WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

TIMBER NOTICE OF SALE

***SALE NAME**: Q RUFUS SORTS* ***AGREEMENT NO**: 30-106687 - 30-106695*

AUCTION: June 11, 2024 starting at 10:00 a.m.
Northeast Region Office, Colville, WA

COUNTY: Pend Oreille, Stevens

SALE LOCATION: Sale located approximately 18 miles east of Colville, WA.

PRODUCTS SOLD AND SALE AREA: All timber except for leave trees banded with purple paint in Units 1, 2, 3, 4, 5, 6, 7, 8, and 9 bounded by white timber sale boundary tags; and all timber bounded by orange right of way boundary tags meeting the specifications described below; on parts of Sections 8, 16, and 17 all in Township 35 North, Range 42 East, Section 27 in Township 36 North, Range 42 East W.M., containing 319 acres, more or less.

MINIMUM BID AND ESTIMATED LOG VOLUMES:

Agreement #	Sort #	Species and Sort Specifications	Average Log Length	Estimated Volume		Tons Per MBF	Minimum Bid Delivered Prices		Total Appraised Value	Bid Deposit
				Mbf	Tons		$/mbf	$/Ton		
106687	01	DF/WL 7-10" dib	N/A	694	4164	6		$0.00	$0.00	$0.00
106688	02	DF/WL 11"+ dib	N/A	633	3165	5		$0.00	$0.00	$0.00
106689	03	AF/ES/GF/LP/WH/WP non-chuckable DF/WL 7-10" dib	N/A	1554	9635	6.2		$0.00	$0.00	$0.00
106690	04	AF/ES/GF/LP/WH/WP non-chuckable DF/WL 11"+ dib	N/A	1176	6232	5.3		$0.00	$0.00	$0.00
106691	05	WRC Poles 35'+	N/A	220	858	3.9		$0.00	$0.00	$0.00
106692	06	WL Poles 35'+	N/A	75	412	5.5		$0.00	$0.00	$0.00
106693	07	WRC 5"+ dib	N/A	680	2992	4.4		$0.00	$0.00	$0.00
106694	08	DF/WL/AF/ES/GF/LP/WH/WP 5-6" dib	N/A	1221	7815	6.4		$0.00	$0.00	$0.00
106695	09	All conifer species except WRC 2"+ utility	N/A	235	2115	9		$0.00	$0.00	$0.00
Totals:				**6488**	**37388**				**$0.00**	

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

BID METHOD: Sealed Bids **UNIT OF MEASURE:** Tonnage Scale

EXPIRATION DATE: January 31, 2025 **ALLOCATION:** Export Restricted

PAYMENT SECURITY: To be determined by the State as described in Clause P-045.2 of the Purchaser's Contract.

BIDDING PROCEDURES: A separate sealed bid and envelope must be submitted for each log sort. Prospective Purchasers may bid on any or all log sorts. On the day of sale the Purchaser must bring

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their bid deposit up to 10% of their total bid price. Complete bidding procedures and auction information may be obtained from the Northeast Region Office in Colville WA. Phone number (509)684-7474.

TIMBER EXCISE TAX:

Purchaser must pay the forest excise taxes associated with the log sorts delivered to them. The tax rate for this sale is 4.2 %. Taxable Stumpage = Total Delivered Value – (Harvest Cost + Estimated Haul Cost + ARRF). For more information contact the Department of Revenue, Forest Tax Section at 1-800-548-8829.

Use the following rates for estimating taxable stumpage:

Harvest Cost = $32.00 per Ton for sorts 01, 02, 03, 04, 07 and 08, $0.00 per Ton for sorts and $13.00 per Ton for sort 09.

Hauling Services Payment Rate per Ton
= (Base Rate + Mileage Rate) x (Contractor's hauling bid factor)

Base Rate = $2.35 per ton

Mileage Rate = (($0.16 x C miles) + ($0.11 x A miles)) x Fuel Index Factor

ARRF = $0.00 per MBF for sort 09 and $26.00 per MBF for sorts 01, 02, 03, 04, 05, 06, 07 and 08.

Note: To calculate ARRF rates per ton use the tons\mbf conversion factor in the table above.

Long-haul surcharge: An additional haul payment of $25/mbf net scale for mbf scale sorts or $4.60/ton for tonnage sorts will be added for delivery destinations in excess of 250 total one-way miles (A miles plus C miles).

CONFIRMATION:

Each sort is subject to confirmation following auction. Sorts will not be confirmed until at least 10 days after auction. Final contract award is contingent upon the State's haul cost analysis. Actual haul route may vary and is subject to change at the State's discretion.

SPECIAL REMARKS:

The successful Purchaser(s) will be required to purchase logs from the sale area upon delivery to their location specified in the bid submitted. Logs will be delivered to the Purchaser's delivery location by the State's contract harvester. Purchaser is responsible for weighing and scaling costs. All tonnage loads will be weighed and all mbf loads will be scaled at State approved locations. The State reserves the right to determine where logs are authorized to be scaled and weighed.

For more information regarding this log sort sale visit our web site: http://www.dnr.wa.gov/programs-and-services/product-sales-and-leasing/timber-sales/timber-auction-packets. If you have questions call Nate Simpkins at the Northeast

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

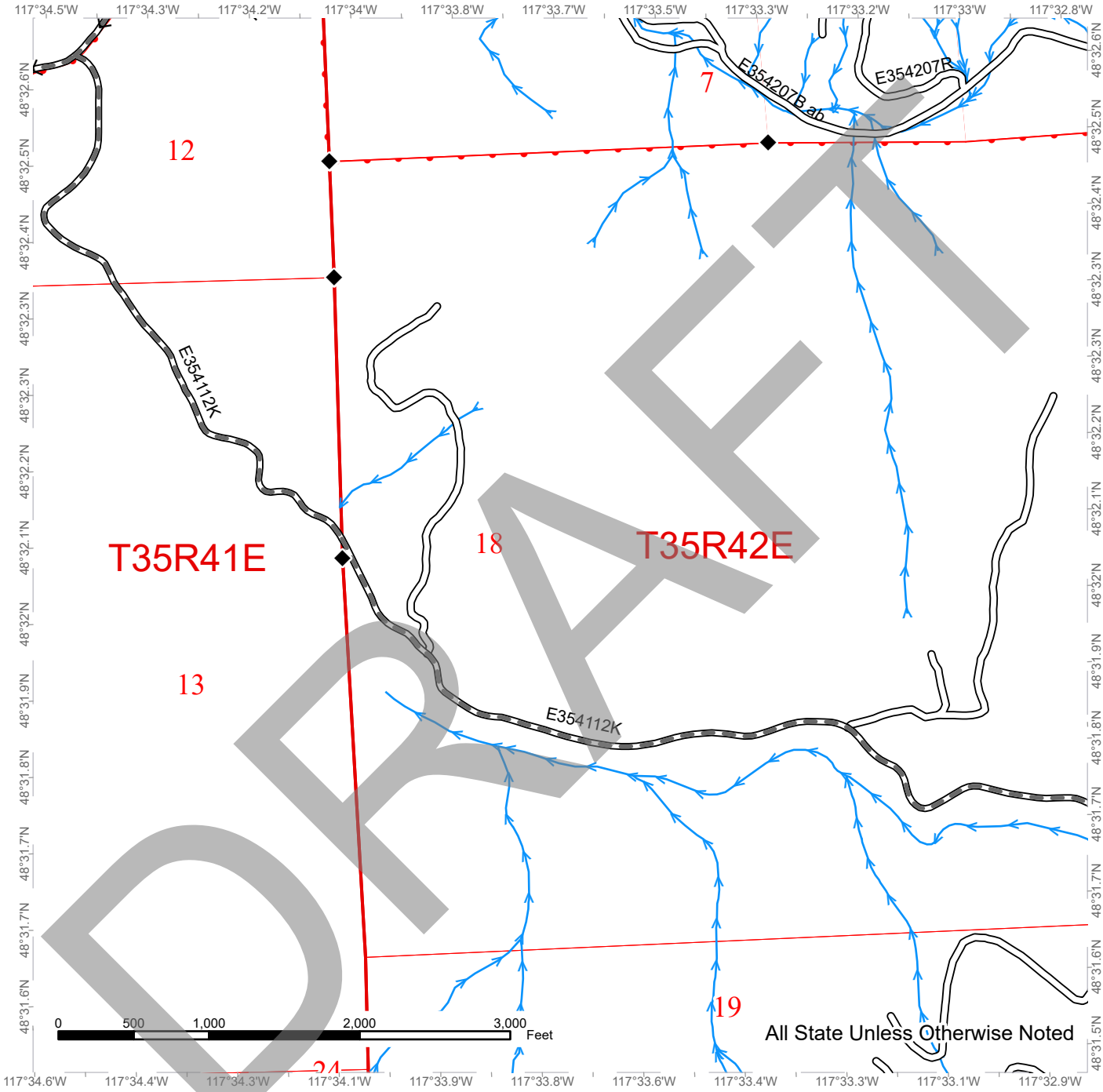
TIMBER NOTICE OF SALE

Region Office at (509)675-3191 or Steve Teitzel at the Product Sales and Leasing Division Office in Olympia at (360)480-3910.

TIMBER SALE MAP

SALE NAME: Q RUFUS SORTS
AGREEMENT #: 30-106090
TOWNSHIP(S): T35R42E, T36R42E
TRUST(S): Common School and Indemnity (3), Normal School (8)

REGION: Northeast Region
COUNTY(S): Pend Oreille, Stevens
ELEVATION RGE: 3480-4360



Public Land Survey Sections
DNR Managed Lands
Existing Roads
Required Pre-Haul Maintenance
Streams
Survey Monument

N

Prepared By: lien490
Accessed: 03/29/2024 14:33

Modification Date: 3/11/2024

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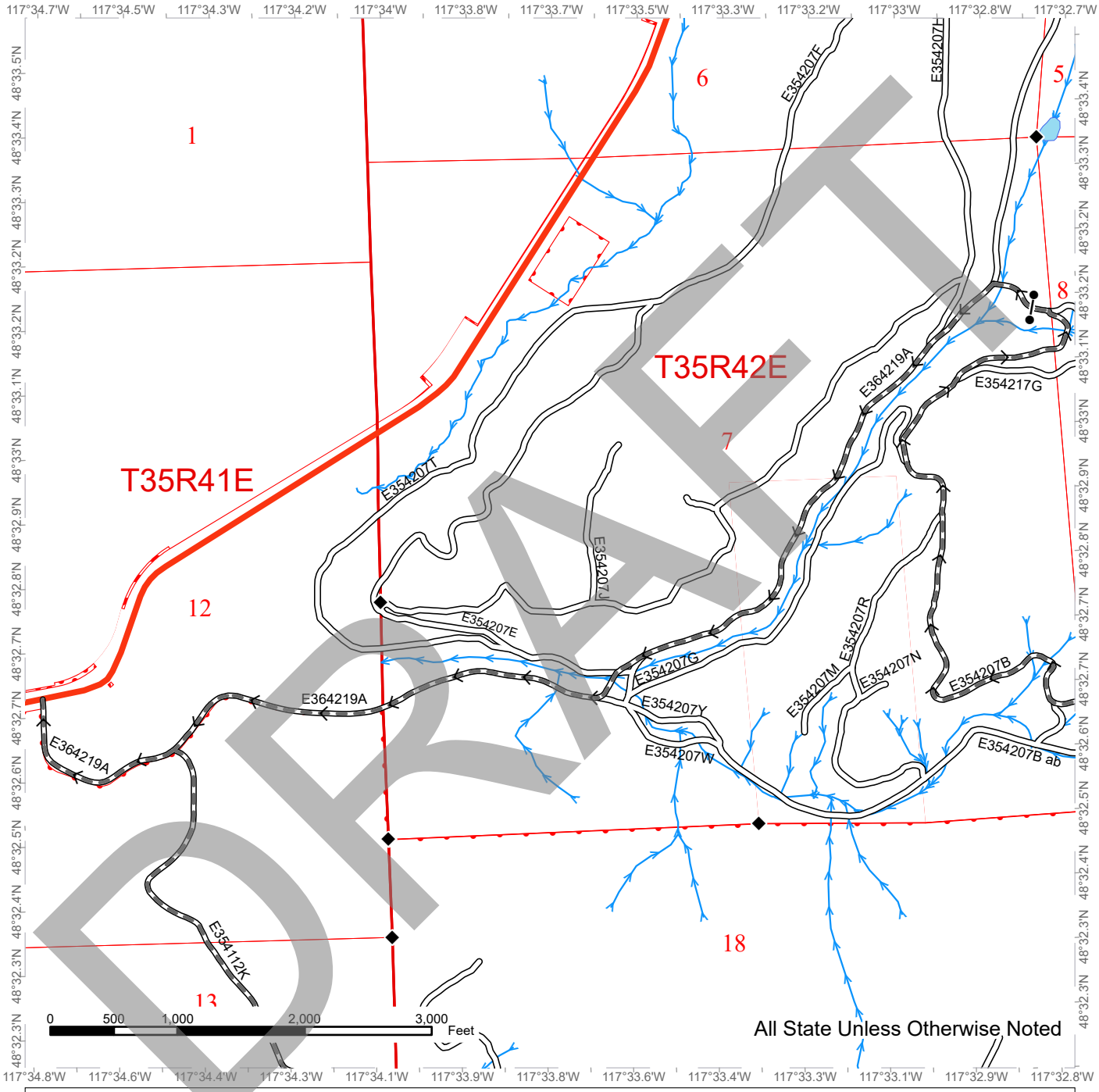

- Public Land Survey Sections
- DNR Managed Lands
- Existing Roads
- Required Pre-Haul Maintenance
- Streams
- Gate
- Survey Monument
- Fence
- Highway

N

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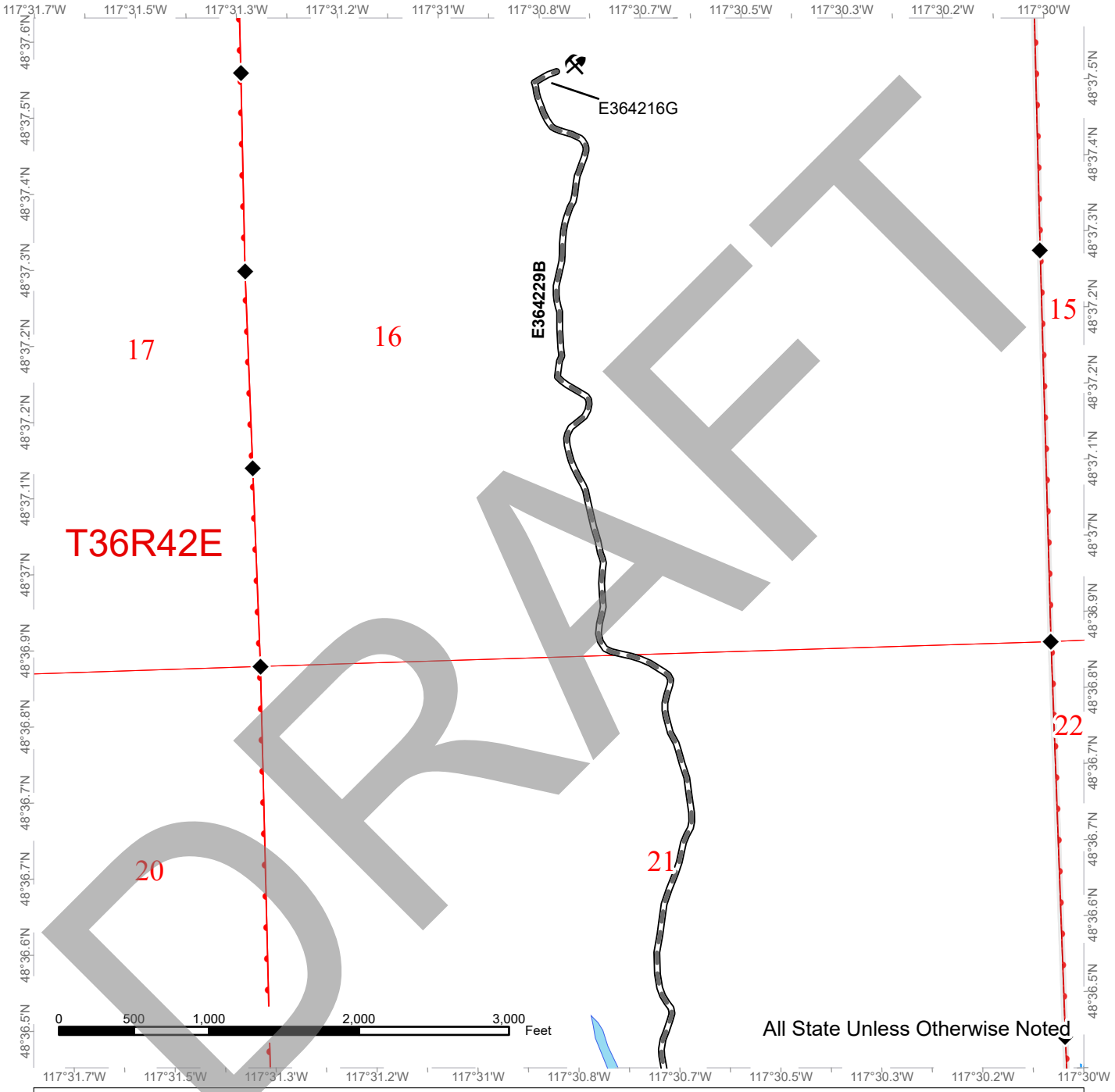

Public Land Survey Sections
DNR Managed Lands
Required Pre-Haul Maintenance
Streams
Rock Pit
Survey Monument

N

Prepared By: lien490
Accessed: 03/29/2024 14:33

Modification Date: 11/16/2023

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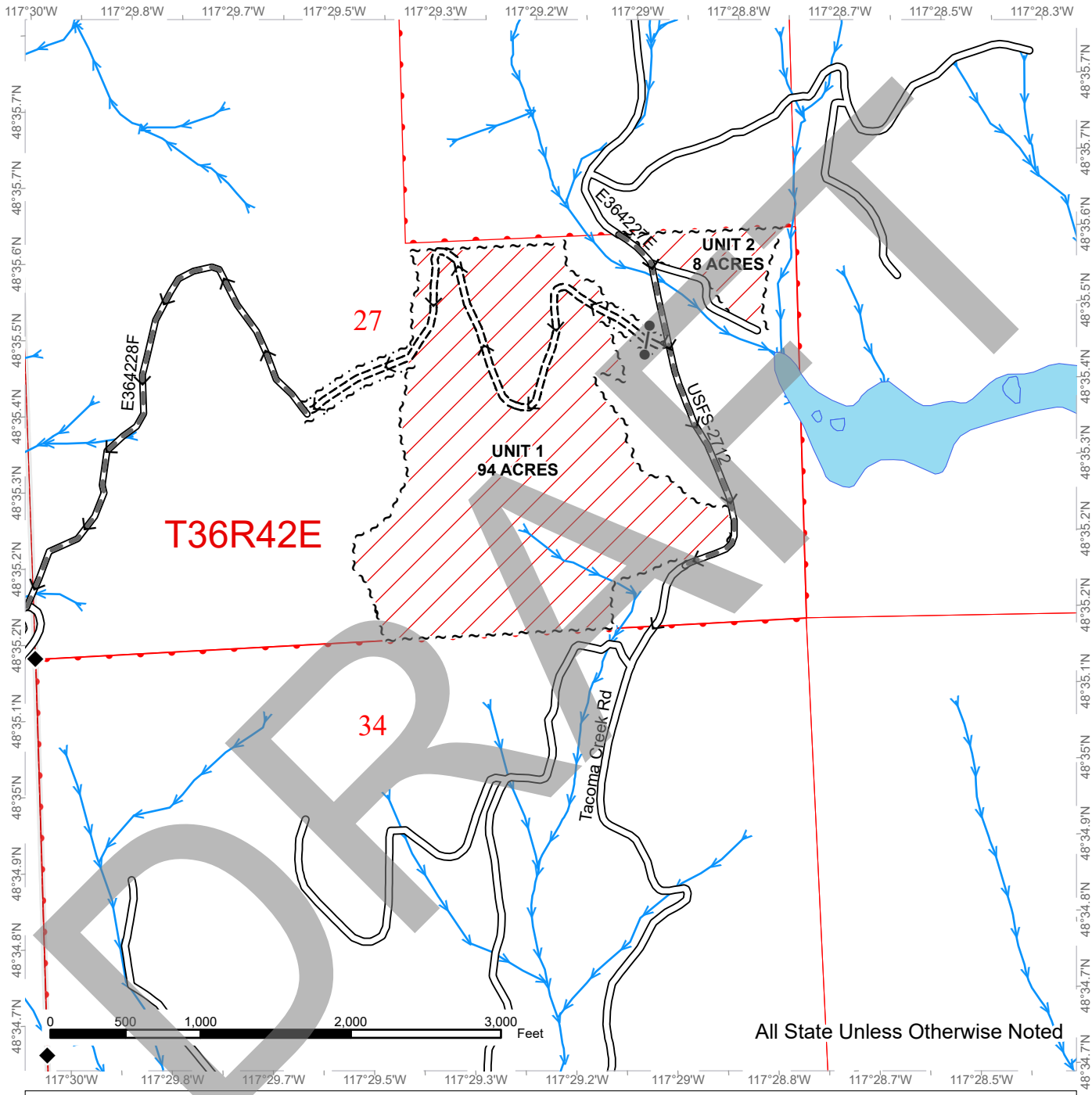

- Public Land Survey Sections
- DNR Managed Lands
- Variable Retention Harvest
- Sale Boundary Tags
- Right of Way Tags = 2 acres
- Existing Roads
- Required Pre-Haul Maintenance
- Required Construction
- Streams
- Gate
- Survey Monument

N

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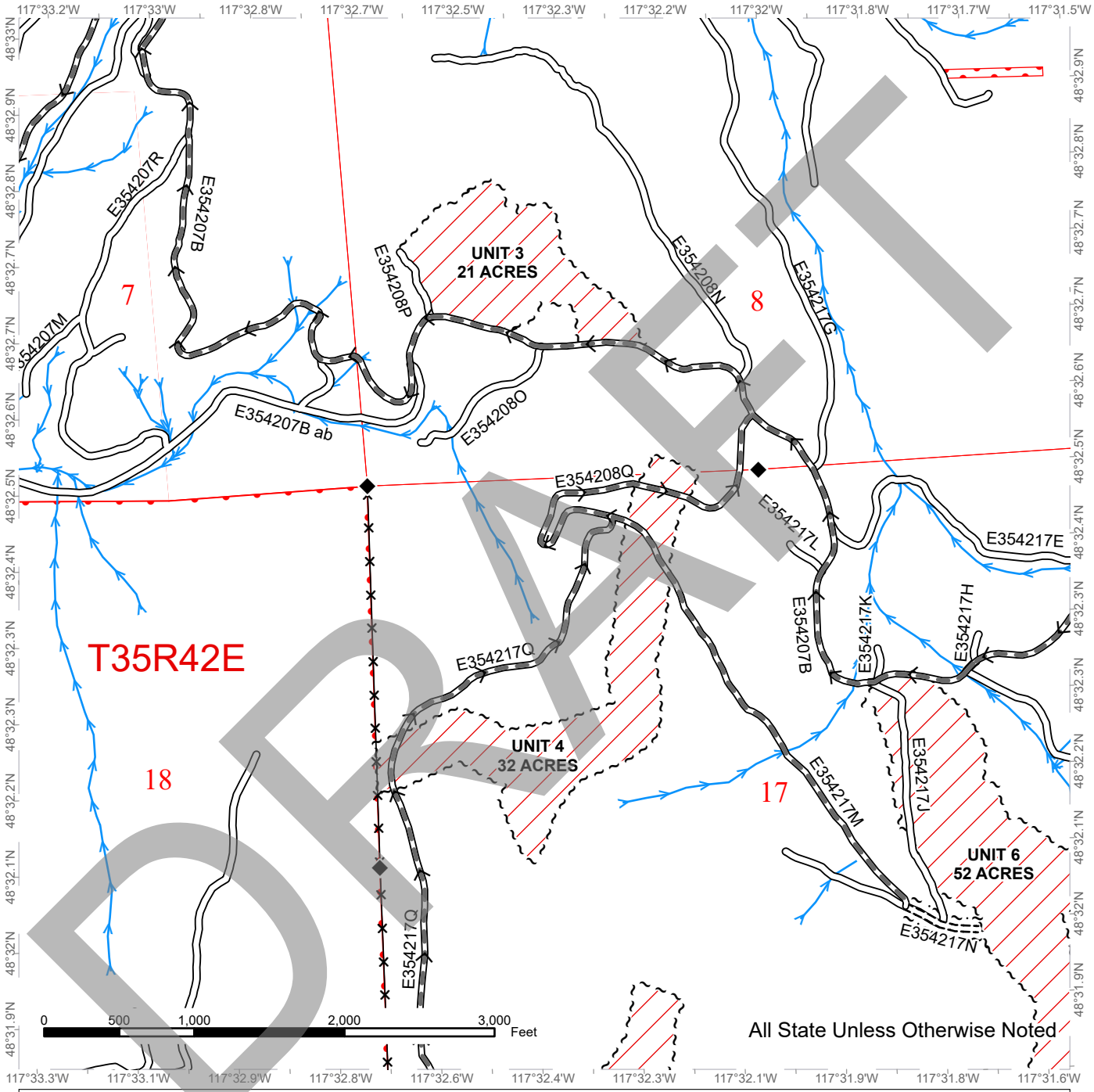

- Public Land Survey Sections
- DNR Managed Lands
- Variable Retention Harvest
- Sale Boundary Tags
- Right of Way Tags = 2 acres
- Existing Roads
- Required Pre-Haul Maintenance
- Required Construction
- Streams
- Survey Monument
- Fence

N

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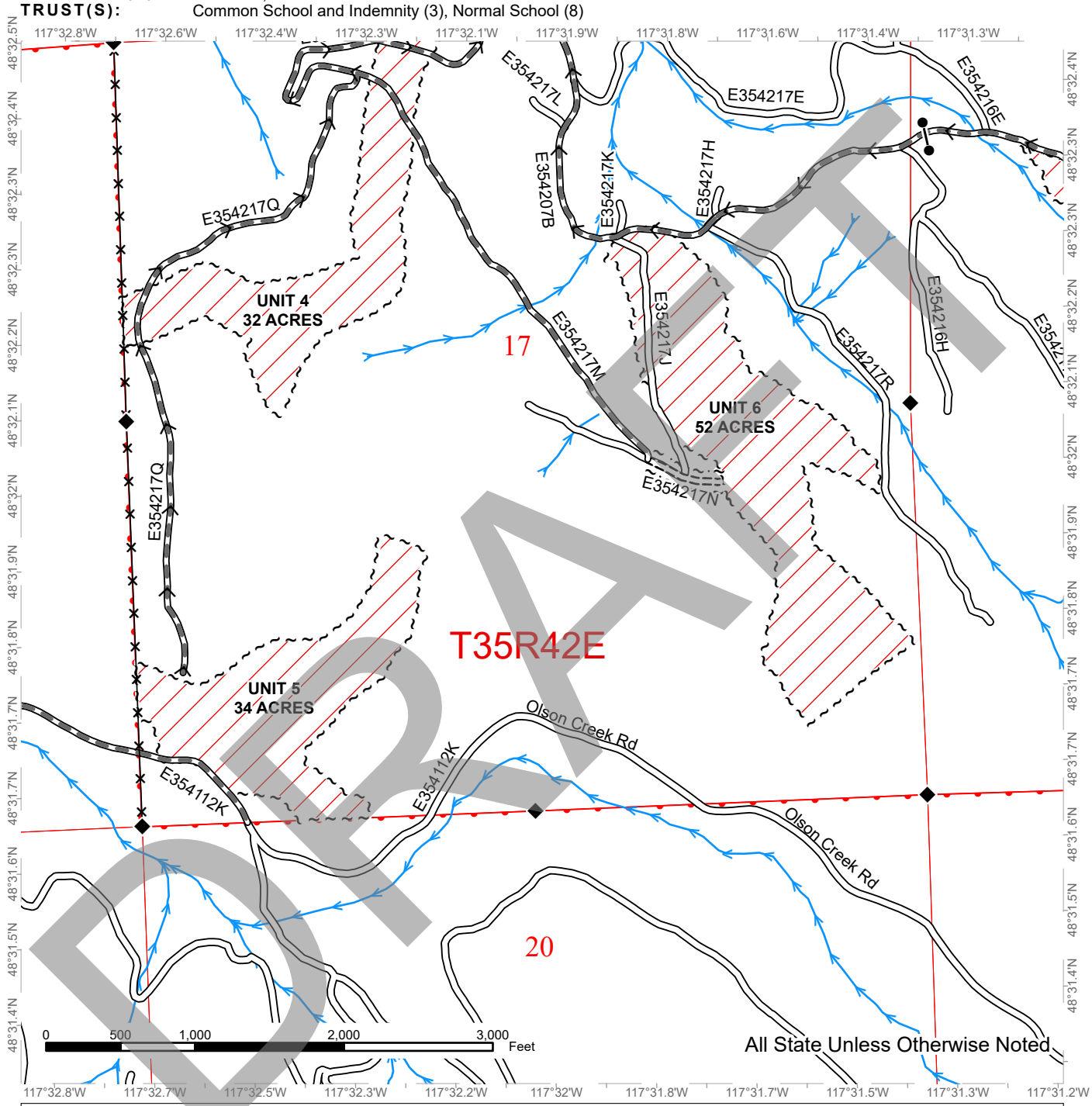

