00***
CLEARING & GRUBBING:	$2,588	$0	$1,903	$0	0
EXCAVATION AND FILL:	$15,783	$0	$2,609	$0	$0
MISC. MAINTENANCE:	$776	$0	$41,857	$0	$0
ROAD ROCK:	$0	$0	$2,400	$0	$0
ADDITIONAL ROCK:	$0	$0	$0	$0	$0
CULVERTS AND FLUMES:	$1,500	$0	$6,520	$0	$0
STRUCTURES/MATERIALS:	$0	$0	$0	$0	$0
	$20,647	$0	$55,288	$0	$0

TOTAL COSTS:	$20,647	$0	$55,288	$0	$0
COST PER STATION:	*$398.98*	*$0.00*	*$43.59*	*$0.00*	*$0*

	$/per move	# of moves	Total
MOBILIZATION:	$2,100	2	$4,200

additional rock, culverts, tax $22,187

TOTAL (All Roads) =	$102,322
SALE VOLUME mbf =	5,781
TOTAL $/MBF =	$17.70

Sale Name: WANLESS CREEK SUMMARY - Road Development Costs