- Public Land Survey Sections
- DNR Managed Lands
- Variable Retention Harvest
- Sale Boundary Tags
- Right of Way Tags = 2 acres
- Existing Roads
- Required Pre-Haul Maintenance
- Required Construction
- Streams
- Gate
- Survey Monument
- Fence

N

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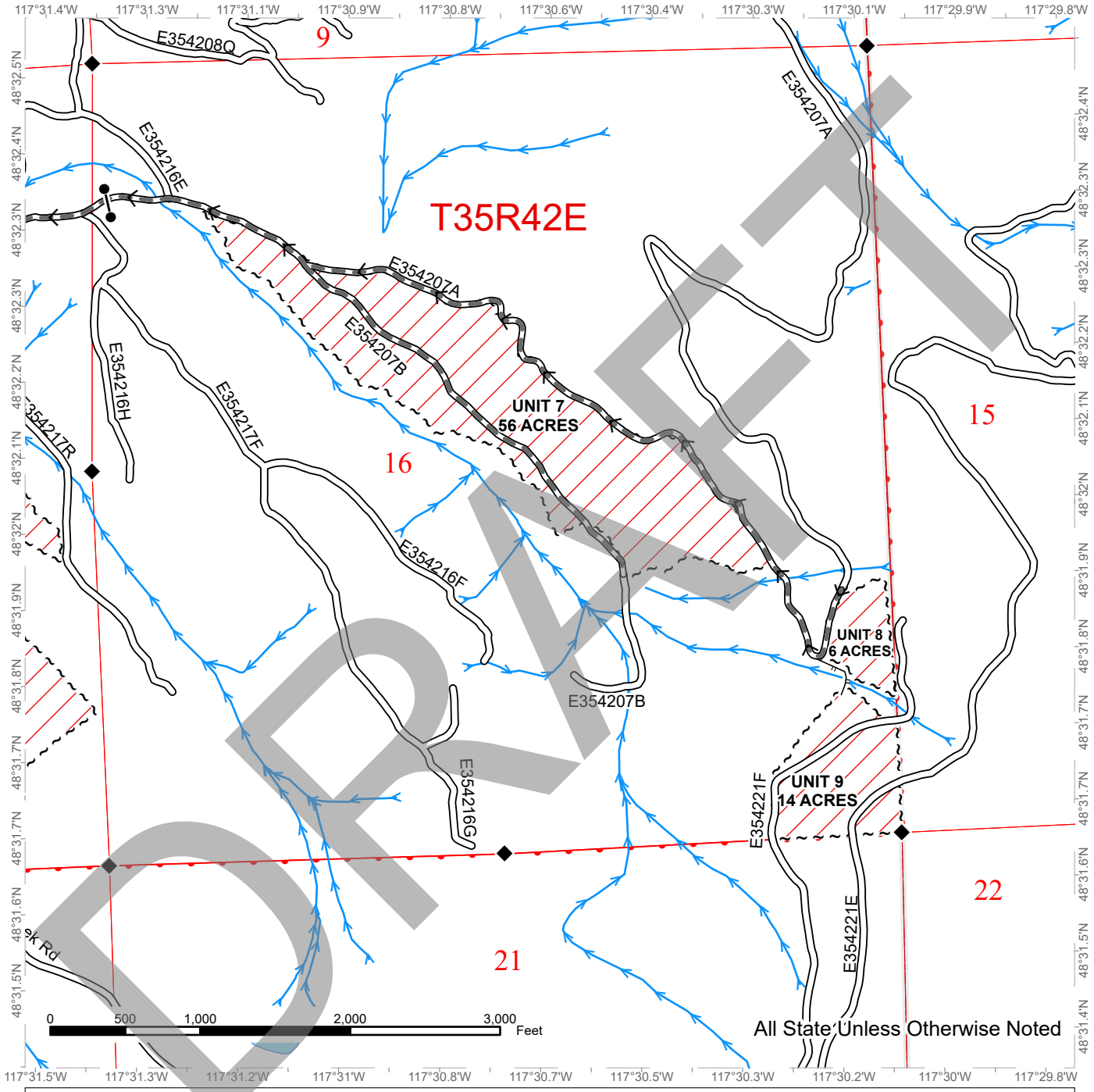

- Public Land Survey Sections
- DNR Managed Lands
- Variable Retention Harvest
- Sale Boundary Tags
- Existing Roads
- Required Pre-Haul Maintenance
- Designated Skid Trail
- Streams
- Gate
- Survey Monument

N

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Modification Date: 3/11/2024

DRIVING MAP

SALE NAME: Q RUFUS SORTS
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REGION: Northeast Region
COUNTY(S): Pend Oreille, Stevens
ELEVATION RGE: 3480-4360

Timber Sale Unit
Haul Route
Other Route
Highway
Rock Pit

Driving Directions:

From the junction of Highway 395 and Highway 20 located in Colville, go east on Highway 20 for 19.1 miles and turn right onto E364219A road, proceed for 1.88 miles and turn right onto E354207A road, proceed for 0.1 miles and turn right onto E354207B road and go for 1.29 miles to reach Unit 3. From Unit 3, proceed east on E354207B road for 0.45 miles and turn right onto E354208Q road, proceed for 0.17 miles to reach Unit 4 and another 1.28 miles to reach Unit 5. From the junction of E354207B and E354208Q roads, go east on E354207B road for 0.43 miles to reach Unit 6 and another 0.57 miles to reach Unit 7. From the junction of E354207A and E354207B roads in Unit 7, go east on E354207A road for 0.93 miles to reach Units 8 & 9.

From the junction of Highway 395 and Highway 20 located in Colville, go east on Highway 20 for 23.6 miles and turn right onto E364219A road, proceed for 0.75 miles and turn left onto E364229E road, proceed for 1.77 miles and continue straight to merge onto E364229G road, proceed for 0.7 miles and then turn left onto E364228F road, proceed for 0.75 miles to the end of the drivable road and where the new construction will need to begin, from this point unit 1 is 0.18 miles. From the western boundary in Unit 1, proceed another 0.55 miles on the road to be constructed and turn left onto USFS-2712, proceed for 0.12 miles to reach Unit 2.

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Modification Date: 11/21/2023

DRIVING MAP

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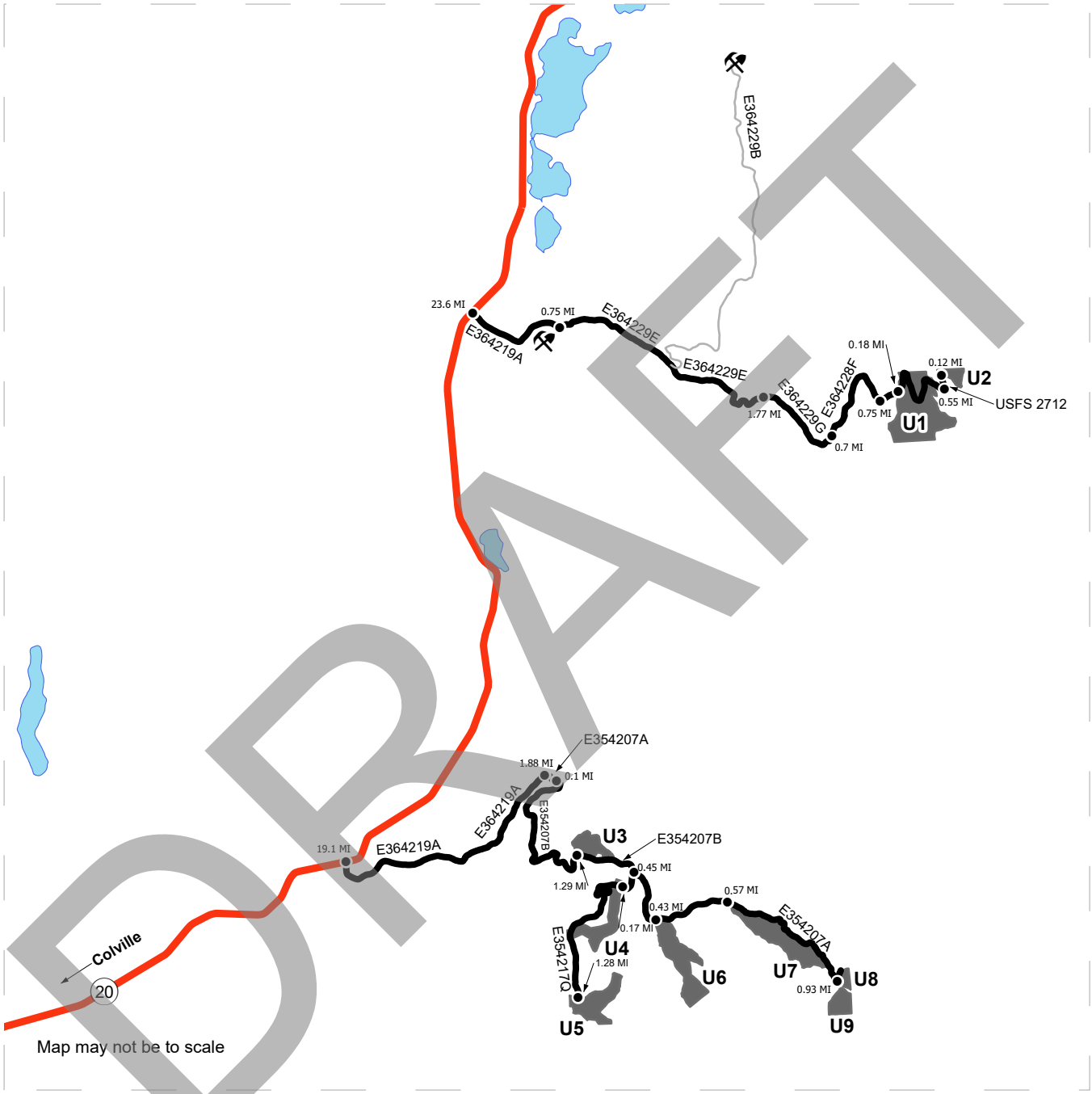

Timber Sale Unit
Haul Route
Other Route
Highway
Distance Indicator
Rock Pit

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N

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Timber Sale Cruise Report
Rufus Sorts

Sale Name: Q RUFUS SORTS

Sale Type: SORT

Region: NORTHEAST

District: NO COLUMBIA

Lead Cruiser: Jake Culp

Other Cruisers: Hailey Howard

Cruise Narrative:
Location:
Legal - Sections 8, 16, and 17 of T35N R42E. Section 27 of T36N R42E.
General - Approx. 18 miles east of Colville, WA. Units 1, 2, and RW1 are in Pend Orielle County. All other units and ROW's are in Stevens County.
Access - Units 1 and 2 are accessed from Tacoma Divide Rd. Units 3-9 are accessed via the Tacoma Creek/ Olsen Creek 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 purple paint. Leave all hardwoods.

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

Stand composition:
The stands are second growth, even aged mixed species. Timber size and species composition varies drastically by unit.

Timber quality:
Timber to be harvested is comprised of domestic quality western hemlock (20%), Douglas-fir (17%), grand fir (17%), western red cedar (14%), western larch (13%), lodgepole pine (9%), Engelmann spruce (7%), western white pine (2%), subalpine fir (1%). Red cedar and western larch poles can be found throughout the sale.

Stand health/defect:
Small root rot pockets were observed throughout the sale, affecting the DF and GF. Unit 3 appeared to be the worst off with many dead/dying trees noted. Dwarf mistletoe was found throughout the sale as well, in small amounts of lightly infected WL.

Aspect:
N, NE, E, S, SW, W, NW

Elevation:
3500'-4500'.

Harvesting methods:
100% ground based

Slope:
Unit 1- Max 20%, Avg. 7%
Unit 2- Max 15%, Avg. 5%
Unit 3- Max 25%, Avg. 5%
Unit 4- Max 40%, Avg. 15%
Unit 5- Max 50%, Avg. 12%
Unit 6- Max 55%, Avg. 10%
Unit 7- Max 40%, Avg. 15%
Unit 8- Max 45%, Avg. 20%
Unit 9- Max 40%, Avg. 20%

Other considerations/remarks:
Good access and operator ground throughout.

Trust:
This sale is 97% Trust 3 and 7% Trust 8. Unit 3 falls entirely within Trust 8, while all other units fall within Trust 3.

Timber Sale Notice Volume (MBF)

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	Utility
WH	14.7			1,282	400	697	141	44
DF	14.8			1,113	421	514	147	31
GF	14.6			1,098	399	545	107	48
RC	14.6			900		712	108	80
WL	12.9			816	78	512	176	50
LP	11.7			613	45	405	125	37
ES	13.2			470	142	242	66	19
WP	14.8			105	15	76	11	2
AF	13.3			90		67	20	3
ALL	13.4			6,486	1,499	3,771	902	314

Timber Sale Notice Weight (tons)

	Tons by Grade				
Sp	All	2 Saw	3 Saw	4 Saw	Utility
WH	8,875	2,358	5,125	1,037	355
DF	7,370	2,508	3,616	1,004	241
GF	6,557	1,912	3,549	735	361

	Tons by Grade				
Sp	All	2 Saw	3 Saw	4 Saw	Utility
RC	5,548		4,258	772	518
WL	5,120	508	3,299	1,013	300
LP	3,462	229	2,392	652	189
ES	2,664	689	1,442	425	108
WP	551	63	427	50	12
AF	535		388	123	24
ALL	40,682	8,268	24,495	5,810	2,109

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 (%)
136.8	2.9	145.0	1.7	20,306	3.5

Timber Sale Unit Cruise Design

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
RUFUS SORTS U1	B1C: VR, 1 BAF (33.61) Measure/ Count Plots, Sighting Ht = 4.5 ft	94.2	94.3	66	18	2
RUFUS SORTS U2	B1C: VR, 1 BAF (25.15) Measure/ Count Plots, Sighting Ht = 4.5 ft	8.0	8.0	8	4	0
RUFUS SORTS U3	B1C: VR, 1 BAF (33.61) Measure/ Count Plots, Sighting Ht = 4.5 ft	21.3	21.3	21	7	0
RUFUS SORTS U4	B1C: VR, 1 BAF (33.61) Measure/ Count Plots, Sighting Ht = 4.5 ft	31.8	32.7	30	6	2
RUFUS SORTS U5	B1C: VR, 1 BAF (33.61) Measure/ Count Plots, Sighting Ht = 4.5 ft	34.5	34.5	32	11	2
RUFUS SORTS U6	B1C: VR, 1 BAF (33.61) Measure/ Count Plots, Sighting Ht = 4.5 ft	52.1	52.1	35	10	0
RUFUS SORTS U7	B1C: VR, 1 BAF (40) Measure/Count Plots, Sighting Ht = 4.5 ft	56.2	57.9	39	10	0
RUFUS SORTS U8	B1: VR, 1 BAF (33.61) Measure All, Sighting Ht = 4.5 ft	5.7	5.7	6	6	0
RUFUS SORTS U9	B1C: VR, 1 BAF (40) Measure/Count Plots, Sighting Ht = 4.5 ft	13.8	15.0	13	7	0
RUFUS SORTS RW1	B1: VR, 1 BAF (33.61) Measure All, Sighting Ht = 4.5 ft	1.3	1.3	3	3	1
RUFUS SORTS RW6	B1: VR, 1 BAF (20) Measure All, Sighting Ht = 4.5 ft	0.4	0.4	2	2	0
RUFUS SORTS RW8	B1: VR, 1 BAF (20) Measure All, Sighting Ht = 4.5 ft	0.1	0.1	2	2	1

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
All		319.4	323.1	257	86	8

Timber Sale Log Grade x Sort Summary

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
AF	LIVE	3 SAW	Domestic	8.2	32	213	209	1.9	387.8	66.8
AF	LIVE	4 SAW	Domestic	5.2	21	62	62	0.0	123.0	19.9
AF	LIVE	UTILITY	Pulp	3.2	15	10	10	0.0	24.0	3.1
DF	LIVE	2 SAW	Domestic	14.0	32	1,323	1,318	0.4	2,508.3	421.0
DF	LIVE	3 SAW	Domestic	8.1	32	1,630	1,608	1.3	3,616.5	513.7
DF	LIVE	4 SAW	Domestic	5.3	20	466	460	1.2	1,003.5	147.1
DF	LIVE	UTILITY	Pulp	3.1	16	97	97	0.0	241.4	31.0
ES	LIVE	2 SAW	Domestic	13.0	32	445	445	0.0	688.6	142.1
ES	LIVE	3 SAW	Domestic	7.8	32	760	759	0.2	1,442.1	242.5
ES	LIVE	4 SAW	Domestic	5.3	22	207	207	0.0	425.0	66.2
ES	LIVE	UTILITY	Pulp	3.1	17	59	59	0.0	107.8	18.9
GF	LIVE	2 SAW	Domestic	16.2	32	1,249	1,248	0.1	1,912.4	398.5
GF	LIVE	3 SAW	Domestic	7.6	32	1,719	1,705	0.8	3,549.0	544.6
GF	LIVE	4 SAW	Domestic	5.1	20	343	336	1.8	735.0	107.5
GF	LIVE	UTILITY	Pulp	3.1	18	149	149	0.0	361.0	47.7
LP	LIVE	2 SAW	Domestic	12.1	32	147	140	4.5	229.0	44.9
LP	LIVE	3 SAW	Domestic	7.5	32	1,303	1,269	2.7	2,391.8	405.2
LP	LIVE	4 SAW	Domestic	5.2	21	396	392	0.9	652.1	125.3
LP	LIVE	UTILITY	Pulp	3.1	18	116	116	0.0	189.4	37.2
RC	LIVE	3 SAW	Domestic	9.1	32	1,648	1,539	6.6	2,928.5	491.7
RC	LIVE	3 SAW	Pole	8.9	32	690	690	0.0	1,329.2	220.3
RC	LIVE	4 SAW	Domestic	6.2	19	340	340	0.2	772.2	108.5
RC	LIVE	CULL	Cull	15.5	32	72	0	100.0	0.0	0.0
RC	LIVE	UTILITY	Pulp	3.3	21	249	249	0.0	517.9	79.6
WH	LIVE	2 SAW	Domestic	14.2	32	1,251	1,251	0.0	2,357.9	399.7
WH	LIVE	3 SAW	Domestic	8.2	32	2,200	2,182	0.8	5,124.9	697.0
WH	LIVE	4 SAW	Domestic	5.3	24	443	443	0.0	1,037.0	141.4
WH	LIVE	UTILITY	Pulp	3.1	16	136	136	0.0	355.4	43.6
WL	LIVE	2 SAW	Domestic	13.1	32	276	243	11.9	508.2	77.7
WL	LIVE	3 SAW	Domestic	7.8	32	1,393	1,389	0.3	2,808.4	443.7
WL	LIVE	3 SAW	Pole	8.5	32	215	215	0.0	490.6	68.7
WL	LIVE	4 SAW	Domestic	5.1	28	530	530	0.0	954.2	169.4
WL	LIVE	4 SAW	Pole	8.1	32	20	20	0.0	58.6	6.4

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
WL	LIVE	UTILITY	Pulp	3.1	19	157	157	0.0	300.0	50.3
WP	LIVE	2 SAW	Domestic	13.0	32	49	48	2.8	63.2	15.3
WP	LIVE	3 SAW	Domestic	8.4	32	276	239	13.4	426.8	76.4
WP	LIVE	4 SAW	Domestic	5.2	18	33	33	0.0	49.7	10.6
WP	LIVE	UTILITY	Pulp	3.1	18	8	8	0.0	11.9	2.5

Timber Sale Log Sort x Diameter Bin Summary

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
AF	< 5	LIVE	Pulp	3.2	15	10	0.0	24.0	3.1
AF	5 - 6	LIVE	Domestic	5.3	22	70	0.0	137.9	22.4
AF	7 - 10	LIVE	Domestic	8.1	32	185	2.2	341.7	59.0
AF	11+	LIVE	Domestic	11.1	32	17	0.0	31.2	5.4
DF	< 5	LIVE	Pulp	3.1	17	97	0.0	241.4	31.0
DF	5 - 6	LIVE	Domestic	5.4	23	614	0.9	1,369.6	196.0
DF	7 - 10	LIVE	Domestic	8.2	31	1,083	1.5	2,454.3	345.8
DF	11+	LIVE	Domestic	12.9	32	1,691	0.6	3,304.4	540.0
ES	< 5	LIVE	Pulp	3.1	17	59	0.0	107.8	18.9
ES	5 - 6	LIVE	Domestic	5.4	24	304	0.0	603.6	97.1
ES	7 - 10	LIVE	Domestic	8.2	31	591	0.2	1,131.9	188.8
ES	11+	LIVE	Domestic	12.6	32	516	0.0	820.2	164.9
GF	< 5	LIVE	Pulp	3.1	19	149	0.0	361.0	47.7
GF	5 - 6	LIVE	Domestic	5.5	24	744	2.2	1,638.1	237.5
GF	7 - 10	LIVE	Domestic	8.4	31	1,057	0.3	2,186.6	337.6
GF	11+	LIVE	Domestic	13.9	32	1,489	0.1	2,371.7	475.5
LP	< 5	LIVE	Pulp	3.1	19	116	0.0	189.4	37.2
LP	5 - 6	LIVE	Domestic	5.4	25	648	1.0	1,146.3	206.9
LP	7 - 10	LIVE	Domestic	8.0	32	1,004	3.0	1,873.5	320.6
LP	11+	LIVE	Domestic	12.0	32	150	4.8	253.1	47.8
RC	5+	LIVE	Pulp	3.2	20	249	0.0	517.9	79.6
RC	5+	LIVE	Domestic	7.7	26	1,879	5.5	3,700.7	600.1
RC	5+	LIVE	Pole	9.3	32	690	0.0	1,329.2	220.3
RC	5+	LIVE	Cull	15.5	32	0	100.0	0.0	0.0
WH	< 5	LIVE	Pulp	3.2	16	136	0.0	355.4	43.6
WH	5 - 6	LIVE	Domestic	5.4	24	616	0.0	1,448.4	196.7
WH	7 - 10	LIVE	Domestic	8.3	31	1,799	0.0	4,223.2	574.6
WH	11+	LIVE	Domestic	13.4	32	1,461	1.2	2,848.2	466.7
WL	< 5	LIVE	Pulp	3.1	18	157	0.0	300.0	50.3

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
WL	5 - 6	LIVE	Domestic	5.3	28	780	0.0	1,395.9	249.2
WL	7 - 10	LIVE	Domestic	8.2	32	1,090	0.3	2,267.9	348.2
WL	7 - 10	LIVE	Pole	8.4	32	235	0.0	549.2	75.1
WL	11+	LIVE	Domestic	12.6	32	292	10.1	607.0	93.4
WP	< 5	LIVE	Pulp	3.1	20	8	0.0	11.9	2.5
WP	5 - 6	LIVE	Domestic	5.4	27	47	0.0	74.6	15.0
WP	7 - 10	LIVE	Domestic	9.1	32	226	14.1	401.8	72.1
WP	11+	LIVE	Domestic	13.1	32	48	2.8	63.2	15.3

Cruise Unit Report
RUFUS SORTS U1

Unit Sale Notice Volume (MBF): RUFUS SORTS U1

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	Utility
WL	11.8			578	19	392	125	42
LP	12.3			274	41	188	40	5
RC	11.1			207		109	48	49
DF	12.5			179	60	83	31	5
GF	10.0			92		59	27	6
WH	11.8			69	29	13	24	4
WP	14.4			69		64	5	
ES	10.1			55	12	16	24	4
AF	15.9			25		19	7	
ALL	11.5			1,549	161	943	330	115

Unit Cruise Design: RUFUS SORTS 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	94.2	94.3	66	18	2

Unit Cruise Summary: RUFUS SORTS U1

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WL	25	81	1.2	0
LP	11	38	0.6	0
RC	11	49	0.7	0
DF	5	27	0.4	0
GF	4	15	0.2	0
WH	2	11	0.2	0
WP	1	9	0.1	0
ES	5	10	0.2	0
AF	1	4	0.1	0
ALL	65	244	3.7	0

Unit Cruise Statistics: RUFUS SORTS 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 (%)
WL	41.2	96.7	11.9	148.7	16.8	3.4	6,132	98.2	12.4
LP	19.4	143.1	17.6	150.6	16.6	5.0	2,913	144.1	18.3
RC	25.0	148.1	18.2	87.9	19.1	5.8	2,194	149.4	19.1
DF	13.7	176.7	21.7	138.3	36.2	16.2	1,902	180.3	27.1
GF	7.6	228.9	28.2	127.8	24.6	12.3	976	230.2	30.8
WH	5.6	289.8	35.7	131.4	34.2	24.2	736	291.8	43.1
WP	4.6	284.3	35.0	160.1	0.0	0.0	734	284.3	35.0
ES	5.1	265.1	32.6	115.2	42.5	19.0	587	268.5	37.8
AF	2.0	396.7	48.8	132.0	0.0	0.0	269	396.7	48.8
ALL	124.3	51.5	6.3	132.3	27.2	3.4	16,443	58.3	7.2

Unit Summary: RUFUS SORTS U1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
AF	LIVE	CUT	1	ALL	15.9	68	86	269	269	0.0	1.5	2.0	0.5	25.3
DF	LIVE	CUT	5	ALL	12.5	56	69	1,902	1,902	0.0	16.1	13.7	3.9	179.2
ES	LIVE	CUT	5	ALL	10.1	51	63	587	587	0.0	9.2	5.1	1.6	55.2
GF	LIVE	CUT	4	ALL	10.0	57	71	976	976	0.0	14.0	7.6	2.4	91.9
LP	LIVE	CUT	11	ALL	12.3	66	82	2,964	2,913	1.7	23.5	19.4	5.5	274.4
RC	LIVE	CUT	11	ALL	11.1	50	61	2,194	2,194	0.0	37.1	25.0	7.5	206.7
WH	LIVE	CUT	2	ALL	11.8	55	66	736	736	0.0	7.4	5.6	1.6	69.3
WL	LIVE	CUT	25	ALL	11.8	72	91	6,132	6,132	0.0	54.3	41.2	12.0	577.7
WP	LIVE	CUT	1	ALL	14.4	82	104	859	734	14.6	4.1	4.6	1.2	69.1
ALL	LIVE	CUT	65	ALL	11.7	62	77	16,619	16,443	1.1	167.2	124.3	36.3	1,549.0
ALL	ALL	ALL	65	ALL	11.7	62	77	16,619	16,443	1.1	167.2	124.3	36.3	1,549.0

Cruise Unit Report
RUFUS SORTS U2

Unit Sale Notice Volume (MBF): RUFUS SORTS U2

				MBF Volume by Grade			
Sp	DBH	Rings/In	Age	All	3 Saw	4 Saw	Utility
LP	8.9			66	32	21	13
WL	11.4			28	20	5	2
WP	8.6			9	3	5	2
AF	11.2			9	7	2	
DF	15.0			3	2	0	
ES	11.6			2	2		
ALL	10.0			116	65	33	18

Unit Cruise Design: RUFUS SORTS U2

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	8.0	8.0	8	4	0

Unit Cruise Summary: RUFUS SORTS U2

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
LP	3	16	2.0	0
WL	4	9	1.1	0
WP	3	3	0.4	0
AF	1	3	0.4	0
DF	1	1	0.1	0
ES	1	1	0.1	0
ALL	13	33	4.1	0

Unit Cruise Statistics: RUFUS SORTS 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 (%)
LP	50.3	128.2	45.3	163.3	2.3	1.3	8,216	128.2	45.3
WL	28.3	129.6	45.8	122.7	8.1	4.1	3,471	129.8	46.0
WP	9.4	282.8	100.0	121.8	12.0	6.9	1,149	283.1	100.2
AF	9.4	198.4	70.1	118.4	0.0	0.0	1,117	198.4	70.1
DF	3.1	282.8	100.0	102.7	0.0	0.0	323	282.8	100.0

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 (%)
ES	3.1	282.8	100.0	87.2	0.0	0.0	274	282.8	100.0
ALL	103.7	60.0	21.2	140.2	17.4	4.8	14,550	62.5	21.8

Unit Summary: RUFUS SORTS U2

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
AF	LIVE	CUT	1	ALL	11.2	61	76	1,117	1,117	0.0	13.8	9.4	2.8	8.9
DF	LIVE	CUT	1	ALL	15.0	58	72	323	323	0.0	2.6	3.1	0.8	2.6
ES	LIVE	CUT	1	ALL	11.6	54	66	274	274	0.0	4.3	3.1	0.9	2.2
LP	LIVE	CUT	3	ALL	8.9	63	78	8,216	8,216	0.0	116.4	50.3	16.9	65.7
WL	LIVE	CUT	4	ALL	11.4	65	82	3,471	3,471	0.0	39.9	28.3	8.4	27.8
WP	LIVE	CUT	3	ALL	8.6	54	67	1,149	1,149	0.0	23.4	9.4	3.2	9.2
ALL	LIVE	CUT	13	ALL	9.7	62	77	14,550	14,550	0.0	200.4	103.7	33.0	116.4
ALL	ALL	ALL	13	ALL	9.7	62	77	14,550	14,550	0.0	200.4	103.7	33.0	116.4

Cruise Unit Report
RUFUS SORTS U3

Unit Sale Notice Volume (MBF): RUFUS SORTS U3

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	Utility
GF	10.0			117	21	45	35	17
ES	14.0			106	12	77	15	2
DF	18.8			58	32	21	5	1
LP	11.3			51		36	9	5
RC	23.3			22		21	0	0
WH	7.9			18			14	4
AF	13.6			14		10	4	0
WL	24.6			13	11	1		0
ALL	11.9			398	76	211	81	30

Unit Cruise Design: RUFUS SORTS U3

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	21.3	21.3	21	7	0

Unit Cruise Summary: RUFUS SORTS U3

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
GF	13	32	1.5	0
ES	8	21	1.0	0
DF	3	12	0.6	0
LP	10	11	0.5	0
RC	3	5	0.2	0
WH	1	8	0.4	0
AF	2	3	0.1	0
WL	1	2	0.1	0
ALL	41	94	4.5	0

Unit Cruise Statistics: RUFUS SORTS 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 (%)
GF	51.2	76.6	16.7	107.7	43.3	12.0	5,513	88.0	20.6

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 (%)
ES	33.6	114.0	24.9	147.7	19.9	7.1	4,964	115.7	25.9
DF	19.2	196.2	42.8	142.4	39.1	22.6	2,735	200.1	48.4
LP	17.6	246.1	53.7	134.7	12.2	3.9	2,371	246.4	53.8
RC	8.0	226.4	49.4	128.4	8.5	4.9	1,027	226.5	49.6
WH	12.8	241.7	52.7	64.6	0.0	0.0	828	241.7	52.7
AF	4.8	251.0	54.8	137.4	3.3	2.4	660	251.0	54.8
WL	3.2	315.8	68.9	183.5	0.0	0.0	588	315.8	68.9
ALL	150.4	52.7	11.5	124.2	30.6	4.8	18,686	60.9	12.5

Unit Summary: RUFUS SORTS U3

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
AF	LIVE	CUT	2	ALL	13.6	70	89	721	660	8.5	4.8	4.8	1.3	14.1
DF	LIVE	CUT	3	ALL	18.8	73	92	2,863	2,735	4.5	10.0	19.2	4.4	58.3
ES	LIVE	CUT	8	ALL	14.0	70	88	4,983	4,964	0.4	31.4	33.6	9.0	105.7
GF	LIVE	CUT	13	ALL	10.0	53	65	5,792	5,513	4.8	93.9	51.2	16.2	117.4
LP	LIVE	CUT	10	ALL	11.3	69	87	2,469	2,371	4.0	25.3	17.6	5.2	50.5
RC	LIVE	CUT	3	ALL	23.3	71	90	1,084	1,027	5.3	2.7	8.0	1.7	21.9
WH	LIVE	CUT	1	ALL	7.9	37	44	828	828	0.0	37.6	12.8	4.6	17.6
WL	LIVE	CUT	1	ALL	24.6	96	123	588	588	0.0	1.0	3.2	0.6	12.5
ALL	LIVE	CUT	41	ALL	11.6	56	70	19,327	18,686	3.3	206.7	150.4	43.0	398.0
ALL	ALL	ALL	41	ALL	11.6	56	70	19,327	18,686	3.3	206.7	150.4	43.0	398.0

Cruise Unit Report
RUFUS SORTS U4

Unit Sale Notice Volume (MBF): RUFUS SORTS U4

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	Utility
GF	15.3			146	15	116	11	3
WL	13.3			86		65	16	4
RC	15.3			68		62	6	
DF	13.4			50		41	7	2
LP	14.6			35		34		1
WH	13.9			29	6	19	3	1
ALL	14.2			414	22	337	43	12

Unit Cruise Design: RUFUS SORTS 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	31.8	32.7	30	6	2

Unit Cruise Summary: RUFUS SORTS U4

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
GF	7	28	0.9	0
WL	7	19	0.6	0
RC	4	15	0.5	0
DF	2	10	0.3	0
LP	1	6	0.2	0
WH	4	6	0.2	0
ALL	25	84	2.8	0

Unit Cruise Statistics: RUFUS SORTS 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 (%)
GF	31.4	97.2	17.7	146.4	8.8	3.3	4,592	97.6	18.1
WL	21.3	120.8	22.0	126.8	8.1	3.1	2,698	121.0	22.3
RC	16.8	136.5	24.9	127.0	17.6	8.8	2,134	137.6	26.4
DF	11.2	240.7	43.9	139.0	14.8	10.5	1,557	241.1	45.2
LP	6.7	242.1	44.2	165.2	0.0	0.0	1,110	242.1	44.2

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	6.7	242.1	44.2	137.9	21.7	10.8	927	243.1	45.5
ALL	94.1	40.2	7.3	138.3	13.8	2.8	13,019	42.5	7.8

Unit Summary: RUFUS SORTS U4

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	2	ALL	13.4	75	94	1,557	1,557	0.0	11.4	11.2	3.1	49.5
GF	LIVE	CUT	7	ALL	15.3	74	94	4,592	4,592	0.0	24.6	31.4	8.0	146.0
LP	LIVE	CUT	1	ALL	14.6	78	99	1,110	1,110	0.0	5.8	6.7	1.8	35.3
RC	LIVE	CUT	4	ALL	15.3	68	85	2,186	2,134	2.4	13.2	16.8	4.3	67.9
WH	LIVE	CUT	4	ALL	13.9	70	87	927	927	0.0	6.4	6.7	1.8	29.5
WL	LIVE	CUT	7	ALL	13.3	78	98	2,733	2,698	1.3	22.1	21.3	5.8	85.8
ALL	LIVE	CUT	25	ALL	14.4	74	94	13,106	13,019	0.7	83.5	94.1	24.8	414.0
ALL	ALL	ALL	25	ALL	14.4	74	94	13,106	13,019	0.7	83.5	94.1	24.8	414.0

Cruise Unit Report
RUFUS SORTS U5

Unit Sale Notice Volume (MBF): RUFUS SORTS U5

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	Utility
DF	13.0			293	86	130	67	11
LP	10.4			55		38	12	5
GF	10.5			37		31	6	
WL	9.8			20			20	0
RC	12.0			6		6		
ES	16.1			3		2	0	
ALL	11.9			414	86	207	105	16

Unit Cruise Design: RUFUS SORTS 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	34.5	34.5	32	11	2

Unit Cruise Summary: RUFUS SORTS U5

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	16	75	2.3	0
LP	6	14	0.4	0
GF	1	8	0.3	0
WL	2	5	0.2	0
RC	1	2	0.1	0
ES	1	1	0.0	0
ALL	27	105	3.3	0

Unit Cruise Statistics: RUFUS SORTS 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	78.8	79.3	14.0	108.0	35.7	8.9	8,507	87.0	16.6
LP	14.7	200.6	35.5	108.2	15.9	6.5	1,590	201.2	36.1
GF	8.4	248.9	44.0	128.1	0.0	0.0	1,076	248.9	44.0
WL	5.3	236.1	41.7	112.9	1.4	1.0	593	236.1	41.7
RC	2.1	393.5	69.6	81.5	0.0	0.0	171	393.5	69.6

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 (%)
ES	1.1	565.7	100.0	71.4	0.0	0.0	75	565.7	100.0
ALL	110.3	53.2	9.4	108.9	29.2	5.6	12,012	60.7	11.0

Unit Summary: RUFUS SORTS U5

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	16	ALL	13.0	53	65	8,675	8,507	1.9	85.5	78.8	21.8	293.5
ES	LIVE	CUT	1	ALL	16.1	52	65	75	75	0.0	0.7	1.1	0.3	2.6
GF	LIVE	CUT	1	ALL	10.5	57	70	1,076	1,076	0.0	14.0	8.4	2.6	37.1
LP	LIVE	CUT	6	ALL	10.4	55	68	1,665	1,590	4.5	24.9	14.7	4.6	54.9
RC	LIVE	CUT	1	ALL	12.0	60	75	171	171	0.0	2.7	2.1	0.6	5.9
WL	LIVE	CUT	2	ALL	9.8	43	62	593	593	0.0	10.0	5.3	1.7	20.5
ALL	LIVE	CUT	27	ALL	12.1	53	66	12,255	12,012	2.0	137.8	110.3	31.5	414.4
ALL	ALL	ALL	27	ALL	12.1	53	66	12,255	12,012	2.0	137.8	110.3	31.5	414.4

Cruise Unit Report
RUFUS SORTS U6

Unit Sale Notice Volume (MBF): RUFUS SORTS U6

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	Utility
WH	14.1			679	127	450	76	26
RC	16.6			202		181	18	3
GF	17.4			155	52	94	9	1
ES	12.5			109	38	56	5	9
DF	17.3			73	52	16	3	2
WL	20.4			43	26	14	3	
LP	11.9			32		20	10	2
AF	9.3			22		12	8	2
WP	18.9			11	7	3	1	0
ALL	14.3			1,326	302	845	133	46

Unit Cruise Design: RUFUS SORTS U6

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	52.1	52.0	35	10	0

Unit Cruise Summary: RUFUS SORTS U6

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	17	79	2.3	0
RC	13	28	0.8	0
GF	2	15	0.4	0
ES	6	11	0.3	0
DF	3	7	0.2	0
WL	1	6	0.2	0
LP	2	5	0.1	0
AF	2	4	0.1	0
WP	1	1	0.0	0
ALL	47	156	4.5	0

Unit Cruise Statistics: RUFUS SORTS U6

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	75.9	72.4	12.2	171.8	16.1	3.9	13,034	74.1	12.8
RC	26.9	99.6	16.8	144.2	24.6	6.8	3,878	102.6	18.2
GF	14.4	172.4	29.1	207.1	3.1	2.2	2,983	172.5	29.2
ES	10.6	228.6	38.6	197.2	17.7	7.2	2,083	229.2	39.3
DF	6.7	236.4	40.0	207.5	36.6	21.1	1,395	239.2	45.2
WL	5.8	264.1	44.6	144.1	0.0	0.0	830	264.1	44.6
LP	4.8	248.5	42.0	126.4	16.1	11.4	607	249.0	43.5
AF	3.8	282.5	47.7	109.4	61.8	43.7	420	289.1	64.7
WP	1.0	591.6	100.0	224.8	0.0	0.0	216	591.6	100.0
ALL	149.8	37.8	6.4	169.9	25.3	3.7	25,446	45.5	7.4

Unit Summary: RUFUS SORTS U6

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
AF	LIVE	CUT	2	ALL	9.3	51	63	420	420	0.0	8.1	3.8	1.3	21.9
DF	LIVE	CUT	3	ALL	17.3	78	98	1,432	1,395	2.6	4.1	6.7	1.6	72.7
ES	LIVE	CUT	6	ALL	12.5	70	89	2,083	2,083	0.0	12.4	10.6	3.0	108.5
GF	LIVE	CUT	2	ALL	17.4	85	108	2,983	2,983	0.0	8.7	14.4	3.5	155.4
LP	LIVE	CUT	2	ALL	11.9	74	93	689	607	12.0	6.2	4.8	1.4	31.6
RC	LIVE	CUT	13	ALL	16.6	70	89	4,071	3,878	4.7	17.9	26.9	6.6	202.0
WH	LIVE	CUT	17	ALL	14.1	76	95	13,145	13,034	0.8	70.0	75.9	20.2	679.1
WL	LIVE	CUT	1	ALL	20.4	86	109	858	830	3.3	2.5	5.8	1.3	43.3
WP	LIVE	CUT	1	ALL	18.9	93	118	224	216	3.7	0.5	1.0	0.2	11.2
ALL	LIVE	CUT	47	ALL	14.5	74	93	25,906	25,446	1.8	130.4	149.8	39.0	1,325.7
ALL	ALL	ALL	47	ALL	14.5	74	93	25,906	25,446	1.8	130.4	149.8	39.0	1,325.7

Cruise Unit Report
RUFUS SORTS U7

Unit Sale Notice Volume (MBF): RUFUS SORTS U7

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	Utility
GF	16.3			425	260	145	6	15
WH	16.4			362	184	158	12	8
DF	15.7			335	145	157	26	8
RC	15.6			303		266	23	14
ES	14.0			195	81	89	22	4
LP	10.7			64		31	28	5
WL	19.4			39	20	15	4	1
AF	15.1			20		19		1
WP	17.0			15	9	6		0
ALL	15.0			1,758	697	887	120	54

Unit Cruise Design: RUFUS SORTS U7

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (40) Measure/Count Plots, Sighting Ht = 4.5 ft	56.2	57.9	39	10	0

Unit Cruise Summary: RUFUS SORTS U7

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
GF	8	32	0.8	0
WH	6	31	0.8	0
DF	8	39	1.0	0
RC	17	41	1.1	0
ES	10	17	0.4	0
LP	3	8	0.2	0
WL	1	4	0.1	0
AF	2	2	0.1	0
WP	1	1	0.0	0
ALL	56	175	4.5	0

Unit Cruise Statistics: RUFUS SORTS U7

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
GF	32.8	130.8	20.9	230.4	43.8	15.5	7,562	137.9	26.0
WH	31.8	166.2	26.6	202.8	29.9	12.2	6,447	168.9	29.3
DF	40.0	137.6	22.0	149.2	26.8	9.5	5,967	140.2	24.0
RC	42.1	141.3	22.6	128.0	39.7	9.6	5,384	146.8	24.6
ES	17.4	195.5	31.3	199.3	19.7	6.2	3,476	196.5	31.9
LP	8.2	254.5	40.8	138.3	8.1	4.7	1,135	254.7	41.0
WL	4.1	299.7	48.0	169.6	0.0	0.0	696	299.7	48.0
AF	2.1	624.5	100.0	170.3	5.0	3.5	349	624.5	100.1
WP	1.0	624.5	100.0	265.9	0.0	0.0	273	624.5	100.0
ALL	179.5	40.9	6.5	174.3	38.4	5.1	31,288	56.1	8.3

Unit Summary: RUFUS SORTS U7

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
AF	LIVE	CUT	2	ALL	15.1	76	96	349	349	0.0	1.6	2.1	0.5	19.6
DF	LIVE	CUT	8	ALL	15.7	70	88	5,967	5,967	0.0	29.8	40.0	10.1	335.4
ES	LIVE	CUT	10	ALL	14.0	75	95	3,476	3,476	0.0	16.3	17.4	4.7	195.3
GF	LIVE	CUT	8	ALL	16.3	73	92	7,562	7,562	0.0	22.6	32.8	8.1	425.0
LP	LIVE	CUT	3	ALL	10.7	63	78	1,135	1,135	0.0	13.1	8.2	2.5	63.8
RC	LIVE	CUT	17	ALL	15.6	63	78	6,125	5,384	12.1	31.7	42.1	10.6	302.6
WH	LIVE	CUT	6	ALL	16.4	79	98	6,447	6,447	0.0	21.7	31.8	7.9	362.3
WL	LIVE	CUT	1	ALL	19.4	92	117	856	696	18.7	2.0	4.1	0.9	39.1
WP	LIVE	CUT	1	ALL	17.0	104	132	273	273	0.0	0.7	1.0	0.2	15.3
ALL	LIVE	CUT	56	ALL	15.4	71	89	32,189	31,288	2.8	139.5	179.5	45.6	1,758.4
ALL	ALL	ALL	56	ALL	15.4	71	89	32,189	31,288	2.8	139.5	179.5	45.6	1,758.4

Cruise Unit Report
RUFUS SORTS U8

Unit Sale Notice Volume (MBF): RUFUS SORTS U8

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	Utility
GF	13.7			62	27	28	6	2
DF	15.0			44	11	25	6	1
RC	15.3			28		24	2	1
WH	19.8			21	14	6	1	0
LP	13.0			18	4	13	1	0
WL	12.0			3		2	1	0
ALL	14.5			176	56	99	16	5

Unit Cruise Design: RUFUS SORTS U8

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (33.61) Measure All, Sighting Ht = 4.5 ft	5.7	5.7	6	6	0

Unit Cruise Summary: RUFUS SORTS U8

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
GF	11	11	1.8	0
DF	9	9	1.5	0
RC	7	7	1.2	0
WH	3	3	0.5	0
LP	4	4	0.7	0
WL	1	1	0.2	0
ALL	35	35	5.8	0

Unit Cruise Statistics: RUFUS SORTS U8

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
GF	61.6	93.9	38.4	177.9	29.6	8.9	10,963	98.5	39.4
DF	50.4	156.3	63.8	151.9	22.5	7.5	7,656	158.0	64.3
RC	39.2	137.3	56.1	123.1	35.7	13.5	4,827	141.9	57.7
WH	16.8	244.9	100.0	221.4	12.7	7.3	3,721	245.3	100.3
LP	22.4	122.5	50.0	143.6	42.3	21.1	3,217	129.6	54.3

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	5.6	244.9	100.0	103.1	0.0	0.0	578	244.9	100.0
ALL	196.1	33.3	13.6	157.9	32.6	5.5	30,963	46.6	14.7

Unit Summary: RUFUS SORTS U8

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	9	ALL	15.0	69	87	7,656	7,656	0.0	41.1	50.4	13.0	43.6
GF	LIVE	CUT	11	ALL	13.7	69	87	11,058	10,963	0.9	60.2	61.6	16.6	62.5
LP	LIVE	CUT	4	ALL	13.0	63	79	3,336	3,217	3.6	24.3	22.4	6.2	18.3
RC	LIVE	CUT	7	ALL	15.3	63	79	5,131	4,827	5.9	30.7	39.2	10.0	27.5
WH	LIVE	CUT	3	ALL	19.8	84	106	3,721	3,721	0.0	7.9	16.8	3.8	21.2
WL	LIVE	CUT	1	ALL	12.0	65	81	578	578	0.0	7.1	5.6	1.6	3.3
ALL	LIVE	CUT	35	ALL	14.5	68	85	31,480	30,963	1.6	171.3	196.1	51.3	176.5
ALL	ALL	ALL	35	ALL	14.5	68	85	31,480	30,963	1.6	171.3	196.1	51.3	176.5

Cruise Unit Report
RUFUS SORTS U9

Unit Sale Notice Volume (MBF): RUFUS SORTS U9

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	Utility
WH	14.4			103	39	50	12	1
DF	18.3			78	35	39	2	1
RC	11.2			65		42	12	12
GF	12.4			63	24	27	7	4
LP	13.5			18		13	4	
ALL	13.5			326	99	172	37	18

Unit Cruise Design: RUFUS SORTS U9

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (40) Measure/Count Plots, Sighting Ht = 4.5 ft	13.8	15.0	13	7	0

Unit Cruise Summary: RUFUS SORTS U9

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	6	15	1.2	0
DF	6	10	0.8	0
RC	6	13	1.0	0
GF	5	8	0.6	0
LP	1	3	0.2	0
ALL	24	49	3.8	0

Unit Cruise Statistics: RUFUS SORTS U9

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	46.2	99.1	27.5	161.0	16.9	6.9	7,433	100.5	28.3
DF	30.8	120.5	33.4	183.8	18.7	7.6	5,655	121.9	34.3
RC	40.0	70.7	19.6	118.3	23.3	9.5	4,732	74.4	21.8
GF	24.6	124.8	34.6	184.2	32.4	14.5	4,534	128.9	37.5
LP	9.2	360.6	100.0	138.8	0.0	0.0	1,281	360.6	100.0
ALL	150.8	39.3	10.9	156.8	28.2	5.8	23,635	48.3	12.3

Unit Summary: RUFUS SORTS U9

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	6	ALL	18.3	80	101	5,655	5,655	0.0	16.8	30.8	7.2	78.0
GF	LIVE	CUT	5	ALL	12.4	63	78	4,571	4,534	0.8	29.4	24.6	7.0	62.6
LP	LIVE	CUT	1	ALL	13.5	65	81	1,281	1,281	0.0	9.3	9.2	2.5	17.7
RC	LIVE	CUT	6	ALL	11.2	55	68	4,850	4,732	2.4	58.5	40.0	12.0	65.3
WH	LIVE	CUT	6	ALL	14.4	69	85	7,433	7,433	0.0	40.8	46.2	12.2	102.6
ALL	LIVE	CUT	24	ALL	13.4	63	79	23,790	23,635	0.7	154.8	150.8	40.8	326.2
ALL	ALL	ALL	24	ALL	13.4	63	79	23,790	23,635	0.7	154.8	150.8	40.8	326.2

Cruise Unit Report
RUFUS SORTS RW1

Unit Sale Notice Volume (MBF): RUFUS SORTS RW1

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw	Utility
WL	13.5			6	1	3	1	0
ALL	13.5			6	1	3	1	0

Unit Cruise Design: RUFUS SORTS RW1

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (33.61) Measure All, Sighting Ht = 4.5 ft	1.3	1.3	3	3	1

Unit Cruise Summary: RUFUS SORTS RW1

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WL	3	3	1.0	0
ALL	3	3	1.0	0

Unit Cruise Statistics: RUFUS SORTS RW1

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	33.6	100.0	57.7	127.5	15.3	8.9	4,287	101.2	58.4
ALL	33.6	100.0	57.7	127.5	15.3	8.9	4,287	101.2	58.4

Unit Summary: RUFUS SORTS RW1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WL	LIVE	CUT	3	ALL	13.5	68	86	4,287	4,287	0.0	33.8	33.6	9.1	5.6
ALL	LIVE	CUT	3	ALL	13.5	68	86	4,287	4,287	0.0	33.8	33.6	9.1	5.6
ALL	ALL	ALL	3	ALL	13.5	68	86	4,287	4,287	0.0	33.8	33.6	9.1	5.6

Cruise Unit Report
RUFUS SORTS RW6

Unit Sale Notice Volume (MBF): RUFUS SORTS RW6

				MBF Volume by Grade		
Sp	DBH	Rings/In	Age	All	4 Saw	Utility
WL	8.6			1	1	0
RC	10.8			0	0	0
LP	7.3			0	0	0
ALL	8.9			1	1	0

Unit Cruise Design: RUFUS SORTS RW6

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: RUFUS SORTS RW6

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WL	2	2	1.0	0
RC	2	2	1.0	0
LP	1	1	0.5	0
ALL	5	5	2.5	0

Unit Cruise Statistics: RUFUS SORTS RW6

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	20.0	0.0	0.0	84.4	11.6	8.2	1,689	11.6	8.2
RC	20.0	141.4	100.0	44.6	25.4	18.0	892	143.7	101.6
LP	10.0	141.4	100.0	61.9	0.0	0.0	619	141.4	100.0
ALL	50.0	84.9	60.0	64.0	33.3	14.9	3,200	91.2	61.8

Unit Summary: RUFUS SORTS RW6

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
LP	LIVE	CUT	1	ALL	7.3	38	46	723	619	14.3	34.4	10.0	3.7	0.2
RC	LIVE	CUT	2	ALL	10.8	37	44	892	892	0.0	31.4	20.0	6.1	0.4
WL	LIVE	CUT	2	ALL	8.6	45	54	1,689	1,689	0.0	49.6	20.0	6.8	0.7

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
ALL	LIVE	CUT	5	ALL	8.9	40	49	3,303	3,200	3.1	115.4	50.0	16.6	1.3
ALL	ALL	ALL	5	ALL	8.9	40	49	3,303	3,200	3.1	115.4	50.0	16.6	1.3

Cruise Unit Report
RUFUS SORTS RW8

Unit Sale Notice Volume (MBF): RUFUS SORTS RW8

				MBF Volume by Grade			
Sp	DBH	Rings/In	Age	All	3 Saw	4 Saw	Utility
GF	8.6			0	0	0	0
ALL	8.6			0	0	0	0

Unit Cruise Design: RUFUS SORTS RW8

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (20) Measure All, Sighting Ht = 4.5 ft	0.1	0.1	2	2	1

Unit Cruise Summary: RUFUS SORTS RW8

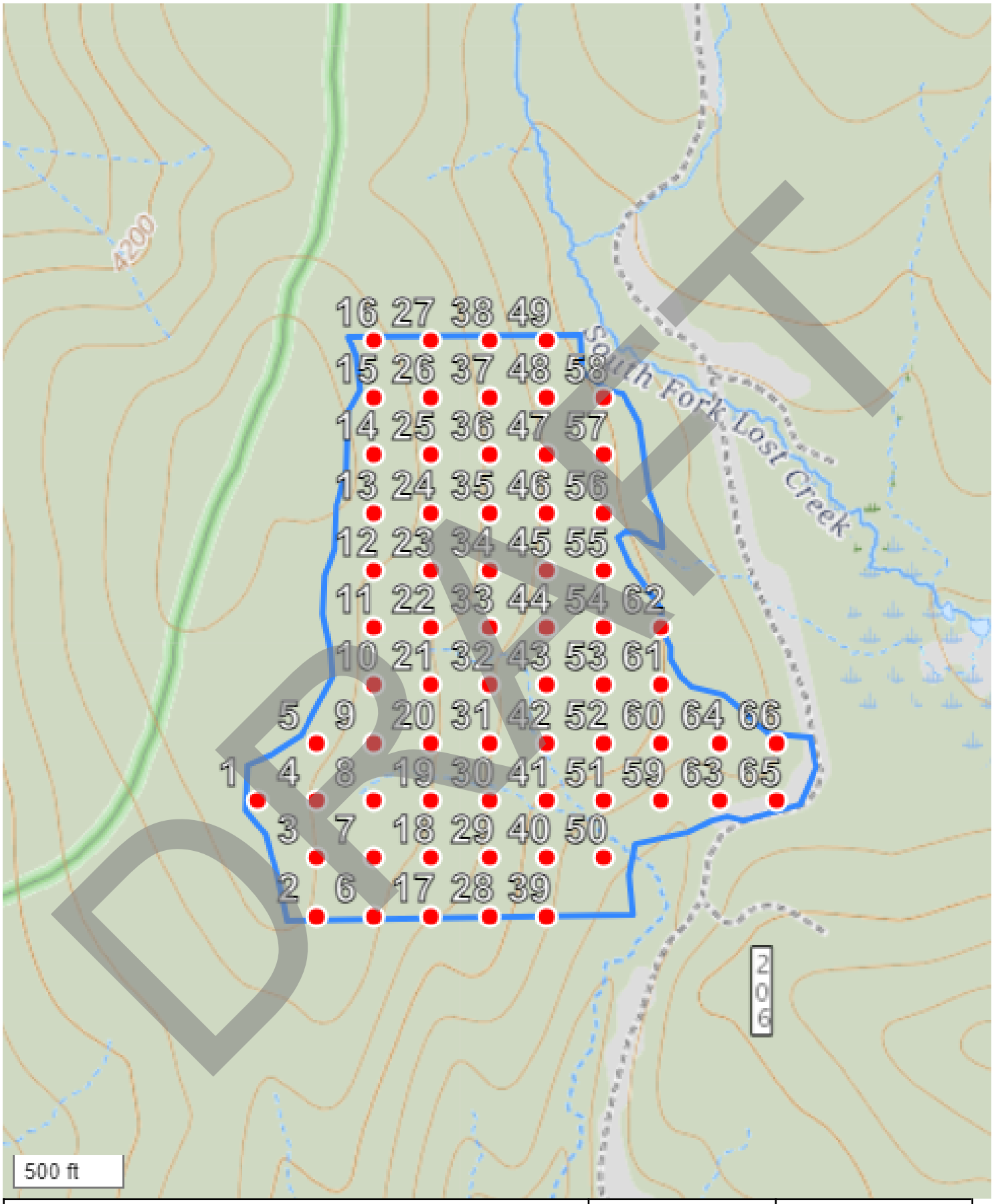
Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
GF	3	3	1.5	0
ALL	3	3	1.5	0

Unit Cruise Statistics: RUFUS SORTS RW8

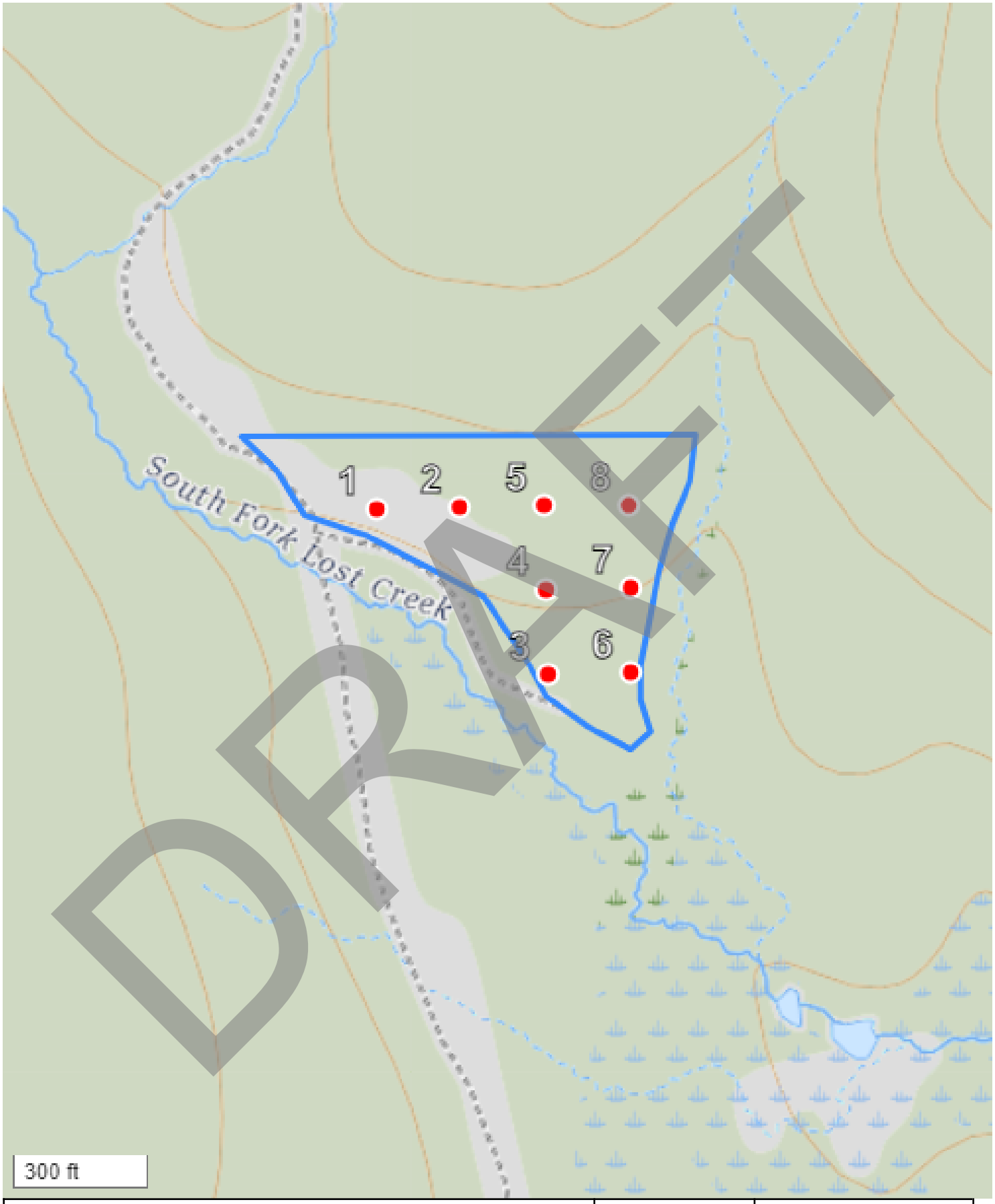
Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
GF	30.0	141.4	100.0	118.5	21.6	12.5	3,556	143.1	100.8
ALL	30.0	141.4	100.0	118.5	21.6	12.5	3,556	143.1	100.8

Unit Summary: RUFUS SORTS RW8

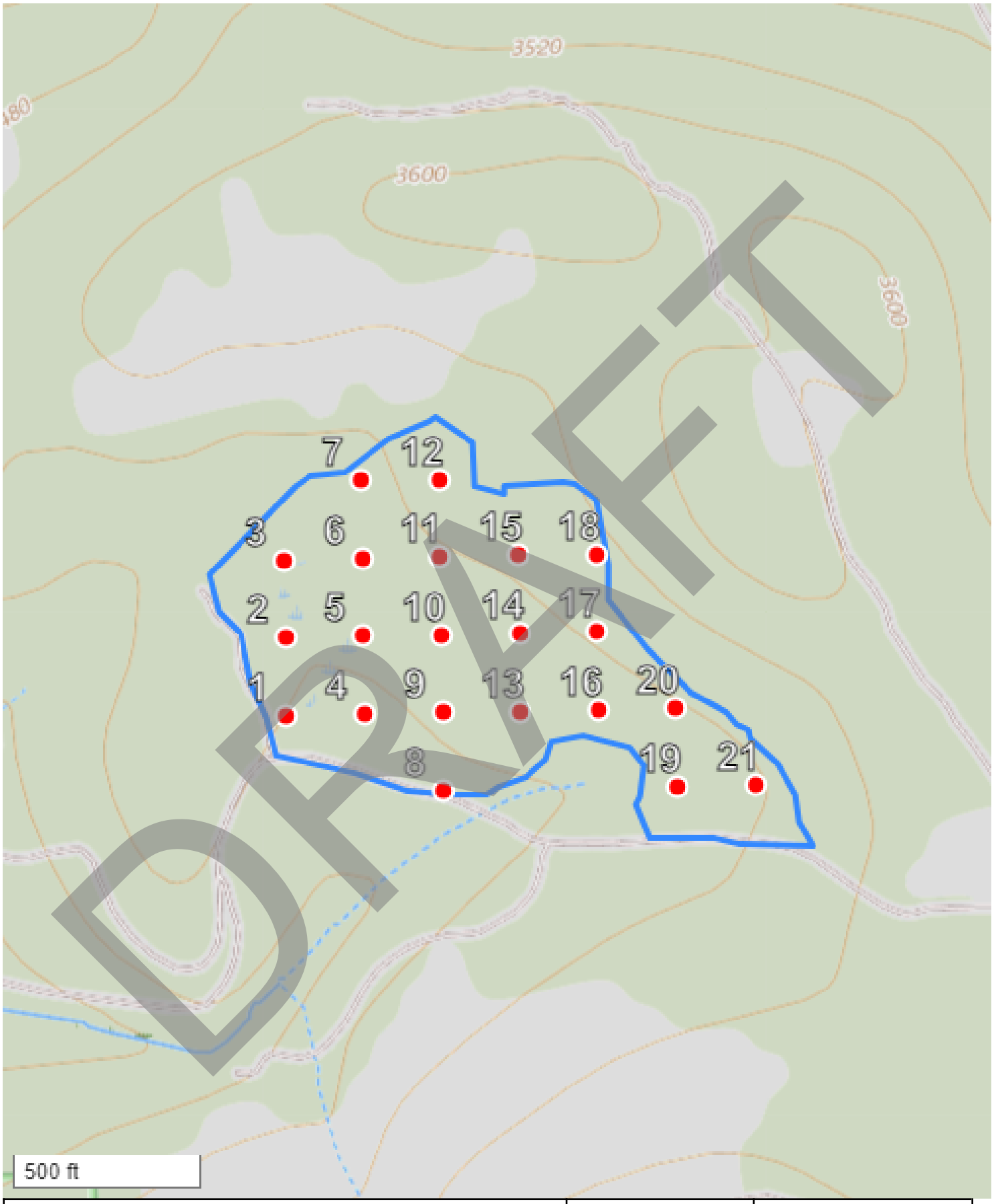
Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
GF	LIVE	CUT	3	ALL	8.6	59	73	3,556	3,556	0.0	74.4	30.0	10.2	0.4
ALL	LIVE	CUT	3	ALL	8.6	59	73	3,556	3,556	0.0	74.4	30.0	10.2	0.4
ALL	ALL	ALL	3	ALL	8.6	59	73	3,556	3,556	0.0	74.4	30.0	10.2	0.4



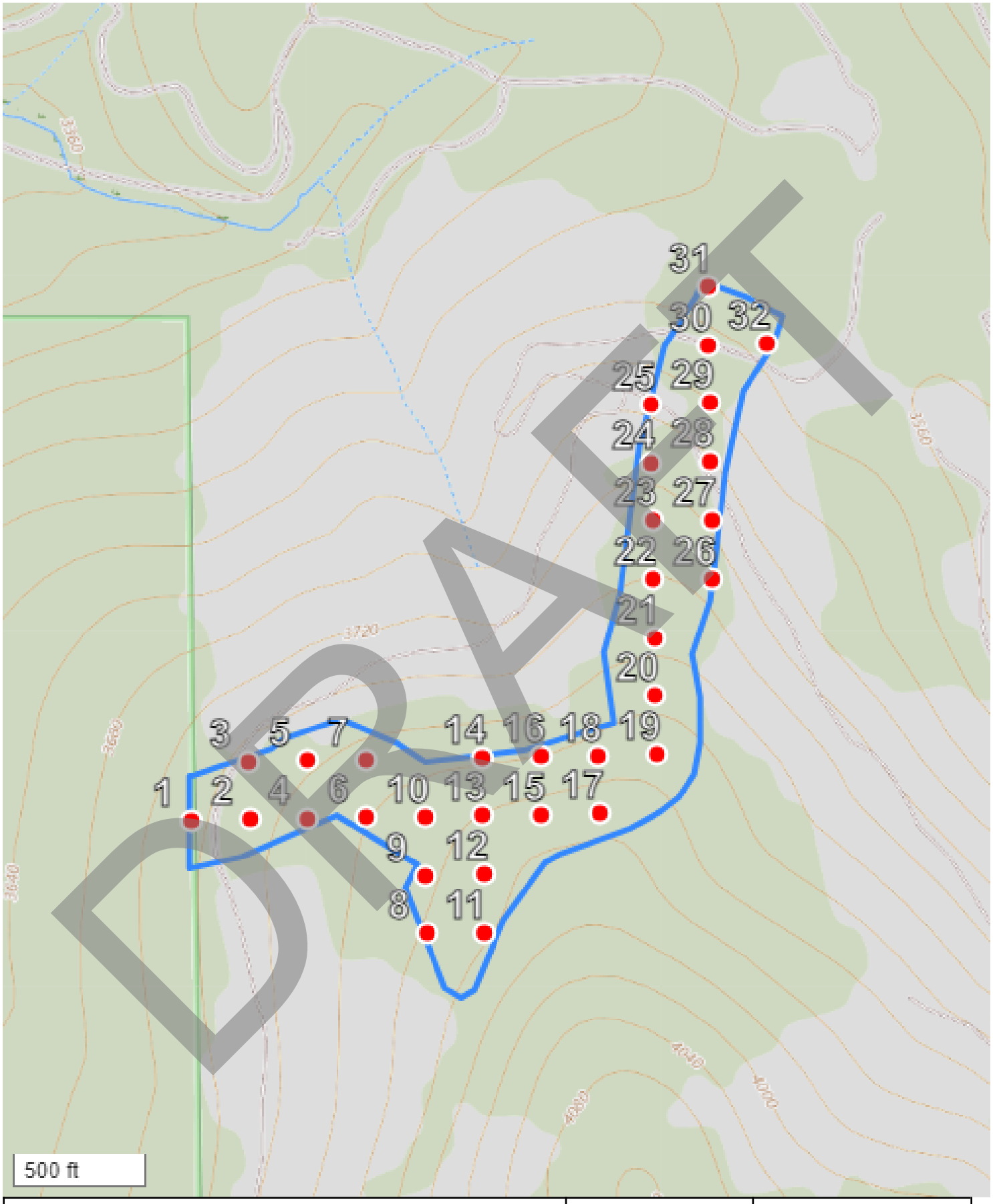
FMA Name: RUFUS SORTS U1	**N Plots:** 66	**Plot Spacing:** 255 ft
Grid Name: RUFUS SORTS U1 - 1	**Acres Treated:** 94.2	**Main Azimuth:** 0 deg



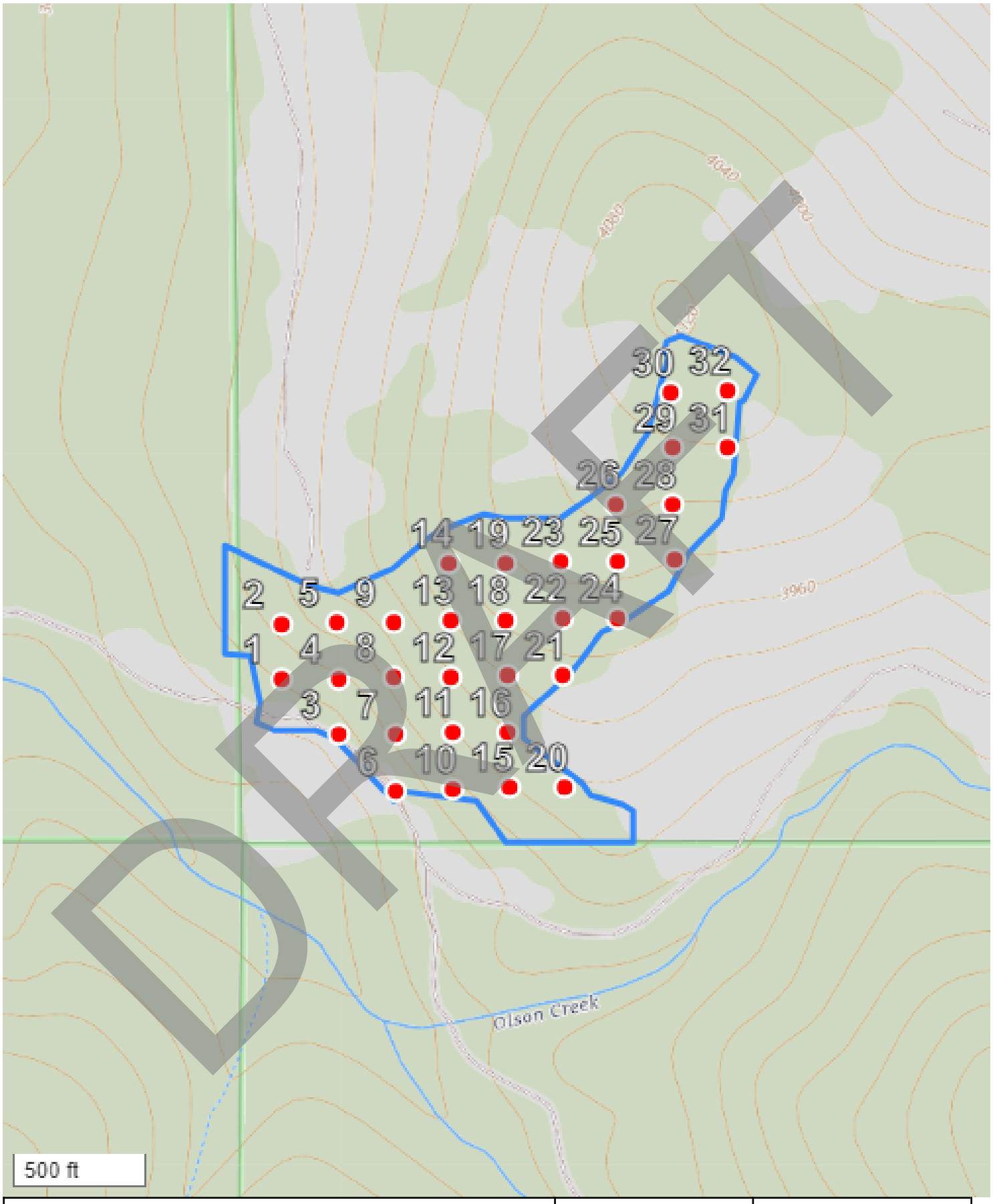
FMA Name: RUFUS SORTS U2	**N Plots:** 8	**Plot Spacing:** 185.9 ft
Grid Name: RUFUS SORTS U2 - 1	**Acres Treated:** 8	**Main Azimuth:** 359 deg



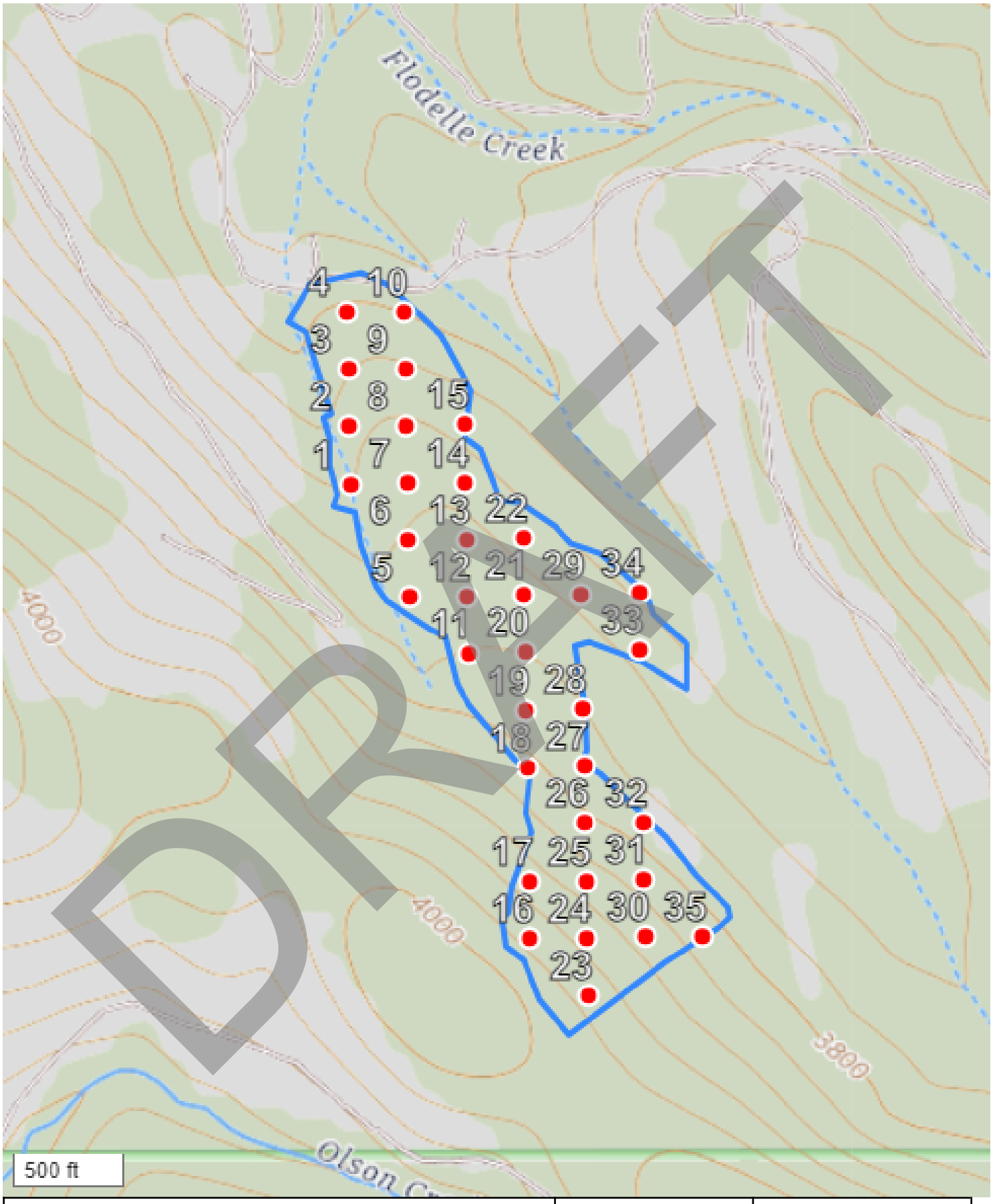
FMA Name: RUFUS SORTS U3	**N Plots:** 21	**Plot Spacing:** 205.2 ft
Grid Name: RUFUS SORTS U3 - 1	**Acres Treated:** 21.3	**Main Azimuth:** 359 deg



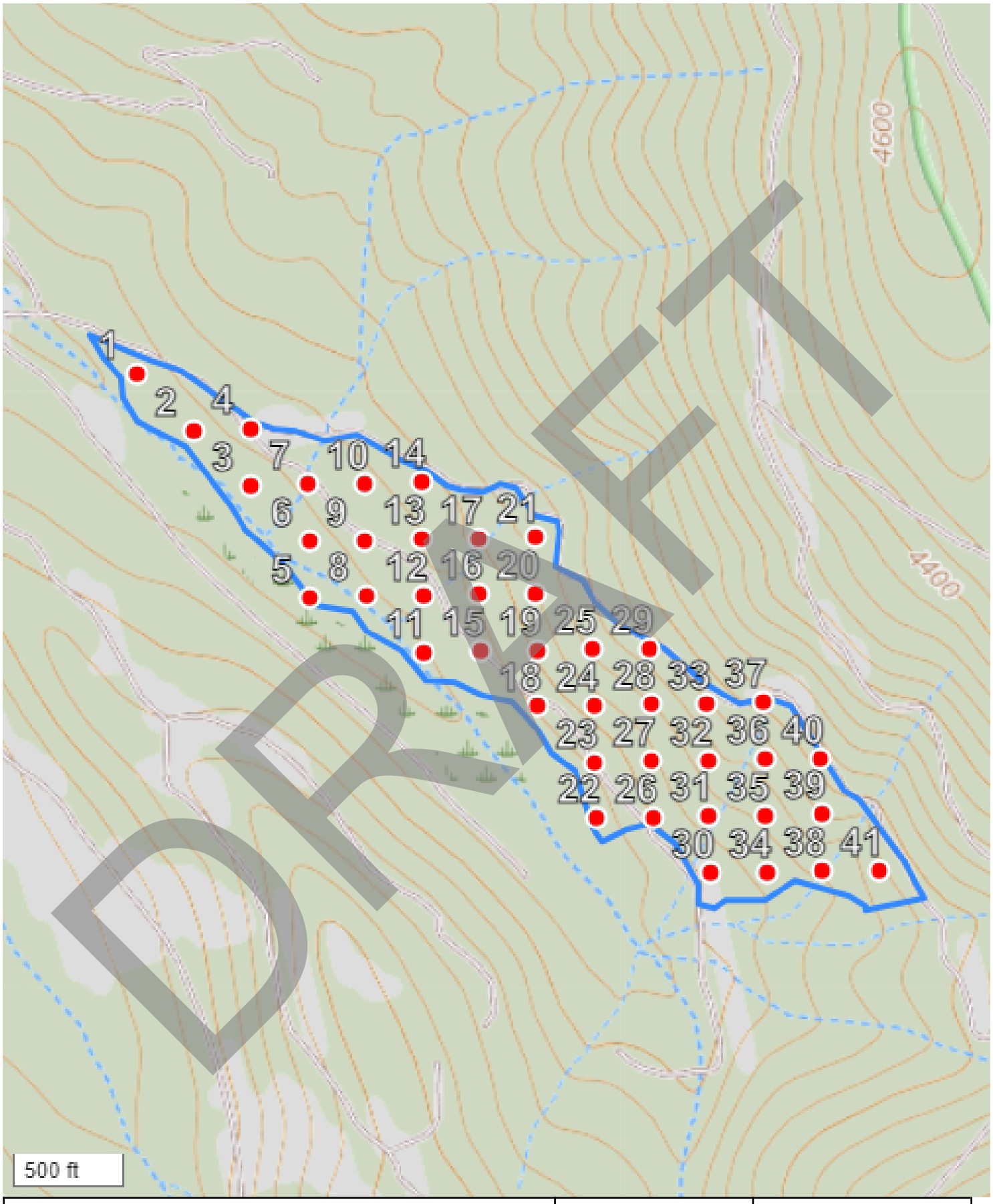
FMA Name: RUFUS SORTS U4	**N Plots:** 32	**Plot Spacing:** 217.7 ft
Grid Name: RUFUS SORTS U4 - 1	**Acres Treated:** 32.7	**Main Azimuth:** 359 deg



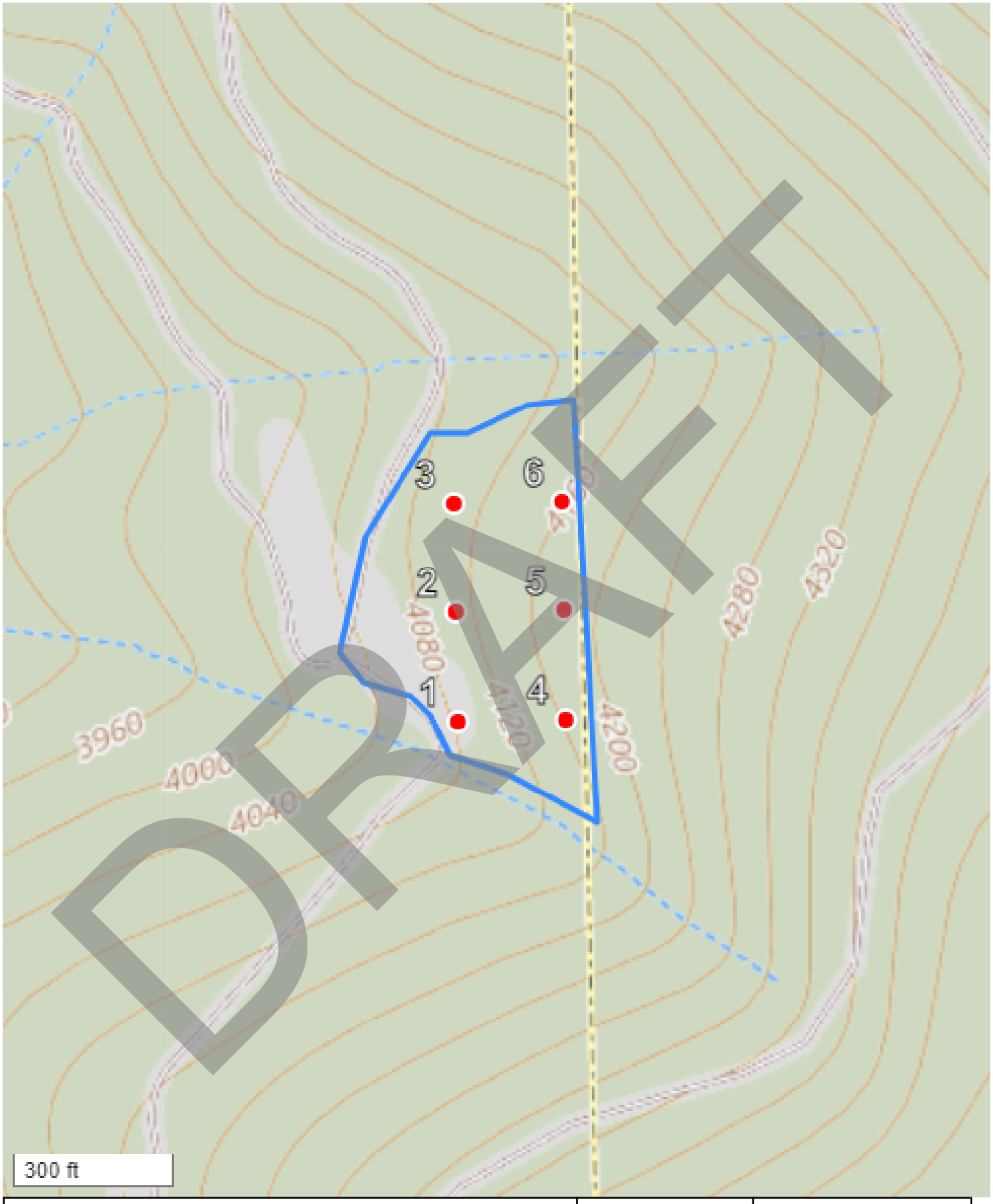
FMA Name: RUFUS SORTS U5	**N Plots:** 32	**Plot Spacing:** 209.9 ft
Grid Name: RUFUS SORTS U5 - 1	**Acres Treated:** 34.46	**Main Azimuth:** 359 deg



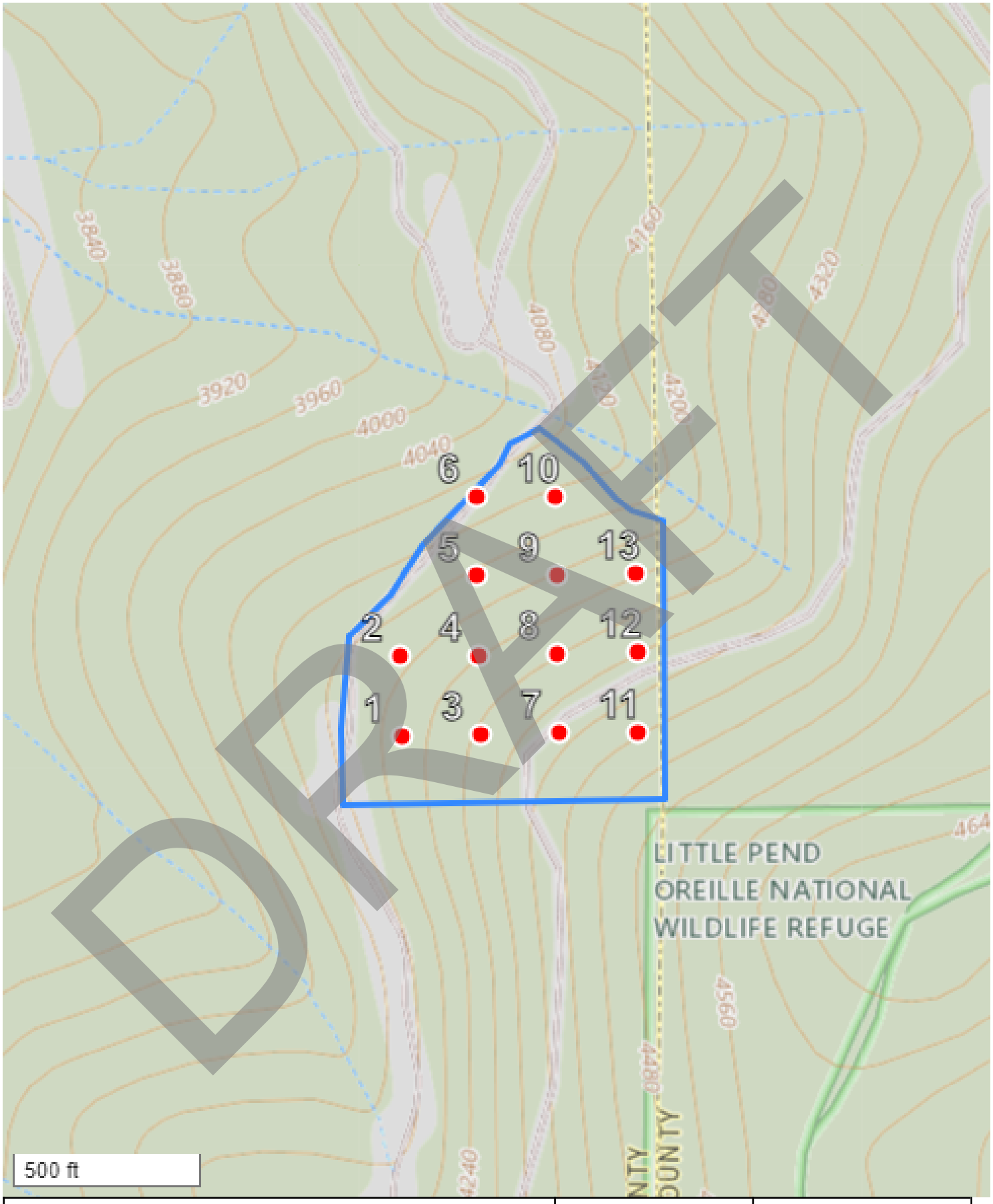
FMA Name: RUFUS SORTS U6	**N Plots:** 35	**Plot Spacing:** 254.2 ft
Grid Name: RUFUS SORTS U6 - 1	**Acres Treated:** 52.05	**Main Azimuth:** 359 deg



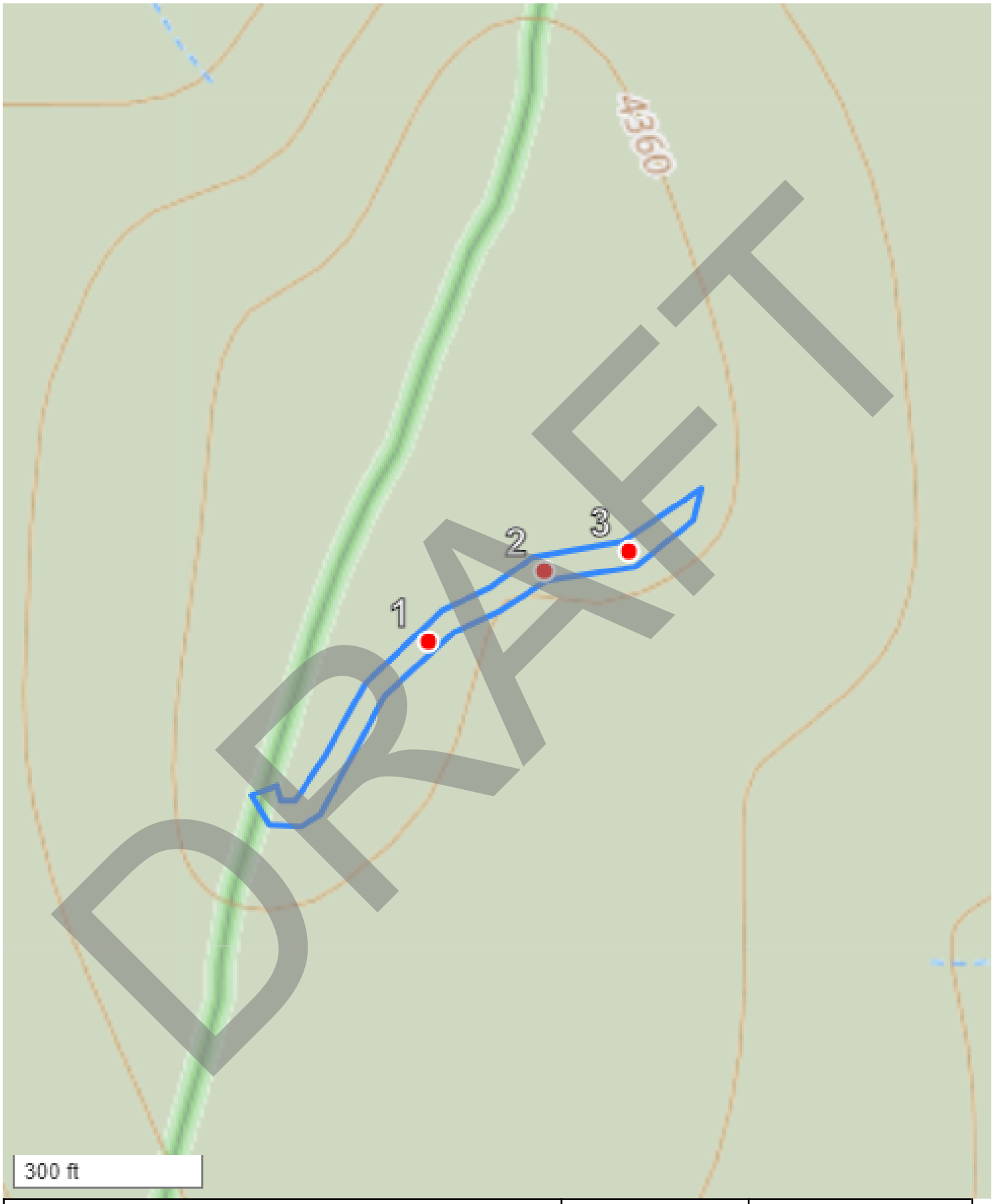
FMA Name: RUFUS SORTS U7	**N Plots:** 41	**Plot Spacing:** 250.7 ft
Grid Name: RUFUS SORTS U7 - 1	**Acres Treated:** 57.85	**Main Azimuth:** 359 deg



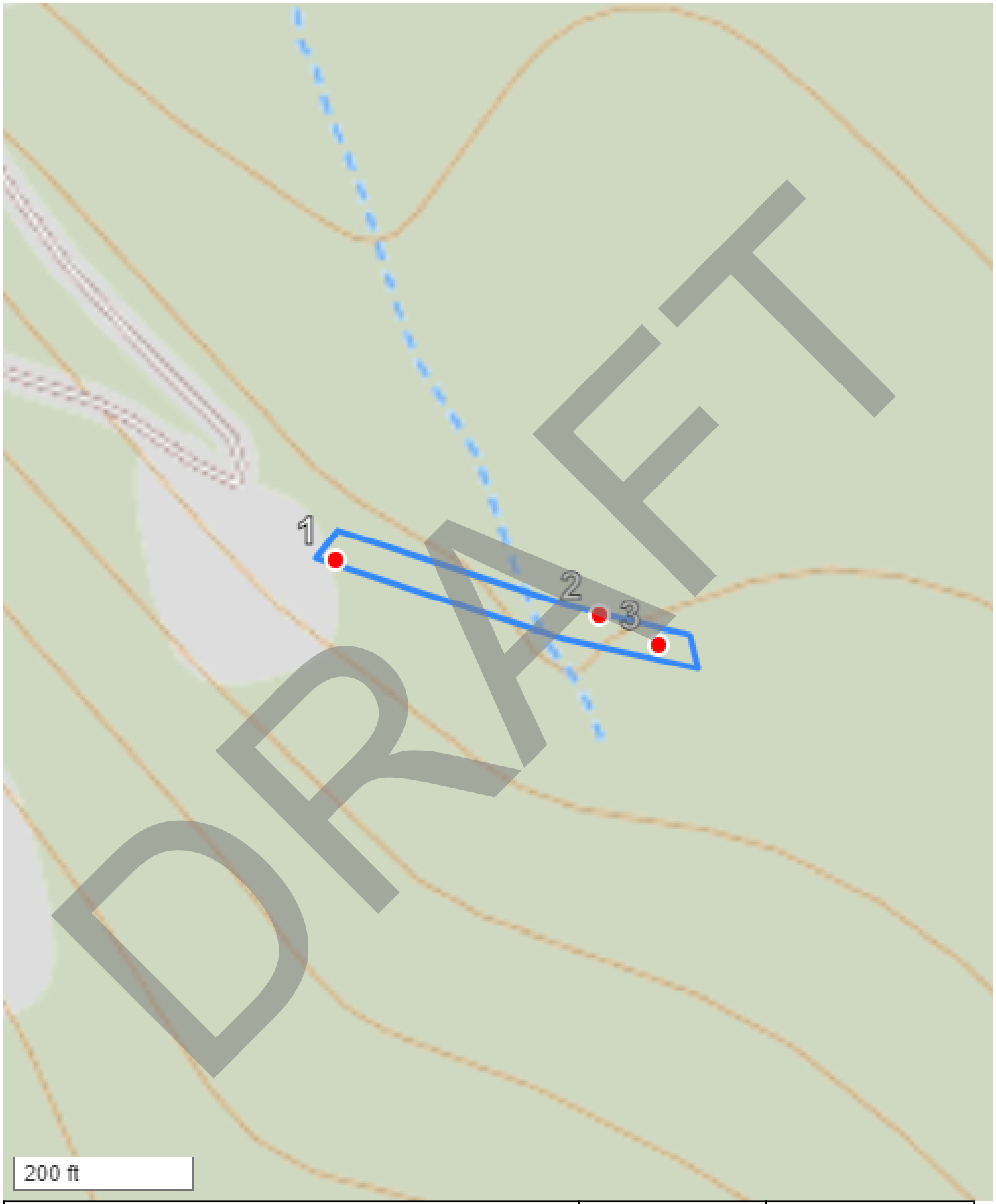
FMA Name: RUFUS SORTS U8	**N Plots:** 6	**Plot Spacing:** 203.2 ft
Grid Name: RUFUS SORTS U8 - 1	**Acres Treated:** 5.7	**Main Azimuth:** 359 deg



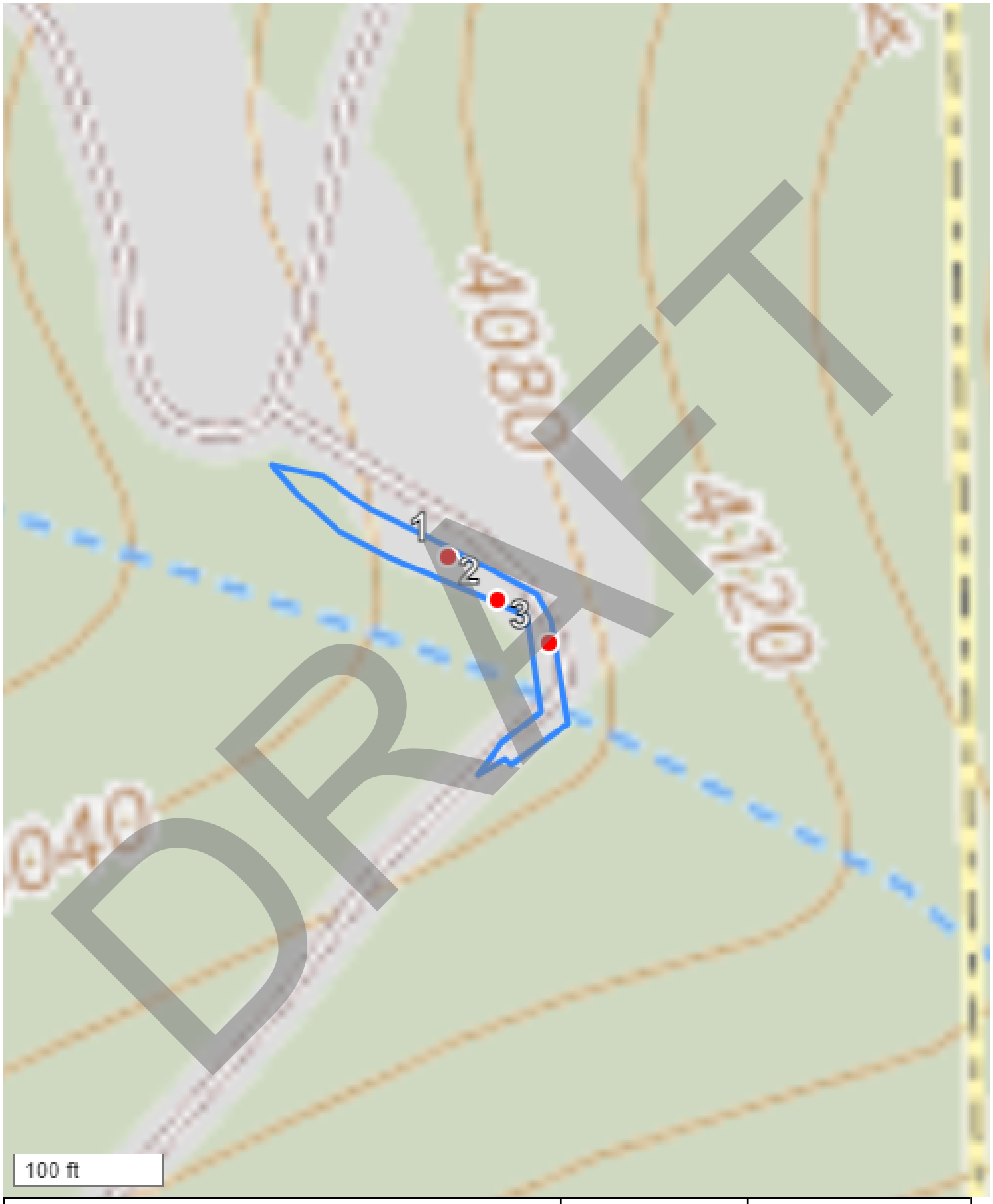
FMA Name: RUFUS SORTS U9	**N Plots:** 13	**Plot Spacing:** 208.8 ft
Grid Name: RUFUS SORTS U9 - 1	**Acres Treated:** 15.04	**Main Azimuth:** 359 deg



FMA Name: RUFUS SORTS RW1	**N Plots:** 3	**Plot Spacing:** 95 ft
Grid Name: RUFUS SORTS RW1 - 1	**Acres Treated:** 0.83	**Main Azimuth:** 32.1 deg



FMA Name: RUFUS SORTS RW6	**N Plots:** 3	**Plot Spacing:** 72.6 ft
Grid Name: RUFUS SORTS RW6 - 1	**Acres Treated:** 0.36	**Main Azimuth:** 26 deg



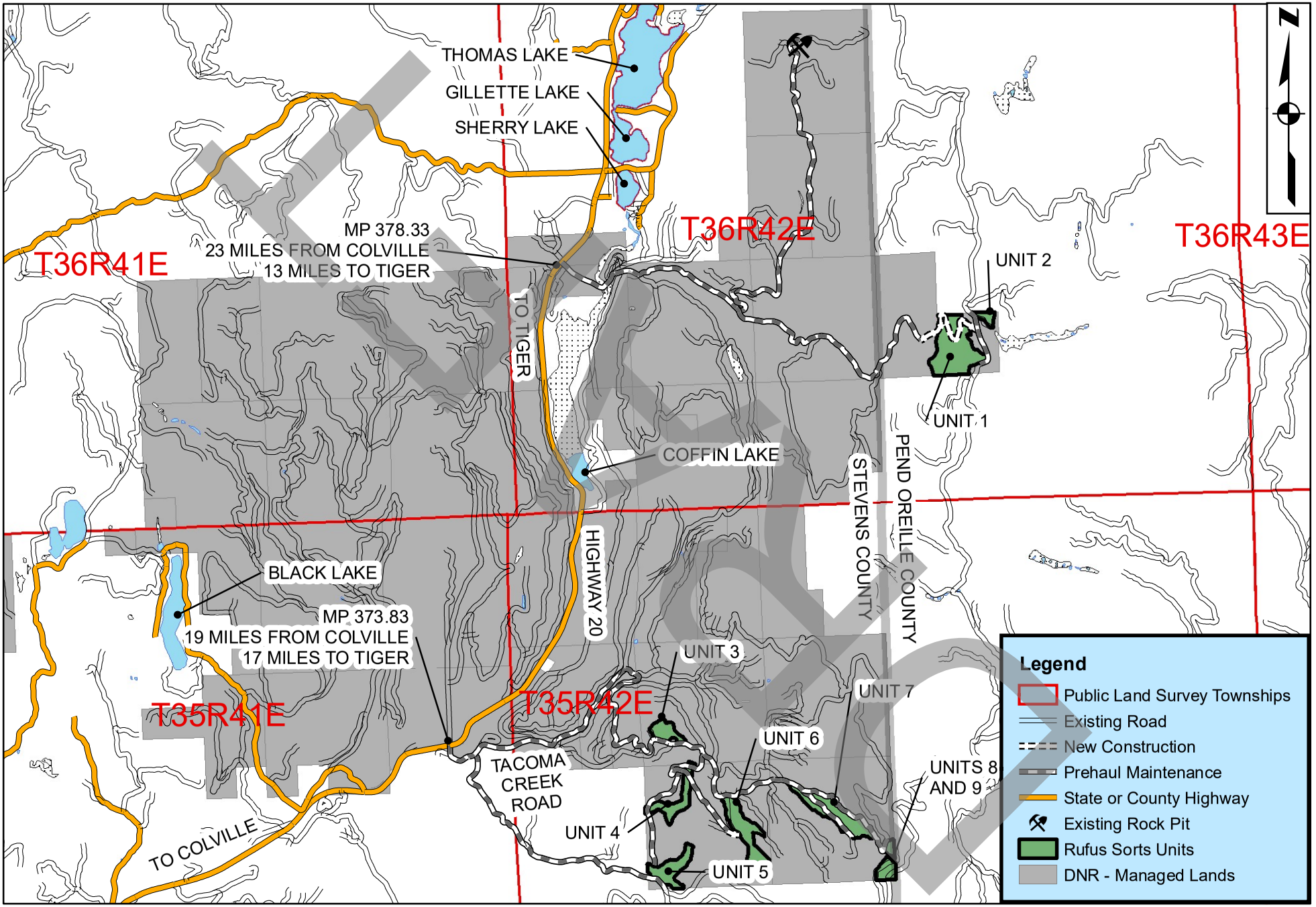
FMA Name: RUFUS SORTS RW 8	**N Plots:** 3	**Plot Spacing:** 43.8 ft
Grid Name: RUFUS SORTS RW 8 - 1	**Acres Treated:** 0.13	**Main Azimuth:** 40.9 deg

Washington State Department of Natural Resources

Sale Name: Rufus Sorts
Agreement No.: 30-106090

Road Plan Map
Page 1 of 5

Region: Northeast
County.: Stevens and Pend Oreille



0 2,750 5,500 11,000 16,500 Feet

1 inch = 5,500 feet

Date: 10/22/2023

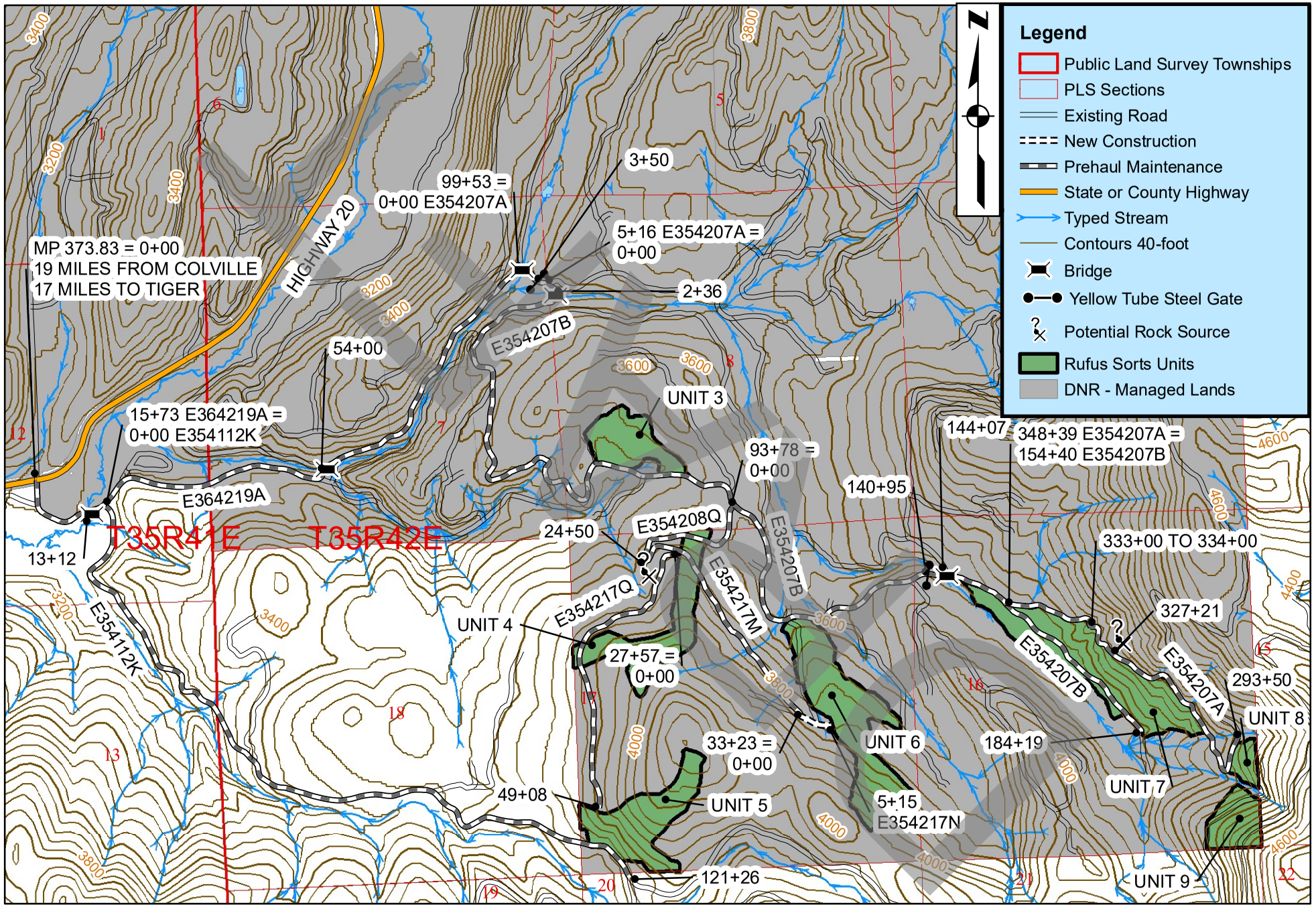
Accessed: 03/29/2024 14:33

Washington State Department of Natural Resources

Sale Name: Rufus Sorts
Agreement No.: 30-106090

Road Plan Map
Page 2 of 5

Region: Northeast
County.: Stevens and Pend Oreille

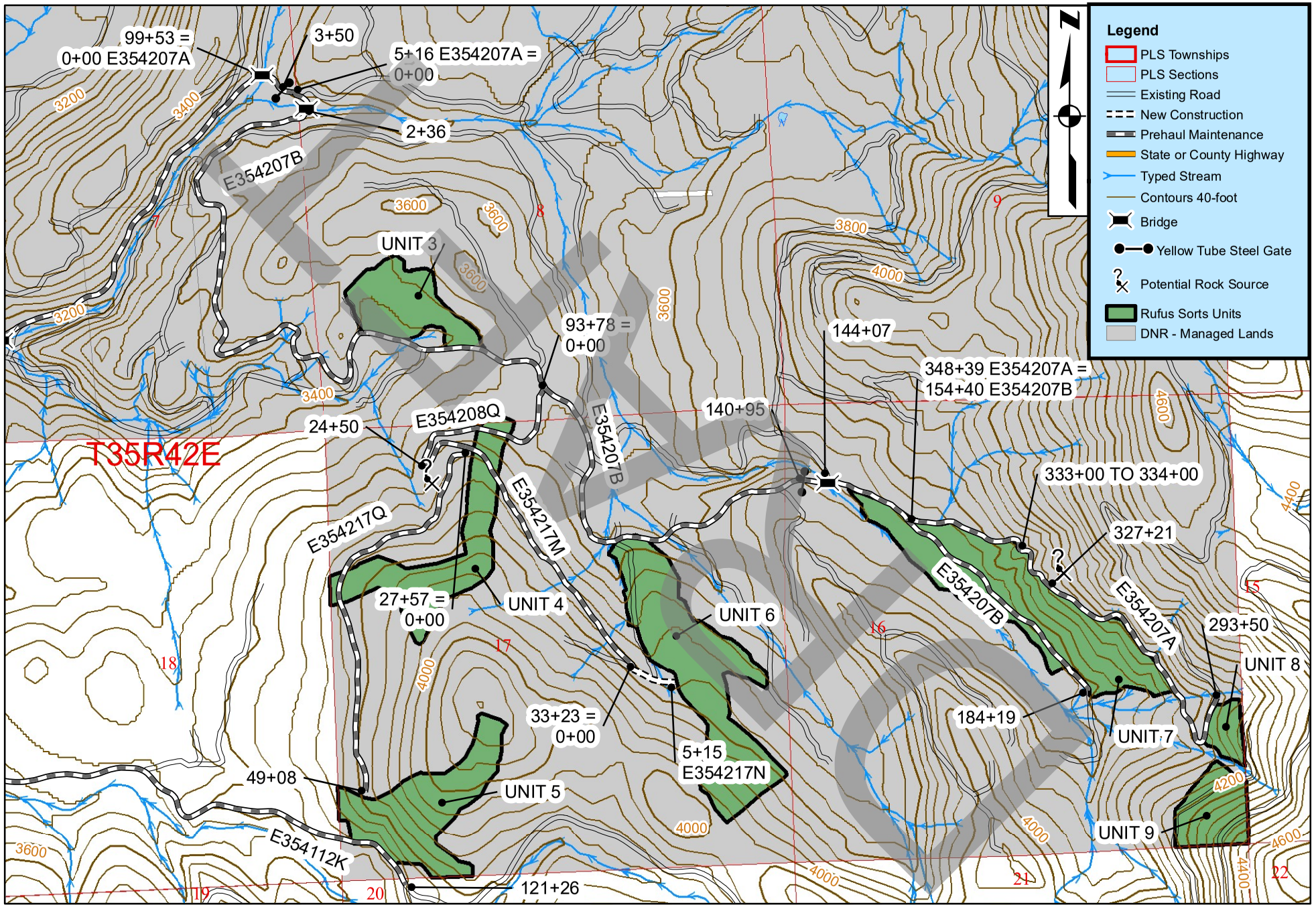


Washington State Department of Natural Resources

Sale Name: Rufus Sorts
Agreement No.: 30-106090

Road Plan Map
Page 3 of 5

Region: Northeast
County.: Stevens and Pend Oreille



0 750 1,500 3,000 4,500 Feet

1 inch = 1,500 feet

Date: 10/22/2023

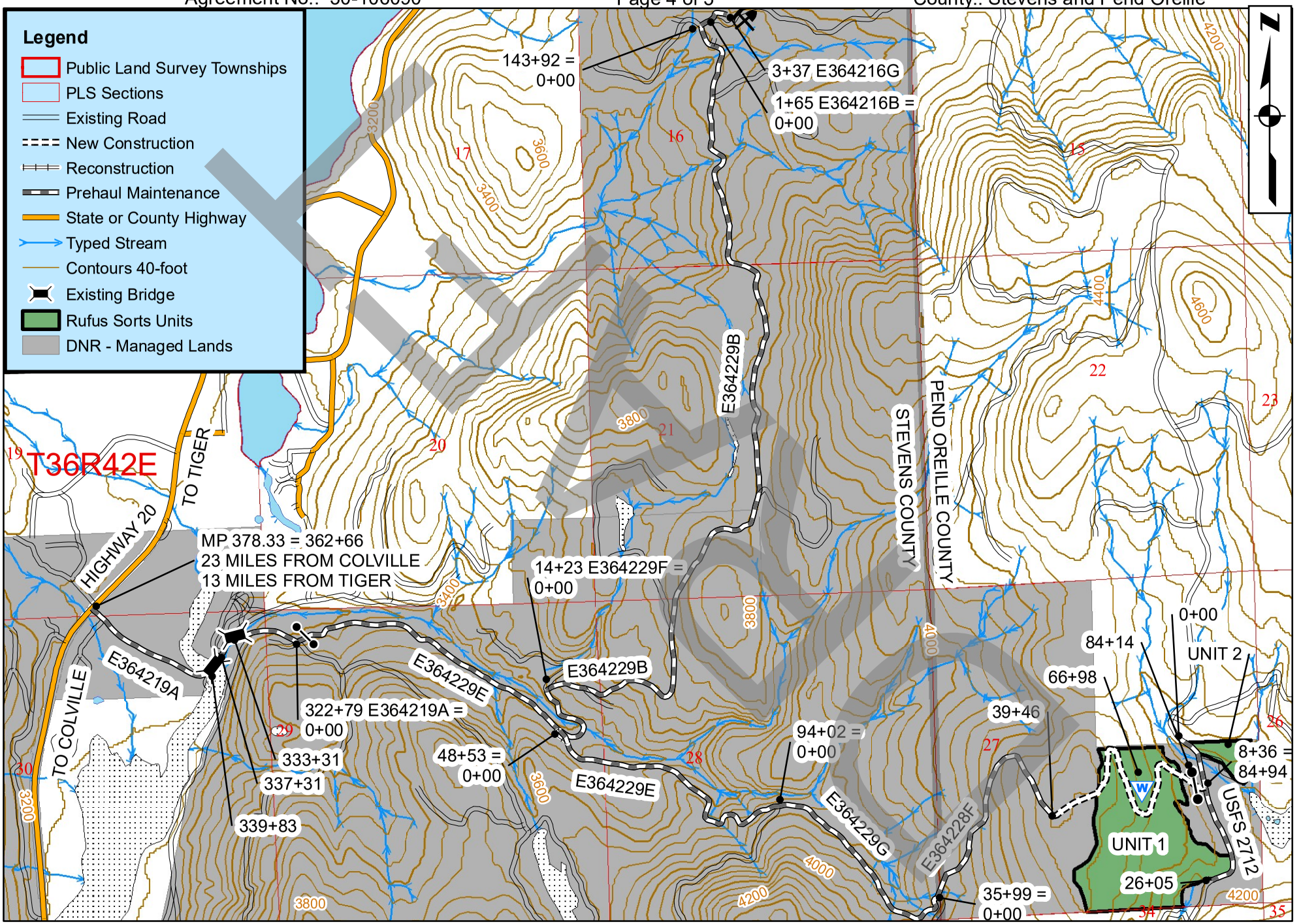
Accessed: 03/29/2024 14:33

Washington State Department of Natural Resources

Sale Name: Rufus Sorts
Agreement No.: 30-106090

Road Plan Map
Page 4 of 5

Region: Northeast
County.: Stevens and Pend Oreille



Date: 10/22/2023

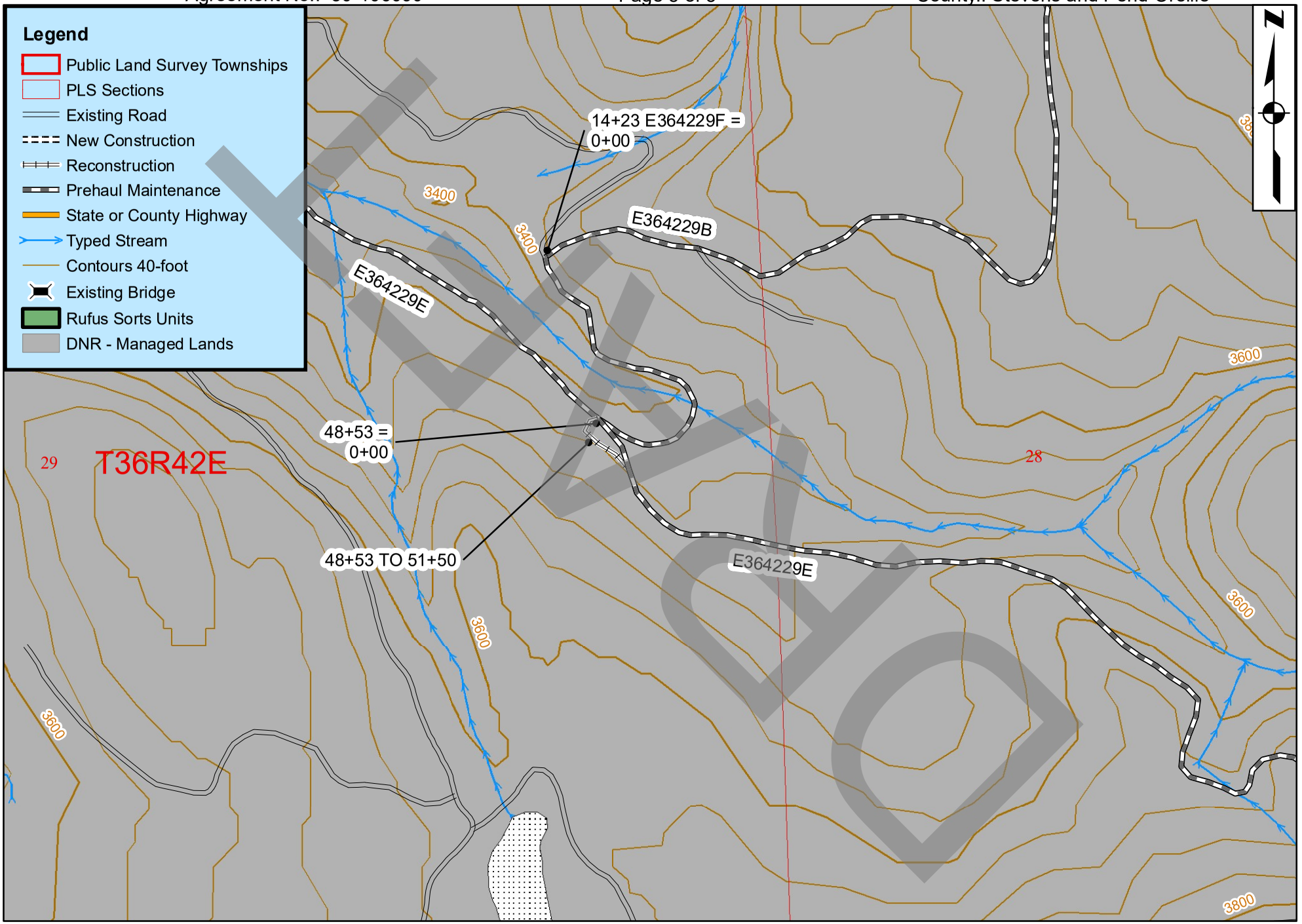
Accessed: 03/29/2024 14:33

Washington State Department of Natural Resources

Sale Name: Rufus Sorts
Agreement No.: 30-106090

Road Plan Map
Page 5 of 5

Region: Northeast
County.: Stevens and Pend Oreille



0 250 500 1,000 1,500 Feet

1 inch = 500 feet

Date: 10/22/2023

Accessed: 03/29/2024 14:33

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

RUFUS SORTS TIMBER SALE ROAD PLAN
STEVENS AND PEND OREILLE COUNTIES
NORTH COLUMBIA DISTRICT
NORTHEAST REGION

AGREEMENT NO.: 10-106090 STAFF ENGINEER: TRAVIS PARRY

DATE: 10/22/2023 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
E364219A	0+00 to 99+53	Pre-Haul Maintenance
	322+79 to 362+66	Pre-Haul Maintenance
E354207A	0+00 to 5+16	Pre-Haul Maintenance
	293+50 to 333+00	Pre-Haul Maintenance
	333+00 to 334+00	Reconstruction
	334+00 to 348+39	Pre-Haul Maintenance
E354207B	0+00 to 184+19	Pre-Haul Maintenance
E354208Q	0+00 to 27+57	Pre-Haul Maintenance
E354217Q	0+00 to 49+08	Pre-Haul Maintenance
E354217M	0+00 to 33+23	Pre-Haul Maintenance
E354217N	0+00 to 5+15	New Construction
E354112K	0+00 to 121+26	Pre-Haul Maintenance
E364229E	0+00 to 48+53	Pre-Haul Maintenance
E364229E	48+53 to 51+50	Reconstruction
E364229E	51+50 to 94+02	Pre-Haul Maintenance
E364229G	0+00 to 35+99	Pre-Haul Maintenance
E364228F	0+00 to 39+46	Pre-Haul Maintenance
	39+46 to 84+94	Construction
USFS 2712	0+00 to 26+05	Pre-Haul Maintenance
E364229F	0+00 to 14+23	Pre-Haul Maintenance
E364229B	0+00 to 143+92	Pre-Haul Maintenance

E364216B	0+00 to 1+65	Pre-Haul Maintenance
E364216G	0+00 to 3+37	Pre-Haul Maintenance

0-4 CONSTRUCTION

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

Road	Stations	Requirements
E364228F	39+46 to 84+94	New construction, construct road in accordance with Typical Section Detail, Rock List, and the Culvert and Drainage List.
	39+46 to 84+94	Spread and compact 8 inch depth layer of 3 inch minus crushed surface rock.
	66+98	Waste area, see Clauses 4-37 WASTE AREA LOCATIONS AND 4-38 PROHIBITED WASTE DISPOSAL AREAS
	84+14	Install new tube steel traffic gate, see Clause 7-76 GATE INSTALLATION and VEHICLE GATE installation details
E354217N	0+00 to 5+15	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.

0-5 RECONSTRUCTION

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

Road	Stations	Requirements
E354207A	333+00 to 334+00	Reconstruct road by moving road approximately 30 feet into the existing cut slope through existing curve.
E364229E	48+53 to 51+50	Reconstruction, reconstruct road in accordance with Typical Section Detail, Rock List, and the Culvert and Drainage List.

Reconstruction includes, but is not limited to clearing & grubbing, subgrade reconstruction, rolling dip, cross drain, and culvert installation, cut & fill, embankment construction, culvert and ditch cleaning, riprap and rock application. Reference the TYPICAL SECTION SHEET, ROCK LIST, and CULVERT & DRAINAGE LIST, for general specifications.

0-6 PRE-HAUL MAINTENANCE

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

Road	Stations	Requirements
E364219A	0+00 to 99+53	Pre-haul maintenance. Reshape road to provide drainage as needed
	322+79 to 362+66	Pre-haul maintenance. Reshape road to provide drainage as needed
	13+12	Spread and compact 5cy 5/8 inch minus crushed surface rock to each bridge approach
	15+73	Intersection with existing E354112K on right
	54+00	Spread and compact 5cy 5/8 inch minus crushed surface rock to each bridge approach
	99+53	Intersection with existing E354207A on right and Spread and compact 5cy 5/8 inch minus crushed surface rock to each bridge approach
	322+79	Intersection with existing E364229E on right
	339+83	Spread and compact 5cy 5/8 inch minus crushed surface rock to each bridge approach
	333+31	Spread and compact 5cy 5/8 inch minus crushed surface rock to each bridge approach
E354207A	0+00 to 5+16	Pre-haul maintenance. Reshape road to provide drainage as needed
	3+50	Existing yellow tube steel gate
	293+50 to 333+00 and 334+00 to 348+39	Pre-haul maintenance. Reshape road to provide drainage as needed
	327+21	Potential rock source, see Clause 6-2 ROCK SOURCE ON STATE LAND
E354207B	0+00 to 184+19	Pre-haul maintenance. Reshape road to provide drainage as needed
	2+36	Spread and compact 5cy 5/8 inch minus crushed surface rock to each bridge approach
	93+78	Intersection with existing E354208Q on right
	140+95	Existing yellow tube steel gate

	144+07	Spread and compact 5cy 5/8 inch minus crushed surface rock to each bridge approach
	154+40	Intersection with existing E354207A on left
E354208Q	0+00 to 27+57	Pre-haul maintenance. Reshape road to provide drainage as needed
	24+50	Potential rock source, see Clause 6-2 ROCK SOURCE ON STATE LAND
	27+57	Intersection with existing E354217M on left and E354217Q on right
E354217Q	0+00 to 49+08	Pre-haul maintenance. Reshape road to provide drainage as needed
E354217M	0+00 to 33+23	Pre-haul maintenance. Reshape road to provide drainage as needed
E354112K	0+00 to 121+26	Pre-haul maintenance. Reshape road to provide drainage as needed
E364229E	0+00 to 48+53 and 51+50 to 94+02	Pre-haul maintenance. Reshape road to provide drainage as needed
	0+50	Existing yellow tube steel gate, gate shall be closed and locked when operations are complete each day
	48+53	Intersection with existing E364229F on left
E364229G	0+00 to 35+99	Pre-haul maintenance. Reshape road to provide drainage as needed
E364228F	0+00 to 39+46	Pre-haul maintenance. Reshape road to provide drainage as needed
	39+46	End pre-haul maintenance, begin new construction
USFS 2712	0+00 to 26+05	Pre-haul maintenance. Reshape road to provide drainage as needed
	8+36	Intersection with new construction E364228F on right
E364229F	0+00 to 14+23	Pre-haul maintenance. Reshape road to provide drainage as needed
E364229B	0+00 to 143+92	Pre-haul maintenance. Reshape road to provide drainage as needed
E364216B	0+00 to 1+65	Pre-haul maintenance. Reshape road to provide drainage as needed
E364216G	0+00 to 3+37	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 Contractor 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 Contractor's choice of construction season or techniques will be at the Contractor's expense. Unforeseen conditions include, but are not limited to, solid subsurface rock, subsurface springs, saturated ground, and unstable soils.

1-3 ROAD DIMENSIONS

Contractor 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

Contractor 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

1-5 DESIGN DATA

The large culvert installation design data is available upon request at the Department of Natural Resources Northeast Region Office in Colville, WA

1-6 ORDER OF PRECEDENCE

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

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

Contractor 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

Contractor 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

Contractor 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.

1-16 CONSTRUCTION STAKES SET BY STATE

Contractor shall perform work on the following road(s) in accordance with the reference points set in the field for grade and alignment.

1-18 REFERENCE POINT DAMAGE

Contractor 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 Contractor resets all moved or damaged RPs.

1-21 HAUL APPROVAL

Contractor 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

Contractor 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

Contractor 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, Contractor shall cease operations, or perform corrective maintenance or repairs, subject to specifications within this road plan. Before and during any suspension, Contractor shall protect the work from damage or deterioration.

1-32 BRIDGE SURFACE RESTRICTION

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

If tracked equipment is used on bridge surfaces, Contractor shall immediately cease all operations. Contractor shall remove any dirt, rock, or other material tracked or spilled on the bridge 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 Contractor'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

Contractor 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 Contractor'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 Departure Lane/E294524A Road approach:
Contractor shall build up approach to allow a smooth grade transition between the E294524A Road and Blanchard Road. The surface of the E294524A Road approach must slope down away from the edge of the Blanchard Road at minimum grade of 2% to a maximum grade of 6% foot for a distance of 6 feet from the county road shoulder, unless otherwise directed by the Contract Administrator.

1-43 ROAD WORK AROUND UTILITIES

Road work is in close proximity to a utility. Known utilities are listed, but it is the Contractor's responsibility to identify any utilities not listed. Contractor shall work in accordance with all applicable laws or rules concerning utilities. Contractor 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
E364219A	337+31 to 362+66	Underground power	Avista

SECTION 2 – MAINTENANCE

2-1 GENERAL ROAD MAINTENANCE

Contractor 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 – CONTRACTOR MAINTENANCE

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

2-4 PASSAGE OF LIGHT VEHICLES

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

2-5 MAINTENANCE GRADING – EXISTING ROAD

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

2-6 CLEANING CULVERTS

Contractor 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

Contractor 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

Contractor 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

Contractor 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

Contractor 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

Contractor 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

Contractor 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

Contractor 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

Contractor 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

Contractor 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

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

Contractor 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

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

3-25 SCATTERING ORGANIC DEBRIS

On all new construction, Contractor 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

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

3-31 PILING

Contractor 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

Contractor 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

Contractor 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 12 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Maximum grade change for sag vertical curves is 5% in 100 feet.
- Maximum grade change for crest vertical curves is 4% in 100 feet.

4-4 SWITCHBACK STANDARDS

A switchback is defined as a curved segment of road between a beginning and end of the same curve, where the change of traffic travel direction is greater than 90 degrees. Contractor 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

Contractor 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

Contractor 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

Contractor 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.

4-10 WIDEN THE EXISTING SUBGRADE

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

Road	Stations
E354207A	333+00 to 334+00

4-12 FULL BENCH CONSTRUCTION

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

4-21 TURNOUTS

Contractor 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

Contractor 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

Contractor 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

Contractor 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.

4-37 WASTE AREA LOCATION

Contractor shall deposit waste material in the listed designated areas or areas approved by the Contract Administrator. The amount of material allowed in a waste area is at the discretion of the Contract Administrator or as listed.

Road	Waste Area Location
E364228F	66+98

4-38 PROHIBITED WASTE DISPOSAL AREAS

Contractor 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

Contractor 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. Contractor 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

Contractor 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

Contractor 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

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

SECTION 5 – DRAINAGE

5-1 REMOVAL OF SHOULDER BERMS

Contractor 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

Contractor 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 Contractor 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 34’ 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

Contractor 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

Contractor 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

Contractor 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

Contractor 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

Contractor 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

Contractor 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. Contractor 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.

6-2 ROCK SOURCE ON STATE LAND

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

Source	Location	Rock Type
Potential Rock	NE1/4 of NW1/4 Sec 17, T35N R42E. E354208Q Sta. 24+50	Potential Pit Run, Ballast, and Light Loose Rip Rap
Potential Rock	SW1/4 of NE1/4 Sec 16, T35N R42E. E354207A Sta. 327+21	Potential Pit Run, Ballast, and Light Loose Rip Rap

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

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 Contractor. Contractor shall not remove more than 1,700 cubic yards of 3" MINUS CRUSHED ROCK. Contractor shall not remove additional yardage without prior written approval from the Contract Administrator. Other stockpiles may not be used without prior written approval from the Contract Administrator.

Source	Location	Rock Type	Quantity
Gillette Pit	T36N, R42E, S16, E364216G road station 3+37	3" minus crushed rock	Approximately 1,900 cubic yards

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 Contractor'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.
- Contractor shall block access roads and trails before blasting operations.

6-22 FRACTURE REQUIREMENT FOR ROCK

A minimum of 50% by visual inspection of coarse aggregate must have at least one fractured face. Coarse aggregate is the material greater than 1/4-inch in size.

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.

6-33 3-INCH MINUS CRUSHED ROCK

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

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

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 6 inches in any dimension and no rock may be larger than 10 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

Contractor shall obtain written approval from the Contract Administrator before rock application.

6-71 ROCK APPLICATION

Contractor 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

Contractor 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

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

SECTION 7 – STRUCTURES

7-6 STREAM CROSSING INSTALLATION

Contractor shall install stream crossing structures in accordance with the manufacturer's requirements, and Forest Practices Application Permits, Designs, and Specifications.

7-57 CULVERT SHAPE CONTROL

Contractor shall monitor the culvert shape during backfill and compaction. Special attention must be paid to maintaining the structure's rise dimensions, concentricity, and smooth uniform curvature. If compaction methods are resulting in peaking or deflection of the culvert, Contractor shall modify the compaction method to achieve the appropriate end result.

7-76 GATE INSTALLATION

Contractor shall install the listed gate(s)**.**

Road	Station	Type	Provided by
E364228F	84+14	Tube Steel Gate Detail	Contractor

Tubular gate installation(s) must be in accordance with the VEHICLE GATE INSTALLATION DETAILS.

The gate and lock box must be installed plumb and aligned to ensure all mating components match with precision. Each post must be filled with concrete and set in a minimum of 2 cubic yards of poured-in-place concrete. The gate must be installed with

a post and locking device to allow the gate to be locked in an open position. The Contract Administrator will provide Contractor with a padlock.

If Contractor wishes to install an alternate design, detailed plans for the construction of the gate must be submitted to the Contract Administrator. Contractor shall obtain written approval for the plans from the Contract Administrator or their designee, before gate installation begins.

The gate must be primed and painted yellow in accordance with the VEHICLE GATE INSTALLATION DETAILS.

7-78 GATE SUPPLIED BY CONTRACTOR

Contractor shall provide all gates specified for installation in Clause 7-76 GATE INSTALLATION. Contractor shall obtain written approval for the gates from the Contract Administrator before installation.

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.

8-2 PROTECTION FOR EXPOSED SOIL

Contractor shall provide and evenly spread a 6-inch layer of straw to all exposed soils at live water culvert installations. Soils must be covered before the first anticipated storm event. Soils may not sit exposed during any rain event.

SECTION 9 – POST-HAUL ROAD WORK

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

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

9-5 POST-HAUL MAINTENANCE

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

Road	Stations	Additional Requirements
E364219A	0+00 to 99+53	Post-Haul Maintenance
	322+79 to 362+66	Post-Haul Maintenance
E354207A	0+00 to 5+16	Post-Haul Maintenance
	293+50 to 348+39	Post-Haul Maintenance
E354207B	0+00 to 184+19	Post-Haul Maintenance
E354208Q	0+00 to 27+57	Post-Haul Maintenance
E354217Q	0+00 to 49+08	Post-Haul Maintenance
E354217M	0+00 to 33+23	Post-Haul Maintenance
E354217N	0+00 to 5+15	Post-Haul Maintenance
E354112K	0+00 to 121+26	Post-Haul Maintenance
E364229E	0+00 to 94+02	Post-Haul Maintenance
E364229G	0+00 to 35+99	Post-Haul Maintenance
E364228F	0+00 to 84+94	Post-Haul Maintenance
USFS 2712	0+00 to 26+05	Post-Haul Maintenance
E364229F	0+00 to 14+23	Post-Haul Maintenance
E364229B	0+00 to 143+92	Post-Haul Maintenance
E364216B	0+00 to 1+65	Post-Haul Maintenance
E364216G	0+00 to 3+37	Post-Haul Maintenance

9-10 LANDING DRAINAGE

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

9-11 LANDING EMBANKMENT

Contractor 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.

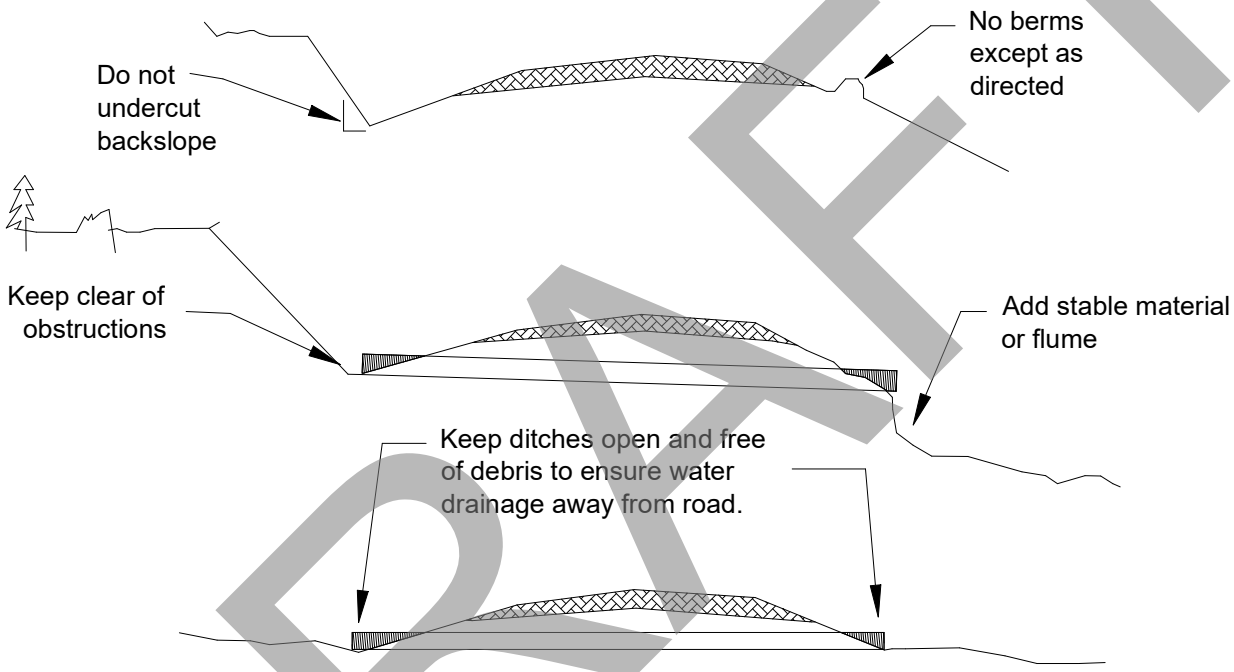
FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

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.

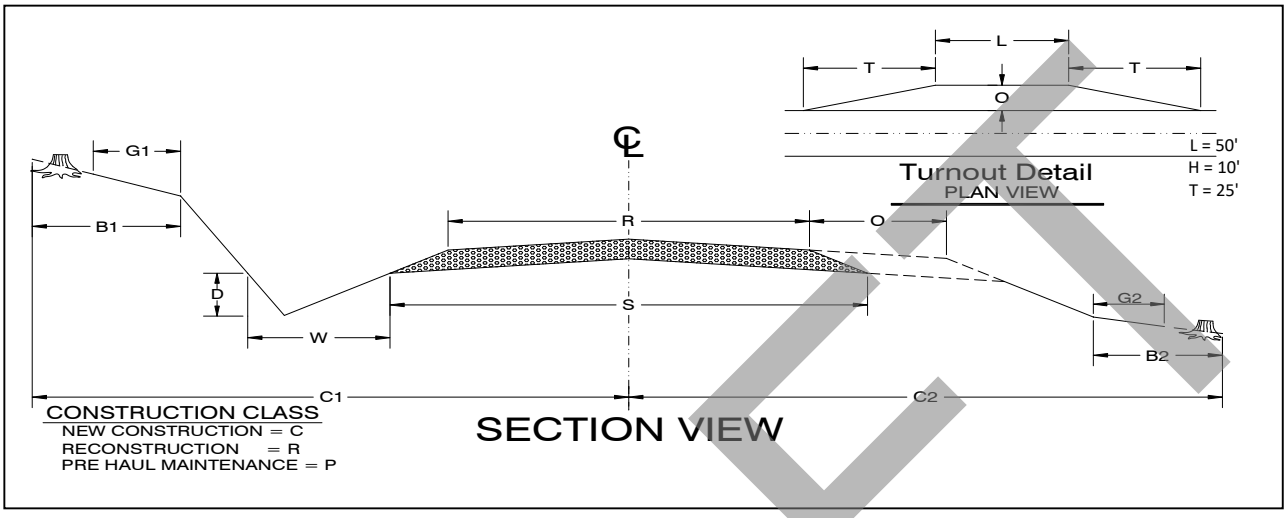


STATE OF WASHINGTON

DEPARTMENT OF NATURAL RESOURCES

Application No.: 30-106090 Name of Sale: Rufus Sorts Date: 10/22/2023

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)
E364219A	0+00	99+53	P		C	14'	12'	subgrade shape varies											
E364219A	322+79	362+66	P		C	14'	12'	subgrade shape varies											
E354207A	0+00	5+16	P		C	14'	12'	subgrade shape varies											
E354207A	293+50	333+00	P		C	14'	12'	subgrade shape varies											
E354207A	333+00	334+00	R		C	14'	12'		4					3	3	10	10		
E354207A	334+00	348+39	P		C	14'	12'	widen road 30ft into cut bank											
E354207B	0+00	184+19	P		C	14'	12'	subgrade shape varies											
E354208Q	0+00	27+57	P		C	14'	12'	subgrade shape varies											
E354217Q	0+00	49+08	P		C	14'	12'	subgrade shape varies											
E354217M	0+00	33+23	P		C	14'	12'	subgrade shape varies											
E354217N	0+00	5+15	C		C	14'	12'		4					3	3	10	10		
E354112K	0+00	121+26	P		C	14'	12'	subgrade shape varies											
E364229E	0+00	48+53	P		C	14'	12'	subgrade shape varies											
E364229E	48+53	51+50	R		C	14'	12'		4					3	3	10	10		
E364229E	51+50	94+02	P		C	14'	12'	subgrade shape varies											
E364229G	0+00	35+99	P		C	14'	12'	subgrade shape varies											
E364228F	0+00	39+46	P		C	14'	12'	subgrade shape varies											
E364228F	39+46	84+94	C		C	14'	12'		4					3	3	10	10		
USFS 2712	0+00	26+05	P		C	14'	12'	subgrade shape varies											
E364229F	0+00	14+23	P		C	14'	12'	subgrade shape varies											
E364229B	0+00	143+92	P		C	14'	12'	subgrade shape varies											
E364216B	0+00	1+65	P		C	14'	12'	subgrade shape varies											
E364216G	0+00	3+37	P		C	14'	12'	subgrade shape varies											

*Optional

DRAWN BY: RK

STATE OF WASHINGTON

DEPARTMENT OF NATURAL RESOURCES

Application No.: 30-106090 Name of Sale: Rufus Sorts Date: 10/22/2023

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				
E364219A	0+00	99+53			Reshape or install rolling dips.									27	9,13,14
E364219A	322+79	362+66			Reshape or install rolling dips.									11	9,13,14
E354207A	0+00	5+16			Reshape or install rolling dips.									1	9,13,14
E354207A	293+50	333+00			Reshape or install rolling dips.									11	9,13,14
E354207A	333+00	334+00			Reshape or install rolling dips.									0	9,13,14
E354207A	334+00	348+39			Reshape or install rolling dips.									4	9,13,14
E354207B	0+00	184+19			Reshape or install rolling dips.									51	9,13,14
E354208Q	0+00	27+57			Reshape or install rolling dips.									8	9,13,14
E354217Q	0+00	49+08			Reshape or install rolling dips.									13	9,13,14
E354217M	0+00	33+23			Reshape or install rolling dips.									9	9,13,14
E354217N	0+00	5+15			Install rolling dips.									1	9,14
E354112K	0+00	121+26			Reshape or install rolling dips.									33	9,13,14
E364229E	0+00	48+53			Reshape or install rolling dips.									13	9,13,14
E364229E	48+53	51+50			Reshape or install rolling dips.									0	9,13,14
E364229E	51+50	94+02			Reshape or install rolling dips.									12	9,13,14
E364229G	0+00	35+99			Reshape or install rolling dips.									10	9,13,14
E364228F	0+00	39+46			Reshape or install rolling dips.									11	9,13,14
E364228F	39+46	84+94			Reshape or install rolling dips.									11	9,13,14
USFS 2712	0+00	26+05			Reshape or install rolling dips.									7	9,13,14
E364229F	0+00	14+23			Install rolling dips.									4	9,14
E364229B	0+00	143+92			Reshape or install rolling dips.									40	9,13,14
E364216B	0+00	1+65			Reshape or install rolling dips.									0	9,13,14
E364216G	0+00	3+37			Reshape or install rolling dips.									1	9,13,14
One additional 18"x68' CMP culvert 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.

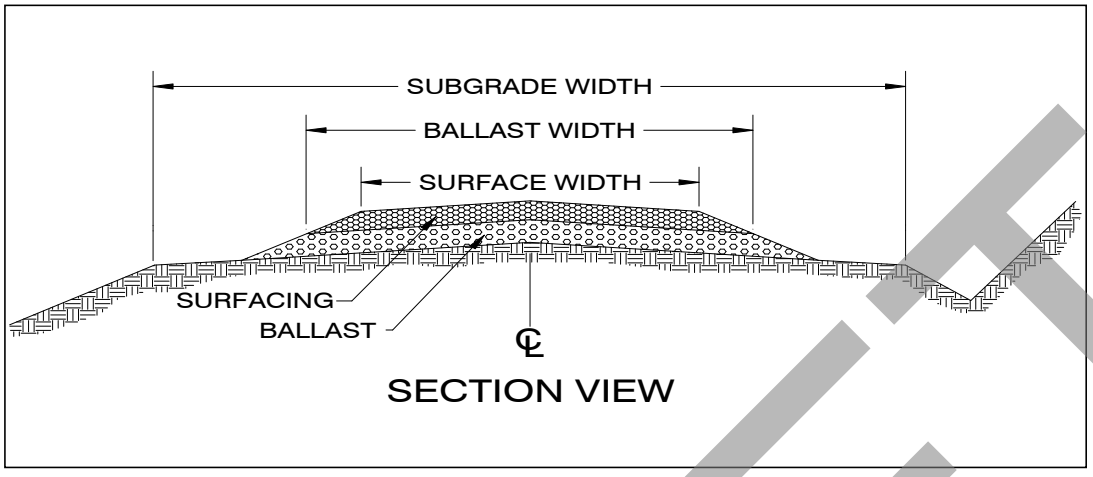
rev 082613

STATE OF WASHINGTON

DEPARTMENT OF NATURAL RESOURCES

Application No.: 30-106090 Name of Sale: Rufus Sorts Date: 10/22/2023

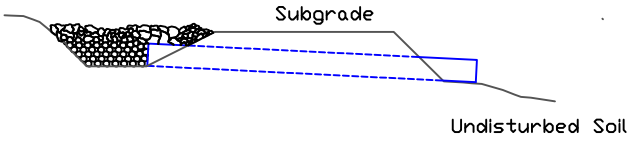
ROCK LIST



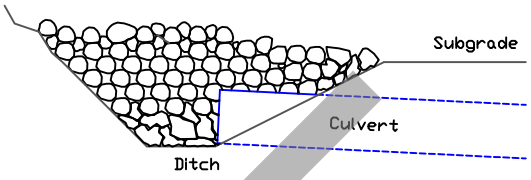
1. ROCK DEPTHS ARE DEFINED AS COMPACTED DEPTHS.
2. LOOSE YARD QUANTITIES ARE DEPENDANT ON SOURCE.
3. ROCK SLOPES SHALL BE 1.5(H) : 1(V).
4. ALL ROCK SOURCES ARE SUBJECT TO APPROVAL BY THE CONTRACT ADMINISTRATOR.
5. THE ROCK QUANITIES SHOWN ASSUME AN EXPANSION FACTOR OF 25%

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)
E364228F	39+46	84+94	14					A	12	8	43	
E364219A		13+12	5cy rock per bridge approach					B				
		54+00	5cy rock per bridge approach					B				
		99+53	5cy rock per bridge approach					B				
		339+83	5cy rock per bridge approach					B				
		333+31	5cy rock per bridge approach					B				
E354207B		2+36	5cy rock per bridge approach					B				
		144+07	5cy rock per bridge approach					B				
	Additional surface rock for spot patching					300	CY	C				
	placed as directed by the Contract Administrator											
A: Existing Gillette Pit stockpile of 3" minus crushed rock												
B: Commercial 5/8 in minus source per contractor												
C: Commercial 1-1/4 in minus source per contractor												
D: Commercial or diggable onsite source for light loose rip rap per contractor												
cy = cubic yards												

CULVERT AND DRAINAGE SPECIFICATIONS DETAIL - D1



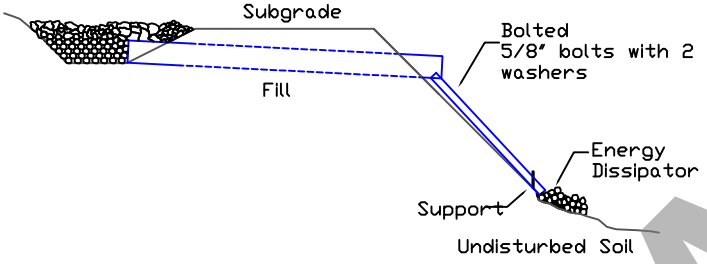
HEADWALLS



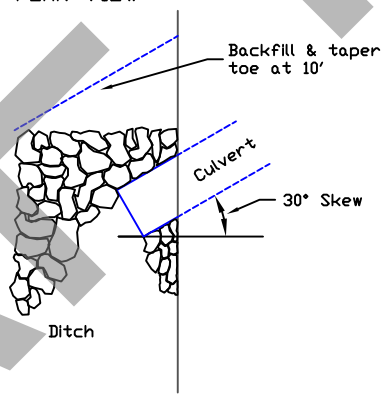
Headwall to be constructed of material that will resist erosion

FLUME

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

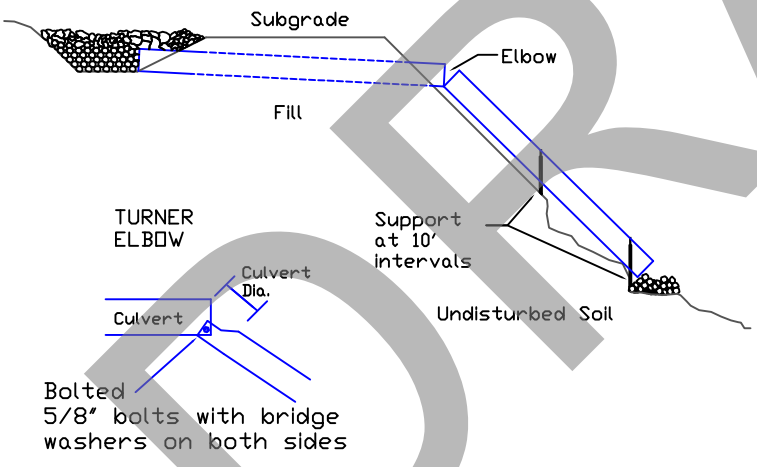


PLAN VIEW



DOWNSPOUT

Use where ground conditions are irregular.

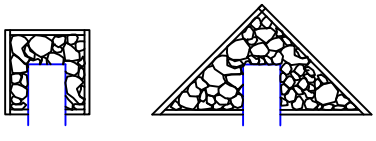


CULVERT BACKFILL & BASE PREPARATION
(For Culverts Less Than 36")

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"

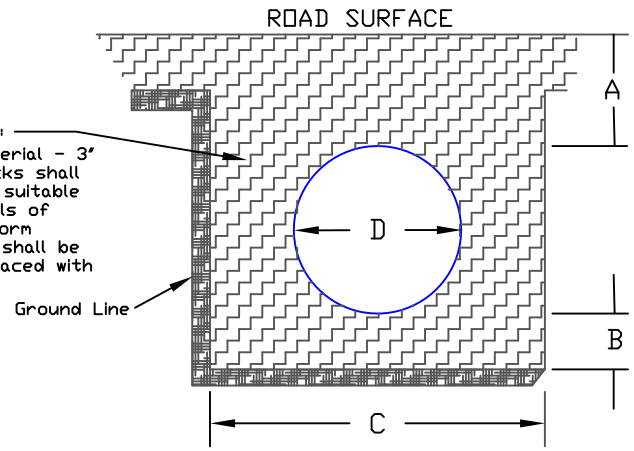
DISSIPATOR SPEC'S
Size in Culvert Diameters

Area	2 X 2
Depth	1
Aggragate	1/3

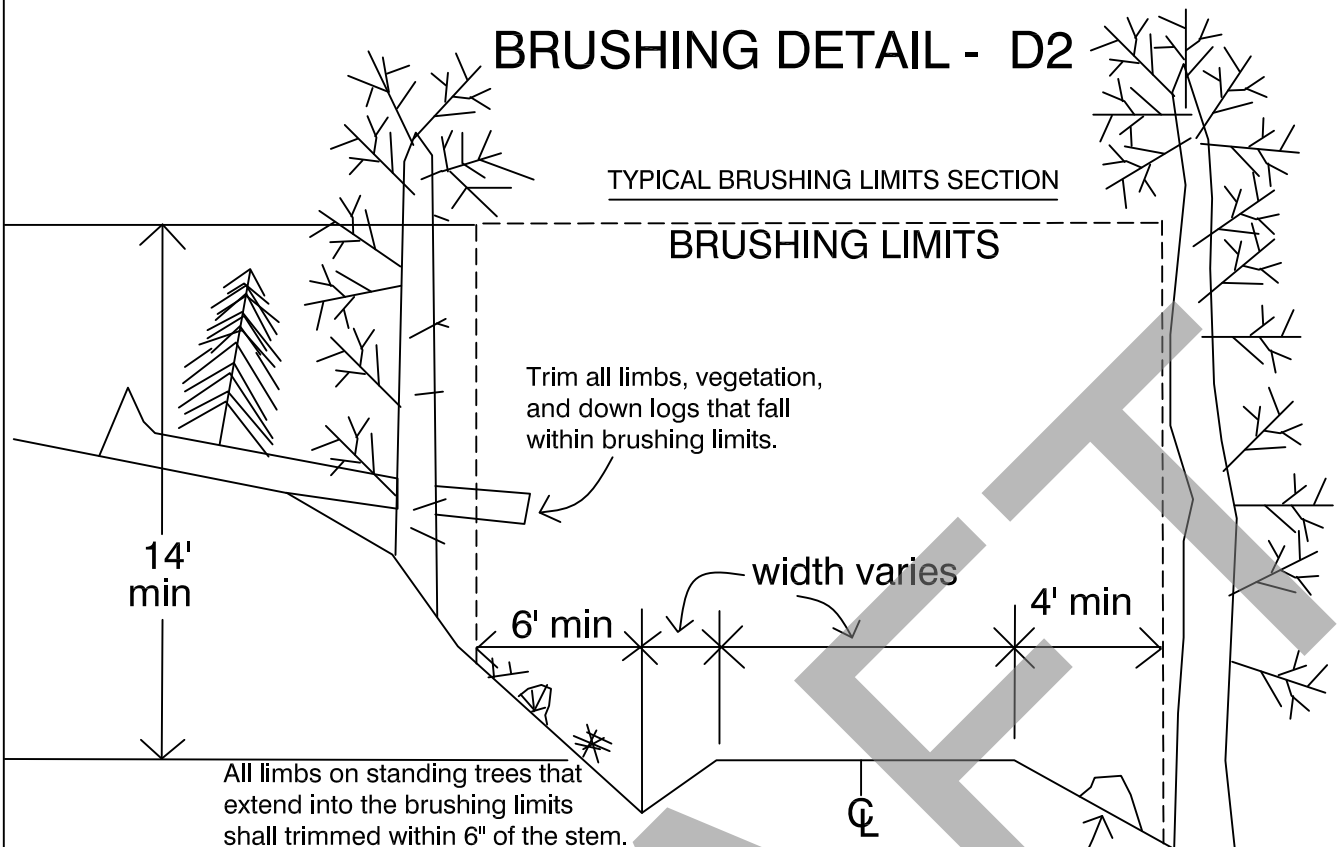


ROAD SURFACE

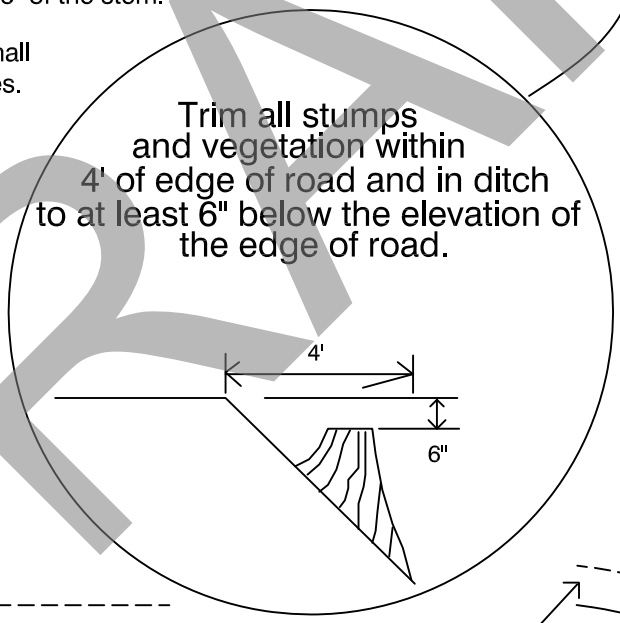
BEDDING MATERIAL:
Use granular material - 3" minus. Large rocks shall be replaced with suitable material. Materials of poor or non-uniform bearing capacity shall be removed and replaced with suitable fill.

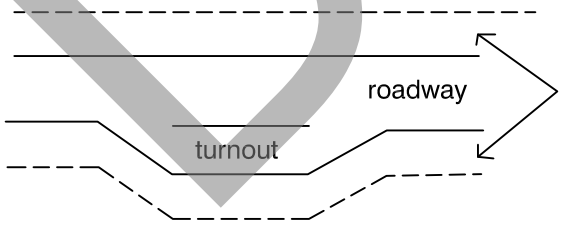


BRUSHING DETAIL - D2



Any trees less than 6" in diameter shall be cleared within the transition zones.

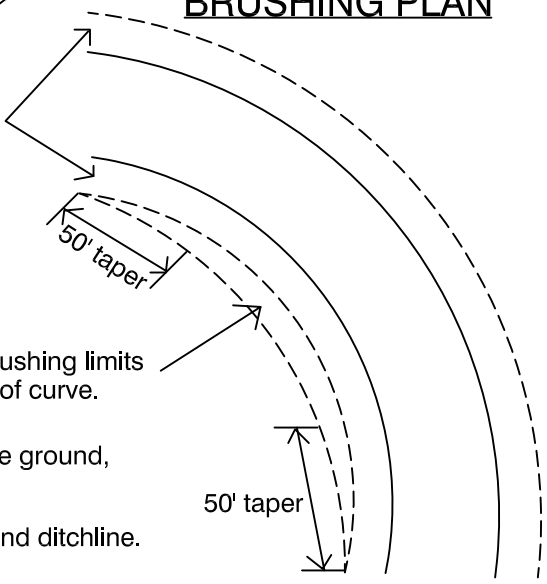




Brushing limits as shown on Typical Section

TURNOUT BRUSHING PLAN

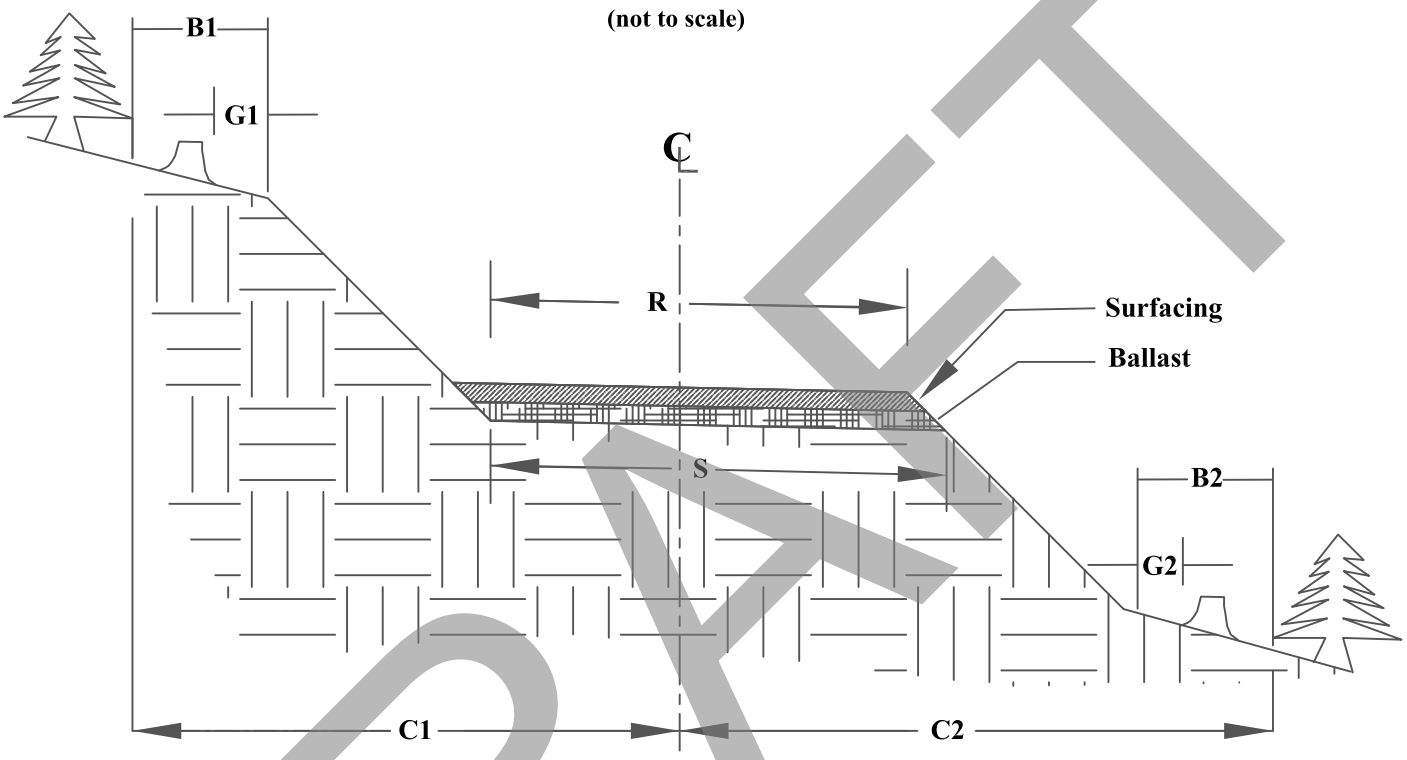
CURVE BRUSHING PLAN



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.

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.

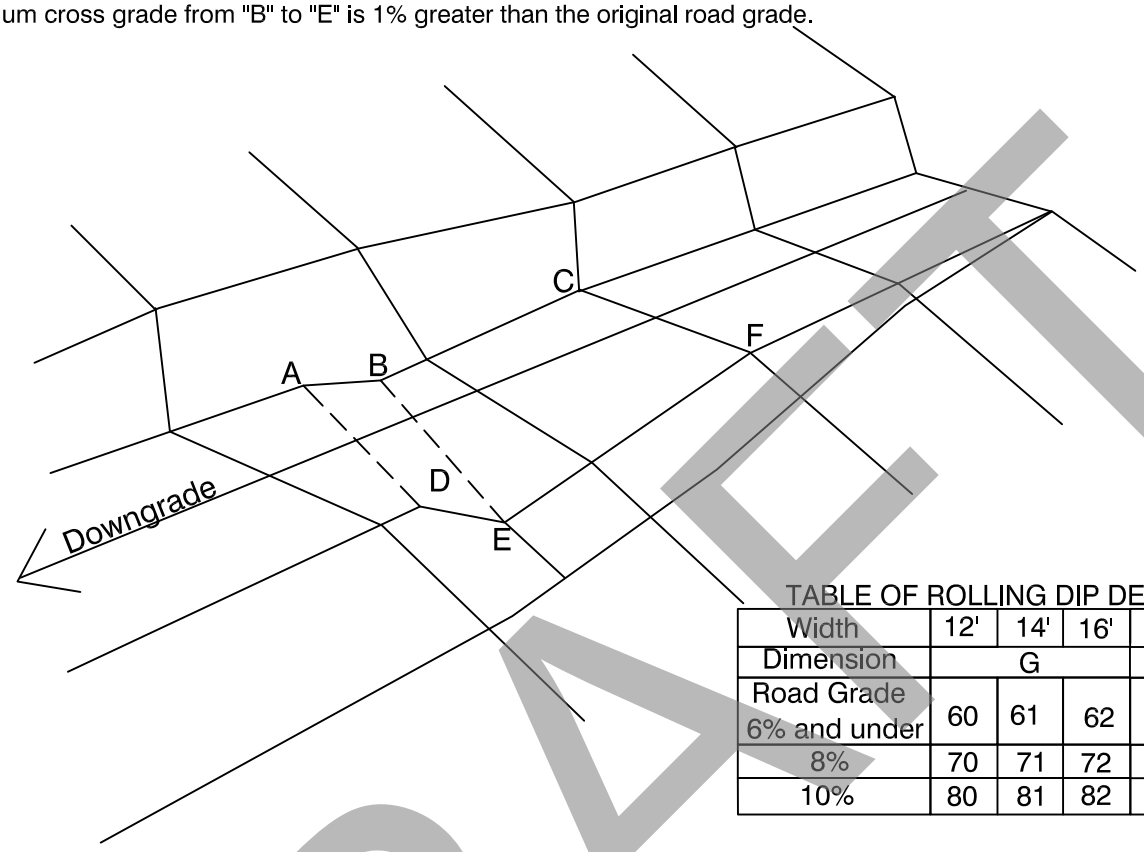
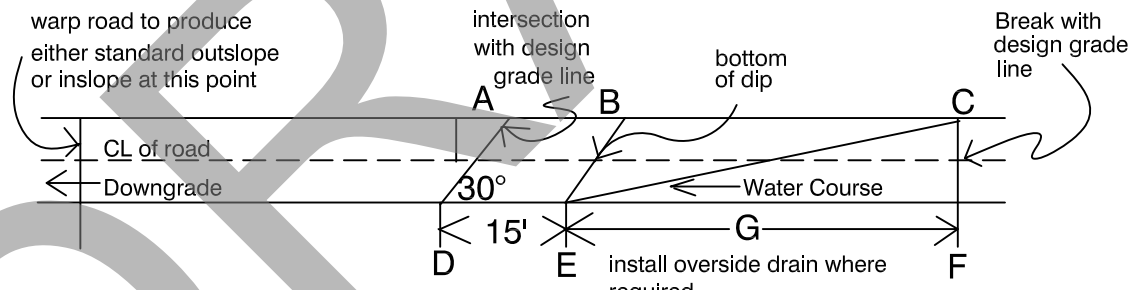
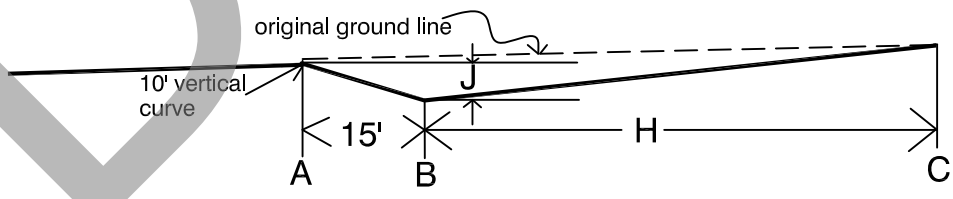


TABLE OF ROLLING DIP DEMENSIONS

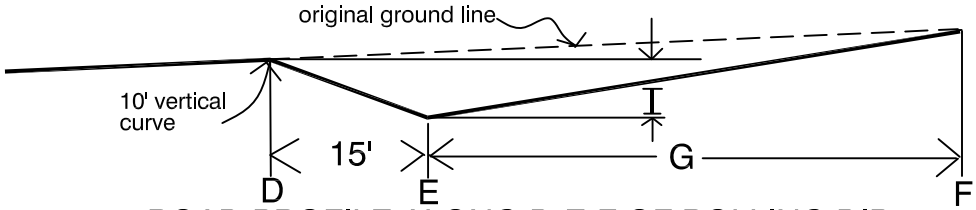
Width	12'	14'	16'	ALL		
Dimension	G			H	I	J
Road Grade 6% and under	60	61	62	52	.8	0.3
8%	70	71	72	62	1.0	0.2
10%	80	81	82	72	1.1	0.1



PLAN OF ROLLING DIP



ROAD PROFILE ALONG A-B-C OF ROLLING DIP

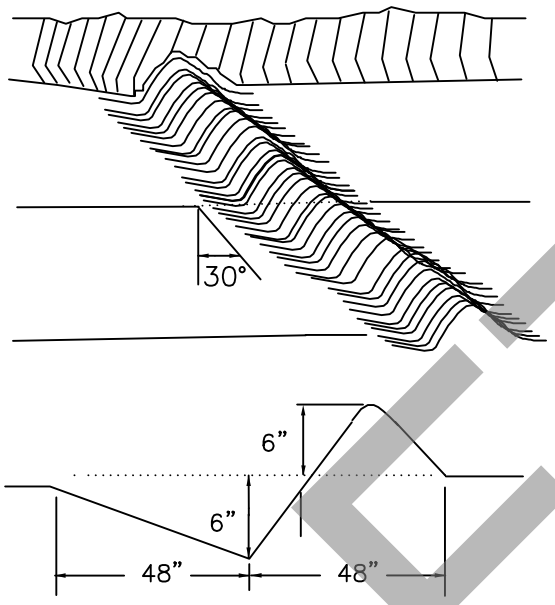


ROAD PROFILE ALONG D-E-F OF ROLLING DIP

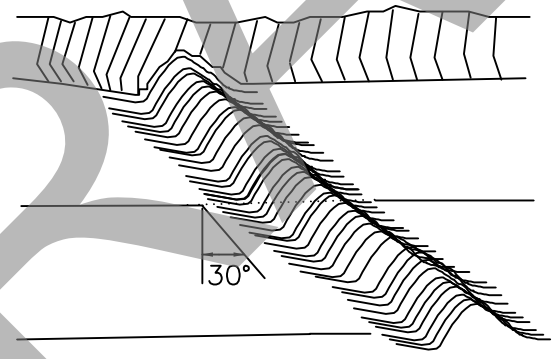
Drawn by: GP

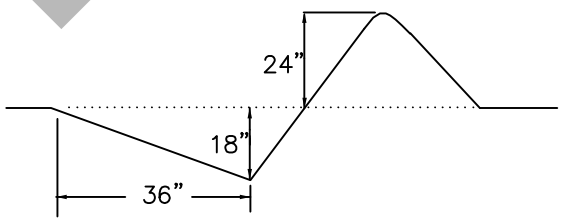
WATERBAR DETAIL–D6

DRIVABLE WATERBAR



NON DRIVABLE WATERBAR

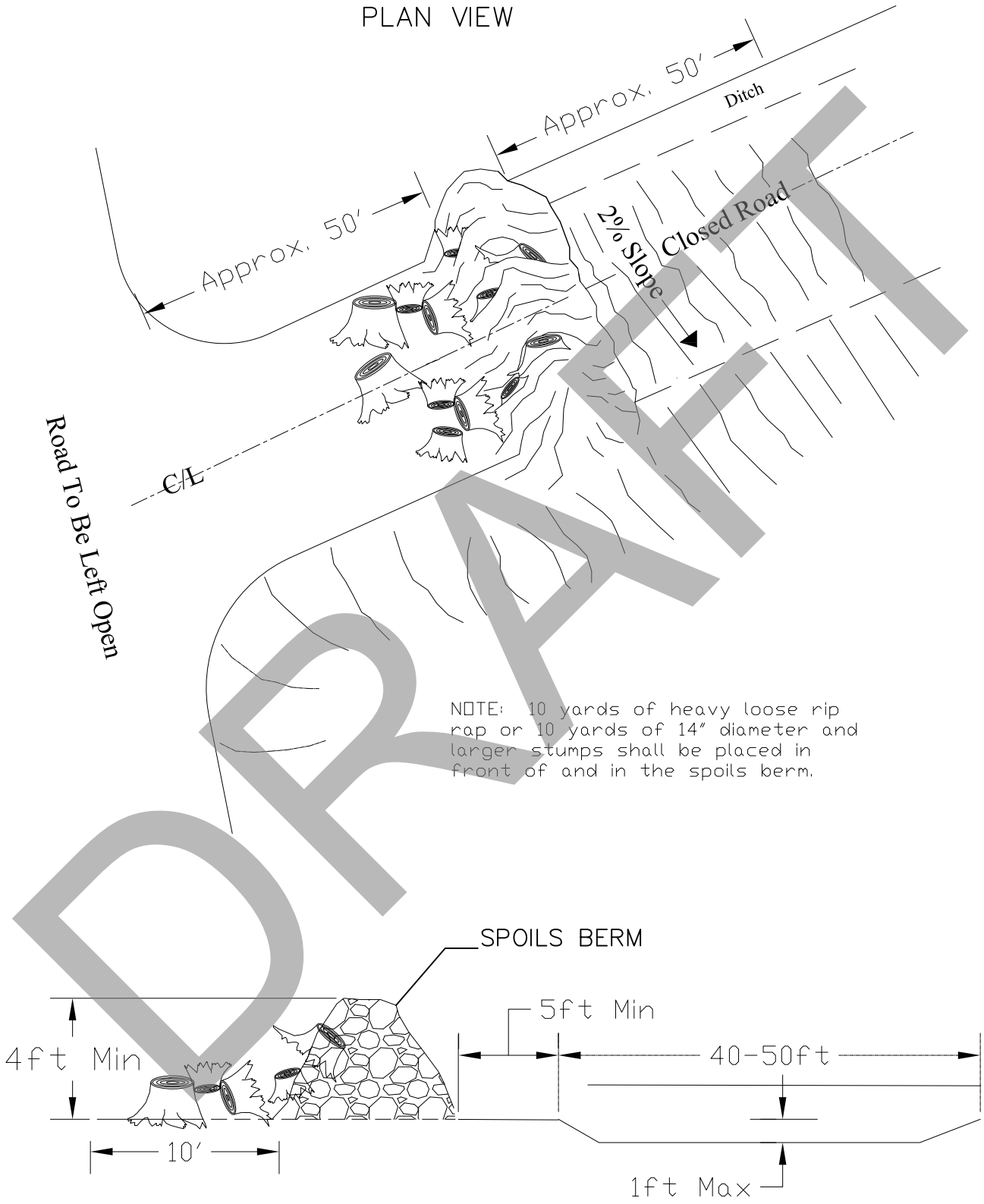




1. Waterbar construction for forest roads Specifications are average and may be adjusted to conditions.
2. Waterbar shall keyed into the bank.
3. The waterbar shall be outsloped for proper drainage.
4. Rock outlet if fill slope is present.

Revised: 05/21/2012

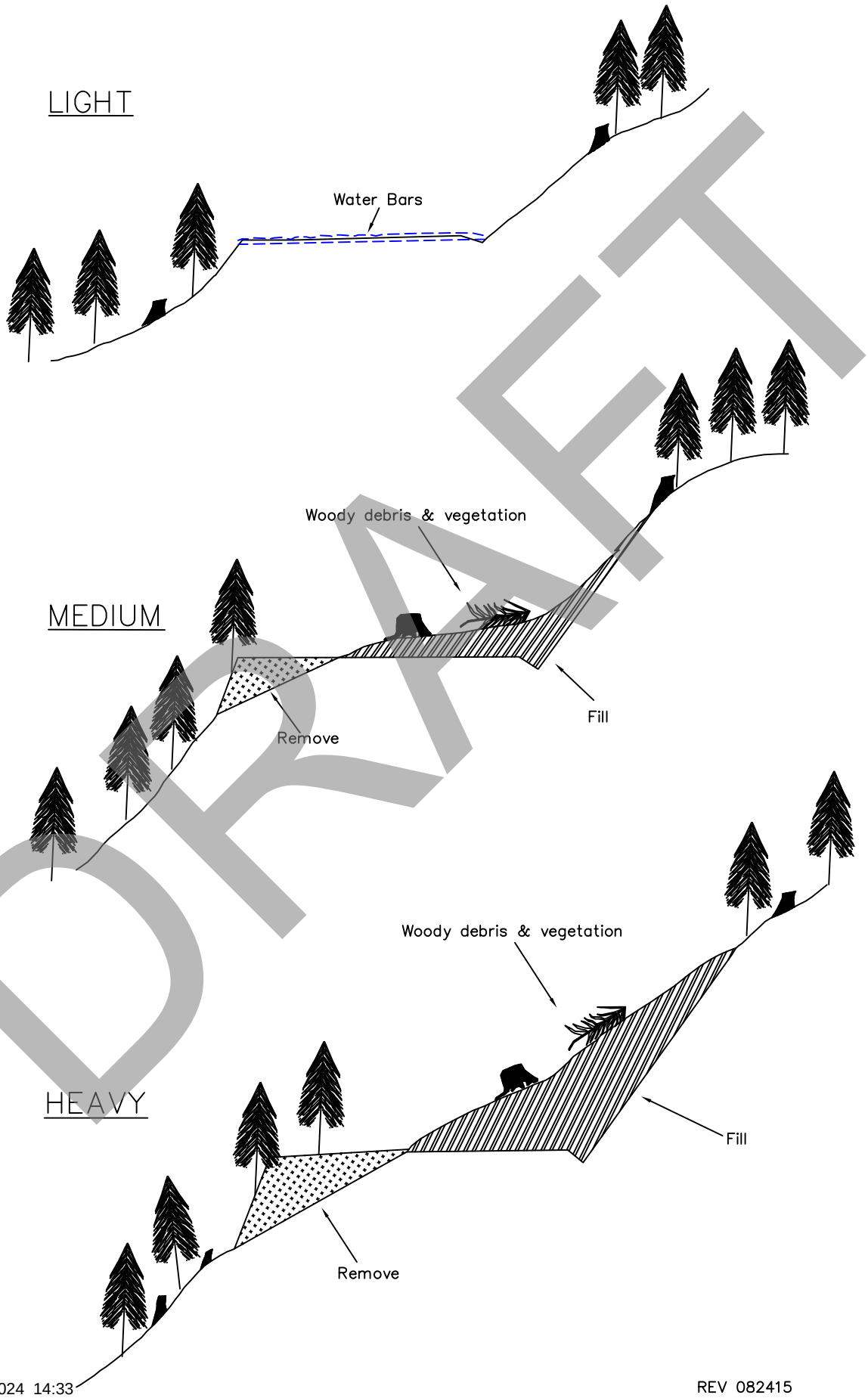
SPOILS BERM DETAIL-D8

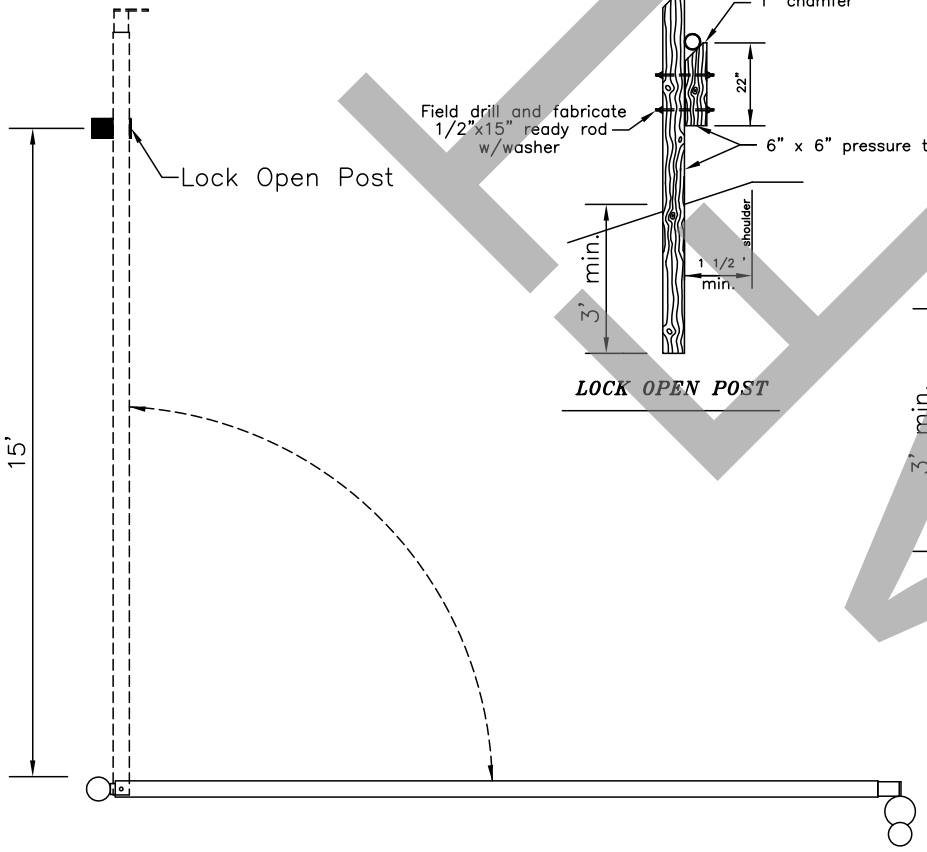


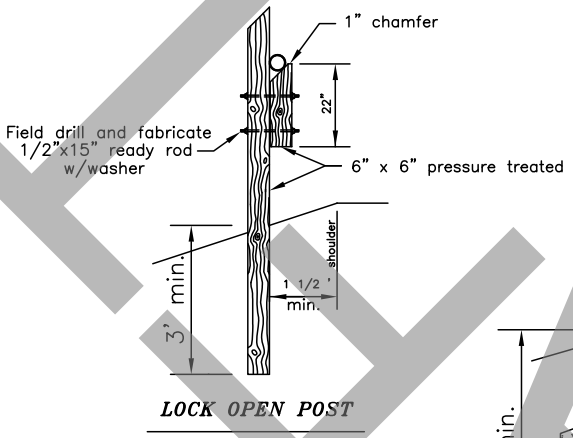
Note: $\frac{1}{3}$ of stumps or rip rap shall be partially buried in the spoils berm and/or road surface.

Revised 8-29-2008

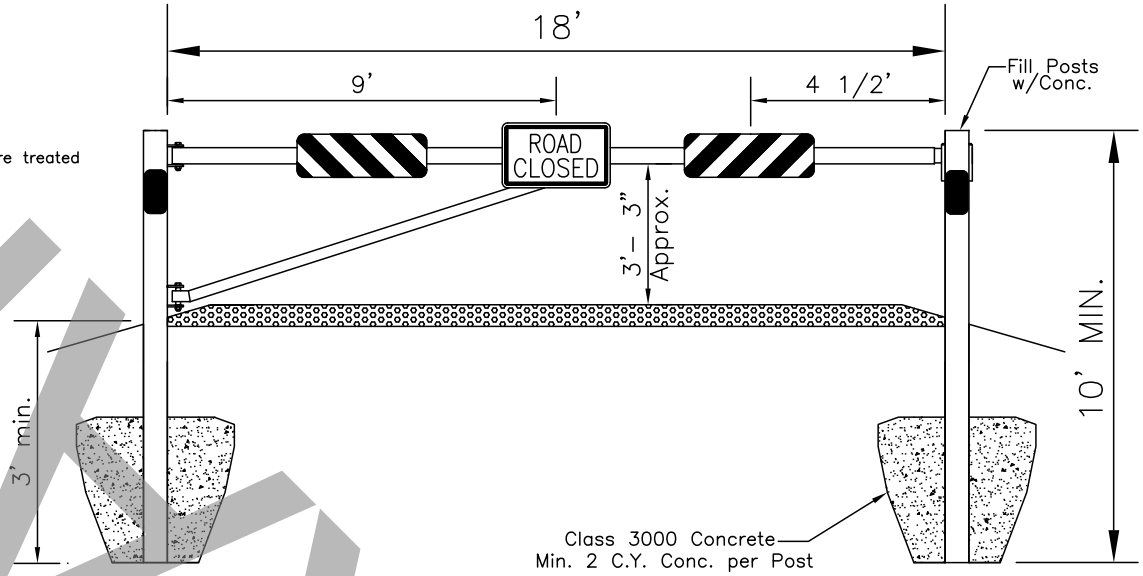
ROAD ABANDONMENT DETAIL–D12
CROSS SECTIONS







LOCK OPEN POST



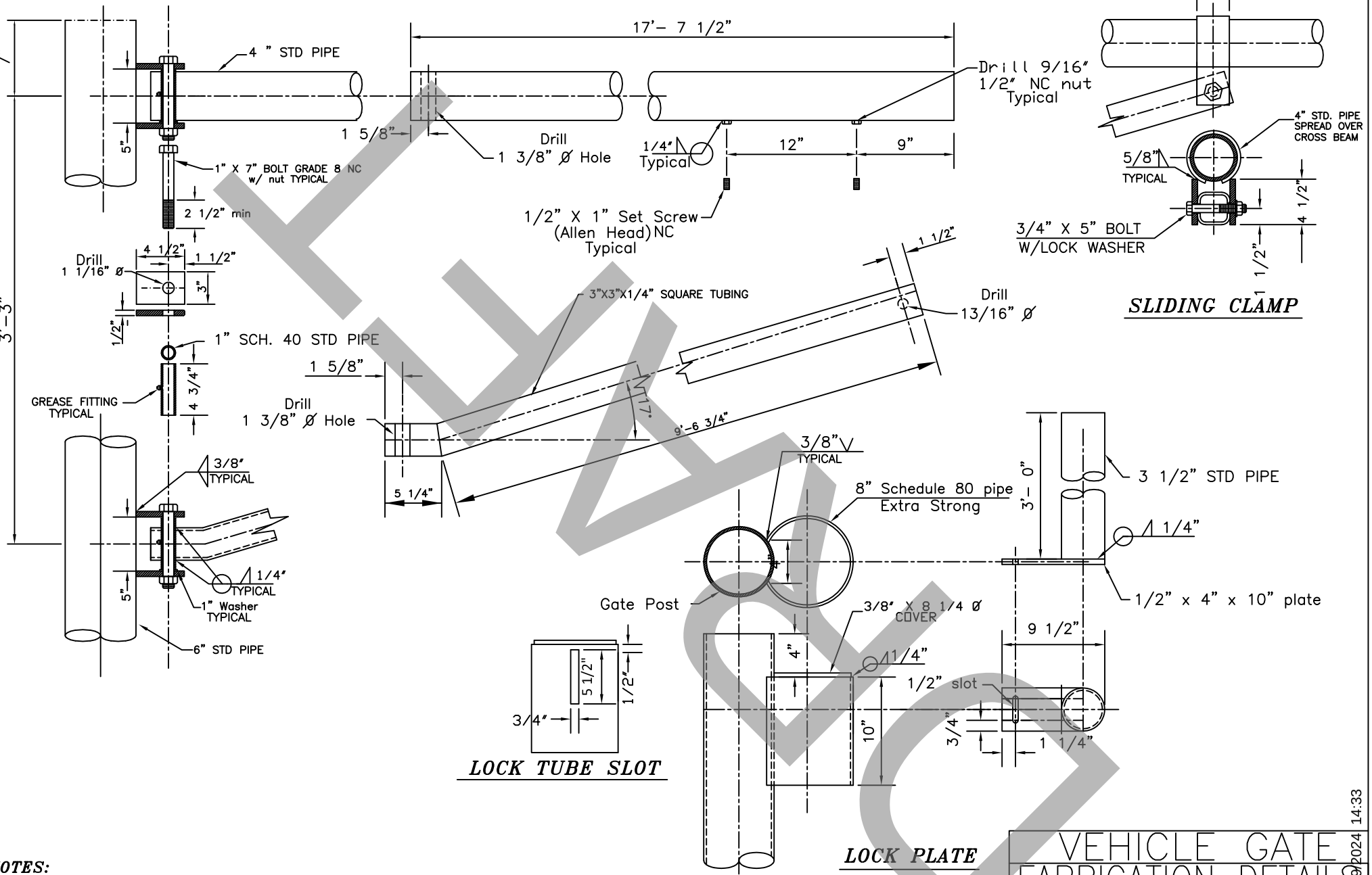
GENERAL NOTES

1. Signs shall be Carsonite Part No. RCSTKIT (Road Closure Kit)
   Kits shall be furnished by the DNR
   Signs will be install by the purchaser.
2. The lock assembly post shall be installed and adjusted for proper operation of the latch plate, with the cross beam level.
3. The lock open post block shall be field fit to the completed gate in the open position.
4. The lock open post and block are intended to be fabricated from a 10' piece
5. The gate shall be installed to open into the area closed.
   Concrete shall be curred for 3 days prior to supporting any load.
6. Paint all metal surfaces with a brown primer meeting AASHTO M299
   The final coat shall be OSHA YELLOW
7. Peen end threads on all bolts after final assembly and adjustment.

VEHICLE GATE INSTALLATION DIAGRAM

WASHINGTON STATE DEPARTMENT OF
Natural Resources

NORTHEAST REGION COLVILLE, WASHINGTON		
DESIGNED BY:	DANELL/MORGAN	05/09/1997
DRAWN BY:	DANELL/MORGAN	05/09/1997
REVISED:		1 of 2



NOTES:

1. Pipe sizes are nominal unless otherwise noted.
2. Fabricate sliding clamp with 1/4 " thick spacer washers against each side of brace tubing to provide for clamping compression for final assembly.
3. Contractor shall verify all dimensions and shall notify Contract Manager of any dimensions requiring modification.

NORTHEAST REGION COLVILLE, WASHINGTON		
DESIGNED BY:	DANELL/MORGAN	05/09/1997
DRAWN BY:	DANELL/MORGAN	05/09/1997

VEHICLE GATE FABRICATION DETAILS

WASHINGTON STATE DEPARTMENT OF Natural Resources

REVISED:

Sale Name: RUFUS SORTS SUMMARY - Road Development Costs

REGION: Northeast CONTRACT #: 30-106090 ENGINEER: Travis Parry
DISTRICT: North Columbia DATE: 10/22/2023

	Construction	Reconstruction	Maintenance	Decommission	Abandonment
ROAD NUMBERS:	E354217N, E364228F	E354207A, E364229E	E364219A, E354207A, E354207B, E354208Q, E354217Q, E354217M, E354112K, E364229E, E364229G, E364228F, USFS 2712, E364229F, E364229B, E364216B, E364216G		
Comments:					
ROAD STANDARD:	*Construction*	*Reconstruction*	*Maintenance*	*Decommission*	*Abandonment*
NUMBER OF STATIONS:	***50.63***	***3.97***	***969.50***	***0.00***	***0.00***
CLEARING & GRUBBING:	$7,595	$79	$1,939	$0	0
EXCAVATION AND FILL:	$11,627	$704	$3,547	$0	$0
MISC. MAINTENANCE:	$1,266	$60	$24,238	$0	$0
ROAD ROCK:	$28,500	$0	$3,150	$0	$0
ADDITIONAL ROCK:	$0	$0	$0	$0	$0
CULVERTS AND FLUMES:	$0	$0	$0	$0	$0
STRUCTURES/MATERIALS:	$0	$0	$0	$0	$0
	$48,988	$843	$32,874	$0	$0

TOTAL COSTS:	$48,988	$843	$32,874	$0	$0
COST PER STATION:	*$967.56*	*$212.27*	*$33.91*	*$0.00*	*$0*

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

additional rock, culverts, tax $17,496

TOTAL (All Roads) = $104,400
SALE VOLUME mbf = 6,488
TOTAL $/MBF = $16.09

Sale Name: RUFUS SORTS SUMMARY - Road Development Costs